

## **COMMENTS ON PROPOSED ACTION**

### **PLAN OF OPERATIONS AMENDMENT, DENISON MINES (USA) CORPORATION**

#### **LA SAL MINES COMPLEX EA/EIS**

Monticello Ranger District  
Manti-La Sal National Forest  
US Forest Service

Uranium Watch • Living Rivers • Canyonlands Watershed Council •  
Grand Canyon Trust • Center for Biological Diversity • Sierra Club •  
Utah Environmental Congress

March 24, 2011

Uranium Watch, Living Rivers, Canyonlands Watershed Council, Center for Biological Diversity, Grand Canyon Trust, and Glen Canyon Group of the Sierra Club are writing to request that an additional Alternative be developed and fully analyzed in the upcoming US Forest Service National Environmental Policy Act (NEPA) document for the consideration of the November 2010 Plan of Operations Amendment, Denison Mines (USA) Corp., La Sal Mines Complex, San Juan County, Utah. Given the significant effects and risks associated with uranium mining in the La Sal community, we believe that an Environmental Impact Statement (EIS) must be prepared. Under the NEPA regulations of the Council of Environmental Quality, there appears to be no ability to claim “No significant impact” for the expansion of the La Sal Mines Complex and exploration drilling and the installation of new vent holes on U.S. Forest Service land, prompting the preparation of an EIS rather than an Environmental Assessment (EA).

Part I of these comments provides an outline of the essentials of an Environmental Protection (EP) Alternative as an environmentally preferable alternative for the La Sal Mines EA/EIS. We propose that all elements of this alternative be published in the Draft EA/EIS alongside alternatives. This alternative would be the same as the Plan of Operations Amendment, except for the features presented in Part I. The EP Alternative herein focuses on the aspects of the POA that are on USFS land.

This alternative is reasonable and is different than the alternative being proposed by the U.S. Forest Service and, thus, should be made available for public comment. If you feel that any part of the EP Alternative is not reasonable, legal, or feasible for the U.S. Forest Service, Manti-La Sal National Forest (USFS)) to include in the Draft EA/EIS, we request that you discuss this with us, because you or we might be able to suggest ways the Alternative could be altered.

Part II provides comments on specific sections of the Plan of Operations Amendment.

Part III provides comments on the Proposed Action.

Part IV provides comments on the applicable USFS regulations.

Part V provides a conclusion.

These comments incorporate by reference the Scoping Comments submitted to the Bureau of Land Management (BLM) and USFS on January 31, 2010. See Exhibit A.

Attachments:

Exhibit A: Scoping Comments, Plan Of Operations Amendment, Denison Mines (USA) Corporation, La Sal Mines Complex EA/EIS, Uranium Watch, et al., January 31, 2011, including Exhibits.

Exhibit B: Letter from David C. Frydenlund, Denison Mines Corporation to Linda Kato, Environmental Protection Agency, Region 8, re Denison Mines (USA) Corp., La Sal Mines Complex, Utah, Notice of Violation, Docket No. CAA-08-2010-0016, October 8, 2010.

Exhibit C: Letter from Gina McCarthy, Environmental Protection Agency, to David C. Frydenlund, Denison Mines (USA) Corp, July 21, 2010.

Exhibit D: Monthly Report for the La Sal Mines Complex Under 40 CFR 61.24(b), Denison Mines (USA) Corp., March 2, 2011, with attached Modelling [sic] of January 2011 Radon Emissions from Denison La Sal Mine, SENES Consultants Limited, March 2, 2011.

Exhibit E: Surface Management Site Inspection. Denison Mines (USA) Corp. La Sal Mines (Pandora - UTU69800/M0370012; LaSal, Snowball and Beaver- UTU69812/M0370026). San Juan County. Utah. Bureau of Land Management, Monticello, Utah, August 20, 2010.

## **I. ENVIRONMENTAL PROTECTION ALTERNATIVE**

1. Locally-available La Sal Mines website. A user-friendly La Sal Mines Complex website will be designed, with input from local and interested parties, to maintain Information on environmental, health, regulatory compliance, and other assessments of interest to the public.
2. Local meteorological data. Meteorological data gathering stations approved by the Utah Division of Air Quality (DAQ) and the Environmental Protection Agency (EPA) will be established to determine meteorological conditions at sites next to radon vent holes that are representative of the various meteorological conditions for all of the vent holes sites. This would include at least five locations: Beaver Shaft; near Vents 2300-1 and 2300-2, vent cluster in Section 6, vent cluster in the Manti-La

Sal National Forest, and at least one other vent hole location. The stations will measure cold air drainage and wind occurrence, direction, and speed. Existing meteorological data from La Sal that can be shown to be representative of the meteorological conditions at one or more of the radon vent locations will be acceptable data.

3. Installation of monitoring devices. The amount of radon and other air borne radionuclides actually being received at the La Sal Elementary School and in the vicinity of other radon receptor sites that have their estimated doses reported to the DAQ will be measured on a continual basis. The amount of radon inside public buildings will be measured at least quarterly. This will include the La Sal Elementary School, La Sal Community Center, and U.S. Post Office. Interior home monitoring will be offered to any La Sal area resident that requests it, pursuant to approved EPA and DAQ methodologies.
4. Exploration drilling. The exploration drilling proposed, but not identified in a site-specific manner in the POA, will require the submittal of an amendment to the existing PO and a new NEPA review with opportunity for public comment.
5. Vent hole installation. The vent holes proposed in the POA will require the submittal of an amendment to the existing PO when the exact location of the proposed vents is known. The vent hole installation proposals will be the subject of a new NEPA review and opportunity for public comment. A technical determination will be made at the time of any application as to whether the operation of the proposed vents will result in non-compliance with the standard for radon emissions from underground uranium mines (40 C.F.R. Part 61, Subpart B).
6. Fencing and warning signs. Fencing and radioactive hazard warning signs will be placed at all vent holes.
7. Pre-mining vegetation conditions. Denison will contract with a botany consulting company to determine pre-mining vegetation conditions for all areas that have been or will be impacted by the mining operations.
8. Reclamation. Spring and fall assessments of reclamation progress will be made available on the La Sal Mines website.
9. Public health. Prior to EA/EIS approval, a program will be developed, with local public input, to assess the current health of the citizens who are living in the La Sal area and to track the health of citizens, particularly children, who have been exposed to radon, uranium, and other radionuclides over the long-term, even if those citizens move from the La Sal area. The assessment plan will be made available on the La Sal Mines website.

10. Vegetation sampling. Prior to EA/EIS approval, Denison will develop and implement a sampling program to determine the potential uptake of radionuclides in the vicinity of the waste rock piles, mine sites, and vent holes to be approved by the BLM and USFS.
11. Soil sampling. Prior to EA/EIS approval, Denison will develop and implement a soil-sampling program to determine the uptake of radionuclides in the vicinity of the vent holes on public land. Radionuclides that are emitted from the vents are scavenged by soils and water in the immediate vicinity of the sites.
12. Radiation surveys. Denison will conduct radiation surveys of the mines, ore piles, waste rock piles, access and haul roads, vents, exploration drilling sites, and any other location that has been potentially impacted by the mining operations since the early 1970s. Denison will follow up with annual radiation surveys of those areas. Results of those surveys will be submitted to the BLM and USFS and made available on the La Sal Mines Complex website.
13. Emergency response plan. Prior to EA/EIS approval, Denison will develop an emergency response plan for fires and other emergencies that have the potential to adversely impact the mine operation or result in the community being adversely being impacted by the mine operation. This will include a plan to shut down radon exhaust vents to protect emergency workers. This will include a plan to limit the presence of pregnant emergency responders at the mine facilities.
14. Access route reclamation. Prior to EA/EIS approval, Denison will assess the condition and use of access routes, including short cut routes, associated with the mine operations and determine which routes need to be stabilized due to erosion or can be reclaimed within the next two years. Denison will carry out a plan, with timeline, to remediate or reclaim any access routes that are not being used.
15. Mine compliance records. Denison will provide the BLM and USFS with copies of correspondence with the DAQ and EPA with respect to their compliance with the applicable requirements in 40 C.F.R. Part 61. Denison will provide the BLM and USFS with copies of any citations and orders issued to Denison or Reliance Resources Ltd. (the operator of the Pandora Mine) by the Mine Safety and Health Administration (MSHA). Such documents will be submitted in within 30 days of the receipt or submittal of those documents.
16. Mine vent diffusers. Prior to EA/EIS approval, Denison will place a radon vent diffuser on all vents, regardless of whether the vent has a fan at the surface or underground.
17. Monitoring plan. Denison will submit the results of site monitoring and site inspections to the Agencies within thirty days of receipt of those results. Any

documents that are seen-but-not- taken by Agency or Utah Division of Oil, Gas & Mining (DOG M) inspectors, should be kept on site until site closure.

18. Reclamation cost estimate. Prior to EA/EIS approval, Denison will include cost estimates for long-term site monitoring and maintenance to assure that the site is maintained in a safe and secure condition and in compliance with reclamation standards as long as the site has the potential to adversely impact the environment due to site degradation. This estimate, including the breakdown of cost estimates by monitoring plan elements, will be made available on the La Sal Mines Complex website.
19. Noise levels. The USFS shall monitor the noise levels on USFS land from all La Sal Mines Complex vent holes and determine the impacts of the noise on wildlife, and develop a plan to address the impacts of the noise on the natural environment and human activities.

## **II. COMMENTS ON PLAN OF OPERATIONS AMENDMENT**

Below are comments on the Plan of Operations Amendment, Denison Mines (USA) Corp., La Sal Mines Complex, San Juan County, Utah; Prepared by: CDM Inc. for Denison Mines Corporation; November 2010. The comments address the major deficiencies in the Plan of Operations Amendment. There may be some redundancy, as portions of the POA overlap. These comments focus on the proposals for vent hole installation and exploration drilling on USFS land, the Proposed Action.

The POA lacks essential data and information and does not provide a basis for full environmental evaluation of the Proposed Action, a determination of no significant impact determination, and an evaluation of the cumulative environmental impacts of the proposed expansion of the La Sal Mines Complex.

1. Section 1.4 — Surface Disturbance (page 1-5):
  - a. The statements regarding Surface Disturbance assume that disturbed land can be reclaimed in 2 years. This is a gross underestimation of the time it will take for land that has been disturbed and will be disturbed by mining activities to return to the condition prior to disturbance. Denison underestimates extent of the disturbance and fails to estimate the length of time that it will take for land to be fully reclaimed.
  - b. The POA should have assessed the risks associated with direct contact to radium, radon, and radon progeny during mine operation and subsequent to mine reclamation.
  - c. The POA should have assessed the release of radionuclides as a result of ore storage, wind erosion, and ore dumping and loading operations.

2. Section 3.1.4 — Quality Assurance Plans (page 3-6) states: Quality assurance will be conducted during construction of the facilities at the Pandora Mine.

- a. The mine owners and operators have already shown a certain indifference to quality assurance at the mine, as shown in the numerous notices of violation from the MSHA<sup>1</sup>, the EPA Notice of Violation (NOV)<sup>2</sup>, extensive impacts from the creation of access roads caused by leaving slash in place along road way on BLM land, and failure to follow through with commitments made in requests for approval of radon vent construction and exploration drilling.

3. Section 3.2 — Mine Vents and Access Roads (page 3-6): This section states: "Worker health and safety at the La Sal Mines Complex depends on the installation of vent holes, which are vertical shafts that provide for either inflow or discharge of air."

- a. The mine owners and operators have already shown a certain indifference to quality assurance at the mine, as shown in the numerous notices of violation from MSHA<sup>3</sup>, the EPA NOV, extensive impacts from the creation of access roads caused by leaving slash in place along road way on BLM land, and failure to follow through with commitments made in requests for approval of radon vent construction and exploration drilling.
- b. The POA should have provided data on the emission of radon-decay products, other radionuclide particulates, and other potential hazardous substances from the mine vents.
- c. The POA should have specifically stated here that the vent holes emit radon, a hazardous air pollutant, which is regulated pursuant to 40 C.F.R. Part 61, Subpart B.

4. Section 3.2 — Mine Vents and Access Roads (page 3-8): This section states, "The installation of these facilities would be in support of the extraction of uranium ore from BLM unpatented mining claims in accordance and compliance with applicable federal and state rules and regulations."

- a. The POA should have specifically stated the federal and state rules and regulations that apply to the installation and operation of mine vents and how they will comply with such regulations.

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<sup>1</sup> <http://www.msha.gov/drs/drshome.htm>

<sup>2</sup> Notice of Violation, Environmental Protection Agency, Region 8, August 17, 2010, Docket No. CAA-08-2010-0016; Exhibit B to Scoping Comments, Plan Of Operations Amendment, Denison Mines (USA) Corporation, La Sal Mines Complex EA/EIS, Uranium Watch, et al., January 31, 2011.

<sup>3</sup> <http://www.msha.gov/drs/drshome.htm>

- b. The POA should have included the actions that Denison has taken and intends to take in response to the EPA NOV. This would include the actions described in Denison's response to the NOV<sup>4</sup> and other actions described in the monthly Subpart B Compliance reports that Denison is submitting to the EPA. See Exhibit B.

5. Section 3.2 — Mine Vents and Access Roads (page 3-8): In this section Denison requests BLM and USFS approval of a total of 24 vent holes on BLM and USFS land over the next 30 years. That POA states that "Denison proposes that the specific locations for these facilities and the location of associated access roads be subject to BLM and USFS review prior to construction" and that "this requirement be included in the POA as a Condition of Approval."

- a. Vent hole installation should be the subject of specific amendments to the POO and an environmental assessment, including the opportunity for public comment. There should be no blanket approval of vent hole installation, because there is a need for the USFS to evaluate the impacts on a case-by-case basis.

6. Section 3.3 — Exploration Drilling Activities (page 3-8): Denison proposes the drilling of up to 270 drill holes on BLM and USFS land over the next 30 years as part of Phase 1, 2, and 3.

- a. The POA should have substantiated the assumption that it will take two seasons to re-establish sustainable vegetative cover.
- b. The POA assumes that "the total surface disturbance is temporary and reclaimed on an ongoing basis." Then POA fails to mention that there are areas on both BLM and USFS land where exploration drilling has occurred that have been re-impacted by additional exploration drilling.

7. Section 3.3 — Exploration Drilling Activities (page 3-10): This states, "Accordingly, Denison requests that BLM and USFS approve the planned exploration drilling in the phases described above, and that a Condition of Approval to the POA be established that would provide for BLM and USFS review of specific locations for exploration drill holes and access trails and/or roads prior to commencement of the activities."

- a. Exploration drilling should be the subject of specific amendments to the PO and an environmental assessment, including the opportunity for public comment. There should be no blanket approval of exploration drilling, because there is a

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<sup>4</sup> Letter from David C. Frydenlund, Denison Mines Corporation to Linda Kato, Environmental Protection Agency, Region 8, re Denison Mines (USA) Corp., La Sal Mines Complex, Utah, Notice of Violation, Docket No. CAA-08-2010-0016, October 8, 2010.

- need for the USFS to evaluate the impacts on a case-by-case basis. The USFS must oversee the exploration drilling, determine appropriate access roads, evaluate surface disturbance and vegetation removal, determine mitigative measures, and oversee reclamation when the actual locations have been determined. A financial bond for specific exploration drilling must also be approved as part of the agency reviews.
8. Section 4 — Facilities and Activities Approved by Existing Permits (page 4-1): The POA discusses the facilities and activities previously approved by the BLM and USFS and refers to existing POs and "minor improvements."
- a. The POA does not include the PO for the La Sal, Snowball, and Beaver Shaft Mines; does not include an EA for the La Sal and Snowball Mines, and does not include all BLM and USFS approvals since the mines commenced operation. Those approval documents should be included in the POA.
9. Section 4 — Facilities and Activities Approved by Existing Permits (page 4-1): This section states, "The following sections provide a compilation of previously approved facilities and activities at the La Sal Mines Complex." The previously approved facilities and activities include: equipment, numerous surface facilities, development rock areas, ore stockpile areas, topsoil stockpile areas, surface drainage control structures, fuel and oil storage areas, mine offices, maintenance shops and warehouses, designated parking and storage yards, mine access roads, electrical power lines and stations, air compressor stations, water system, septic system, solid waste storage, vent holes and access roads, storm water management plans, and spill prevention plans.
- a. Except for activities approved by other agencies, the POA does not state how and when these facilities were previously approved by the BLM and USFS. The approvals of these facilities and operations should be documented in the POA.
  - b. This section should state the specific POO and approvals that apply to the various facilities and activities at the La Sal Mines Complex.
10. Section 4.2.1 — Development Rock Areas, Pandora Mine (page 4-4): This section states that development rock is currently placed on top of the development rock area (DRA) along a temporary access road via mine trucks.
- a. The POA should discuss the situation regarding the temporary use of areas outside the established Pandora Mine waste rock area for waste rock storage. According to the August 2010 BLM Inspection Report, that Pandora Mine waste rock pile is too high to receive additional waste rock from the mine and temporary placement of the rock in another area was suggested.
11. Section 4.2.12 — Water System (page 4-11): This section discusses three wells in the vicinity of the mine sites that are being used for mining operations: one near the



Pandora, one near the 1050 vent, and one at the Beaver Shaft.

- a. The POA should have included the water right numbers associated with the three wells and demonstrate that Denison is the owner of the water rights, that the water rights have been approved for use in the mining operations, and that the amount of water used by Denison is in accordance with the amount of water that was appropriated. The State Engineer has approved the well near the Pandora (Water Right 05-3313) for use by Denison Mines; the status of the other wells is unclear.

12. Section 4.6.2 — Denison Groundwater Use for Mine Operations (page 4-8):

- a. This section should mention Water Right 05-3313, which was approved by the State Engineer, Utah Division of Water Rights on April 27, 2007, and any other water rights being used by Denison for mining operations.

13. Section 5 — Reclamation Plan, Section 5.1 — Drill Hole, Vent Shafts, and Water Wells (page 5-1): This section states: "Holes that encounter significant nonartesian groundwater will be plugged by placing a 50 ft cement plug immediately above and below the aquifer(s) or filling the hole from the bottom up with a highgrade bentonite/slurry mixture in accordance with UAC Rule R6474108."

- a. The POA should be explicit about the amount of water that would be considered "significant nonartesian groundwater."
- b. The POA should have discussed the plugging of holes that encounter artesian groundwater.

14. Section 5.2.1 — Road Reclamation (page 5-2):

- a. The POA should have included detailed maps of the roads, access routes, and short cuts that will be reclaimed.
- b. The POA should have included information on the condition and use of those routes and a determination of whether immediate reclamation or erosion prevention is warranted.

15. Section 5.8 — Removal or Stabilization of Buildings, Structures, and Support Facilities (page 5-12):

- a. The POA should have included information on the decontamination and disposal or disposition of buildings, structure, equipment that has radiological contamination.

16. Section 5.9 — Post-Closure Management (page 5-12)

- a. The POA should have included a post-closure management plan for long-term monitoring and maintenance.
- b. The POA should have included a detailed assessment of pre-mining vegetative ground cover for all areas that have been or expected to be disturbed by La Sal Mines Complex surface mining activities.
- c. Denison should commit to yearly spring and fall assessments of reclamation progress, rather than a 2-year assessment period.

17. Section 6.5 — Air Quality Monitoring (page 6-3):

- a. The POA should have included a full discussion of Denison's current compliance with all of the applicable the requirements of 40 C.F.R. Part 61, Subparts A and B, and Subpart 60.

17. Section 6.6 — Radiation Monitoring (page 6-4):

- a. The POA should have provided information and documentation regarding the mine operators' compliance with the MSHA standards for exposure to radon and other pollutants in the underground mining operation.
- b. POA should have included information regarding all of the radiation monitoring requirements for the La Sal Mine Complex. This would include the requirements for weekly monitoring the presence and concentrations of radon progeny and the requirement to calculate, record and report individual exposures to concentrations of radon progeny.

18. Section 7— Interim Management Plan (page 7-1):

- a. The POA should have included both short-term (less than one year) and long-term (more than one year, more than 5-year, more than 10-year) interim management provisions. This should include management of vents holes. There should be a set time for the radon vents to be closed up if the mine in not in operation and electrical systems servicing mine vents to be decommissioned. In the past, during site closure transformers that were not being used were not properly managed and the mine sites deteriorated because of mine owner neglect.

19. Section 8 — Reclamation Cost Estimate (page 8-1):

- a. This section should have included a list of the proposed reclamation activities at the Beaver Shaft, La Sal, and Snowball mines. The POA did not include an Agency document that describes, in a comprehensive manner, the reclamation

activities that will be required for those sites.

- b. The reclamation cost estimates do not appear to cover the costs of reclamation of access roads that will be closed as part of the reclamation of the La Sal Complex.
- c. This section should have included an estimate of costs from long-term monitoring and maintenance of the site in perpetuity. It is unreasonable to assume that the mine sites will not require post-closure maintenance over the next millennia to protect public health and safety and the environment. The question is whether that monitoring and maintenance will be at public or private expense.

20. Section 9 — Operational and Baseline Environmental Information, Section 9.1 Air Quality (page 9-1): The POA states: "All fugitive emissions, including airborne particulates, are regulated by permits issued by the UDEQ's Air Quality Division."

- a. This statement in the POA is misleading. Except for radon from the mine portals and mine vents, the Division of Air Quality does not regulate the gaseous and particulate radioactive emissions from the radon vents, waste rock piles, ore pads, soils, and other aspects of the mining operation are not specifically regulated by the.

21. Section 9.1 — Air Quality (page 9-1):

- a. The POA should have identified all potential adverse air-borne emissions from the mining operation.
- b. The POA should have described all radioactive particulate and gaseous emissions from the waste rock piles, ore pads, wind erosion, and ore dumping and loading operations. This would include including uranium and uranium progeny: specifically, radon gas and its short-lived, highly radioactive decay products.
- c. The POA should have characterized the radioactive and non-radioactive particulates emitted from the mine vents.

22. Section 9.2.3.2 Mine Operation Uses (pages 9-3 to 9-4): This section states that water from the Redd Ranch is being used for mining operations at the Beaver Shaft and Pandora Mines.

- a. The POA should have provided the water right numbers associated with the use of Redd Ranch water and demonstrate that those water rights have been approved for use by Denison for the La Sal Mines Complex mining operation, including drilling activities.

23. Section 9.2.4 — Potential Water Quality [Effects] of Underground Activities (page 9-4): This sections states, "Underground mining involves a number of activities that

could potentially affect groundwater quality." The POA concludes: "Potential leakage from the overlying aquifers into the underground mine workings is limited by proper sealing of vent shafts and drill holes in the area."

- a. There is no information that documents that each of the historic La Sal Mines Complex drill holes were examined for proper sealing. Drill holes that have not been properly sealed can provide a source of leakage from the overlying aquifers into the mine.
- b. The POA should have assessed the potential for water from overlying aquifers to flow into the drill holes below the seal. The potential for such leakage has not been considered in the POA.
- c. The POA should have assessed the potential for leakage from vent holes that have not been cased.
- d. The POA should contain a schedule for the sealing of at least two (2) shafts next to existing vents (Vent 900 and Vent 2300 #2). These shafts are not being used as vents, have not been sealed, and provide a conduit for water into the mines.
- e. The POA should contain a schedule for the sealing of the 26 existing vents and the 5 vents that have been proposed, but have yet to be drilled. These vents and vents that will be drilled in the future will be open for decades prior to being reclaimed and sealed.
- f. The POA should have considered the potential leakage from the vent holes during the lifetime of their operation, prior to sealing.

24. Section 9.2.5 — Potential Water Quality [Effects] of Surface Activities (page 9-5):

- a. This section should have considered the potential water quality effects from vents that emit radionuclides and other contaminants, disposal of material from exploration drilling, and windblown dust from roads and access routes.

25. Section 9.4 — Vegetation Resources (page 9-10):

- a. The POA should have documented and assessed the historic and current disturbance to the major vegetation communities in the vicinity of the La Sal Mines Complex: Colorado Plateau Piñon-Juniper Woodland, Rocky Mountain Gambel Oak-Mixed Montane Shrubland, Southern Rocky Mountain Ponderosa Pine Woodland, and Inter-Mountain Basins Big Sagebrush Shrubland.
- b. The POA should have addressed the re-establishment of the major vegetation communities in areas that have been disturbed by the La Sal Mines Complex operations and other historic mining activities in the La Sal Mountain area.

26. Section 9.9 — Worker Health and Safety

- a. The POA should have included complete data and information regarding the actual treats to and impacts to worker health and safety at the La Sal Mines Complex. This should include specific information on MSHA health and safety violations, mine accidents, a mine fatality, orders, compliance actions, and on-going training and actions by the mine owners and operators to improve health and safety of the workers.

27. Appendix J — La Sal Vegetation Survey: The survey states that it was conducted for the purpose of establishing pre-mining vegetative ground cover.

- a. The La Sal Vegetation Survey, page 1, contains a table of 22 locations on the edges of existing mine sites. The results are shown in a table identified as "Rim Mine Vegetation Survey." The Rim Mine is not part of the La Sal Mines Complex. Perhaps the table was mislabeled. This should be clarified.
- b. The photographs and maps of the Vegetation Survey do not include areas with trees and shrubs that have been impacted and will be impacted by any additional vent hole construction and exploration drilling.
- c. Appendix J should have included maps and photographs of all vegetation types that have been or will be impacted by La Sal Mines Complex surface disturbances.

28. Other:

- a. The POA should have included a list of preparers and their educational and technical qualifications.
- b. The POA should have included the referenced material or information regarding how that material can be accessed.

### **III. COMMENTS ON PROPOSED ACTION**

#### **A. PROPOSED ACTION AND ENVIRONMENTAL ASSESSMENT**

Below are comments on the USFS Proposed Action and for an Environmental Assessment or Environmental Impact Statement in response to the Plan of Operations Amendment for the La Sal Mines Complex.

1. The Plan of Operations Amendment (POA) for the La Sal Mines Complex warrants a full Environmental Impact Statement, rather than an Environmental Assessment. The Bureau of Land Management and the US Forest Service—Manti-La Sal National Forest

(USFS) (collectively referred to herein as "Agencies") must commence an EIS process at this time and not wait until the finalization of the EA, as there is no basis for a determination that the planned expansion of the La Sal Mines Complex, vent hole installation, and exploration drilling will not have significant impacts on human health and safety and the natural and man-made environment. This is based on the following:

- a. The implementation of the POA will result in significant effects as outlined in the BLM in National Environmental Policy Act Handbook (H-1790-1, January 2008) and the Council on Environmental Quality (CEQ) regulations (40 C.F.R. § 1508.27). This was discussed in the January 31, 2011, EA Scoping Comments. Those comments are referenced and incorporated herein.
- b. The impacts of the Proposed Action are directed related to and dependent upon activities that will take place on BLM land. The BLM regulations require a full EIS for the proposed expansion of the La Sal Mines. This would also require an EIS by the USFS in conjunction with the EIS that will need to be prepared by the BLM, the lead agency in this NEPA review.
- c. The emission of radon from any new radon vents will add to the radon emissions in the La Sal community. Neither the USFS nor the BLM has characterized, or evaluated the impacts of the emissions from the vents (both radioactive and non-radioactive) on the natural environment and human health and safety. There is no data in the POA regarding the emission of radon and other radionuclides from the La Sal Mines sites and the extent of any off-site contamination at the mines and in the vicinity of the radon vents.
- d. Although Denison submits information to the EPA and the Utah Division of Air Quality regarding the radon emissions, some of that data has been incomplete. Further, in calculating the dose to the nearest resident, Denison does not use site-specific meteorological data that comes from La Sal (relying instead of data from the Grand Junction Airport)<sup>5</sup>; therefore, there is currently no reliable data on the exposure of the community of La Sal to radon, a hazardous air pollutant. There is no reliable data on the expected exposure of the community of La Sal to radon and other radionuclides as a result of the expansion of the mine operations under Phases 1, 2, and 3.
- e. There is a need to conduct a full assessment on the cumulative impacts of the operation of the La Sal Mines Complex on USFS, including impacts of other uranium mining operations in the La Sal Mountain area. Only a full EIS can fulfill that objective.
- f. The mine vents proposed on USFS land are part of the mine ventilation system at the mines. There are two regulatory aspects of this system: 1) the requirements to protect the underground mine workers from radon and radon progeny under MSHA regulations<sup>6</sup> and 2) the requirement to protect the public from radon and radon progeny above ground

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<sup>5</sup> Monthly compliance Report

<sup>6</sup> 30 C.F.R. Part 57

under EPA regulations<sup>7</sup>. The exposure of workers and the public to radon gas and radioactive particulates is a significant effect of the operation of the La Sal Mines Complex.

The mine owner and operators have not been able to comply with these requirements for protection of the health of both the workers and the public from radon gas and the highly radioactive particulates that are the decay products of uranium. This situation has gotten worse in the past few months.

g. The operators of the La Sal Mines Complex<sup>8</sup>, Denison (Beaver Shaft) and Reliance Resources LLC (Pandora Mine), received 20 citations for health and safety violations in 2009.<sup>9</sup> In 2010, the mine operators received 52 health and safety citations and orders: 7 were associated with a fatal mine accident; 6 associated with the protection of underground workers from radioactivity, 5 of these in December. In 2009, Reliance Resources received penalties totaling \$1,648, and Denison received penalties totaling \$1,881, for a total of \$ 3,529. In 2010, Reliance Resources received penalties of \$45,464.00 (this does not include 2 penalties associated with the fatal mine accident, which have yet to be assessed), and Denison received penalties of \$18,304, for a total of \$63,768—a 1,800% increase. Thus far in 2011, Reliance Resources has received 8 citations—5 associated with the protection of underground workers from radioactivity<sup>10</sup>. Denison has received 6 citations—5 associated with the protection of underground workers from radioactivity. The penalties for most of the 2011 citations have yet to be assessed and the full results of the inspection that commenced on March 14 have not been posted.

h. With respect compliance with the standard for exposure of nearby residents and other receptor locations, including the La Sal Elementary School, Denison was out of compliance for 6 of 8 receptor points in 2009. In response Denison has requested permission to use the AERMOD computer model, rather than the COMPLY-R computer model to determine compliance. Use of the AERMOD model requires prior EPA approval, which has not been granted.<sup>11</sup> See Exhibit C.

i. There is currently no reliable data regarding the exposure of the community of La Sal to uranium, radon, and radon progeny. There is no monitoring of the radioactivity at the

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<sup>7</sup> 40 C.F.R. Part 61, Subparts A and B.

<sup>8</sup> MSHA ID 3 4200470 (Pandora Complex)

<sup>9</sup> <http://www.msha.gov/drs/drshome.htm>

<sup>10</sup> These citations involve failure to properly measure radon levels underground (30 C.F.R. § 57.5037), exposure of workers to concentration of more than 1.0 Working Level (WL) (30 C.F.R. § 57.5039), lack of respirator use (30 C.F.R. § 57.5044), failure to post inactive workings where concentrations are above 1 WL (30 C.F.R. § 57.5045), and operation of auxiliary fan systems (30 C.F.R. § 57.8529).

<sup>11</sup> Letter from Gina McCarthy, Environmental Protection Agency, to David C. Frydenlund, Denison Mines (USA) Corp, July 21, 2010.

radon emission receptor sites or other locations in the La Sal area. The estimation of the amount of radon received by the nearest locations is based on a computer model that does not make use of site-specific meteorological data; it is based on meteorological data from the Grand Junction Airport from 1987 to 1991. The NOV cited Denison for using a method of measuring the radon from the mine vents (Method A-7) that had not been approved by the EPA.<sup>12</sup> Denison is still using that method, though they are in the process of placing the required monitoring devices (Method A-6) on some vents in order to compare data from both methods, possibly leading to EPA approval of the use of Method A-7 for the La Sal Mines Complex.<sup>13</sup> See Exhibit D.

j. It is not known if Denison is complying with the requirements in 1) 40 C.F.R. Part 61, Appendix B, Method 115 for measurements of vent exhaust flow rate, weekly calculation of radon-222 radon emission rate, and test methods and procedures, and 2) 40 C.F.R. Part 61, Appendix A, Method 114, for quality assurance measures.

k. The installation of additional radon vents on USFS land will result in increases in the amount of radon being released on USFS land and into the area. Vent 2-09<sup>14</sup>, which was constructed on USGS land in 2010 and began operation in October, has begun to emit an appreciable amount of radon. Based on the information Denison submitted to the EPA and Utah Division of Air Quality, the average of the last 3 months emissions and extrapolating over 12 months, Vent PD #13 would be the 5<sup>th</sup> highest emitter of radon from a total of 22 La Sal Mines Complex radon sources<sup>15</sup>. See Exhibit D.

l. The significant impacts from the installation of additional vents on USFS land, including cumulative impacts, must be identified and evaluated in the context of an EIS.

2. The Agencies must fully characterize the radioactive and non-radioactive emissions from the existing and proposed mine vents and assess the impacts of those emissions to the air, soils, and water, wild and domestic animals, and human population.

This would include conducting radiation surveys in the area of the existing vents and exploration drilling sites, and any other location that has been potentially impacted by the mining operations since the early 1970s. It would also include vegetation sampling in the vicinity of the radon vents.

3. The USFS must assess Denison's compliance with MSHA regulations and the National Emission Standards for Radon Emissions From Underground Uranium Mines

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<sup>12</sup> Ibid.

<sup>13</sup> Monthly Report for the La Sal Mines Complex Under 40 CFR 61.24(b), Denison Mines (USA) Corp., March 2, 2011.

<sup>14</sup> Re-named Vent PD #13 (6000-5-29-25).

<sup>15</sup> Modelling [sic] of January 2011 Radon Emissions from Denison La Sal Mine, SENES Consultants Limited, March 2, 2011; attachment to March 2, 2011, Monthly Report for the La Sal Mines Complex Under 40 CFR 61.24(b), Denison Mines (USA) Corp., March 2, 2011.



(40 CFR Part 61, Subpart B.

4. The USFS must evaluate the impacts of the mining operation on the wildlife in the area, with particular attention to the impacts on the food chain from the releases of chemicals and radioactive particles into the air, water, and soils in the La Sal area.
5. The Agencies must assess the impacts of the extreme noise from the radon vents. Some of the mine vents create a very loud noise that is heard for over a mile. This impacts the town of La Sal and public lands in the vicinity of the vents and local wildlife.
6. The Agencies must assess the environmental impacts La Sal Mines Complex from the time that the mines commenced operation in the 1970s.

This would include an analysis of the land cleared for the mines, radon vents, exploration drilling, access roads, electrical lines, and transformer stations. There is a maze of cleared strips in the mine complex area from current and historic mining operations. These are clearly evident from aerial photographs.

7. In the USFS assessment of the emergency response planning, the USFS must assess the ability of the local emergency responders to respond to emergencies at the mines. These responders are not employed by Denison, but are usually called upon to respond to emergencies at the mine and to travel underground. The assessment would include the history of local responders response to mine emergencies, impacts of Denison's reliance on local emergency responders on this group of people, history of local emergency response to mine accidents, problems encountered by local emergency responders, and any other matter related to local emergency response to mine accidents and emergencies. The USFS and BLM must assess the hazardous associated with helicopter landings at the mine sites in case of emergency. In the past a helicopter that was in the process of landing to pick up an injured worker caused large pieces of material at the mine to rise into the air—because it was not properly tied down—threatening the helicopter. This could have caused a serious accident.
8. The Agencies must assess the current status of all roads and access routes in the vicinity of and/or associated with the La Sal Mines Complex and determine the state of those routes (such as erosion, presence of dead cows, and extent of use), and determine which roads and access routes must be closed off and reclaimed at this time.
9. The Agencies must determine the actual amount of radon that is being received at relevant off-site locations (receptor points). This would include conducting off-site radon monitoring and measuring indoor radon at the public facilities near the mine sites; that is, the La Sal Elementary School, Community Center, and Post Office. It would also include offering free indoor radon testing at any home the vicinity of the mining operations.

10. The USFS must assess the impacts of exploration drilling and vent hole installation on the geology and hydrogeology in the project area.
11. The USFS must assess the impacts of all of the La Sal Mines Complex operation on USFS land.
12. The USFS must assess the impacts of the installation of vent holes on underground workers. This would include exposure to noise, dust, diesel fumes, silica, radioactive gas and particulates from drilling and removal of the waste rock to a suitable location.

**B. COMMENTS ON PROPOSED ACTION AND NEPA REVIEW PERTINENT TO SPECIFIC SECTIONS OF THE PLAN OF OPERATION AMENDMENT**

1. Section 1 — Introduction, Compilation of previously approved activities into one BLM/USFS Plan of Operations (page 1-1):
  - a. The USFS must describe, with specificity and particularity, exactly which mining activities and surface disturbances were approved, based on existing POOs, amendments, and modifications.
  - b. The USFS must describe mining activities and existing surface disturbances that are currently taking place that have not been included in previous POOs or modifications.
2. Section 1.4 — Surface Disturbance (page 1-7):
  - a. The USFS must determine the extent of surface disturbance of the La Sal Complex on USFS land from the beginning of mining activities in the 1960s or '70s.
  - b. The USFS must determine the status of the reclamation for areas that were previously disturbed and are no longer in use, particularly those areas that were cleared for road access and exploratory drilling.
  - c. The USFS must analyze the reclamation process in these areas over time; determine the extent of erosion; and provide a clear picture of how long it will take for previously disturbed areas to be fully reclaimed.
  - d. The USFS must analyze the cumulative impacts on flora and fauna from the entire surface disturbance from uranium mining that has taken place in the La Sal area since the 1950s.
  - e. The USFS must assess the presence of invasive plant species in areas that have been impacted by current and past mining operations.

3. Section 1.3.4. — Compliance with existing regulations (page 1-8):

- a. The USFS must determine whether existing mining activities comply with applicable environmental laws and regulations, and employ current procedures, methods and standards for mining and environmental protection.

4. Section 3.1.4 Quality Assurance Plans (page 3-6):

- a. The Agencies must assess how well the mine owner and mine operators have addressed quality assurance in the past. This would include the disclosure in the NEPA document and assessment of the citations, orders, and notices of violation issued by MSHA and EPA.

5. Section 3.2 — Mine Vents and Access Roads (page 3-7): This section states: "Metal diffusers will be installed above the proposed opening for vents where the fan is placed on the surface. . . . Fans are generally placed on the surface to improve mine ventilation and avoid noisy underground conditions to meet MSHA requirements for workers; however, in some cases, fans can be placed underground in areas where workers will not be continuously working." Therefore, Denison does not intend to place diffusers on vents with underground fans. Denison was required to place diffusers on two vents that were approved by the USFS in 2009. Denison committed to place a diffuser that was constructed on BLM land in December 2009, but changed its mind and, apparently, has not placed a diffuser on Vent 3-09 (Vent #12; 4014-6-29-25).

- a. The USFS must compare and analyze the diffusion of radon into the atmosphere from vents with no diffuser with those with a diffuser. One of the reasons for placing a diffuser is that the height of the emission of underground radon affects the ability of the radon to disperse into the atmosphere.
- b. The USFS must assess the potential hazards associated with of having vents at ground level.
- c. The USFS must compare and analyze the diffusion of radon into the atmosphere from vents with diffusers of different heights. Currently, diffusers of different heights are in place at the vents. The USFS must conduct the analysis to determine the appropriate height of diffusers in order to optimize the diffusion of radon to the atmosphere.

6. Section 3.2 — Mine Vents and Access Roads (page 3-6 to 3-8):

- a. The USFS must assess the impacts and risks from the emission of radon measured in vicinity of the La Sal Mine Complex vent holes, including the uptake of radon progeny by soils, vegetation, and water and the pathway of the radon due to cold air drainage.

- b. The USFS must assess the impacts resulting from vent hole installation, including destruction of trees and other vegetation, disposal of dead trees and other slash, time it will take to fully reclaim the access roads and mine vents areas based on data from past reclamation, and impacts from past vent hole construction.
- c. The USFS must explicitly state what the approval process will be for the construction of any new vent holes and how the public will be involved in that approval process.
- d. The USFS must assess the impacts of the construction of access roads, including existing and future erosion.
- e. The USFS must provide maps of area that will show access roads that have been or will be reclaimed during mine operation, access roads that will be reclaimed after mine operation, and access roads that will remain open after mine reclamation has been completed.
- f. The USFS must assess the impacts of the extreme noise levels caused by the vent fans on the natural and human habitat.
- g. The USFS must identify the closest residents and locations of community activity that will be exposed to radon from any new vents that would be constructed, including those that will be exposed to radon from vents on private land, and assess the impacts of that radon exposure.

7. Section 3.2 — Mine Vents and Access Roads (page 3-8): In this section Denison requests that BLM and USFS approval of vent holes as part of this proposed POA for the La Sal Mines Complex for Phases 1, 2, and 3. There would be 14 vent holes installed on USFS land during the next 30 years. An additional 10 Vent holes would be installed on BLM land and 13 vent holes on private land. Only the general location of the vent holes is known at this time.

Comment: The USFS must not approve these vent holes as part of the proposed POA, for the following reasons:

- a. The POA did not contain maps of the proposed vent hole sites or plans for all access roads, as required by 43 C.F.R. § 3809.401(b)(i) and (vii).
- b. The USFS need to evaluate the impacts of vent hole installation on a case-by-case basis and conduct separate NEPA reviews.
- c. At this time the USFS, and the public do not have sufficient information in order to assess the impacts of the installation of these vent holes, because the precise location of the vent holes is not known.

- d. Denison has, apparently, not commenced the reclamation of the surface for the two vent holes that were installed in 2009 and 2010. This must be disclosed and discussed.
- e. Denison is currently under a Notice of Violation (NOV) from the EPA because of non-compliance with the Clean Air Act<sup>16</sup> for their radon emissions.
- f. The USFS must not approve radon vents unless Denison is in compliance with all requirements of 40 C.F.R. Part 61, Subparts A and B.
- g. The USFS must not approve radon vents until the Utah Division of Air Quality issues an approval of vent construction, pursuant to 40 C.F.R. § 61.08.
- h. The USFS must not approve radon vents unless it can be shown that the operation of the vents will not result in non-compliance with the radon exposure limit<sup>17</sup> for any point of exposure. That can only be shown when the location of the vents is known and the doses from existing vents at the time of new installation is known and such data can be verified.
- i. At this time there are no verifiable data on the exposure of the public to the emission of radon from the La Sal Mines Complex. This is because Denison does not use site-specific meteorological data in the computer codes used to determine the exposure to the nearest receptor points.<sup>18</sup> See Exhibit D. These points include the La Sal Elementary School, road maintenance shed, and local residences. Also, Denison is using a method to determine radon emissions that has yet to be approved by the EPA and has not shown to be in compliance with the radon standard using a computer code that has been approved for use by Denison.
- j. Although the BLM and USFS do not have to approve the installation of the operation of the vents on private land, those vents will contribute to the amount of radon released and dose to the community and must be calculated in cumulative impacts.
- k. There has been no confirmatory monitoring of the amount of radon that has been or is being received at the established points of compliance.
- l. The contribution of radon from the waste rock piles, stockpiled ore, windblown dust, and other areas of the mine sites to the total doses received in the community have not been calculated.

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<sup>16</sup> 40 C.F.R. Part 61, Subpart B — National Emission Standards for Radon Emissions from Underground Uranium Mines.

<sup>17</sup> 40 C.F.R. § 61.22.

<sup>18</sup> Modelling [sic] of Radon Emissions from Denison La Sal Mines, SENES Consultants Ltd., March 2, 2010.

- m. There has been no environmental assessment of the effects of the emission of radon and other radionuclides from the radon vents on the health and safety of the citizens of La Sal and on the flora and fauna of the area.
- n. Denison has not conducted vegetation surveys to establish the pre-disturbance vegetation conditions on access routes and vent hole sites.
- o. The public should have an opportunity to comment on agency reviews of site-specific vent hole installation proposals.
- p. There appears to be an assumption that exhaust vents will be closed or remain non-operational as new vents are installed, so that the total radon emissions will remain about the same. There is no basis for that assumption. The installation and operation of radon exhaust vents are dependent on underground conditions at the mine, and there is no guarantee that radon emissions and radon doses to the nearest receptors will remain about the same over time. In fact, the amount of radon released from the radon vents continues to increase. See Exhibit D.
- q. The USFS does not know if there will be sufficient space in the waste rock pile(s) or underground mine to receive the waste rock from the installation of the proposed vent holes. In 2009, the USFS approved the installation of 2 new radon vents for the Pandora Mine, one of which has been installed. At that time the BLM had determined that the Pandora Mine waste rock pile was too high to receive additional waste rock, and waste has been stored in another area, pending approval of the expansion of the waste rock pile by the BLM.<sup>19</sup> See Exhibit E.

8. Section 3.3 — Exploration Drilling Activities (page 3- 8):

- a. The USFS must define “vegetative cover,” “sustainable vegetative cover,” “temporary disturbance.”
- b. The USFS must assess the cumulative surface disturbance impacts from historic, current, and proposed drilling activities associated with the La Sal Mines Complex (including Polar Mesa).
- c. The USFS must assess the impacts from the disposition of cuttings and possible fluid discharge pits from past exploration drilling operations.
- d. The USFS must assess, based on actual measurements, the success of the reestablishment of “sustainable vegetative cover” over time and the long-term

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<sup>19</sup> Surface Management Site Inspection. Denison Mines (USA) Corp. La Sal Mines (Pandora - UTU69800/M0370012; LaSal, Snowball and Beaver- UTU69812/M0370026). San Juan County. Utah. Bureau of Land Management, Monticello, Utah, August 20, 2010.

- environmental impacts of the removal of extensive amounts of vegetative cover.
- e. The USFS must assess, based on actual measurements, the time it will take to reestablish the vegetative cover that was in place at the drilling and access sites prior to exploration drilling activities.
  - f. The USFS must assess, based on actual measurements, the destruction of trees and brush and the ability for trees and bushes to become reestablished. This would include an assessment of the reestablishment of vegetative cover in areas that are quite rocky, where the primary vegetative cover consists of trees.
  - g. The USFS must assess, based on actual measurements, the extent of erosion caused by exploration drilling.
  - h. The USFS must evaluate, based on actual measurements of past reclamation efforts in similar vegetation, the assumption that it will take two seasons to re-establish sustainable vegetative cover.

9. Section 3.3 — Exploration Drilling Activities (page 3- 8 to 3-10): In this section Denison requests BLM approval of exploration drill holes for the La Sal Mines Complex. Denison proposes approximately 50 holes for Phase 1, 50 holes for Phase 2, and 30 holes on USFS land, for a total of 130 exploration holes. Denison proposes 40 holes for Phase 1 and 100 holes for Phase 3 on BLM land. Only the general location of the vent holes is known at this time.

Comment: The USFS must not approve exploration drilling as part of the proposed POA, for the following reasons:

- a. The POA did not contain maps of proposed exploration drilling or plans for all access roads, as required by 43 C.F.R. § 3809.401(b)(i) and (vii).
- b. Under NEPA, the Agencies and the public have the right to know exactly where the drill holes and roads will be located (this applies for all stages and especially for the first phase, since Denison should know where the initial drill sites and roads will be located and cannot delay submittal of this information until after the project is approved).
- c. The USFS need to evaluate the impacts of exploration drilling on a case-by-case basis and conduct separate NEPA reviews.
- d. The USFS must oversee the exploration drilling, determine appropriate access roads, evaluate surface disturbance and vegetation removal, determine mitigative measures, and oversee reclamation when the actual locations have been determined. The public has a right to have input on this process.

- e. At this time the USFS, and the public do not have sufficient information in order to assess the impacts of the proposed exploration drilling, because the exact location of the holes is not known.
  - f. Denison has not provided sufficient information in the POA for an assessment of the cumulative impacts of historic and recent exploration drilling, which is extensive.
  - g. A financial bond for specific exploration drilling must be approved as part of the USFS reviews.
  - h. Denison has not conducted vegetation surveys to establish the pre-disturbance vegetation conditions on access routes and at the proposed exploration drilling locations.
  - i. The public should have an opportunity to comment on agency reviews of site-specific exploration drilling proposals.
  - j. The Utah Division of Oil, Gas & Mining must also approve exploration drilling and the financial surety. This is normally done concurrently with federal agency reviews. Without site-specific information regarding the proposed exploration drilling projects, it would be premature for DOGM to consider exploration-drilling proposals.
  - k. It is unreasonable to approve exploration-drilling activities that would take place over the next 30 years. During that time, there will be changes that would be relevant to any consideration of the exploration drilling.
  - l. At this time, there is not sufficient information regarding the remediation of the areas where exploration drilling was conducted over the past 3 or 4 years on USFS land. At this time there is no sufficient information regarding the time it will take to re-establish the pre-mining vegetative cover in the areas that have already been disturbed by exploration drilling. Future approvals of exploration drilling, assessment of impacts, and the development of mitigative measures would require a full assessment of the short and long term impacts of previous drilling activities.
10. Section 4 — Facilities and Activities Approved by Existing Permits:
- a. The Agencies must clearly identify those aspects of La Sal Mines Complex facilities and activities that were included in previous Plans of Operations. The specific section of POO, amendment, or modification must be stated and the documents made available as part of the environmental analysis.



11. Section 5.1 — Drill Hole, Vent Shafts, and Water Wells (page 5-1):

- a. The USFS must assess the potential for contamination from the mines to enter ground and surface water from drill holes, vent shafts, and water wells—based on actual data from similar drill holes, vent shafts and water wells.
- b. The USFS must assess—based on actual measurements—the adequacy of the plugging of all historic exploration drill holes, vent and vent shafts associated with the La Sal Mines Complex.

12. Section 5.2.1 — Road Reclamation:

- a. The USFS must assess the current condition of all roads and access routes associated with current and historic La Sal Complex operations.
- b. The USFS must determine whether there are currently roads and access routes that can be reclaimed at this time.
- c. The USFS must assess the past reclamation efforts for roads and access routes in the La Sal area to determine the long-term impacts from the development of those routes and to determine if additional or different reclamation measures are warranted.

13. Section 5.9 — Post Closure Management (page 5-12):

- a. The USFS must assess the pre-mining vegetative ground cover for all areas that have been impacted by the La Sal Mine Complex. Denison proposes that revegetation achieve 70% of pre-mining vegetation. It does not appear that all areas that have been impacted by mining activities were evaluated for vegetation prior to disturbance. The vegetation survey conducted for the purpose of established pre-mining vegetative ground cover (POA, Appendix J) does not evaluate the original pre-mining ground cover at the mine sites and does not evaluate the pre-mining ground cover of the access roads, exploration drilling sites, vent holes, and utility pole and transformer sites, and other areas that have been disturbed by the mining operations since the beginning.
- b. The USFS must assess how long it will take to re-establish 70% of pre-mining vegetative cover over all of the areas that have been impacted by the mining operations. This must include an assessment of the re-establishment of the vegetation types that existed before mining disturbance, with an emphasis on trees and shrubs.
- c. The USFS must assess—based on actual measurements in similar vegetation—how long it will take to re-establish 70% of pre-mining native vegetative cover over all of the areas that have been impacted by the mining operations. This must include an assessment of the re-establishment of the vegetation types that existed

before mining disturbance, with an emphasis on native trees and shrubs.

14. Section 6 — Monitoring Plan:

- a. The Agencies must assess the length time needed for site monitoring and the type of monitoring needed at the sites over the long-term.

15. Section 6.5 Air Quality Monitoring:

- a. The Agencies must assess Denison's current compliance with all of the applicable requirements of 40 C.F.R. Part 61, Subparts A and B, and Subpart 60. This would include an assessment of whether Denison has a Quality Assurance program in conjunction with the radionuclide emission measurements, as required by 40 C.F.R. Part 61, Appendix B, Method 114.4; and has conducted tests required under 40 C.F.R. Part 60, Appendix A.

16. Section 6.6 Radiation Monitoring:

- a. The USFS must assess the mine operators' compliance with the MSHA standards for exposure to radon and other pollutants in the underground mining operation.

17. Section 7 — Interim Management Plan

- a. The USFS must assess the amount of and risks from radon that would be released from the mines during periods of temporary cessation of operations and assess the risks associated with that radon releases, which will not have to be reported under the requirements of 40 C.F.R. Part 61, Subpart B.
- b. The USFS must assess the interim measures for temporary cessation of operation for both short-term mine closure (less than one year) and long-term closure (more than one year). In the past the mines were closed for over 10 years, with few site inspections by the regulatory agencies and a deterioration of site conditions.
- c. The USFS must determine whether a bi-annual monitoring of the mine sites and associated facilities is adequate during temporary closure.
- d. The USFS must assess the potential impacts of temporary closure of the mines under minimal site maintenance and inspection.

18. Section 8 — Reclamation Cost Estimate:

- a. The USFS must evaluate the expected natural and unnatural impacts on the site over the long-term and determine what mitigative measures might be required so that the site is maintained in a safe and secure condition and in compliance with reclamation standards as long as the site has the potential to adversely impact the

- environment due to site degradation. The Agencies must also determine how those measures will be undertaken and funded.
- b. USFS must consider the need for funding for long-term inspection and maintenance of the site by state and federal agencies after reclamation is complete.
  - c. The USFS must reveal the proposed reclamation financial assurance/bond and explain the reasons the USFS believe this is sufficient to cover all contingencies.

19. Section 9 — Operational and Baseline Environmental Information, Section 9.1 — Air Quality (page 9-1):

- a. The USFS must identify and characterize the air-borne emissions from the mining operation that have the potential to adversely impact human health and the environment. This would include all particulate and gaseous emissions from the soils, radon vents, and exploration drilling sites. This would include diesel fumes, silica, arsenic, hazardous metals and metalloids, radon gas and its short-lived, highly radioactive decay products, uranium, and other uranium progeny.
- b. The USFS must analyze the dispersion of these materials into the environment based on relevant actual measurements.
- c. The USFS must analyze the impacts of potentially adverse air-borne particulates and gaseous releases on human health and the environment.
- d. Due to the likelihood of regional transport of air emissions from the La Sal Mines Complex and the other actions/operations noted above, the USFS must conduct a regional air-transport analysis to determine the long-range (as well as short-range) potential for, and impacts from, emissions and particulate transport. The Agencies must consider the Class I Air Quality status of Arches and Canyonlands National Parks and the possible degradation of regional air quality from mining activities.
- e. The USFS must evaluate and disclose the mine owner and operators' compliance with applicable EPA and Mine Safety and Health Administration standards and regulations in order to assess the extent to which the public, workers, and the environment are protected from the impacts of airborne emissions at the mine, both above and below ground.

20. Section 9.2.1 — Surface Water (page 9-2):

- a. The USFS must identify and characterize all surface water (including perennial streams, ephemeral streams, irrigation ditches, and irrigation and catchment ponds) that is in the vicinity of the La Sal Mines Complex.

- b. The USFS must assess the impacts and potential impacts of the mining operations on those watercourses, including cumulative impacts of past, current, and future mining activities, revealing all actual measurements that have been made of impacts on watercourses.

21. Section 9.2.3.2 — Mine Operation Uses (pages 9-3 to 9-4):

- a. The Agencies must assess the potential for workers to be exposed to and harmed by radionuclides that are present in or may be taken up by underground water that is used for dust suppression, drilling, and other underground mining activities.

22. Section 9.2.5 — Potential Water Quality [Effects] of Surface Activities (page 9-5)

- a. The USFS must assess the effects on water quality of radioactive and non-radioactive emissions from radon exhaust vents, drill cutting disposal areas, fugitive dust, and erosion from roads and access routes.

23. Section 9.3 — Soil Resources (page 9-6):

- a. The USFS must assess the impacts to soil resources from the installation of vent holes, exploration drilling, and access routes.
- b. The USFS must assess the soils for their water holding capacity and ability to serve as a growth medium to support the pre-mining vegetation types.
- c. The USFS must assess and describe the most recent road access, exploration drilling, and vent hole installation activities to determine whether the topsoil was actually saved for future reclamation.

24. Section 9.4 — Vegetation Resources (page 9-10):

- a. The USFS must assess the historic and current disturbance to the major vegetation communities in the vicinity of the La Sal Mines Complex: Colorado Plateau Piñon-Juniper Woodland, Rocky Mountain Gambel Oak-Mixed Montane Shrubland, Southern Rocky Mountain Ponderosa Pine Woodland, and Inter-Mountain Basins Big Sagebrush Shrubland.
- b. The USFS must determine the status of the re-establishment of the pre-mining vegetation types in current and historically disturbed areas in the La Sal Mountain area.
- c. The USFS must evaluate the potential for the re-establishment of the major vegetation communities in the areas they existed prior to mining disturbance and removal due to La Sal Mines Complex operations and other historic mining activities in the La Sal Mountain area.

25. Section 9.5.5 — Protection of Wildlife Habitat and Endangered Species (page 9-13)

- a. The USFS must assess the impacts to wildlife habitat due to the cumulative impacts from the removal of vegetation, particularly trees and shrubs, to facilitate the La Sal Complex mining operations. This would include an assessment of the ability of the areas that have been impacted to reestablish the vegetation types that existed prior to disturbance or removal.
- b. The USFS must assess—based on scientific literature—the impacts to wildlife habitat from the noise pollution associated with the mine operations, including vent fan operation.

26. Section 9.5.6 — Screening Level Evaluation of Potential Direct Contact Risks to Wildlife (page

- a. The USFS must evaluate—based on measurements of wildlife in the scientific literature—the potential risks to wildlife from ingestion of vegetation that has taken up radionuclides from the mining operations, including areas in the vicinity of the mine vents and exploration drilling sites.
- b. The USFS must assess—based on measurements of wildlife in the scientific literature—the potential risks to wildlife from fugitive dust and silica particles from the ore.
- c. The USFS must assess—based on measurements of wildlife in the scientific literature—the potential risks to wildlife from the release of radioactive and non-radioactive particulates from the vents.
- d. The USFS must undertake consultations with the U.S. Fish and Wildlife Service to evaluate and prevent direct, indirect, and cumulative impacts of the mining operations from harming species listed as threatened and endangered under the endangered species act.

27. Section 9.9 — Worker Health and Safety (page 9-20 to 9-22)

- a. The USFS must assess the impacts to worker health and safety of the assess—based on actual measurements—the past history of dust control from the waste rock piles and the historic effectiveness of the ground cover and other dust control measures.
- b. As discussed elsewhere, the Agencies must disclose and discuss the mine operators' compliance with the MSHA regulations since 2006.
- c. The Agencies must assess the possibility for workers to spread radioactive

contamination into the La Sal community. In at least one instance, a worker that had not showered prior to leaving the mine after work was observed in a public place in La Sal. Failure to shower was a health hazard to both the worker and members of the public that may come into contact with the worker.

#### **IV. REGULATORY COMPLIANCE**

##### **A. 36 C.F.R. Section 228.4 — Plan of operations--notice of intent--requirements.**

###### 1. Deficiencies in the Plan of Operations Amendment:

- a. The POA, Section (page 3-7) states: Approximately 2,000 to 4,000 gallons of water would be required during the vent hole drilling process. All water will be acquired from Redd Ranches. The POA does not include the water right number and verification that the amount of water expected is available from the water source and the Division of Water Rights (DWR) has approved the use of that water for the subject mineral operation. The USFS must verify, based on DWR documentations that the water Denison expects to use for drilling purposed has been approved for that amount and use by the DWR.
- b. The POA did not include the **measures to be taken to meet the requirements for environmental protection in 36 C.F.R. Section 228.8.**
- c. As outlined above, the POA was deficient in a number of respects. There was missing and incomplete information and statements that were not based on facts.
- d. The POA did not include a monitoring plan that would monitor the emission of radioactive and non-radioactive particulates from the mine portals and intake and exhaust vents.
- e. The POA did not include a monitoring plan to determine the actual amount and kind of radioactivity that is received at or is present inside the nearest residences, school, or places of human activity in the vicinity of the La Sal Mine Complex.
- f. The POA did not include a monitoring plan for monitoring the radon releases from the mine portals and intake and exhaust vents.
- g. The POA did not include essential base-line data, such as pre-mining vegetation data for all areas that will be subject to reclamation.
- h. The POA did not provide sufficient information to determine the cumulative impacts of the vent hole and exploration drilling in the short term and long term.
- i. The POA did not include information on the exact location of the vent hole installation and the exploration drilling, the slope of the areas, erosion potential,

- vegetative cover that would be impacted, and other aspects of the sites that would be impacted.
- j. The POA did not include data on the La Sal Mines Complex compliance with other state and federal health and safety regulations.
  - k. The POA did not provide a reasonable time line for the re-establishment of 70% of the pre-mining vegetation.
  - l. The POA did not provide sufficient data on the geohydrology of the La Sal area and the of the areas underground that will be impacted by the mines' expansion.
2. Section 228.4(d) states that "if the development of a plan for an entire operation is not possible at the time of the preparation of the plan, the operator shall file an initial plan setting forth his proposed operation to the degree reasonably foreseeable at the time, and shall thereafter file a supplemental plan or plans whenever it is proposed to undertake any significant surface disturbance not covered by the initial plan." Denison has proposed extensive surface disturbance for vent hole construction and exploration drilling for Phases 1, 2, and 3 over the next 30 years: 180 exploration holes impacting 32.3 acres and 14 vent holes impacting 14 acres, plus additional site access routes.

The USFS should not approve the POA proposal for future exploration drilling and vent hole installation. Instead, the USFS should require timely additional supplements to the POA for the vent holes and exploration drilling proposed in 2010 POA when the location of the vent holes and exploration drilling is known and the when the USFS and BLM have completed the POA NEPA process and have complete information on the environmental impacts of the proposed La Sal Complex expansion, proposed and previous vent hole installation and operation, and proposed and previous exploration drilling.

**B. 36 C.F.R. Section 228.8 — Requirements for environmental protection.**

1. Section 228.8(a) states: *Air Quality. Operator shall comply with applicable Federal and State air quality standards, including the requirements of the Clean Air Act, as amended (42 U.S.C. 1857 et seq.).*

At this time the Operator is not in compliance with the applicable Federal and State air quality standards, specifically 40 C.F.R. Part 61, Subpart B. The USFS should not approve the installation of new vent holes until there is a determination by the EPA that Denison is in compliance with all applicable air quality standards and regulatory requirements. This would include an approval by the Division of Air Quality (DAQ) of the proposed vent holes, pursuant to 40 C.F.R. Section 61.08. In the past Denison has installed radon vent holes without submitting a timely application to the DAQ.

**C. 36 C.F.R. Section 228.9 — Maintenance during operations, public safety.**

1. Section 228.9 states: *During all operations operator shall maintain his structures, equipment, and other facilities in a safe, neat and workmanlike manner. Hazardous sites or conditions resulting from operations shall be marked by signs, fenced or otherwise identified to protect the public in accordance with Federal and State laws and regulations.*

This section requires that hazardous sites or conditions at the mining operations shall be marked by signs, fenced or otherwise identified to protect the public. Mine vents release hazardous air pollutants that can contribute to cancer and other adverse health impacts. It is unsafe to be at or near those vents. The EPA advises inspectors of uranium mining operations: *If effluent monitoring is performed at the [shaft] fan, there is no need to enter the mine, but care should be taken to spend as little time as possible at the vent.*<sup>20</sup> Emphasis added.

The radon vents on USFS land are land where the public hunts and recreates. A member of the public can receive a radiation dose by being next to or near the vents. There has been no determination that the area in the vicinity of a radon vent has no potential for adverse health impacts. The USFS has an obligation to require that the vents be fenced and radiation warning signs be placed at and near the vent hole sites.

**D. 36 C.F.R. Section 228.46 — Application of other laws and regulations.**

1. Section 228.46 states: *All mining operations for removal of mineral materials from National Forest lands must meet or exceed applicable Federal standards for the protection of public safety, health, and the environment, and must also meet or exceed State and local standards for the protection of public safety, health, and the environment, to the extent that such standards are not in conflict with Federal purposes and functions.*

As discussed above, Denison is currently not in compliance with 40 C.F.R. Part 61, Subpart B standard. The USFS must not approve the installation of new vent holes until there is a determination by the EPA that Denison is in compliance with all applicable air quality standards and regulatory requirements. This would include an approval by the Division of Air Quality (DAQ) of the proposed vent holes, pursuant to 40 C.F.R. Section 61.08. In the past Denison has installed radon vent holes without submitting a timely application to the DAQ.

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<sup>20</sup> Guidance on Implementing the Radionuclide NESHAPS, US Environmental Protection Agency, Office of Radiation Programs, July 1991, Section 3.5, page 46.  
[http://www.epa.gov/rpdweb00/docs/neshaps/nesh\\_implement\\_07\\_91.pdf](http://www.epa.gov/rpdweb00/docs/neshaps/nesh_implement_07_91.pdf)



## **V. CONCLUSION**

1. We request that the USFS consider the Environmental Protection Alternative in the La Sal Mines Complex NEPA review.
2. We request that the USFS immediately commence an EIS process at this time and not wait until the finalization of the EA.
3. We request that the not approve the Operator's request for exploration drilling and vent hole installation project as outlined in the POA.
4. We request that the USFS require separate site-specific notices of intent and plans of operation for each vent hole installation and exploration drilling projects, once the location and timing of those projects is known.

Commentors reserve the right to provide additional comments, based on new information, including information from site visits that are not feasible at this time.