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Office of Environmental Management – Grand Junction

UMTRA Project

Moab UMTRA Project Environmental Air Monitoring Program and Mitigation of Public Exposure

February 2011

U.S. Department of Energy

Office of Environmental Management

Prepared by the Remedial Action Contractor for the Moab UMTRA Project.

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Background

The U.S. Department of Energy (DOE) established a comprehensive environmental air monitoring program for the Moab Uranium Mill Tailings Remedial Action (UMTRA) Project. The program was established prior to excavation of mill tailings or residual radioactive material (RRM) and shipment to the disposal cell. The program established baseline measurements at the boundary of the DOE sites and in the surrounding areas. Ongoing environmental air monitoring, during the operational phase, provides data to assess potential public exposure. A separate program monitors site workers.

The process of relocating the tailings from the Moab site exposes the environment to direct gamma radiation, radon gas, and radioparticulates attached to dust participles. Potential effects on workers and non-workers (the public) were identified and evaluated in the Moab UMTRA Project Environmental Impact Statement and were found to be at acceptable levels.

DOE Commitment and Goals

DOE keeps exposures as low as reasonably achievable (ALARA) through the ALARA Program. The ALARA program has three methods to reduce an individual's dose: reducing the time spent in a radiological area; increasing the distance between the individual and the radiation source; and increasing the amount of shielding around a radiation source. The public is protected in all three ways by its limited time exposure (passing by) to the RRM, the distance from the RRM, and engineering controls (i.e., interim cover on tailings pile, shipment of tailings in sealed containers, cover on disposal cell) that provide shielding.

DOE has established guidelines for public exposure based on a person residing at the location of highest potential exposure, also known as the maximally exposed individual. Any exceedance of DOE guidelines for radon gas, direct gamma radiation, or radioparticulates (airborne dust) would result in an evaluation of whether the monitoring location meets the criteria as a residence and/or an area of long-term public exposure. If it does, mitigative measures as outlined below would be implemented or intensified, and notification to Grand County would be made. DOE guidelines do not apply to monitoring locations with minimal public exposure near the property boundaries where no full-time residences exist, such as Potash Road station number 129 and disposal cell station number 308; however, these locations will be used as data points to trigger heightened awareness and to initiate additional mitigation.

Mitigation

The following are measures utilized to reduce public exposure.

- ALARA Program
- Implemented engineering controls
  - Designed disposal cell with protective layers over tailings to control radon gas and erosion of cover material
  - Control of fugitive dust and avoidance of leaks with sealed containers
  - Installation of paving on main haul routes and container transfer facilities
  - Securing of the site with fences and posting of warning signs

- Implemented operational controls
  - Application of water and chemicals to control dust
  - Tailings kept moist to enhance compaction and control dust
  - Limitation of vehicle speeds along dirt roads and construction sites to 25 mph
  - Monitoring of opacity (visible emissions) at both sites
  - Washing of exterior of containers and inspect/verify
- Additional options to mitigate public exposure
  - Minimize size of excavations and exposed tailings
  - Reduce size of tailings exposure (excavations and conditioning beds)
  - Cover exposed tailings

Summary

Excavation and disposal activities increase the radiation exposure near the operations; however, DOE is committed to minimize that exposure, both to the public and to workers. Although air monitoring stations near the operations have reported elevated readings, to date, the conservative DOE guidelines for public exposure of full-time residents have not been exceeded. If these readings exceed DOE guidelines, DOE will intensify the mitigation measures or additional options described.

DOE will continue its open communication with public and regulatory agencies. Additional information about the DOE environmental air monitoring program and quarterly monitoring data reports are available on the Moab UMTRA Project website at www.gjem.energy.gov/moab.