FACT SHEET
Overview of the Moab UMTRA Project

MOAB UTAH UMTRA Project

Project Scope

The scope of the Moab Uranium Mill Tailings Remedial Action (UMTRA) Project is to relocate mill tailings and other contaminated materials from a former uranium-ore processing facility (millsite) and from off-site properties known as vicinity properties in Moab, Utah, to an engineered disposal cell constructed near Crescent Junction, Utah. The scope also includes active remediation of groundwater at the millsite (Moab site). The U.S. Department of Energy (DOE) Office of Environmental Management in Grand Junction, Colorado, has primary responsibility for managing the Moab Project.

Moab Site Location

Figure 1 shows the general location of the Project sites. The Moab site is located about a mile from the Arches National Park entrance and three miles northwest of downtown Moab in Grand County, Utah. The site encompasses approximately 480 acres, with about 130 acres covered by the mill tailings pile.
Other federally owned land borders the site on the north, south, and west. Sandstone cliffs border the site on the west. The Colorado River forms the southeastern boundary. U.S. Highway 191 parallels the northern site boundary, and State Route 279 crosses the western portion of the site.

Background and History

Uranium Reduction Company constructed the Moab mill in 1956 and operated it until 1962 when the assets were sold to Atlas Minerals Corporation (Atlas). Uranium concentrate (known as "yellowcake"), the milling product, was sold to the U.S. Atomic Energy Commission through December 1970 for use in national defense programs. After 1970, production was primarily for commercial sales to nuclear power plants. During its years of operation, the mill processed an average of about 1,400 tons of ore a day.

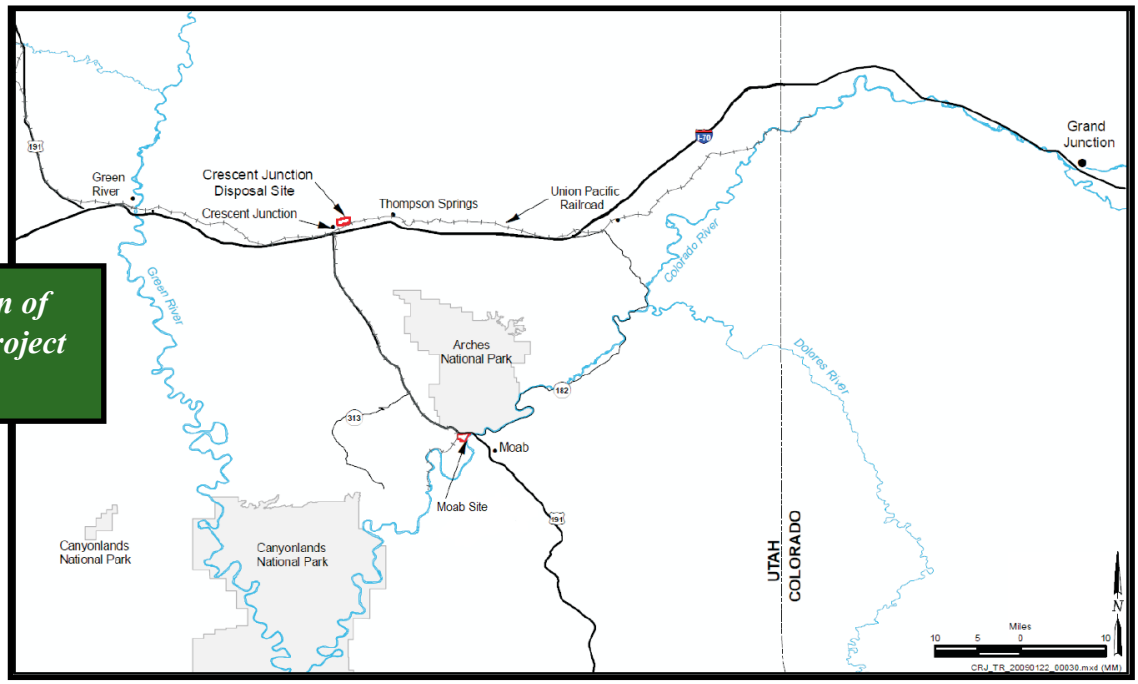


Figure 1. Location of Moab UMTRA Project Sites

For more information, visit the Project website at: www.gjem.energy.gov/.

Moab site, looking northeast

The milling operations created process-related wastes and tailings, a radioactive, sand-like material. The tailings were pumped to an unlined impoundment in the western portion of the property that accumulated over time, forming a pile more than 80 feet thick. Although more than 90 percent of the uranium was removed during processing, radium and other decay products remained in the tailings, which have an average radioactivity of about 660 picocuries per gram of radium-226. The tailings, especially in the center of the pile, have a high water content. In the past, excess water in the pile drained through underlying soils, contaminating the groundwater. Atlas operated the site until 1984 under a license and regulatory authority provided by the U.S. Nuclear Regulatory Commission (NRC). Atlas demolished the processing buildings and buried them in the southwestern corner of the tailings pile and placed an interim cover over the pile as part of decommissioning activities conducted between 1988 and 1995. There was an estimated 12 million cubic yards (16 million tons) of mill tailings and other contaminated materials present in the pile. Atlas proposed to stabilize the tailings pile at Moab by permanently capping it in place; however, Atlas declared bankruptcy in 1998 and, in doing so, relinquished its license. Because NRC could not legally possess a site it regulated, NRC appointed PricewaterhouseCoopers as the trustee of the Moab Mill Reclamation Trust and licensee for the site. The trustee initiated site reclamation, conducted groundwater studies, and performed site maintenance activities.

Regulatory Setting

Scientists, community leaders, and public officials became more aware of the potential health risks associated with long-term exposure to uranium mill tailings during the 1970s. Public concern about potential human health and environmental effects led the U.S. Congress to pass the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978 (Public Law 95–604), which required the cleanup of inactive uranium-ore processing sites. In 1983, the U.S. Environmental Protection Agency (EPA) developed regulations [Title 40 Code of Federal Regulations (CFR) Part 192] to protect the public and the environment from potential hazards at the sites.

DOE is responsible for cleaning up UMTRCA Title I millsites, including soils and groundwater, to EPA standards (Subparts A and B of 40 CFR 192). The radioactive materials are encapsulated in NRC-approved disposal cells. With the enactment of the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001, Public Law 106–398, Congress changed the designation of the Moab site from Title II to Title I under UMTRCA. The act stipulated that the license issued by NRC for the Moab site materials be terminated and that title to the property and responsibility for cleanup be transferred to DOE. In October 2001, DOE assumed ownership of the Moab site. The federal government pays 100 percent of the reclamation costs.

National Environmental Policy Act Implementation

DOE developed an Environmental Impact Statement (EIS) to fulfill the National Environmental Policy Act requirement of considering the full range of reasonable alternatives and associated environmental effects of significant federal actions. In July 2005, DOE published the final EIS that presented the preferred alternatives of off-site disposal of the tailings pile and other contaminated materials at the Crescent Junction site using predominantly rail transportation, and active groundwater remediation at the Moab site. In September 2005, DOE issued the Record of Decision, which detailed the selection of the preferred alternatives and the basis for that decision. DOE amended the Record of Decision in February 2008 to allow for more truck transport on the public highway.

Groundwater Interim Action

DOE utilized previous investigations along with additional soil and groundwater sampling to assess the extent of contamination at the Moab site. Elevated concentrations of ammonia can affect young-of-year endangered fish species in backwater channels adjacent to the Colorado River bank. In 2003, DOE began implementation of an interim action system that currently includes eight extraction and more than 30 freshwater injection wells. The system is designed to protect surface water quality and to recover ammonia, uranium, and other contaminants prior to discharge to the Colorado River.

Tailings Removal and Transport

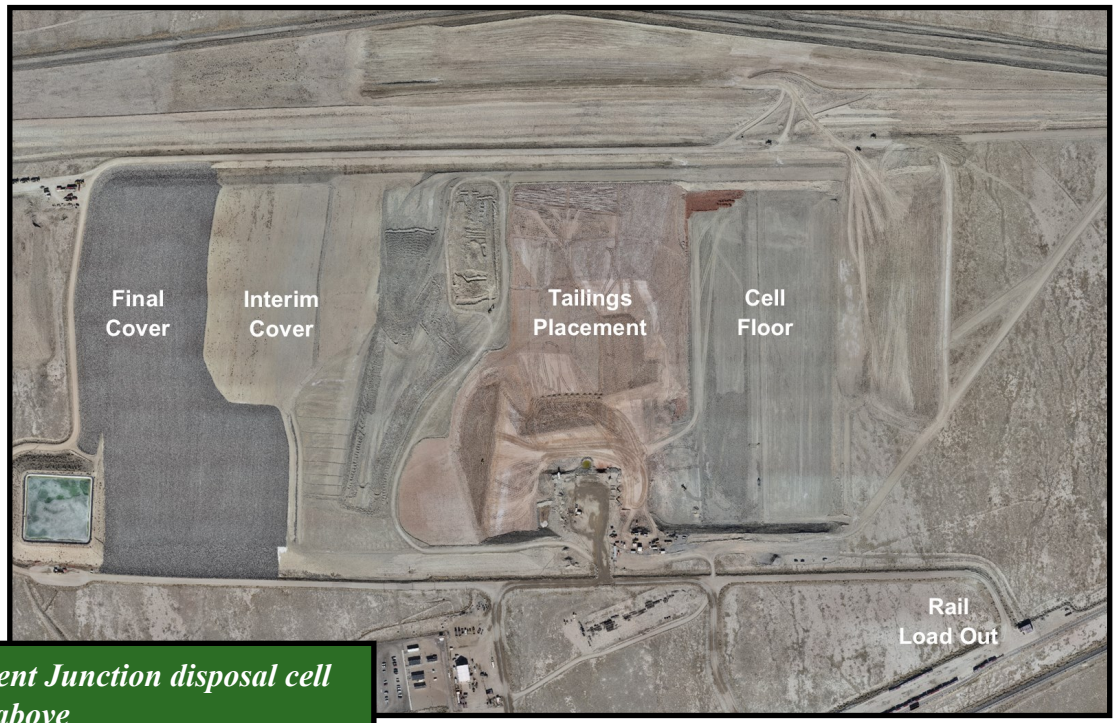
In 2008 and 2009, DOE performed extensive infrastructure construction at the Moab and Crescent Junction sites in preparation for moving the mill tailings. In April 2009, DOE began relocating the tailings to the disposal cell. Tailings are excavated and conditioned in drying beds to reach the optimal moisture content for disposal. The tailings are then placed in steel containers with locking lids for transport to Crescent Junction. A gantry crane is used to transfer containers to and from the train at Moab. The Moab Project is currently shipping four trains a week, each carrying up to 152 containers. To date, the Project has shipped more than 11.3 million tons of tailings, or about 70 percent of the total. The Project is currently estimated to be completed in the 2030s.

A gantry crane transfers containers to and from the train

At the Crescent Junction site, the containers carrying tailings are unloaded from the train onto trucks that take them to the disposal cell dumping area. The tailings are dumped through end gates in the containers and placed in the cell to meet compaction specifications. The empty containers are reloaded onto railcars and returned to the Moab site.

The cell is rectangular and aligned in a west-to-east direction. The completed cell will be about a mile long by 2,400 feet wide and is being excavated in phases. It is excavated about 25 feet below the existing grade and the estimated aboveground height of the compacted materials is 25 feet. To date, about 75 percent of the disposal cell has been excavated. The top of the contaminated materials is capped with a 9-foot-thick, multi-layered cover composed of native soils and rock.

Through a series of temporary withdrawals of public domain land and a permanent land transfer by the Department of the Interior, DOE currently owns 500 acres of land and has another 936 acres in a 20-year withdrawal for the disposal cell and surrounding buffer area, the support area, and access road. The permanent transfer area will be fenced when the cell is completed.



Crescent Junction disposal cell from above

Contacts

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You may also call the toll-free hotline at 1-800-637-4575.

Moab UMTRA Project documents are available on the DOE website at: https://www.gjem.energy.gov/ and at Grand County Public Library in Moab.