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Salt Lake City, Utah | Disposal and Processing Sites

UMTRCA TITLE I SITE

This fact sheet provides information about the **Salt Lake City sites**. These sites are managed by the **U.S. Department of Energy Office of Legacy Management** under **Title I of the Uranium Mill Tailings Radiation Control Act of 1978**.

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Site Information and History

The former Salt Lake City processing site is located about 4 miles south-southwest of the center of Salt Lake City, Utah, at 3300 South and Interstate 15. The Vitro Chemical Company processed uranium and vanadium ore at the site from 1951 until 1968. Milling operations conducted at the processing site created radioactive tailings, a predominantly sandy material. Small amounts of tailings were sold and used for construction purposes on approximately 100 vicinity properties; the remainder was stored at the processing site. Cleanup of the processing site, conducted by the state of Utah under the direction of the U.S. Department of Energy (DOE), began in 1984 and was completed in 1989. Tailings and contaminated soils and building debris from the processing site and vicinity properties were moved to the Salt Lake City disposal site near Clive, Utah, approximately 81 miles west of Salt Lake City.

The Central Valley Water Reclamation Facility owns the majority of the former processing site property and has redeveloped the site as a regional wastewater treatment facility and a golf course. A concrete supply distribution facility owned by The QUIKRETE Companies Inc. operates along the southeast portion of the former processing site

property and a solid waste transfer station, owned by Salt Lake County and Salt Lake City Corporation, operates along the eastern extent of the former processing site property. The Jordan River is 450 feet west of the site, and Mill Creek, a perennial stream, flows along the site's northern boundary. Commercial and industrial facilities dominate the surrounding area.

Regulatory Setting

Congress passed the Uranium Mill Tailings Radiation Control Act (UMTRCA) in 1978 (Public Law 95-604), and DOE remediated 22 inactive uranium-ore processing sites under the Uranium Mill Tailings Remedial Action Project in accordance with standards promulgated by the U.S. Environmental Protection Agency in Title 40 *Code of Federal Regulations* (CFR), Part 192. Subpart B of 40 CFR 192 regulated cleanup of contaminated groundwater at the processing sites. The radioactive materials were encapsulated in U.S. Nuclear Regulatory Commission (NRC)-approved disposal cells. The NRC general license for UMTRCA Title I sites is established in 10 CFR 40.27. The Salt Lake City disposal site was included under the general license in 1997.

Processing Site

For structural and safety reasons, several small pockets of contamination exceeding the radium-226 cleanup standard were left in place under a large-diameter, unreinforced concrete storm drain and along a gas line. Both utilities are located along the boundary between the former processing site property and a street right-of-way. Laboratory analyses of samples conducted after excavations were backfilled indicated that thorium-230 concentrations at several locations exceeded the thorium cleanup standard. The Utah Department of Environmental Quality Division of Radiation Control agreed to leave the contaminated soils in place because they pose no unacceptable risk to human health or the environment.

Past processing operations at the site have resulted in contamination in a shallow aquifer beneath the site. Site-related contaminants have not affected water quality of the deeper confined aquifer or surface waters of the Jordan River or Mill Creek. The main processing-related contaminants in the shallow aquifer are molybdenum and uranium. Arsenic concentrations in the shallow aquifer exceed the maximum concentration limits in 40 CFR 192 but are not related to past milling operations at the processing site. Sources of arsenic in groundwater include leaching from landfills, tailings, and slag heaps associated with abandoned smelters in the valley that processed copper, gold, lead, and silver.

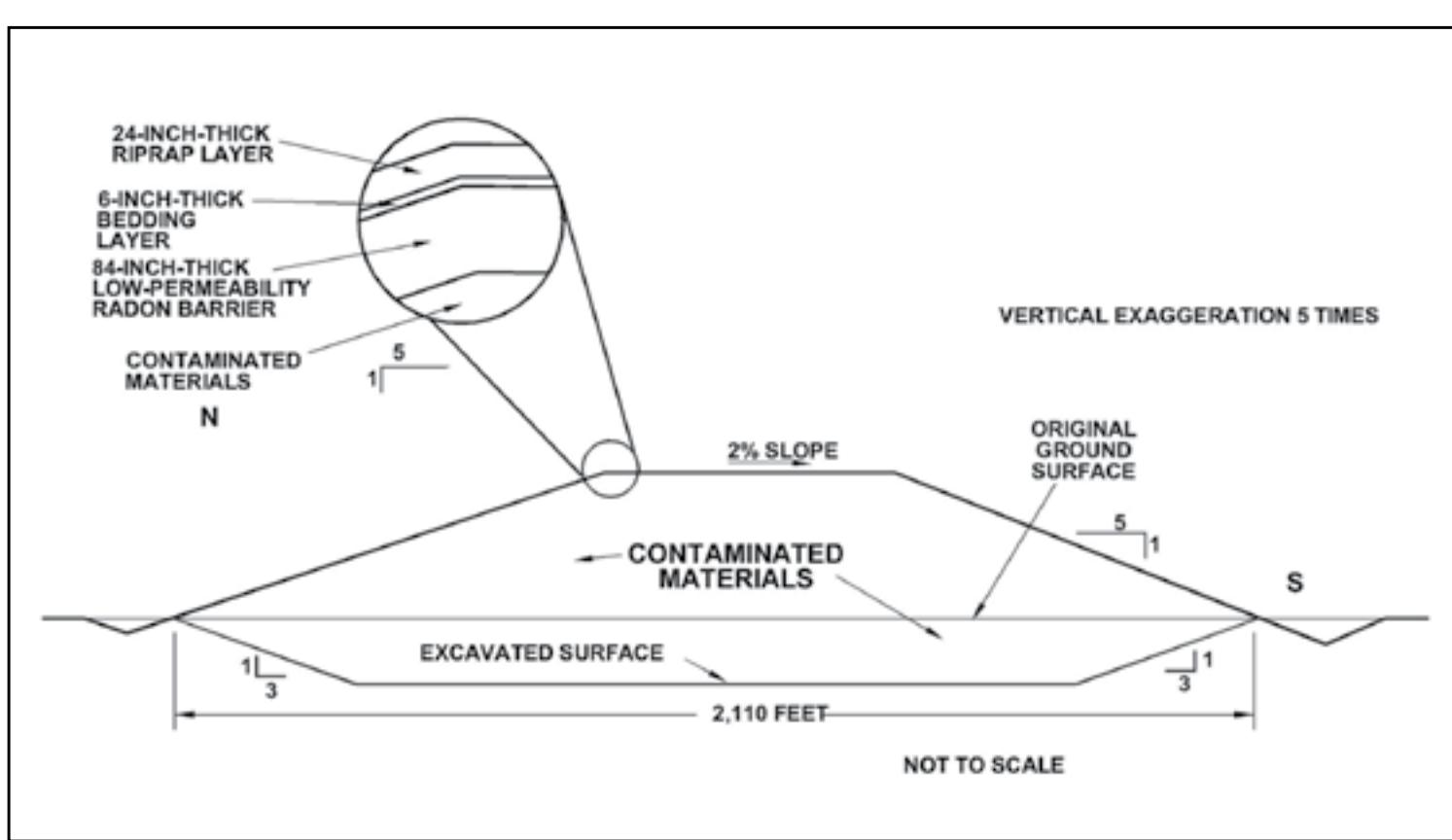
Compliance Strategy

The groundwater compliance strategy for the uppermost aquifer at the Salt Lake City processing site is no remediation with application of supplemental standards. Supplemental standards may be applied at locations where groundwater is classified as limited use (not a current or potential source of drinking water) because it meets any of several criteria. At the processing site, groundwater is classified as limited use because of widespread ambient contamination not related to processing activities that cannot be cleaned up using treatment methods reasonably employed in public water systems (40 CFR 192.11[e][2]). Arsenic concentrations in background areas range up to three times the maximum concentration limit in 40 CFR 192 and are not related to uranium-milling operations performed at the site.

As a best management practice, DOE agreed to monitor groundwater and surface water locations annually for a minimum of five years (through 2004) to track concentrations of molybdenum and uranium in the shallow aquifer, verify that the deeper aquifer remains under artesian pressure, and verify that constituents in surface water present no unacceptable risk to human health or the environment. After five years, DOE would evaluate the need to continue the monitoring program. The deeper aquifer has remained under artesian conditions, and contaminant concentrations in surface water samples have consistently been below maximum concentration limits at all sampling locations. Consequently, DOE submitted a recommendation in 2005 to the state of Utah and NRC that monitoring be discontinued at the site. NRC approved discontinuing surface water monitoring but directed an additional two years of groundwater monitoring as a result of concerns raised by the state. In 2007, DOE received regulatory approval to discontinue all monitoring at the site, and the remaining monitoring wells were decommissioned.

Institutional Controls

The Central Valley Water Reclamation Facility owns the majority of the former processing site property and controls access to the land and to potentially contaminated groundwater in the shallow aquifer. The QUIKRETE Companies Inc. and the Salt Lake County and Salt Lake City Corporation own the remaining eastern portions of the former processing site property (approximately 9 acres). Because contaminated soils were left in place in several areas on the former processing site, a Notice of Residual Radioactive Contamination was developed and signed by DOE, the state of Utah, and the property owner. This notice functions as an institutional control in support of land-use restrictions to discourage construction in contaminated areas. As a result of this enforcement, contaminated groundwater access and use are also restricted within the site boundaries. A copy of the deed notice is appended to a site-specific Long-Term Management Plan prepared for the Salt Lake City site. DOE maintains annual contact with the current property owners as a reminder of the residual radioactive contamination and to verify that no excavations have taken place in contaminated soil areas.



North-south cross section of the Salt Lake City disposal cell.

Disposal Site

The Salt Lake City disposal site is located approximately 81 miles west of Salt Lake City and 2.5 miles south of Interstate 80 on the eastern edge of the Great Salt Lake Desert. The disposal cell is surrounded by EnergySolutions Inc., a commercial low-level radioactive materials disposal site. The area is sparsely populated, and the nearest residences are at least 15 miles from the site. Vegetation in the area is typical of semiarid low shrubland.

The disposal cell encapsulates about 2.8 million cubic yards of radioactive tailings and other contaminated materials with a total activity of 1,550 curies of radium-226.

Disposal Cell Design

The rectangular disposal cell measures approximately 1,115 feet by 2,110 feet and occupies 54 acres of the 99-acre site. The unlined cell extends approximately 9 feet below ground surface and rises 35 feet above the surrounding terrain. A security fence with a locked gate encloses the site, and the perimeter is marked with warning signs.

The cover of the disposal cell is a multicomponent system designed to encapsulate and protect the contaminated materials. The cover is composed of (1) a low-permeability radon barrier (first layer placed over compacted tailings) consisting of a densely compacted silty clay, (2) a sandy bedding layer placed as a capillary break, and (3) a rock (riprap) erosion protection layer. The sloped disposal cell cover promotes rapid runoff of precipitation to minimize leachate. Riprap-armored drainage ditches around the base of the disposal cell intercept runoff and direct the flow into the natural drainages west of the site.

Legacy Management Activities

DOE will continue to contact the property owners at the former processing site as a reminder of the residual radioactive contamination and to document that no excavations have taken place in the contaminated soil areas.

The DOE Office of Legacy Management (LM) manages the disposal site according to a site-specific Long-Term Surveillance Plan to ensure that the disposal cell systems

continue to prevent release of contaminants to the environment. Under provisions of this plan, LM conducts annual inspections of the site to evaluate the condition of surface features and performs site maintenance as necessary.

In accordance with 40 CFR 192.02(a), the disposal cell is designed to be effective for 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years. However, the general license has no expiration date, and LM's responsibility for the safety and integrity of the Salt Lake City disposal site will last indefinitely.

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Contact Information

In case of an emergency at the site contact 911.

LM toll-free emergency hotline: **(877) 695-5322**

Site-specific documents related to the

Salt Lake City, Utah, Disposal and Processing Sites
are available on the LM website at www.energy.gov/lm/salt-lake-city-utah-disposal-and-processing-sites.

For more information about LM activities at the
Salt Lake City, Utah, Disposal and Processing Sites,
contact:

**U.S. Department of Energy
Office of Legacy Management
2597 Legacy Way
Grand Junction, CO 81503**

Email: public.affairs@lm.doe.gov

DOE Office of Legacy Management
(970) 248-6070

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