



L-BAR

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NEW MEXICO

L-Bar, New Mexico | Disposal Site

AN UMTRCA TITLE II SITE

This fact sheet provides information about the **L-Bar site**. Long-term stewardship responsibilities for this site are managed by the **U.S. Department of Energy Office of Legacy Management** under the **Title II** of the **Uranium Mill Tailings Radiation Control Act of 1978**.

Site Information and History

The L-Bar disposal site is in Cibola County approximately 47 miles west of Albuquerque, New Mexico, and 10 miles north of Laguna Pueblo. The site is located on part of the former L-Bar ranch and is about 3 miles east-southeast of the village of Seboyeta. The site was previously owned and operated by SOHIO Western Mining Company (SOHIO).

Mining and milling began in 1977 and continued until 1981, when the mine closed because of economic conditions of the uranium industry. About 2.1 million tons of ore was processed at the mill. The milling operation created radioactive tailings, a predominantly sandy material. Tailings and liquid wastes were pumped in slurry form into an on-site tailings impoundment for disposal.

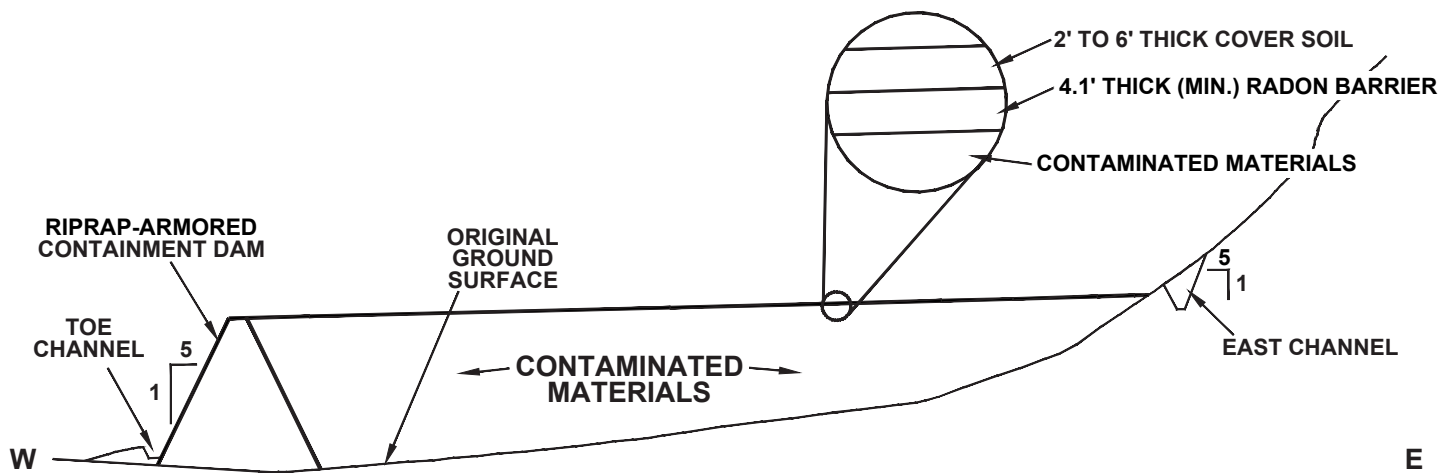
All aboveground structures, including the mine and mill buildings, have been demolished. SOHIO completed site surface reclamation in 2000.

Regulatory Setting

Congress passed the Uranium Mill Tailings Radiation Control Act (UMTRCA) in 1978 (Public Law 95-604). The site is under the jurisdiction of Title II of UMTRCA, which applies to uranium mill sites that were under active U.S.

Nuclear Regulatory Commission (NRC) licenses when UMTRCA was enacted. Title II of the legislation specifies that after reclamation is completed, long-term custody of the site is the responsibility of either the federal government or the host state, at the option of the state. The state of New Mexico declined to become the long-term custodian, and the U.S. Department of Energy (DOE) Office of Legacy Management (LM) assumed responsibility for the site.

Under Title II of UMTRCA, the licensee, SOHIO, was responsible for remedial action. SOHIO encapsulated the tailings and other contaminated materials in an NRC-approved disposal cell. NRC's cleanup and reclamation standards are codified in Title 10 *Code of Federal Regulations* (CFR), Part 40, Appendix A. These standards conform to U.S. Environmental Protection Agency standards specified in 40 CFR 192. The site was included under the NRC general license for UMTRCA Title II sites (10 CFR 40.28) and transferred from SOHIO to LM for long-term custody in 2004.



West-east cross section of the L-Bar disposal cell.

Disposal Site

The site consists of a 100-acre disposal cell located on a 738-acre parcel. The disposal cell contains about 2.1 million tons of tailings. Seepage of tailings fluid has contaminated the First Tres Hermanos aquifer immediately below the disposal cell. The contaminants of concern in groundwater are chloride, nitrate, selenium, sulfate, and uranium.

SOHIO operated a groundwater contaminant-detection and monitoring program from 1981 to 1990 and developed a corrective action program in 1990. Both programs included extraction of contaminated groundwater; the programs together extracted approximately 65 million gallons of groundwater at the site. All extracted groundwater was treated on-site by evaporation. Because of the arid climate, recharge to the aquifer is meager, and the presence of groundwater beneath the site was historically attributable largely to infiltration of processing fluids used in milling operations. Although some contamination is still present, the former extraction programs dewatered most of the water-bearing zone. Groundwater modeling has predicted that the contaminated groundwater plume will never migrate past the site boundary and will eventually recede. The disposal cell cover is expected to effectively restrict infiltration of precipitation into and through the tailings material.

Compliance Strategies

The compliance strategy at the site is application of alternate concentration limits (ACLs) for selenium and uranium and state of New Mexico alternate abatement

standards (AASs) for the other contaminants of concern (and total dissolved solids) in conjunction with groundwater monitoring. ACLs may be adopted within specified areas when established maximum concentration limits are unattainable or when no applicable standards exist. However, the ACLs must not pose a present or potential future hazard to human health or the environment.

The years of pumping at the site essentially dewatered the First Tres Hermanos aquifer at the site, and well yields have decreased to the point that recovery of contaminants is no longer effective. Because groundwater modeling predicts that the remaining contamination will not migrate past the site boundary, ACLs and AASs are protective of human health and the environment. LM conducts groundwater sampling every three years.

Disposal Cell Design

The tailings cover system consists of a radon barrier overlain by cover soil. The radon barrier, designed to limit radon emissions from the tailings to safe concentrations, consists of a minimum thickness of 4.1 feet of compacted clay that was derived on-site from weathered Mancos Shale. Cover soil was placed over the radon barrier to protect it from wind erosion. The cover soil, which also consists primarily of weathered Mancos Shale, increased the average thickness of the cover system to approximately 6 feet. To attain final grading requirements, some sections of the cover system are as much as 10 feet thick. The cover was designed with a modest slope that promotes runoff

but minimizes erosive effects. Naturally occurring vegetation, which has successfully established on the cover, assists in mitigating potential erosion by wind and water.

Drainage from the cover is directed toward a spillway located on the western side of the disposal cell near the center of the containment dam. This spillway, armored with riprap, is designed to collect all runoff from the top of the cover and direct it over the containment dam to a discharge channel below the cell to the west. The face of the containment dam is also armored with riprap for erosion protection.

Diversion channels protect the perimeter of the disposal cell from erosion. These channels are designed to intercept overland runoff from a catastrophic flood event and carry flood water away from the disposal cell.

Legacy Management Activities

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, performs site maintenance as necessary, and monitors groundwater to ensure the continued integrity of the disposal cell and to verify that contaminated groundwater does not migrate off-site.

In accordance with 40 CFR 192.32, 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 for long-term custody has no expiration date, and LM's responsibility for the safety and integrity of the 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

New Mexico, Disposal Site are available on the LM website at www.energy.gov/lm/l-bar-new-mexico-disposal-site.

For more information about LM activities at the **L-Bar, New Mexico, Disposal Site**, contact:

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