

AMBROSIA
LAKE

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NEW MEXICO

Ambrosia Lake, New Mexico | Disposal Site

AN UMTRCA TITLE I SITE

This fact sheet provides information about the **Ambrosia Lake site**. Long-term stewardship responsibilities for this site 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**.

Site Information and History

The Ambrosia Lake disposal site is a former uranium-ore processing facility in McKinley County, approximately 25 miles north of Grants, New Mexico. The site is in the Ambrosia Lake Valley, a broad, elongated valley dominated by desert grassland plant communities and basalt-capped mesas to the north. The site is within the Ambrosia Lake Mining District, near the center of the Grants Mineral Belt. The area surrounding the site is sparsely populated.

The former mill processed more than 3 million tons of uranium ore between 1958 and 1963 and provided uranium for U.S. government national defense programs. Phillips Petroleum Company built the original mill at the site in 1957 to process ore from nearby mines. United Nuclear Corporation purchased and operated the mill for a brief period in 1963, then ceased milling operations but retained ownership of the site. In the late 1970s to early 1980s, United Nuclear Corporation operated an ion exchange system, extracting uranium from mine water. All mill operations ceased in 1982, leaving radioactive mill tailings, a predominantly sandy material, on approximately 111 acres. Wind and water erosion spread some of the tailings across a 230-acre area.

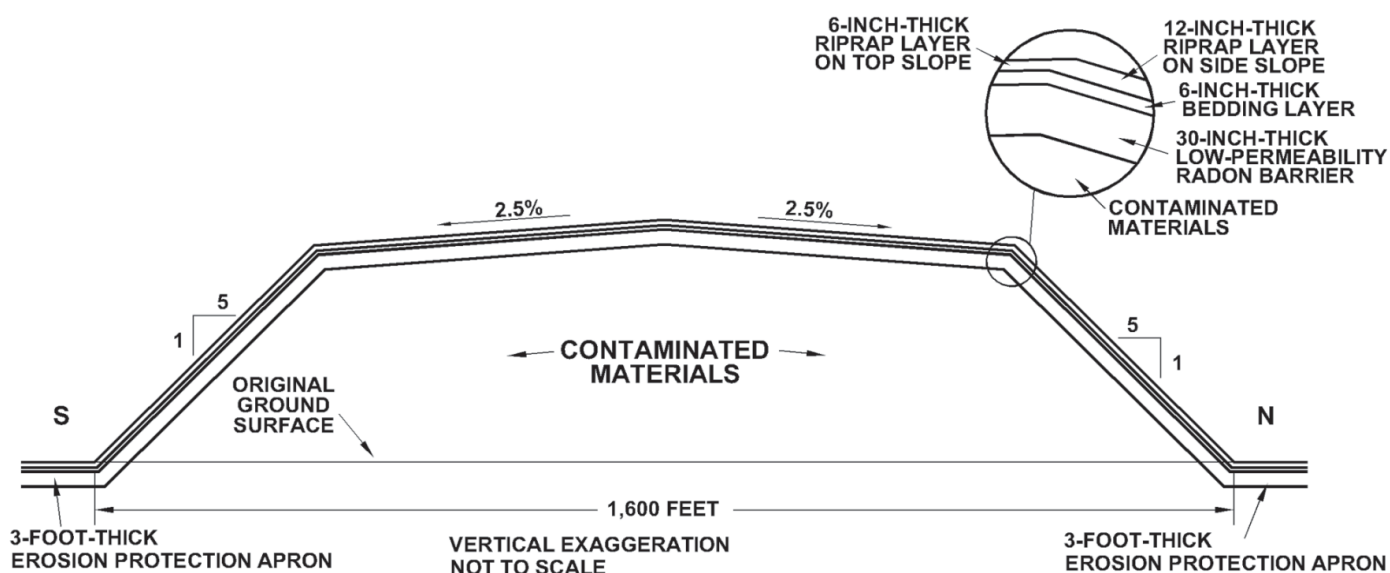
The U.S. Department of Energy (DOE) remediated the site and local contaminated vicinity properties between 1987 and 1995. Surface remediation consisted of consolidating and encapsulating all contaminated material on-site in an engineered disposal cell.

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 site was included under the NRC general license for UMTRCA Title I sites (10 CFR 40.27) in 1998.

Disposal Site

The disposal cell was closed in 1995 upon encapsulation of the tailings and completion of the disposal cell cover. The



South-North Cross Section of the Ambrosia Lake Disposal Cell.

disposal cell contains 6.9 million dry tons of contaminated material, with a total activity of 1,850 curies of radium-226. The disposal cell occupies 91 acres of a 290-acre tract of land.

The uppermost aquifer beneath the site consists of alluvium (river deposits), sandstone, and weathered shale. This uppermost aquifer is not a current or potential source of drinking water because of low yield.

Compliance Strategies

The groundwater compliance strategy for the site is no remediation and the application of supplemental standards. The strategy of supplemental standards may be applied at UMTRCA sites where groundwater in the uppermost aquifer is classified as limited use because it meets any of several criteria. Groundwater at the site meets the criterion of low yield — that is, the quantity of water reasonably available for sustained continuous use is less than 150 gallons per day (40 CFR 192.11[e]). Past milling operations, such as wastewater disposal and seepage from the tailings pile, supplied most of the water that recharged the aquifer. Those sources no longer exist, and the tailings and other contaminated materials are encapsulated in an engineered disposal cell. The alluvium is expected to return to the

conditions of little to no saturation that prevailed before milling and mining began in the area. Because groundwater is not a present or potential resource, no monitoring is required at the site. However, at the request of the New Mexico Environment Department, DOE samples three monitoring wells every three years to monitor disposal cell performance. One monitoring well, 0409, has historically been dry.

Disposal Cell Design

The rectangular disposal cell measures approximately 2,500 feet by 1,600 feet, including the toe apron. The disposal cell rises approximately 50 feet above the surrounding terrain.

The cover of the disposal cell is a multicomponent system designed to encapsulate and protect the contaminated materials. The disposal cell cover comprises (1) a low-permeability radon barrier (first layer placed over compacted tailings) consisting of compacted clayey soil, (2) a bedding layer of granular bedding material, and (3) a rock (riprap) erosion-protection layer for the top and side slopes.

A rock apron of larger-diameter riprap surrounds the toe of the disposal cell. The ground immediately adjacent to the disposal cell perimeter has been graded away from the cell to protect the site from storm water runoff. Disturbed areas have been successfully revegetated.

Legacy Management Activities

The DOE Office of Legacy Management (LM) manages the 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 inspection of the site to evaluate the conditions 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 site will last indefinitely.

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 **Ambrosia Lake, New Mexico, Disposal Site** are available on the LM website at www.energy.gov/lm/ambrosia-lake-new-mexico-disposal-site.

For more information about LM activities at the **Ambrosia Lake, New Mexico, Disposal Site**, contact:

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