



Edgemont, South Dakota, Disposal Site

Long-Term Surveillance and Maintenance Program



U.S. Department of Energy
Grand Junction Office

FACT SHEET

The Grand Junction Office has provided cost-effective and efficient stewardship for more than 10 years

Overview

Uranium ore was processed at Edgemont, South Dakota, from 1956 to 1972. These operations created process-related waste and tailings, a sandlike waste product containing radioactive materials and other contaminants. The Tennessee Valley Authority (TVA), the site licensee, encapsulated the tailings in an engineered disposal cell in 1989.

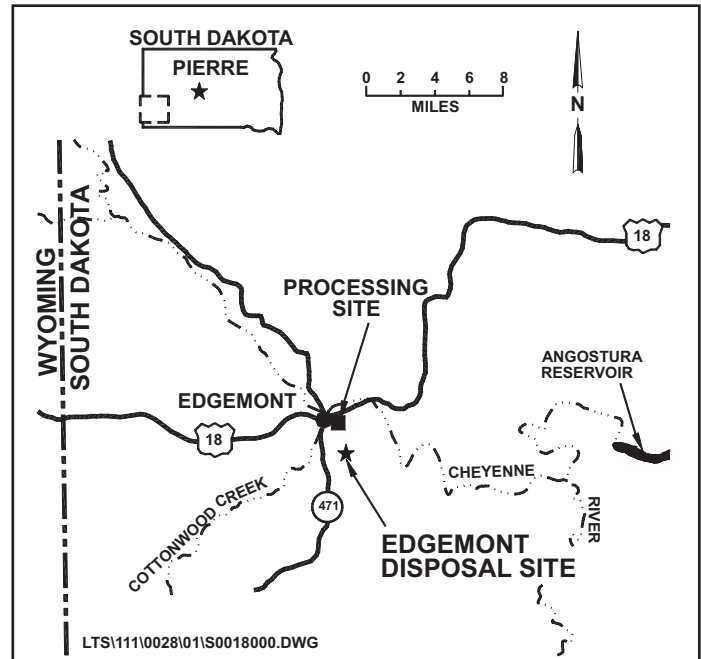
The U.S. Nuclear Regulatory Commission included the Edgemont Disposal Cell under general license in 1996. DOE is responsible, under the general license, for the long-term custody, monitoring, and maintenance of the site. The DOE Long-Term Surveillance and Maintenance (LTSM) Program at the DOE Grand Junction (Colorado) Office is responsible for the long-term safety and integrity of the disposal site.

In 1988, DOE established the LTSM Program to provide stewardship of disposal cells that contain low-level radioactive material after completion of environmental restoration activities. The mission of the LTSM Program is to ensure that the disposal cells continue to prevent release of contaminated materials to the environment. These materials will remain potentially hazardous for thousands of years. As long as the cells function as designed, risks to human health and the environment are negligible.

The LTSM Program maintains the safety and integrity of the disposal cell through periodic monitoring, inspections, and maintenance; serves as a point of contact for stakeholders; and maintains an information repository at DOE Grand Junction Office for all sites in the LTSM Program.

Regulatory Setting

Congress passed the Uranium Mill Tailings Radiation Control Act (UMTRCA) in 1978 (Public Law 95-604). The Edgemont site falls under the jurisdiction of Title II of UMTRCA, which applies to uranium millsites that were under active U.S. Nuclear Regulatory Commission (NRC) licenses at the time UMTRCA was passed. 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 (DOE) or the host State, at the option of the State. South Dakota declined to be long-term custodian; therefore, DOE assumed responsibility for the site.

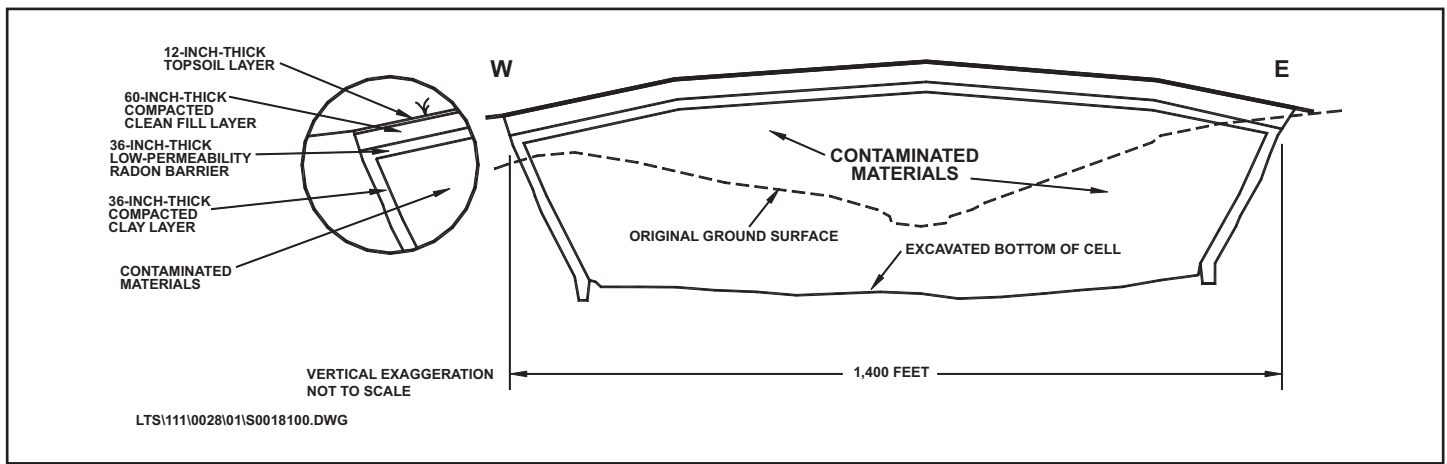


Under Title II of UMTRCA, the licensee, TVA, was responsible for site reclamation. TVA completed reclamation in 1989 by encapsulating the radioactive material in an NRC-approved disposal cell. The site was included under general license by NRC and transferred to DOE for long-term custody in 1996. Cleanup and reclamation standards were promulgated by NRC 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 NRC general license is in accordance with 10 CFR 40.

Edgemont Disposal Site

The Edgemont Disposal Site is approximately 2 miles south of the town of Edgemont in Fall River County, South Dakota. The predominant land use in the area is grazing; the region is sparsely populated.

The Edgemont uranium mill was constructed in 1956 and was operated by Mines Development, Inc., a subsidiary of Susquehanna-Western, Inc., of Chicago, Illinois. Almost all the ore processed at Edgemont was mined in the Black Hills area of southwestern South Dakota and northeastern Wyoming. TVA acquired the mill facility in 1974 but decided against processing uranium ore at the mill based on engineering, economic,



West-East Cross Section of Edgemont Disposal Cell

and environmental studies. Consequently, TVA never operated the mill.

NRC reviewed an environmental analysis and concurred with the reclamation alternative of relocating the tailings to an engineered disposal site 2 miles from the former millsite. Decommissioning activities began in 1986 and reclamation was completed in 1989. Concurrently, contaminated materials from vicinity properties in Edgemont were removed by the DOE Uranium Mill Tailings Remedial Action Project and disposed of in the disposal cell. The disposal cell contains 4,000,000 tons of contaminated material, with a total activity of 527 curies of radium-226.

The disposal site is located at the head of an ephemeral drainage, a tributary to the Cheyenne River. The area is underlain by as much as 30 feet of eolian sandy silt and silty sand along the ridge forming the eastern perimeter of the site and as much as 30 feet of alluvial silty clay across much of the floor and western perimeter of the disposal site.

The base of the disposal cell lies on shale of the Belle Fourche Formation, which has a thickness of 185 feet adjacent to the site. Underlying the Belle Fourche Formation are more than 300 feet of generally impermeable strata that isolate the uppermost confined aquifer from the surface. Consequently, no groundwater monitoring is conducted at this site.

Cell Design

The disposal cell is approximately 1,400 feet wide and 3,100 feet long and occupies 100 acres of the 360-acre site. The site is surrounded by a barbed-wire fence and is marked with a warning sign and a granite monument.

A natural drainage was excavated to impermeable bedrock to contain the contaminated materials, which were held back by a clay-core dam constructed below the tailings impoundment. The excavation walls were lined with compacted clay.

The 9-foot-thick cover over the tailings consists of a 36-inch-thick compacted clay radon barrier, a 60-inch-thick compacted fill frost protection layer, and a 12-inch-thick layer of topsoil material. The cell design promotes rapid runoff of precipitation to minimize leachate.

The site location and design were selected to minimize the potential for erosion from on-site runoff or storm water flow. All surrounding disturbed areas were regraded and reseeded with native species to prevent wind and water erosion. DOE permits limited grazing on the land to ensure the success of the revegetation. An existing gully northwest of the cell and the containment dam face were armored with riprap for erosion protection. Additional riprap- and grass-protected diversion ditches were installed to channel runoff water away from the disposal cell.

LTSM Program Activities

The LTSM Program manages the site according to a long-term surveillance plan (LTSP) prepared specifically for the Edgemont site. Under provisions of the LTSP, the LTSM Program conducts annual inspections of this site and performs maintenance as necessary.

The disposal cell at Edgemont is designed and constructed to last for 200 to 1,000 years. However, the general license has no expiration date, and DOE understands that its responsibility for the safety and integrity of the Edgemont site will last indefinitely.

Contacts

For more information about the LTSM Program or about the Edgemont Disposal Site, contact

U.S. Department of Energy Grand Junction Office
2597 B³/₄ Road, Grand Junction, CO 81503
Art Kleinrath, LTSM Program Manager (970) 248-6037
Audrey Berry, Public Affairs (970) 248-7727

or visit the Internet site at
<http://www.gjo.doe.gov/programs/ltsm>