



Edgemont, South Dakota, Disposal Site

FACT SHEET

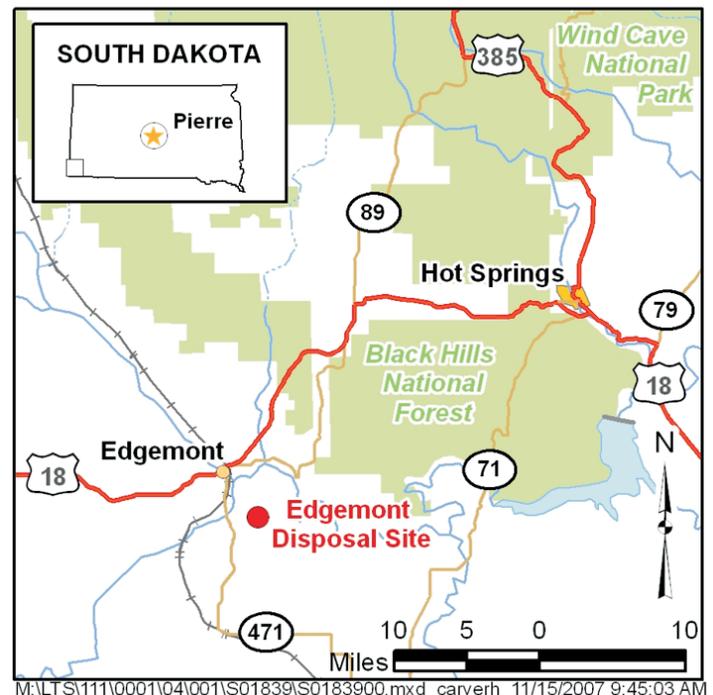
This fact sheet provides information about the Uranium Mill Tailings Radiation Control Act of 1978 Title II disposal site at Edgemont, South Dakota. This site is managed by the U.S. Department of Energy Office of Legacy Management.

Site Description and History

The former Edgemont uranium mill was located at Edgemont, South Dakota, in Fall River County near the southwest corner of South Dakota. The mill was constructed in 1956 and was operated by Mines Development, Inc., a subsidiary of Susquehanna-Western, Inc. Production capacity of the mill was 500 tons of ore per day. Most of the ore came from mines in the Black Hills area of southwestern South Dakota and northeastern Wyoming. Milling operations ceased in 1972, and the Tennessee Valley Authority (TVA) purchased the mill in 1974, including mineral rights to about 99,000 acres of exploration properties in the Edgemont area. However, after evaluating engineering, economic, and environmental studies, TVA decided against operating the facility. As a result, the U.S. Nuclear Regulatory Commission (NRC) required TVA to decommission the mill. Decommissioning activities began in 1986 and were completed in 1989. Milling operations had produced radioactive tailings, a predominantly sandy material. Cleanup of the site involved excavating approximately 4 million tons of tailings, contaminated soil, building equipment and debris, and contaminated soil and materials from vicinity properties and moving them to a newly constructed disposal cell 2 miles south of the millsite.

Regulatory Setting

Congress passed the Uranium Mill Tailings Radiation Control Act (UMTRCA) in 1978 (Public Law 95-604). The Edgemont site is under the jurisdiction of Title II of UMTRCA, which applies to uranium millsites that were under active NRC license when 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 or the host state, at the option of the state. South Dakota declined to become the long-term custodian of the Edgemont site, and the U.S. Department of Energy (DOE) assumed custodial responsibility. Under Title II of UMTRCA, the licensee, TVA, was responsible for remedial action. NRC's cleanup and reclamation

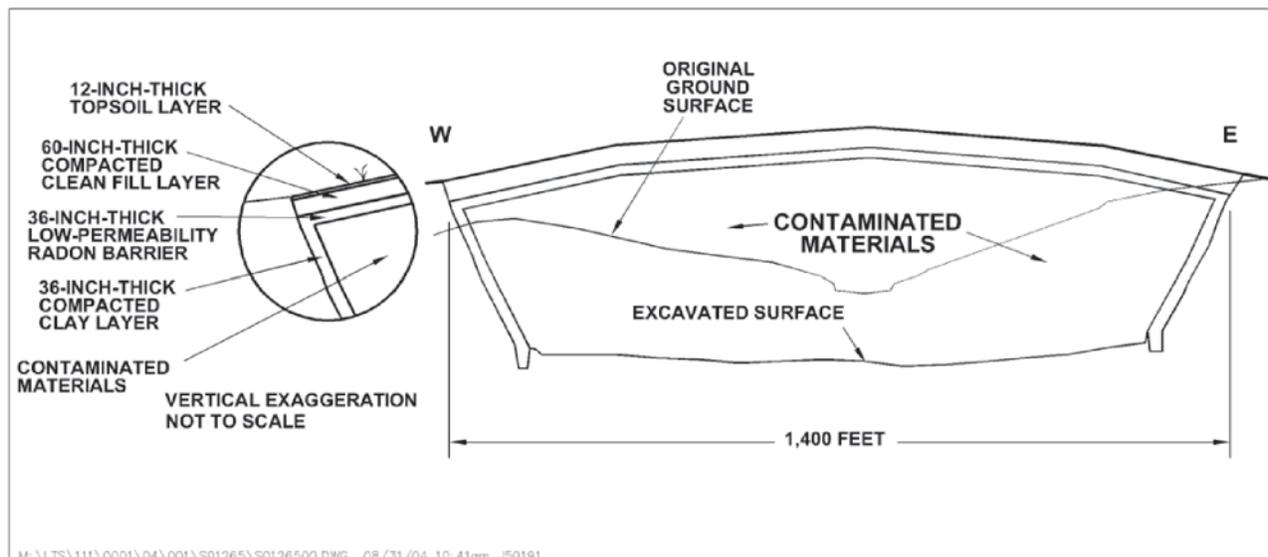


Location of the Edgemont Disposal Site

standards are promulgated in Title 10 *Code of Federal Regulations* (CFR) Part 40, Appendix A. These standards conform to U.S. Environmental Protection Agency standards in 40 CFR 192. The site was included under NRC's general license for long-term custody in 1996. At that time, title to the site transferred from TVA to DOE.

Disposal Site

The disposal site is located in a basin at the head of an ephemeral tributary to the Cheyenne River. The site overlies a 300- to 700-foot-thick layer of shale of sufficiently low permeability that NRC granted an exemption from the requirement of a liner beneath the disposal cell. The uppermost aquifer in the area is beneath the shale layer. Because contaminants from the disposal cell are not expected to ever come into contact with the aquifer, there is no ground water monitoring system at the disposal site, and ground



West-East Cross Section of the Edgemont Disposal Cell

water monitoring is not a part of the long-term surveillance requirements for the site. The primary land use in the area is livestock grazing.

Disposal Cell Design

The disposal cell encompasses about 100 acres and contains about 4 million tons (3 million cubic yards) of contaminated material with a total activity of 527 curies of radium-226. Placing the disposal cell at the head of an ephemeral drainage required construction of a containment dam of compacted clay at the down-gradient face of the disposal basin. The base of the cell is below ground surface; compacted clay perimeter walls averaging 13 feet in thickness are keyed into shale at the base of the cell and extend up the sides of the cell. The clay walls were designed to physically separate the contaminated tailings material from surrounding soils and any perched water zones that may be present.

The cover of the disposal cell is a multicomponent system designed to encapsulate and protect the contaminated materials. The 9-foot-thick disposal cell cover comprises (1) a low-permeability radon barrier (first layer placed over compacted tailings) consisting of compacted clay, (2) clean, compacted fill, and (3) a layer of topsoil material. The top of the cell and surrounding disturbed areas were seeded with native grasses. An existing gully northwest of the cell and the containment dam face were armored with rock (riprap) for erosion protection. Additional riprap- and grass-protected diversion ditches were installed to channel runoff water away from the disposal cell.

Legacy Management Activities

DOE manages the Edgemont 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, DOE conducts annual inspections of the site to evaluate the condition of surface features and performs site maintenance as necessary. The encapsulated materials will remain potentially hazardous for thousands of years.

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 has no expiration date, and DOE's responsibility for the safety and integrity of the Edgemont disposal cell will last indefinitely.

Contacts

Documents related to the Edgemont Disposal Site are available on the DOE Legacy Management website at <http://www.LM.doe.gov/land/sites/sd/edgemont/edge.htm>.

For more information about DOE Legacy Management activities at the Edgemont Disposal Site, contact

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