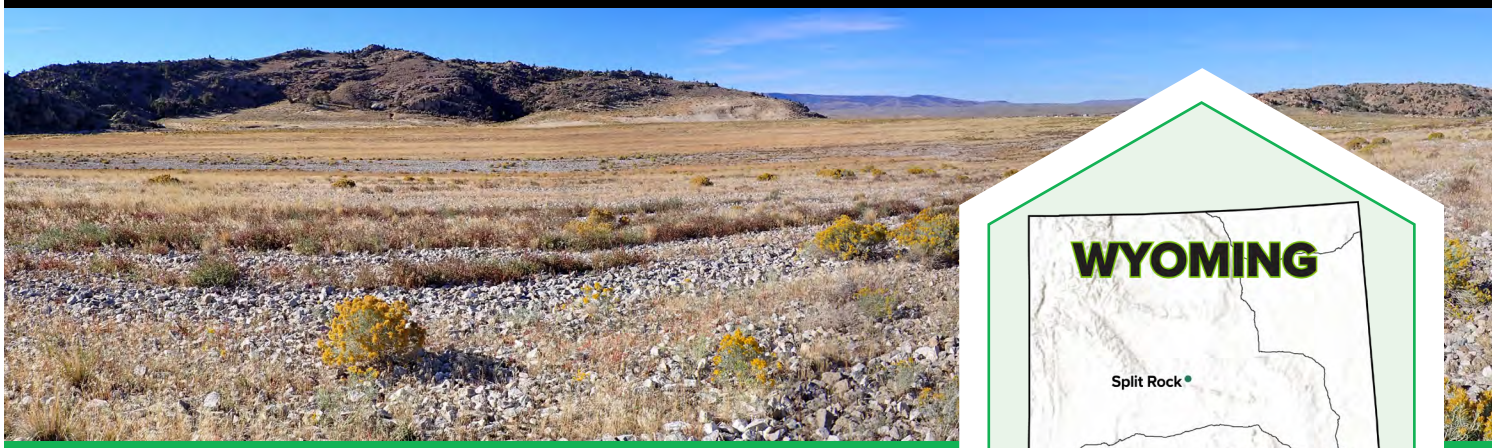
Fact Sheet

U.S. DEPARTMENT OF ENERGY | Legacy Management



Split Rock, Wyoming, Disposal Site

An UMTRCA Title II site

The **U.S. Department of Energy Office of Legacy Management** manages the **Split Rock, Wyoming, Disposal Site** under Title II of the **Uranium Mill Tailings Radiation Control Act** of 1978.

Background

In the 1950s and 1960s, demand for uranium surged in support of U.S. defense and commercial power programs, leading to a proliferation of uranium mines and mills. The uranium milling process created a legacy of radioactive waste and other milling-related contamination that persists today. Since then, the federal government has created programs to clean up and manage the former uranium milling and disposal sites. After cleanup, many of these sites are managed by the U.S. Department of Energy (DOE) Office of Legacy Management (LM).

Site Information and History

The Split Rock, Wyoming, Disposal Site is located in unincorporated Fremont County, 2 miles northeast of Jeffrey City, Wyoming.

Western Nuclear Incorporated (WNI) built and operated a uranium mill at the site from 1956 to 1981. At the peak of the mill's operation it processed 1,700 tons of uranium ore per day. Most of the ore came from open-pit and underground mines within 20 miles of the site. In its 25 years of operation the mill processed about 7.7 million tons of ore. In 1981, the Split Rock mill went into standby mode following lower demand and prices for uranium. Five years later the mill closed.

Byproducts of the milling process include low-level radioactive mill tailings, a predominantly sandy material, and other processing-related waste solutions. WNI moved these waste products into three unlined, engineered, dirt-filled reservoirs. The contaminated processing fluids and water seeped downward from the reservoir into the underlying aquifer, causing groundwater contamination.

In 1988, WNI initiated the formal cleanup process at the site. WNI addressed the present and future health hazards from radon gas by encapsulating the radioactive materials. The disturbed land surface at the site was reclaimed to native topography. Groundwater corrective action at the site began in 1990 with the extraction of contaminated groundwater with the primary purpose of achieving premilling contaminant concentrations in the groundwater. Cleaning up the surface area, encapsulating the radioactive materials, and restoring the groundwater addressed the risks that radon and other contaminants posed at the site.

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) 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. Wyoming declined to become the long-term custodian of the site, and LM assumed custodial responsibility.

Under Title II of UMTRCA, WNI was responsible for reclamation. NRC's cleanup and reclamation standards are publicized in Title 10 *Code of Federal Regulations* (CFR) Part 40, Appendix A. These standards conform to U.S. Environmental Protection Agency (EPA) standards in 40 CFR 192. In 2020, under NRC agreement state authority, the state of Wyoming determined that

the reclaimed site met UMTRCA standards. NRC concurred with this finding and the site was included under NRC's general license for long-term custody in 2023. At that time, lands at the site owned by WNI were deeded to LM, who is responsible for post-closure custody and care.

Disposal Site

The site consists of a 265-acre disposal cell located on a 5,431-acre parcel. The site lies in the high plains and sagebrush prairie of central Wyoming. Elevation at the site ranges from a low of about 6,300 feet to a high of about 6,800 feet. Topographically, the disposal cell itself lies at the base of a saddle between two of the granite peaks located on-site. At the northern boundary of the site property is the Sweetwater River, which is approximately 0.5 mile north of the disposal cell and an east-flowing tributary of the North Platte River.

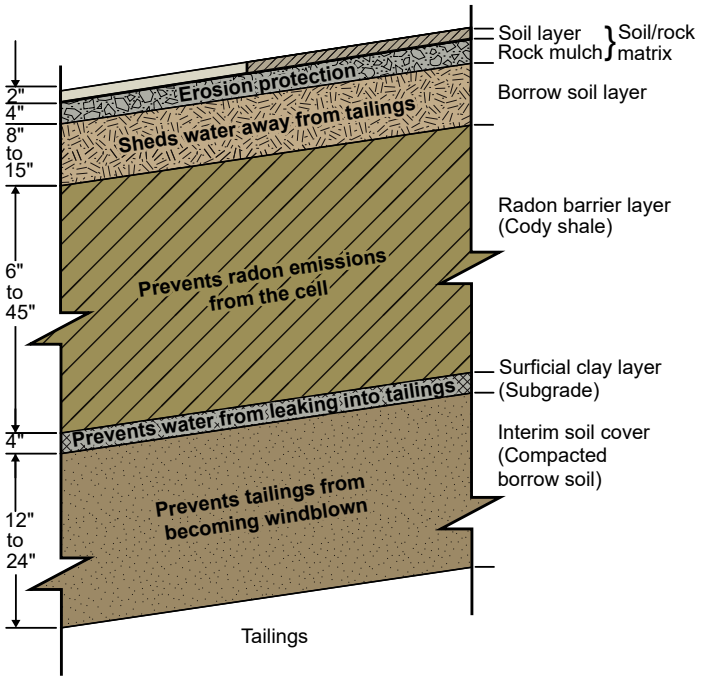
Reclamation at the site consisted of dismantling the mill, crushing the debris, burying the buildings underneath the footprint of the former mill, and disposing of contaminated materials in tailings impoundments. Approximately 7.7 million tons of tailings, billions of gallons of process effluent, and 2,750 curies of radium-226 were deposited into three primary tailings disposal areas that were used during the operational life of the mill. WNI stabilized the contaminated tailings and debris in an aboveground, engineered disposal cell at the site.

Disposal Cell Design

The land surface of the disposal cell area at the Split Rock site was reclaimed to achieve gentle topography with a series of diversion channels that distribute storm water away from the reclaimed tailings impoundment. The final surface at the site combines grading and rock armoring to achieve the necessary surface water run-on and runoff control and erosion protection to satisfy the longevity design requirements.

WNI installed an interim cover made of 1 to 2 feet of compacted borrow soil (material transferred from elsewhere) over the regraded tailings and former mill area to prevent windblown contamination.

The cover on top of the disposal cell has a combination of rock armoring, contouring, revegetation, and drainage features that keep radon levels below the EPA standard, divert storm water away from the cell, prevent erosion from damaging the disposal cell, and ensure the materials placed in the disposal cell remain encapsulated. WNI met cleanup standards within an NRC-accepted reclamation plan by 2007.



Typical cross section of the final cover for the tailings impoundment.

Compliance Strategies

In 1990, WNI began a groundwater remediation program by installing a series of extraction wells to remove contaminated groundwater and tailings from the existing impoundments. In 1999, WNI concluded that its work to restore the groundwater would not reduce the levels of contamination in the aquifer premilling conditions. WNI applied for alternate concentration limits (ACLs) with NRC for several contaminants of concern. NRC approved ACLs in 2006.

WNI reported two protection standards that exceeded requirements:

1. 2008: groundwater for selenium in the southwest valley.
2. 2011: groundwater for nitrate in the southwest valley.

For the first, WNI proposed a revised ACL in 2009, which NRC approved in 2010. For the second, WNI continued to work with NRC to resolve the nitrate ACL exceedance and address NRC concerns related to groundwater modeling used to establish the long-term surveillance boundary (LTSB).

In 2016, WNI formally requested a license amendment to increase the nitrate ACL and expand the LTSB. In 2018, WNI reported an exceedance of the groundwater protection standards for selenium in the northwest valley to the state of Wyoming. In 2019, under agreement state authority, the state of Wyoming approved revisions to the nitrate ACL. The licensee proposed a revised ACL in 2019 for selenium and the state of Wyoming approved this revised ACL in 2019.

View from north of the Sweetwater River looking south toward the granite peaks at the site.

Legacy Management Activities

LM manages the site according to a site-specific Long-Term Surveillance Plan to ensure that the disposal cell continues to prevent the release of contaminants into the environment. Under provisions of this plan, LM conducts annual inspections of the site to evaluate the condition of surface features and conducts environmental monitoring at the site to evaluate the condition of groundwater and surface water. LM also performs site maintenance as necessary and monitors groundwater to verify the continued integrity of the disposal cells and to verify that contaminated groundwater does not migrate off the 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 has no expiration date, and LM's responsibility for the safety and integrity of the Split Rock disposal 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 **Split Rock, Wyoming, Disposal Site** are available at **www.energy.gov/lm/Split-Rock-Wyoming-disposal-site**.

For more information about LM activities at the **Split Rock, Wyoming, Disposal Site**, contact:

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