U.S. DEPARTMENT OF ENERGY | Legacy Management

Sherwood, Washington, Disposal Site

FACT SHEET

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

Site Description and History

The Sherwood Disposal Site is located at a former uranium-ore processing site operated by Western Nuclear, Inc. The site is in Stevens County near the town of Wellpinit, in eastern Washington on the Spokane Indian Reservation, about 35 miles northwest of the city of Spokane.

Western Nuclear used an acid-leach process to extract uranium from ore hauled from an open pit mine 0.5 mile from the mill. The capacity of the mill was about 2,100 tons of ore per day. Milling operations began in 1978, and the mill closed in 1984 because of a decline in the uranium market. The historical mission of the mill was to provide uranium concentrate exclusively to private industry. Mill decommissioning began in 1992, and all cleanup and reclamation activities were completed by 1996.

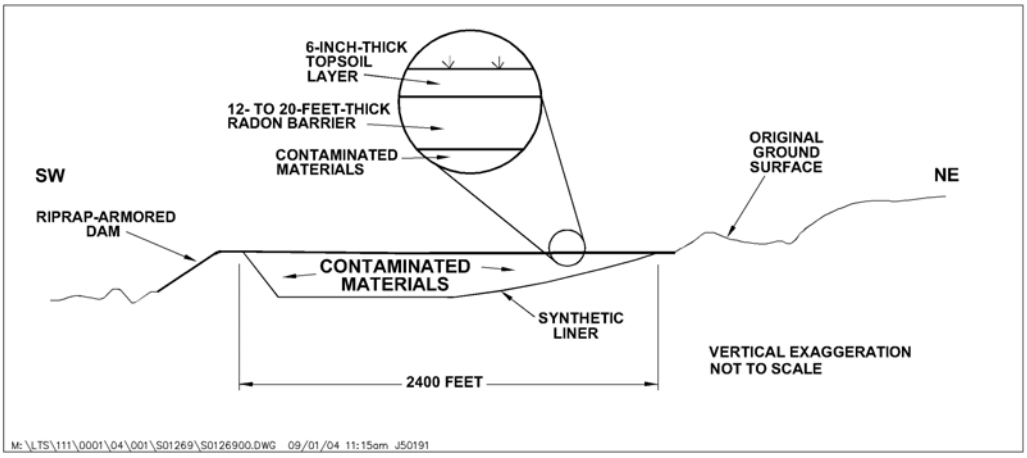
Milling operations produced radioactive tailings, a predominantly sandy material. The tailings, along with millsite soils, building equipment, and debris contaminated with tailings and low-level radioactivity, were encapsulated in an engineered disposal cell constructed on the millsite. The acid-leached tailings were neutralized with lime before disposal. The disposal cell contains about 2.9 million tons (2.4 million cubic yards) of uranium mill tailings and an additional 350,000 cubic yards of contaminated millsite materials with a total activity of 470 curies of radium-226.

Regulatory Setting

Congress passed the Uranium Mill Tailings Radiation Control Act (UMTRCA) in 1978 (Public Law 95-604). The Sherwood site is under the jurisdiction of Title II of UMTRCA, which applies to uranium millsites 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, known as an Agreement State, at the option of the state. The Washington State licensing program for

Locations of the Sherwood Disposal Site

UMTRCA Title II sites operates under state regulations as part of the Agreement State program. The Washington State Department of Health and Environment terminated the state license for the Sherwood site in accordance with NRC requirements. Because the disposal site is on the Spokane Indian Reservation, which is owned by the federal government and held in trust for the tribe, no agreement of transfer is required to convey property rights for the site to the U.S. Department of Energy (DOE). An agreement for long-term surveillance, maintenance, and permanent access, which allows DOE to fulfill its custodial responsibilities required for UMTRCA Title II sites, was executed between the Spokane Indian Tribe and DOE. Under Title II of UMTRCA, the licensee, Western Nuclear, Inc., was responsible for remedial action. NRC's cleanup and reclamation standards are promulgated in Title 10 *Code of Federal Regulations* (CFR) Part 40, Appendix A. These standards conform to



Southwest-Northeast Cross Section of the Sherwood Disposal Cell

U.S. Environmental Protection Agency standards in 40 CFR 192. The site was included under NRC's general license for long-term custody in March 2001.

Disposal Site

The millsite property covers about 380 acres, including the 100-acre disposal cell. The cell is located approximately in the center of a 730-acre drainage basin, which is enclosed on the north, east, and west sides by outcrops of quartz monzonite bedrock. The cell overlies sandy alluvial soil that ranges in thickness from zero at the bedrock interface to about 200 feet at monitor wells immediately downgradient (south) of the cell.

Ground water is present at the base of the alluvial material and in the weathered upper 50 feet of underlying bedrock. No contamination has been detected in ground water downgradient of the disposal cell. Because of the tailings neutralization process, only a few contaminants (arsenic, nickel, thallium, radium, and uranium) were identified in pore fluid within the tailings in concentrations above background or state or federal standards. No ground water remediation is planned. DOE conducts annual ground water monitoring at one background well and two downgradient wells as a best management practice. Ground water samples are analyzed for chloride, sulfate, and total dissolved solids.

Land surrounding the Sherwood site provides habitat for wildlife and is used for logging and livestock grazing. Wildlife and livestock have access to the unfenced disposal site.

Disposal Cell Design

A containment dam was constructed at the downgradient end of the disposal cell to enclose the disposal cell drainage area, and a 6-inch layer of riprap (rocks) was placed on the downslope face of the containment dam to control erosion. The disposal cell has a synthetic liner on the bottom and sides and is capped with 12 to 20 feet of uncompacted sandy and clayey-sandy soil to control radon flux. The cover includes 6 inches of topsoil that was vegetated with native grasses, forbs, shrubs, and trees. A drainage channel along the perimeter of the disposal cell is designed to intercept overland flow and convey storm water around and away from the cell. The perimeter drainage channel is lined with riprap to control erosion.

Legacy Management Activities

DOE manages the Sherwood 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, performs site maintenance as necessary, and monitors ground water to verify the continued integrity of the disposal cell. 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 Sherwood disposal cell will last indefinitely.

Contacts

Documents related to the Sherwood Disposal Site are available on the DOE Office of Legacy Management website at http://www.LM.doe.gov/land/sites/wa/sherwood/sherwood.htm.

For more information about DOE Office of Legacy Management activities at the Sherwood Disposal Site, contact

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