Bluewater, New Mexico, 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 Bluewater, New Mexico, from 1953 to 1982. These operations created process-related waste and tailings, a sandlike waste product containing radioactive materials and other contaminants. ARCO Coal Company (ARCO), the site licensee, completed encapsulation of the tailings in two large engineered disposal cells in 1995.

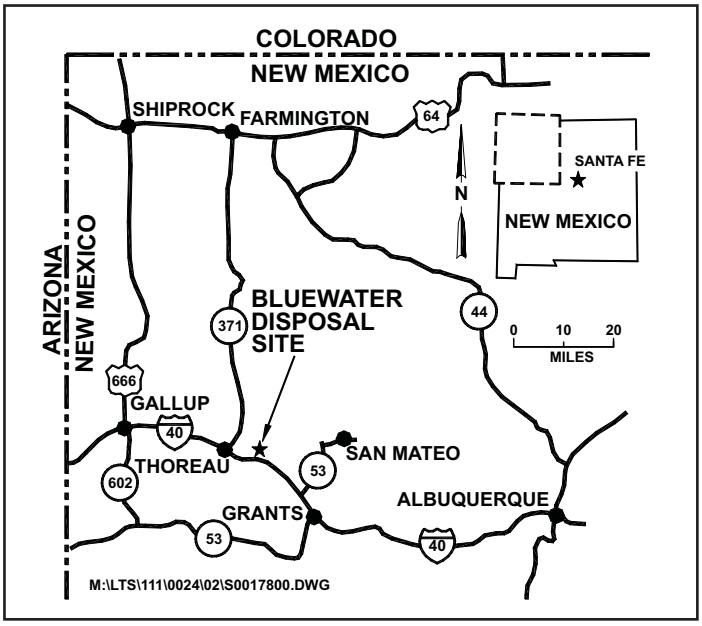
The U.S. Nuclear Regulatory Commission included the Bluewater Disposal Cell under general license in 1997. DOE is responsible, under the general license, for the long-term custody, monitoring, and maintenance of the site. The DOE Long-Term Surveillance and Maintenance (LTSM) Program at the DOE Grand 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 the 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 Bluewater site falls under the jurisdiction of Title II of UMTRCA, which applies to uranium millsites that were under active U.S. Nuclear Regulatory Commission licenses 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 (DOE) or the host State, at the option of the State. New Mexico declined to become the long-term custodian; therefore, DOE

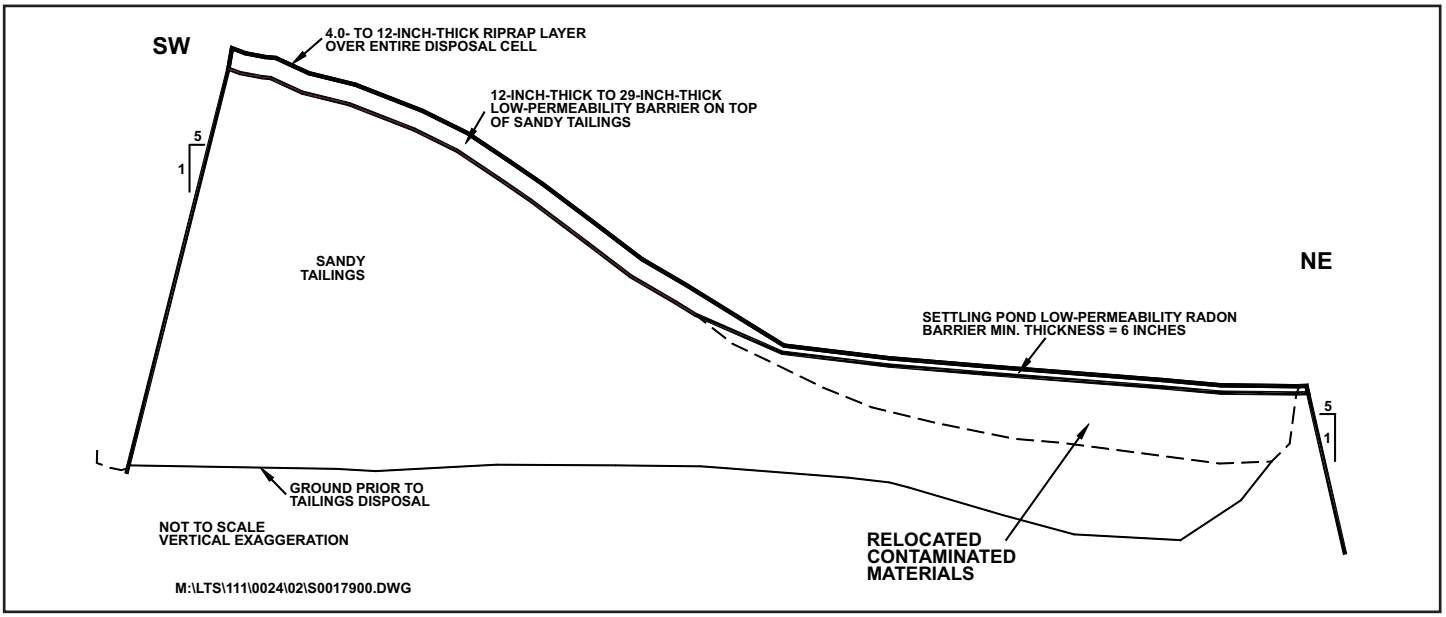


assumed custodial responsibility for the site. Under Title II of UMTRCA, the licensee, ARCO, was responsible for remedial action. ARCO completed site reclamation in 1995 by encapsulating the radioactive material in a U.S. Nuclear Regulatory Commission (NRC)-approved disposal cell. The site was included under general license by NRC and transferred to DOE for long-term custody in 1997. 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.

Bluewater Disposal Site

The Bluewater Disposal Site is in north-central Cibola (formerly Valencia) County in west-central New Mexico. The site is approximately 9 miles northwest of Grants, New Mexico. The predominant land use in the area is grazing; the region is sparsely populated.

The original Bluewater carbonate-leach uranium mill was constructed by the Anaconda Copper Company to process ore from mines in the nearby Todilto limestone. Operations began in 1953. The discovery of sandstone uranium ores and development of the Jackpile and Paguate mines resulted in construction of an acid-leach mill that began operation in 1957. Most of the tailings at



Southwest-Northeast Cross Section of Main Bluewater Disposal Cell

the Bluewater site are from the acid-leach process. Milling operations ceased in 1982. In 1986, Anaconda became ARCO, the final site licensee. Mill decommissioning activities began in 1989. Site reclamation began in 1991, and all reclamation activities were completed by 1996.

Several years of active groundwater treatment did not entirely succeed in reducing contaminant levels to background concentrations. Subsequently, alternate concentration limits were granted for the site. DOE conducts ground-water monitoring at the Bluewater site to verify continued compliance with the approved alternate concentration limits.

Approximately 24,000,000 tons of contaminated material with a total activity of 12,330 curies of radium-226 are encapsulated at the Bluewater site in two large disposal cells.

Cell Design

The main tailings disposal cell was the principal repository for tailings from the acid-leach process. This cell is 320 acres in extent. Tailings encapsulated in this cell are covered with a low-permeability radon barrier that varies in thickness from 12 to 29 inches. A layer of rock (riprap) 4 to 12 inches thick covers the radon barrier to protect it from erosion. The carbonate tailings pile contains tailings from the carbonate-leach process and is covered by a similar radon barrier and a layer of riprap to protect the disposal cell from erosion. The cell design promotes rapid runoff of precipitation to minimize leachate. All surrounding disturbed areas were regraded and reseeded with native species.

The Bluewater Disposal Site includes a small disposal cell containing polychlorinated biphenyl (PCB)-contaminated uranium mill tailings. This disposal cell is under EPA permit and is in compliance with the Toxic Substances Control Act. The PCB-contaminated material was sealed in drums and placed on a 3-foot-thick clay liner. Voids between the drums were filled with a soil-cement mixture to prevent long-term subsidence. This cell was then covered with a 36-inch-thick clay cap, an 18-inch-thick radon barrier, and a 6-inch-thick layer of riprap erosion protection.

LTSM Program Activities

The LTSM Program manages the site according to a long-term surveillance plan (LTSP) prepared specifically for the Bluewater site. Under provisions of the LTSP, the LTSM Program (1) conducts annual inspections of this site to evaluate the condition of surface features, (2) performs maintenance as necessary, and (3) continues to monitor groundwater.

The disposal cell at Bluewater 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 Bluewater site will last indefinitely.

Contacts

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

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