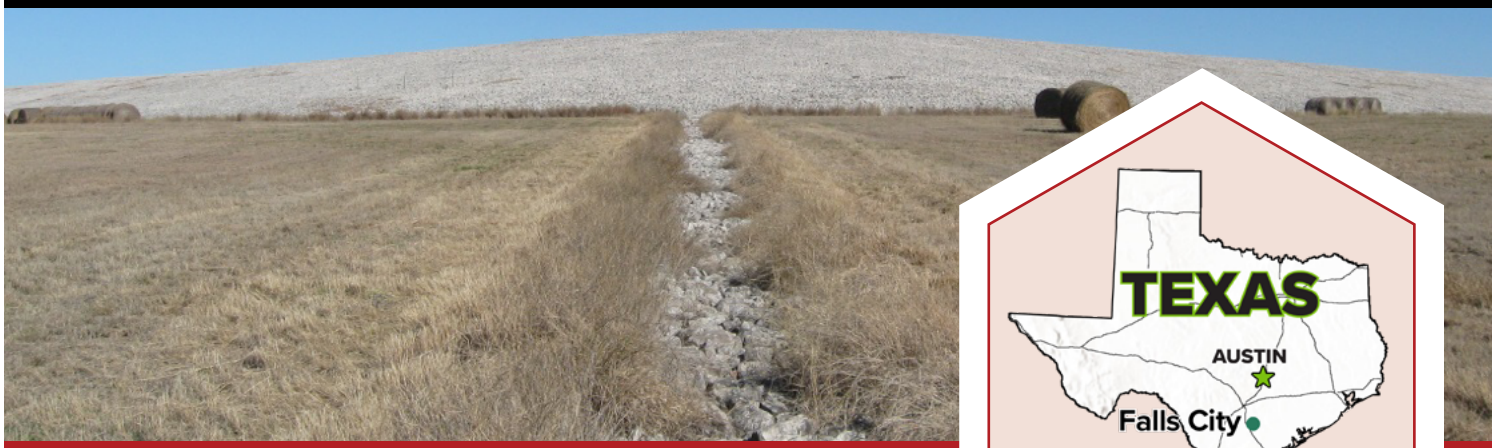
Fact Sheet

U.S. DEPARTMENT OF ENERGY | Legacy Management



Falls City, Texas, Disposal Site

An UMTRCA Title I site

This fact sheet provides information about the **Falls City site**. This site is managed by the **U.S. Department of Energy Office of Legacy Management under Title I** of the **Uranium Mill Tailings Radiation Control Act of 1978**.

Site Information and History

The Falls City disposal site is the location of a former uranium-ore processing facility in Karnes County, Texas, approximately 40 miles southeast of San Antonio and approximately 8 miles southwest of Falls City. The mesquite-dominated woodlands and cleared ranchlands surrounding the site are used primarily for agriculture and are sparsely populated.

Susquehana-Western, Inc., constructed the original mill and operated the facility from 1961 to 1973. Uranium was extracted from sandstone ore with a sulfuric acid leaching process, which created approximately 3.1 million tons of radioactive mill tailings. The tailings, a predominantly sandy material, were deposited in unlined open-pit uranium mines on the site. Between 1978 and 1982, Solution Engineering, Inc., conducted solution mining to extract additional uranium from the tailings in some of the pits using a system of injection and recovery wells. Fluid from this leaching process was pumped to a pond in one of the tailings pits. In 1982, the fluids had evaporated and the tailings in all the pits were covered with soil and planted with native grasses.

The U.S. Department of Energy (DOE) remediated the Falls City site and contaminated vicinity properties between 1992 and 1994. Surface remediation consisted of consolidating and encapsulating all contaminated material on-site in an engineered disposal cell. The disposal cell occupies 127 acres of a 231-acre tract of land.

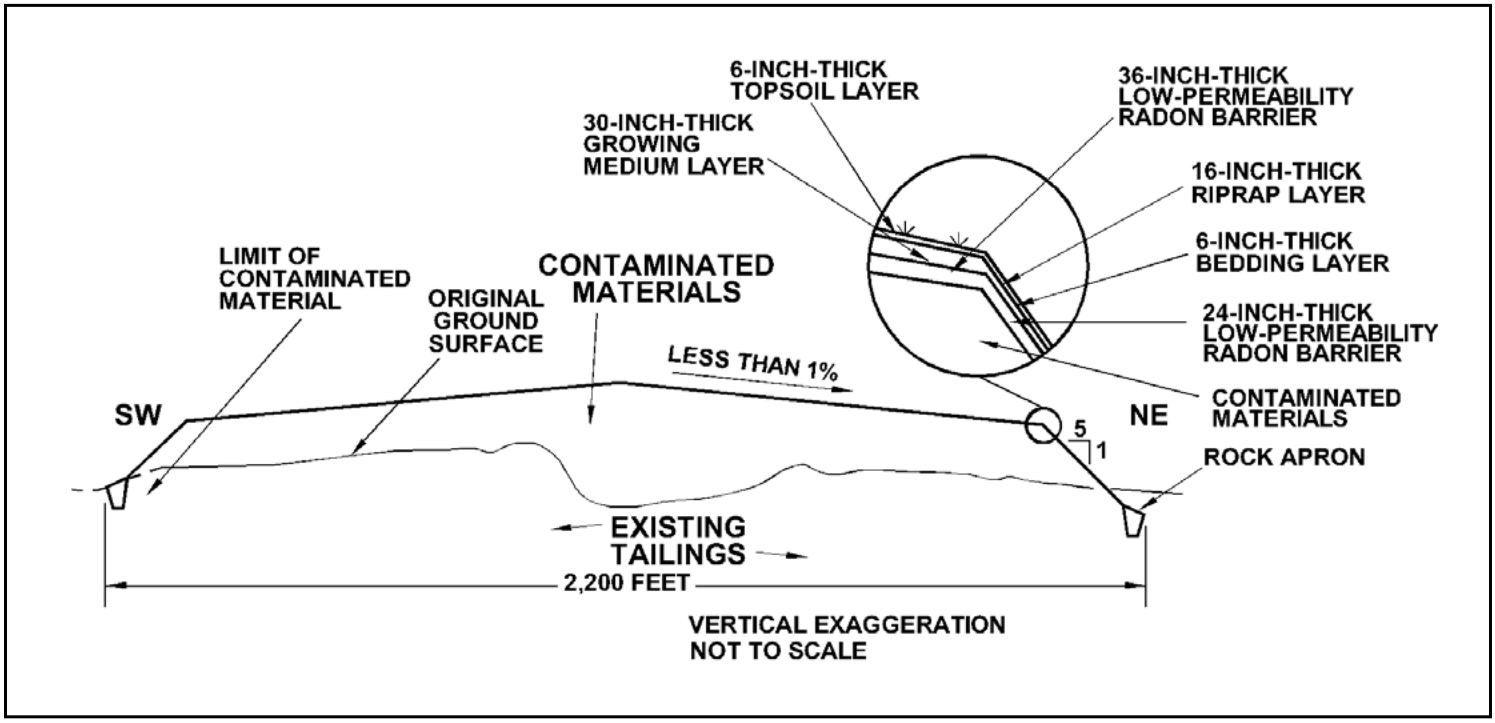
Regulatory Setting

Congress passed the Uranium Mill Tailings Radiation Control Act (UMTRCA) in 1978 (Public Law 95-604), and DOE remediated 22 inactive uranium-ore processing sites under the Uranium Mill Tailings Remedial Action Project in accordance with standards promulgated by the U.S. Environmental Protection Agency in Title 40 *Code of Federal Regulations* (CFR), Part 192. Subpart A of 40 CFR 192 regulates surface cleanup and disposal cell performance, and Subpart B regulates cleanup of contaminated groundwater at the processing sites. DOE encapsulated the radioactive materials in a U.S. Nuclear Regulatory Commission–approved disposal cell. The U.S. Nuclear Regulatory Commission general license for UMTRCA Title I sites is established in 10 CFR 40.27. The Falls City disposal site was included under the general license in 1997.

Disposal Site

The disposal cell was closed in 1994 upon completion of consolidation of tailings and contaminated materials from the site and vicinity properties and construction of the cell cover. All remediated areas were regraded and reseeded. The disposal cell contains 7.1 million dry tons (about 5.1 million cubic yards) of contaminated material, with a total activity of 1,277 curies of radium-226.

The site is situated on sand, silt, and clay deposits of the Whitsett Formation, which dips gently southeast. Two members of the Whitsett Formation, the Deweesville and Conquista, lie within 30 feet of the surface and are grouped together as a single aquifer because no continuous impermeable strata separate them. The Dilworth Sandstone Member of the Whitsett is considered a second aquifer beneath the site. The Dilworth aquifer is separated from the Deweesville/Conquista aquifer by 30 to 50 feet of clay



Southwest-Northeast Cross Section of Falls City Disposal Cell.

that acts as an aquitard that prevents downward seepage. However, commercial uranium exploration in the area during the 1950s and 1960s resulted in a number of improperly plugged boreholes that created a potential hydraulic connection between the Deweesville/Conquista aquifer and the Dilworth aquifer. Consequently, the Dilworth is included as part of the upper-most aquifer. Groundwater in these aquifers is classified as Class III, unsuitable for agricultural or domestic use because of widespread naturally occurring contamination and low yield. Naturally elevated levels of sulfate, total dissolved solids, and uranium are present in the shallow groundwater in the region.

Compliance Strategies

The groundwater compliance strategy for the uppermost aquifer at the Falls City site is no remediation with application of supplemental standards. Supplemental standards may be applied at locations where groundwater is classified as limited use (not a current or potential source of drinking water) because it meets any of several criteria. At the Falls City site, groundwater is classified as limited use because of wide-spread ambient contamination not related to milling activities that cannot be cleaned up using treatment methods reasonably employed in public water systems (40 CFR 192.11[e][2]). DOE monitors groundwater annually at the Falls City site as a best management practice. Groundwater samples are collected from the Conquista and Deweesville sandstone units and from the underlying Dilworth aquifer.

Disposal Cell Design

The rectangular disposal cell measures approximately 2,600 feet by 2,200 feet (including the rock toe apron) at the base. The cell rises approximately 62 feet above the surrounding terrain.

The cover of the Falls City disposal cell is a multicomponent system designed to encapsulate and isolate the contaminated materials. The top slope of the disposal cell cover consists of a 36-inch-thick low-permeability radon barrier of compacted clayey soil covered by a 30-inch-thick growing medium layer and a 6-inch-thick topsoil layer. Grass established on the top slope of the cell returns water to the atmosphere through evapotranspiration. The cover on the side slopes consists of a 24-inch-thick radon barrier covered by a layer of granular bedding material and 16 inches of limestone riprap.

A rock apron surrounds the base of the disposal cell on all sides. The apron is from six to 10 feet deep and extends 29 feet beyond the toe of the side slopes. The cell was designed to promote the rapid runoff of precipitation to the apron to minimize infiltration. A barbed-wire fence encloses the site.

View From the Top of the Falls City, Texas, Disposal Cell.

Legacy Management Activities

The DOE Office of Legacy Management (LM) is responsible for ensuring that the selected groundwater compliance strategy at the Falls City site continues to be protective of human health and the environment.

LM manages the 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, LM conducts annual inspections of the site to evaluate the condition of surface features, cuts the grass for hay and controls other vegetation, performs other site maintenance as necessary, and monitors groundwater.

In accordance with 40 CFR 192.02(a), 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 Falls City 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 Falls City site are available on the LM website at **www.energy.gov/lm/falls-city-texas-disposal-site**

For more information about LM activities at the Falls City site, contact:
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