



# Falls City, Texas, 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 near Falls City, Texas, between 1961 and 1982. The milling operations created process-related waste and tailings, a sandlike waste containing radioactive material and other contaminants. The U.S. Department of Energy (DOE) encapsulated the tailings in an engineered disposal cell in 1994.

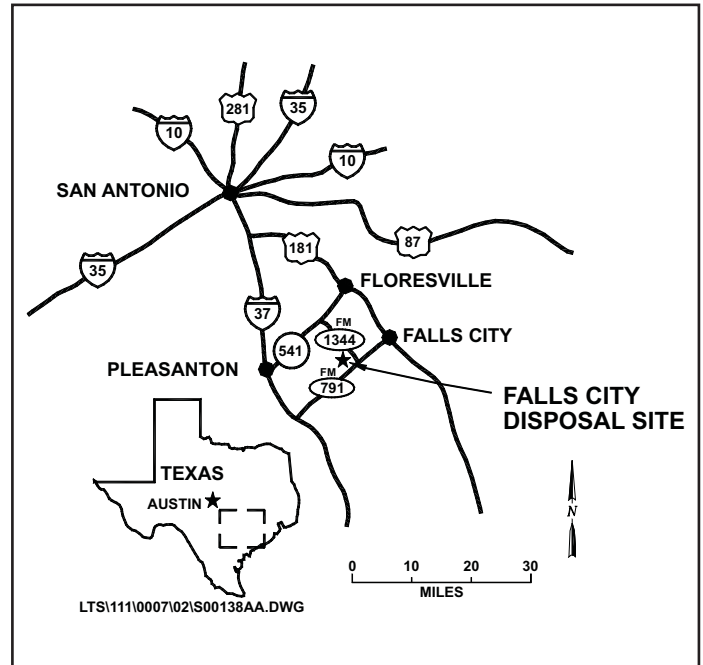
The U.S. Nuclear Regulatory Commission included the Falls City Disposal Site under general license in 1997. DOE is responsible, under the general license, for the long-term custody, monitoring, and maintenance of the site. The DOE Long-Term Surveillance and Maintenance (LTSM) Program at the DOE Grand Junction (Colorado) Office is responsible for the long-term safety and integrity of the disposal site.

DOE established the LTSM Program in 1988 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 Grand Junction Office for all sites in the LTSM Program.

## Regulatory Setting

Congress passed the Uranium Mill Tailings Radiation Control Act in 1978 (Public Law 95-604) that specified remedial action for 24 inactive millsites where uranium was produced for the Federal Government. DOE remediated these sites under the Uranium Mill Tailings Remedial Action Project and encapsulated the radioactive material in U.S. Nuclear Regulatory Commission-approved disposal cells. Cleanup standards were promulgated by the U.S. Environmental Protection Agency in Title 40 *Code of Federal Regulations* (CFR) Part 192. The U.S. Nuclear Regulatory Commission general license is in accordance with 10 CFR 40.

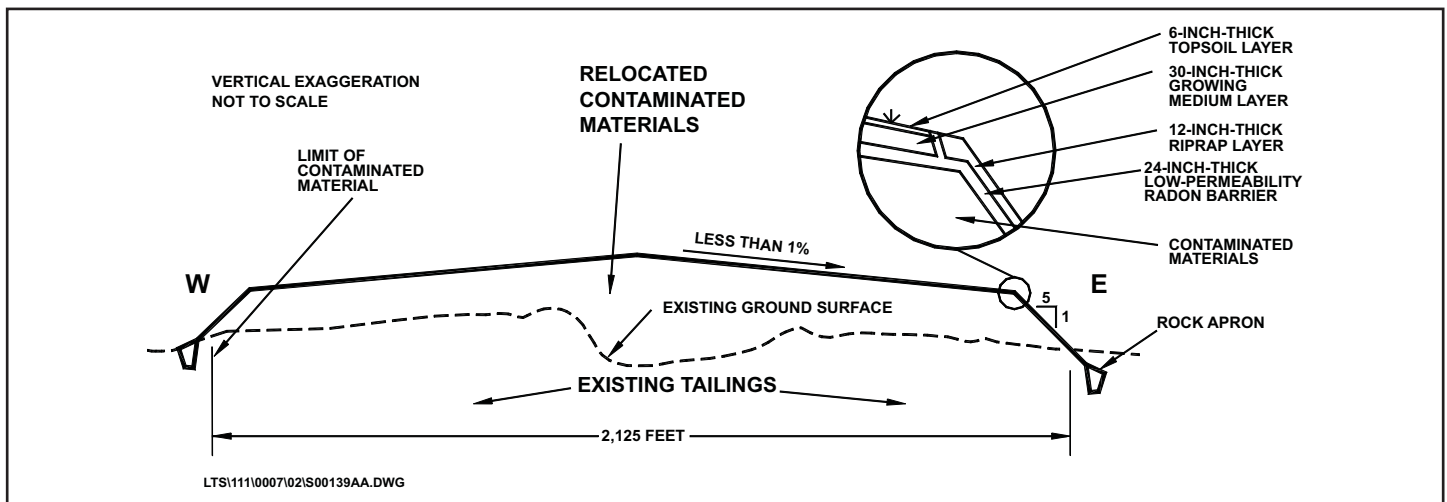


## Falls City Disposal Site

The Falls City Disposal Site is located in Karnes County, Texas, approximately 40 miles southeast of San Antonio and approximately 8 miles southwest of Falls City. Land surrounding the 231.2-acre site is used primarily for agriculture and is sparsely populated.

The site is situated on sand, silt, and clay deposits of the Whittset Formation, which dips gently southeast. Two aquifers, the Deweesville and Conquista, lie within 30 feet of the surface. Groundwater in these aquifers is classified as Class III, which means it is unsuitable for agricultural or domestic use because of widespread contamination and low yield. Naturally elevated levels of uranium, sulfate, and total dissolved solids are present in groundwater in the region.

Susquehanna-Western constructed and operated the original mill from 1961 to 1973. Uranium extracted from sandstone ore with a sulfuric acid leaching process created approximately 3.1 million tons of tailings that were deposited in unlined ponds on the site. Between 1978 and 1982, Solution Engineering, Inc., used acid solutions to extract uranium from some of the tailings deposits. In 1982, the liquid in the ponds was evaporated, and the tailings were covered with a soil cover and revegetated.



West-East Cross Section of Falls City Disposal Cell

DOE conducted an environmental assessment of the Falls City site and selected the remedial action alternative of consolidating the tailings on site in a disposal cell. In 1992, DOE began remedial action at the Falls City site. All the radioactive material was consolidated into a U.S. Environmental Protection Agency-compliant disposal cell on the former millsite. Remedial action at the site was completed in July 1994, and all remediated areas were regraded and reseeded. The disposal cell contains 7,143,000 dry tons of radioactive material with a total activity of 1,277 curies of radium-226.

## Cell Design

The cell, which measures 2,600 feet by 2,200 feet at the base and rises 62 feet above the surrounding land, is sited on grade on a drainage divide. It occupies 127 acres and is enclosed by a posted security fence.

A layer of top soil over a compacted soil layer covers the top of the cell. Grass established on the top layer of the cell returns water to the atmosphere through evapotranspiration. A clayey soil layer emplaced on top of the contaminated materials stored in the cell serves as a low-permeability radon barrier.

The cell was designed to promote rapid runoff of precipitation to minimize leachate. Riprap with a median diameter of 7 inches overlies a granular bedding layer on the side slopes of the cell. These 20-percent side slopes allow water to run off the cell sides into the surrounding 20-foot-wide rock apron. The riprap protects the side slopes from erosion.

## LTSM Program Activities

The LTSM Program manages the site according to a Long-Term Surveillance Plan (LTSP) prepared specifically for the Falls City site. Under provisions of the LTSP, the LTSM Program (1) conducts annual

inspections of this site to evaluate the condition of surface features, (2) cuts the grass several times each year and controls other vegetation, (3) performs other maintenance as necessary, and (4) continues to monitor groundwater.

Under the provisions of the long-term surveillance plan for the site, the LTSM Program will monitor groundwater at the site through 2001 to demonstrate the effectiveness of the cell in isolating radioactive material and other contaminants from the local groundwater system.

Recent monitoring results show that the groundwater levels in the Deweesville and Conquista aquifers are dropping, an indication that the cell is preventing additional precipitation from entering the groundwater system through the encapsulated tailings. Contamination derived from processing operations and from redistribution of local naturally occurring uranium mineralization does not pose a health risk because groundwater from the shallow aquifers is not used for human consumption or agricultural purposes.

The disposal cell at Falls City is designed and constructed to last for 200 to 1,000 years. However, the general license has no expiration date, and DOE understands its responsibility for the safety and integrity of the Falls City site will last indefinitely.

## Contacts

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

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<http://www.gjo.doe.gov/programs/ltsm>