

F A C T S H E E T

Monticello Mill Tailings Site Repository Design



United States
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Grand Junction Projects Office

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This fact sheet describes the repository design activities the U.S. Department of Energy is conducting at the Monticello Mill Tailings Site in Monticello, Utah. These activities are being performed in accordance with Federal and State environmental laws.

Background

The purpose of the Monticello cleanup projects is to minimize the risks to the public and the environment from exposure to mill tailings and the radon gas they produce.

The Monticello Mill Tailings Site cleanup remedy was selected in the Record of Decision in August 1990 and reconfirmed in December 1994. It includes permanent disposal of mill tailings and contaminated materials in a repository to be constructed on U.S. Department of Energy (DOE)-owned land south of the millsite in Monticello, Utah. The repository will hold approximately 2.6 to 3.0 million cubic yards of tailings that are being temporarily stored on the millsite. It will also include tailings that are being removed from Monticello residences and businesses as part of the Monticello Vicinity Properties Project.

Repository Location

The repository (also called the disposal facility or cell) will cover about 80 acres on 858 acres of DOE-owned land east of U.S. Highway 191 and south of the millsite (see Figure 1). The favorable hydrogeologic setting, as well as the design features of the repository, will ensure the site is protective of human health and the environment.

Repository Design

The repository is designed to provide long-term isolation of the mill tailings and other contaminated material while paying particular attention to the aesthetic value of the area (see Figure 2).

Once all cleanup activities are completed, the repository will be covered with a 4.5-foot layer of rich topsoil and the area will be revegetated with 20 varieties of local grasses and shrubs to ensure that the repository blends in naturally with the outlying areas. When completed, the repository will look as natural as the fields surrounding it.

The repository design is made up of three main systems:

- A double liner system beneath the tailings. The two liners are designed to ensure protection of the groundwater.
- A leachate collection and removal system and a leak-detection system. Leachate is rainwater or moisture that could pass through the tailings to the bottom of the cell.
- A soil cover and liner system on top of the tailings. The cover will control the release of radon gas to within acceptable limits. It will also prevent rainwater or moisture from moving down into the tailings.



Figure 1. Conceptual Drawing of Completed Repository With Vegetative Cover

Base Liner System

The *primary liner* on the base (floor) of the disposal cell is composed of a flexible geomembrane and a geosynthetic clay liner (see Figure 2). Above the primary liner is the *leachate collection and removal system*, which will drain rainwater and moisture from the cell for treatment and disposal during cell construction. Later, this system will be used to control moisture. Beneath the primary liner is the *leak-detection system*, which is designed to confirm the integrity of the primary liner system. A *secondary liner*, composed of the same material as the primary liner, provides additional groundwater protection. The liners will cover the bottom and excavation sidewalls of the cell.

Cell Cover System

A “water-balance” cover design is the primary system used to limit the potential infiltration of leachate (rainwater that can become contaminated as it infiltrates the top of the cell and percolates down through the mill tailings). The cover system is designed to maximize evaporation of rainwater so that little or no moisture passes down to the tailings below.

The cover system consists of multiple layers (from top to bottom): blended top soil with vegetation that limits erosion, a layer of fine-grained soil that provides frost protection, 12 inches of sand that limit the buildup of water, a high-density polyethylene geomembrane that protects the underlying radon barrier, and a 2-foot compacted clay layer that serves as the radon barrier.

Air and Water Monitoring

During placement of tailings in the cell, and during long-term surveillance and maintenance following closure of the disposal cell, air and water monitors will ensure air or water contamination is not occurring. Contaminated water generated at the site will be processed in the site wastewater treatment plant.

Safety Measures

A comprehensive Health and Safety (H&S) Plan was developed to meet safety requirements. Dust suppression is a concern at the repository site because dust contains silica, a substance found in local soil that is similar to asbestos. To reduce the amount of dust in the air from construction, water trucks are used to dampen the soil. Employees working on the repository are monitored for silica. This monitoring also helps to ensure that the silica is not being spread to the local community.

The H&S Plan also contains a Spill Response Plan to protect the community from hazardous material spills. This Spill Response Plan includes the Hazardous Material Communication Program that requires DOE to notify local response organizations of any hazardous materials on site. A copy of the H&S Plan is available for your review at the information center located at the Monticello Projects Office, Abajo Building, 95 1/2 South Main, Monticello, Utah.

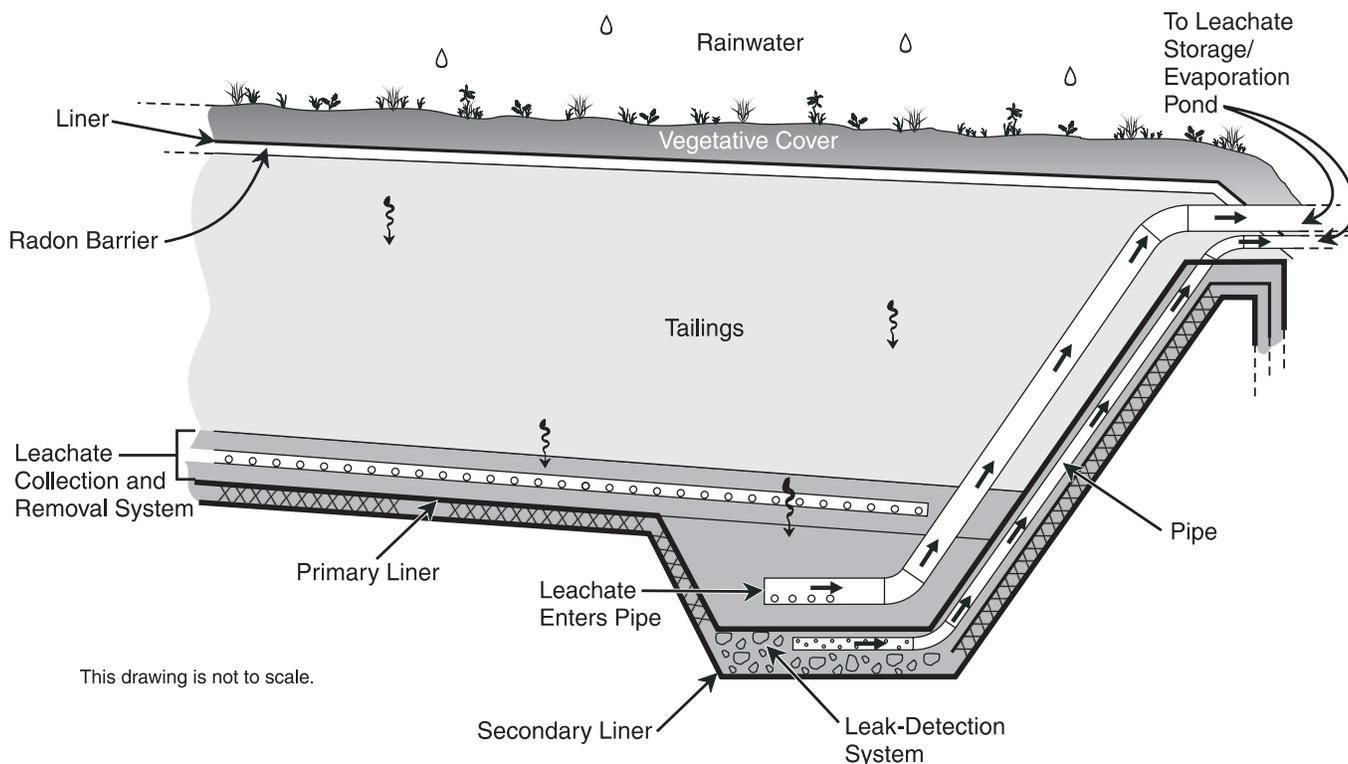


Figure 2. Repository Liner and Cover Design

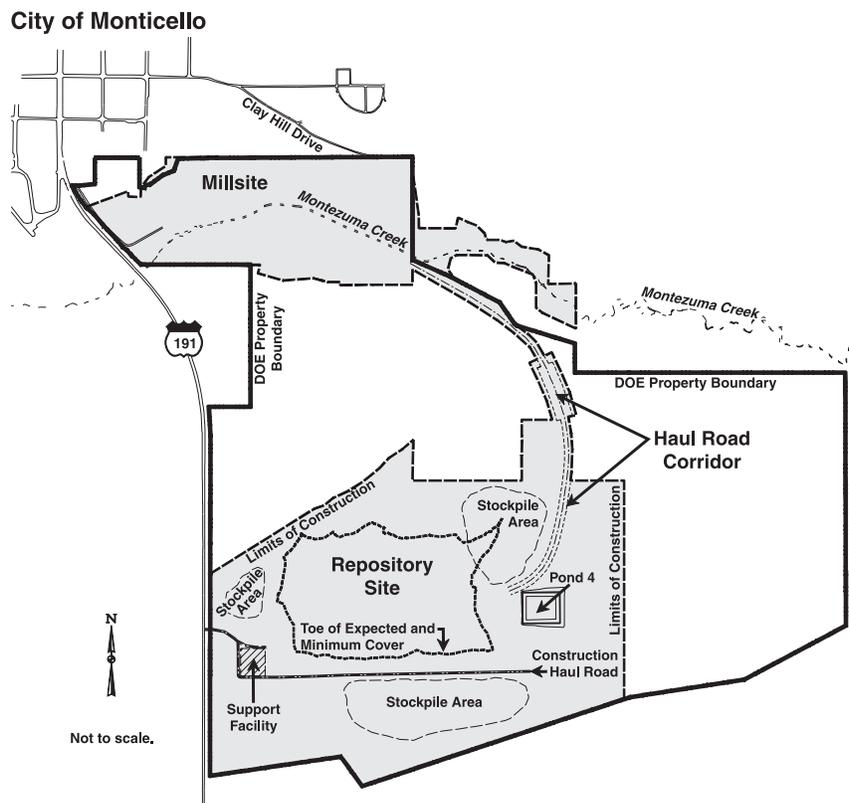


Figure 3. Haul Road Corridor

Project Work Activities

DOE held a groundbreaking ceremony on October 17 to celebrate the beginning of repository construction (see Figure 4 on back page). Major activities, beginning with clearing of the repository site in November 1995 and ending with completion of revegetation of the repository in October 1999, are as follows:

- Site preparation, including installing temporary access-control fencing and establishing the project staging area.
- Construction of the repository cell, including work to excavate the cell, to install liners and leachate collection systems, to construct a wastewater pond, and to construct the haul road to transport contaminated material from the millsite to the repository.
- Excavation, transportation, and placement of contaminated material in the repository and backfilling and grading the millsite.
- Construction of the repository cell cover and side slopes and final grading at the millsite.
- Final grading and revegetation of repository area.

Repository Subcontractor

OHM Remediation Services of Pleasanton, California, was awarded the subcontract for construction of the repository in September 1995. OHM will construct the repository, as well as perform millsite maintenance. This subcontract is valued at \$33,249,110 and extends to June 30, 2000.

New Office Complex

In November 1995, the new office support facility for the Monticello projects was completed south of the repository site. To prepare for the influx of traffic into the complex, additional turning and acceleration lanes were added to Highway 191. The community relations and owner relations staff will remain in the Abajo Building so residents can have better access to staff members Jeri Krouskop and Gary Karriker. The information center for public review of documents related to the cleanup projects will also remain in the Abajo Building.

Haul Roads

Contaminated materials temporarily stored on the millsite will be transported along a haul road corridor that will connect the millsite to the repository and will reduce traffic along Highway 191 (see Figure 3). Construction of the haul road is expected to begin during the spring of 1996. Temporary haul routes will be established between the stockpile areas, Pond 4, and the repository.

Repository Milestones

Start clearing, grubbing, and stripping of repository site.	November 1995
Finish liner system installation.	Fall 1996
Finish placement of all contaminated materials in the repository.	Summer 1998
Finish repository construction (i.e., revegetation seeding is completed).	Fall 1999



Figure 4. Monticello SSAB Members and a DOE Official Participated in the Groundbreaking for the Monticello Repository