

## 10.0 Lowman, Idaho, Disposal Site

### 10.1 Compliance Summary

The Lowman Disposal Site, inspected on August 20, 2003, was in excellent condition. Areas to the north and west of the disposal cell, regraded and seeded in fall 1998, have successfully revegetated and are functioning as designed. In July 2003, a silt fence was removed and erosion features at two areas along the former silt fence and at the upper end of the collection ditch were stabilized by placement of rock. Herbicide was applied twice during 2003 to control noxious weeds at the site. Inspectors identified no cause for a follow-up or contingency inspection.

### 10.2 Compliance Requirements

Requirements for the long-term surveillance and maintenance of the Lowman, Idaho, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I disposal site are specified in the *Long-Term Surveillance Plan for the Lowman, Idaho, Disposal Site* (DOE/AL/62350-36, Rev. 1, U.S. Department of Energy [DOE], Albuquerque Operations Office, April 1994) and in procedures established by the DOE office at Grand Junction to comply with requirements of Title 10 *Code of Federal Regulations* Part 40.27 (10 CFR 40.27). These requirements are listed in Table 10-1.

Table 10-1. License Requirements for the Lowman, Idaho, Disposal Site

Requirement	Long-Term Surveillance Plan	This Report
Annual Inspection and Report	Section 6.0	Section 10.3.1
Follow-up or Contingency Inspections	Section 7.0	Section 10.3.2
Routine Maintenance and Repairs	Section 8.0	Section 10.3.3
Ground Water Monitoring	Section 5.3	Section 10.3.4
Corrective Action	Section 9.0	Section 10.3.5

### 10.3 Compliance Review

#### 10.3.1 Annual Inspection and Report

The site, located northeast of Lowman, Idaho, was inspected on August 20, 2003. Results of the inspection are described below. Features and photograph locations (PLs) mentioned in this report are shown on Figure 10-1. Numbers in the left margin of this report refer to items summarized in the Executive Summary table.

##### 10.3.1.1 Specific Site Surveillance Features

**Access Road, Entrance Gate, and Signs**—The site is at the end of a hard-packed gravel road north of Idaho State Highway 21. The 500-foot long access road between the highway and the DOE property is along a perpetual easement granted by the U.S. Forest Service. The road was in excellent condition. A locked gate spans the road about 150 feet from the state highway and was in excellent condition.

One entrance sign and 18 perimeter signs delineate the unfenced site boundary. The entrance sign is just inside the site boundary near monitor well MW-0580. Although the sign had two bullet holes, it was still legible and does not need replacing. The 18 perimeter signs are on posts along the site boundary. Three signs have bullet holes or dents, but were legible and do not need to be replaced. The other perimeter signs were in excellent condition.

**Site Markers and Monuments**—There are two site markers, four boundary monuments, and three combination survey/boundary monuments. All were in excellent condition.

**Monitor Wells**—The monitoring network at the site consists of six monitor wells and one spring. Four of the wells are on site and two are just outside the site boundary. The spring, location 0561, also is outside the site boundary near the southwest corner of the site. The wells have cap-and-pin locking systems and were in excellent condition. A seventh well (LOW-01-029), southeast of the cell, not part of the monitoring system, was secure.

### 10.3.1.2 Transects

To ensure a thorough and efficient inspection, the site was divided into three areas referred to as transects: (1) the top and side slope of the disposal cell; (2) the area between the disposal cell and the site boundary; and (3) the outlying area.

**Top and Side Slope of the Disposal Cell**—Basalt riprap armors the top and west-facing side slope of the disposal cell, which conforms to the east-to-west sloping topography of the site. An apron of larger riprap surrounds the disposal cell on all sides. The riprap was in excellent condition, and no evidence of subsidence, cracking, or differential settlement on the disposal cell was observed.

10A Encroachment of vegetation continues on the top and side slope of the disposal cell (PL-1). Based on the results of column leach studies conducted by DOE, the natural plant community succession can be allowed to proceed without increased risk to public health, safety, or the environment. However, DOE plans to remove large ponderosa pine trees periodically, before they are susceptible to blowdown and consequent uprooting which would dislodge erosion-protection riprap. These recommendations will be included in a revised Long-Term Surveillance Plan that is expected to be submitted to NRC for concurrence in 2004.

**Area Between the Disposal Cell and the Site Boundary**—The steep slopes east and south of the site were stable with well-established ponderosa pine and grasses. The rills on the slopes immediately north and west of the cell were stable or gone as a result of erosion control and maintenance activities. DOE will continue to monitor this area for erosion.

10B Infestations of several species of noxious weeds continue to be a concern for DOE on and adjacent to the site. Two applications of herbicide were made in 2003, and the success of these treatments will be evaluated in 2004.

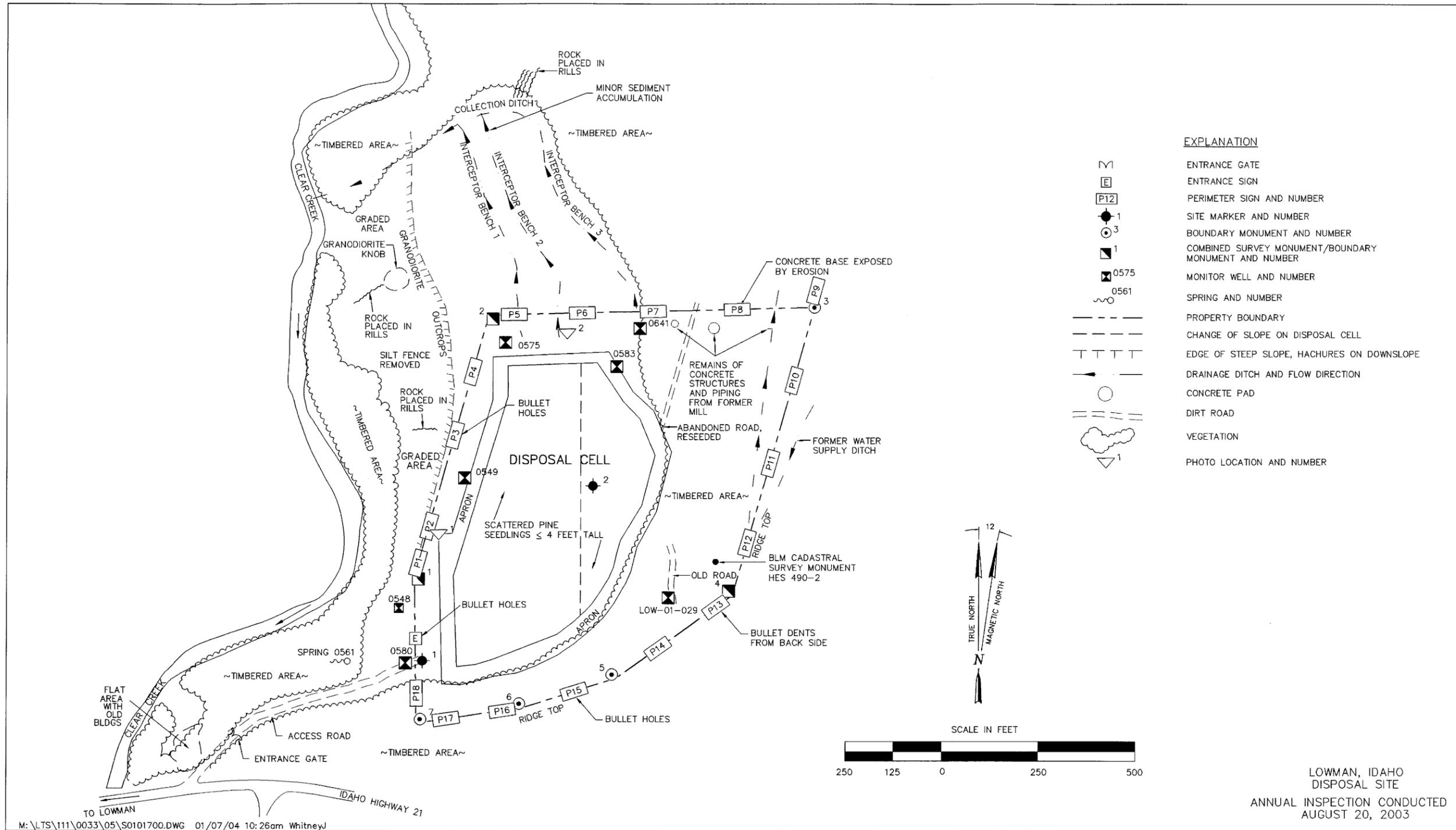


Figure 10-1. 2003 Annual Compliance Drawing for the Lowman, Idaho, Disposal Site

**Outlying Area**—An area within 0.25 mile around the site was visually inspected for evidence of construction, development, logging, or change in land use that might affect site integrity. No changes were noted to the area across Clear Creek to the west, where several summer cabins are located. The land around the rest of the site is U.S. Forest Service land and was unchanged.

10C The interceptor benches, collection ditch, and vegetation were effectively controlling soil erosion in the revegetated area north and west of the site. Overall, the benches and collection ditch were in good condition (PL-2). Erosion has occurred near the upper end of the collection ditch. In July 2003, DOE repaired the erosion and hardened the area with rock. The revegetation effort on the slopes north and west of the disposal cell has been successful. DOE will continue to monitor the revegetated area for erosion.

10D A silt fence was erected in 1998 along the west side of the revegetation area. DOE removed the fence in July 2003 due to successful revegetation upgradient of the fence. Two erosion rills near the former silt fence location were armored with rock to prevent headward erosion. These rills do not affect the integrity of the disposal cell.

### 10.3.2 Follow-Up or Contingency Inspections

No follow-up or contingency inspections were required in 2003.

### 10.3.3 Routine Maintenance and Repairs

In 2003, a silt fence was removed, rock was placed in the collection ditch and several rills to prevent erosion, and herbicide was applied to control infestations of noxious weeds.

### 10.3.4 Ground Water Monitoring

DOE monitors ground water at this site annually to verify the initial performance of the disposal cell. Sampling locations are provided in Table 10-2.

*Table 10-2. Ground Water Sampling Locations at the Lowman, Idaho, Disposal Site*

Monitor Well Location		Spring Location	
MW-0583	Upgradient, north of cell	SP-0561	Downgradient, southwest of cell
MW-0641	Upgradient, north of cell		
MW-0548	Downgradient, west of cell		
MW-0549	Downgradient, west of cell		
MW-0575	Downgradient, northwest of cell		
MW-0580	Downgradient, southwest of cell		

Initial performance of the disposal cell is verified by monitoring for antimony. The mean concentration of antimony in tailings pore fluids was slightly above the maximum detected background ground water concentration of 0.007 milligrams per liter (mg/L).

July 2003 sampling results indicate that antimony concentrations in all downgradient wells were either below the laboratory detection limit or within the range of upgradient (background) concentrations. The maximum downgradient concentration of antimony observed in ground water in 2003 was less than 0.002 mg/L.

10E The Lowman site is unique among UMTRCA sites in that the mill process was mechanical instead of chemical. Consequently, there were no process-related chemicals to contaminate the underlying soils and ground water. Radioactive sands encapsulated in the disposal cell are highly resistant to weathering and chemical alteration and have very low leachability characteristics. There is no credible scenario by which these sands could contribute antimony to ground water at the site. Based on sampling results to date, there is no technical rationale to continue ground water monitoring. Consequently, the Long-Term Surveillance Plan is being revised with the recommendation that all ground water monitoring at the Lowman site be discontinued.

### 10.3.5 Corrective Action

Corrective action is action taken to correct out-of-compliance or hazardous conditions that create a potential health and safety problem or that may affect the integrity of the disposal cell or compliance with 40 CFR 192.

No corrective action was required in 2003.

### 10.3.6 Photographs

Table 10-3. Photographs Taken at the Lowman, Idaho, Disposal Site

Photograph Location Number	Azimuth	Description
PL-1	75	Vegetation encroachment on the cell top.
PL-2	340	Restored area north of the disposal site.



*LOW 8/2003. PL-1. Vegetation encroachment on the cell top.*



*LOW 8/2003. PL-2. Restored area north of the disposal site.*

End of current section