

10.0 Lowman, Idaho, Disposal Site

10.1 Compliance Summary

The Lowman, Idaho, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I Disposal Site was inspected on August 18, 2021. No changes were observed on the disposal cell or in the associated drainage features. Inspectors identified no maintenance needs and found no cause for a follow-up inspection. Groundwater monitoring is not required and was discontinued in 2004.

10.2 Compliance Requirements

Requirements for the long-term surveillance and maintenance of the site are specified in the site-specific Long-Term Surveillance Plan (DOE 2005) (LTSP) in accordance with procedures established to comply with the requirements of Title 10 *Code of Federal Regulations* Section 40.27 (10 CFR 40.27). Table 10-1 lists these requirements.

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

Requirement	LTSP	This Report	10 CFR 40.27
Annual Inspection and Report	Section 3.3	Section 10.4	(b)(3)
Follow-Up Inspections	Section 3.4	Section 10.5	(b)(4)
Site Maintenance	Section 3.5	Section 10.6	(b)(5)
Emergency Response	Section 3.6	Section 10.7	(b)(5)
Environmental Monitoring	Section 3.7	Section 10.8	(b)(2)

10.3 Institutional Controls

The 18-acre site, identified by the property boundary shown in Figure 10-1, is owned by the United States and was accepted under the U.S. Nuclear Regulatory Commission general license in 1994. The U.S. Department of Energy (DOE) is the licensee and, in accordance with the requirements for UMTRCA Title I sites, the Office of Legacy Management (LM) is responsible for the custody and long-term care of the site. Institutional controls (ICs) at the site include federal ownership of the property, administrative controls, and the following physical ICs that are inspected annually: the disposal cell and associated drainage features, entrance gate and sign, perimeter signs, site markers, and survey and boundary monuments.

10.4 Inspection Results

The site, 0.5 mile east of Lowman, Idaho, was inspected on August 18, 2021. The inspection was conducted by B. Mays and D. Traub of the Legacy Management Support (LMS) contractor. K. Kreie and P. Kerl of LM attended the inspection. The purposes of the inspection were to confirm the integrity of visible features at the site, identify changes in conditions that might affect conformance with the LTSP, and evaluate whether maintenance or additional inspection and monitoring are needed.

10.4.1 Site Surveillance Features

Figure 10-1 shows the locations of site features, including site surveillance features and inspection areas, in black and gray font. Site features that are present but not required to be inspected are shown in italic font, and new observations identified during the 2021 annual inspection are shown in red. Inspection results are described in the following subsections. Photographs to support specific observations are identified in the text and in Figure 10-1 by photograph location (PL) numbers. The photographs and photograph log are presented in Section 10.10.

10.4.1.1 Access Road, Entrance Gate, and Entrance Sign

Access to the site is at the end of a gravel road about 650 feet (ft) north of Idaho Highway 21. Entrance to the site is through a locked steel gate on the site access road about 150 ft from the highway (PL-1). The site is not fenced, but the topography and forest vegetation prevent vehicle access around the entrance gate and along the property boundary. The entrance gate was locked and functional, the access road was passable, and the entrance sign was present and legible. No maintenance needs were identified.

10.4.1.2 Perimeter Signs

There are 18 perimeter signs attached to steel posts set in concrete positioned along the unfenced property boundary (PL-2). Several perimeter signs (P2, P3, P4, P13, and P15) have bullet damage but remain legible. Perimeter sign P3 was rotated about 90 degrees from its original position but was repaired during the inspection. Perimeter sign P7 is slightly bent from tree fall but remains legible. No maintenance needs were identified.

10.4.1.3 Site Markers

The site has two granite site markers. Site marker SMK-1 is just inside the southwest property boundary, and site marker SMK-2 (PL-3) is on the top slope of the disposal cell. Lichen is growing on the surface of both site markers, but it is easily removable by hand and does not detract from the legibility of the markers. No maintenance needs were identified.

10.4.1.4 Survey and Boundary Monuments

Three combined survey and boundary monuments and four boundary monuments delineate the property boundary. Steel T-posts are installed next to the survey and boundary monuments to help inspectors locate them. Several years ago, the U.S. Department of Agriculture (USDA) surveyed its lands managed by the U.S. Forest Service (USFS) and placed boundary monuments along the shared DOE-USDA (USFS) border. Inspectors noted that the survey monuments were about 5 to 15 ft outside DOE survey monuments. No maintenance needs were identified.

10.4.1.5 Aerial Survey Quality Control Monuments

Three aerial survey quality control monuments, installed in October 2020, provide ground truth for aerial surveys at the site (PL-4). The quality control monuments were inspected during the 2021 annual inspection. No maintenance needs were identified.

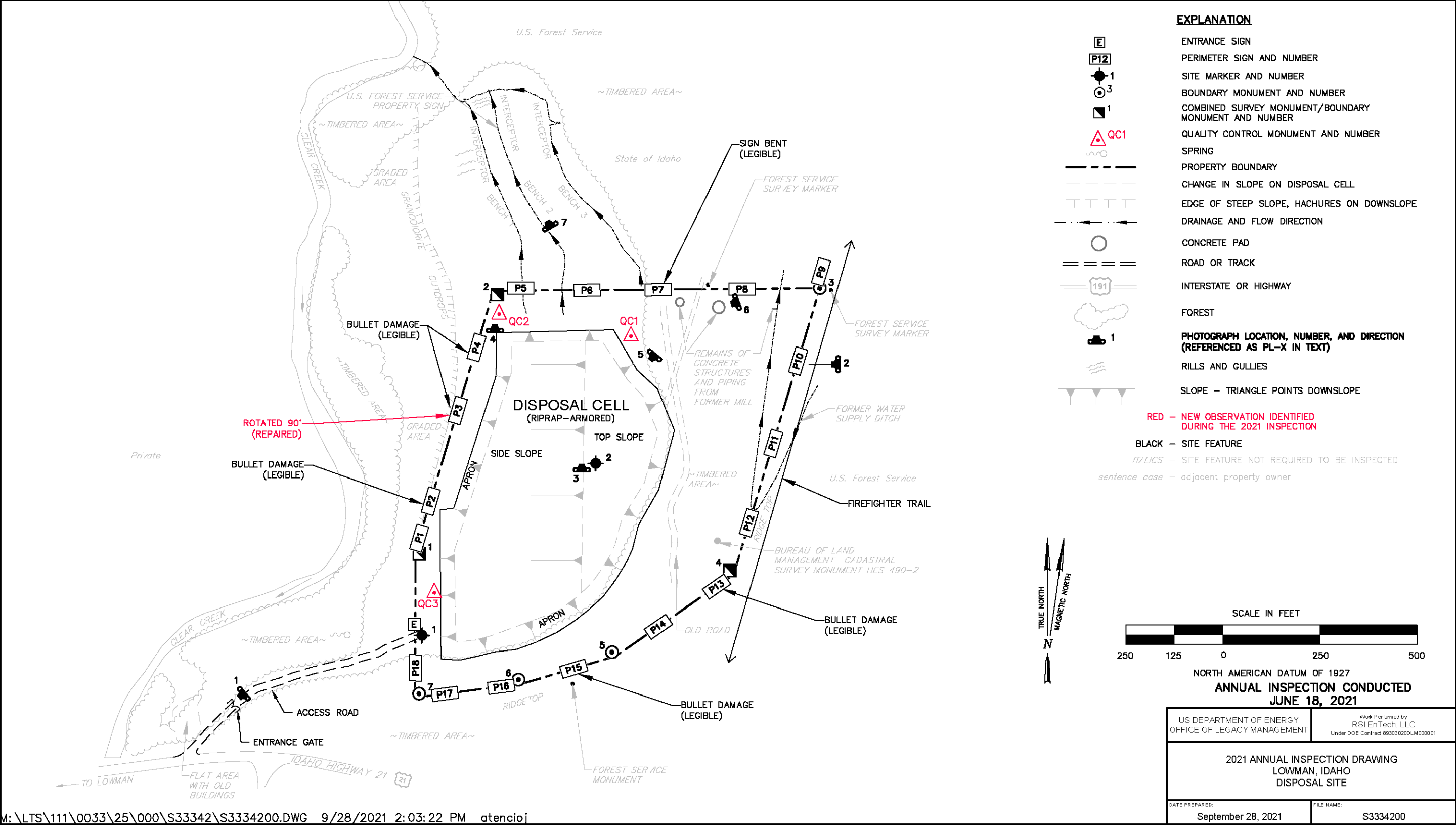


Figure 10-1. 2021 Annual Inspection Drawing for the Lowman, Idaho, Disposal Site

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10.4.2 Inspection Areas

In accordance with the LTSP, the site is divided into three inspection areas (referred to as “transects” in the LTSP) to ensure a thorough and efficient inspection. The inspection areas are (1) the top and side slopes of the disposal cell, (2) the area between the disposal cell and the site boundary, and (3) the outlying area. Inspectors examined the specific site surveillance features within each area and looked for evidence of erosion, settling, slumping, or other modifying processes that might affect the site’s conformance with LTSP requirements.

10.4.2.1 Top and Side Slopes of the Disposal Cell

The disposal cell, completed in 1991, occupies 8.29 acres. The disposal cell top and side slopes are armored with basalt riprap to control erosion. An apron of larger riprap surrounds the disposal cell on all sides. There was no evidence of erosion, settling, slumping, rock degradation, or other modifying processes that might affect the integrity of the disposal cell.

Natural vegetation continues to encroach on the top and side slopes of the disposal cell. Although the LTSP states that control of vegetation growth on the cell is not needed, LM concluded that controlling the growth of conifers—primarily ponderosa pine—would be a best management practice. Unlike the shrubs and other vegetation growing on the disposal cell, mature conifers could potentially become uprooted during windstorms and damage the surface of the disposal cell. Numerous ponderosa pine trees were observed on the disposal cell top and side slopes and were cut down and left in place in September 2018. Other plants growing on the disposal cell were not removed, as they do not present a physical threat to the integrity of the disposal cell (PL-5). No maintenance needs were identified.

10.4.2.2 Area Between the Disposal Cell and the Site Boundary

The steep slopes east and south of the disposal cell are stable and vegetated with well-established ponderosa pines, shrubs, and grasses. Several features from historical milling operations remain on the steep hillside east of the disposal cell, including a water-supply ditch and the remains of a water piping system from former milling operations (PL-6). The slopes north and west of the disposal cell were highly disturbed during site remediation, but they are now stable and vegetated. No maintenance needs were identified.

10.4.2.3 Outlying Area

The area within 0.25 mile of the site boundary was inspected for evidence of construction, development, logging, or changes in land use that might affect the site. No changes were observed in the area across Clear Creek to the west, where there are several cabins and campsites. USFS manages the areas east and south of the site, and those areas remain visually unchanged from previous inspections. The area along Highway 21 east of the site does not show evidence of new development. A wildland firefighter trail was identified during the 2020 inspection outside the site boundary along the ridgeline east of the site. The trail does not affect the integrity of the site.

The reclaimed area north of the disposal cell and outside the site boundary is a steep area owned by the state. LM installed three interceptor benches across the steep slope in this area in 1998 to

intercept stormwater runoff and route it offsite into Clear Creek. Over the years, minor erosion has breached the benches in several locations, and LM has repaired such erosion on numerous occasions, most recently in October 2016. The three interceptor benches (PL-7) and a collection ditch are inspected annually to ensure that erosion in this area does not affect overall site stability. During this year's inspection, the 2016 repairs appeared intact, and LM will continue to monitor the area as the vegetation continues to establish.

10.5 Follow-Up Inspections

LM will conduct follow-up inspections if (1) a condition is identified during the annual inspection or other site visit that requires a return to the site to evaluate the condition or (2) LM is notified by a citizen or outside agency that conditions at the site have substantially changed. No need for a follow-up inspection was identified.

10.6 Maintenance

No maintenance needs were identified.

10.7 Emergency Response

Emergency response is action LM will take in response to unusual damage or disruption that threatens or compromises site safety, security, or integrity in compliance with 10 CFR 40 Appendix A. No need for an emergency response was identified.

10.8 Environmental Monitoring

In accordance with the LTSP, groundwater monitoring is not required and was discontinued in 2004. Groundwater monitoring is not required because (1) the disposal cell is performing as designed, and (2) the groundwater monitoring program demonstrated that the site is in compliance with groundwater protection standards and no site-related contamination exists in groundwater near the site. All monitoring wells at the site were decommissioned in 2006.

10.9 References

10 CFR 40 Appendix A. U.S. Nuclear Regulatory Commission, "Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material from Ores Processed Primarily for Their Source Material Content," *Code of Federal Regulations*.

10 CFR 40.27. U.S. Nuclear Regulatory Commission, "General License for Custody and Long-Term Care of Residual Radioactive Material Disposal Sites," *Code of Federal Regulations*.

DOE (U.S. Department of Energy), 2005. *Long-Term Surveillance Plan for the U.S. Department of Energy Lowman, Idaho, (UMTRCA Title I) Disposal Site*, DOE-LM/GJ771-2005, Rev. 2, January.

10.10 Photographs

Photograph Location Number	Azimuth	Photograph Description
PL-1	230	Disposal Site Entrance Gate
PL-2	270	Perimeter Sign P10
PL-3	—	Site Marker SMK-2
PL-4	—	Quality Control Monument QC-2
PL-5	220	Disposal Cell Cover
PL-6	250	Remains of Concrete and Piping from Former Milling Operations
PL-7	330	Interceptor Bench 2

Note:

— = Photograph taken vertically from above.



PL-1. Disposal Site Entrance Gate



PL-2. Perimeter Sign P10



PL-3. Site Marker SMK-2



PL-4. Quality Control Monument QC-2



PL-5. Disposal Cell Cover



PL-6. Remains of Concrete and Piping from Former Milling Operations



PL-7. Interceptor Bench 2