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 June 6, 2023. No significant changes were observed on the disposal cell or in the associated drainage features. Inspectors identified minor maintenance needs that were completed following the inspection but 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 for the U.S. Department of Energy Lowman, Idaho, (UMTRCA Title I) Disposal Site* (DOE 2005) (LTSP) in accordance with procedures established to comply with the requirements of the U.S. Nuclear Regulatory Commission (NRC) general license at 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 NRC 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, sign, perimeter signs, and site markers; and survey and boundary monuments.

10.4 Inspection Results

The site, 0.5 mile east of Lowman, Idaho, was inspected on June 6, 2023. The inspection was conducted by Z. Aldous and M. Guziak of the Legacy Management Support contractor. K. Kreie and P. Kerl of LM, along with P. Rekow, D. Nygard, and T. Richardson from the State of Idaho 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 follow-up 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. Some site features that are present but not required to be inspected are shown in italic font. Observations from previous inspections that are currently monitored are shown in blue, and new observations identified during the 2023 annual inspection are shown in red. Inspection results and recommended maintenance activities associated with site surveillance features are described in the following subsections. Photographs to support specific observations are noted 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

The site is about 650 feet (ft) north of Idaho Highway 21 and is accessed by a gravel road. A locked steel gate on the site access road is about 150 ft from the highway. The site is not fenced, but the topography and mature forests 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 and positioned along the unfenced property boundary. Several perimeter signs (P3, P4, P13, and P15) have bullet damage but remain legible. Perimeter sign P7 is slightly bent from treefall but remains legible (PL-1). 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-2) is on the top slope of the disposal cell. No maintenance needs were identified.

10.4.1.4 Survey and Boundary Monuments

Three combined survey and boundary monuments (PL-3) 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 and placed boundary monuments along the shared DOE-USDA 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 were inspected during the 2023 annual inspection. No maintenance needs were identified.

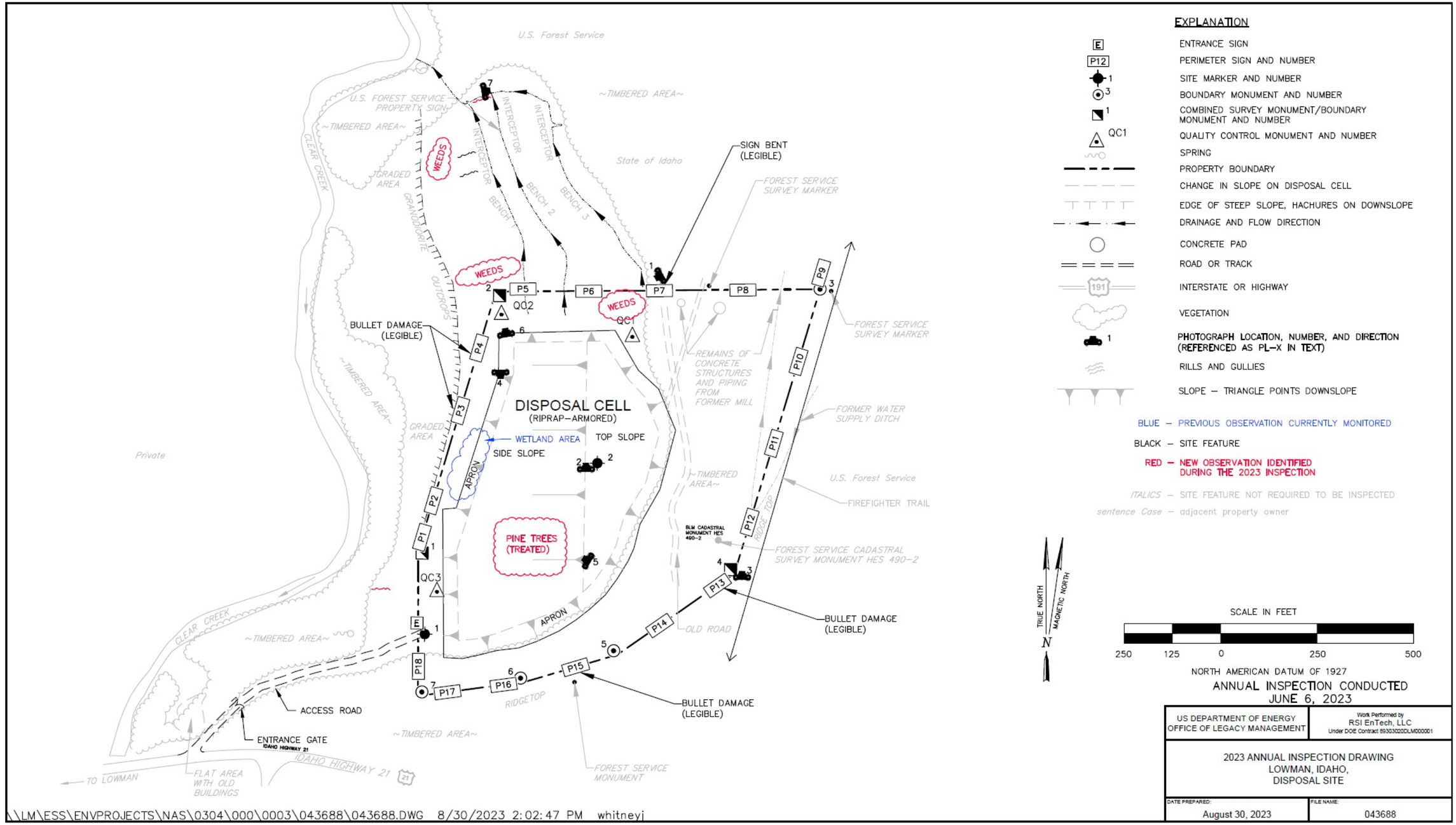

Figure 10-1. 2023 Annual Inspection Drawing for the Lowman, Idaho, Disposal Site

10.4.2 Inspection Areas

In accordance with the LTSP, the site is divided into three inspection areas (referred to as "transects") 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 (PL-4). There was no evidence of erosion, settling, slumping, rock degradation, or other modifying processes that might affect the integrity of the disposal cell. A saturated soil area was observed on the northwest side of the cell, confirming that the disposal cell is shedding precipitation appropriately.

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, but also Douglas fir—would be a best management practice. Mature conifers could potentially become uprooted during windstorms and damage the surface of the disposal cell. Numerous ponderosa pine trees were cut down in 2018. Additional ponderosa pine and Douglas fir trees have established since then and were removed following the inspection (PL-5). Other plants growing on the disposal cell do not threaten the integrity of the disposal cell and are not controlled. Inspectors will continue to monitor this area. No other 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 conifers, 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. The slopes north and west of the disposal cell were highly disturbed during site remediation, but they are now stable and vegetated (PL-6). 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 evidence of change was observed in 2023. Several wildfires have occurred in the area during the last decade, and some have come near the site. A wildland firefighter trail was identified during the 2020 inspection outside the site boundary along the ridgeline east of the site, but the trail does not affect the site. LM will evaluate the need for a fire mitigation plan at the site.

The reclaimed area north of the disposal cell and outside the site boundary is a steep area, owned by the state, that was disturbed during site remediation. 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 time, minor erosion has breached the benches in several locations, and LM repaired this erosion in 2016. Rock armoring has been very successful in preventing further erosion, and vegetation has become well established. Minor erosion was noted within and around the geocell grid on the north end of the interceptor benches where they are routed into Clear Creek (PL-7). This will continue to be monitored. No maintenance needs were identified.

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

Inspectors noted that treatment of the coniferous ponderosa pine and Douglas fir trees on the disposal cell cover was needed. The trees were treated following the inspection. No other 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 complies 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*, LMS/S00583, DOE-LM/GJ771-2005, Office of Legacy Management, January.

10.10 Photographs

Photograph Location Number	Azimuth	Photograph Description
PL-1	240	Bent Perimeter Sign P7
PL-2	—	Site Marker SMK-2
PL-3	—	Combined Survey Monument and Boundary Monument 4
PL-4	180	Disposal Cell Apron
PL-5	300	Trees on Disposal Cell
PL-6	350	Vegetated Area North of Disposal Cell
PL-7	80	Erosion on North Side of Interceptor Benches

Note:
— = Photograph taken vertically from above.

PL-1. Bent Perimeter Sign P7

PL-2. Site Marker SMK-2

PL-3. Combined Survey Monument and Boundary Monument 4

PL-4. Disposal Cell Apron

PL-5. Trees on Disposal Cell

PL-6. Vegetated Area North of Disposal Cell

PL-7. Erosion on North Side of Interceptor Benches