

2.0 Edgemont, South Dakota, Disposal Site

2.1 Compliance Summary

The Edgemont, South Dakota, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title II Disposal Site was inspected on July 20, 2022. No changes were observed in the disposal cell or drainage features. Inspectors identified no maintenance needs or cause for a follow-up inspection. Groundwater monitoring is not required at the site.

2.2 Compliance Requirements

Requirements for the long-term surveillance and maintenance of the site are specified in the site-specific Long-Term Surveillance Plan (DOE 1996) (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 40.28 (10 CFR 40.28). Table 2-1 lists these requirements.

Table 2-1. License Requirements for the Edgemont, South Dakota, Disposal Site

Requirement	LTSP	This Report	10 CFR 40.28
Annual Inspection and Report	Sections 3.3 and 3.4	Section 2.4	(b)(3)
Follow-Up Inspections	Section 3.5	Section 2.5	(b)(4)
Routine Maintenance and Emergency Measures	Section 3.6	Section 2.6	(b)(5)
Environmental Monitoring	Section 3.7	Section 2.7	(b)(3)

2.3 Institutional Controls

The 360-acre site, identified by the property boundary shown in Figure 2-1, is owned by the United States and was accepted under the NRC general license in 1996. The U.S. Department of Energy (DOE) is the licensee and, in accordance with the requirements for UMTRCA Title II 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, entrance gate and sign, perimeter fence and signs, site marker, and boundary monuments.

2.4 Inspection Results

The site, approximately 2 miles south of Edgemont, South Dakota, was inspected on July 20, 2022. The inspection was conducted by P. Schwarz and J. Cario of the Legacy Management Support (LMS) contractor. N. Keller (LM site manager) and J. Manning of the U.S. Forest Service Black Hills National Forest 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.

A grazing license granted by LM allows a local rancher to graze his cattle on the site. The LM site manager and LMS site lead met with the grazing licensee during the inspection to discuss any issues or concerns the licensee might have. No concerns were identified by the grazing licensee.

2.4.1 Site Surveillance Features

Figure 2-1 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 2022 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 2-1 by photograph location (PL) numbers. The photographs and photograph log are presented in Section 2.9.

2.4.1.1 Site Access and Entrance Gate

Access to the site is from Fall River County Road 6N. The entrance sign, which is mounted on a steel post set in concrete, was in good condition (PL-1). The tubular metal entrance gate was secured by a locked chain and was intact. The entrance gate lock was replaced with a new lock during the 2022 annual inspection. The perimeter fence features three additional wire gates at the following locations: (1) the northwest corner of the property, (2) approximately 700 feet north of the southeast corner, and (3) the southeast corner of the site. All gates were closed and intact. No maintenance needs were identified.

2.4.1.2 Perimeter Fence and Signs

A four-strand barbed-wire fence encloses the site, truncating at the southeast corner to allow livestock access to a preexisting stock pond. Two perimeter signs are attached to the perimeter fence (PL-2). No maintenance needs were identified.

The grazing licensee monitors site security and maintains the perimeter fence. The licensee proposed removing the unmaintained interior fence that was installed to prevent grazing during vegetation establishment following closure of the disposal cell. The LM site manager concurred with this proposal, as this fence is no longer required. The fence will be removed by the grazing licensee at a later time.

2.4.1.3 Site Marker

One granite site marker is just inside the entrance gate (PL-3). No maintenance needs were identified during the inspection.

2.4.1.4 Boundary Monuments

Boundary monuments are at each of the property's four corners (PL-4). No maintenance needs were identified.

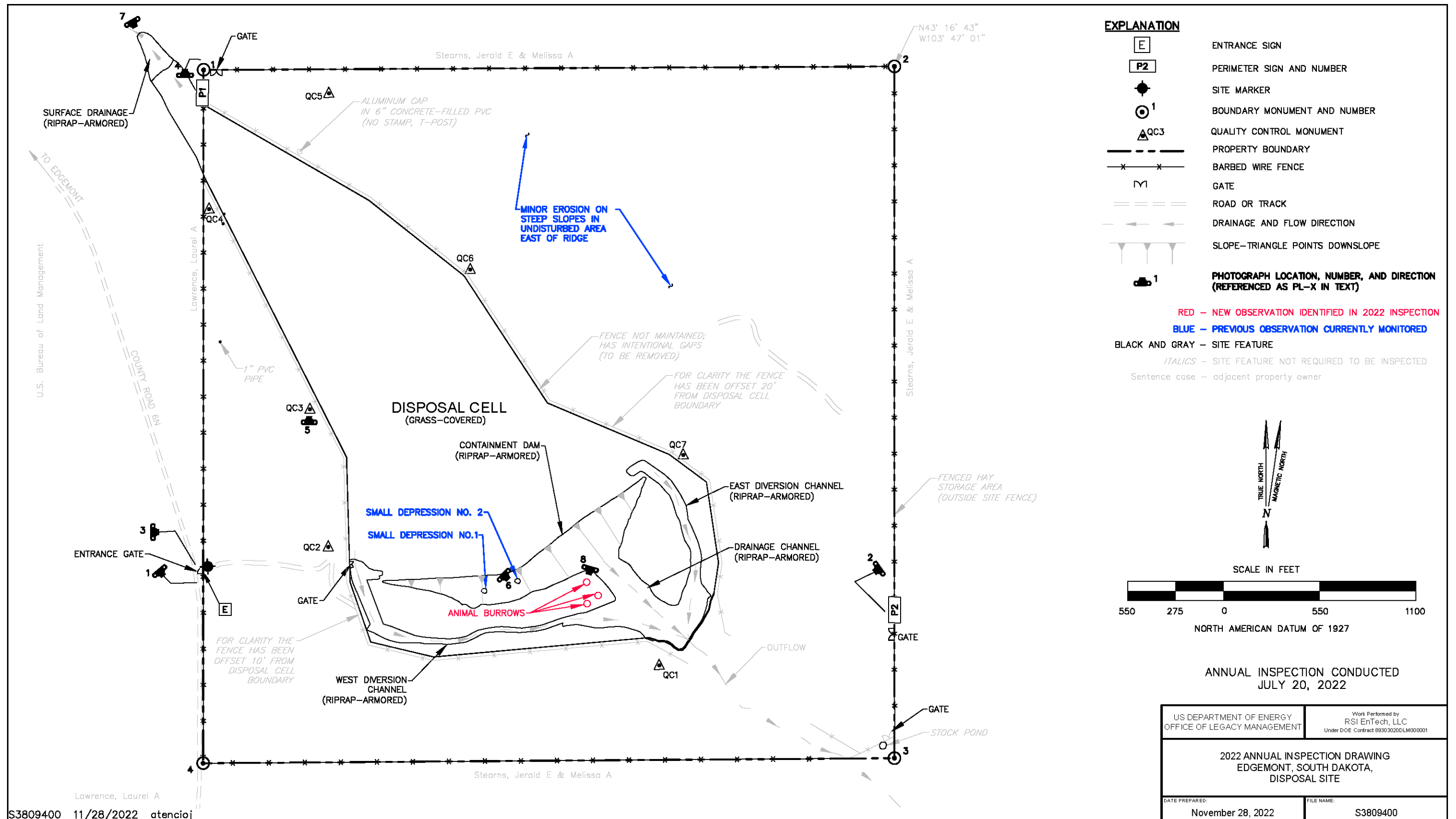


Figure 2-1. 2022 Annual Inspection Drawing for the Edgemont, South Dakota, Disposal Site

2.4.1.5 Aerial Survey Quality Control Monuments

LM installed seven aerial survey quality control monuments in 2019 and conducted a baseline aerial survey in 2021. The quality control monuments were inspected during the 2022 annual inspection (PL-5). No maintenance needs were identified.

2.4.2 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 cover of the disposal cell; (2) the containment dam and diversion channels; and (3) the site perimeter, outlying areas, and balance of the site. Inspectors examined 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.

2.4.2.1 Cover of the Disposal Cell

The grass-covered disposal cell, completed in 1989, occupies 100 acres. No signs of erosion, settling, or other modifying processes were found that could affect its integrity. No maintenance needs were identified.

2.4.2.2 Containment Dam and Diversion Channels

The face of the containment dam is armored with riprap. Two small depressions, approximately 2 feet in diameter, were observed on the containment dam during the 2021 annual inspection. No evidence of sediment deposition, human intervention, or other modifying processes were observed near the depressions. No changes to the two depressions were identified in the 2022 annual inspection (PL-6) and the depressions do not threaten the integrity or performance of the disposal cell. Monitoring of the depressions will continue during annual inspections and subsequent aerial surveys. Grasses and annual weeds were growing in the riprap in several places. These plants do not threaten the stability or function of the containment dam.

The diversion and drainage channels are covered with grass on the upslope portions and armored with riprap on the downslope portions and on steep slopes. Sparse vegetation in the riprap helps to stabilize these areas and does not impair the function of the channels. Wetland vegetation is at the base of the drainage channel outflow. No maintenance needs were identified.

2.4.2.3 Site Perimeter, Outlying Areas, and Balance of the Site

The site is surrounded by private land used primarily for grazing and wildlife habitat. The area approximately 0.25 mile beyond the site boundary—including a surface drainage area just outside the northwest corner of the property that is riprap armored to prevent headward erosion onto the site—was visually observed for erosion, changes in land use, or other phenomena that might affect the long-term integrity of the site (PL-7). No such changes were identified.

The balance of the site consists of undisturbed areas covered with native shrubs, grasses, and forbs and formerly disturbed areas covered primarily with seeded grasses and annual weeds. Animal burrows observed between the riprap-armored west diversion channel and the

containment dam are not impacting the functionality of the disposal cell or drainage features (PL-8). Some minor erosional features are on steep slopes in an area isolated from the disposal cell; these features were stable. No maintenance needs were identified.

2.5 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 are substantially changed. No need for a follow-up inspection was identified.

2.6 Routine Maintenance and Emergency Measures

Noxious weeds were treated in October 2022. No other maintenance needs were identified.

Emergency measures are corrective actions that LM will take in response to unusual damage or disruption that threatens or compromises site health and safety, security, integrity, or compliance with 40 CFR 192. No emergency measures were identified.

2.7 Environmental Monitoring

In accordance with the LTSP, groundwater monitoring is not required at this site because a 300–700-foot-thick layer of competent shale bedrock lies between the encapsulated tailings and the uppermost confined aquifer. Additionally, clay liners were constructed to isolate the tailings from the shallower, unconfined, perched groundwater that is present as a result of local precipitation. There is no evidence of any direct hydraulic connection between the perched groundwater and the underlying confined bedrock aquifer.

An annual visual inspection of vegetation conditions required by the LTSP was conducted during the annual inspection. No vegetation management is required. No cattle were grazing on the site during the inspection.

2.8 References

10 CFR 40.28. U.S. Nuclear Regulatory Commission, “General License for Custody and Long-Term Care of Uranium or Thorium Byproduct Materials Disposal Sites,” *Code of Federal Regulations*.

40 CFR 192. U.S. Environmental Protection Agency, “Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings,” *Code of Federal Regulations*.

DOE (U.S. Department of Energy), 1996. *Long-Term Surveillance Plan for the DOE Tennessee Valley Authority (UMTRCA Title II) Disposal Site, Edgemont, South Dakota*, NRC Docket File No. 040-01341, June.

2.9 Photographs

Photograph Location Number	Azimuth	Photograph Description
PL-1	140	Entrance Sign and Property Boundary Fence
PL-2	235	Perimeter Sign P2
PL-3	90	Granite Site Marker
PL-4	—	Boundary Monument BM-1
PL-5	—	Quality Control Monument QC-3
PL-6	135	Small Depression Number One
PL-7	150	Surface Drainage—Dry
PL-8	195	Animal Burrow Adjacent to Toe of Armored Containment Dam Side Slope

Note:

— = Photograph taken vertically from above.



PL-1. Entrance Sign and Property Boundary Fence



PL-2. Perimeter Sign P2



PL-3. Granite Site Marker



PL-4. Boundary Monument BM-1



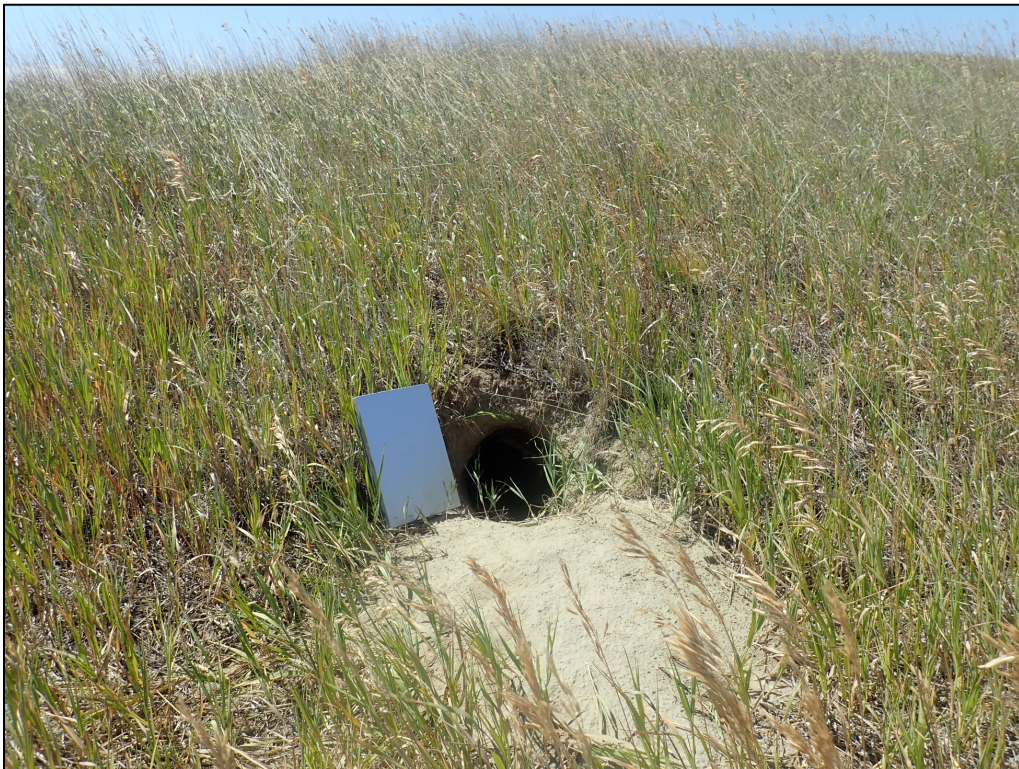
PL-5. Quality Control Monument QC-3



PL-6. Small Depression Number One



PL-7. Surface Drainage—Dry



PL-8. Animal Burrow Adjacent to Toe of Armored Containment Dam Side Slope