17.0 Slick Rock, Colorado, Disposal Site

17.1 Compliance Summary

The Slick Rock, Colorado, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I Disposal Site was inspected on May 22, 2024. No changes were observed on the disposal cell or in the associated drainage features. Inspectors identified routine maintenance needs but found no cause for a follow-up or contingency inspection. Groundwater monitoring is not required.

17.2 Compliance Requirements

Requirements for the long-term surveillance and maintenance of the site are specified in the site-specific Long-Term Surveillance Plan (DOE 2024) (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 17-1 lists these requirements. The revised LTSP was accepted by NRC in a December 21, 2023, letter to DOE (NRC 2023).

Table 17-1. License Requirements for the Slick Rock, Colorado, Disposal Site

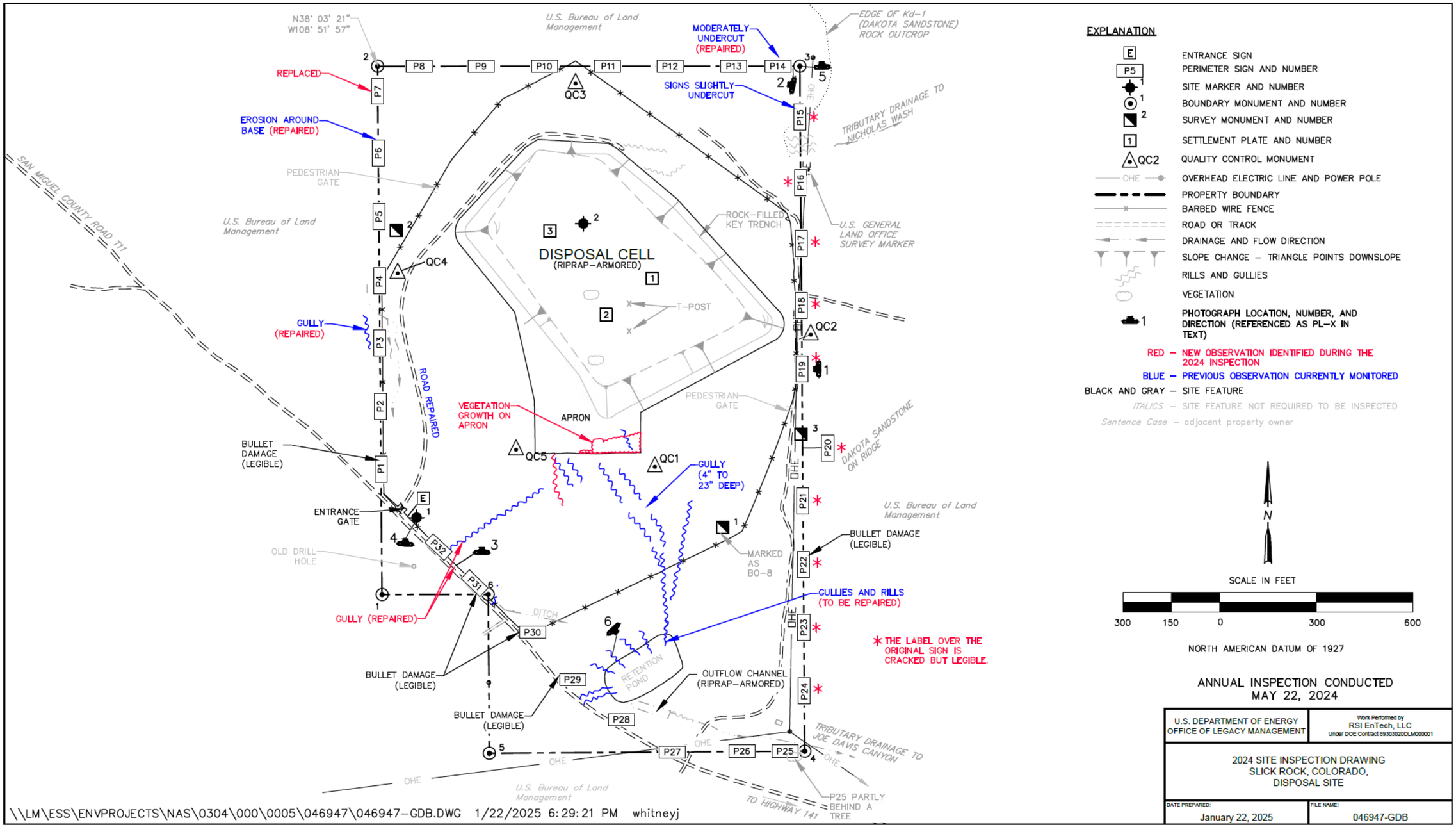
Requirement	LTSP	This Report	10 CFR 40.27
Annual Inspection and Report	Section 3.4	Section 17.4	(b)(3)
Follow-Up Inspections	Section 3.5	Section 17.5	(b)(4)
Maintenance and Repairs	Section 3.6	Section 17.6	(b)(5)
Groundwater Monitoring	Section 2.3	Section 17.7	(b)(2)

17.3 Institutional Controls

The 62-acre site, identified by the property boundary shown in Figure 17-1, is owned by the United States and was accepted under the NRC general license in 1998. The U.S. Department of Energy (DOE) is the licensee and, in accordance with 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 fence and signs, site markers, survey and boundary monuments, and aerial survey quality control monuments.

17.4 Inspection Results

The site, 5 miles northeast of Slick Rock, Colorado, was inspected on May 22, 2024. The inspection was conducted by C. Murphy, L. Sheader, and S. Daly of the Legacy Management Support (LMS) contractor. M. Hurt (LM) and A. Lawrence and M. Cosby (Colorado Department of Public Health and Environment) were also in attendance. 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.



EXPLANATION

- E — ENTRANCE SIGN
- P5 — PERIMETER SIGN AND NUMBER
- 1 — SITE MARKER AND NUMBER
- 1 — BOUNDARY MONUMENT AND NUMBER
- 2 — SURVEY MONUMENT AND NUMBER
- 1 — SETTLEMENT PLATE AND NUMBER
- QC2 — QUALITY CONTROL MONUMENT
- OHE — OVERHEAD ELECTRIC LINE AND POWER POLE
- PROPERTY BOUNDARY
- BARBED WIRE FENCE
- ROAD OR TRACK
- DRAINAGE AND FLOW DIRECTION
- SLOPE CHANGE — TRIANGLE POINTS DOWNSLOPE
- RILLS AND GULLIES
- VEGETATION
- 1 — PHOTOGRAPH LOCATION, NUMBER, AND DIRECTION (REFERENCED AS PL-X IN TEXT)

RED — NEW OBSERVATION IDENTIFIED DURING THE 2024 INSPECTION

BLUE — PREVIOUS OBSERVATION CURRENTLY MONITORED

BLACK AND GRAY — SITE FEATURE

ITALICS — SITE FEATURE NOT REQUIRED TO BE INSPECTED

Sentence Case — adjacent property owner

N

SCALE IN FEET

300 150 0 300 600

NORTH AMERICAN DATUM OF 1927

ANNUAL INSPECTION CONDUCTED MAY 22, 2024

U.S. DEPARTMENT OF ENERGY OFFICE OF LEGACY MANAGEMENT	Work Performed by RSI EnTech, LLC Under DOE Contract 89303020DLM000001
2024 SITE INSPECTION DRAWING SLICK ROCK, COLORADO, DISPOSAL SITE	
DATE PREPARED: January 22, 2025	FILE NAME: 046947-GDB

Figure 17-1. 2024 Annual Inspection Drawing for the Slick Rock, Colorado, Disposal Site

17.4.1 Site Surveillance Features

Figure 17-1 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 2024 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 17-1 by photograph location (PL) numbers. The photographs and photograph log are presented in Section 17.10.

17.4.1.1 Entrance Gate and Sign

Access to the site is from San Miguel County Road T11. Entrance to the site is through a chained and locked gate. The entrance gate was locked and is worn but remains functional. The entrance sign is next to the gate. No maintenance needs were identified.

17.4.1.2 Perimeter Fence and Signs

There are 32 perimeter signs, attached to steel posts set in concrete, positioned along the property boundary. The perimeter signs are set back 5 feet (ft) from the site boundary line with the exception of the southwest corner where they are along the fence line (PL-1). Erosion found during the 2023 inspection around the base of perimeter sign P6 was repaired following this inspection. The printed overlay on perimeter sign P7 was cracked and was replaced following the inspection. The concrete base on perimeter sign P14 (PL-2) was moderately undercut by erosion but was repaired after the inspection. The concrete base on perimeter sign P15 is slightly undercut and remains stable. No other maintenance needs were identified.

A four-strand wire perimeter fence encloses the disposal cell, drainage structures, and much of the site. The top and bottom strands are smooth wire to allow wildlife to pass over and under, and the middle two strands are barbed wire. Erosional features were identified between perimeter signs P31 and P32 during the 2023 inspection and were repaired during the pothole and rill repair in 2024 (PL-3). Erosion identified during the 2023 inspection from a gully near perimeter sign P3 was repaired following this inspection.

17.4.1.3 Site Markers

The site has two granite site markers. Site marker SMK-1 (PL-4) is just inside the entrance gate, and site marker SMK-2 is on top of the disposal cell. No maintenance needs were identified.

17.4.1.4 Survey and Boundary Monuments

The site has three survey monuments. Six boundary monuments delineate the corners of the site boundary (PL-5). No maintenance needs were identified.

17.4.1.5 Aerial Survey Quality Control Monuments

The site has five aerial survey quality control monuments. No maintenance needs were identified.

17.4.2 Inspection Areas

In accordance with the LTSP, the site is divided into three sections to ensure a thorough and efficient inspection. The inspection areas are (1) the disposal cell, including the side slopes, key trench, and apron; (2) the area between the disposal cell and the site boundary; and (3) the outlying area. 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.

17.4.2.1 Disposal Cell, Key Trench, and Apron

The disposal cell, completed in 1996, occupies 12.9 acres and is armored with riprap, consisting of rounded, cobble-sized river rock, to control erosion and deter animal and human intrusion. The inspection found no evidence of erosion, settling, slumping, rock degradation, or other modifying processes that might affect the integrity of the disposal cell. Several patches of grass are growing on the top of the disposal cell but do not require treatment. No maintenance needs were identified.

A key trench that encloses the disposal cell is at the toe of the disposal cell side slopes. The key trench, designed to convey stormwater runoff away from the disposal cell, is approximately 5 ft deep and 20 ft wide and filled with rock. Stormwater runoff from the key trench discharges to an apron at the south (downslope) corner of the disposal cell. The apron extends 50 to 200 ft beyond the key trench. The key trench and apron are covered with rounded cobble- and pebble-sized river rock. Willows (a deep-rooted species) growing on a portion of the apron are not considered harmful to the integrity of the disposal cell. Gullies are forming near the apron but are not considered detrimental to the integrity of the disposal cell. No maintenance needs were identified.

17.4.2.2 Area Between the Disposal Cell and the Site Boundary

The area around the disposal cell includes a stormwater retention pond. Surface drainage from the disposal cell flows south from the apron into the retention pond, which is constructed in a channel tributary that drains to Joe Davis Canyon. An outflow channel below the pond is lined with rounded riprap for a short distance. The pond was not filled with water at the time of inspection. During the 2023 inspection, erosional features were identified on the west side of the disposal cell inside of the perimeter fence. Before the 2024 inspection, the LMS contractor conducted maintenance in the area using pocking and seeding. The LMS contractor also placed new gravel to dress the access road inside of the disposal site. No other maintenance needs in the area were identified.

The site was originally graded for sheet flow from the apron to the retention pond. Gullies have been developing since 1998 on the northwest side of the retention pond and now are 3 or more feet deep adjacent to the pond and shallower farther upslope (PL-6). Most of the gullies have

stabilized or are stabilizing. Deeper gullies identified in the 2023 inspection have grown significantly since the previous inspection but do not threaten the integrity of the disposal cell. Deferred maintenance needs (backfilling the gullies) were identified and will be addressed in fiscal year 2025.

Vegetation in the reclaimed areas were healthy. Noxious weeds are controlled regularly to comply with state and county requirements. No other maintenance needs were identified.

17.4.2.3 Outlying Area

The area beyond the site boundary for 0.25 mile was visually observed for erosion, changes in land use, or other phenomena that might affect the long-term integrity of the site. No such impacts were observed. The natural, undisturbed areas outside the site support grass and scattered pinyon and juniper trees. Steep hillsides extend north and northeast of the site and slope eastward into Nicholas Wash. The primary land use is grazing. The areas north and northeast of the site also are routinely used for cutting firewood and recreational uses, such as hunting and off-road all-terrain vehicle use.

17.5 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) a citizen or outside agency notifies LM that conditions at the site are substantially changed. No need for a follow-up inspection was identified.

17.6 Maintenance and Repairs

Inspectors noted several maintenance items that were completed following the inspection, including the following:

- Replace perimeter sign P7
- Backfill undercutting at perimeter sign P14
- Backfill erosion at perimeter sign P6, near perimeter sign P3, and between perimeter signs P31 and P32

Inspectors noted one additional maintenance item during the inspection that will be completed in the future:

- Backfill erosion north of the retention pond

No other maintenance needs were identified.

17.7 Groundwater Monitoring

In accordance with the LTSP, groundwater monitoring at this site is not required. Groundwater at the site qualifies for supplemental standards because it is designated as limited use, a designation given to groundwater that is not a current or potential source of drinking water. In addition, the groundwater in the uppermost aquifer is designated as limited use because of low yield since the

aquifer does not yield enough water to be used for beneficial purposes. Monitoring wells were abandoned in 2001, and T-posts were installed to indicate their former locations. The standpipes in the disposal cell were abandoned in 2002. The LTSP has been revised to reflect these changes and was accepted by NRC in December 2023.

17.8 Corrective Action

Corrective action is 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 need for corrective action was identified.

17.9 References

Note

Site-related documents are available on the LM public webpages at https://lmpublicsearch.lm.doe.gov/SitePages.

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*.

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), 2024. *Long-Term Surveillance Plan for the Slick Rock, Colorado, Disposal Site*, LMS/SRK/S34803-1.0, Office of Legacy Management, July

NRC (U.S. Nuclear Regulatory Commission), 2023. K. Hayes, P.G., CPG, hydrogeologist NRC, letter, (about accepting DOE's revised Long-Term Surveillance Plan for the Slick Rock, Colorado, Disposal Site) to M. Hurt, DOE site manager, NRC ADAMS Accession No. ML23352A272, December 21.

17.10 Photographs

Photograph Location Number	Azimuth	Photograph Description
PL-1	270	Perimeter Sign P19
PL-2	293	Erosion Undercut at Concrete Base of Perimeter Sign P14
PL-3	0	Erosion at Fence Line Between Perimeter Signs P31 and P32
PL-4	0	Site Marker SMK-1
PL-5	—	Boundary Monument BM-3
PL-6	135	Gully North of Retention Pond

Note:
— = Photograph taken vertically from above.

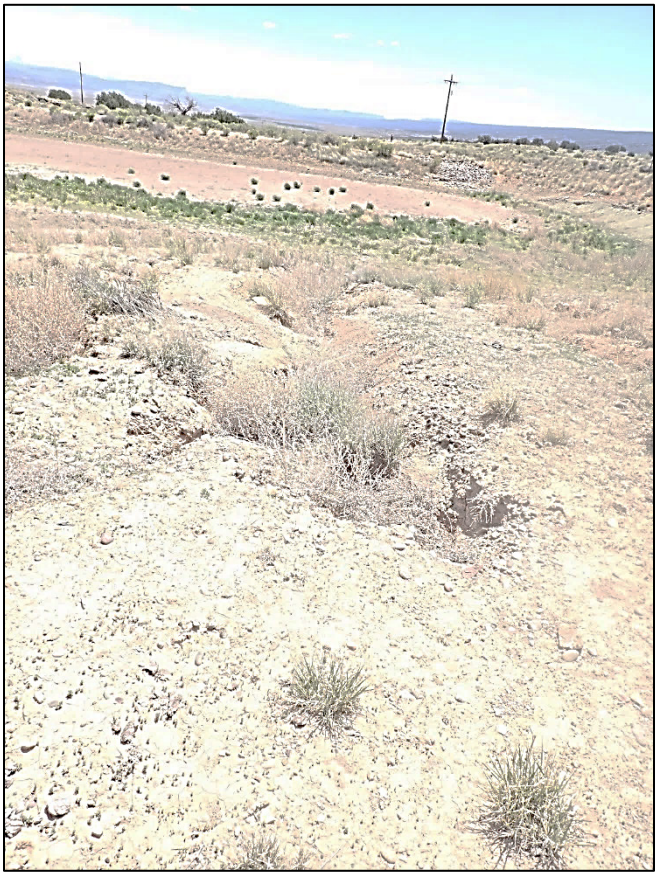
PL-1. Perimeter Sign P19

PL-2. Erosion Undercut at Concrete Base of Perimeter Sign P14

PL-3. Erosion at Fence Line Between Perimeter Signs P31 and P32

PL-4. Site Marker SMK-1

PL-5. Boundary Monument BM-3



PL-6. Gully North of Retention Pond