

13.0 Naturita, Colorado, Disposal Site

13.1 Compliance Summary

The Naturita, Colorado, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I Disposal Site (site) was inspected on June 10, 2020. No changes were observed on the disposal cell or in the associated drainage features. Inspectors identified several minor maintenance needs but found no cause for a follow-up inspection.

Groundwater monitoring is not required and was discontinued in 2014. The site-specific U.S. Department of Energy (DOE) Long-Term Surveillance Plan (LTSP) was revised in 2019 to exclude the groundwater monitoring requirement (DOE 2019).

13.2 Compliance Requirements

Requirements for the long-term surveillance and maintenance of the site are specified in the 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 13-1 lists these requirements.

Table 13-1. License Requirements for the Naturita, Colorado, Disposal Site

Requirement	LTSP	This Report	10 CFR 40.27
Annual Inspection and Report	Sections 3.2, 3.3	Section 13.4	(b)(3)
Follow-Up Inspections	Section 3.4	Section 13.5	(b)(4)
Site Maintenance	Section 3.5.1	Section 13.6	(b)(5)
Environmental Monitoring	Section 3.6	Section 13.7	(b)(2)
Emergency Measures	Section 3.5.2	Section 13.8	--

13.3 Institutional Controls

The 26.65-acre site, identified by the property boundary shown in Figure 13-1, is owned by the United States and was accepted under the NRC general license in 1999. DOE is the licensee, and in accordance with the requirements for UMTRCA Title I sites, 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 wellhead protectors.

13.4 Inspection Results

The site, 13 miles northwest of Naturita, Colorado, was inspected on June 10, 2020. The inspection was conducted by C. Wentz, D. Atkinson, and K. Meadows of the Legacy Management Support (LMS) contractor. A. Denny, the Office of Legacy Management (LM) site manager, and J. Carman of LMS attended the inspection. Due to the novel coronavirus and resulting travel restrictions in place at that time, the representative from the Colorado

Department of Public Health and Environment was not 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 the need, if any, for maintenance or additional inspection and monitoring.

13.4.1 Site Surveillance Features

Figure 13-1 shows the locations of site features in black and gray font, including site surveillance features and inspection areas. 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 text, and new observations identified during the 2020 annual inspection are shown in red font. Inspection results and recommended maintenance activities associated with site surveillance features are described in the following subsections. Photographs to support specific observations are identified in the text and in Figure 13-1 by photograph location (PL) numbers. The photographs and photograph log are presented in Section 13.10.

13.4.1.1 Site Access, Entrance Gate, and Entrance Sign

Access to the site is from Colorado Highway 141 to Montrose County Road EE22, which borders the northeast side of the site. Entrance to the site is through a locked steel gate directly off County Road EE22. One hinge on the entrance gate was damaged, but the gate was locked and functional (PL-1). The hinge was repaired after the inspection. The entrance sign, next to the entrance gate, was missing at the time of the inspection but replaced following the inspection. No other maintenance needs were identified.

13.4.1.2 Perimeter Fence and Signs

A barbed-wire perimeter fence encloses the site. Inspectors identified two loose fence strands near perimeter signs P13 and P18. These were repaired following the inspection.

There are 25 perimeter signs positioned along the perimeter fence attached to steel posts set in concrete and set back 5 feet. Perimeter sign P5 was missing and was replaced following the inspection. Inspectors continue to monitor the erosion around the concrete base of P22. No other maintenance needs were identified.

Two new unmanned aircraft system (UAS) warning signs were installed following the 2020 inspection. One sign was installed at the entrance area (PL-2), and the other was installed on the southeast corner of the site between perimeter sign P7 and boundary monument BM-17.

13.4.1.3 Site Markers

The site has two granite site markers. Site marker SMK-1 (PL-3) is just inside the entrance gate, and site marker SMK-2 is on the top slope of the disposal cell. No maintenance needs were identified.

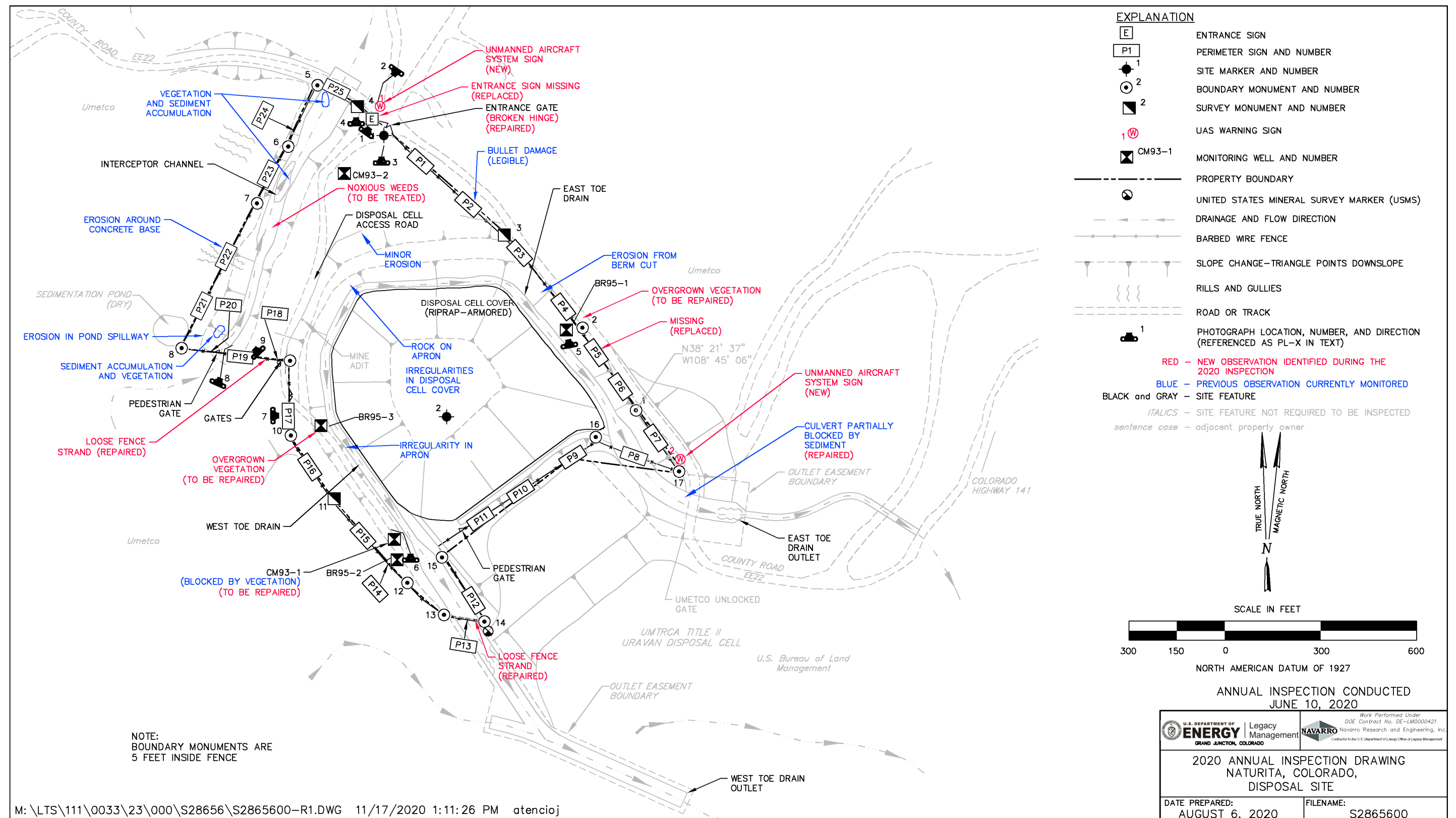


Figure 13-1. 2020 Annual Inspection Drawing for the Naturita, Colorado, Disposal Site

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13.4.1.4 Survey and Boundary Monuments

Three survey monuments and 14 boundary monuments delineate the property boundary. Boundary monuments BM-1 through BM-17 mark the property corners. Survey monuments SM-3, SM-4, and SM-11 represent boundary monuments BM-3, BM-4, and BM-11, respectively (PL-4). No maintenance needs were identified.

13.4.1.5 Aerial Survey Quality Control Monuments

Aerial survey quality control monuments are scheduled to be installed before the next inspection in 2021.

13.4.1.6 Monitoring Wells

The site has five groundwater monitoring wells. The wellhead protectors were undamaged and locked. Monitoring wells CM93-1, BR95-3, and BR95-1 all were completely surrounded by woody vegetation (PL-5 and PL-6). Sampling of the wells is not required, and the vegetation will be addressed upon well abandonment, planned for fiscal year 2021. No immediate maintenance needs were identified.

13.4.2 Inspection Areas

In accordance with the LTSP, the site is divided into three inspection areas to ensure a thorough and efficient inspection. The inspection areas are (1) the disposal cell, (2) the remainder of the site, 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.

13.4.2.1 Disposal Cell

The disposal cell, completed in 1998, occupies 10 acres (PL-7). The disposal cell is armored with riprap to control erosion. The riprap is rounded, with larger diameter rock on the side slopes than on the top slope. There was no evidence of settling, slumping, erosion, rock degradation, or other modifying processes that might affect the integrity of the disposal cell.

Irregularities in the riprap on the top slope of the disposal cell continue to be observed. The irregularities consist of slightly darker rock that are not lower than surrounding areas and have not changed over time. Another irregularity in the apron area on the west side of the disposal cell appears to be old vehicle tracks. The irregularity does not present a hazard to the disposal cell or surrounding area. Inspectors will continue to monitor these areas. As first identified in the 2019 inspection, a large boulder rests on the northeast side of the disposal cell apron, a presumed result of erosion from the steep cliff above the disposal cell. Inspectors will continue to monitor for potential impacts. No other maintenance needs were identified.

13.4.2.2 Remainder of the Site

Two riprap-armored toe drains (the west and east toe drains) collect water from the disposal cell side slopes and divert it to the southeast. The west toe drain outlet is south of the site in an

easement. Soft bedrock is being eroded near the west toe drain outlet, but that erosion does not threaten the performance of the toe drain, and repairs are not necessary. The east toe drain outlet is southeast of the site in an easement. Water is conveyed to the east toe drain outlet through the east toe drain and five culverts under County Road EE22. Vegetation continues to grow in the accumulating sediment just outside the culverts, potentially blocking stormwater flow through the culverts. The vegetation growth was addressed before the 2020 inspection. Erosion has exposed resistant bedrock near the east toe drain outlet but does not threaten the performance of the toe drain, and repairs are not necessary. Some sediment has accumulated in the upper end of the east and west toe drains, allowing scattered vegetation to grow, but this has not adversely affected the performance of the toe drains.

A riprap-armored interceptor channel, upgradient and northwest of the disposal cell, diverts stormwater and snowmelt runoff to the northeast under County Road EE22. Some sediment has eroded from the offsite area upslope from the channel and is being deposited in the channel. Sediment accumulation and associated vegetation have not adversely affected the performance of the interceptor channel (PL-8). Herbicide treatment of rabbitbrush plants is ongoing.

The area south of monitoring well CM93-2 upgradient of the disposal cell is showing signs of erosion, as identified during the 2019 inspection. When inspected this year, the erosion did not seem to have increased significantly and does not present a hazard to the disposal cell or to any site features. Inspectors will continue to monitor this area for ongoing erosion.

The disposal cell access road along the northwest side of the site descends through shale and sandstone units of the Salt Wash Member of the Morrison Formation. The road provides access to the disposal cell and monitoring wells on the west side of the site. No other maintenance needs were identified.

Erosion in the steep cliff below the previous berm cut alongside County Road EE22 does not pose a current threat to the integrity of the disposal cell or site features. Inspectors will continue to monitor this area. No other maintenance needs were identified.

13.4.2.3 Outlying Area

The surrounding area beyond the site boundary for a distance of 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. The area has been highly disturbed by mining, quarrying, reclamation, and road building.

Headcutting erosion identified during the 2019 inspection within the spillway channel below the sedimentation pond on the outlying area northwest of the site (PL-9) continues to show signs of erosion within the channel. Sedimentation from this area appears to be deposited in the interceptor channel but does not pose a problem at this time. Inspectors will continue to monitor this area for ongoing erosion and resulting impacts, if any.

13.5 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.

13.6 Maintenance and Repair

The sediment partially blocking the culverts on the south side of the cell, identified in the 2019 inspection, was removed before the 2020 inspection.

Inspectors documented minor maintenance needs that were completed following the 2020 inspection, including:

- Replacement of the entrance sign.
- Replacement of perimeter sign P5.
- Repair hinge on entrance gate.
- Repair of loose fence strands near perimeter signs P13 and P18.
- Installation of UAS warning signs at the entrance gate and between perimeter sign P7 and boundary monument BM-17.

Rabbitbrush growing in the interceptor channel will be treated before the next inspection.

13.7 Environmental Monitoring

In accordance with the LTSP, LM conducts vegetation monitoring. A plant specialist or other qualified person will periodically conduct vegetation monitoring.

If volunteer plant growth or sedimentation occurs to the point that the function of engineered structures might be degraded, DOE will evaluate the potential impact and select appropriate responses (DOE 2019). A rabbitbrush plant (a deep-rooted woody species) growing in the deposited sediment in the interceptor channel was identified and will be treated before the next inspection. No other maintenance needs were identified.

13.8 Emergency Measures

Emergency measures are actions DOE will take in response to “unusual damage or disruption” that threatens or compromises site safety, security, or integrity (10 CFR 40 Appendix A Criterion 12). No need for emergency measures was identified.

13.9 References

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), 2019. *Long-Term Surveillance Plan for the Naturita, Colorado Disposal site*, LMS/NAD/S13227, December.

13.10 Photographs

Photograph Location Number	Azimuth	Photograph Description
PL-1	35	Site Entrance Gate with Detached Hinge
PL-2	215	New Entrance Sign with Unmanned Aircraft System Sign
PL-3	0	Site Marker SMK-1
PL-4	—	Survey Monument SM-4
PL-5	350	Overgrown Vegetation Around Well BR95-1
PL-6	0	Overgrown Vegetation Around Well CM93-1
PL-7	90	Perimeter Sign P17; Disposal Cell in Background
PL-8	25	Sediment Accumulation and Vegetation in Interceptor Channel
PL-9	315	Spillway Above Interceptor Channel

Note:

— = Photograph taken vertically from above.



PL-1. Site Entrance Gate with Detached Hinge



PL-2. New Entrance Sign with Unmanned Aircraft System Sign



PL-3. Site Marker SMK-1



PL-4. Survey Monument SM-4



PL-5. Overgrown Vegetation Around Well BR95-1



PL-6. Overgrown Vegetation Around Well CM93-1



PL-7. Perimeter Sign P17; Disposal Cell in Background



PL-8. Sediment Accumulation and Vegetation in Interceptor Channel



PL-9. Spillway Above Interceptor Channel

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