



Long-Term Surveillance and Maintenance Program

2000 Annual Site Inspection and Monitoring Report for Uranium Mill Tailings Radiation Control Act Title I Disposal Sites

January 2001



Work Performed Under DOE Contract No. DE-AC13-96GJ87335 for the U.S. Department of Energy
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LSHP04.07

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for
Uranium Mill Tailings Radiation Control Act
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Prepared for
U.S. Department of Energy
Albuquerque Operations Office
Grand Junction, Colorado

Work Performed Under DOE Contract Number DE-AC13-96GJ87335
Task Order Number MAC 01-06
Document Number S00510

2000 Annual Compliance Report Shiprock, New Mexico, Disposal Site

Compliance Summary

The site, inspected on June 13, 2000, was in excellent condition. Vegetation encroachment on the disposal cell and in the diversion and outflow channels was significantly less than in recent years. The need to apply herbicide continues on an as-needed basis. The accumulation of tumbleweeds along the security fence was less this year than in the past when removal was required. Gravel pit operations southeast of the site continue and are monitored to ensure that these operations do not encroach or interfere with the site. Other than a possible need for plant control and tumbleweed removal, inspectors identified no requirements for maintenance or a follow-up inspection.

Compliance Requirements

Requirements for the long-term surveillance and maintenance of the Shiprock, New Mexico, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I disposal site are specified in the *Long-Term Surveillance Plan [LTSP] for the Shiprock Disposal Site, Shiprock, New Mexico* (DOE/AL/62350-60F, Rev. 1, U.S. Department of Energy [DOE], Albuquerque Operations Office, September 1994) and in procedures established by the DOE Grand Junction Office to comply with requirements of Title 10 *Code of Federal Regulations* (CFR) Part 40.27. These requirements are listed in Table SHP-1.

Table SHP-1. License Requirements for the Shiprock, New Mexico, Disposal Site

Requirement	LTSP	This Report
Annual Inspection and Report	Section 6.0	Section 1.0
Follow-up or Contingency Inspections	Section 7.0	Section 2.0
Maintenance	Section 8.0	Section 3.0
Ground-Water Monitoring	Section 5.0	Section 4.0
Corrective Action	Section 9.0	Section 5.0

Compliance Review

1.0 Annual Site Inspection and Report

The site, south of Shiprock New Mexico, was inspected on June 13, 2000. Results of the inspection are described below. Features mentioned in this report are shown on Figure SHP-1.

1.1 Specific Site Surveillance Features

Access Road, Fence, Gates, and Signs. Access to the site from U.S. Highway 666 is by various graveled roads that lead to a road along the southwestern edge of the disposal site. This road

leads to the southern tip of the site and to gravel pit operations east of the site. The gravel pit is operated by the Navajo Engineering and Construction Authority (NECA). From the southern tip of the site, inspectors make their way northward through the gravel pit area, with due regard to safety and current gravel pit operations, to the new entrance gate at the eastern corner of the site.

The site is enclosed by chain-link fence with three strands of barbed wire at the top. There are three gates in this fence. The old entrance gate is at the southwestern corner of the site. This gate is no longer used but probably still operable. The north terrace gate gives access to the northern terrace area above the floodplain of the San Juan River. The new and official entrance gate is at the extreme east corner of the site. Both the north terrace and entrance gates provide access to the disposal cell. The fence and all gates are in excellent condition, although accumulation of tumbleweeds along the fence is an on-going problem (see below Transects: Terrace and Site Perimeter).

There are entrance signs, E1, E2, and E3, at each of the three gates and 18 perimeter sign locations along the security fence. At each perimeter sign location, there are two signs attached to the security fence: one with standard written information and the other with pictorial information. The pictorial signs were placed several years ago at the request of the Navajo Nation. All signs were in excellent condition.

Site Markers and Monuments. The two site markers, three survey monuments, and eight boundary monuments were inspected. A crack in the concrete base at site marker SMK-1, first observed several years ago, has not widened.

The three survey monuments appeared undisturbed. Due to insufficient time, not all boundary monuments were closely inspected. However, inspectors noted no noticeable disturbance around any of the boundary monuments.

The four sets of erosion control markers along the edge of the terrace were undisturbed and in good condition. The edge of the terrace remains stable although a significant rock fall was noted several years ago.

Monitor Wells. Ground-water monitoring is not required at this site, so monitor wells are not included in the annual site inspection. The condition of the various wells, however, is noted by inspectors as the wells are encountered during the inspection. (Many of the wells are in use by the UMTRA Ground Water Project.)

Wells inspected this year include MW-01, MW-0600, MW-0602, MW-0603, and MW-0635. Wells MW-0670, MW-0671, and MW-0672 were inspected from a distance. All wells appeared to be in good condition, although the padlock at MW-0635 was missing.

1.2 Transects

To ensure a thorough and efficient inspection, the site was divided into three areas called transects: (1) the disposal cell (including diversion channels and outflow channel); (2) the terrace and site perimeter; and (3) the outlying area.

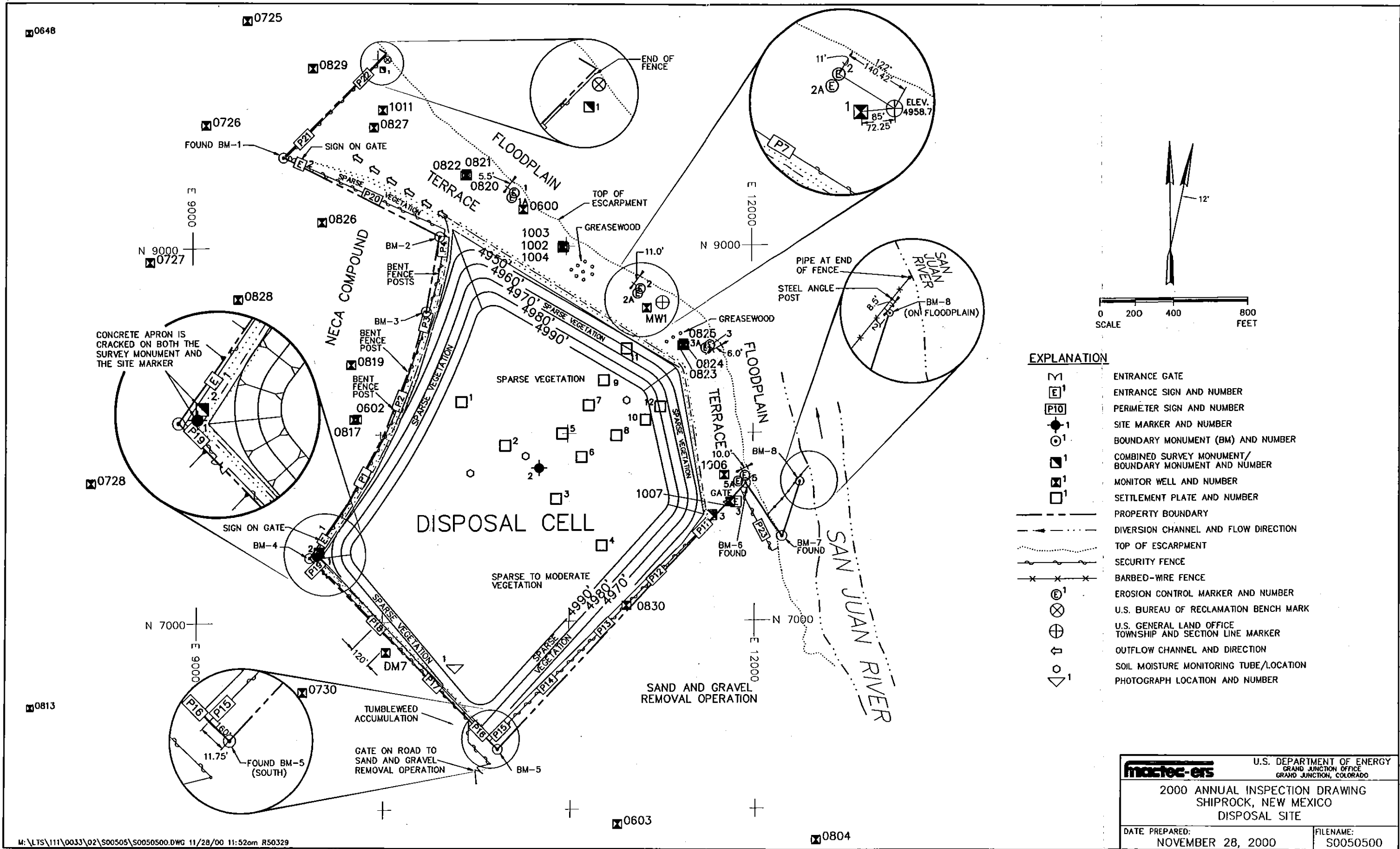


Figure SHP-1. 2000 Compliance Drawings for Shiprock, New Mexico, Disposal Site

Disposal Cell and Diversion and Outflow Channel. The top and side slopes of the disposal cell are covered with rock in excellent condition. Side slopes appear stable. Inspectors noted no indication of settling, slumping, or other signs of instability.

During years when spring or summer rainfall is sufficient, tumbleweeds encroach on top of the disposal cell and on the east, northeast, and northwest side slopes. Encroachment was minor this year due to less than normal rainfall and, perhaps, to application of herbicide in previous years.

Previous controls on tamarisk, a particularly aggressive plant, appear successful. No new tamarisk was observed this year.

In keeping with DOE's commitment to the Navajo Nation, DOE will continue to apply herbicide to weeds and woody plants as necessary. No herbicide was required this year.

The diversion channels around the base of the disposal cell (on all sides except the southeast) were in good condition. Dead tumbleweeds have been noted in the northwest diversion channel some years. The accumulation this year was significantly less than in the past.

Diversion channels empty into an outflow channel that conveys stormwater offsite to the northwest. At one time, tamarisk was beginning to establish in the lower reaches of the outflow channel. Tumbleweeds also colonize this part of the outflow channel. Previous treatment of the tamarisk appears effective, and the tumbleweed count this year was down significantly owing to a lack of moisture.

Terrace and Site Perimeter. The terrace is the area north and northeast of the disposal cell between the disposal cell and the escarpment above the floodplain of the San Juan River. The edge of the terrace escarpment is inspected for slope retreat (mass wasting). Inspectors saw no evidence of new or recent retreat along the escarpment.

In the past, tumbleweed and trash accumulations along the security fence have warranted removal. Problem areas include the west fenceline and the east corner of the fence near the new entrance gate. Tumbleweeds were removed from these locations in 1999, but tumbleweed accumulation is beginning to build again along the west fenceline near the southwest corner (PL-1). No other accumulation was noted. Removal on an every 2-to-3 year basis is anticipated.

Outlying Area. Gravel pit operations southeast of the disposal cell complicate access to the new entrance gate. Stockpiles of sand and gravel often block the most direct access to the gate. Operation of the gravel pit appears intermittent. Safety is a concern when entering the gravel pit area.

Future encroachment of gravel pit operations toward the disposal cell is also a concern. If gravel pit operation continues up to the site boundary, it could destabilize the security fence or interfere with the southeast drainage channel. However, the sand and gravel deposit is only about 10 to 15 feet thick, so a high, steep slope adjacent to the site boundary may be unlikely.

Erosion around a borrow pit southwest of the site was corrected several years ago by fencing and reseeded. (The borrow pit was the source of fine-grained material used for the radon barrier in

the cover of the disposal cell.) Vegetation in the borrow pit area is now comparable to native vegetation in the area. Further inspection of this area is not required.

2.0 Follow-Up or Contingency Inspections

No follow-up or contingency inspections were required in 2000.

3.0 Maintenance

No maintenance was required in 2000. Control of tumbleweeds and tamarisk, and removal of tumbleweeds from the fenceline, may be required in 2001.

4.0 Ground-Water Monitoring

Ground-water monitoring is not required at this site because of poor water quality and low yield in the uppermost aquifer beneath the disposal cell.

5.0 Corrective Action

No corrective action was required in 2000.

6.0 Photographs

Table SHP-2. Photographs Taken at Shiprock, New Mexico, Disposal Site

Photograph Location Number	Description
PL-1	Tumbleweed Accumulation Along West Fence Line



PL-1. Tumbleweed Accumulation Along West Fence Line