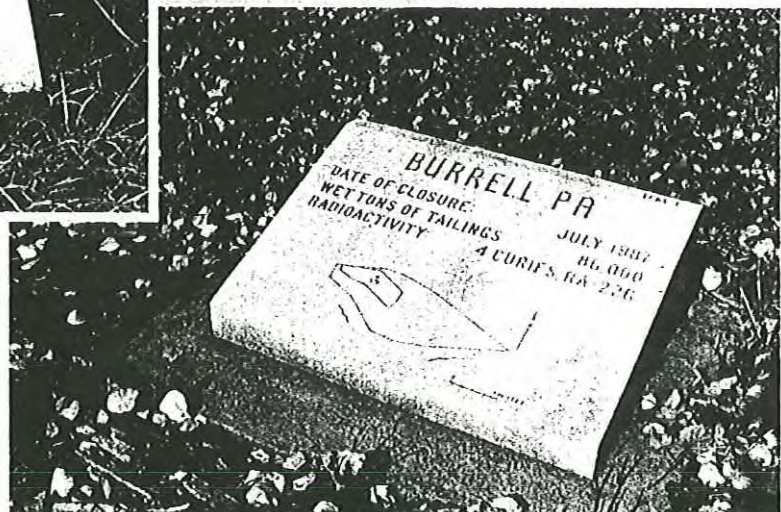




## Long-Term Surveillance and Maintenance Program

# 2001 Annual Site Inspection and Monitoring Report for Uranium Mill Tailings Radiation Control Act Title I Disposal Sites

January 2002



Work Performed Under DOE Contract No. DE-AC13-96GJ87335 for the U.S. Department of Energy  
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This file contains inspection data for the Shiprock Site only.

**Long-Term Surveillance and Maintenance Program**

**2001 Annual Site Inspection and Monitoring Report**  
**for**  
**Uranium Mill Tailings Radiation Control Act**  
**Title I Disposal Sites**

January 2002

Prepared for  
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Idaho Operations Office  
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# 2001 Annual Compliance Report Shiprock, New Mexico, Disposal Site

## Compliance Summary

The site, inspected on June 20, 2001, was in good condition at the time of the inspection. Vegetation encroachment into the riprap cover continues to be a concern at this site; however, the amount of vegetation present this year was significantly less than in recent years. Annual weeds along the side slopes and cover were sprayed on June 1, 2001. At the time of the inspection, the target species were showing signs of significant damage. Russian thistle (tumbleweed) and trash buildup along the site perimeter fence continues and is an ongoing maintenance issue at this site. Seven wells that are no longer required for monitoring were decommissioned in 2001. A significant rainstorm on July 14, 2001, necessitated a follow-up inspection and repairs to the perimeter fence and the floodplain access gate.

## 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 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* Part 40.27 (10 CFR 40.27). These requirements are listed in Table 16-1.

Table 16-1. License Requirements for the Shiprock, New Mexico, Disposal Site

Requirement	Long-Term Surveillance Plan	This Report
Annual Inspection and Report	Section 6.0	Section 1.0
Follow-up or Contingency Inspections	Section 7.0	Section 2.0
Routine Maintenance and Repairs	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 20, 2001. Results of the inspection are described below. Features and photo locations (PLs) mentioned in this report are shown on Figure 16-1. Numbers in the left margin of this report refer to items summarized in the Executive Summary table.

## 1.1 Specific Site Surveillance Features

16A **Access Road, Fence, Gates, and Signs**—All three entrance gates—the main entrance gate at the east corner of the site (near the terrace escarpment), the gate providing terrace access at the northwest corner of the site, and the old entrance gate at the west corner of the site—were in good condition. The four entrance signs, E1, E2, E3, and E4, also were in good condition. Access to the main entrance gate is gained by traveling through the gravel pit operated by the Navajo Engineering and Construction Authority (NECA). Previously, NECA allowed DOE to keep a lock on the gate leading through the gravel pit area. The DOE lock has been removed from the gate by NECA; however, NECA officials provided DOE with a key to their padlock for future access.

16B The security fence along the perimeter was examined and found to be in good condition. As noted, tumbleweeds and windblown trash continue to accumulate along certain portions of the site perimeter fence and necessitate removal every 2 to 3 years. Trash and weeds were last removed from the perimeter fence in April 1999. Based upon recent site observations and the June 2001 site inspection, removal of trash and weed accumulations from the site security fence is recommended.

Inspectors noted several locations around the perimeter fence where animals (most likely dogs and coyotes) have crawled beneath the chain link fence fabric or underneath the access gates (PL-1). The openings are sufficiently large to allow access by a small child. Although there is currently no evidence of unauthorized trespass, future inspections should continue to monitor these potential access points for signs of human entry.

Sixteen pairs of perimeter signs (one pictorial sign; one standard sign with text) are attached to the security fence. All perimeter signs were intact and in good condition.

**Site Markers and Monuments**—The two site markers, SMK-1 and SMK-2, were examined. SMK-1 is just inside the old (west) entrance gate and SMK-2 is on top of the disposal cell. Although there is some minor cracking in the concrete around the base of SMK-1, both markers are in good condition.

16B Due to weed accumulations along the fence lines and the site perimeter, not all boundary monuments could be located during the 2001 inspection. There is no evidence; however, that the monuments have been disturbed or damaged. DOE will verify the locations of all boundary monuments during the 2002 site inspection. All three survey monuments were in good condition.

The four sets of erosion control markers along the terrace, E1/E1A, E2/E2A, E3/E3A, and E5/E5A, were inspected. All markers were in good condition and were not threatened by erosion along the terrace escarpment.

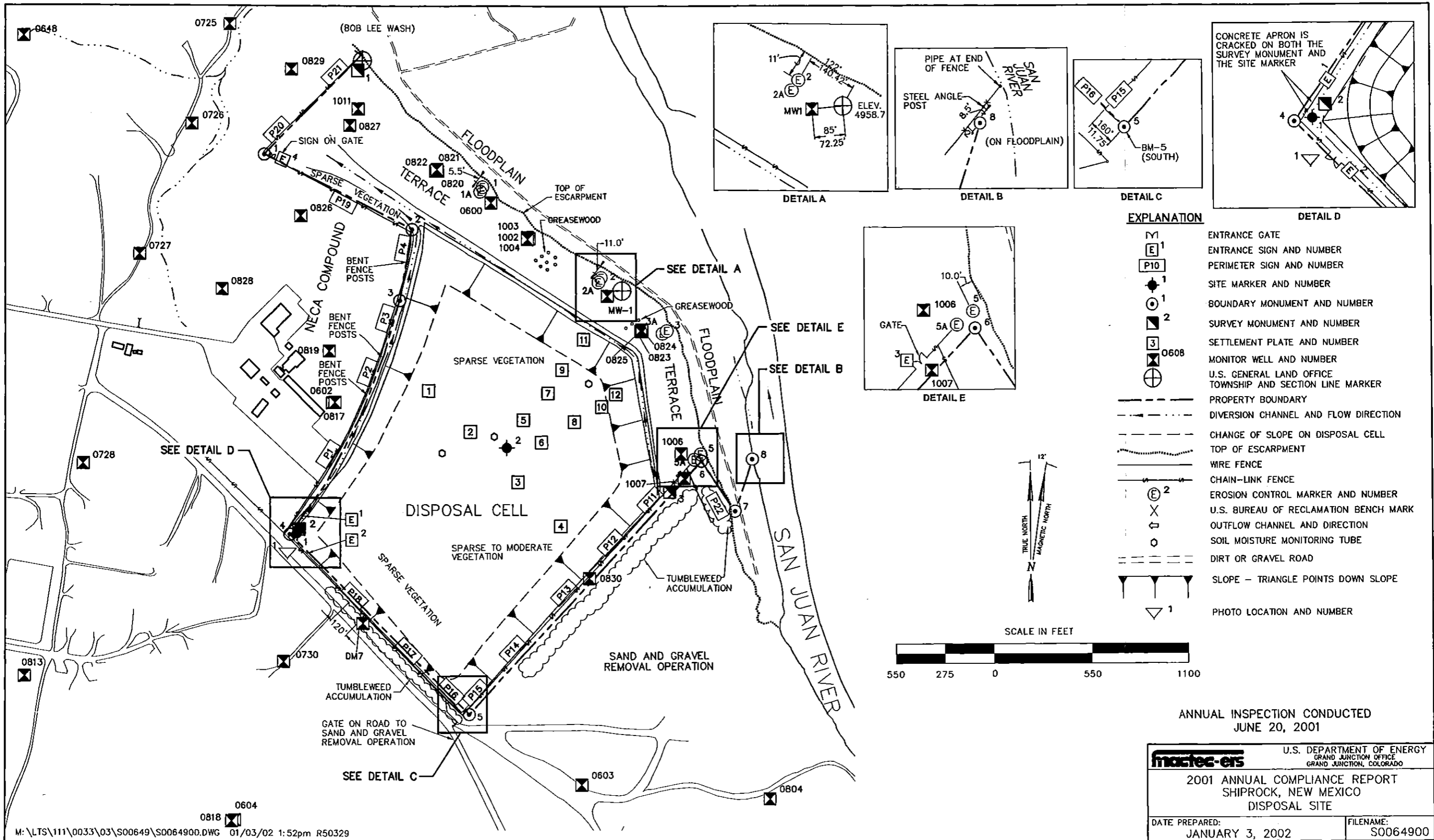


Figure 16-1. 2001 Compliance Drawing for the Shiprock, New Mexico, Disposal Site

**Monitor Wells**—Ground-water monitoring is not required at this site, so monitor wells are not included in the annual site inspection. Inspectors note the condition of the various wells, however, during the inspection. (The Uranium Mill Tailings Remedial Action Ground Water Project uses many of the wells.)

Monitor wells 1, 0600, 0602 (located on the NECA facility adjacent to the site), and 0603 (located southeast of the disposal cell and adjacent to the gravel pit operations) were in good condition. Monitor well 0821 (located on the terrace escarpment) was unlocked. Inspectors locked the well. The UMTRA Ground Water Project has installed numerous additional monitor wells on the site and in the area as part of the ground water compliance effort for the site.

16C Seven unneeded monitor wells were decommissioned in 2001.

## 1.2 Transects

To ensure a thorough and efficient inspection, the site was divided into three areas referred to as transects: (1) the disposal cell, diversion channels, and outflow channel; (2) the terrace and site perimeter; and (3) the outlying area, including the fenced borrow-pit area west of the disposal cell and the NECA gravel pit south of the disposal cell.

Within each transect, inspectors examined specific site surveillance features, such as boundary and survey monuments, perimeter and warning signs, and monitor wells. Inspectors examined each transect for evidence of erosion, settling, slumping, or other disturbance that might affect site integrity or the long-term performance of the site.

**Disposal Cell and Diversion and Outflow Channel**—The top and side slopes of the cell, covered with rock riprap, were in excellent condition. No evidence of settling, erosion, or animal burrowing was found.

16D Significant concentrations of vegetation have been noted during past inspections on the top and the east, northeast, and northwest side slopes. Although vegetation in these areas has been significantly reduced from past years, these areas were sprayed on June 1, 2001 in a continuing effort to reduce seed sources and to control future plant encroachment on the disposal cell. During the 2001 inspection, plant response (i.e., curling, burning, etc.) to the recent herbicide application was evident. In keeping with DOE's commitment to the Navajo Nation, DOE will continue to monitor vegetation growth and apply herbicide to the annual weeds and woody plants as necessary. No new tamarisk plants were observed in this transect.

The diversion channels around the base of the disposal cell (on all sides except the southeast) were in good condition. The quantity of vegetation in the northwest diversion channel was greatly reduced from that observed during previous inspections.

All site drainage is ultimately directed toward the outflow channel at the northeast corner of the site. Rock cover in the outflow channel is in good condition. Sparse vegetation (primarily kochia and Russian thistle) was noted in the outflow channel; however, it is not anticipated that it will affect the channel's performance.

- 16E DOE completed an investigation of moisture and hydraulic conductivity in the compacted soil layer of the cell cover. Results indicate that this layer is saturated and has variable hydraulic conductivity values, some of which exceed design criteria. DOE is investigating the degree of saturation through the impounded waste as follow-on work.

**Terrace and Site Perimeter**—The terrace is the area north and northeast of the disposal cell between the cell and the escarpment, excluding the outflow channel. The edge of the terrace escarpment is inspected for slope retreat (mass wasting). No erosion of the terrace or escarpment was evident.

- 16A **Outlying Area**—A sand and gravel pit operated by NECA is located immediately southeast of the disposal cell. Gravel is being excavated along the terrace escarpment immediately south of the disposal cell. During the 2001 inspection the situation was basically the same. Investigators were able to navigate to the eastern entrance gate around the large piles of crushed gravel. The monitor well sampling crews that support the UMTRA Ground Water Project also use this entrance.

## 2.0 Follow-Up or Contingency Inspections

A follow-up inspection was required after a significant storm event that occurred on July 14, 2001.

## 3.0 Routine Maintenance and Repairs

No maintenance was identified during the 2001 inspection. Control of Russian thistle and tamarisk, and removal of dead Russian thistle from the fence line, will be performed as necessary.

## 4.0 Nonroutine Maintenance and Repairs

- 16F The following nonroutine maintenance tasks were performed in late August 2001 due to the storm event of July 14, 2001, that produced approximately 2 inches of precipitation:

- A section of washed-out boundary fence around the disposal site was temporarily repaired to restore site access control;
- The Bob Lee Wash entrance gate to the floodplain had to be moved due to bank erosion; and
- Perimeter fencing for the Bob Lee and Many Devil's Washes was re-established.

DOE will redirect the outflow channel, harden the channel, and make permanent repairs to the fence in 2002.

## 5.0 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.



## 6.0 Corrective Action

Corrective action is action 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 corrective action was required in 2001.

## 7.0 Photographs

*Table 16-2. Photographs Taken at the Shiprock, New Mexico, Disposal Site*

<b>Photograph Location Number</b>	<b>Azimuth</b>	<b>Description</b>
PL-1	50	Potential Site Entry Point beneath the Access Gate

End of current text



*PL-1. Potential Site Entry Point beneath the Access Gate*