# 2002 Annual Compliance Report
# Shiprock, New Mexico, Disposal Site

## Compliance Summary

The site, inspected on June 27, 2002, was in good condition. Vegetation encroachment on the riprap-armored cover continues. Although efforts to control annual weed species at this site have been successful, woody shrub growth in the storm water diversion channel continues to increase, and needs to be controlled. Runoff from storms in July 2001 and September 2002 caused erosion downstream of the riprap-armored portion of the outflow channel, undermined the fence at several locations, and washed away a boundary monument. DOE will make repairs to these features. Inspectors saw no cause for a follow-up or contingency 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 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 Inspection and Report

The site, south of Shiprock, New Mexico, was inspected on June 27, 2002. Results of the inspection are described below. Features and photograph locations (PLs) mentioned in this report are shown on Figure 16–1. Numbers in the left margin refer to items in the Executive Summary table.

## 1.1 Specific Site Surveillance Features

**Access Road, Fence, Gates, and Signs—**Access to the main entrance gate is gained by traveling through a gravel pit facility operated by the Navajo Engineering and Construction Authority. DOE secured perpetual access to the site through a Custody and Access Agreement with the Navajo Nation.

The security fence along the site perimeter was in fair condition. Inspectors noted several locations around the fence where sheet erosion has removed enough material from beneath the chain link fabric to allow access into the site by animals or humans. Inspectors noted that animals (most likely dogs, coyotes, etc.) are using these openings to crawl beneath the chain link fence fabric. The largest openings are between boundary monuments BM−1 and BM−3. Although there was no evidence of trespass, the openings are potential access points for humans and will be filled.

Tumbleweeds and windblown trash accumulate along upwind portions of the perimeter fence and must be removed every 2 or 3 years to mitigate potential fire hazards associated with the weeds and to maintain site appearance. During the June 2002 inspection, significant tumbleweed and trash accumulation was observed along the westernmost fence line near boundary monument BM−5 (PL−1) and near the main entrance gate near boundary monument BM−6.

16A During a thunderstorm in July 2001, approximately 2 inches of rain fell in 2 hours, and another 3.3 inches of rain fell over a 2-day period in September 2002. Erosion caused by runoff from these storm events damaged a portion of fence near boundary monument BM–1. The fence will be repaired when the erosion damage is repaired.

All three vehicle 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 were in good condition. The telephone number for the Navajo Nation Uranium Mill Tailings Remedial Action Office on entrance sign E4 (northwest corner) was incorrect and was updated in October 2002.

Sixteen pairs of perimeter signs (one standard perimeter sign with text; one pictorial sign showing the disposal cell) 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. Site marker SMK–1 is just inside the old (west) entrance gate and site marker SMK–2 is on top of the disposal cell. Although there was some minor cracking in the concrete around the base of SMK–1, both markers were in good condition.

16B Erosion resulting from the July 2001 storm washed away boundary monument BM–1. DOE will replace the missing monument when the erosion damage is repaired. All other boundary monuments were located and found to be in good condition.

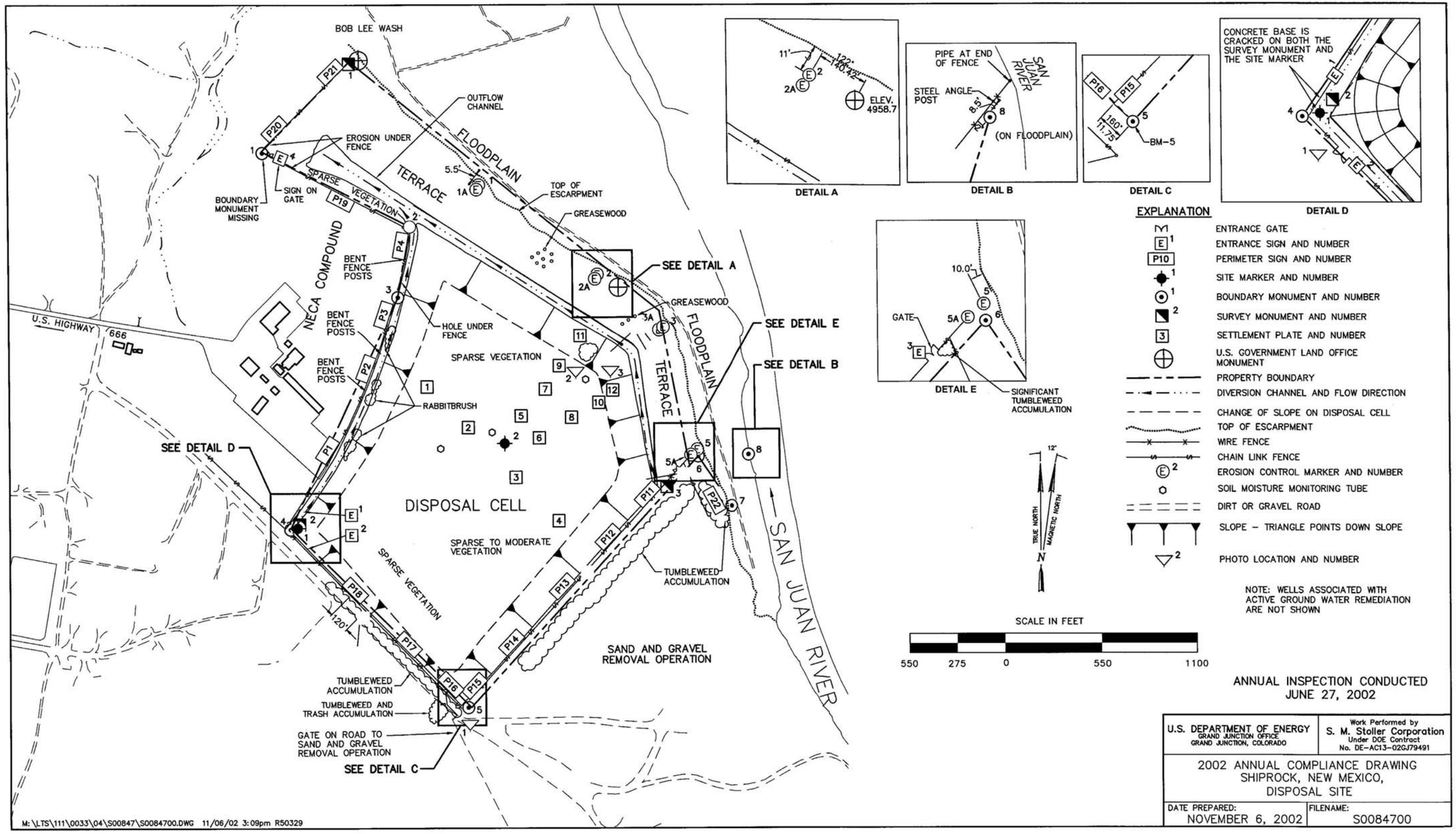



*Figure 16–1. 2002 Annual Compliance Drawing for the Shiprock, New Mexico, Disposal Site*

The four sets of erosion control markers on the terrace and the three survey monuments were in good condition.

**Monitor Wells**—Ground water monitoring is not required for long-term stewardship at this site. Monitor wells for ongoing ground water remediation activities, located in and around the site, are not included in the annual inspection.

## 1.2 Transects

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

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

Inspectors observed locations on top of the disposal cell rock cover where the riprap had been pulled back and piezocones installed (PL−2). Vehicle tracks associated with this activity also were evident on top of the disposal cell. The piezocones had been removed by the time of the inspection, and the riprap was replaced after the inspection.

Significant vegetation growth has been noted during past inspections on the top and the east,
16C northeast, and northwest side slopes. These areas were sprayed in June 2001 in a continuing effort to reduce the seed source and control future plant encroachment on the disposal cell. Although efforts to control annual weed species at this site have been successful, inspectors noted the population of woody shrubs growing in the storm water diversion channel continues to increase (PL−3). DOE will continue to monitor vegetation growth and will apply herbicide to the annual weeds and woody plants as they appear. No new tamarisk plants were observed in this transect.

Diversion channels around the base of the disposal cell were in good condition. Site drainage is ultimately directed toward the outflow channel at the northwest corner of the site. Rock cover in the outflow channel was in good condition. Sparse vegetation was noted in the outflow channel; however, it is not anticipated that the vegetation will adversely affect the channel's performance.

The July 2001 storm event scoured a hole measuring approximately 15 feet wide by 4 feet deep beyond the riprap-armored portion of the outflow channel (in area of boundary monument
16D BM−1). The hole was filled with pit run material as a temporary measure; the fill was washed away during the September 2002 storm and again was filled. DOE will extend and armor the outflow channel to prevent further erosion in this area.

**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.

**Outlying Area—**A sand and gravel pit is located immediately southeast of the disposal cell. Gravel is being excavated along the terrace escarpment immediately south of the disposal cell. Gravel operations have had no apparent affect on disposal site security or integrity.

A fenced depression, from which radon barrier material was borrowed, is located across the public road southwest of the disposal cell. As part of on-going ground water remediation efforts at the Shiprock disposal site, DOE began construction of a lined, spray-evaporation pond at the borrow area in 2002. At the time of the inspection, there were no concerns or issues associated with this area. Although ground water treatment activities are not within the scope of the stewardship requirements of the disposal facility, construction of this treatment facility adjacent to the disposal cell and related activities will be monitored.

## 2.0 Follow-Up or Contingency Inspections

No follow-up or contingency inspections were required in 2002.

## 3.0 Routine Maintenance and Repairs

In 2002, DOE made temporary repairs related to storm damage, mobilized a contractor to make permanent repairs to storm-damaged features, and corrected the contact phone number for the Navajo Nation on the sign at the northwest gate.

## 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

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.

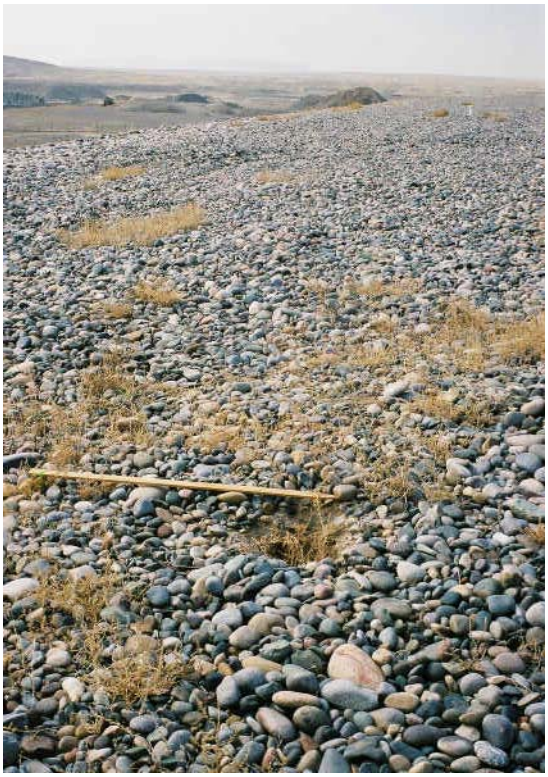
No corrective action was required in 2002.

## 6.0 Photographs

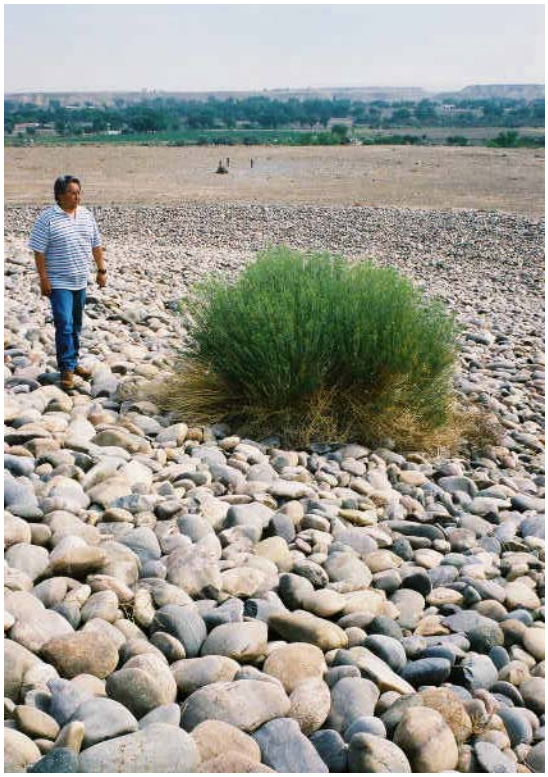
*Table 16–2. Photographs Taken at the Shiprock, New Mexico, Disposal Site*

| Photograph Location Number | Azimuth | Description |
|---|---|---|
| PL−1 | 355 | Trash and tumbleweed accumulation near boundary monument BM−5. |
| PL−2 | 110 | Abandoned piezocone location on top of disposal cell cover. |
| PL−3 | 330 | Rabbitbrush growing on NE side slope. |

*PL−1. Trash and tumbleweed accumulation near boundary monument BM−5.*



*PL−2. Abandoned piezocone location on top of disposal cell cover.*



*PL−3. Rabbitbrush growing on NE side slope.*

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