UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BLVD
ARLINGTON, TEXAS 76011-4511

July 2, 2012

MEMORANDUM TO: DOCKET FILE WM-00058

THROUGH: D. Blair Spitzberg, PhD, Chief ***/RA/***
Repository and Spent Fuel Safety Branch

FROM: Linda M. Gersey, Health Physicist
Repository and Spent Fuel Safety Branch

SUBJECT: SHIPROCK DISPOSAL SITE
OBSERVATIONAL SITE VISIT

On May 29, 2012, an NRC Region IV inspector conducted an observational site visit at the U.S. Department of Energy's (DOE) Shiprock Title I disposal site located at Shiprock, New Mexico. This site visit was conducted using guidance approved April 17, 2012, (ML120930240). The purpose of the site visit was to observe DOE's routine, annual visit to the facility. Attached is the NRC's observational trip report for this site visit.

In summary, the DOE representatives conducted the annual inspection in accordance with the Long-Term Surveillance Plan for the Shiprock, New Mexico (UMTRCA Title I) Disposal Site dated September 29, 1994. No regulatory issues or safety concerns were identified during the site visit.

Docket: WM-00058

Attachment:
NRC Trip Report

cc with attachment:
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ADAMS: ☐No ■ Yes	■ SUNSI Review Complete	Reviewer Initials: LMG
	■ Publicly Available	■ Non-Sensitive
	☐ Non-publicly Available	☐ Sensitive

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	WM-00058
Report:	WM-00058/12-001
Licensee:	U.S. Department of Energy
Facility:	Shiprock Disposal Site
Location:	San Juan County, New Mexico
Date:	May 29, 2012
Inspector:	Linda M. Gersey, Health Physicist Repository and Spent Fuel Safety Branch
Approved by:	D. Blair Spitzberg, PhD, Chief Repository and Spent Fuel Safety Branch

Attachment

NRC Trip Report

1. Background

The Shiprock disposal site is held in trust by the U.S. Bureau of Indian Affairs. The Navajo Nation retains title to the land. Pursuant to the Uranium Mill Tailings Radiation Control Act (UMTRCA), the U.S. Department of Energy (DOE) is the licensee and is responsible for the custody and long-term care of the site. The DOE and the Navajo Nation execute a Custodial Access Agreement that conveys to the federal government title to the residual radioactive materials stabilized at the repository site and ensures that DOE has perpetual access to the site.

The Shiprock disposal site is located on the Navajo Nation reservation in San Juan County, New Mexico. The DOE completed the remediation of the Shiprock disposal site during 1986, and the NRC accepted the site under the NRC general license (10 CFR 40.27) May 9, 1991. The disposal cell contains approximately 2.5 million tons of residual radioactive wastes including mill tailings. The disposal cell covers approximately 77 acres of the 145-acre site.

The last annual DOE inspection was conducted by a contractor on June 1, 2011. During that inspection, no significant changes were noted from the previous year's inspection. Further, no problems were identified that required immediate contingency action.

2. Site Status

The site consists of a disposal cell located within a fenced boundary. The above-grade disposal cell is an asymmetrical pentagon, with a maximum height of 48 feet (15 meters) above ground level. A rock-lined drainage ditch on the north and west sides of the disposal cell directs runoff water to a rock-lined dissipation area. The disposal cell was constructed with a rip-rap (rock erosion protection) layer, bedding layer, and radon barrier over the contaminated materials. DOE installed 15 perimeter signs, 2 site markers located at the southwest corner and on top of the disposal cell, 3 survey monuments, 8 boundary monuments, and 4 pairs of erosion control markers.

Regulation 10 CFR 40.27(c) states that the DOE shall implement the long-term surveillance plan (LTSP), and care for the disposal site in accordance with the provisions of the LTSP. The most recent LTSP for the Shiprock site was submitted to the NRC by DOE, September 29, 1994. The DOE used this version of the LTSP during its annual inspection. The LTSP does not require cell performance groundwater monitoring for this site.

The Shiprock site has an NRC-approved Groundwater Compliance Action Plan, dated July 2002, for remediation of legacy groundwater contamination. These activities are not addressed in the LTSP because they are not related to the long-term disposal and stabilization of contaminated materials contained within the disposal cell. Also, no groundwater activities were reviewed during this inspection. Inspection of the Groundwater Compliance Action Plan and groundwater sampling are performed by DOE twice a year. The NRC inspector may observe the implementation of the groundwater monitoring and remediation program during a future site visit.

3. Site Observations and Findings

To conduct the annual inspection, the DOE contractors created an inspection checklist. The checklist included requirements to inspect the fences, boundary monuments, site markers, perimeter signs, and entrance gate. Also, the DOE contract inspectors were required to check the condition of the disposal cell top, side slopes, diversion ditches, the area between the cell and the site boundary, and the outlying areas. Further, the DOE contract inspectors were required to observe the status of vegetation.

During the inspection, DOE contractors observed that the site fences were adequately intact, most site and survey markers and monuments were in place, and the entrance gate was intact. Only one of three boundary monuments, BM-1, could be located. An unsuccessful attempt was made by the DOE contractors to locate the two other boundary markers, which are obscured from view by sand, using a metal detector. There was sand, tumbleweed, and trash accumulation along the fence, although the fence was still functional. The disposal cell appeared to be in excellent condition, with small amounts of scattered vegetation on the top and sides. The erosion barrier was in place, and no settlement was observed.

On top of the disposal cell, four open research pits, which have been identified in past DOE inspection reports, were viewed. Each pit had the rock removed down to the bedding layer. The NRC inspector questioned why these pits had not been closed if the research was complete. The DOE Site Manager stated that the pits will be closed over with the rock cover during a future visit.

The DOE representatives determined that minor fence repairs, sand accumulation and trash cleanup were necessary at some future date. Also, the decision was made to use a small backhoe to remove sand and uncover the two boundary monuments during the summer of 2012. The DOE representatives did not identify any significant problems during the annual inspection that required immediate contingency actions.

The NRC inspector measured the ambient gamma exposure rates using a hand-held survey meter (Ludlum Model 19 survey meter, NRC No. 015525 calibration due date of 05/14/13). With a background of about 10-12 microRoentgens per hour (μR/hr), measurements ranged from background to about 15 μR/hr. Overall, the survey results indicate that the site property was at background levels.

4. Conclusions

The NRC inspector concluded that the DOE contract inspectors conducted the site inspection in accordance with LTSP and 10 CFR 40.27 requirements. The condition of the site was nearly identical to the condition that was reported during the previous year's DOE inspection, as documented in the 2011 annual report.

5. Meeting Summary

The NRC inspector participated in a pre-planning meeting with the DOE Site Manager and DOE representatives prior to the site inspection. During this meeting, the NRC and DOE contractor discussed topics such as site status, inspection plan, and potential hazards.

6. Persons Contacted

L. Benally, Jr., Navajo AML Reclamation
D. Steckley, Site Manager, DOE Office of Legacy Management
L. Sheader, Shiprock Lead inspector, S.M. Stoller Corporation
M. Kastens, Shiprock Inspector, S.M. Stoller Corporation

Figure 1: Tumbleweeds at Outflow Channel

Figure 2: Top of Cell

Figure 3: Side of Cell in Background

Figure 4: Experimental Pit on Top of Cell