Long-Term Surveillance and Monitoring Program

Annual Site Inspection and Monitoring Report for Uranium Mill Tailings Radiation Control Act Spook, Wyoming, Site

1998 Annual Report

February 1999

Prepared by
U.S. Department of Energy
Grand Junction Office
Grand Junction, Colorado

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Summary

The Spook site was inspected on June 15, 1998. The site was in excellent condition. No maintenance is required, and no cause for a follow-up inspection was identified.

1.0 Introduction

This report presents the results of the U.S. Department of Energy's (DOE's) annual inspection of the Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I disposal site at Spook, Wyoming.

M.K. Kastens, Chief Inspector, and C.A. Jones, Assistant Inspector, of MACTEC-ERS, the Technical Assistance and Remediation contractor at the DOE Grand Junction Office (GJO), conducted the inspection on June 15, 1998. The inspection was conducted in accordance with (1) the Long-Term Surveillance Plan (LTSP) (*Long-Term Surveillance Plan for the Spook, Wyoming, Disposal Site*, January 1993. U.S. DOE, Albuquerque, N.M., DOE/AL/350215.0000) for this site, and (2) procedures established by the GJO to comply with the requirements of Title 10 *Code of Federal Regulations* Part 40.27.

The purposes of the annual inspection were to confirm the integrity of visible features at the site, to identify changes in conditions that may affect site integrity, and to determine the need, if any, for maintenance or additional inspections and monitoring.

2.0 Results of Inspection

To ensure a thorough and efficient inspection, the site was divided into three areas referred to as transects: (1) site perimeter, (2) disposal site, and (3) the outlying area. Each of these transects was inspected by walking a series of traverses.

Within each transect, inspectors examined specific site surveillance features, such as survey and boundary monuments, signs, and site markers. Inspectors examined each transect for evidence of erosion, settling, slumping, or other phenomena that might affect site integrity or the long-term performance of the site. Features mentioned in this report are shown on the drawing, Figure SPK-1.

2.1 Specific Site Surveillance Features

The road to the site is graded and hard packed. North of the Dry Fork of the Cheyenne River, the road narrows to a seldomly used dirt track. Rills forming in the track may eventually make the road impassable to low clearance vehicles. The track is not graveled and may be difficult in wet weather.

There are ten perimeter signs and one entrance sign. All were in place and undamaged except for a bullet hole in perimeter sign P3.

The two site markers, eight boundary monuments, and three survey monuments were in excellent condition. The concrete bases around several of the boundary monuments rise an inch or so above the surface of the surrounding soil. This appears to be an artifact of installation and is not a concern. There is no evidence of erosion around the boundary monuments, although a minor amount of sheet-wash erosion or deflation may have occurred before vegetation established.

2.2 Areal Features

Site Perimeter

Inspectors walked the site perimeter, beginning at the entrance sign, to inspect the site boundary and to examine as-built features, such as warning signs and boundary monuments, along the property line. All as-built features were in good to excellent condition, as described above, and no erosion or other disturbance was found.

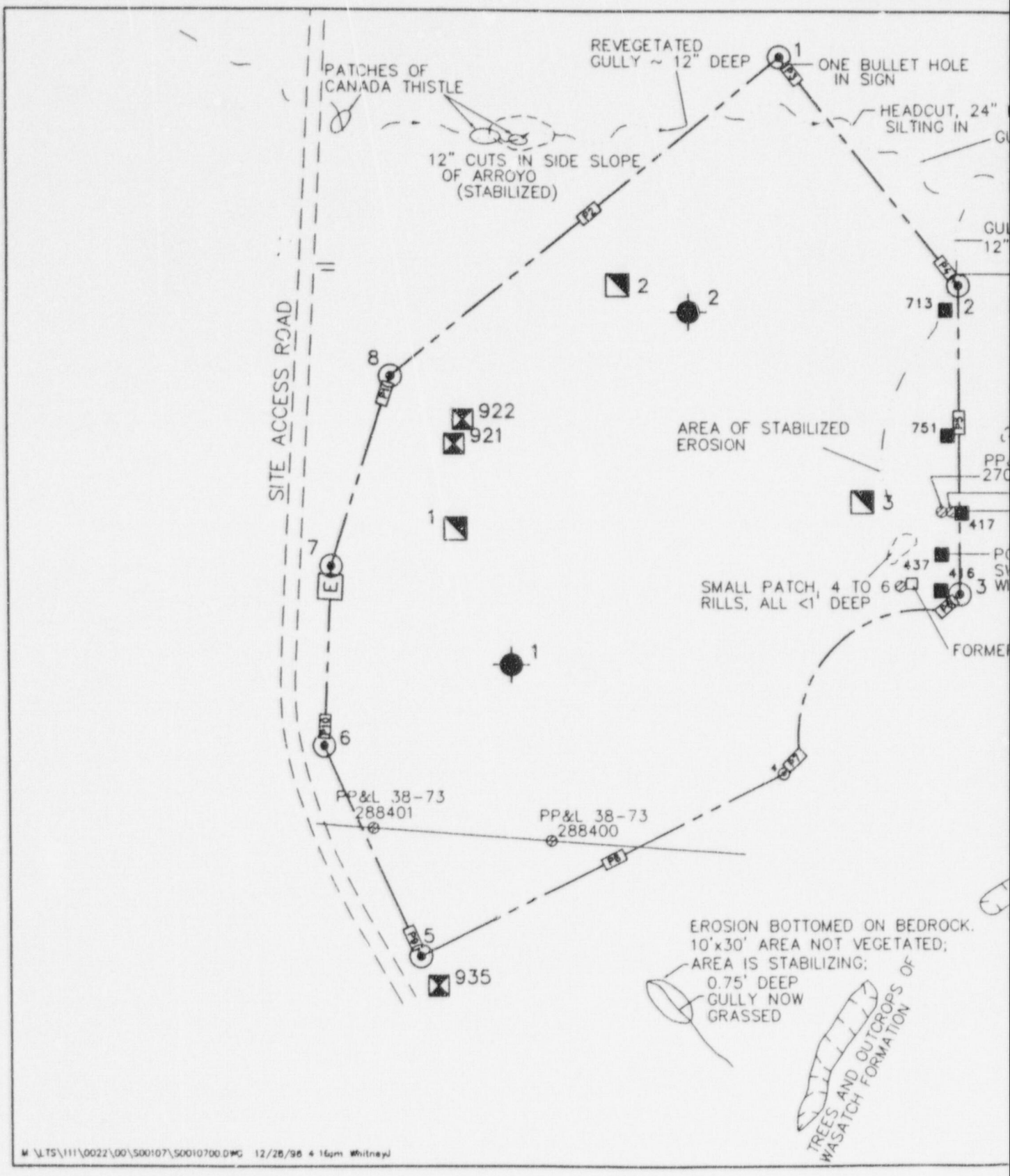
Disposal Site

The Spook site is unique among Title I sites in that tailings were backfilled into an open pit and covered with approximately 45 feet (ft) of clean fill and topsoil. None of the observations and concerns routinely associated with above-grade disposal cells, such as quality of the riprap, stability of side slopes, or the presence of deep-rooted plants, applies to this site.

The surface of the disposal site was generally in excellent condition. No evidence of settling was present over the old disposal pit that is now the disposal cell. Vegetation across the disposal site consists of grasses and forbs. For the most part, these plants are healthy and well-established. Except for the lack of sagebrush in the graded and reseeded areas, the vegetation is almost indistinguishable from that which grows on the surrounding hills and valleys. Except for sagebrush, the same species are present, and the overall health and density of vegetation are very much the same. Efforts to restore the site to grassland appear successful. Sheep were grazing on the site at the time of the inspection. The site is not fenced, and open-range grazing by sheep, cattle, and wildlife is part of the long-term plan for the site.

Minor gully erosion has been noted since the site was first inspected by GJO in 1992. Gully erosion is not a threat to the deeply buried tailings. However, erosion is a potential concern because it could degrade final site contours and displace soil and vegetation.

The most noticeable erosion on site is confined to two areas, both part of the same small drainage system. One branch of this drainage system flows across the northern tip of the site from west to east; the other branch starts near the transformer platform, drains the east side of the site, and flows northward to join the first branch. Each branch contains one noticeable knickpoint noted


REVEGETATED GULLY ~ 12" DEEP
ONE BULLET HOLE IN SIGN
HEADCUT, 24" SILTING IN
PATCHES OF CANADA THISTLE
12" CUTS IN SIDE SLOPE OF ARROYO (STABILIZED)
SITE ACCESS ROAD
AREA OF STABILIZED EROSION
SMALL PATCH, 4 TO 6 RILLS, ALL <1' DEEP
PP&L 38-73 288401
PP&L 38-73 288400
EROSION BOTTOMED ON BEDROCK. 10'x30' AREA NOT VEGETATED; AREA IS STABILIZING; 0.75' DEEP GULLY NOW GRASSED
TREES AND OUTCROPS OF WASATCH FORMATION
922
921
935
713
751
437
417
M \LTS\111\0022\00\S00107\S0010700.DWG 12/28/98 4:16pm Whitneyl

DEEP

LLY ~ 12" DEEP

LY ~
DEEP

HEADCUT,
12" DEEP

EROSION 12" DEEP
18" WIDE, 20' LONG

EROSION NOT ACTIVELY
EXPANDING

913

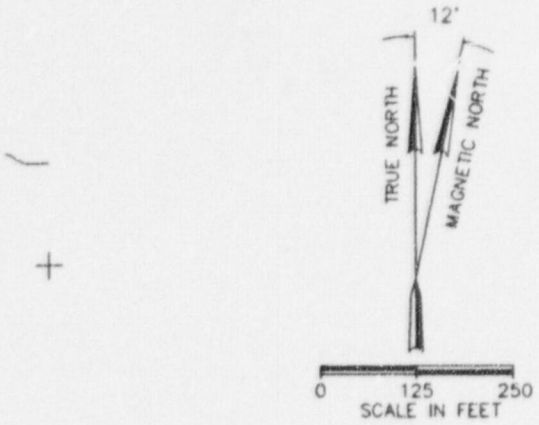
914

kL 38-73
602
-270601

UTILITY TOWER WITH
TRANSFORMERS, "H"
STRUCTURE

WER POLE AND
ITCH, WATER WELL
TH PIPES

WATER SUPPLY WELL HEAD



EXPLANATION

E	ENTRANCE SIGN
P10	PERIMETER SIGN AND NUMBER
1	SITE MARKER AND NUMBER
1	BOUNDARY MONUMENT AND NUMBER
1	COMBINED SURVEY MONUMENT/ BOUNDARY MONUMENT AND NUMBER
927	MONITOR WELL AND NUMBER
751	2 X2 WOOD STAKE MARKER WITH WELL NUMBER
	FORMER WELL HEAD
	DEPRESSION
	PACIFIC POWER AND LIGHT POWER POLES AND LINE
PP&L	PACIFIC POWER AND LIGHT COMPANY
	PROPERTY BOUNDARY
	SURFACE DRAINAGE WITH FLOW DIRECTION
	POWER POLE

APPROXIMATE LOCATION OF FORMER
EROSION-CONTROL STRUCTURE

12-18" DEEP GULLY (NO LONGER ACTIVE; GRASS AND SEDIMENT FILLING IN)

SPOOK, WYOMING,
1998 INSPECTION DRAWING

macTec-ers	U.S. DEPARTMENT OF ENERGY GRAND JUNCTION OFFICE GRAND JUNCTION, COLORADO
SPOOK, WYOMING 1998 INSPECTION	
DATE PREPARED: DECEMBER 27, 1998	FILENAME: S0010700

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during 1996 and 1997 inspections. Neither knickpoint has increased in height or migrated upstream from its 1997 position. The gullies appear to be filling with sediment, coming to grade, and revegetating naturally.

Outlying Areas

The area beyond the site boundary for a distance of about 0.25 mile was examined for erosion, disturbance, change in land use, or other features of possible concern. None was seen.

Southeast of the site, approximately 900 ft south-southeast of b[illegible]ary monument BM–3, a formerly active area of erosion appears to be filling in with sediment and revegetating naturally. Immediately upstream of this old headcut, the gradient flattens and vegetation is well established. Erosion at this location is no longer a concern. The area will continue to be monitored in case erosion should resume.

3.0 Ground-Water Monitoring

Ground-water monitoring is not required at this site. The uppermost aquifer is confirmed as a Class III aquifer of limited use and value. Specifically, (1) this aquifer meets the limited use classification, (2) there is no apparent risk to human health or the environment from the ground water because of no known exposure pathway in the upper aquifer, (3) there is no discharge of ground water from this aquifer to deeper aquifers or to surface waters, (4) no one is using or is projected to use the uppermost aquifer since it meets the limited use classification, and (5) better quality water is readily available from deeper aquifers that are stratigraphically and hydrologically isolated from the uppermost aquifer.

4.0 Conclusions

The Spook site is in excellent condition. Because the tailings are deeply buried, the site is considered very low risk. Specific site surveillance features are undisturbed and grassland vegetation is well established over most of the site. No maintenance is required and there is no cause for a follow-up inspection.

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