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**COMMENT AND RESPONSE
DOCUMENT FOR THE LONG-TERM
SURVEILLANCE PLAN FOR THE
SHIPROCK, NEW MEXICO, DISPOSAL SITE**

September 1994

Prepared for
U.S. Department of Energy
UMTRA Project Office
Albuquerque, New Mexico

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MASTER

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UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 1, page 2-8

The highways east and west of Shiprock are now both U.S. 64 rather than State Highway 504 (to the west) and U.S. Highway 550 (to the east) as shown in Figure 2.5.

SECTION 2

Response: Page: 2-7 By: C. Silva Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

Figure 2.5 is now Figure 2.4, which has been revised to indicate that State Highway 504 (to the west) and U.S. Highway 550 (to the east) are U.S. Highway 64. Figure 2.3 has been revised as well to reflect the change made in Figure 2.4.

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 2, page 2-9

The number of signs (22 signs plus two entrance signs) shown in Figure 2.6 does not agree with Plate 1, which shows 20 signs. The LTSP text (pages 2-7, 4-1, and 4-5) states that 21 signs are present. Recent site inspections have found 25 signs, two of which are entrance signs. Please resolve this disagreement.

SECTION 2

Response: Page: 2-6, 4-1, 4-5, Plate 1 By: G. Hartmann Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

Figure 2.6 has been deleted because it contains the same information as Plate 1.

The second paragraph on page 2-7, the first paragraph on page 4-1, and the second paragraph on page 4-5 have been revised to indicate that there are 25 signs total. Plate 1 has been revised to reflect the correct number (25) and locations of the signs.

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 2A, page 2-9

Also in Figure 2.6, the position of the security fence is different in several places than that shown in Plate 1. In Figure 2.6, the security fence extending northeast from the northwest gate area is not shown. The position of the fence westward from the northwest gate is different than that shown in Plate 1. The position of the fence east of the area of survey monument no. 3 is different than that shown in Plate 1. Neither reflect the actual fence position observed during site inspections. The fence around the east side of the disposal cell is not shown in Figure 2.6. Please correct the figure and plate.

SECTION 2

Response: Page: Plate 1 By: G. Hartmann Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

Figure 2.6 has been deleted because it contains the same information as Plate 1. Plate 1 has been revised to show the correct locations of the fence to the northeast at the northwest gate, the fence east of survey monument no. 3, and the fence on the east side of the disposal cell.

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 2B, page 2-9

Survey monument no. 3 in Figure 2.6 should be north of the fence as it is shown in Plate 1. The positions of three boundary monuments east of the disposal cell in Figure 2.6 are different than that shown in Plate 1. The location of erosion control marker pair no. 4 shown in Figure 2.6 is different than that shown in Plate 1. This erosion control marker pair has been obliterated by activities associated with a nearby sand and gravel pit. The pair no longer exist.

SECTION 2

Response: Page: Plate 1 By: G. Hartmann Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

Figure 2.6 has been deleted because Plate 1 contains the same information. Plate 1 has been revised as follows:

- Erosion control markers 4 have been removed.
-

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 3, page 2-11

In Figure 2.7, it is not clear what the purpose is for the measurements of 5' on the select rock layer and 4.5' in the tailings. Please clarify.

SECTION 2

Response: Page: 2-9 By: G. Hartmann Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

Figure 2.7 is now Figure 2.5 and has been revised as follows:

- The measurement of 4.5 ft (1.4 m) at the bottom of the radon cover has been deleted.
 - Notes for select rock layers A and B have been revised to indicate where each layer ends.
-

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 4, page 2-12

In the discussion of the disposal cell crest, the statement is made that transects at approximately 50 yd. intervals will be walked along the sideslopes. The 50 yd. transect intervals apply only to the crest. Spacing of sideslope inspection intervals is more narrow and based on judgment.

SECTION 2

Response: Page: 2-10 By: G. Hartmann Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

The first sentence of the first bulleted item in Section 2.2.5, Design Criteria, on page 2-10 has been revised to read as follows:

"Crest - Observations will be made in all directions for any features that are anomalous or unexpected and that may require a closer inspection. Inspectors will walk around the edge and along diagonal transects of the crest at approximately 50-yd (46-m) intervals."

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 5, page 4-1

Survey monuments are referred to in the text as SM; however, SM in Plate 1 refers to site markers. Plate 1 should be corrected so that site markers (SMK) are not confused with survey monuments (SM).

SECTION 2

Response: Page: Plate 1 By: G. Hartmann Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

In Plate 1, SM-1 and SM-2 have been changed to SMK-1 and SMK-2.

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 6, page 4-1

It is not clear in the text in Section 4.1 how the survey monuments are referenced to the southeast corner of Section 36, Township 30 North, Range 18 West. That section corner is about 1,000 feet southeast of the disposal cell.

SECTION 2

Response: Page: 4-1, Plate 1 By: G. Hartmann Date: August 22, 1994

A survey monument tie-in has been changed to show N 10,000, E 10,000 is at U.S. Bureau of Reclamation (USBR) benchmark.

Plans for Implementation:

The third to last sentence in the second paragraph on page 4-1 has been revised to read as follows:

"USBR benchmark is at N 10,000, E 10,000 located just northeast of SM-1."

Plate 1 has been revised to show the USBR benchmark at N 10,000, E 10,000. The USBR benchmark symbol has been added to the legend.

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 7, page 4-1

Boundary monuments: The LTSP states that eight boundary monuments exist. That was not correct as of the date of the last GJPO inspection of this site. Only two boundary monuments have ever been found during the GJPO's PLCC inspections of this site.

The UMTRA Project Office has advised the GJPO that the RAC will soon resurvey the site and either locate or place the missing monuments. If this will be accomplished before the LTSP is submitted to the NRC, the statement in the LTSP can stand. If the RAC's schedule for resurvey of the site is indefinite, the danger is that this particular site condition (eight boundary monuments) will be misrepresented to the NRC.

SECTION 2

Response: Page: Plate 1 By: J. Senger Date: August 22, 1994

Comment acknowledged.

Plans for Implementation: The Remedial Action Contractor, Morrison-Knudsen Ferguson, has tentatively scheduled a resurvey of the Shiprock disposal site to locate and establish the missing boundary markers. In Plate 1, the missing boundary markers are indicated with a special symbol. See Plate 1 legend.

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 8, pages 4-1 and 4-12

It is stated in Section 4.2 that the boundary monuments are set with the cap flush with the ground surface; however, Figure 4.2 shows a typical boundary monument with the cap at 10" above the ground surface. Also, in the case of the erosion control marker, it is stated in the text (page 4-12) that the cap will extend approximately 1 ft above ground surface. The reader is again referred to Figure 4.2 which shows 10" of relief for both boundary monuments and erosion control markers. Please resolve conflicting information.

SECTION 2

Response: Page: 4-1, 4-4 By: G. Hartmann Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

Section 4.2 and Figure 4.2 have been revised to show the correct relationship of the top of the marker to the ground. Figure 4.2 has been revised to show that the top of the boundary markers are set flush with the ground and erosion control markers are set 1 ft (0.3 m) above the ground surface.

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 9, page 4-3

The footnote to Table 4.1 (and Table 4.2) states that the coordinates in the table are based on the project survey control point (N 10,000, E 10,000) located at the southeast corner of Section 36, township 30 North, Range 18 West. The point N 10,000, E 10,000 is actually a U.S. Bureau of Reclamation benchmark and this point is far away from the southeast corner of Section 36, which is shown on the attached map. The significance (if any) of the southeast corner of Section 36 to the survey of the site should be clarified. If the point N 10,000, E 10,000 is significant, it should be shown on Plate 1 as the U.S. Bureau of Reclamation benchmark.

SECTION 2

Response: Page: 4-3 By: G. Hartmann Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

Table 4.1 has been revised to show that site coordinates are based on the U.S. Bureau of Reclamation (USBR) benchmark located just northeast of survey monument no. 1. The footnote in Table 4.1 has been revised to read as follows:

"The coordinates are based on the project survey control point (N 10,000, E 10,000) at the USBR benchmark located just northeast of SM-1."

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 10, page 4-8

The message of the site marker shown in Figure 4.5 is different than what has actually been incised into the site markers. The actual message on the site markers includes a scale, north arrow and the abbreviation (NM) for New Mexico. These should be added to Figure 4.5.

SECTION 2

Response: Page: 4-8 By: G. Hartmann Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

Figure 4.5 has been revised to reflect the actual inscription on the site marker.

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 11, page 4-10

The title for Figure 4.7 should be corrected to state that Shiprock is in New Mexico rather than Colorado.

SECTION 2

Response: Page: 4-10 By: C. Silva Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

Figure 4.7 has been corrected to read "Shiprock, New Mexico, Disposal Site."

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 12, page 5-3

In the north part of Figure 5.1 near the area of the mouth of Bob Lee Wash, the elevation of 4,892 seems to be floating. Is it a surface elevation? Also in the same area, the two elevation points of "41" do not agree with the bedrock surface contours. Please resolve.

SECTION 2

Response: Page: 5-3 By: D. Tarbox Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

In Figure 5.1, elevation 4,892 is the elevation of the bedrock at "X" and the elevation has been moved by the "X". In Figure 5.1, "41" has been deleted. In the legend, the following items have been revised:

- Bedrock surface elevation has been changed from 4,892 to 4,944.
- Swale on bedrock surface has been deleted.

All arrows have been deleted in Figure 5.1 except for the arrows associated with the San Juan River.

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 13, page 6-2

Rather than 13.0 degrees east for the magnetic declination stated in the text, the correct value is 12 degrees, which is calculated from the USGS map of Magnetic Field in the U.S. Declination Chart.

SECTION 2

Response: Page: 6-2 By: C. Silva Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

In the last bulleted item in Section 6.3, "13 degrees" has been changed to "approximately 12 degrees."

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 14, page 6-5

The GJPO inspects by use of transects rather than traverses. Therefore, the first bullet in Section 6.5 (page 6-5) should be changed to read "inspection transects."

SECTION 2

Response: Page: 6-5 By: C. Silva Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

The first bulleted item in Section 6.5 has been changed from "inspection traverses" to "inspection transects."

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 15, page 11-2

The statement about the NWS (in Section 11.4) notifying the DOE-GJPO should be reworded to agree with the response by the NWS given on the last page of Attachment 6, Agency Notification Agreements.

SECTION 2

Response: Page: 11-2 By: C. Silva Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

The statement about the NWS in Section 11.4 has been revised to coincide with the NWS response in Attachment 6.

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 16, page 13-1

In the sentence at the bottom of the page, U.S. Highway 550 should be replaced by U.S. Highway 64.

SECTION 2

Response: Page: 13-2 By: C. Silva Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

The last sentence on page 13-2 has been changed to read "The hospital is on the west side of U.S. Highway 666, approximately 0.5 mi (0.8 km) north of the intersection of U.S. Highway 64 and U.S. Highway 666 in the center of Shiprock."

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 17, page A5-1

The zip code of the DOE address should be corrected to read: 81502-2567.

SECTION 2

Response: Page: A5-1 By: C. Silva Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

In Attachment 5, the zip code has been changed to read "81502-2567."

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 18, page A5-2

The UMTRA Project Office has directed the GJPO not to include monitor wells in inspections of this site. Therefore, mention of monitor wells in the checklist should be omitted (pages A5-2 and A5-8).

SECTION 2

Response: Page: A5-2 By: C. Silva Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

The mention of monitor wells in Attachment 5, Initial Site Inspection Checklist, has been deleted.

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: Grand Junction Projects Office
Comment: 19, Plate 1

The GJPO understands that the term, disposal cell, is preferred [sic] by the UMTRA Project Office over the term, tailings embankment. Therefore the label "Tailings Embankment" should be changed to Disposal Cell. Also, on the legend, Erosion Measurement Marker should be changed to Erosion Control Marker to agree with the text.

SECTION 2

Response: Page: Plate 1 By: C. Silva Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

In Plate 1, the label "Tailings Embankment" has been changed to "Disposal Cell." In the legend, "Erosion Measurement Marker" has been changed to "Erosion Control Marker."

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: U.S. Nuclear Regulatory Commission
Comment: 1, Attachment 2

The site ownership/custody documentation (custodial care agreement) was not included in Attachment 2 of the Long-Term Surveillance Plan (LTSP).

SECTION 2

Response: Page: N/A By: P. Martinez Date: August 22, 1994

No requirement exists in 10 CFR 40 to provide a custodial care agreement. However, the DOE will provide evidence of permanent access to the disposal site. Negotiations are currently underway between the U.S. Department of Energy and the Navajo tribe that will lead to an acceptable access agreement. Once the access agreement or acceptable terms of access have been finalized, a copy will be incorporated in Attachment 2 of the LTSP.

Plans for Implementation:

None.

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: U.S. Nuclear Regulatory Commission
Comment: 2, Section 5.2, page 5-2

The last sentence in Section 5.2 inaccurately states that NRC has excluded the Shiprock disposal site from future long-term care monitoring, and it should be deleted.

SECTION 2

Response: Page: 5-2 By: C. Silva Date: August 22, 1994

Comment acknowledged.

Plans for Implementation:

The last sentence of Section 5.2 has been deleted.

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: U.S. Nuclear Regulatory Commission
Comment: 3, page 5-3

The occurrence of the seepage along the escarpment a few years after completion of construction activities, the locations of the seeps, and the configuration of the bedrock surface beneath the reclaimed tailings (Figure 5.1 in the LTSP) provide strong evidence that Seeps 425 and 426 are likely the result of remedial activities at the site or consolidation of the tailings materials.

DOE must include a discussion of Seeps 425 and 426 in Chapter 5.0, Ground-Water Monitoring. This discussion should include the location and physical description of the seeps, when they occurred, and the water quality associated with the seepage.

SECTION 2

Response: Page: N/A By: D. Tarbox Date: August 22, 1994

Seeps were identified along the escarpment prior to construction of the disposal cell (Hans, 1977). These seeps are probably formed by water that infiltrated from the raffinate ponds during the uranium mill operations. The seeps are being monitored and will be addressed as part of the UMTRA Ground Water Project.

Plans for Implementation:

None.

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: U.S. Nuclear Regulatory Commission
Comment: 4, Section 5.0 and Attachment 5

DOE must develop a monitoring and inspection program for Seeps 425 and 426. The seepage monitoring should include sampling and chemical analysis of appropriate indicator parameters at an appropriate schedule. DOE should include specific checklist items in Attachment 5 for the inspection of the two known seeps and verification that no additional seeps have developed along the river escarpment.

SECTION 2

Response: Page: N/A By: D. Tarbox Date: August 22, 1994

Seeps 425 and 426 are being sampled under the UMTRA Ground Water Project.

Plans for Implementation:

None.

UMTRA DOCUMENT REVIEW FORM

SECTION 1

Site: Shiprock, New Mexico Date: April 25, 1994
Document: Draft Long-Term Surveillance Plan
Reviewer: U.S. Nuclear Regulatory Commission
Comment: 5, Plate 1

DOE should revise Plate 1 to include the locations of Seep 425 and Seep 426.

SECTION 2

Response: Page: Plate 1 By: D. Tarbox Date: August 22, 1994

Seeps 425 and 426 have not been shown in Plate 1 because they are being sampled under the UMTRA Ground Water Project and are not sampled as part of the long-term surveillance plan.

Plans for Implementation:

None.