

11.0 Maybell, Colorado, Disposal Site

11.1 Compliance Summary

The Maybell Disposal Site was inspected on August 5, 2003, and was in excellent condition. One perimeter sign had extensive bullet hole damage and was replaced. All erosion control features were in excellent condition and there was no evidence of sediment moving off site. Reclaimed areas had healthy vegetation. All observed tamarisk plants were cut and treated with herbicide; other deep-rooted plants found on the cell top also were cut and treated with herbicide. An annual survey of the cell settlement plates indicates no significant settlement has occurred since surveys were initiated in 2000. Inspectors identified no cause for a follow-up or contingency inspection.

11.2 Compliance Requirements

Requirements for the long-term surveillance and maintenance of the Maybell, Colorado, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I disposal site are specified in the *Long-Term Surveillance Plan for the Maybell, Colorado, Disposal Site* (DOE/AL/62350-247, Rev. 2, U.S. Department of Energy [DOE], Albuquerque Operations Office, July 1999) and in procedures established by the DOE office at Grand Junction to comply with requirements of Title 10 *Code of Federal Regulations* Part 40.27 (10 CFR 40.27). These requirements are listed in Table 11-1.

Table 11-1. License Requirements for the Maybell, Colorado, Disposal Site

Requirement	Long-Term Surveillance Plan	This Report
Annual Inspection and Report	Section 3.0	Section 11.3.1
Follow-up or Contingency Inspections	Section 5.0	Section 11.3.2
Routine Maintenance and Repairs	Section 4.0	Section 11.3.3
Ground Water Monitoring	Section 2.6	Section 11.3.4
Corrective Action	Section 5.0	Section 11.3.5
Settlement Plate Monitoring	Section 3.5.2	Section 11.3.6

11.3 Compliance Review

11.3.1 Annual Inspection and Report

The site, located northeast of Maybell, Colorado, was inspected on August 5, 2003. Results of the inspection are described below. Features and photograph locations (PLs) mentioned in this report are shown on Figure 11-1. Numbers in the left margin of this report refer to items summarized in the Executive Summary table.

11.3.1.1 Specific Site Surveillance Features

Access, Gates, Fence, and Signs—Access to the site is via County Road 53. The gravel road was in good condition. A drainage swale (Swale No. 1) crosses the access road between the entrance gate and perimeter sign P26. The bottom of the swale at the road crossing is filled with rock for erosion control and is passable.

Two DOE gates cross the county road along the northern boundary of the site. These gates keep cattle out of revegetated areas because there are no cattle guards in the road. Neither gate is locked. A third unlocked gate crosses the road that leads to a monitor well northeast of the site. A fourth gate is the locked entrance gate in the perimeter fence at the north end of the site. All the gates are standard tubular metal stock gates and were in good condition.

A standard stock fence that surrounds the disposal cell and drainage structures was in good condition. Loose wires were noted at three locations and subsequently were tightened.

The entrance sign, mounted on a t-post in the fence line, is next the entrance gate. The sign was in good condition.

11A A total of 27 perimeter signs are at the site. On the north, west, and south sides of the site, perimeter signs are on t-posts in the fence line. On the east side of the site, perimeter signs are on the bench about midway between the disposal cell and Johnson Wash where they are mounted on steel posts set in concrete. One sign, P25, was heavily damaged with bullet holes and was replaced. Three other signs have bullet holes but are legible. The remaining signs were in good condition.

11B **Site Markers and Monuments**—The site has two site markers, 27 boundary monuments, and two survey monuments. The surface of the concrete base of site marker SMK-2, on the cell top, had hairline fractures that were sealed prior to the 2003 inspection. All markers and monuments were in excellent condition.

Settlement Plates—There are nine settlement plates on top of the disposal cell. All were secure and in good condition. Elevations of the settlement plates were surveyed in June 2003.

Monitor Wells—Four monitor wells are used for water level measurements. The wells were secure and in good condition.

11.3.1.2 Transects

To ensure a thorough and efficient inspection, the site was divided into three areas referred to as transects: (1) the disposal cell; (2) the other areas on site; and (3) the outlying area.

Disposal Cell—The disposal cell is armored with rock for erosion protection. No evidence of slumping, settling, erosion, or rock degradation was noted.

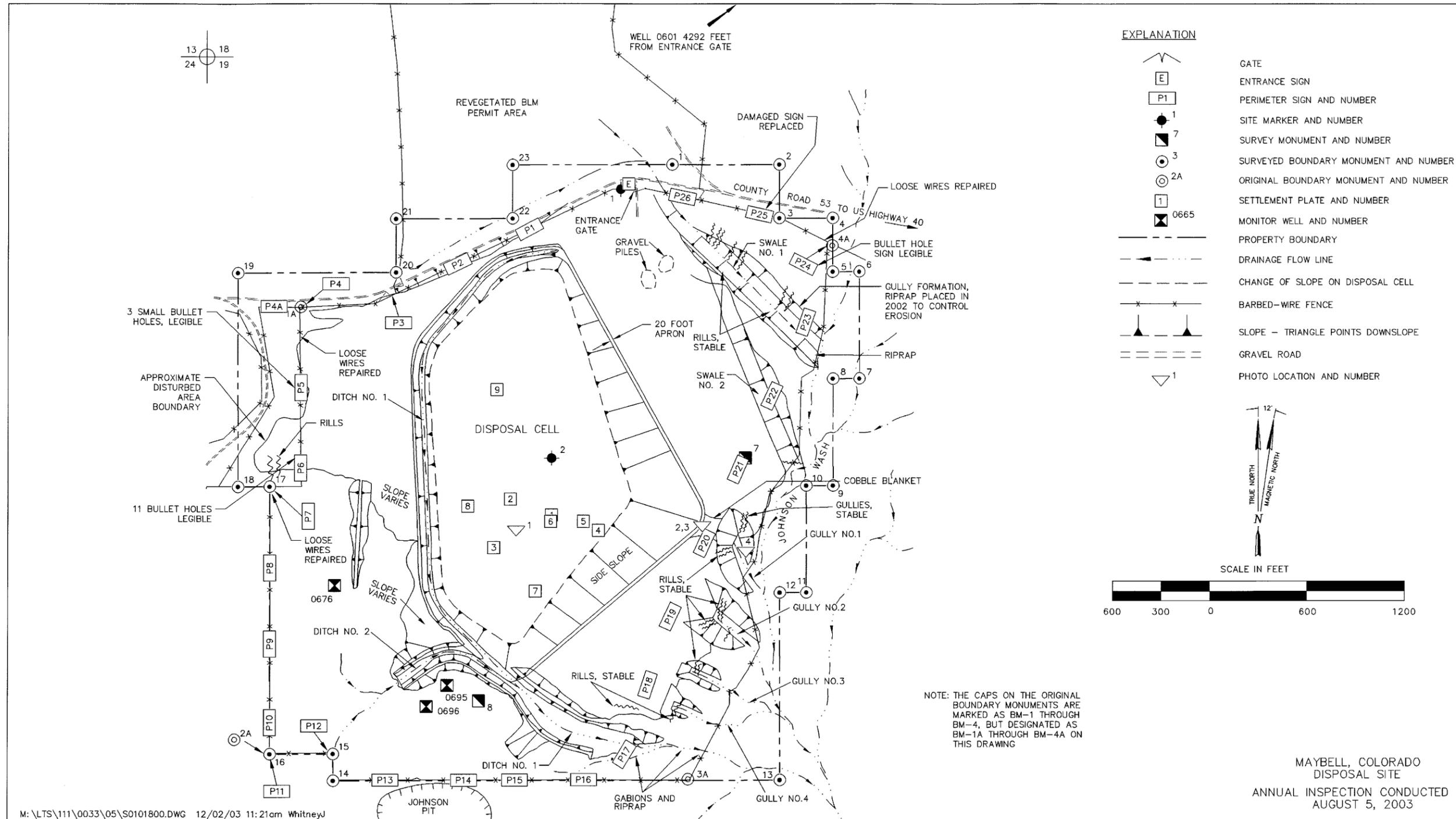


Figure 11-1. 2003 Annual Compliance Drawing for the Maybell, Colorado, Disposal Site

11C Occasional plants consisting of deep-rooted species, grasses, and annual weeds were observed on the cell top and side slopes. Deep-rooted plants (tamarisk and rabbitbrush) were cut and their stems were treated with herbicide (PL-1), and patches of unidentified thistle were sprayed with herbicide.

In accordance with the Long-Term Surveillance Plan, inspectors looked for seeps on the east corner and southeast side slopes because large quantities of slimes were encapsulated in this portion of the cell. The east corner of the cell is a topographic low point for draining a portion of runoff from the cell. No moisture was evident on the surfaces of the side slopes, but tamarisk (cut and treated with herbicide), cattail, yellow sweet clover, grasses, and annual weeds were growing on the cobble blanket at the toe of the east corner (PL-2). Standing water often is present in the apron at this location, and evaporite deposits have formed on the apron riprap (PL-3). A sample of the evaporite minerals was collected for laboratory analysis, and no analytes attributable to the cell contents were present.

Other Areas On Site—The rock-armored ditches, swales, and gullies were in good condition. There was no evidence of sediment moving offsite into Johnson Wash, and formerly active rills and gullies appear to be stabilizing due to self-armoring and increased vegetation (PL-4).

There was no evidence of livestock grazing within the fenced areas; however, wildlife signs are abundant. Vegetation diversity and density in graded and disturbed areas between the disposal cell and the site boundary is progressing. DOE will meet with U.S. Bureau of Land Management (BLM) staff in spring 2004 to discuss closure of the Remedial Action Agreement permit because of the successful revegetation in the disturbed areas.

Tamarisk was found at several locations. The plants were cut and the stems were treated with herbicide. Bull thistle, a non-noxious weed, also was observed at several locations on the site.

Outlying Area—The area outside the site boundary for 0.25 mile was visually inspected. There was no evidence of erosion, development, change in land use, or other phenomenon that might affect the long-term performance of the site.

The large revegetated area on BLM land north of the site was inspected from a distance. Vegetation is well established and there was no evidence of livestock grazing. DOE will meet with BLM staff in spring 2004 to discuss closure of the right-of-way permit for this area.

11.3.2 Follow-Up or Contingency Inspections

No follow-up or contingency inspections were required in 2003.

11.3.3 Routine Maintenance and Repairs

A damaged perimeter sign was replaced, the fence was tightened at several locations, cracks in the concrete base at a site marker were sealed, and deep-rooted plants on the cell top were cut and treated with herbicide.

11.3.4 Ground Water Monitoring

Ground water at this site is contaminated as a result of widespread, naturally occurring uranium mineralization. The ground water is of limited use and cannot be cleaned up by methods reasonably employed in public water systems. Supplemental standards have been applied, and ground water monitoring is not required.

11D As a best management practice, DOE performs continuous ground water level monitoring downgradient from the disposal cell for the purpose of measuring changes in ground water levels that may be related to transient drainage caused by disposal cell construction. Evaluation of datalogger information from monitor wells MW-0695 (downgradient control well), MW-0676 (crossgradient well), and MW-0601 (upgradient/background well) from November 1995 through September 2003 shows a slight increasing trend of ground water levels since mid-1997 (Figure 11-2). Because the ground water level in the upgradient well is increasing at approximately the same rate as that in the downgradient wells, it is probable that the change in water level is related to regional causes rather than being directly related to disposal cell performance. The decision to discontinue ground water level monitoring and decommission the monitor wells will be based on evaluation of datalogger information over a 5-year period (through mid-2004).

11.3.5 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 2003.

11.3.6 Settlement Plate Monitoring

Slimes from the former Maybell mill were placed in the south central part of the disposal cell. The slimes were compacted before the radon barrier was completed; however, further consolidation could occur. Therefore, nine settlement plates were installed on the top of the disposal cell, primarily over the portion in which the slimes were placed, to detect any significant settlement due to potential consolidation.

11E Results of the August 2000 baseline survey and the June 2003 survey are provided in Table 11-2. Elevation changes between 2000 and 2003 were insignificant; the maximum change is less than 2 inches. If no significant settlement occurs, DOE will complete a 5-year requirement for annual surveys in 2004.

**Maybell, Colorado
Datalogger Ground Water Elevations**

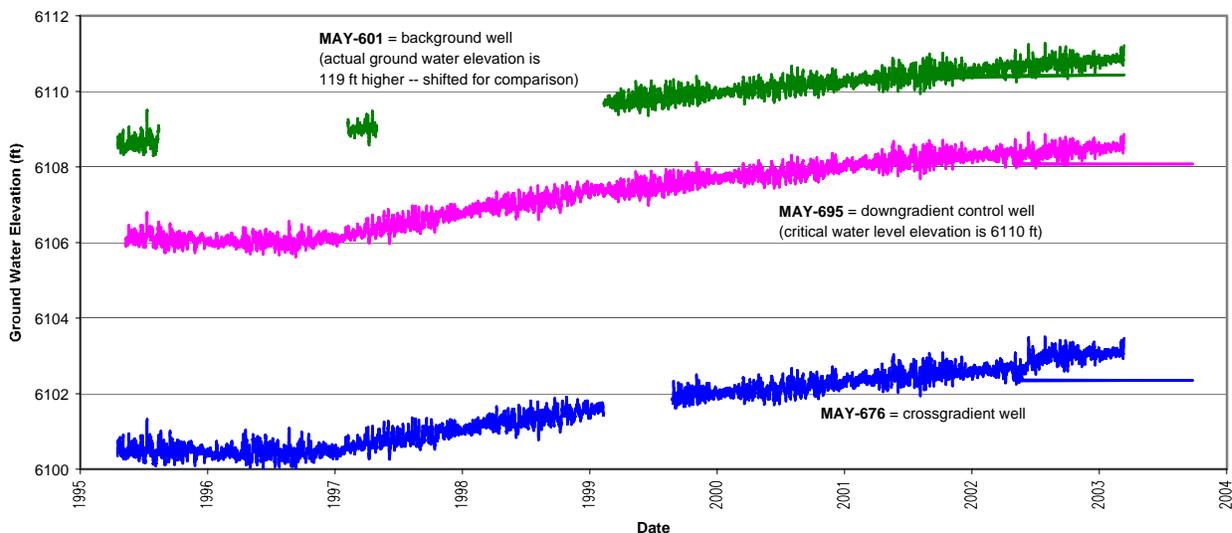


Figure 11–2. Water Level Measurements at the Maybell, Colorado, Disposal Site

*Table 11–2. Results of the 2003 Settlement Plate Survey at the Maybell, Colorado, Disposal Site
(elevation in feet above mean sea level)*

Settlement Plate Location	Surveyed Elevation June 18, 2003	Baseline Elevation August 31, 2000	Difference in Elevation (feet)
SP–1	6,243.52	6,243.65	-0.13
SP–2	6,236.93	6,237.03	-0.10
SP–3	6,231.48	6,231.58	-0.10
SP–4	6,251.47	6,251.52	-0.05
SP–5	6,249.15	6,249.22	-0.07
SP–6	6,243.11	6,243.23	-0.12
SP–7	6,236.85	6,236.89	-0.04
SP–8	6,229.54	6,229.60	-0.06
SP–9	6,241.16	6,241.17	-0.01

11.3.7 Photographs

Table 11–3. Photographs Taken at the Maybell, Colorado, Disposal Site

Photograph Location Number	Azimuth	Description
PL–1	350	Tamarisk on the cell top being cut.
PL–2	80	Vegetation in the cobble blanket at the east corner toe of the cell.
PL–3	0	Evaporite deposits on apron riprap at the east corner of the cell.
PL–4	345	Stabilizing rills and gullies on the east slope of Gully No. 1.



MAY 8/2003. PL-1. Tamarisk on the cell top being cut.



MAY 8/2003. PL-2. Vegetation in the cobble blanket at the east corner toe of the cell.



MAY 8/2003. PL-3. Evaporite deposits on apron riprap at the east corner of the cell.



MAY 8/2003. PL-4. Stabilizing rills and gullies on the east slope of Gully No. 1.

End of current section