

11.0 Maybell, Colorado, Disposal Site

11.1 Compliance Summary

The Maybell, Colorado, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I Disposal Site was inspected on July 31, 2008. The disposal cell and all associated surface water diversion and drainage structures were in excellent condition and functioning as designed. The Long-Term Surveillance Plan (LTSP) was revised and submitted to NRC to reflect a correction made to the property boundary along the north and northwest portion of the site; relocation of boundary monuments is planned for 2009. Several breaks were found in the perimeter fence, and cattle were grazing on site; the local rancher was contacted, the cattle were removed, and repairs to the fence were made. Additional fence damage caused by wildlife will be repaired in 2009. A mining claim stake found at the base of the disposal cell is considered a “nuisance claim” because protection of the disposal cell is provided through the NRC general license. Groundwater monitoring is not required at this site. Deep-rooted plants on the disposal cell top will be cut and treated in 2009. Noxious weeds found growing on the disposal cell were treated with herbicide. Inspectors identified other maintenance issues or cause for a follow-up inspection.

11.2 Compliance Requirements

Requirements for the long-term surveillance and maintenance of the Maybell Disposal Site are specified in the *Long-Term Surveillance Plan for the Maybell, Colorado, Disposal Site* (DOE-LM/1605-2008, April 2008) and in procedures established by DOE 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 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 3.5	Section 11.3.2
Routine Maintenance and Repairs	Section 3.6	Section 11.3.3
Groundwater Conditions	Section 2.5	Section 11.3.4
Corrective Action	Section 3.6	Section 11.3.5

Institutional Controls—The 251-acre disposal site is owned by the United States of America and was accepted under the U.S. Nuclear Regulatory Commission (NRC) general license (10 CFR 40.27) in 1999. DOE is the licensee and, in accordance with the requirements for UMTRCA Title I sites, is responsible for the custody and long-term care of the site. Institutional controls at the disposal site, as defined by DOE Policy 454.1, consist of federal ownership of the property, a site perimeter fence, warning/no-trespassing (perimeter) signs placed along the property boundary, and a locked gate at the site entrance. Verification of these institutional controls is part of the annual inspection. Inspectors found no evidence that these institutional controls were ineffective or violated.

11.3 Compliance Review

11.3.1 Annual Inspection and Report

The site, located northeast of Maybell, Colorado, was inspected on July 31, 2008. 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 Moffat County Road 53, which turns north from U.S. Highway 40 and ends at the disposal site property boundary just east of the site entrance. The road is graveled and hard packed, and was in good condition. A sign indicating the end of County Road 53 is posted where the road meets the property boundary at the northeast corner of the site. From that point, a dirt track continues west past an abandoned open pit mine (Robb Pit) to the Umetco Minerals Corporation (Umetco) (Maybell West) UMTRCA Title II Disposal Site. 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 gates are installed in the site perimeter fence and provide access to the site. The first gate is the locked entrance gate on the north end of the site. The second locked gate is directly west of perimeter sign P3 in the northwest corner of the property. Both gates are tubular metal stock gates and were in good condition.

11A A standard four-strand barbed-wire stock fence surrounds the disposal cell and drainage structures. Several breaks were found in the perimeter fence (PL–1), and cattle were observed grazing on site. The local rancher was contacted, the cattle were removed, and the fence was repaired. Reinforcement of the perimeter fence will be made in 2009 (before the cattle return to the area) in an effort to ensure that cattle do not access the site in the future. Loose wires and bent posts were also noted at several other locations along the perimeter fence. This damage was likely caused by wildlife (e.g., deer, elk, antelope) crossing back and forth across the fence, and snowpack. The Maybell Disposal Site is located in wintering grounds frequented by big game animals, and damage to the perimeter stock fence is to be expected. Repairs to the fence will be made in 2009.

The entrance sign, located near the entrance gate and mounted on a T-post in the fence line, was in good condition.

A total of 27 perimeter (warning/no-trespassing) 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. Several of the signs, primarily those within sight of the dirt road that runs along the north and west sides of the site, had bullet holes but were legible. The remaining signs were in good condition.

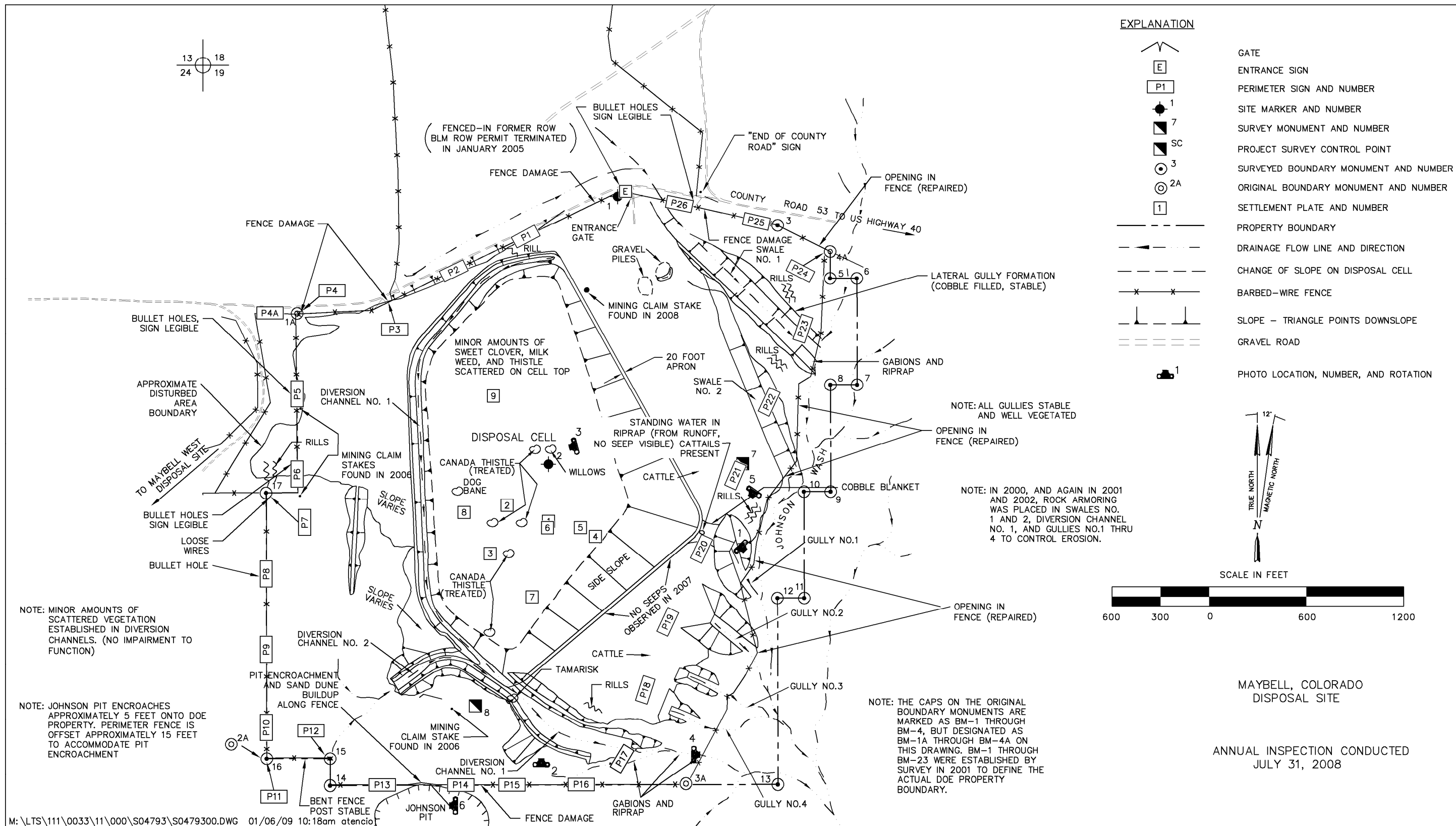


Figure 11-1. 2008 Annual Compliance Drawing for the Maybell Disposal Site

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Site Markers and Monuments—The site has two granite site markers, 27 boundary monuments, and two survey monuments. All markers and monuments inspected were in excellent condition.

11B In 2008, during a real property assessment, an error was discovered in the property boundary along the north and northwest portion of the site as it was depicted following a 2002 land survey. It was found that the property boundary did not match the legal description included in the permanent withdrawal posted in the *Federal Register* (April 13, 1995, Vol. 60, No. 71, Page 18778). The correct property boundary along the north and northwest portion of the site was determined to follow the perimeter fence line, as shown in Figure 11-1. As a result, in 2008, the site base map was corrected, and the LTSP was revised and submitted to NRC. In 2009, nine boundary monuments (numbers 1, 2, 4, 18, 19, 20, 21, 22, and 23) will be removed, and three new monuments will be installed along the correct property boundary (i.e., the north perimeter fence line).

Settlement Plates—There are nine settlement plates on top of the disposal cell. All were secure and in good condition. No visual evidence of settlement on the disposal cell cover was observed.

Elevations of the nine settlement plates on top of the disposal cell were last surveyed in July 2004, which concluded the 5-year post-construction annual settlement survey requirement stipulated in the LTSP. The land surveys confirmed visual observations that no significant settlement had occurred on the disposal cell top; variation from baseline measurements ranged from 0.04 to 0.19 foot. Visual observations will continue during annual inspections, and if settlement is observed, resurveying of the settlement plates will be performed.

Monitor Wells—The four remaining monitor wells at the site were decommissioned in accordance with State of Colorado requirements in May 2006. Healthy vegetation continues to become reestablished on the restored areas.

11.3.1.2 Transects

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

The area inside each transect was inspected by walking a series of traverses. Within each transect, the inspectors examined specific site-surveillance features, drainage structures, vegetation, and other features. Inspectors also looked for evidence of settlement, erosion, or other modifying processes.

Disposal Cell—The disposal cell is armored with rock for erosion protection and was in excellent condition (PL-2). No evidence of slumping, settling, erosion, or rock degradation was noted.

In accordance with the LTSP, inspectors looked for seeps on the east and southeast side slopes of the disposal cell because large quantities of slimes were encapsulated in this portion of the cell. No moisture was evident on the surfaces of these side slopes, nor were any seeps observed at the toe of the disposal cell in this area. The east corner of the disposal cell is also a topographic low point for runoff draining from the top of the cell. Standing water from a recent precipitation

event was observed on the cobble blanket at the toe of the east corner of the cell. Additionally, cattails continue to grow at this location, indicating the presence of moisture that is the result of repeated surface runoff from the cell top, rather than any seepage from within the cell. In 2003, a sample of the evaporite minerals from this location was collected for laboratory analysis, and no analytes attributable to the cell contents were reported to be present. Observation of this area will continue.

11C Minor accumulations of various plants were observed on the cell top and side slopes. Species include thistle, yellow sweet clover, dogbane, and various grasses and annual weeds. Occasionally, deep-rooted woody plants, such as sagebrush or rabbitbrush, are found growing on the disposal cell and are cut and treated with herbicide. In 2008, a small patch of willows, a deep-rooted woody plant, was found growing on the top of the cell (PL-3) and will be cut and treated in 2009. Several small patches of Canada thistle, a noxious weed, found on the disposal cell cover were treated with herbicide in 2008.

Other Areas Inside the Site Boundary—The rock-armored diversion channels, swales, and gullies were in excellent condition. Recent erosion was observed at the discharge point in Diversion Channel No. 1 downgradient of the rock armoring. However, the armoring remains protective (PL-4). Minor rills were noted adjacent to Swale No. 1 and Gully No. 1 (PL-5). Regional drought conditions in recent years resulted in very little water drainage from the disposal site, but above-average precipitation has been received at the disposal site over the last 2 years. At the time of the 2008 inspection, several of the armored drainages had standing water or moisture present from a recent precipitation event. Erosion on site will continue to be monitored during annual site inspections.

There were abundant signs of wildlife on site and in the surrounding area. Vegetation diversity and density in graded and disturbed areas between the disposal cell and the site boundary continue to progress.

11D In 2006, uranium exploration claim stakes were discovered inside the perimeter fence several hundred feet west and southwest of the disposal cell. These claims are considered to be “nuisance claims” as protections pursuant to the NRC general license for the disposal site preclude any mining activity that would jeopardize the disposal cell and its associated drainage structures. All BLM property withdrawn by DOE for the disposal site included the subsurface mineral rights. The two private parcels of land purchased in fee simple by the State of Colorado and transferred to DOE for the site are currently being researched to determine if the subsurface mineral rights were included in the transaction. In 2008, an additional claim stake was found at the base of the northeast corner of the disposal cell. This claim is also considered to be a nuisance claim.

A minor amount of tamarisk observed growing in Diversion Channel No. 1 south of the disposal cell was cut and treated with herbicide.

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 phenomena that might affect the long-term performance of the site.

In September 2004, DOE received written concurrence from BLM that the right-of-way reservation directly north of the site had revegetated successfully, with no erosion occurring, and terminated the permit. Revegetation continues to progress in this area.

Directly south of the site is a former open pit uranium mine referred to as the Johnson Pit. Minor encroachment (approximately 5 feet) of the Johnson Pit onto DOE property has occurred (PL-6). No evidence of additional recent encroachment was observed. The perimeter fence in this location diverts approximately 15 feet off of an east-west line to accommodate this minor encroachment. The encroachment of the Johnson Pit onto DOE property does not adversely affect the disposal cell or any of its associated surface water diversion structures.

11.3.2 Follow-Up or Contingency Inspections

DOE will conduct follow-up inspections if (1) a condition is identified during the annual inspection or other site visit that requires a return to the site to evaluate the condition, or (2) DOE is notified by a citizen or outside agency that conditions at the site are substantially changed.

No follow-up or contingency inspections were required in 2008.

11.3.3 Routine Maintenance and Repairs

In 2008, several breaks in the perimeter fence along the east property boundary were repaired, and noxious weeds on the disposal cell were treated with herbicide.

11.3.4 Groundwater Conditions

Groundwater at this site is contaminated as a result of widespread, naturally occurring uranium mineralization and mining activities not related to on-site legacy uranium-processing operations. The groundwater in the area is designated as limited use. "Limited use" is a designation given to groundwater that is not a current or potential source of drinking water because it contains widespread ambient contamination that cannot be cleaned up by methods reasonably employed in public water systems. Narrative supplemental standards, per 40 CFR 192.21 (g), have been applied to groundwater at the site.

Groundwater level monitoring was conducted in accordance with the LTSP from November 1995 through March 2004 (in excess of the required 5-year period) to determine the interaction of transient drainage from the disposal cell with the local groundwater system. In 2004, water-level measurements were discontinued following the conclusion that there was no evidence of any transient drainage interaction with the local groundwater system near the disposal cell. In January 2005, NRC concurred with this conclusion. In November 2007, the LTSP was revised to reflect regulatory concurrence to discontinue water-level monitoring and submitted to NRC.

Therefore, in accordance with the site LTSP, groundwater quality monitoring is not required at the site.

11.3.5 Corrective Action

Corrective action is 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 2008.

11.3.6 Photographs

Table 11–2. Photographs Taken at the Maybell Disposal Site

Photograph Location Number	Azimuth	Description
PL–1	135	Opening in perimeter fence.
PL–2	0	View of the disposal cell from the southeast corner.
PL–3	255	Patch of willow next to site marker on the disposal cell top.
PL–4	90	Erosion (headcutting) at discharge point of Diversion Channel No. 1.
PL–5	215	Rills adjacent to Gully No. 1.
PL–6	270	Encroachment of the Johnson Pit directly south of the site.



MAY 7/2008. PL-1. Opening in perimeter fence.



MAY 7/2008. PL-2. View of the disposal cell from the southeast corner.



MAY 7/2008. PL-3. Patch of willow next to site marker on the disposal cell top.



MAY 7/2008. PL-4. Erosion (headcutting) at discharge point of Diversion Channel No. 1.



MAY 7/2008. PL-5. Rills adjacent to Gully No. 1.



MAY 7/2008. PL-6. Encroachment of the Johnson Pit along the south boundary.

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