

4.0 Durango, Colorado, Disposal Site

4.1 Compliance Summary

The Durango Disposal Site was inspected on June 17, 2003, and was in good condition. A couple of perimeter signs had new bullet holes, but evidence of significant vandalism was not observed. The entrance sign and a missing perimeter sign were replaced in 2003.

Vegetation on top of the cell, consisting primarily of seeded grass species, was healthy and has recovered from the previous year's drought conditions. Scattered woody vegetation (trees and shrubs), which continues to encroach on the side slopes, was cut and treated with herbicide. Biological control efforts to eliminate musk thistle continue. Infestations of other noxious weeds at the site were mapped and are being controlled with herbicide.

Construction of a new reservoir is occurring south and west of the disposal site. Heavy construction traffic is present on the county road that crosses the southwest corner of the site. Recreational use of the area is expected to increase substantially upon completion of the reservoir project.

No requirement for a follow-up or contingency inspection was identified.

4.2 Compliance Requirements

Requirements for the long-term surveillance and maintenance of the Durango, Colorado, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I disposal site are specified in the *Long-Term Surveillance Plan for the Bodo Canyon Disposal Site, Durango, Colorado* (DOE/AL/62350-77, Rev. 2, U.S. Department of Energy [DOE], Albuquerque Operations Office, September 1996) 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 4-1.

Table 4-1. License Requirements for the Durango, Colorado, Disposal Site

| Requirement | Long-Term Surveillance Plan | This Report |
|--------------------------------------|-----------------------------|---------------|
| Annual Inspection and Report | Section 6.0 | Section 4.3.1 |
| Follow-up or Contingency Inspections | Section 7.0 | Section 4.3.2 |
| Routine Maintenance and Repairs | Section 8.0 | Section 4.3.3 |
| Ground Water Monitoring | Section 5.0 | Section 4.3.4 |
| Corrective Action | Section 5.0 | Section 4.3.5 |

4.3 Compliance Review

4.3.1 Annual Inspection and Report

The site, located southwest of Durango, Colorado, was inspected on June 17, 2003. Results of the inspection are described below. Features and photograph locations (PLs) discussed in this report are shown on Figure 4–1. Numbers in the left margin of this report refer to items summarized in the Executive Summary table.

4.3.1.1 Specific Site Surveillance Features

Access Road, Entrance Gates, Entrance Sign, and Perimeter Signs—The site is accessed by La Plata County Road 212, which is a dedicated public right-of-way that crosses the southwest corner of DOE property. The new entrance gate and guardrails along the county road, installed in October 2000, and the original entrance gate closer to the cell were in good condition.

4A The entrance sign, illegible due to gunshot damage, was replaced prior to the inspection and was undamaged at the time of the inspection. Perimeter sign P77 was missing and was replaced. Sixteen signs had bullet holes but all remain legible.

Trespass and vandalism have been difficult to control at the site. Although DOE has implemented various engineered, institutional, and administrative controls at this site, including increased patrols by County Sheriff officers, vandalism continues to be an ongoing concern and maintenance issue. Impacts resulting from the construction of the nearby reservoir and increased recreational use in the area will be monitored.

Site Markers, Survey and Boundary Monuments—Site markers, survey monuments, and boundary monuments were in good to excellent condition. The site marker near the entrance gate (SMK–1) has been slightly damaged by bullets; however, it was legible and in generally good condition. Previously, several boundary monuments were damaged by erosion or vandalism; however, they were intact and legible, and do not warrant any further action at this time.

Monitor Wells—Monitor wells were locked and in excellent condition. Monitor well MW–0618 was added to the monitoring network as a supplement to well MW–0608.

4.3.1.2 Transects

To ensure a thorough and efficient inspection, the site was divided into six areas referred to as transects: (1) the top of the disposal cell; (2) the side slopes of the disposal cell; (3) the drainage ditches; (4) the treatment cells and retention pond; (5) the site boundary; and (6) the outlying area.

Top of Disposal Cell—The top of the disposal cell was in excellent condition. No evidence of settling, slumping, or erosion was observed.

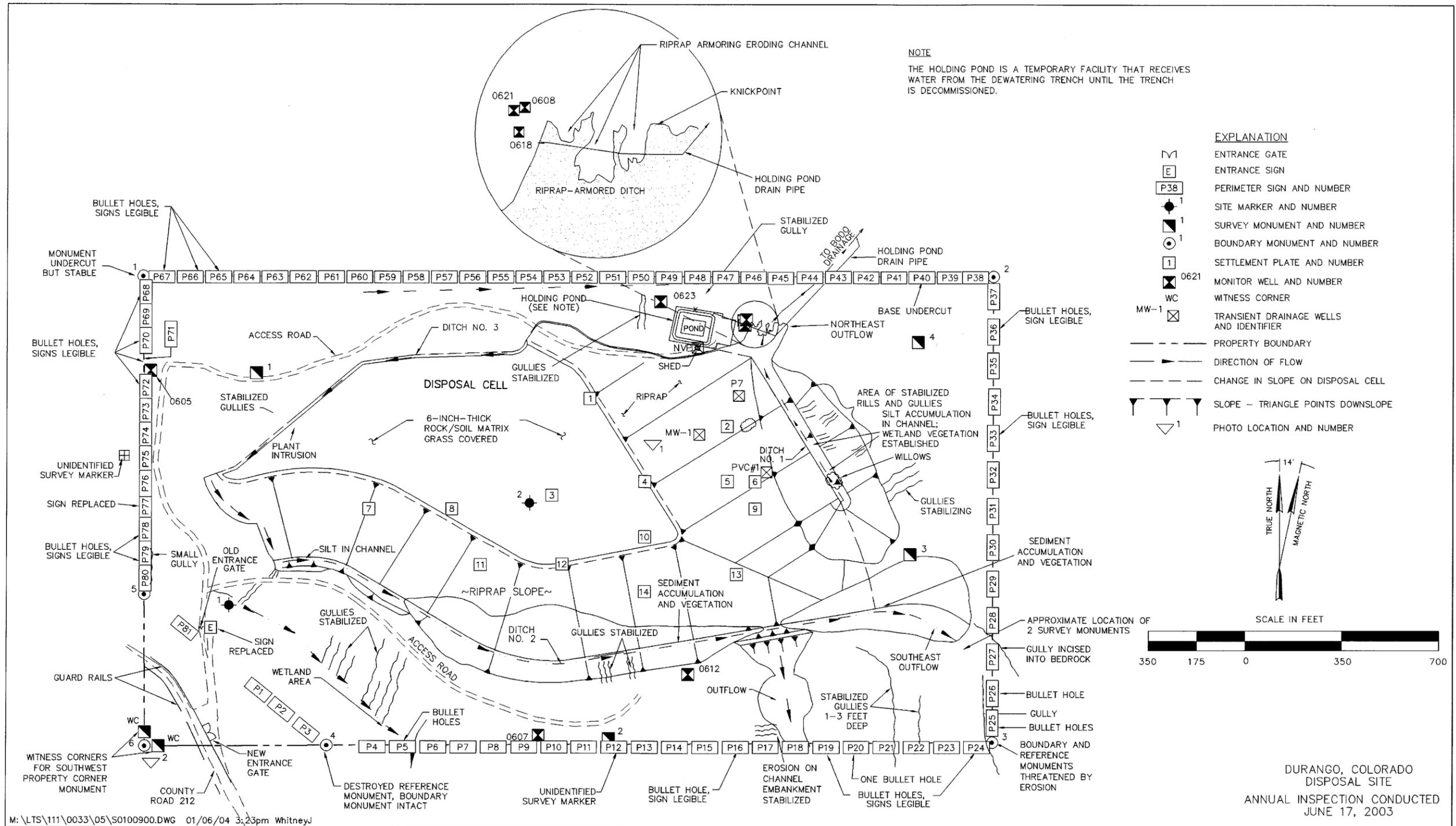


Figure 4-1. 2003 Annual Compliance Drawing for the Durango, Colorado, Disposal Site

Vegetation on top of the cell was in good condition and had recovered from the stresses caused by the 2002 drought. The vegetation consisted of seeded grasses and several volunteer species including deep-rooted shrubs. Woody species of trees and shrubs found during the 2002 inspection subsequently were cut and treated with herbicide, and none were found during the 2003 inspection. A few plants of two noxious weed species, musk thistle and houndstongue, were found on top of the cell during the 2003 inspection. The musk thistle was cut and treated with herbicide, and the houndstongue was treated later in the month by a certified applicator.

Side Slopes of Disposal Cell—The riprap-covered side slopes of the disposal cell were in excellent condition. Disturbances resulting from natural processes, such as subsidence, rock deterioration, or slope failure, were not observed. No evidence of vehicle use on the cell was observed.

Vegetation continues to encroach on the side slopes of the cell, particularly on the east and southeast sides (PL-1). The species included deep-rooted shrubs and trees and several noxious weeds that require control by the state or La Plata County (Canada thistle, musk thistle, and houndstongue). The woody trees and shrubs were cut and herbicide was applied to their stalks. Herbicide was applied to the Canada thistle and houndstongue later in the month and again during the fall.

DOE initiated biological control of the musk thistle at the site in 2002 by releasing the Thistle Defoliating Beetle at thistle locations. This beetle has been used by the state to control the thistle in the area around the disposal site. More beetles and the Thistle Rosette Weevil were released in early August 2003. The effectiveness of this biological control effort will be evaluated during future inspections.

Drainage Ditches—Rock-armored drainage ditches were constructed along the northwest, south, and east sides of the disposal cell. These ditches direct runoff into natural drainages that carry storm water away from the disposal site. Erosion and sedimentation has occurred at several places along these channels where the slopes above the ditches are steep. There was no evidence of recent slope erosion or accumulations of sloughed material into the rock-armored drainage ditches in 2003.

Moist sediments support wetlands vegetation at places in Ditch No. 1, and a small area of willows was noted for the first time. The sediment deposits and plant growth will not compromise the performance of the drainage ditches in the event of a large storm. Should water be impounded in the ditches, it would drain away from the disposal cell along bedding planes and permeable zones in the bedrock. However, if there is evidence of water impoundment, maintenance will be conducted to restore flow out of the ditches.

The riprap-covered outflow of Ditch No. 1 was designed to erode back to a rock-filled trench and self-armor in the process. The knickpoint was mapped with global positioning system equipment in 1999. Significant movement of the knickpoint has not occurred since that time.

Infestations of noxious weeds, including houndstongue and several species of thistle and knapweed, were treated with herbicide in the summer and fall of 2003. Musk thistle is undergoing biological control.

Treatment Cells and Retention Pond—The treatment cells, retention pond, and surrounding security fence were in good condition. Treatment cells containing zero-valent iron have been operating at this site since 1996 to remove metals from transient drainage water after it exits the disposal cell collection gallery. The water level in the pond is very low because only a small quantity of water is draining from the disposal cell.

Site Boundary—The site is not fenced. No evidence of vehicular trespass was observed during the 2003 inspection. Previous vehicular trespass at this site resulted in damage to survey monuments, created ruts in roads and off-road areas, and damaged sensitive, reseeded areas that jeopardize soil and slope stabilization efforts. Future inspections will continue to monitor trespass conditions at the site, and appropriate preventive measures will be implemented as needed.

Areas of rill and gully erosion on the south-facing slope along the southern boundary of the site were stable. Establishment of vegetation in these areas and exposure of resistant bedrock in the gully are effectively preventing further erosion. Migration of riprap down the steep hill below the outflow of Ditch No. 2 has subsided. No new erosion had occurred on or around the site.

Significant infestations of musk thistle were observed in the areas between the cell and the property boundary. These areas are being treated with beetles and weevils. Smaller patches of Canada thistle, houndstongue, and knapweed were sprayed with herbicide during summer and fall applications.

4B **Outlying Area**—The area beyond the site boundary for a distance of 0.25 mile was visually inspected for signs of erosion, development, or other disturbance. The U.S. Bureau of Reclamation has begun the multi-year construction of the Animas-La Plata Project. A water intake and pumping plant structure is being constructed at the Animas River on the site of the former raffinate ponds. The pipeline to the reservoir being built southwest of the disposal site will be adjacent to County Road 211 and pass just south of the cell. Pipelines that are within the footprint of the reservoir are being rerouted parallel to County Road 212 on the west side of the disposal site (PL-2). Heavy construction traffic is present on County Road 212, and recreational use of the area is expected to increase substantially upon completion of the reservoir project.

4.3.2 Follow-up or Contingency Inspections

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

4.3.3 Routine Maintenance and Repairs

4C The damaged entrance sign and a missing perimeter sign were replaced. Woody species on the cell side slopes were cut and their stems were treated with herbicide. Beetles and weevils were released for the second consecutive year to control musk thistle. Other noxious weeds identified at the site were treated with herbicide during summer and fall applications.

4.3.4 Ground Water Monitoring

4D Ground water is monitored at the Durango site to verify the initial performance of the disposal cell. The monitoring network consists of six wells. Four wells are completed in the uppermost aquifer (bedrock of the Cliff House Sandstone and the Menefee Formation), including one upgradient (MW-0605) and three downgradient point of compliance wells (MW-0607, MW-0612, and MW-0621). Two wells are completed in the alluvium upgradient (MW-0623) and downgradient (MW-0608) from the cell. Monitor well MW-0618 (screened to the bottom of the alluvial aquifer) near companion well MW-0608 (screened to 10 feet above the base of the alluvial aquifer) was added to the monitoring network in 2002 because it represents the full section of the alluvial aquifer.

The monitor wells are sampled annually. Samples are analyzed for standard water quality parameters and three indicator analytes: molybdenum, selenium, and uranium. The performance standards for the three indicator analytes are the respective maximum concentration limits established by the U.S. Environmental Protection Agency in Table 1 to Subpart A of 40 CFR 192.

Results of monitoring in 2003 were consistent with previous years. Concentrations of all three indicator analytes were below the respective maximum concentration limits, and most results were less than detection limits or minimum detectable activity. The data give reasonable assurance that the disposal cell is performing as designed.

4.3.5 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.

4.3.6 Photographs

Table 4-2. Photographs Taken at the Durango, Colorado, Disposal Site

| Photograph Location Number | Azimuth | Description |
|-----------------------------------|----------------|---|
| PL-1 | 310 | Vegetation, including Canada thistle, on the east side slope of the cell. |
| PL-2 | 330 | Utility construction along the west side of the property. |



DUR 6/2003. PL-1. Vegetation, including Canada thistle, on the east side slope of the cell.



DUR 6/2003. PL-2. Utility construction along the west side of the property.

End of current section