



Long-Term Surveillance Plan for the Maybell, Colorado (UMTRCA Title I) Disposal Site Moffat County, Colorado

April 2008



U.S. Department
of Energy

Office of Legacy Management



Department of Energy
Office of Legacy Management

APR 11 2008

Mr. Keith McConnell, Deputy Director
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental Management Programs
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Submittal of Revision 4 of the *Long-Term Surveillance Plan for the Maybell, Colorado, (UMTRCA Title I) Disposal Site*

Dear Mr. McConnell:

Enclosed is the final draft of the revised *Long-Term Surveillance Plan for the Maybell, Colorado, (UMTRCA Title I) Disposal Site* (LTSP), as required by the U. S. Nuclear Regulatory Commission per 10 CFR 40.27. The LTSP was revised to reflect an error discovered in the long-term care boundary on the north end of the site, as shown on the disposal site map (Figure 2-3). This error resulted in the need to revise the disposal site map (Figure 2-3) within the document. No other revisions to the November 2007 version of the document were necessary (please be reminded that the November 2007 version of the document reflected revisions made to exclude ground water level monitoring).

This April revision of the subject document (to correct the site boundary shown on Figure 2-3) replaces the November 2007 version of the LTSP that was revised to reflect the discontinuance of the best management practice ground water level monitoring program (as approved by your office per letter dated January 5, 2005).

Please replace the November 2007 LTSP with this April 2008 revision. Please call me at (970) 248-6621 if you have any questions.

Sincerely,

Tracy A. Ribeiro
Site Manager

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Office of Legacy Management
Long-Term Surveillance Plan
for the
Maybell (UMTRCA Title I) Disposal Site
Moffat County, Colorado

April 2008

Work Performed by S.M. Stoller Corporation under DOE Contract No. DE-AM01-07LM00060
for the U.S. Department of Energy Office of Legacy Management, Grand Junction, Colorado

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1.0 Introduction

1.1 Purpose

This Long-Term Surveillance Plan (LTSP) explains how the U.S. Department of Energy (DOE) Office of Legacy Management (LM) will fulfill general license requirements of Title 10 *Code of Federal Regulations* Part 40.27 (10 CFR 40.27) as the long-term custodian of the former Umetco Minerals Corporation uranium processing and mill tailings disposal site in Moffat County, Colorado. The site has been renamed the Maybell Disposal Site by DOE and will be referred to as such throughout this document. The LM Program at the DOE-LM office in Grand Junction, Colorado, is responsible for the preparation, revision, and implementation of this LTSP, which specifies procedures for inspecting the site, monitoring, maintenance, annual and other reporting requirements, and maintaining records pertaining to the site.

1.2 Legal and Regulatory Requirements

The Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978 (42 USC §7901, as amended), provides regulations for the remediation (or reclamation) and long-term care of uranium mill tailings under either Title I or Title II of the act. Title I addresses former uranium mill sites that were unlicensed as of January 1, 1978, and essentially abandoned. Title II addresses uranium-milling sites under specific license as of January 1, 1978. In both cases, the licensing agency is the U.S. Nuclear Regulatory Commission (NRC), or in the case of certain Title II disposal sites, an Agreement State. The Maybell Disposal Site is regulated under Title I of UMTRCA. Colorado is an Agreement State.

Federal regulations at 10 CFR 40.27 provide for the licensing, custody, and long-term care of uranium and thorium mill tailings sites closed (reclaimed) under Title I of UMTRCA.

A general license is issued by NRC for the custody and long-term care, including monitoring, maintenance, and emergency measures necessary to ensure that uranium and thorium mill tailings disposal sites will be cared for in a manner that protects public health, safety, and the environment after closure (completion of reclamation activities).

The general license becomes effective once the NRC or an Agreement State approves the site reclamation and terminates the operating license, and NRC accepts a site-specific LTSP (this document).

Requirements of the LTSP and general requirements for the long-term custody of the Maybell Disposal Site are addressed in various sections of the LTSP (Table 1–1).

The plans, procedures, and specifications in this LTSP are based on the guidance document, *Guidance for Implementing the Long-Term Surveillance Program for UMTRCA Title I and Title II Disposal Sites* (DOE 2001). Rationale and procedures in the guidance document are considered part of this LTSP.

Table 1–1. Requirements of the LTSP and for the Long-Term Custodian of the Maybell Disposal Site

Requirements of LTSP		
	Requirement	Location
1.	Description of final site conditions	Section 2.0
2.	Legal description of site	Appendix A
3.	Description of the long-term surveillance program	Section 3.0
4.	Criteria for follow-up inspections	Section 3.5.1
5.	Criteria for maintenance and emergency measures	Section 3.6.3
Requirements for the Long-Term Custodian (DOE)		
	Requirement	Location
1.	Notification to NRC of changes to the LTSP	Section 3.1
2.	NRC permanent right-of-entry	Section 3.1
3.	Notification to NRC of significant construction, actions or repairs at the site	Sections 3.5 and 3.6

1.3 Role of the Department of Energy

In December 2003, DOE formally established the DOE-LM office. The DOE-LM mission includes “...implementing long-term surveillance and maintenance projects at sites transferred to DOE-LM to ensure sustainable protection of human health and the environment.”

Previously in 1988, DOE had designated the Grand Junction facility as the program office for managing long-term surveillance and maintenance of DOE disposal sites that contain regulated low-level radioactive materials that no longer had a DOE mission after cleanup, as well as other sites (including Title I and Title II sites) as assigned, and to establish a common office for the security, surveillance, monitoring, and maintenance of those sites.

According to the objectives of DOE Order 450.1, *Environmental Protection Program* (DOE 2005), DOE sites must implement sound stewardship practices protective of the air, water, land and other natural and cultural resources potentially affected by their operations. DOE Order 450.1 required DOE sites to have an environmental management system (EMS) in place by December 31, 2005, to implement these practices. The DOE-LM EMS, which was formally implemented in October 2005, incorporates federal mandates specified in Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* (EO 2007).

The LM EMS is a systematic process for reducing the environmental impacts resulting from DOE-LM and contractor work activities, products, and services and directs work to occur in a manner that protects workers, the public, and the environment. The process adheres to “Plan-Do-Check-Act” principles, mandates environmental compliance, and integrates green initiatives into all phases of work, including scoping, planning, construction, subcontracts, and operations. The EMS provides specific procedures that anticipate and mitigate negative impacts to the environment by promoting use of recycled materials; recycling to the extent practicable; conserving fuel, energy, and natural resources; and minimizing the generation of greenhouse gases, use of toxic chemicals, and generation of hazardous wastes.

2.0 Final Site Conditions

Reclamation of the former Umetco Minerals Corporation uranium processing site (Maybell processing site) in Moffat, Colorado, consisted of demolishing site structures and relocating the contaminated structural materials and contaminated mill site tailings and soils to a disposal cell (repository) constructed at the former site of the tailings pile. Residual radioactive material (RRM) from vicinity properties was also placed in the cell.

2.1 Site History

The mill at the Maybell processing site was established by the Trace Element Corporation in 1955. After Umetco assumed control of the site, milling operations began in 1957 using uranium ore from nearby open pit mines. During the 7 years of operation by Umetco, the mill processed approximately 2.6 million tons of ore. After the mill shut down in November 1964, Umetco dismantled it and began stabilizing the tailings in 1971 in accordance with Colorado regulations.

DOE began constructing the disposal cell in 1995. The existing tailings were left in place, but reshaped. Windblown contaminated material and other residual radioactive materials (such as contaminated demolition debris, soil, and vicinity property materials) were placed on top of the existing tailings. Cell construction was completed in 1998 with the placement of a radon/infiltration barrier and frost and erosion protection layers.

At the completion of the surface remedial action, the fenced-in disposal cell covers approximately 66 acres, and the disposal site encompasses approximately 250 acres.

2.2 General Description of the Disposal Site Vicinity

The Maybell Disposal Site is located approximately 25 miles west of Craig, Colorado, in Moffat County in Sections 18 and 19, Township 7 North, Range 94 West, 6th Principal Meridian. The site is 5 miles north of the Yampa River. Running east-west, U.S. Highway 40 is approximately 2 miles south of the site (Figure 2-1). The small town of Maybell is about 5 road miles southwest of the site. The nearest residence is 2.9 miles southwest of the site. The area is relatively flat with some low, flat-topped mesas.

The Maybell Disposal Site is located in a mining district, which contains numerous abandoned uranium mines. Rob Pit is approximately 2,000 feet (ft) west of the Maybell disposal cell (Figure 2-2). Rob Pit is currently a large open hole with standing water at the bottom that receives surface water runoff from the Maybell West Title II Disposal Site. Johnson Pit is approximately 1,000 ft south of the Maybell disposal cell. Johnson Pit has been partially backfilled with mine overburden soil and rock. Several reclaimed and unreclaimed overburden piles are located in the area of the Maybell Disposal Site. The Maybell West Title II Disposal Site is located approximately 0.75 mile to the west (Figure 2-2).

The Maybell Disposal Site is in a small valley approximately 2.4 miles long (east to west) and 2 miles wide (north to south). The center of the valley where the disposal site is located is at an elevation of about 6,200 ft above mean sea level. The dominant surface feature on the Maybell site is Johnson Wash, which drains to the south into Lay Creek at a point just south of U.S. Highway 40. The main channel of Johnson Wash is just east of the disposal cell. Original

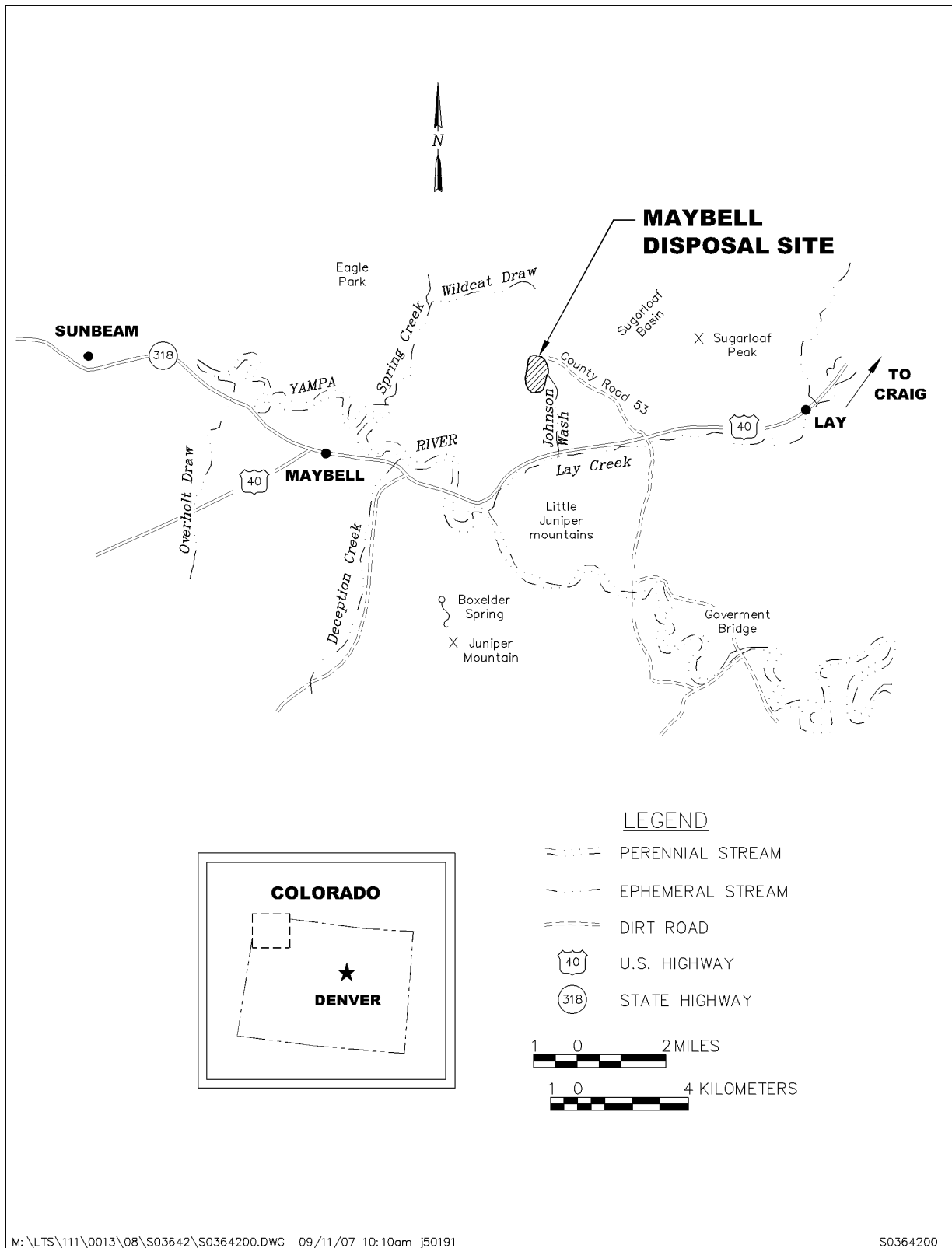


Figure 2–1. General Location Map of the Maybell, Colorado, Disposal Site

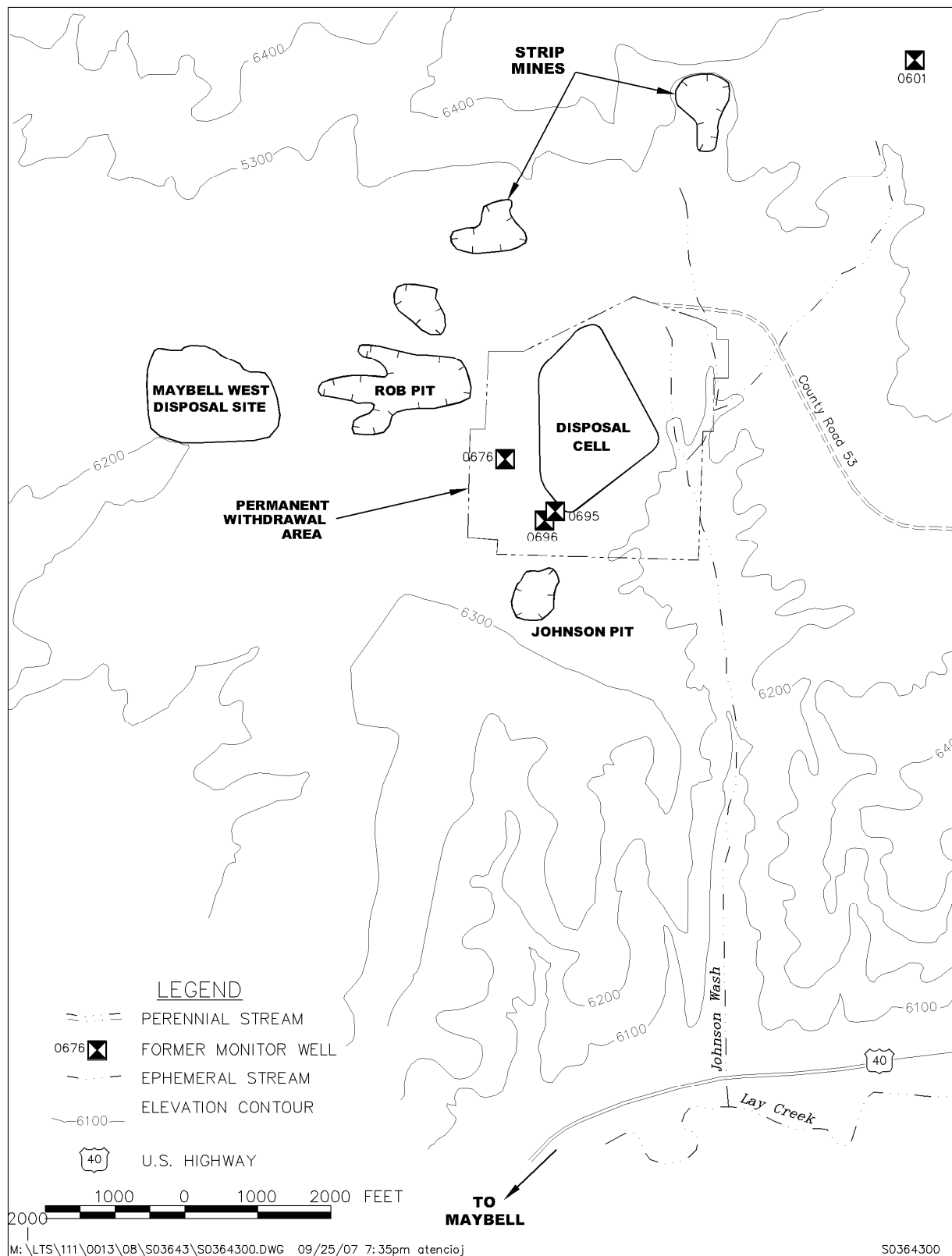


Figure 2–2. Maybell, Colorado, Disposal Site Vicinity Map

surface topography on the site reflects drainage to the south and east into Johnson Wash. Several small tributary branches of Johnson Wash begin south of the disposal cell and drain toward the east-southeast. Erosion protection rock has been installed in four of these drainages, which are designated as gullies (Figure 2–3).

The climate in the vicinity of the Maybell Disposal Site is semiarid. The average annual precipitation in the town of Maybell is 11.7 inches and is distributed relatively uniformly throughout the year. The snowfall accumulation is approximately 65 inches per year and generally does not result in rapid runoff. Data from the airport in Craig, Colorado, show the prevailing winds are from the west-southwest, and to a lesser degree from the east-northeast. The prevailing wind at the location of the former tailings pile is easterly (URS 1976).

2.3 Disposal Site Description

2.3.1 Site Ownership

Land at the Maybell Disposal Site was originally owned by both public and private entities. The portion of the disposal site located on property administered by the U.S. Department of Interior Bureau of Land Management was permanently withdrawn and transferred to DOE in 1995.

Under the requirements of UMTRCA, the state of Colorado acquired a portion (two private properties) of the designated disposal site property. These properties comprise the southwest portion of the designated site. They are referred to as the Howsam and Gordon properties. The state acquired them in fee simple from the private owners. These properties were subsequently transferred to the federal government. The two properties comprise approximately 110 acres. Real estate information, including a legal description for these two properties, is included in Appendix A.

The site was accepted under the 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.

2.3.2 Directions to the Disposal Site

From the intersection of State Highway 13 and U.S. Highway 40 (on the west side of Craig, Colorado), travel west on Highway 40 for 20 miles to a gravel road on the left (south) with a sign to Juniper Springs. Continue traveling 0.2 miles further to an unmarked (from the highway) gravel road on the right (north). Turn right onto the gravel road and go over the cattle guard. Follow the road sign (Moffat County Road 53) 3 miles to the site (Figure 2–1). The entrance gate is on the north side of the disposal cell just beyond the sign indicating the end of the county road.

2.3.3 Description of Surface Conditions

The aboveground disposal cell covers approximately 66-acres of the approximately 250-acre disposal site property. The roughly pentagonal shaped disposal cell measures about 1,600 ft by 2,400 ft and is located in the center of the site. The disposal cell is above grade and is approximately 30 ft above the surrounding terrain.

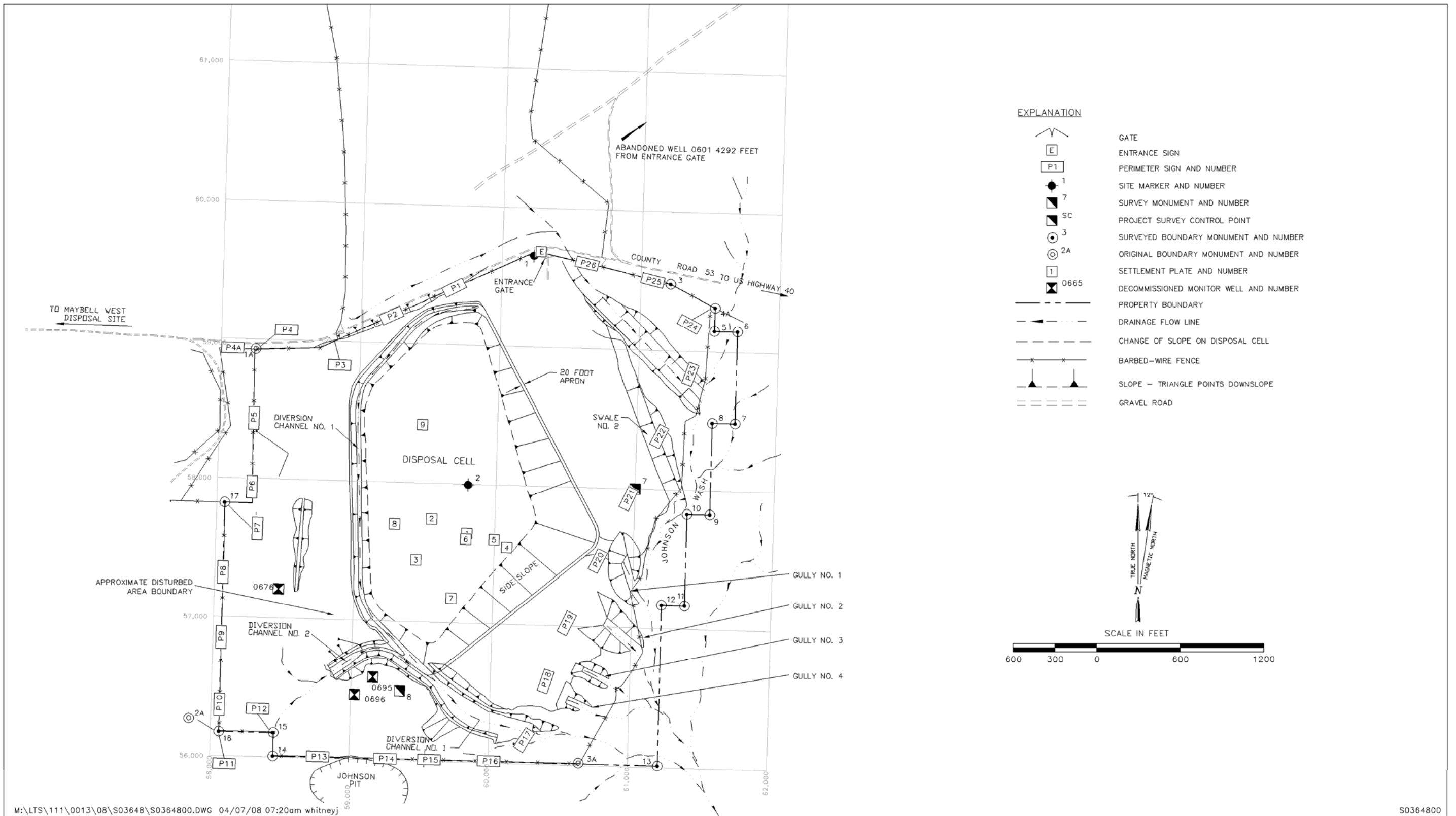


Figure 2-3. Disposal Site Map, Maybell, Colorado, Disposal Site

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The final surface conditions at the Maybell Disposal Site are a combination of rock armoring, and contouring to achieve the necessary surface water drainage control and erosion protection to satisfy the longevity design requirements. Other revegetated surfaces at the site have been planted with a mix of native grasses that have proven to be successful in reclaiming nearby surface mine areas and will help provide soil stability. The final surface conditions at the Maybell Disposal Site are shown on Figure 2–3.

2.3.4 Permanent Site Surveillance Features

The disposal cell at the Maybell Disposal Site is enclosed with a four-stranded barbed-wire fence. Access to the disposal site (site entrance) is provided by a locked gate along the north side of the disposal site. An entrance sign, which displays the DOE 24-hour telephone number, is located at the gate (Figure 2–4).

The permanent long-term surveillance features at the Maybell Disposal Site are boundary and survey monuments, site markers, an entrance sign, and perimeter warning signs. The locations of the permanent site surveillance features are shown on Figure 2–3.

Two unpolished granite site markers with an incised message are located at the disposal site entrance, and at the crest of the disposal cell. The message on the granite site marker is shown on Figure 2–5. There are 27 perimeter warning sign locations (at approximately 200-ft intervals) along the property boundary. The perimeter warning signs are identical to the site entrance sign, but without the DOE 24-hour telephone number (Figure 2–4).

Typical construction and installation specifications for these surveillance features are shown in the long-term surveillance guidance (DOE 2001) and described in the completion report (MK-F 1999).

These features will be inspected and maintained as necessary as part of the passive institutional controls for the site.

2.3.5 Site Geology

The Maybell Disposal Site is underlain by the Tertiary Browns Park Formation of Miocene age, which unconformably overlies truncated rocks of the Cretaceous Mancos Shale. The Browns Park Formation consists of poorly cemented fluviolacustrine and eolian sandstones. These sandstones contain small lenses of siltstone, claystone, and some well-cemented intervals of calcite. The underlying Mancos Shale consists of relatively impermeable dark gray marine shale, with lenticular sandstone beds near the top and base.

2.3.6 Hydrology

The uppermost aquifer at the Maybell Disposal Site is the upper sandstone unit of the Browns Park Formation. The top of the unconfined groundwater table occurs at depths ranging from 35 ft to greater than 300 ft beneath the ground surface. The average hydraulic conductivity is 1.7 ft per day and the average linear groundwater velocity is 0.17 ft per day.

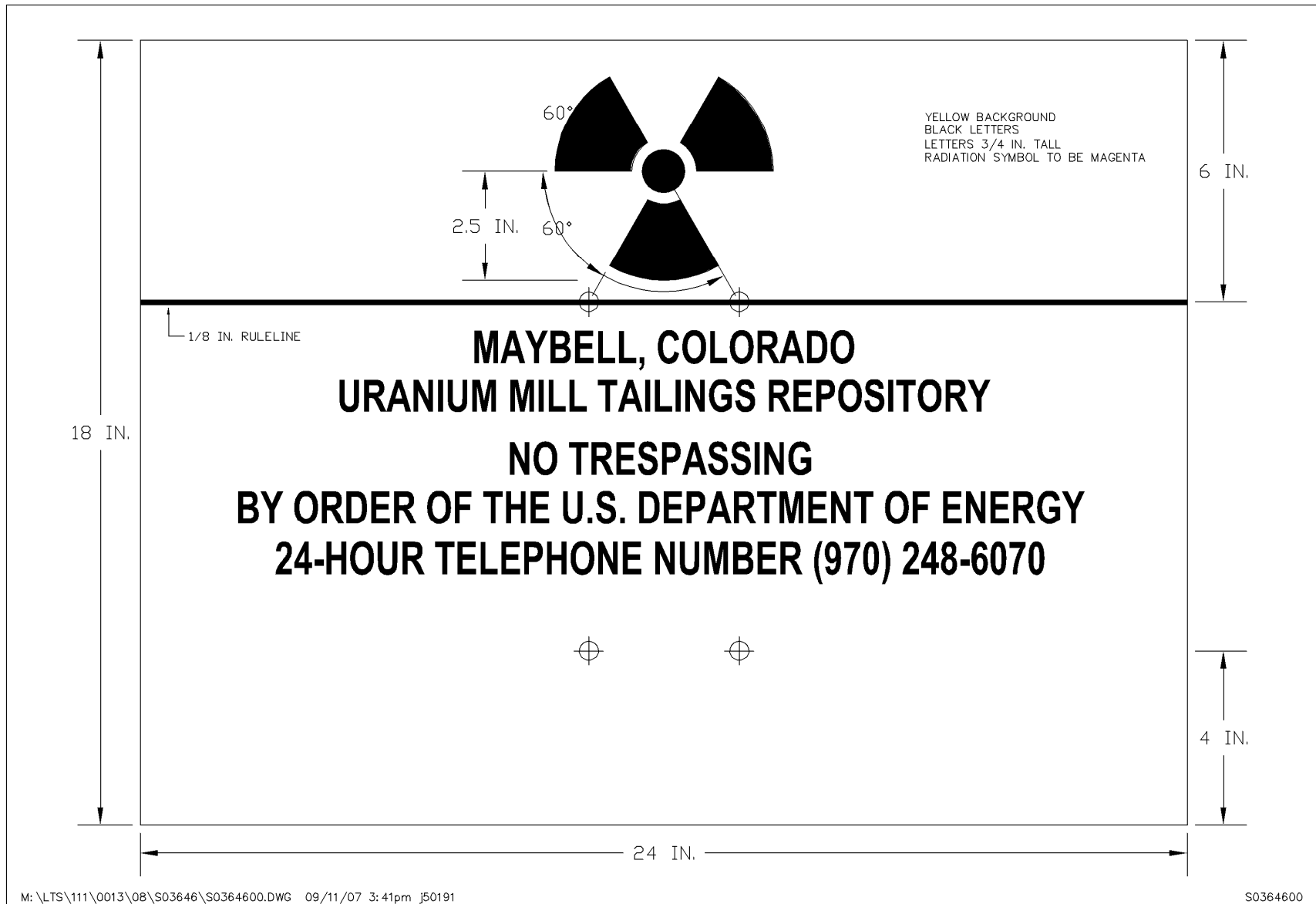
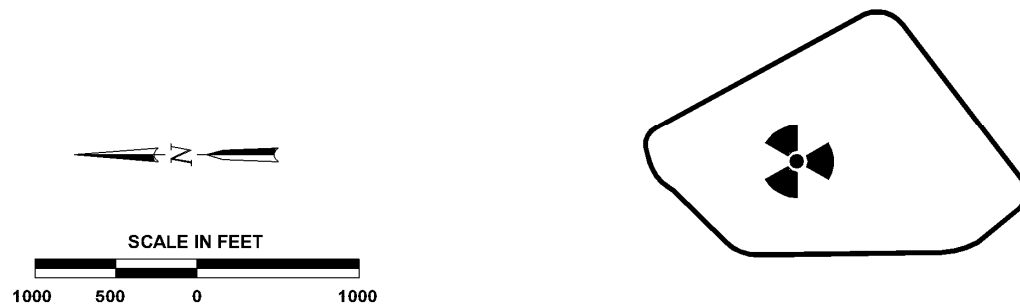


Figure 2-4. Entrance Sign at the Maybell, Colorado, Disposal Site

MAYBELL, COLORADO

DATE OF CLOSURE:	JULY 20, 1998
DRY TONS OF TAILINGS:	4,291,928
RADIOACTIVITY:	455 CURIES, RA-226



M: \LTS\111\0013\08\S03647\S0364700.DWG 09/24/07 3:40pm atencioj

S0364700

Figure 2-5. Site Marker at the Maybell, Colorado, Disposal Site

The Maybell Disposal Site is in a recharge area with a limited upslope catchment basin. Recharge to the Browns Park Formation aquifer principally is from rain or snow infiltration. Groundwater from the Browns Park Formation discharges to the Yampa River alluvial aquifer system. The potentiometric surface indicates groundwater is flowing southwest away from the disposal site.

2.4 Tailings Impoundment and Repository Design

RRM originating from the former uranium processing operations were consolidated, compacted, and stabilized at the location of the former tailings pile at the Maybell processing site. In designing the repository for permanent disposal of contaminated material, analyses were performed to evaluate slope stability, settlement and cover cracking, liquefaction, and the need for radon attenuation, frost protection, and erosion protection. The radon barrier over the disposal area was constructed to achieve the pertinent radioactive emissions standards. Diversion channels were designed to hydraulically isolate the disposal area preventing erosion over the long-term. Additional information can be found in the *Remedial Action Plan and Site Design for Stabilization of the Inactive Uranium Mill Tailings Site, Maybell, Colorado* (DOE 1994) and in the *Maybell, Colorado, Completion Report* (MK-F 1999).

2.4.1 Encapsulation Design

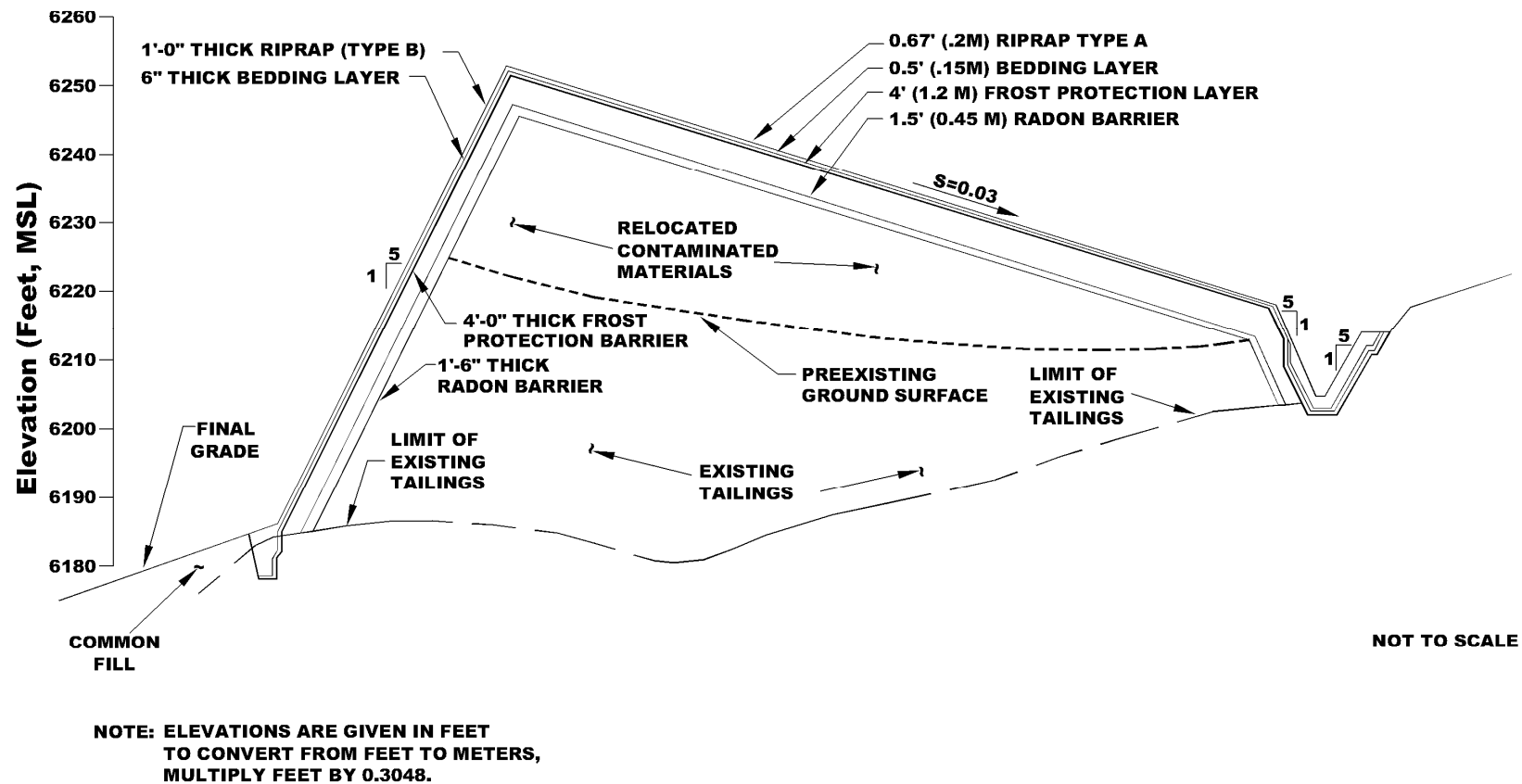
The objective of the tailings impoundment cover is to isolate the uranium mill tailings from the surrounding environment. This is accomplished by reducing radon gas emission rates and gamma exposure rates to below regulatory standards, minimizing infiltration of meteoric water that could potentially leach contaminants into the subsurface, and physically containing the contaminated materials to prevent dispersion.

The disposal cell contains approximately 3,500,000 cubic yards of stabilized-in-place and relocated tailings and other RRM, primarily contaminated soil and demolition debris with a total activity of 455 curies of radium-226. The disposal cell is approximately 30 ft above the surrounding ground surface and is capped with an approximate 7-ft-thick multiple-component cover. The cover placed over the disposal cell has three components, as shown as a generalized cross section in Figure 2–6.

The cover consists of the following layers, starting at the bottom of the cover: a 1.5-ft-thick radon/infiltration barrier, comprised of bentonite-amended clayey soil placed on top of the contaminated materials; a 4-ft thick layer of compacted soil to prevent the radon/infiltration barrier from the adverse effects of freeze-thaw cycles; a 0.5-ft-thick layer of coarse-grained bedding material to act as a capillary break and filter, and to promote drainage of infiltrating water away from the radon/infiltration barrier; and an 8- to 12- inch-thick layer of riprap (rock) to prevent wind and water erosion of the underlying materials (Figure 2–6).

The sideslopes of the disposal cell are at a 20 percent grade to create a stable slope, and the top of the disposal cell has a 3 percent grade to promote drainage toward the west.

During construction, nine settlement plates, numbered 1 through 9, (see Figure 2–3) were installed for long-term monitoring (MK-F 1999). Construction calculations at the time of closure



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S0364500

Figure 2-6. Generalized Cross Section of Disposal Cell Cover, Maybell, Colorado, Disposal Site

indicated that significant settlement could occur in the south central portion of the pile during the first 5 years after placement of the frost protection layer. The reason for the anticipated settlement was the presence of a rather thick deposit of slimes (wet tailings material). DOE committed to re-survey the elevations of settlement plates 1 through 9 for a period of 5 years (through 2004) following placement of the radon barrier. Results of the post-construction elevation surveys were required to be included in the annual reports to NRC. DOE terminated the surveys after the fifth year because settlement was not significant (range; 0.04 to 0.19 feet). Therefore, the requirement to perform special elevation surveys (as part of routine annual inspections) in association with these plates is no longer applicable.

2.4.2 Surface Water Diversion System

The site-wide grading plan forms the basis of the surface water diversion system. The plan uses contours approved with the reclamation plan for the repository (DOE 1994). The Maybell disposal cell and a portion of the surrounding area were graded and permanent drainage features were constructed to minimize erosion (Figure 2–3). The topslope of the cell slopes to the west at a grade of 3 percent. Runoff from the topslope enters a rock-lined ditch adjacent to the cell. The sideslopes of the disposal cell are at a 20 percent grade and are protected by riprap aprons on the south and east sides. On the north and west sides of the cell, the sideslopes are part of the main diversion channel that will carry surface runoff from the cell and adjacent off-cell areas. All upland flow will be intercepted and routed around the disposal cell by these diversion channels. Detailed engineering drawings of the disposal cell are in the site completion report (MK-F 1999).

2.5 Groundwater Conditions

2.5.1 Background Conditions

Groundwater at the Maybell Disposal Site is contaminated as a result of widespread, naturally occurring uranium mineralization and mining activities not related to on-site legacy uranium processing operations. Upgradient background groundwater in the Browns Park Formation has maximum observed concentrations of arsenic, cadmium, lead, molybdenum, selenium, and uranium, and activities of radium-226 and -228 that exceed the U.S. Environmental Protection Agency (EPA) maximum concentration limit (MCL) (40 CFR Part 192). Downgradient background groundwater in the Browns Park Formation has maximum observed concentrations of arsenic, cadmium, lead, molybdenum, nitrate, selenium, and uranium that exceed the EPA MCLs.

Because there are currently no known exposure pathways for groundwater from the uppermost aquifer to a receptor, there are no human or ecological risks associated with the use of groundwater beneath the Maybell Disposal Site (DOE 1996a).

2.5.2 Regulatory Status of Groundwater

The groundwater in the area is designated as limited use, 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. As a result, narrative supplemental standards (40 CFR 192.21(g)) have been applied to groundwater at the site.

In accordance with 40 CFR 192, Subpart A, an evaluation of site characterization data showed that a program to monitor groundwater for demonstrating disposal cell performance was not appropriate because groundwater in the uppermost aquifer is designated as limited use (40 CFR 192.11(e)). 40 CFR 192, Subpart A, addresses concern for potential groundwater contamination that may result due to issues regarding disposal cell performance.

In accordance with 40 CFR 192, Subpart B, the NRC approved groundwater compliance strategy at the site is no remediation; also a result of the uppermost aquifer being designated as limited use. 40 CFR 192, Subpart B addresses pre-existing groundwater contamination that resulted from historical uranium processing site operations.

Therefore, groundwater quality monitoring is not required at the Maybell Disposal Site.

2.5.3 Historical Groundwater Level Monitoring

Post-cell closure groundwater level monitoring was conducted as a best management practice 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 on the local groundwater system. NRC did not require this monitoring for the purpose of demonstrating compliance with groundwater protection standards (40 CFR 192.02), nor could this monitoring have triggered corrective action (40 CFR 192.04).

Computer groundwater modeling performed in 1996 to predict the upper bound curve of water level versus time for monitor well MW-069 triggered the decision to conduct this water level monitoring (DOE 1996b). At the time, there was a concern that a temporary rise in groundwater level observed in wells adjacent to the cell might mistakenly be interpreted as a cell performance problem. Although a subsequent evaluation of the modeling indicated that any increase in groundwater levels resulting from transient drainage from the cell would likely be masked by the predicted decrease in groundwater levels that would result from dissipation of the pre-existing groundwater mound remaining from historical ore-processing activities and natural fluctuations in groundwater levels. Results of the water level monitoring as obtained by data loggers placed in wells MW-0695, MW-0676, and MW-0601 are provided in Figure 2–7. Former monitor well locations are shown in Figure 2–2. Water level measurements were discontinued in 2004.

The report *Notice of Intent to Discontinue Monitoring at the Maybell, Colorado, UMTRCA Title I Disposal Site* (DOE 2004a) was prepared to address the groundwater level impact issue and concluded that: 1) "there is no evidence of transient drainage from the disposal cell affecting the groundwater system downgradient from the cell, 2) "that all changes in groundwater levels apparently are related to regional affects", 3) "any local impacts are not measurable", and 4) "DOE has fulfilled its commitment to monitor groundwater levels in the vicinity of the Maybell disposal site and has met the criteria specified in the LTSP to discontinue monitoring." NRC concurred that the stipulated groundwater level monitoring requirements had been satisfied and that any concerns had been addressed and approved discontinuing groundwater level monitoring in a January 2005 letter (NRC 2005).

The four remaining monitor wells at the site (MW-0601, MW-0676, MW-0695, and MW-0696) were decommissioned in accordance with State of Colorado requirements in May 2006.

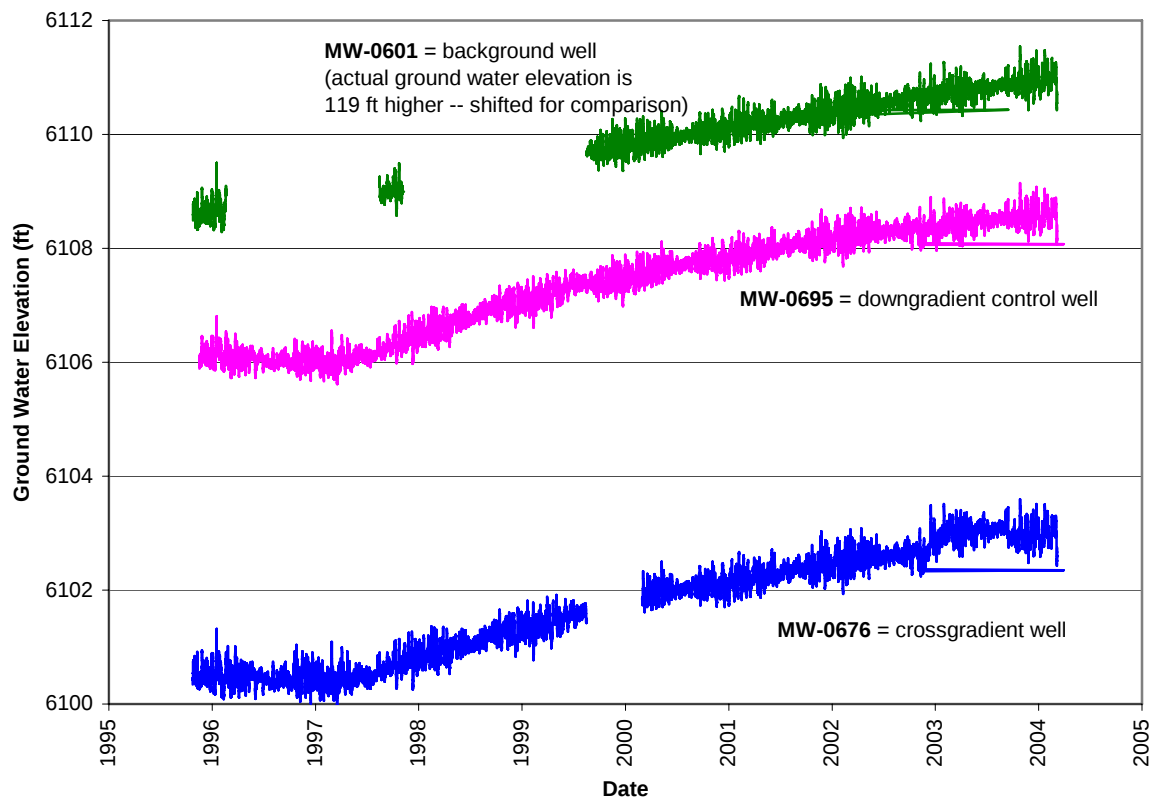


Figure 2–7. Water Level Measurements at the Maybell, Colorado, Disposal Site

3.0 Long-Term Surveillance Program

3.1 General License for Long-Term Custody

Upon NRC's approval of this LTSP, the site was included under the NRC general license for long-term custody (10 CFR 40.27[b]). See previous discussion in Sections 1.2 and 2.3.1.

Although sites are designed to last "for up to 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years [10 CFR 40, Appendix A, Criterion 6]," there is no termination of the NRC general license for the DOE's long-term custody of the site (10 CFR 40.27[b]).

Should changes to this LTSP be necessary, NRC must be notified of the changes, and the changes may not conflict with the requirements of the general license. Additionally, representatives of NRC must be guaranteed permanent right-of-entry for the purpose of periodic site inspections.

3.2 Requirements of the General License

To meet the requirements of the NRC's license at 10 CFR 40, Section 27, and Appendix A Criterion 12, the long-term custodian must, at a minimum, fulfill the following requirements. The section in the LTSP in which each requirement is addressed is given in parentheses.

1. Annual site inspection. (Section 3.3)
2. Annual inspection report. (Section 3.4)
3. Follow-up inspections and inspection reports, as necessary. (Section 3.5)
4. Site maintenance, as necessary. (Section 3.6)
5. Emergency measures in the event of catastrophe. (Section 3.6)
6. Environmental monitoring. (Section 3.7)

3.3 Annual Site Inspections

3.3.1 Frequency of Inspections

At a minimum, sites must be inspected annually to confirm the integrity of visible features at the site and to determine the need, if any, for maintenance, additional inspections, or monitoring (10 CFR 40, Appendix A, Criterion 12).

To meet this requirement, DOE will inspect the Maybell Disposal Site once each calendar year. The date of the inspection may vary from year to year, but DOE will endeavor to inspect the site approximately once every 12 months unless circumstances warrant variance. Any variance to this inspection frequency will be explained in the inspection report. DOE will notify NRC and the State of Colorado of the inspection at least 30 days in advance of the scheduled inspection date.

3.3.2 Inspection Procedure

For the purposes of inspection, the Maybell Disposal Site will be divided into sections called *transects*. Each transect will be inspected individually. Proposed transects for the annual inspections of the Maybell Disposal Site are listed in Table 3–1.

Table 3–1. Transects Used During the Annual Inspections of the Maybell Disposal Site

Transect	Inspection Description
Disposal Cell; Top, Side Slopes, and Apron	Inspect integrity and long-term performance; check for erosion, settling, slumping, riprap rock degradation, deep-rooted vegetation, and biointrusion. Inspect for evidence of potential seeps along east and southeast slopes of cell.
Other Areas Inside the Site Boundary including Site Surface Water Diversion System, Site Perimeter, and Balance of Site	Inspect integrity and long-term performance; check for erosion and head cutting, riprap rock degradation, sediment accumulation, and excessive vegetation. Inspect for erosion and changes in headcutting or sedimentation and around Gullies No. 1–4. Inspect site perimeter and area between tailings impoundment and site boundary, including the site entrance, survey and boundary monuments, entrance sign, and site marker.
Outlying Area	Inspect the area 0.25 mile beyond site boundary; check for any activity that may adversely impact site integrity.

Refer to Figure 2–3.

The annual inspection will be a visual walk-through. The primary purpose of the inspection will be to look for evidence of cover degradation, wind or water erosion, structural discontinuity or settlement, condition of riprap, condition of vegetation, and animal or human intrusions that could result in adverse impacts. Disposal site and disposal cell inspection techniques are described in detail in Attachment 4 of the Guidance Document (DOE 2001).

Site specific concerns that require special attention during annual inspections at the Maybell Disposal Site include:

- Erosion Near Gullies No. 1 through 4: Historical information indicates surface runoff erosion occurred on the property prior to milling operations on the site. Several erosion gullies formed, which drain toward Johnson's Wash to the east-southeast. Erosion protection measures were installed at the outlets of these gullies (Gullies No. 1, 2, 3, and 4) during construction (Figure 2–3). Upslope of the erosion protection rock, all four gullies were filled at the time of cell construction with compacted common fill to the toe of the disposal cell (MK-F 1999). The upper end of Gully No. 2 extended beneath the tailings pile. In 2000, 2001, and 2002 additional rock armoring was placed within Gullies No. 1 through 4 to further control erosion that was occurring.

To monitor potential erosion damage, the inspectors will check for erosion and any changes in headcutting or sedimentation in and around Gullies Nos. 1 through 4, and between these gullies and the toe of the disposal cell (Figure 2–3). Careful attention will be taken when traversing these gullies so as not to displace the erosion protection material.

- **Potential for Transient Drainage Seeps:** During disposal cell construction, the slopes on the east side of the pile were cut back to form the final slope configuration. Although not confirmed directly by characterization data, information obtained appeared to indicate that the cut slope near the east corner of the cell may have been close to encountering buried slime (wet tailings material) layers, raising concern that seeps may occur on the outer surface of the disposal cell. If transient drainage from the slimes formed a surface expression on the Maybell cell, it would be located on the east or southeast slopes toward the east corner of the cell (Figure 2–3).

While walking routine transects over the east and southeast slopes of the cell, inspectors will check for evidence of potential seeps. Potential seeps are not expected to form after transient drainage is complete.

These concerns are identified in the site transect information (see Table 3–1) and on the annual inspections checklist (see Appendix B).

In addition to inspection of the site itself, inspectors will note changes and developments in the area surrounding the site, especially changes within the surrounding watershed basin. Significant changes within this area could include development or expansion of human habitation, erosion, road building, or other change in land use.

It may be necessary to document certain observations with photographs. Such observations may be evidence of vandalism or a slow modifying process, such as rill erosion, that should be monitored more closely during general site inspections. Photographs are documented on the Field Photograph Log, which becomes part of the site record.

3.3.3 Inspection Checklist

The field inspection is guided by the inspection checklist. The site-specific inspection checklist for the Maybell Disposal Site is presented in Appendix B.

The checklist is subject to revision. At the conclusion of the annual site inspection, inspectors will make notes regarding revisions to the checklist, if necessary, in anticipation of the next annual site inspection. Revisions to the checklist will include such items as new discoveries or changes in site conditions that must be inspected and evaluated during the next annual inspection.

3.3.4 Personnel

Annual inspections normally will be performed by a minimum of two inspectors. Inspectors will be experienced engineers and scientists who have been specifically trained for the purpose through participation in previous site inspections.

Engineers will typically be civil, geotechnical, or geological engineers. Scientists will include geologists, hydrologists, biologists, and environmental scientists representing various fields (e.g., ecology, soils, range management). If serious or unique problems develop at the site, more than two inspectors may be assigned to the inspection. Inspectors specialized in specific fields may be assigned to the inspection to evaluate serious or unusual problems and make recommendations.

3.4 Annual Inspection Report

Results of annual site inspections will be reported to NRC within 90 days of the last site inspection of that calendar year (10 CFR 40, Appendix A, Criterion 12). In the event that the annual report cannot be submitted within 90 days, DOE will notify NRC of the circumstances. Annual inspection reports also will be distributed to the State, and any other stakeholders who request a copy. For compliance with this requirement, the annual inspection report for the Maybell Disposal Site is included in a document submitted to NRC that contains the annual inspection reports for all sites licensed under 10 CFR 40.27.

3.5 Follow-up Inspections

Follow-up inspections are unscheduled inspections that may be required (1) as a result of discoveries made during a previous annual site inspection, or (2) as a result of changed site conditions reported by a citizen or outside agency.

3.5.1 Criteria for Follow-up Inspections

Criteria necessitating follow-up inspections are required by 10 CFR 40.27(b)(4). DOE will conduct follow-up inspections should the following occur.

1. A condition is identified during the annual site inspection, or other site visit that requires personnel, perhaps with specific expertise, to return to the site to evaluate the condition.
2. DOE is notified by a citizen or outside agency that conditions at the site are substantially changed.

With respect to citizens and outside agencies, DOE will establish and maintain lines of communication with local law enforcement and emergency response agencies to facilitate notification in the event of significant trespass, vandalism, or natural disaster. Due to the remote location of the Maybell Disposal Site, DOE recognizes that local agencies may not necessarily be aware of current conditions at the site; however, these agencies will be requested to notify DOE or provide information should they become aware of a significant event that might affect the security or integrity of the site.

DOE may request the assistance of local agencies to confirm the seriousness of a condition before conducting a follow-up inspection or emergency response. The public may use the 24-hour DOE telephone number posted prominently on the entrance sign to request information or to report a problem at the site.

Once a condition or concern is identified at the site, DOE will evaluate the information and determine whether a follow-up inspection is warranted. Conditions that may require a routine follow-up inspection include changes in vegetation, erosion, storm damage, low-impact human intrusion, minor vandalism, or the need to evaluate, define, or perform maintenance tasks.

Conditions that threaten the safety or the integrity of the disposal site may require a more immediate (nonroutine) follow-up inspection. Slope failure, disastrous storm, major seismic event, and deliberate human intrusion are among these conditions.

DOE will use a graded approach with respect to follow-up inspections. Urgency of the follow-up inspection will be in proportion to the seriousness of the condition. Timing of the inspection may be governed by seasonal considerations. For example, a follow-up inspection to investigate a vegetation problem may be scheduled for a particular time of year when growing conditions are optimum. A routine follow-up inspection to perform maintenance or to evaluate an erosion problem might be scheduled to avoid snow cover or frozen ground.

In the event of "unusual damage or disruption" (10 CFR 40, Appendix A, Criterion 12) that threatens or compromises site safety, security, or integrity, DOE will

- Notify NRC pursuant to 10 CFR 40, Appendix A, Criterion 12, or 10 CFR 40.60, whichever is determined to apply;
- Begin the DOE Environment, Safety, and Health Reporting process (DOE Order 231.1A, Chg. 1; DOE 2004b);
- Respond with an immediate follow-up inspection or mobilization of an emergency response team;
- Implement measures as necessary to contain or prevent dispersion of radioactive materials (Section 3.6).

3.5.2 Personnel

Inspectors assigned to follow-up inspections will be selected on the same basis as for the annual site inspection (Section 3.3.4).

3.5.3 Reports of Follow-up Inspections

Results of routine follow-up inspections will be included in the next annual inspection report (Section 3.4). Separate reports will not be prepared unless DOE determines it is advisable to notify NRC or other outside agency of a problem at the site.

If follow-up inspections are required for more serious or emergency reasons, DOE will submit to NRC a preliminary report of the follow-up inspection within the required 60 days (10 CFR 40, Appendix A, Criterion 12).

3.6 Routine Site Maintenance and Emergency Measures

3.6.1 Routine Site Maintenance

UMTRCA disposal sites are designed and constructed so that "ongoing active maintenance is not necessary to preserve isolation" of radioactive material (10 CFR 40, Appendix A, Criterion 12). The disposal cell has been designed and constructed to minimize the need for routine maintenance.

The cover was constructed with minimal slope to promote positive drainage while minimizing runoff water velocities. Erosion protection in the form of riprap has been placed over the cover and is expected to endure for the long-term. Because of the riprap and mild slopes, adverse wind or water erosion impacts that would require maintenance are not anticipated. Areas where runoff

water could achieve erosional velocities have been armored with riprap sized to withstand these forces.

If an inspection of the disposal site cell reveals failure, or degradation of an as-built feature, repairs will be conducted to re-establish the as-built condition. DOE will perform routine site maintenance, where and when needed based on best management practices. Reports of site maintenance will be summarized in the annual site inspection report.

In alignment with the LM environmental management system, proposed site maintenance activities will be assessed for opportunities to improve environmental performance and sustainable environmental practices. Some areas for consideration include reusing and recycling products or wastes, using environmentally preferable products (i.e., products with recycled content, such as office furniture and concrete and asphalt, products with reduced toxicity, and energy efficient products), using alternative fuels, using renewable energy, and making environmental habitat improvements.

3.6.2 Emergency Measures

Emergency measures are the actions that DOE will take in response to "unusual damage or disruption" that threaten or compromise site safety, security, or integrity. DOE will contain or prevent dispersal of radioactive materials in the unlikely event of a breach in cover materials.

3.6.3 Criteria for Routine Site Maintenance and Emergency Measures

Conceptually, there is a continuum in the progression from minor routine maintenance to large-scale reconstruction of the disposal areas following a potential disaster. Criteria, although required by 10 CFR 40.27(b)(5), for triggering particular DOE responses for each progressively more serious level of intervention, are not easily defined because the nature and scale of all potential problems cannot be foreseen. The information in Table 3–2 will, however, serve as a guide for appropriate DOE responses. The table shows that the difference between routine maintenance and emergency response is primarily one of urgency and degree of threat or risk. DOE's priority (urgency) in column 1 of Table 3–2 bears an inverse relationship with DOE's estimate of probability. The highest priority response is also believed to be the least likely to occur.

3.6.4 Reporting Maintenance and Emergency Measures

Routine maintenance completed during the previous 12 months will be summarized in the annual inspection report.

In accordance with 10 CFR 40.60, DOE will notify:

Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental Management Programs
U.S. Nuclear Regulatory Commission

within 4 hours of discovery of any Priority 1 or 2 event in Table 3–2. The phone number for the required 4-hour contact to the NRC Operations Center is (301) 816-5100.

Table 3–2. DOE Criteria for Maintenance and Emergency Measures

Priority	Description ^a	Example	Response
1	Breach of disposal cells with dispersal of radioactive material.	Seismic event that exceeds design basis and causes massive discontinuity in cover.	Notify NRC. Immediate follow-up inspection by DOE emergency response team. Emergency actions to prevent further dispersal, recover radioactive materials, and repair breach.
2	Breach without dispersal of radioactive material.	Partial or threatened exposure of radioactive materials.	Notify NRC. Immediate follow-up inspection by DOE emergency response team. Emergency actions to repair the breach.
3	Breach of site security.	Human intrusion, vandalism.	Restore security; urgency based on assessment of risk.
4	Maintenance of specific site surveillance features.	Deterioration of signs, markers.	Repair at first opportunity.
5	Minor erosion or undesirable changes in riprap integrity or vegetation.	Erosion not immediately affecting disposal cell, change in riprap protection layer thickness.	Evaluate, assess impact, respond as appropriate to address problem.

^aOther changes or conditions will be evaluated and treated similarly on the basis of perceived risk.

3.7 Environmental Monitoring

3.7.1 Groundwater Monitoring

Groundwater monitoring is not required for this site because the groundwater in the uppermost aquifer is designated as limited use. See previous discussions in Section 2.5 regarding background groundwater quality, regulatory status of groundwater, and historical groundwater level monitoring. No monitoring wells remain at the site.

3.7.2 Vegetation Monitoring

Riprap rock was selected as the cover material over the disposal area and surface water control features on site. Other portions of the Maybell Disposal Site were revegetated as part of the site reclamation. Vegetation at the disposal site is expected to help maintain erosional stability. Annual visual inspections will be conducted to verify the continued health of the on-site vegetation and to assure that undesirable plant species (deep-rooted plants on the disposal cell cover and noxious weeds) do not proliferate at the site. Natural plant community succession is expected and will not adversely impact the performance of the containment system.

3.8 Records

DOE-LM receives and maintains select records at their office in Grand Junction, Colorado, to support post-closure site maintenance. These records are being maintained by DOE-LM because they contain critical information required to protect human health and the environment, manage land and assets, protect legal interests of the Department and the public, and mitigate community

impacts resulting from the cleanup of legacy waste. The records are managed in accordance with the following requirements.

Requirements

- Title 44, United States Code (U.S.C.), Chapter 29, Records Management by the Archivist of the United States and by the Administrator of General Services, Chapter 31, “Records Management by Federal Agencies,” and Chapter 33, “Disposal of Records.”
- Title 36, *Code of Federal Regulations* Chapter 12, Subchapter B, "Records Management";
- DOE G 1324.5B, *Implementation Guide*;
- *LM Information and Records Management Transition Guidance*.

3.9 Quality Assurance

All activities related to the surveillance and maintenance of the Maybell Disposal Site will comply with DOE Order 414.1C, *Quality Assurance* (DOE 2005). Quality assurance requirements are routinely fulfilled by use of a work planning process, standard operating procedures, trained personnel, documents and records maintenance, and assessment activities. Requirements will be transmitted through procurement documents to subcontractors if and when appropriate.

3.10 Health and Safety

Health and safety requirements and procedures for DOE-LM activities are consistent with DOE Orders, Federal regulations, and applicable codes and standards. The DOE Integrated Safety Management process serves as the basis for the Contractor's Health and Safety Program.

Specific guidance is contained in the *U.S. Department of Energy Office of Legacy Management Project Safety Plan* (DOE 2007). This Project Safety Plan identifies specific hazards associated with the anticipated scope of work and provides direction for the control of these hazards.

During the pre-inspection briefing, personnel are required to review the plan to ensure that they have an understanding of the potential hazards and the health and safety requirements associated with the work to be performed.

4.0 References

Title 10 *Code of Federal Regulations* Part 40, *Domestic Licensing of Source Material*, U.S. Nuclear Regulatory Commission.

Title 40 *Code of Federal Regulations* Part 192, *Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings*, U.S. Environmental Protection Agency.

DOE Order 450.1, *Environmental Protection Program*, Chg. 2, December 7, 2005.

Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, January 24, 2007.

United States Code, Uranium Mill Tailings Radiation Control Act of 1978, 42 USC Section 7901.

DOE (U.S. Department of Energy), 1994. *Remedial Action Plan and Site Design for Stabilization of the Inactive Uranium Mill Tailings Site, Maybell, Colorado*, December, DOE/AL162350-24F, Rev. 1, prepared for the U.S. Department of Energy, Environmental Restoration Division, UMTRA Project Team, Albuquerque, New Mexico.

DOE (U.S. Department of Energy), 1996a. *Baseline Risk Assessment of Ground Water Contamination at the Uranium Mill Tailings Site Near Maybell, Colorado*, DOE/AL62350-209, Rev. 1, March.

DOE (U.S. Department of Energy), 1996b. Calculation Set, Evaluation of Transient Drainage, Maybell, Colorado, prepared for the U.S. Department of Energy, Environmental Restoration Division, UMTRA Project Team, Albuquerque, New Mexico.

DOE (U.S. Department of Energy), 2001. *Guidance for Implementing the Long-Term Surveillance Program for UMTRCA Title I and Title II Disposal Sites*, prepared by the U.S. Department of Energy, Grand Junction Office, Grand Junction, Colorado, GJO-2001-215-TAR, April.

DOE (U.S. Department of Energy), 2004a. *Notice of Intent to Discontinue Monitoring at the Maybell, Colorado, UMTRCA Title I Disposal Site*.

DOE (U.S. Department of Energy), 2004b. *Environment, Safety, and Health Reporting*, DOE Order 231.1A, Chg. 1, June.

DOE (U.S. Department of Energy), 2005. *Quality Assurance*, DOE Order 414.1C, June.

DOE (U.S. Department of Energy), 2007. *U.S. Department of Energy Office of Legacy Management Project Safety Plan*, DOE-LM/GJ1116-2006, Rev. 0, prepared for the U.S. Department of Energy, Office of Legacy Management, Grand Junction, Colorado.

MK-F (Morrison Knudsen-Ferguson), 1999. *Maybell, Colorado, Completion Report*, prepared by MK-F for the U.S. Department of Energy, Environmental Restoration Division, UMTRA Project Team, Albuquerque, New Mexico.

NRC (U.S. Nuclear Regulatory Commission), 2005. Letter from Gary S. Janosko, NRC to Michael Tucker, DOE, Subject: Decommissioning of Monitor Wells at the Maybell, Colorado, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I Disposal Site.

URS Company, 1976. "Meteorology Affecting Uranium Tailings Near Maybell, Colorado," unpublished report prepared for Ford, Bacon & Davis Utah, Inc., Salt Lake City, Utah.

Appendix A
Real Estate Information

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Legal Description of Site Boundary

Real Estate Documentation

General

Remedial action at the Maybell, Colorado, Uranium Mill Tailings Remedial Action (UMTRA) Project site consisted of onsite consolidation and stabilization of the contaminated materials. The site comprises approximately 251 acres of land. The site was acquired in two portions.

The larger portion of the disposal site is on land formerly administered by the U.S. Department of the Interior's (DOI) Bureau of Land Management (BLM). Under the requirements of the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978, as amended, DOE acquired this portion of the disposal site land via Public Land Order (PLO).

The second portion, acquired by the state of Colorado, comprises two properties referred to as the Howsam and Gordon properties. The state acquired the properties in fee simple from the private owners. The two properties comprise approximately 110 acres.

Transfer of BLM Lands

The PLO permanently transferred 141 acres from the public domain to DOE. As a result of the transfer, the land is no longer subject to the operation of the general land laws, including the mining and mineral leasing laws. The transfer of the land to DOE vested in DOE the full management, jurisdiction, responsibility, and liability for the land. However, BLM retained the authority to administer any claims, rights, and interests in the land established before the effective date of the transfer.

Legal Description

A tract of land located in Township 7 North, Range 94 West, Sixth Principal Meridian, described by the following government land survey. Section 19, lots, 10, 12, 14, and 16. W1/2 E1/2 SW1/4 NE1/4, W1/2 E1/2 NE1/4 SW1/4 NE1/4, W1/2 SW1/4 NE1/4, SE1/4 NW1/4, W1/2 W1/2 NE1/4 NW1/4 SE1/4, and W1/2 NW1/4 SE1/4. The area described contains 140.49 acres of public land in Moffat County, Colorado.

Recorded

The PLO was published in the Federal Register, Volume 60, No. 71, page 18778, dated 13 April 1995. The Federal Register document is listed as 95-9048 filed 12 April 1995 as 43 CFR Public Land Order 7137. The effective date of the transfer is 13 April 1995.

Legal Descriptions

Howsam tract

A parcel of land situated in the SW1/4 of Section 19, T.7 N., R. 94 W., 6th Principal Meridian, being more particularly described as follows:

Considering the East line of the Northeast of said Section 19 to bear S00°00'00"E and all bearings contained herein to be relative thereto; Beginning at the Center 1/4 corner of said Section 19; thence S. 00°00'11"E 1,813.80 ft the Southwest corner of the N3/4 NW1/4 SW1/4 SE1/4 of Section 19; thence N89°58'15 "W 2103.37 ft to the Southwest corner of the N1/2 S1/2 NE1/4 of Government Lot 8 of said Section 19, thence N00°01'20"E 164.88 ft to the Southeast corner of the NE1/4 NW1/4 of Government Lot 8 of said Section 19; thence N89°58'16"W 391.26 ft to the Southwest corner of the NE1/4 NW1/4 of Government Lot 8 of said Section 19; thence N00°02'01"E 1648.81 ft to the Northwest corner of the E1/2 W1/2 of Government Lot 7 of said Section 19; thence S89°58'24"E 2493.50 ft to the Point of Beginning, containing 102.37 acres, as described, with all its appurtenances subject to existing easements for public roads and highways, public utilities, railroads, pipelines and reservations or exceptions of record. The land herein conveyed to the United States of America by and through the Department of Energy.

Entry Number: 1997L 3688, Recordation Number: R-360704, Moffat County, Colorado.

Gordon tract

A parcel of land situated in the SE1/4 of Section 19, T.7 N., R. 94 W., 6th Principal Meridian, being more particularly described as follows:

Considering the East line of the Northeast of said Section 19 to bear S00°00'00"E and all bearings contained herein to be relative thereto; Beginning at the Northwest corner of N3/4 NW1/4 SW1/4 SE1/4 (the South 1/16 Corner of Section 19); thence S89°58'17"E 660.48 ft to the Northeast corner of the N3/4 NW1/4 SW1/4 SE1/4 of said Section 19, thence S00°00'00"E 494.68 ft to the Southeast corner of the N3/4 NW1/4 SW1/4 SE1/4 of said Section 19; thence N89°58'15"W 660.46 ft to the Southwest corner of the N3/4 NW 1/4 SW 1/4 SE1/4 of said Section 19; thence N 00°00'11"W 494.67 ft to the Point of Beginning, containing 7.50 acres, as described, with all its appurtenances subject to existing easements for public roads and highways, public utilities, railroads, pipelines and reservations or exceptions of record. The land herein conveyed to the United States of America by and through the Department of Energy.

Entry Number: 1997L 3688, Recordation Number: R-361363, Moffat County, Colorado.

Appendix B

Site Inspection Checklist

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Inspection Checklist

Maybell, Colorado, UMTRCA Title I Disposal Site

Date of This Revision:

Last Annual Inspection:

Inspectors:

Next Annual Inspection (Planned):

Scheduled Inspectors:

No.	Item	Issue	Action
1	Protocols	Notify representative of Colorado Department of Public Health and Environment.	
2	Access	Access is by a short dirt road that leads west from Moffat County Road 53.	
3	Specific site surveillance features	See attached list (inspect and identify maintenance requirements).	
4	Disposal cell top	Inspect integrity and long-term performance (check for erosion, settling, slumping, rock degradation, vegetation, and biointrusion).	
5	Side slopes and diversion channels	Inspect integrity and long-term performance (check condition of the side slopes and diversion channels). Inspect for evidence of potential seeps along east and southeast slopes of cell.	
6	Area between the cell and the site boundary	Inspect integrity. Inspect for erosion and changes in headcutting or sedimentation in and around Gullies No. 1–4.	
7	Outlying area	Inspect surrounding area (0.25 mile) for activities that may adversely impact site integrity.	
8	Vegetation	Cut and treat any deep-rooted plants found growing on cell and any noxious weeds or invasive plants on site.	
9	Groundwater monitoring	Groundwater monitoring is not a requirement of the LTSP	

Specific Site Surveillance Features—Maybell, Colorado, Disposal Site

Feature	Comment
Access Road	
Entrance Gate	
Entrance Sign	
Perimeter Signs (27)	
Perimeter Fence	
Site Markers (2)	
Survey Monuments (2)	
Boundary Monuments (27)	