



2005 Annual Inspection of the Monticello Mill Tailings (USDOE) and Monticello Radioactively Contaminated Properties Sites

December 2005



U.S. Department
of Energy

Office of Legacy Management

2005 Annual Inspection of the Monticello Mill Tailings (USDOE) and Monticello Radioactively Contaminated Properties Sites

Summary

The Monticello site, which includes the U.S. Department of Energy (DOE) Monticello Mill Tailings Site (MMTS) and the Monticello Radioactively Contaminated Properties site, was inspected September 14-15, 2005. The Monticello Radioactively Contaminated Properties site is also called the Monticello Vicinity Properties (MVP) and will be referred to as MVP in this report.

Restoration work at MVP and MMTS is complete. MVP are in good condition. MMTS also is in good condition; however several priority repair/maintenance items were identified during the inspection. These items are listed below and all were completed by September 30, 2005.

- The south drain channel that flows to Sediment Pond C was reshaped and lined with riprap.
- Storm water drainage was rerouted at the top of the hill east of Deer Draw on the southeast corner of the millsite.
- The elevation of Berm 2 at the topsoil borrow area on property number MP-00391 was increased.
- Four ditches were emplaced on MS-00181 to divert water away from the steep hillside west of Goodknight Spring.
- The ditch from Second East Street to Highway 191 was reinforced.
- The channel below the Frost Property was cleaned and the berm was reinforced.
- Silt was removed from the exit of Backwater Wetland 3 to bring the elevation back to design grade.
- Two culverts were removed from the rock-lined channel below the former millsite access area.
- Straw bales were placed across the steep hillside west of Goodknight Spring to divert water from areas prone to erosion.
- Straw bales were placed near the former haul road at North Draw to divert water away from a gully forming there.
- Straw bales were placed in five locations in a gully across the former haul road above the Somerville property.

Vegetation on the repository cover is in its sixth year of growth following seeding and planting in spring 2000. Although vegetative cover has improved gradually since 2000, several concerns continue to exist. Primarily, the cover continues to be dominated by cheatgrass, an annual weedy species, in many areas; the density of shrubby vegetation is less than 15 percent of the success criterion for Zone A1 and for Zone B; and, finally, the relative cover of forbs in Zones A1 and A2 do not meet success criteria and do not appear to be increasing over time. In April and July 2005, DOE over-seeded, by mechanical broadcasting, a seed mix composed of one grass species (that is known to compete with cheatgrass) and a number of native shrub species. A detailed report summarizing the trends in vegetation establishment on the repository will be

prepared separately and submitted to the U.S. Environmental Protection Agency (EPA) and Utah Department of Environmental Quality (UDEQ).

Revegetation of the former millsite has improved significantly during the last two growing seasons. With the exception of some steep and gullied areas, vegetation has successfully established on the site. The EPA and DOE identified a number of erosion issues during the 2002, 2003, and 2004 inspections. This report provides a summary of the erosion control work completed by DOE and also identifies the work that still needs to be completed by the city. EPA remains concerned that the City of Monticello is not adequately maintaining the former millsite.

The wetland areas along Montezuma Creek and on the adjacent hillside are in excellent condition. To date at least 6.0 acres of restored wetland that meet U.S. Army Corps of Engineers wetland criteria are present on the millsite. DOE was required to restore 4.7 acres of wetland that met specific EPA success criteria identified in the *Monticello Wetlands Master Plan* (P-GJPO-926). In February 2005, DOE submitted its *Final Results of Wetland Restoration and Monitoring at the Monticello Mill Tailings Site and Monticello Vicinity Properties* (DOE 2005) report to EPA and UDEQ. This report documented the success of DOE's wetland restoration program and concluded that formal monitoring of wetlands was complete. At EPA's request, DOE visited all restored wetlands again in July 2005. A short trip report summarizing the results of the 2005 field visits will be submitted to EPA and UDEQ by January 2006.

DOE completed erosion-repair work on the former topsoil borrow site in fall 2003 and June 2005. At the time of the 2005 inspection, vegetation was well established throughout the site and only minor erosion was observed. EPA noted one problem with the spillway elevation on Berm 2, and this was repaired in September 2005. This report contains a summary of the erosion repairs completed at the site.

No evidence of violation of institutional controls was observed during this inspection.

Institutional controls applicable to supplemental standards properties include:

- Radiological monitoring of Monticello city streets and utility excavations.
- Radiological monitoring of Highways 191 and 491 excavations.
- Prohibition of soil removal from supplemental standards areas.
- Prohibition of overnight camping in specified supplemental standard areas.
- Prohibition of use of shallow alluvial ground water for human consumption.
- Prohibition of construction of habitable buildings within supplemental standards areas.

1.0 Introduction

In 1941, the Vanadium Corporation of America constructed a mill in Monticello, Utah, to provide vanadium during World War II. Numerous ores, including uranium, were processed at the Monticello millsite. Mill operations were terminated in 1960, leaving behind approximately 2.5 million cubic yards of low-level radioactive mill tailings and contaminated soils. Contamination from the mill tailings resulted in the establishment of two National Priorities List (NPL) sites: the MMTS and the MVP site. These sites were remediated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Uranium mill tailings and contaminated soils were removed from the MMTS and MVP site and placed in a repository located near MMTS. In some locations, contaminated material was left in

place in compliance with supplemental standards codified at Title 40 *Code of Federal Regulations* Part 192.21. These locations are known as supplemental standards properties.

Remediation of soils from the MMTS and MVP sites was completed by August 1999, and the repository was closed in October 1999. The repository cover was seeded and planted in April and May 2000. Deletion of the MVP site from the NPL became effective February 28, 2000. Restoration of the former millsite was completed in July 2001, with the exception of seeding, which was completed September 2001.

Remediation of the MMTS was conducted under the Monticello Remedial Action Project, and remediation of the MVP site was conducted under the Monticello Vicinity Properties Project. Long-term stewardship of the projects was transferred to the Long-Term Surveillance and Maintenance Program on October 1, 2001.

In December 2003, DOE formally established the DOE Office of Legacy Management (LM). The LM mission includes "...implementing long-term surveillance and maintenance projects at sites transferred to LM to ensure sustainable protection of human health and the environment." All work performed at the Monticello sites is now conducted under the LM program.

The purposes of the inspection were to confirm the integrity of visible features (such as fences, monuments, drainage channels, dams, ponds, and buildings) at the site, document the site condition subsequent to remediation and restoration, identify changes in conditions that may affect site integrity, determine if institutional controls are adequately implemented, and determine the need, if any, for maintenance or additional inspections and monitoring. This report presents the findings of the DOE annual inspection of the MMTS and MVP site and includes recommendations for further action (see Section 3.0).

Two LM representatives monitor the sites to ensure that requirements identified in the *Monticello Long-Term Surveillance and Maintenance Administrative Manual* (DOE-LM/GJ920-2005, Revision 1) are met. The LM representatives are full-time employees permanently assigned to the site.

The following personnel from S.M. Stoller, the LM Contractor at the DOE office in Grand Junction, Colorado, conducted the inspection on September 14–15, 2005:

T. Kirkpatrick (Chief Inspector)
M. Kastens (Assistant Inspector)
F. Pearl (Assistant Inspector)

The following support personnel from S.M. Stoller were present during the inspection:

J. Slade (LM representative)
T. Moon (LM representative)

The following personnel observed the inspection and provided oversight:

A. Kleinrath—U.S. Department of Energy
P. Mushovic—U.S. Environmental Protection Agency
J. Silvernale—U.S. Environmental Protection Agency
D. Frey—U.S. Environmental Protection Agency
D. Bird—Utah Department of Environmental Quality

The inspection was conducted in accordance with the *Monticello Long-Term Surveillance and Maintenance Operating Procedures for Annual Inspections and CERCLA Five-Year Reviews* (GJO-2001-222-TAR, April 2002), which was established to comply with requirements of CERCLA, (Title 42 *United States Code* Section 9605), as amended by the Superfund Amendments and Reauthorization Act of 1986. In addition to this document, annual inspection requirements listed in the *Monticello Long-Term Surveillance and Maintenance Operating Procedures for Surface and Ground Water* (DOE-LM/GJ900-2005) were also followed. The requirements of CERCLA for the MMTS and MVP site are implemented through a Federal Facilities Agreement (FFA).

2.0 Inspection Results

[Figure 1](#) shows the location of the MVP and MMTS site. Repository features are shown on [Figure 2](#), and [Figure 3](#) depicts the former millsite and piñon/juniper supplemental standards areas. Figures 2 and 3 contain photograph locations (PLs). Section 4 of this report contains noteworthy photographs taken during the inspection. Additional photographs not included in this report are filed in the LM records. The Annual Inspection Checklists completed during the inspection are summarized in [Appendix A](#). [Appendix B](#) contains the data from the survey of the settlement plates located on the repository.

2.1 Repository

2.1.1 Specific Site Surveillance Features

Access Road, Gate, Fence, and Entrance and Perimeter Signs

The site is reached by driving south from Monticello, Utah, on State Highway 191 for approximately 1 mile, turning east on a paved road, and traveling a short distance to the entrance gate. The LM representative locks the entrance gate to the access road every night. The gate is in good condition. Passing through this gate provides access to the office complex. Office buildings are kept locked at night.

The perimeter fence delineating DOE-owned property is a conventional barbed wire stock fence. Fences along the north and east boundaries are in excellent condition. Fences along the west and south boundaries are older and in need of maintenance but remain in fair condition. An erosion gully (PL-1) (see [Figure 2](#), Inspection Report Location [IRL] 1) has formed along one section of the west fence near perimeter sign P1. The cause of the erosion was determined to be runoff from Highway 191. DOE, EPA, and UDEQ agreed that erosion control measures were not warranted and that the fence should be maintained as a physical barrier to humans. If the fence becomes

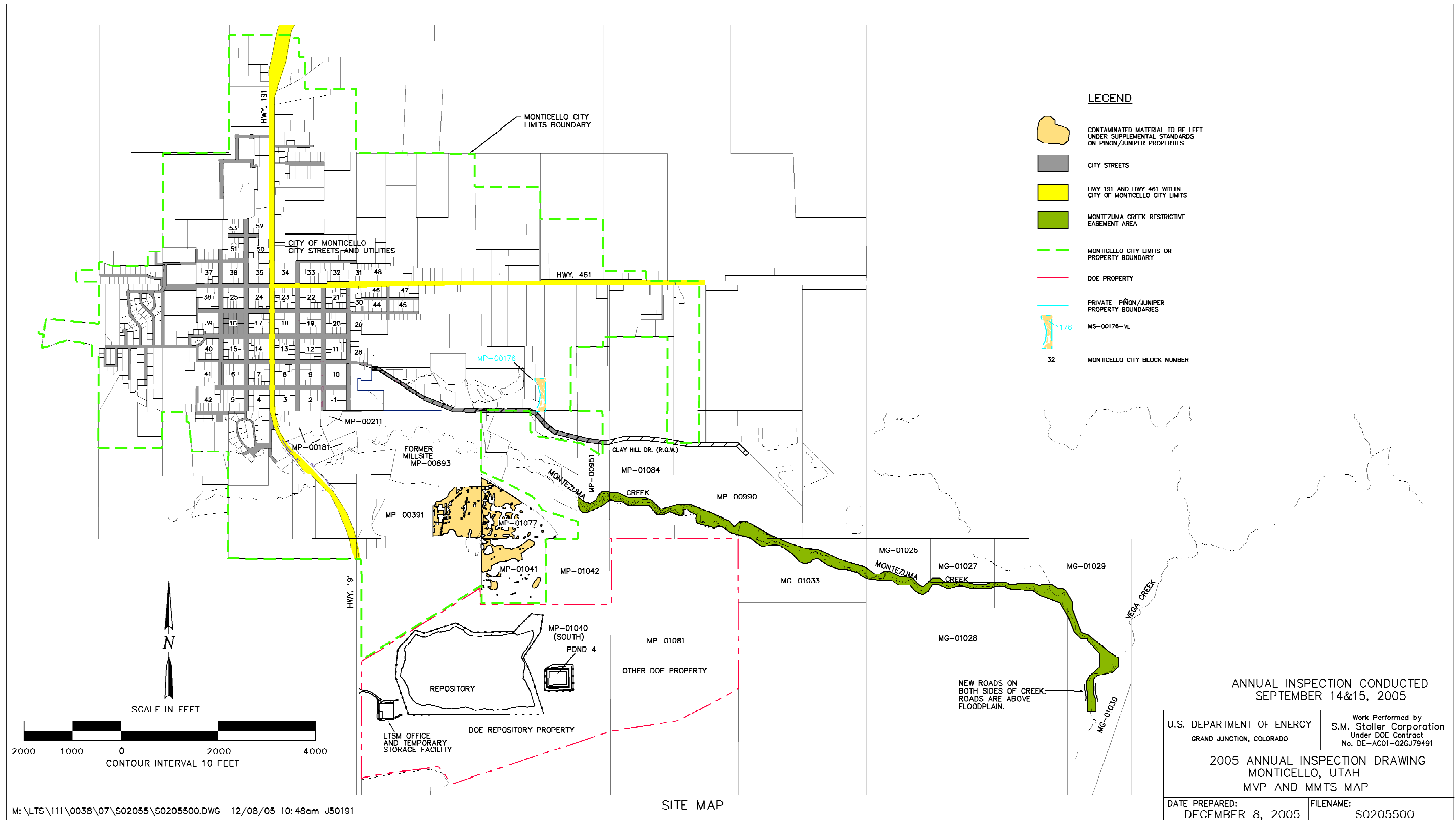


Figure 1. MVP and MMTS Map

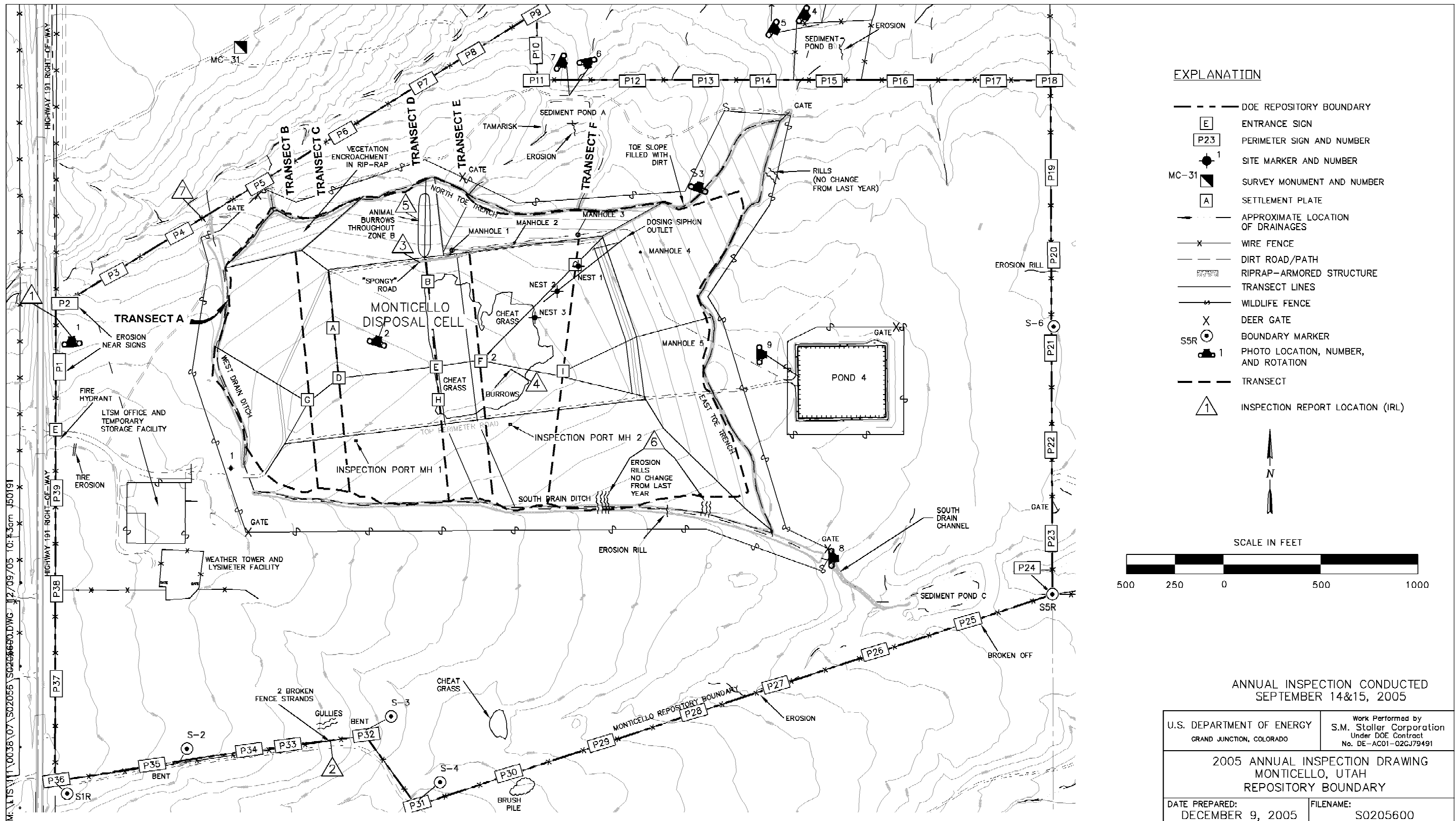
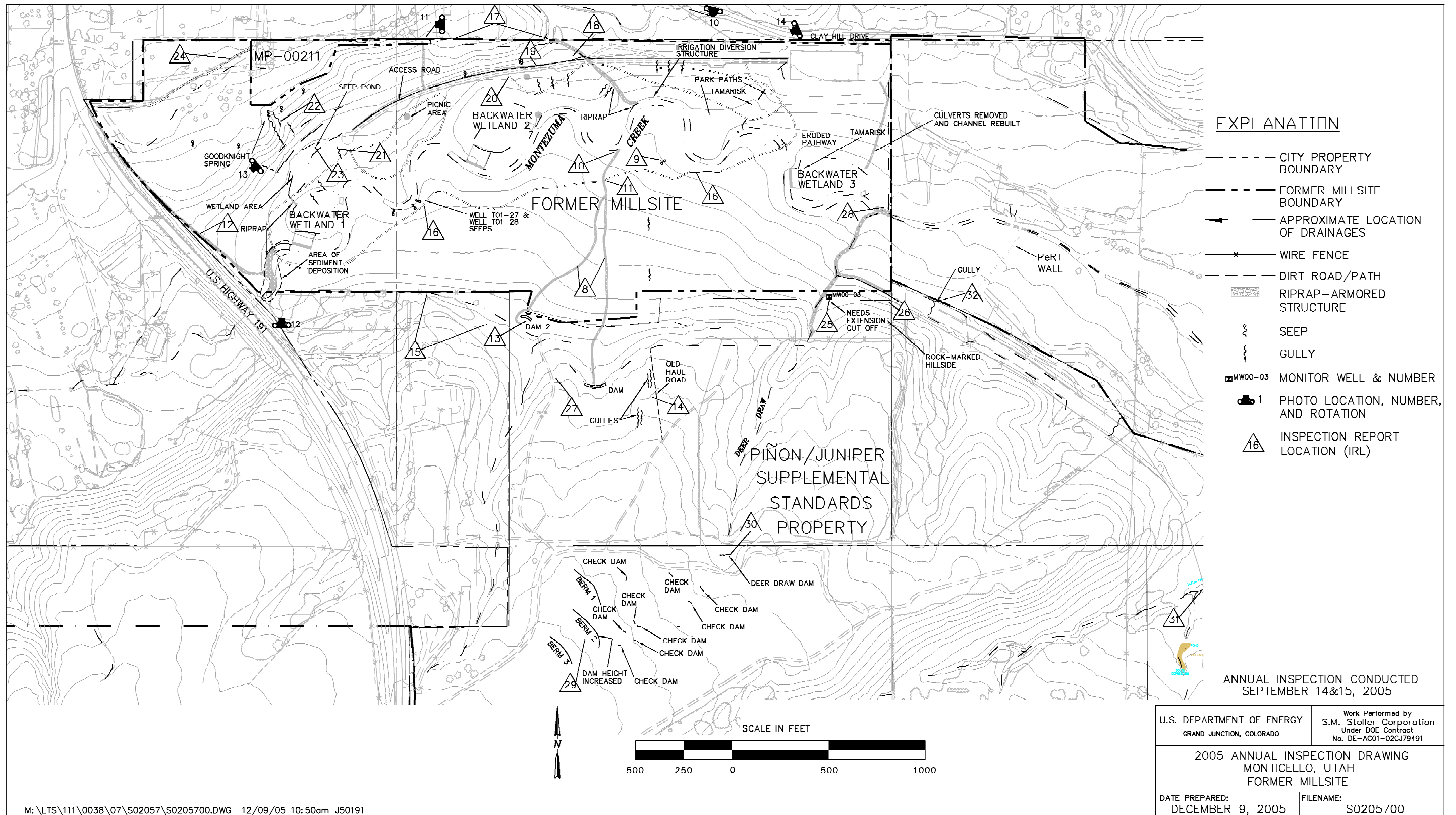


Figure 2. Monticello, Utah, Repository Boundary



EXPLANATION

- CITY PROPERTY BOUNDARY
- FORMER MILLSITE BOUNDARY
- APPROXIMATE LOCATION OF DRAINAGES
- WIRE FENCE
- DIRT ROAD/PATH
- RIPRAP-ARMORED STRUCTURE
- SEEP
- GULLY
- MW00-03 MONITOR WELL & NUMBER
- 1 PHOTO LOCATION, NUMBER, AND ROTATION
- 16 INSPECTION REPORT LOCATION (IRL)

ANNUAL INSPECTION CONDUCTED
SEPTEMBER 14&15, 2005

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AC01-02GJ79491
2005 ANNUAL INSPECTION DRAWING MONTICELLO, UTAH FORMER MILLSITE	
DATE PREPARED: DECEMBER 9, 2005	FILENAME: S0205700

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Figure 3. Monticello, Utah, Former Millsite

irreparable, it will be relocated a few feet to the east on DOE property. One section of fence near perimeter signs P32 and P33 (see Figure 2, IRL 2) has two broken strands of wire and will be repaired. Tumbleweed accumulations noted in the 2004 annual inspection report had been removed. Tumbleweeds do not appear to be a significant problem this year. With the exception of the gate at the site entrance at Highway 191, field gates in the perimeter fence do not have locks. Access through these gates does not result in access to the repository or the Temporary Storage Facility (TSF). Interior fences restrict access and secure the repository and TSF.

During the inspection, most of the signs on the perimeter fence were in good condition. The LM representatives routinely repair wind-damaged signs. Perimeter sign P24 is the only sign in need of replacement. The inspector noted that a sign exists that is not on the inspection drawing. The inspection drawing has been updated to show all 40 signs. To be consistent with other LM-50 sites, the entrance sign (which contains more information than other perimeter signs) is labeled "E" and the other signs are labeled P1-P39.

The fence surrounding the repository is 8-feet high with double gates on the west and east boundaries. The fence is in good condition; there was no evidence of vandalism or damage. Gates are locked except when the repository is occupied. In 2005, DOE replaced the one-way deer gates with conventional chain link gates. These gates are locked.

The dirt road that leads from the office area to Pond 4 along the outside of the repository's south perimeter fence is in good condition. The road was graded and water bars were installed during the summer of 2005 to control storm water runoff.

The inspector located survey marker S2 between perimeter signs P34 and P35 and noted that it was not listed on the inspection drawing. The location of S2 has since been placed on the inspection drawing. Survey marker S6 was not located.

Site Markers

Two granite site markers, one just inside and north of the entrance gate and the other on the disposal cell, are undisturbed and in excellent condition.

Settlement Plates

Nine settlement plates, identified by the letters A through I, are located on the repository and are in excellent condition.

Data from elevation surveys of the settlement plates indicate no evidence of settling. Beginning in July 2004, the frequency of surveys was switched from quarterly to an annual basis. The last survey was conducted June 29, 2005. Settlement plate survey data are provided in Appendix B.

Monitoring Wells

There are no monitoring wells within the repository boundaries.

Manholes

There are five manholes within the repository boundary; all were in good condition. The manholes were not entered at the time of the inspection. Inspectors noted that signs on Manhole #5 have faded and will be replaced. No other maintenance items were identified.

At the time of the 2005 inspection, all aspects of the telemetry system were working properly, with the exception of the flow meter in LCR 1. The flow meter problem has been identified in previous inspections. The LM representative explained that the maximum pump rate multiplied by the pumping time is used to determine the volume of water pumped from LCR 1. DOE will install a municipal water meter in LCR 1 by December 31, 2005 to provide accurate water production data.

The LM Representative stated that currently no water is pumped from the repository LDS and that approximately 12,000 gallons of water (from the LCRS 1 and LCRS 2 combined) is pumped to Pond 4 per week. Records of water production and maintenance on the system are included in the Federal Facility Agreement report to the EPA and UDEQ.

2.1.2 Transects

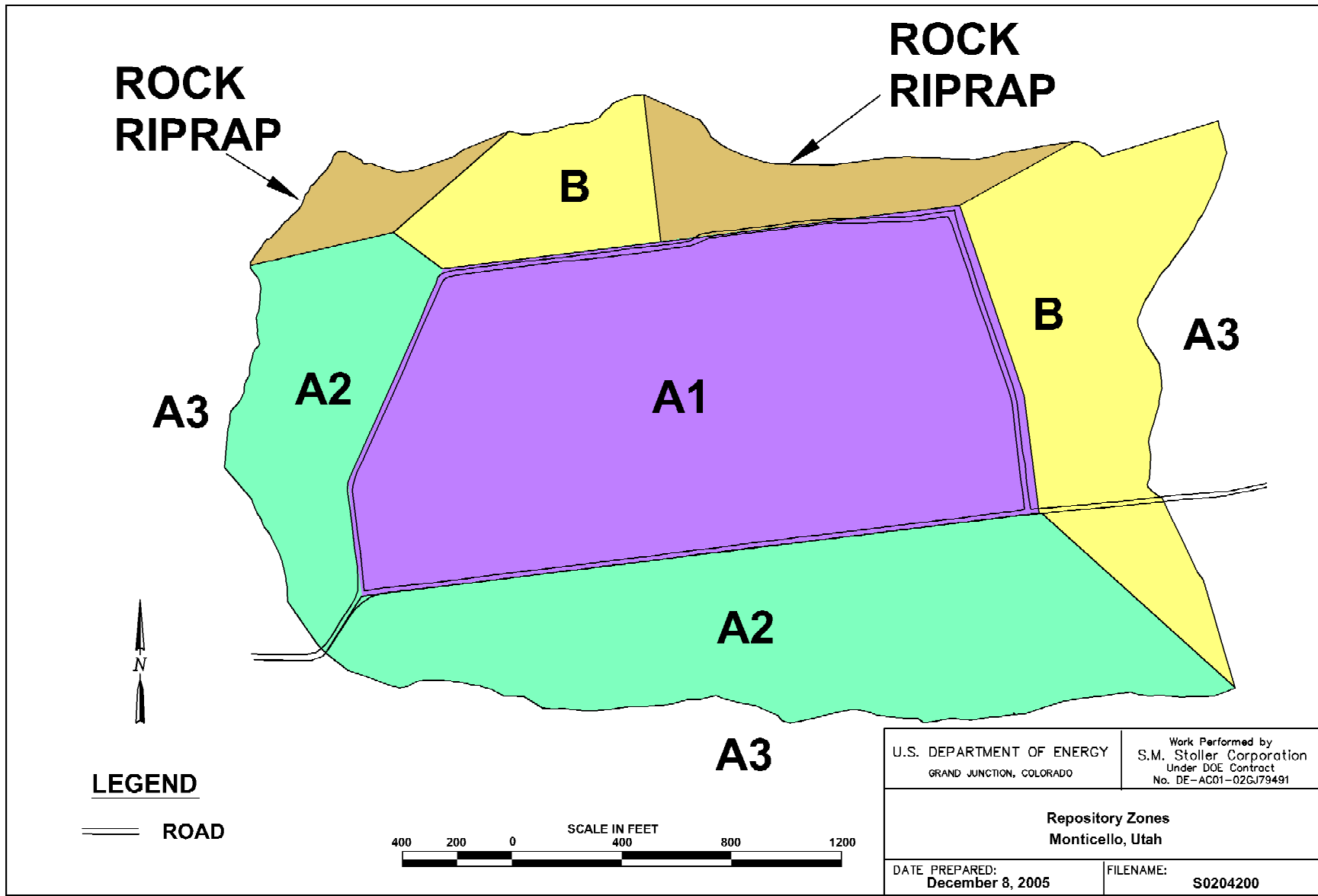
To ensure a thorough and efficient inspection, the repository was divided into areas referred to as transects as shown on [Figure 4](#). Inspectors walked each transect to ensure a thorough inspection.

Top of Disposal Cell

Success criteria for revegetation of the repository cover are outlined in Section 02901 of the *Monticello Remedial Action Project, Operable Unit I, Millsite Remediation Construction Specifications* (DOE 1995, revised November 1999 to include Construction Interface Document Number 264 pertaining to Section 02901; prepared by MACTEC-ERS for the U.S. Department of Energy Grand Junction Office, Grand Junction, Colorado). Repository zones are depicted in Figure 4.

The top of the disposal cell was seeded with native grasses, forbs, and shrubs, and planted with sagebrush seedlings in late April/early May 2000. From 2001 to 2003, the vegetative cover was dominated by weedy species. By 2004 and 2005, plant cover and diversity had improved. However, several concerns continue to exist: (1) the cover continues to be dominated by cheatgrass (*Bromus tectorum*), an annual weedy species, in many areas; (2) the density of shrubby vegetation is less than 10 percent of the success criterion for Zone A1 and only 25 percent of the success criterion for Zone B; and (3) the relative cover of forbs in Zones A1 and A2 do not meet success criteria and do not appear to be increasing over time.

Given the progress of revegetation since 2000, reclamation specialists believe that many of the vegetative cover requirements, particularly shrub density, are not likely to be met soon. In 2004, EPA's soil scientist recommended that no action involving mechanical disturbance of the soil be taken for a minimum of 1 to 2 years. However, he agreed broadcasting appropriate seed that could compete with cheatgrass might be beneficial. He also believed that annual weed cover would diminish and shrub density would increase over time. In response to the specialists' concerns about shrub density and cheatgrass cover, DOE over-seeded a native seed mix in April and July 2005 in Zone A1 and in the east portion of Zone B. The seed mix was composed of one



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Figure 4. Repository Zones

grass species—bottlebrush squirreltail (*Elymus elymoides*), which is known to compete with cheatgrass—and several shrub species. It will take a number of years to determine if the over-seeding positively affects plant cover at the site. EPA requested that DOE project personnel discuss shrub density with scientists from Stoller’s Environmental Sciences Laboratory (who are currently conducting soil water studies on the repository cover) to determine if the low density of shrubs was in part causing a build up of soil moisture above the capillary break.

During the 2005 inspection, inspectors noted positive evidence that cheatgrass cover would likely decrease naturally over time. In areas where cheatgrass had previously formed a monoculture, desirable, perennial grass species were encroaching and out-competing cheatgrass for available moisture. Photo PL-2 shows a perennial crested wheatgrass plant in the middle of a stand of cheatgrass. Immediately surrounding the wheatgrass is a “ring” within which no cheatgrass had established. It is believed that cheatgrass could not compete with the wheatgrass within this “ring” because of moisture requirements or plant chemical/biological influences. These perennial species (islands) will increase as desired species outcompete the weedy annual species. This understanding is the basis for EPA’s soil scientist’s recommendation for no mechanical disturbance in 2004.

DOE, EPA, and UDEQ recommend that contractor personnel continue to monitor vegetative cover annually and continue to analyze vegetative trends. Results of the 2005 monitoring will be summarized and compared to success criteria in a separate report that is submitted to EPA and UDEQ. DOE will prepare a report annually.

Overall, the top of the disposal cell is in good condition. No settling, slumping, or significant erosion was observed. As in previous years, small erosion rills were observed adjacent to the gravel road on the north side of the repository (between Zones A1 and B). The rills were formed as a result of storm water running off the compacted surface of the road. Inspectors also discovered that runoff water had flowed beneath the geofabric underlying the road surface on the north side of the cell and washed out the fine-grained material (see Figure 2, IRL 3). The road is “spongy” in several locations, as the geofabric now spans the cobbly material beneath it. No maintenance action is required for any of these features; however, inspectors will continue to monitor them. In an area south of settlement plate F (see Figure 2, IRL 4), many animal burrows, some up to 6 inches in diameter, have been noted in the past and were noted again in 2005. These features will be monitored during subsequent inspections. EPA requested project personnel to discuss the animal burrow issue with the Environmental Sciences Laboratory scientists to determine if the burrows represent a concern for cell integrity.

In Zone B, where 6 inches of soil was placed directly over riprap during cell construction, inspectors noted small holes in the surface where animals had burrowed or soil had “washed” through the underlying rock. Soil “piping” was also evident in these areas (see Figure 2, IRL 5). These features also do not present a problem but will be monitored.

The five-to-one and ten-to-one side slopes of the repository are covered with rock armor. The side slopes are in excellent condition. No evidence of rock movement or degradation, settling, slumping, or erosion was observed. In areas adjacent to Zones A1 and A2, topsoil has eroded into the riprap interstices. Inspectors also noted that herbaceous and woody plants are encroaching into riprap-covered areas. Neither of these natural processes is a concern.

Drainage Channels

Drainage channels along the southern and western edges of the repository were constructed to remove storm water and limit erosion from the repository. As noted in the 2001 Annual Inspection Report, the rock used to construct these channels was degrading. In July 2002, rock armor meeting durability specifications was placed in the channels. The newly placed rock extends the armor up the sides of the channels to maintain design capacity. At the time of the 2005 annual inspection, the rock channels within the repository fence were in excellent condition.

The south drainage channel is in excellent condition. As noted in the 2004 Annual Inspection Report, erosion rills on the north side of the south drainage channel (see Figure 2, IRL 6) appear to be stabilized by plant growth. These rills, generally 2 inches wide and 2 inches deep, will be inspected in the future to verify they have stabilized. Some gullies were up to 6 inches deep and 12 inches wide. They are outside the footprint of disposed tailings and do not affect the integrity of the disposal cell. Inspectors noted that there was no apparent change in the condition of the erosion rills in 2005. These rills and gullies are not currently considered a problem, but they will continue to be monitored. A rock-lined extension of the south drainage channel is discussed in the Sediment Ponds section of this report.

As noted in the 2001 Annual Inspection Report, the west drainage channel eroded significantly at the steep slope of the north end of the channel. The erosion was repaired, and the rock-armored channel was extended to North Draw in September 2002. The channel extension has enough capacity and is constructed of adequately sized rocks to accommodate anticipated storm water discharge. At the time of the 2002 inspection, EPA was concerned that a grade change and a vehicle crossing constructed in the drainage channel (see Figure 2, IRL 7) would create hydraulic jumps that could result in channel scouring. It was agreed that no corrective action was required; however, the channel will be monitored to determine if scouring occurs. No scouring was observed during the 2005 inspection; the west drainage channel is in good condition.

Toe Trenches

Toe trenches were placed to the north and east of the repository to mitigate headward erosion. Rock in the north and east toe trench is degrading. Sediment has filled in the interstitial spaces of the rock and vegetation is becoming established (PL-3). No erosion is occurring near these trenches. Rock of greater durability has been stockpiled on site to overlay the trenches. The trenches do not need to be overlain at this time. Currently, there is no need for maintenance of these toe trenches; however, they will continue to be monitored to determine if erosion occurs. Should erosion occur, the trenches will be overlain with the stockpiled rock.

Sediment Ponds

Sediment Ponds A, B, and C are outside the repository. They are designed to control storm water runoff from the repository and supporting areas. Each pond has a standpipe with a gravel filter at the base to remove sediment and allow storm water to pass without permanently detaining it. Each pond also has a rock spillway in case the pond overflows.

The dry condition of all three ponds indicates the standpipes are functioning properly. The lid on the standpipe in Sediment Pond C is ajar and needs to be readjusted. There was no evidence of water reaching the spillways. All three spillways were in good condition. The control of tamarisk (*Tamarix ramosissima*), an undesirable shrub species, is an on-going maintenance item. Although tamarisk had been removed from Sediment Ponds A and B previously, it was found growing in Sediment Pond A again. The LM representative will cut the plants and apply herbicide to the stalks to prevent the species from proliferating.

Gullies were noted on the south side of Sediment Pond A and the southeast side of Sediment Pond B. Inspectors noted these gullies in previous years and have determined that they will continue to be monitored but that intervention is not yet warranted. To facilitate monitoring of these gullies, baseline photographs of the gullies were taken in 2004. Photographs from these same locations were obtained in 2005. A comparison of the photographs from 2004 and 2005 demonstrate that the gullies are stable (PL-4 through PL-7) and repair is not needed at this time. Monitoring of these gullies will be conducted in subsequent annual inspections.

Previous inspections noted that the south drainage channel outside the repository fence was inadequate but DOE had not committed to reconstructing the channel. During the 2005 inspection, DOE agreed to reconstruct the channel during the current fiscal year. A track hoe was mobilized to the site on September 26, 2005. The channel was reconfigured into a trapezoidal shape and widened at the top to capture runoff water originating south of the repository fence. The rebuilt channel is shown in PL-8.

Sediment Ponds A, B, and C are in excellent condition. Other than continued control of tamarisk and the adjustment of the lid on the standpipe in Sediment Pond C, no maintenance issues have been identified.

Outlying Area

The reclaimed areas south and east of the disposal cell within the repository fence were inspected for revegetation success and erosional features. Overall, revegetation of these areas has been successful.

2.2 Temporary Storage Facility (TSF)

The TSF is outside the repository but within the perimeter fence. It is a gravel-surfaced storage area with a three-sided concrete bin, rolloff bins, drums, and a wooden building. An 8-foot chain link fence restricting access surrounds the TSF.

The fence and gate are in excellent condition. The concrete bin, rolloff bins, and drums also are in excellent condition. A removable, metal cover was constructed over the concrete bin in the fall of 2003. This cover is in excellent condition and has been functioning well throughout the year. At the time of the inspection, the TSF was approximately 30 percent full of contaminated material in storage. Operating procedures require a shipment to be made from the TSF when it reaches 75 percent capacity; therefore a shipment is not required at this time.

Inspectors noted weeds growing within the TSF. Control of weeds is an on-going maintenance item. Weeds will be controlled periodically through the application of herbicides and/or mechanical removal.

A review of the Temporary Storage Facility Record Book verified general compliance with LM procedures. Training records were available and training was up to date. No compliance or maintenance issues with the TSF were identified during the 2005 inspection.

2.3 Pond 4

Pond 4 is an evaporation pond that collects water pumped from the repository leachate collection and removal system and from the repository leak detection system. Pond 4 is depicted on Figure 2.

2.3.1 Specific Site Surveillance Features

Access Road, Gate, Fence, and Entrance and Perimeter Signs

An 8-foot fence surrounds the pond. Access to the pond is through a vehicle gate on the west side of the fence. Deer gates located at the northeast and southwest corners of the fence were replaced with chain link fence gates in 2005. These gates are locked. The fence and gates are in excellent condition. The vehicle gate is kept locked except when personnel are working within the Pond 4 boundary. Warning signs on the perimeter of the facility are in good condition. Radiological contamination signs and a rope barrier delineate the pond within the security fence. The rope barrier was stretched tight and warning signs were in place.

Electrical Panel

An electrical panel in the northwest corner of the Pond 4 area is in good condition. The doors covering the panel were closed.

Lifesaving Stations

Four lifesaving stations are positioned around the pond. These stations contain buoys, life jackets, and ropes. The stations were in good condition. Wasps were found inside the lifesaving station cabinets in previous inspections, but none were observed this year due to routine insecticide spraying. Each cabinet contains mouse poison, but mouse droppings were still present in the cabinet on the northwest corner of the pond. The cabinets will be cleaned of mouse droppings and disinfected; precautions against Hantavirus will be taken during this maintenance activity.

2.3.2 Transects

All areas of Pond 4 are visible from the berm that forms the pond. The inspection team walked along the berm in its entirety.

No holes or evidence of holes in the pond liner were observed. The water level in the pond is low with only about one-half of the pond floor under water (PL-9).

Sandbags attached to ropes anchored on the berm were installed during construction to hold the liner down. The individual segments of the liner have been welded in place. Many of the sandbags have ruptured and many of the ropes are of questionable integrity. A few gravel-filled polypropylene pipes have been installed instead of sandbag rows. As noted in previous inspections, this method of holding down the liner appears to be effective, but installation of pipes has not kept up with loss of sandbag rows. At a minimum, 14 gravel-filled pipes will be installed by June 15, 2006. Four pipes will be installed on both the north and south sides; three pipes will be installed on both the east and west sides.

Unlike 2004 when the Leachate Collection and Removal System (LCRS) pump was inoperable for a period of time, the LCRS sump remained at a low level. Consequently, no water collected in the Leak Detection System (LDS) in 2005. Telemetry system data, which are provided in Federal Facility Reports, verify that the LDS did not collect water in 2005.

Tamarisk growing in sediment in the bottom of Pond 4 was cut and sprayed with herbicide in 2005. No tamarisk was observed growing in Pond 4 at the time of the inspection. Control of tamarisk plants and noxious weeds is an on-going site-wide maintenance item. DOE will continue to routinely control tamarisk and noxious weeds.

No evidence of the berm slumping or erosion was observed. The vegetative cover on the out slopes of the pond is in excellent condition.

House keeping is an issue at Pond 4. Inspectors found unused ropes and polypropylene pipes scattered on the berm of the pond. Tripping hazards exist. The Pond 4 area outside of the radioactive area boundary rope will be cleaned up.

2.4 Former Millsite

Former millsite features and photograph locations are shown on Figure 3.

When surface/soil contamination removal activities were concluded, DOE transferred the former millsite and other DOE-owned property to the City of Monticello for final restoration. Under the terms of the cooperative agreement, the following restrictions apply to the former millsite property: the property is for public recreational use only, no habitable structures shall be constructed, water wells shall not be constructed in the shallow alluvial aquifer, and overnight camping is not allowed.

DOE is responsible for ensuring establishment of wetlands and for the enforcement of land use restrictions identified above. DOE also remains responsible for addressing, if necessary, ecorisk concerns within the wetlands (i.e., selenium contamination in water and sediment). DOE also remains responsible for COCs in ground water.

This property was reconstructed by the City of Monticello in accordance with the millsite restoration design. It was seeded in the fall of 2001; at the time of the 2005 inspection, vegetation was successfully established in most areas. Vegetative cover was sparse on the steeper side slopes and in gullied areas. EPA and DOE identified a number of erosion issues during the 2002, 2003, and 2004 inspections. A few additional erosion concerns were identified in 2004.

In 2005, DOE completed unfinished restoration work at the millsite and repaired damage caused by erosion. During the September 2005 annual inspection, additional items were identified that needed repair. DOE completed repair of the additional items by September 30, 2005.

The following is a summary of the maintenance items identified during the 2004 and 2005 annual inspections and the current status (as of September 30, 2005) of the repair.

- Two major drainage channels/gullied areas (see Figure 3 for location of channels) had transported runoff from the former topsoil borrow area south of the millsite to Montezuma Creek. The City of Monticello had lined portions of these channels with angular riprap in fall 2003; however, the job was left unfinished, with the down gradient portions of the channels left unlined. Inspectors and EPA/UDEQ representatives noted that newly placed rock did not form a defined channel; as a result, gullies from recent storms had formed adjacent to the riprap. The two drainage channels joined just above the walking path. Two 18-inch culverts had been installed beneath the path to allow runoff within the channel to flow under the path and directly into Montezuma Creek. Runoff waters had eroded the area around the culverts. Installation of larger and/or additional culverts (or, as originally recommended, a foot bridge) was recommended. The EPA representative also recommended the drainage channel below the culverts be constructed and armored so that runoff waters did not “jump the ditch” and flow directly into Montezuma Creek. Where the channel enters the creek (in an easterly direction), the existing riprap was to be removed (see Figure 3, IRL 9), a trapezoidal channel was to be constructed, and new riprap was to be carefully placed.

In June 2005, these channels were reconstructed into a trapezoidal channel (PL-10) and a new entrance (see Figure 3, IRL 10) into Montezuma Creek was established in lieu of rebuilding the former entrance into the creek. The culverts in the walking path were removed. Repair of the channels is complete with the exception of installing a bridge over the footpath. Installation of the bridge is the City’s responsibility.

- The rock-lined drainage channel adjacent to Highway 191 embankment needed to be reshaped into a trapezoidal configuration (see Figure 3, IRL 12).

This work was completed in June 2005.

- The small retention pond on MP-00391 (see Figure 3, IRL 13) was inadequately constructed and too small. Representatives from EPA/UDEQ recommended constructing a larger pond and dam upstream of the existing retention pond.

The pond was enlarged and a rock-lined spillway was added in June 2005. This work is complete.

- In an effort to prevent gullying of the road leading to the MP-00391 retention pond (see Figure 3, IRL 14), DOE had recently bladed a small drainage ditch along the road and placed riprap in it for stability. Inspectors noted that the newly placed riprap filled the ditch and likely would redirect runoff to the road surface rather than into the ditch. A more defined ditch needed to be constructed.

In June 2005, drainage ditches along the road were reconfigured and now direct storm runoff away from the road. This work is complete.

- Overland runoff from the Christensen property had formed gullies on the southwestern millsite slope (see Figure 3, IRL 15). Inspectors and EPA/UDEQ representatives concurred that runoff from the Christensen property needed to be controlled and re-routed if future erosion was to be avoided.

In June 2005, the ditch through Christensen's property to Montezuma Creek near Highway 191 was reconstructed. Erosion gullies were repaired. This work is complete.

- Runoff from upland areas was eroding the walking path at numerous locations. On the south side of Montezuma Creek, the City had bladed the walking path, more than doubling its width and creating new drainage/erosion problems in numerous areas (see Figure 3, IRL 16). The path needed to be re-covered with gravel in the newly bladed areas, and drainage features needed to be properly installed, or alternatively, the path was to be relocated per the City's design engineer's September 2005 memorandum.

No work has been completed on this item. It is the City's responsibility to complete this item.

- Runoff and sediment from the Blue Mountain Meats (Frost) property north of the millsite had destroyed the integrity of the run-on diversion ditch along the north boundary of the millsite (see Figure 3, IRL 17); runoff had overflowed the ditch and formed gullies on the millsite side slope. Sediments needed to be removed, and the ditch needed to be reconstructed and maintained on a regular basis.

In June 2005, the ditch was reconstructed with a concrete retaining wall and an overflow spillway leading to a rock-lined channel. A 24-inch pipe also was installed on Frost's property to carry water to the concrete retaining wall. Inspectors noted that rocks and trash obstructed the ditch just east of the concrete retaining wall. The obstruction and silt were removed from the ditch by September 30, 2005 (PL-11). Repair items have been completed at this location. Keeping the ditch clean is an on-going maintenance item that is the responsibility of the City.

- Runoff had overflowed the rock drainage channel between Steele's property (north of the millsite) and Montezuma Creek because vegetative debris had collected in and clogged the channel (see Figure 3, IRL 18); as a result, gullies formed on the millsite side slope. Water had also been observed flowing under and bypassing the culvert at the road crossing. This channel needed to be maintained, the gullies needed to be repaired, and the culvert at the road crossing needed to be repaired.

The channel was cleaned and reshaped and the space beneath the culvert was sealed with concrete in June 2005. The gullies also were filled with topsoil and reseeded at that time. This work is complete but the condition of the culvert should be monitored by the City of Monticello as noted in their maintenance plan.

- The drainage ditch adjacent to the millsite access road (see Figure 3, IRL 19) had filled with sediment in the area west of Steele's rock drainage channel. As a result, runoff had overflowed the ditch and formed gullies below the road. This ditch needed to be maintained.

This ditch was cleaned and the gullies were repaired in June 2005. Maintenance of the ditch is the responsibility of the City.

- Two small culverts were installed in the ditch north of the millsite access road (see Figure 3, IRL 20). These culverts, which are inlets to the culvert beneath the road, are susceptible to clogging and should be monitored routinely. The City of Monticello is responsible for monitoring these culverts and conducting necessary maintenance.
- Immediately west of the millsite access road turn-around, a silt fence had caused runoff waters to form gullies in the upland side slope.

The fence was removed, and the gullies were repaired in June 2005.

- Large gullies had formed on the side slope below Goodknight Spring (see Figure 3, IRL 22), and sediment had been deposited in the Seep Pond wetland (see Figure 3, IRL 23). The sediment was negatively affecting the wetland area by raising the surface elevation and lowering the water table (relative to the soil surface). Reconstructing the original ditch from 2nd East to Highway 191 (above Goodknight Spring) would have alleviated most of the run-on into this area.

In June 2005, the ditch from 2nd East to Highway 191 was rebuilt, and the gullies were filled and reseeded. Inspectors noted new gullies forming in the same locations. Ditches were placed at the top of the hill in September 2005, and straw bales were placed across the steep slope to divert water to areas with established vegetation (PL-12 and PL-13).

- A large gully had formed on the side slope below Highway Seep (see Figure 3, IRL 23), and sediment had been deposited in Backwater Wetland #1. The sediment had negatively affected the wetland area by raising the surface elevation and lowering the water table (relative to the soil surface); the area of sediment deposition did not meet the criteria for wetland. Further deposition needed to be prevented in this area to avoid affecting the remaining wetland area. Removal of the current sediment deposit was not recommended at the time because of its relatively small and insignificant size (i.e., restoring this area to wetland would not significantly affect the total wetland acreage on the millsite).

In June 2005, the ditch from 2nd East to Highway 191 and the Highway 191 ditch (see Figure 3, IRL 24) were rebuilt, which helped reduce the amount of runoff entering Backwater Wetland #1. In addition, natural revegetation of the side slopes has reduced runoff into the wetland. This work is complete.

- Large gullies had formed on the side slope above Backwater Wetland #1; the ditch above the walking path needed to be re-sized to handle runoff.

In June 2005, the ditch above the walking path was re-sized. This item is complete.

- Riprap below culverts installed beneath the walking path (immediately northwest of Backwater Wetland #1) had “blown out” from excessive runoff. Flows above the culvert needed to be rerouted.

Reconstruction of the ditch from 2nd East to Highway 191 has greatly reduced the volume of storm water seen here. Riprap was re-installed in June 2005. This work is complete.

- The City did not finish the construction work required to direct Deer Draw flows into the rock-lined drainage ditch. The ditch along the north side of the fence (see Figure 3, IRL 25) needed to be armored with rock. The culvert where Deer Draw crosses under the supplemental standards fence needed to be removed, and the drainage that collects water needed to be lined with rock. The rock drainage channel had been damaged by recent storms; the rock needed to be distributed evenly over the length of the channel to prevent hydraulic jumps from occurring. Tumbleweeds needed to be removed from the channel.

In June 2005, this work was completed. Inspectors noted that the ditch along the fence line above the repaired area had breached. Water at the top of the hill (see Figure 3, IRL 26) was redirected to the south toward Deer Draw in September 2005, and the ditch along the fence line was repaired. This work is complete.

- Water bars that were constructed on the former haul road on MP-00391 (see Figure 3, IRL 27) were inadequate, and gullies had formed. New water bars needed to be constructed.

In June 2005, water bars were reconstructed. This work is complete.

- Rock had been placed in the Montezuma Creek channel for use as a stream crossing at the east end of the millsite property (see Figure 3, IRL 28). EPA representatives wanted this feature removed because it was not part of the original design and, as constructed, restricted flow in Montezuma Creek. At that time, the channel area downgradient from the rock crossing was dry and rocky and did not support wetland vegetation. Removal of the rock from the channel may promote downstream wetland development as a result of the consequent lowering of the grade and raising of the water table (relative to the surface). It was not believed that the upstream wetland area would be affected significantly, as surface and/or subsurface moisture for hundreds of feet upstream of the rock crossing had been present since restoration was completed.

The rock plug was removed in June 2005. During the 2005 annual inspection, DOE, EPA, and UDEQ agreed that silt blocking the exit gallery of Backwater Wetland #3 should be removed to bring the elevation to design grade. This action would drain standing water from the wetland area and keep phreatophytic wetland species

(i.e., cattails) from being oversaturated. In September 2005, silt was removed from the exit gallery and from Montezuma Creek adjacent to the wetland. This work is complete.

DOE has discussed the need for a maintenance plan for the former millsite with the City of Monticello. DOE wrote a draft maintenance plan for the City, but the City needs to complete the plan and conduct all specified maintenance activities. DOE also discussed the condition of the walking paths with the City. The City needs to restore the walking paths to a useable condition and ensure that runoff control ditches and culverts are properly installed.

Several infestations of Canada thistle (*Cirsium arvense*), a Utah state-listed noxious weed, have been identified on the millsite property. Additionally, tamarisk has invaded many of the wetland and riparian areas throughout the millsite. Canada thistle and tamarisk were treated with herbicide in June and September 2005.

The former millsite and City-owned peripheral property is open to the public for recreational use, but there is little evidence of public use. A chain link fence was installed by the City of Monticello to isolate the former millsite access area and change the public access route. Under the terms of the National Park Service Land-to-Parks program, the City of Monticello was required to install an entrance sign denoting public access to the property. The City installed two signs in 2005, one at the former millsite access area (PL-14), and one near 2nd East Street.

There is no evidence of construction of habitable structures, construction of new water wells, or overnight camping on the former millsite.

2.5 Former Topsoil Borrow Site

DOE transferred the former topsoil borrow site, a tract of land between the millsite and repository site, to the City of Monticello after remedial action was completed. The site was regraded and seeded in fall 2001. The majority of the site was well vegetated by the time of the 2005 inspection. During the 2002 and 2003 inspections, numerous erosion issues had been identified by EPA and DOE. In response, DOE conducted erosion repairs at the site in August and September 2003. At the time of the 2004 inspection, only a few erosion issues remained. Following is a summary of those erosion issues and their status as of September 30, 2005.

- Three concentric, terraced berms (see Figure 3, IRL 29) were constructed on the contour in the southwest corner of the topsoil borrow site. One of these had been breached by stormwater runoff and needed to be repaired. During construction of the berms, they were not extended to the “high ridge” that lies in the eastern portion of the southwest corner. Gullies had formed in this area between the berms and the high ridge. It was recommended in 2004 that the berms be extended to the high ridge.

These berms were reconstructed in June 2005. During the 2005 inspection, it was determined that a low spot existed in Berm 2. In September 2005, soil was removed from the catchment basin, placed on the berm, and compacted. A transit was used to verify that the spillway, located on the east end of the berm, is now the low point of the berm.

- In 2003, sediments within the Deer Draw retention pond (see Figure 3, IRL 30) had been removed and placed on the downside of the dam face. It was recommended in 2004 that the dam be reconstructed to ensure maintenance-free operation in the future.

In June 2005, this pond was rebuilt. A larger culvert was installed, the capacity of the pond was increased, and riprap and erosion control fabric were installed around the intake of the culvert. Water bars were installed on the access road to divert runoff into the pond.

2.6 Government-Owned Piñon/Juniper Properties

Properties identified as MP-00391-VL, MP-01077-VL, MP-01040 (north), MP-01041-VL, and MP-01042 are shown on Figure 1. Upon completion of remedial action, DOE transferred these properties to the City of Monticello.

These properties were inspected for evidence of erosion, soil removal, overnight camping, and construction of habitable structures. In addition to these restrictions, shallow alluvial water wells are not allowed to be constructed on MP-00391-VL or MP-01077-VL. There was no evidence of soil removal, overnight camping, or construction of habitable structures. There was no evidence of construction of water wells on MP-00391-VL or MP-01077-VL. Monitoring for adherence to these land use restrictions will continue.

Unscheduled additional inspections of these properties and other supplemental standards properties are triggered by 25-year storm events. Weather data records located in the LM office were reviewed; there had been no 25-year storm events since the last annual inspection.

The portions of the supplemental standards properties where contamination has been left in place have been delineated with a four-strand barbed wire fence. Sediment Pond B also was fenced to limit human activity on the dam face and within the pond. The fences are in excellent condition.

There was no evidence of contaminated material being transported by humans from the supplemental standards properties. The 2004 Annual Inspection Report identified erosion gullies across the former haul road that needed to be repaired. The report also listed silt fences that should be removed. These maintenance items were completed in June 2005.

During the 2005 inspection, inspectors noted one gully entering North Draw (see Figure 3, IRL 31). In September 2005, storm water was diverted away from the gully at North Draw, and a rock check dam was placed in the gully. Repair of this gully is complete but it should be monitored in the future to ascertain success of the repair.

During the 2005 annual inspection, a gully across the former haul road (see Figure 3, IRL 32) was noted. In September 2005, the volume of water potentially entering this gully was reduced significantly by diverting runoff water upslope near its source (see Figure 3, IRL 26) into several directions. A series of straw bales were placed across the gully to slow the storm water and collect silt. This repair item has been completed and should be monitored in the future.

2.7 Privately Owned Piñon/Juniper Property

The only privately owned property to which supplemental standards have been applied is MS-00176-VL and is shown on Figure 1.

Property MS-00176-VL was inspected for evidence of erosion, soil removal, and construction of habitable structures. There was no evidence of soil removal, or construction of habitable structures. Inspectors noted evidence of storm water runoff through the site. The LM representative scanned the area on October 10, 2005, and determined that no radioactive material from the supplemental standards area is moving offsite. Monitoring for evidence of soil removal or erosion needs to be continued.

A special zoning district for this property has been approved by the City of Monticello and formalized with a zoning map overlay to ensure that habitable structures are not built on contaminated material.

One of the inspectors reviewed records in the San Juan County Clerk and Recorder's Office on September 15, 2005, and verified that MS-00176-VL had not changed ownership.

2.8 Soil and Sediment Properties

Soil and sediment properties are identified as MP-00951-VL, MP-00990-CS, MP-01084-VL, MG-01026-VL, MG-01027-VL, MG-01029-VL, MG-01030-VL, and MG-01033-VL. Portions of these properties are supplemental standards areas. Restrictive easements are in place prohibiting soil removal or construction of habitable structures. A Utah ground water management policy prohibits construction of water wells in the shallow alluvial aquifer within the supplemental standards areas.

The soil and sediment properties were inspected for evidence of erosion, soil removal, construction of habitable structures, and construction of water wells. There was no evidence of construction of habitable structures or construction of water wells within the shallow alluvial aquifer. With the exception of MP-01084-VL, there was no evidence of erosion or soil removal from these properties.

In 2002, the owner of property MP-01084-VL, which is used as a domestic elk ranch, breached an illegally constructed pond; the pond has not been reconstructed.

After the 2004 annual inspection, EPA, Utah Division of Natural Resources, and the MP-01084 property owner discussed the breached pond and stream bank condition. It appears that the property owner began to rotate use of the fenced-in pasture areas along the creek bank to alleviate some of the overgrazing. During the 2005 annual inspection, the property owner conveyed to EPA that he thought the Utah Division of Natural Resources was going to send him a water right application form to begin the process of legally installing a pond. UDEQ will follow up with the Utah Department of Natural Resources Division of Water Rights to see what items remain for the property owner to complete.

DOE believes there has been no violation of the institutional controls, which includes intentional removal of soil by humans, stipulated for properties MP-00951-VL, MP-00990-CS, MP-01084-VL, MG-01026-VL, MG-01027-VL, MG-01029-VL, MG-01030-VL, and MG-01033-VL. However, ranching practices conducted on property MP-01084-VL have negatively affected wetland areas.

2.9 City Streets and Utilities

Contamination remains in place beneath the Monticello city streets, and supplemental standards have been applied to these areas. Known contamination is identified on radiological as-built drawings that reside in the LM representative's office. In accordance with *Monticello LTSM Operating Procedures for Supplemental Standards Properties*, Volume II, April 2002, the LM representative radiologically monitors all excavations of Monticello city streets and utilities; contaminated material is transported to the TSF. Contamination remaining in the bottom and sides of excavations is not removed. Radiological as-built drawings are updated manually with any newly identified contamination. The drawings (which have been updated with an ink pen) are required to be updated electronically each year and were last updated electronically in March 2005.

An inspection of city streets and utilities was conducted to ensure compliance with the requirements of the *Monticello LTSM Operating Procedures for Supplemental Standards Properties*, Volume II, April 2002. No inconsistencies were identified. Throughout the course of the two-day inspection, city streets were randomly driven and no un-monitored excavations were identified. There were no on-going excavations or paving operations conducted by the City at the time of the inspection.

Compliance with the requirements listed in the *Monticello LTSM Operating Procedures for Supplemental Standards Properties*, Volume II, April 2002 is adequately maintained.

2.10 Highways 191 and 491

Contamination remains in place within the Highways 191 and 491 rights-of-way. These rights-of-way are identified in Figure 1. Supplemental standards have been applied to these areas. Areas of known contamination are identified on drawings that reside in the LM representative's office. All excavations of Highways 191 and 491 are radiologically monitored by the LM representative. Utah Department of Transportation (UDOT) has the option of using contaminated material for backfill or hauling it to the TSF.

The LM chief inspector drove along Highway 491 from its intersection with Highway 191 eastward for 1.8 miles. This section of the highway comprises the entire length of Highway 491 to which supplemental standards were applied. There was no evidence of current or recent excavations.

The chief inspector also drove along Highway 191 from mile marker 71 to mile marker 73. This section of the highway comprises the entire length of Highway 191 to which supplemental standards were applied. There was no evidence of current or recent excavations.

2.11 Operable Unit III

A number of ground water monitoring wells exist as part of Operable Unit III. Wells that are not part of the current monitoring plan were inspected during the 2005 annual inspection. All of the wells that are not part of the current monitoring system were in good condition. The riser on well R5–M10 had been shortened and the vault lid was bolted down. The well was secure.

Wells scheduled for sampling during the first week of October were inspected during the sampling event. The field inspection data for wells currently monitored under the monitoring plan are recorded in the Semi-Annual Monitoring Trip Report, which is located in the SEEPro database in Grand Junction, Colorado. Most currently monitored wells were in good condition, however the following deficiencies were noted: The concrete bases of well PW-17 and well 0202 are damaged. New bases will be installed around these wells. Also, well MW00–03 had a PVC extension glued to it that keeps the locking lid from being closed. This item was noted in the 2004 Annual Inspection Report and has not yet been repaired. The riser on this well will be cut off, the new elevation will be recorded, and the well will be locked by December 31, 2005.

The wells listed in [Table 1](#), which are no longer needed and have been removed from the monitoring plan, were abandoned (removed) in September 2005.

2.12 Administrative

The following documents were reviewed as part of this annual inspection:

- Radiological as-built drawings: The inspector noted that the annual electronic update of the drawings was last completed on March 3, 2005. Drawings are properly marked, dated, and signed.
- Repository and Pond 4 Record Book: Numerous notations were recorded, but there was no evidence of Quarterly Inspections of the Repository. The LM representative will document quarterly repository inspections in the future. Monthly inspections were adequately recorded on surveillance checklists. The inspector noted that there are no requirements to conduct quarterly inspections of Pond 4; therefore, item 7 will be removed from future annual inspection checklists.
- City Streets and Utilities Record Book: The inspector noted that logbook entries are traceable to the radiological as-built drawings.
- Highways 191 and 491 (formerly 666) Record Book: Weekly inspections and quarterly inspections were documented.
- MS–00176–VL Record Book: Monthly inspections were performed and documented.
- Government-Owned Piñon and Juniper Properties Record Book: Documentation does not clearly identify on which piñon and juniper properties activities occurred. The LM Representative will record property numbers in the future.
- OU II Montezuma Creek Soil and Sediment Properties Record Book: There was no clear documentation of spring and fall surveillance of Montezuma Creek restrictive easement areas. The LM Representative will specifically note in the record book when surveillances are conducted.

Table 1. Wells Decommissioned Since Last Inspection Report

Well Number	Well Depth (ft bgs ^a)	Screen Interval (ft bgs)	Casing Diameter I.D. Type	Well Cover (ft bgs) / Type	Water Level (ft bgs ^b)
82-07	13.0	9.5–12.5	2-inch Sch. 40 PVC	2 – Steel/Cement	UN ^c
82-20	21.0	15.4–19.4	2-inch Sch. 40 PVC	2 – Steel/Cement	14.8
P92-01	11.5	8.85–11.15	2-inch Sch. 40 PVC	2.23 – 4.0 in. Steel/Cement	9.5
P92-03	13.4	10.4–12.9	2-inch Sch. 40 PVC	2.54 – 4.0 in. Steel/Cement	10.14
P92-04	23.0	19.8–22.31	2-inch Sch. 40 PVC	2.36 – 4.0 in. Steel/Cement	21.7
P92-05	7.25	4.4–6.94	2-inch Sch. 40 PVC	2.29 – 4.0 in. Steel/Cement	5.25
P92-07	13.66	10.8–13.35	2-inch Sch 40 PVC	3.78 - 4.0 in. Steel 2.5 – Cement	Dry
P92-09	15.9	12.8–15.1	2-inch Sch. 40 PVC	3.77 – 4.0 in. Steel/Cement	NA
31SW93-200-4	24.5	14.25–23.35	2-inch Sch. 80 PVC	2 – Cement	24.06
T99-03	22.9	22.6–22.9	1-inch Sch. 40 PVC	None	19.0
T99-05	11.3	6.0–11.0	1-inch Sch. 40 PVC	None	9.5
T99-06	8.7	3.4–8.4	1-inch Sch. 40 PVC	None	Dry
T99-07	10.5	5.2–10.2	1-inch Sch. 40 PVC	None	Dry
T99-10	7.5	2.3–7.3	1-inch Sch. 40 PVC	None	Dry
MW00-04	8.66	3.28–8.31	2-inch Sch. 40 PVC	None	8.32
MW00-08	12.63	7.25–12.28	2-inch Sch. 40 PVC	None	Dry
T00-08	6.5	1.21–6.21	1-inch Sch. 40 PVC	None	Dry
T00-09	23.0	17.75–22.75	1-inch Sch. 40 PVC	None	Dry
T00-10	21.25	16.0–21.0	1-inch Sch. 40 PVC	None	Dry
T00-11	20.08	14.75–19.75	1-inch Sch. 40 PVC	None	Dry
T00-12	17.17	11.92	1-inch Sch. 40 PVC	None	Dry
T00-13	14.5	9.25–14.25	1-inch Sch. 40 PVC	None	Dry
T00-14	9.83	4.58–9.58	1-inch Sch. 40 PVC	None	Dry
T00-15	10.25	5.0–10.0	1-inch Sch. 40 PVC	None	Dry
T01-03	12.75	9.5–12.5	2-inch Sch. 40 PVC	None	12.5
T01-11	7.64	4.92–7.42	1-inch Sch. 40 PVC	None	Dry
T01-15	12.75	7.6–12.5	1-inch Sch. 40 PVC	None	Dry
T01-16	15.7	10.55–15.45	1-inch Sch. 40 PVC	None	Dry
T01-17	11.0	5.7–10.6	1-inch Sch. 40 PVC	None	Dry
T01-22	7.9	5.15–7.65	1-inch Sch. 40 PVC	None	Dry

^aBelow ground surface.

^bDepth to water below ground surface.

^cUnknown—information not available from well completion report.

- Temporary Storage Facility Record Book: Inspections, access logs, and materials transfer were well documented.
- Settlement Plate Monitoring Records: The last annual survey was conducted on June 28, 2005, but the survey results had not been received yet. The annual survey results will be forwarded to the Monticello Field Office.
- Training Records: Obsolete material was removed and the revised procedure from the Administrative manual was incorporated at the time of the inspection.

- Agreements: Cooperative Agreement DE-FC13-99GJ79485 with the City of Monticello is available in the Information Repository in files IR 641a&b.

All documents listed above were readily available. Inspectors noted that the Repository Record Book and Pond 4 Record are combined into a single book.

The LM representatives, as required by the LM Operating Procedures, routinely make backup copies of the record books. The backup copy of each book consists of a three-ring binder with photocopies of each completed page of the original book. At the time of the inspection, the backup copy of each book was in place and up to date.

The Monticello Mill Tailings Site/Operable Unit III Administrative Record and The Monticello Mill Tailings Site/Monticello Vicinity Properties Information Repository were last updated in July 2005. DOE updates these records and issues a new index for each of them annually. The current indices are kept with the record collection. During the inspection, EPA compared each index with the corresponding record collection. No deficiencies were noted.

3.0 Recommendations

3.1 Repository

1. An erosion gully near perimeter sign P1 has formed.

Recommendation: Monitor the condition of the fence and relocate the fence if it becomes irreparable.

2. One section of fence near perimeter signs P32 and P33 has two broken strands of wire and needs repair.

Recommendation: The wires in the fence will be spliced.

3. Perimeter sign P24 was damaged.

Recommendation: The sign will be replaced.

4. Signs posted on Manhole #5 have faded beyond legibility.

Recommendation: The signs will be replaced.

5. At the time of the 2005 inspection, all aspects of the telemetry system were working properly, with the exception of the flow meter in LCR 1. The flow meter problem has been identified in previous inspections, but had not been corrected at the time of the 2005 inspection.

Recommendation: DOE will install a municipal water meter in LCR 1 by December 31, 2005, to provide accurate water production data. (Note: This action was completed by October 17, 2005).

6. Repository cover vegetation does not meet success criteria.

Recommendation: DOE will monitor vegetative cover of the repository and prepare an annual report summarizing the monitoring results.

7. The road on the repository cover is “spongy” in several locations.

Recommendation: DOE will continue monitoring the condition of the road on the repository and repair it if repairs become necessary.

8. Animal burrows exist on the repository cover (see Figure 2, IRL 4 and IRL 5).

Recommendation: DOE will continue to monitor animal burrows and consult with the Environmental Sciences Laboratory to determine if the burrows represent a concern for cell integrity. The results will be forwarded to EPA and UDEQ.

9. Erosion rills and gullies exist near the south drainage channel (see Figure 2, IRL 6).

Recommendation: DOE will continue to monitor the condition of these rills and gullies and repair them if repairs become necessary.

10. A grade change exists in the vehicle crossing in the west drainage channel (see Figure 2, IRL 7).

Recommendation: DOE will continue monitoring this location and repair the hydraulic jump if scouring is observed.

11. Rock in the north and east toe trench is degrading.

Recommendation: The condition of the toe trenches will be monitored. Should erosion occur, the trenches will be overlain with stockpiled rock.

12. The lid on the standpipe in Sediment Pond C is ajar.

Recommendation: The lid will be readjusted and secured.

13. Although tamarisk had been removed from sediment ponds previously, it was found growing in Sediment Pond A again.

Recommendation: The LM representative will cut the plants and apply herbicide to the stalks to prevent the species from proliferating. In addition to this specific recommendation, DOE will monitor the entire site for noxious weeds and control them as necessary.

14. Gullies were noted on the south side of Sediment Pond A and the southeast side of Sediment Pond B. Inspectors noted these gullies in previous years and have determined that they will continue to be monitored but that intervention is not yet warranted. To facilitate monitoring of these gullies, baseline photographs of the gullies were taken in 2004. Photographs from these same locations were obtained in 2005. A comparison of the photographs from 2004 and 2005 demonstrate that the gullies are stable and repair is not needed at this time.

Recommendation: Monitoring of these gullies will be conducted in subsequent annual inspections.

15. Weeds were growing in the TSF.

Recommendation: Weeds will be controlled in the TSF periodically through the application of herbicide and/or by mechanical removal.

16. Shrub density on the repository is low.

Recommendation: Environmental Sciences Laboratory personnel will be consulted to determine if low shrub density is negatively affecting transpiration rates from the cover. The results will be forwarded to EPA and UDEQ.

3.2 Pond 4

1. Mouse droppings were present in the safety cabinet on the northwest corner of the pond.

Recommendation: The cabinets will be cleaned of mouse droppings and disinfected; precautions against Hantavirus will be taken during this maintenance activity.

2. Sandbags attached to ropes that hold down the Pond 4 liner have deteriorated (see discussion on page 12).

Recommendation: At a minimum, fourteen gravel-filled pipes will be installed by June 15, 2006. Four pipes shall be installed on both the north and south sides; three pipes will be installed on both the east and west sides.

3. House keeping is an issue at Pond 4. Inspectors found unused ropes and polypropylene pipes scattered on the berm of the pond. Tripping hazards exist.

Recommendation: The Pond 4 area outside of the radioactive area boundary rope will be cleaned up, and tripping hazards will be removed.

3.3 Former Millsite and Topsoil Borrow Area

1. There is no footbridge on the millsite walking path (see Figure 3, IRL 11).

Recommendation: The City of Monticello needs to install a footbridge across the walking path.

2. The culvert on the millsite access road (see Figure 3, IRL 18) was repaired, but continued monitoring is required.

Recommendation: The City of Monticello will monitor this culvert (as noted in their maintenance plan) and is responsible for maintaining it as necessary.

3. The drainage ditch above the millsite access road (see Figure 3, IRL 19) was cleaned but needs to be routinely maintained.

Recommendation: The City of Monticello will monitor this ditch as noted in their maintenance plan. The City is responsible for maintaining the ditch.

4. Culverts in the ditch north of the millsite access road (see Figure 3, IRL 20) are susceptible to clogging.

Recommendation: The City of Monticello will monitor these culverts as noted in their maintenance plan. The City is responsible for maintaining these culverts.

5. The City's maintenance plan for the former millsite has not been completed.

Recommendation: The City needs to complete the plan and conduct all specified maintenance activities.

6. The walking paths at the former millsite are in disrepair.

Recommendation: The City needs to restore the walking paths to a useable condition and ensure that runoff control ditches and culverts are properly installed.

7. A gully entering North Draw (see Figure 3, IRL 31) has been repaired with a rock check dam. Run-off water contributing to the gully was redirected with straw bales.

Recommendation: This location should be monitored in the future to ascertain that the repair is adequate.

8. A gully across the former haul road has been repaired (see Figure 3, IRL 32).

Recommendation: This location should be monitored in the future to ensure that the repair is effective.

3.4 Soil and Sediment Properties

1. The pond on MP-01084 has been breached.

Recommendation: UDEQ will continue to communicate with the Utah Department of Natural Resources Division of Water Rights to determine what items remain for the property owner to complete in order to obtain water rights for a pond.

3.5 Operable Unit III

1. The concrete bases of well PW-17 and well 0202 are damaged.

Recommendation: New bases will be installed around these wells.

2. Well MW00-03 had a PVC extension glued to it that keeps the locking lid from being closed.

Recommendation: The riser on this well will be cut off, the new elevation will be recorded, and the well will be locked by December 31, 2005.

3.6 Administrative

1. Repository and Pond 4 Record Book: Numerous notations were recorded, but there was no evidence of Quarterly Inspections of the Repository.

Recommendation: The LM representative will document quarterly repository inspections in the future.

2. There are no requirements in the LTSM Operating Procedures to conduct quarterly inspections of Pond 4, but item 7 on the annual inspection checklist lists quarterly inspections of Pond 4. Monthly inspections of Pond 4 will continue.

Recommendation: Item 7 will be removed from future annual inspection checklists.

3. Government-Owned Piñon and Juniper Properties Record Book: Documentation does not clearly identify on which piñon and juniper properties activities occurred.

Recommendation: The LM Representative will record property numbers in the future.

4. OU II Montezuma Creek Soil and Sediment Properties Record Book: There was no clear documentation of spring and fall surveillance of Montezuma Creek restrictive easement areas.

Recommendation: The LM Representative will specifically note in the record book when surveillances are conducted.

5. Settlement Plate Monitoring Records: The last annual survey was conducted on June 28, 2005, but the survey results had not been forwarded to the Monticello Field Office.

Recommendation: The annual survey results will be forwarded to the Monticello Field Office and will be included in annual inspection reports.

3.7 Implementation of Recommendations

Table 2 contains the remaining and reoccurring actions required to implement the recommendations of this report.

Table 2. Action Items

Action	Proposed Completion Date	Monitoring Frequency	Comment
Monitor the erosion gully and fence near perimeter sign P1 (see Figure 2, IRL 1).	On-going	During Annual Inspection or after a major precipitation event (per LTSM procedures)	Relocate the fence if erosion causes it to become irreparable.
Repair the fence between perimeter sign P32 and P33.	Completed October 28, 2005	During Annual Inspection	
Replace perimeter sign P24.	Completed October 28, 2005	During Annual Inspection	
Replace signs on Manhole #5.	April 15, 2006	During Annual Inspection	
Install flowmeter in Repository LCR 1.	Completed October 28, 2005	During Annual Inspection	
Repair the lid on the standpipe in Sediment Pond C.	Completed November 18, 2005	During Annual Inspection	
Monitor vegetation on the repository cover.	August 2006	Annually	Prepare an annual repository cover report and submit to EPA and UDEQ by April 15 of each year.
Discuss the impact of low shrub density on the repository cover with Environmental Sciences Laboratory.	April 15, 2006	Not applicable	Low shrub density impact will be discussed and evaluated in conjunction with animal burrow impact (listed below). Results will be forwarded to EPA and UDEQ.
Monitor animal burrows on the repository cover.	On-going	Monthly (per LTSM procedures)	Discuss animal burrow impact with Environmental Sciences Laboratory by April 15, 2006, and forward results to EPA and UDEQ.
Monitor erosion rills and gullies on the south drainage channel of the repository (see Figure 2, IRL 6).	On-going	Monthly and after a major precipitation event (per LTSM procedures)	Repair rills and gullies if necessary. These rills and gullies are not in critical areas.
Monitor vehicle crossing in the west drainage channel of the repository (see Figure 2, IRL 7).	On-going	Quarterly and after a major precipitation event (per LTSM procedures)	Repair the hydraulic jump if scouring is observed.
Monitor the condition of repository toe trenches.	On-going	Quarterly and after a major precipitation event (per LTSM procedures)	Overlay degraded rock with stockpiled rock if erosion occurs.

Table 2 (continued). Action Items

Action	Proposed Completion Date	Monitoring Frequency	Comment
Monitor sediment ponds and wetlands on the repository site and former millsite for tamarisk and other noxious weeds.	On-going Wetlands completed September 30, 2005 Sediment Pond—April 15, 2006	Quarterly	Apply herbicide to tamarisk as necessary. DOE will monitor the entire site for noxious weeds and tamarisk and take control actions as necessary.
Monitor gullies in Sediment Pond A and Sediment Pond B.	Next Annual Inspection	During Annual Inspection	Take photographs for comparative analysis and repair the gullies if necessary.
Control weeds growing in the TSF.	Completed November 10, 2005	Weekly (per LTSM procedures)	
Mouse droppings were present in the safety cabinet on the northwest corner of Pond 4.	On-going	Monthly (per LTSM procedures)	The cabinets will be cleaned of mouse droppings and disinfected as necessary.
Install a minimum of 14 gravel-filled pipes along the side slopes of Pond 4 to hold down the liner.	Completed October 28, 2005	Not applicable	Forty-seven unfilled tubes were installed in lieu of 14 filled tubes.
Clean up the Pond 4 area and remove tripping hazards.	Completed October 28, 2005	Monthly (per LTSM procedures)	
Install a footbridge on the former millsite walking path (see Figure 3, IRL 11).	September 30, 2006	During Annual Inspection	The City of Monticello has agreed to install this footbridge.
DOE will assist the City of Monticello in completing the maintenance plan for the former millsite.	June 27, 2006	Not applicable	DOE is working with the City of Monticello to complete a maintenance plan that will include this item.
Monitor the condition of the culvert on the former millsite access road (see Figure 3, IRL 18).	On-going	Bi-annually	DOE is working with the City of Monticello to complete a maintenance plan that will include this item.
Monitor the runoff control ditch above the millsite access road.	On-going	Bi-annually	DOE is working with the City of Monticello to complete a maintenance plan that will include this item.
Monitor culverts in the runoff control ditch north of the millsite access road (see Figure 3, IRL 20).	On-going	Bi-annually	DOE is working with the City of Monticello to complete a maintenance plan that will include this item.
The walking paths at the former millsite are in disrepair.	June 27, 2006	Not applicable	DOE is working with the City of Monticello to complete a maintenance plan that will include this item.

Table 2 (continued). Action Items

Action	Proposed Completion Date	Monitoring Frequency	Comment
Monitor the repaired gully entering North Draw (see Figure 3, IRL 31).	On-going	During Annual Inspection	DOE will monitor this gully to ascertain if the repair is adequate.
Monitor the repaired gully across the former haul road (see Figure 3, IRL 32).	On-going	During Annual Inspection	DOE will monitor this gully to ascertain if the repair is adequate.
UDEQ will continue to communicate with the Utah Department of Natural Resources Division of Water Rights to determine what items remain for the property owner of MP-01084 to complete in order to obtain water rights for a pond.	Next Annual Inspection	Not applicable	
Install new concrete bases around well PW-17 and well 0202.	Completed December 13, 2005	During Annual Inspection	
Cut off the riser on Well MW00-03, record the new elevation, and lock the well.	Completed December 13, 2005	During Annual Inspection	
The LM representative will document quarterly inspections of the repository in the record book.	On-going	During Annual Inspection	There was no evidence of quarterly inspections of the repository in the record book.
Item 7 will be removed from the annual inspection checklist for Pond 4.	March 15, 2006	During Annual Inspection	Item 7 of the Annual Inspection Checklist lists quarterly inspections of Pond 4 but there is no requirement in the operating procedures to conduct quarterly inspections. Pond 4 is monitored monthly.
The LM representative will document activities conducted on piñon and juniper properties by property number in the record book.	On-going	During Annual Inspection	Documentation does not clearly identify on which piñon and juniper property activities occurred.
The LM representative will specifically note in the record book when surveillances are conducted.	On-going	During Annual Inspection	There was no clear documentation of spring and fall surveillance of Montezuma Creek restrictive easement areas.
The annual repository settlement plate survey results will be forwarded to the Monticello Field Office and will be included in annual inspection reports.	On-going	During Annual Inspection	Settlement plate monitoring records were not available at the Monticello Field Office.

4.0 Photographs

Photographs were taken during the inspection. The locations of the photographs listed below are identified in Figures 2 and 3.

Photograph Location Number	Azimuth	Description
PL-1	355	Gully erosion near perimeter sign P1.
PL-2	20	Perennial grass (crested wheatgrass) surrounded by an area containing no cheatgrass.
PL-3	20	Repository toe channel.
PL-4	110	Baseline photo taken in 2004 from center of Sediment Pond B dam documenting erosion on south side of pond.
PL-5	120	Sediment Pond B photo taken in 2005.
PL-6	170	Baseline photo taken in 2004 from center of Sediment Pond A dam documenting erosion on south side of pond.
PL-7	120	Sediment Pond A photo taken in 2005.
PL-8	90	Reconstructed channel leading to Sediment Pond C.
PL-9	90	Pond 4.
PL-10	190	View of millsite drainage ditches from Clay Hill Drive.
PL-11	315	Trench and concrete structure below Frost Property culvert.
PL-12	0	Straw Bales on MP-00181.
PL-13	225	Straw Bales controlling erosion west of Goodknight Spring.
PL-14	245	New "park" sign at millsite entrance.



MNT 9/2005. PL-1. Gully erosion near perimeter sign P1.



MNT 9/2005. PL-2. Perennial grass (crested wheatgrass) surrounded by an area containing no cheatgrass.



MNT 9/2005. PL-3. Repository toe channel.



MNT 9/2005. PL-4. Baseline photo taken in 2004 from center of Sediment Pond B dam documenting erosion on south side of pond.



MNT 9/2005. PL-5. Sediment Pond B photo taken in 2005.



MNT 9/2005. PL-6. Baseline photo taken in 2004 from center of Sediment Pond A dam documenting erosion on south side of pond.



MNT 9/2005. PL-7. Sediment Pond A photo taken in 2005.



MNT 9/2005. PL-8. Reconstructed channel leading to Sediment Pond C.



MNT 9/2005. PL-9. Pond 4.



MNT 9/2005. PL-10. View of millsite drainage ditches from Clay Hill Drive.



MNT 9/2005. PL-11. Trench and concrete structure below Frost Property culvert.



MNT 9/2005. PL-12. Straw Bales on MP-00181.



MNT 9/2005. PL-13. Straw Bales controlling erosion west of Goodknight Spring.



MNT 9/2005. PL-14. New "park" sign at millsite entrance.

Appendix A

Annual Inspection Checklists

Annual Remedy Performance Checklist

I. GENERAL SITE INFORMATION		
Site Name: Monticello Mill Tailings (USDOE) Site	DOE RPM Name: Art Kleinrath	
State: Utah	DOE RPM Phone: 970-248-6037	
Checklist completion date: 10/12/05	EPA Site ID: UTD3890090035	
Site Lead: Department of Energy		
Site Remedy Components: Institutional Controls, PeRT Wall, Repository (Leachate Collection and Removal System; Leak Detection System), Pond 4, Access Fencing and Signage, Temporary Storage Facility, Cooperative Agreement, Information Repository/Administrative Record		
PCOR date: September 2004 <input checked="" type="checkbox"/> Actual or <input type="checkbox"/> Projected		
Operational & Functional Date: September 29, 2004* <input checked="" type="checkbox"/> Actual or <input type="checkbox"/> Projected <input type="checkbox"/> N/A * <i>Construction complete date</i>		
NPL deletion date: 2045 <input type="checkbox"/> Actual or <input checked="" type="checkbox"/> Projected Partial deletion date: 10/14/2003 <input checked="" type="checkbox"/> Actual	<i>Surface Water and Ground Water ROD completed June 2004.</i>	
II. CONTACTS		
<u>List important personnel associated with the site</u> (for reference purposes only, you do not have to contact these people) Name, title, phone number/email address: (see contact information below)		
US EPA RPM: Paul Mushovic		
State of Utah RPM: David Bird		
DOE LTS&M Representative: Joe Slade, Todd Moon		
Local authorities (e.g., city, town, county): Trent Schaeffer		
National Park Service: Gary Munsterman		
Information Repository Location: Monticello Field Office		
Other: _____		
<u>List any contacts you made (e.g., LTS&M on-site representative, City Administrator, State Department of Transportation, etc.) in conducting this review:</u>		
Name, title, phone number/email address:		
Paul Mushovic	Remedial Project Manger, USEPA	303-312-6662
David Bird	Project Manager, UDEQ	801-536-4219
Joe Slade	DOE LTS&M Representative	435-587-2902
Todd Moon	DOE LTS&M Representative	435-587-3115
Did you make a site visit during this review? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

III. O&M COSTS

Readily available? Yes No; If yes, check all that apply:

What is your annual O&M cost total for the previous year? \$1,020,647
Breakout your annual O&M cost total into the following categories (use either dollars or %):

- Analytical (e.g., lab costs, biomonitoring, wildlife surveys): 10%
- Labor (e.g., site maintenance personnel): 30%
- Materials (e.g., treatment chemicals): 0%
- Oversight (e.g., project management): (includes travel) 22%
- Utilities (e.g., electric, gas, phone, water, vehicle): 12%
- Other (e.g., capital improvements: Includes subcontract labor And riprap) 26%

*Information provided above is for MVP and MMTS combined

O&M Organization: Federal Facility in-house
City of Monticello

Describe unanticipated/unusually high or low O&M costs (go to Section VII to recommend optimization methods):
South drainage channel repair. Millsite restoration/repair.

IV. ON-SITE DOCUMENTS AND RECORDS

These documents will be required for the five-year review, verify that they are currently available on-site:

- LTS&M Manual¹ LTS&M Maintenance Logs² As-built drawings³ O&M reports⁴
- Repository Record and Pond 4 Record Book⁵ TSF Record Book
- Government-Owned P/J Properties Record Book
- OU II Montezuma Creek Soil and Sediment Properties Record Book
- Administrative Record (OU III)⁶ Cooperative Agreement⁷
- Daily access/Security logs: (within TSF Record Book) Monthly and Quarterly Repository and Pond 4 Surveillance Checklists⁸
- Site-Specific Health & Safety Plan⁹ Contingency/Emergency Response Plan¹⁰ (Section 4 of H&S Plan)
- LTS&M/OSHA Training Records Settlement Monument Records¹¹
- Ground water monitoring records¹² Repository and Pond 4 LCRS and LDS Monitoring Records
- Leachate Analytical data¹³ Waste disposal/shipping papers¹⁴ (in TSF Record Book and in file drawer)

¹ Located in IR 575, 570,574,601

² Includes record books and telemetry data

³ Annual Updates completed 3/3/05

⁴ Material is documented in the Repository Record book and logbook 3-ring binder

⁵ Pond 4 included with Repository – not separate record books.

⁶ Last update July, 2005

⁷ Attachment 5 of the Final Covenant Deferral Request Jan 2000 IR537

⁸ Monthly checklists available. Quarterly Repository checklists not available. Quarterly Pond 4 checklists are not required.

⁹ August 2001 (IR 576)

¹⁰ Last update April 2003

¹¹ Most recent survey was July 2005. Map not readily available.

¹² Located in Annual Data Summary Report (September 2005). Not yet placed in information repository.

¹³ Located in telemetry computer. Information consists of pumping records.

¹⁴ Located in TSF Record Book and in file drawer

V. INSTITUTIONAL CONTROLS

Implementation and Enforcement at Government-Owned Piñon/Juniper Properties and the Former Millsite

MP-00181 MP-00893 MP-00391
MP-01077 MP-01040 (north) MP-01041
MP-01042

Institutional Controls implemented through the Cooperative Agreement and Deed Restrictions which limit property use to recreational use with:
No overnight camping
No habitable structures
No damage caused by man to wetland areas

Restrictive Easements and Deed Amendment recorded with the County Clerk

Date verified 10/04/02

ICs are being properly implemented and enforced? Yes No, elaborate below
ICs are adequate for site protection? Yes No, elaborate below

Who is the responsible entity for compliance issues?

U.S. Department of Energy shared with National Park Service

Reporting is up-to-date Yes No N/A
Reports are verified by the lead agency Yes No N/A
Violations have been reported Yes No N/A

Additional remarks regarding ICs should address vandalism, site conditions, erosion, and land-use changes that may affect the remedy :

Institutional controls are formalized on the Quit Claim Deed recorded at the San Juan County Clerk and Recorders office at E061691 B788 P0100-0113 and E062130 B789 P0450-0452.
Erosion problems existing on the former millsite were repaired in June 2005. Based on the inspection, follow-up repair work was completed by September 30, 2005.

Implementation and Enforcement of Prohibition on Removal of Soil

ICs prohibiting soil removal are in effect for the following City of Monticello-owned supplemental standard properties through the Cooperative Agreement and Deed Restriction.

MP-00391 MS-01041
MP-01077 MS-01042

Fence around supplemental standard area is in good repair? Yes No, elaborate below*
ICs are being properly implemented and enforced? Yes No, elaborate below
ICs are adequate for site protection? Yes No, elaborate below

Who is the responsible entity for compliance issues?

U.S. Department of Energy shared with National Park Service

Reporting is up-to-date Yes No N/A
Reports are verified by the lead agency Yes No N/A
Violations have been reported Yes No N/A

Additional remarks regarding ICs should address vandalism, site conditions, erosion, and land-use changes that may affect the remedy:

Erosion problems existing on the former millsite were repaired in June 2005. Based on the inspection, follow-up repair work was completed by September 30, 2005.

Implementation and Enforcement of Ground Water Usage Restrictions

ICs prohibit installation of water wells in the shallow alluvial aquifers at the following properties:

- | | | |
|-------------|-------------|-------------|
| MP-00951-VL | MP-00990-CS | MP-01084-VL |
| MP-00181 | MP-00893 | MP-00391 |
| MP-01077 | MP-00179 | MP-00947 |
| MG-01033 | | |

ICs are being properly implemented and enforced? Yes No, elaborate below

ICs are adequate for site protection? Yes No, elaborate below

Who is the responsible entity for compliance issues?

U.S. Department of Energy shared with State of Utah Division of Water Rights (State Engineer)

- | | | | |
|---|---|-----------------------------|---|
| Reporting is up-to-date | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Reports are verified by the lead agency | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| Violations have been reported | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |

Additional remarks regarding ICs should address vandalism, site conditions, erosion, and land-use changes that may affect the remedy:

Implementation and Enforcement at Soil and Sediment Properties

ICs include a restrictive easement prohibiting habitable structures within contaminated areas, and prohibiting removal of soil from contaminated areas.

- | | | |
|-------------|-------------|-------------|
| MP-00951-VL | MP-00990-CS | MP-01084-VL |
| MG-01026-VL | MG-01027-VL | MG-01029-VL |
| MG-01030-VL | MG-01033-VL | |

ICs are being properly implemented and enforced? Yes No, elaborate below

ICs are adequate for site protection? Yes No, elaborate below

Verified that restrictive easement is recorded in the county records. Date 11/14/02, 10/21/04

Restrictive easements recorded at E063926 B796 P0188-0202, E063219 B793 P0390-0404, E063343 B793 P0831-0852, E063255 B793 P0526-0538, E073394 B830 P-0611-0612

Who is the responsible entity for compliance issues?

U.S. Department of Energy shared with State of Utah Division of Water Rights, EPA, and U.S. Army CoE

- | | | | |
|---|---|-----------------------------|---|
| Reporting is up-to-date | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Reports are verified by the lead agency | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| Violations have been reported | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |

Additional remarks regarding ICs should address vandalism, site conditions, and land-use changes that may affect the remedy:

A pond has been installed in Montezuma Creek within the supplemental standards area of MP-01084-VL. The pond was subsequently breached. The State of Utah should determine if a water rights application is needed or if other action should be taken.

Roads have been bull dozed in on MG-01030-VL, pushing dirt from outside the supplemental standards (ss) area into the ss area. No violation of prohibition on soil removal observed.

VI. SIGNIFICANT SITE EVENTS

Check all non-technical site events since the last checklist that affects or may affect remedy performance

- Community Issues
- Vandalism
- Maintenance Issues
- Other (e.g., storm, fire, or flood): Storms

Elaborate on significant site events

Erosion repair work on the millsite was conducted in June 2005. Significant storms caused additional damage that was repaired by September 30, 2005. Refer to the 2005 Annual Inspection Report.

VII. REDEVELOPMENT

Millsite lands transferred to the City of Monticello through the National Park Service (land to be used in perpetuity for recreational purposes) date: June 28, 2000.

Elaborate on any redevelopment proposals and how they may affect remedy performance or violate institutional controls.

- Evidence of Land Use Changes? Yes No
- Redevelopment plan complete? N/A; Yes, date: April 2000 No
- Redevelopment proposal in progress? Yes, elaborate below
 No; If no, is a proposal anticipated? Yes No

Remarks : DOE completed all millsite restoration repairs by September 30, 2005.

VIII. TECHNICAL DATA - Repository Operable Unit I (Repository Cell, Pond 4, TSF)

Access Control, Fencing, Signage

Evidence of Vandalism or Trespassing (describe below): None

Remarks: Deer gates in repository fence replaced with pedestrian gates in 2005. Perimeter fence needs repair in one location and one perimeter sign needs repair (see 2005 Annual Inspection Report).

VIII. TECHNICAL DATA – Temporary Storage Facility

1. Fence, Signage, and Gate(s)

Remarks: Good condition.

2. Concrete Bin Good Condition

Remarks: Bin 35% full.

3. Other Containers (Skids and Drums) Good Condition and Tarp(s) in Place

Remarks: No material in storage in skids or drums, therefore tarps were in storage.

VIII. TECHNICAL DATA – Repository Cover

List the types of data that are available:

Settlement Plate Data

Vegetation Assessment

What is the source report?

FFA Bimonthly Report, 2005 Annual Inspection

2004 Revegetation Monitoring Report

Repository Surface

1. **Settlement** (Low spots) Location shown on site map Settlement not evident

Areal extent _____ Depth _____

Remarks _____

2. **Cracks** Location shown on site map Cracking not evident

Lengths _____ Widths _____ Depths _____

Remarks _____

3. **Erosion** Location shown on site map Erosion not evident

Areal extent: see map Depth: up to 6 inches

Remarks A few areas shown on 2005 Inspection Report map have minor rill erosion. No action is deemed necessary.

4. **Holes/Burrows/Biointrusion** Location shown on site map Holes not evident

Areal extent Scattered Depth Unknown

Remarks Numerous holes/burrows (most about 2-4" in diameter, on average) in Zone B; very few elsewhere. Some larger burrows may be predators.

5. **Vegetative Cover** Grass Cover properly established No signs of stress

Trees/Shrubs (indicate size and locations on a diagram)

Remarks: There is excellent plant cover; however, the percentage of weedy species is high and unacceptable. Forbes and woody species do not meet acceptance criteria.

6. **Alternative Cover (armored rock/rip-rap, etc.)** N/A

Remarks Rip-rap areas are in good condition; there is minor plant encroachment, which is expected to continue. Sediment and mulch material are filling the voids.

7. **Bulges** Location shown on site map Bulges not evident

Areal extent _____ Height _____

Remarks _____

8. **Wet Areas/Water Damage** Wet areas/water damage not evident

Wet areas Location shown on site map Areal extent _____

Ponding Location shown on site map Areal extent _____

Seeps Location shown on site map Areal extent _____

Soft subgrade Location shown on site map Areal extent _____

Remarks Vegetation does not indicate wet areas or water damage. The soft subgrade refers to a "spongy" section of the road on the repository cover.

9. **Slope Instability** Slides Location shown on site map No evidence of slope instability

Areal extent _____

Remarks _____

VIII. TECHNICAL DATA – Cover Penetrations

1. Manholes

- Properly secured/locked Functioning Routinely sampled Good condition
 Evidence of leakage Needs O&M

Remarks : Signs have faded on Manhole #5.

2. LCR Video Ports

- Properly secured/locked Functioning Routinely sampled Good condition
 Evidence of leakage Needs O&M

Remarks _____

3. Lysimeter Facilities (within surface area of landfill)

- Properly secured/locked Functioning Routinely sampled Good condition
 Evidence of leakage Needs O&M

Remarks 7.5 acre lysimeter on repository is secured via the repository fence. Lysimeter area near office is locked.

4. Settlement Monuments Located Routinely Surveyed N/A

Remarks All are in good condition.

VIII. TECHNICAL DATA – Engineered Drainage

Drainage and Toe Trenches

1. Material Degradation

- Location shown on map
 No evidence of degradation

Material type: Rock Areal extent: length of toe trench

Remarks Rock in toe trenches is degrading. Replacement rock is stockpiled on site. Degraded rock in drainage channels was overlain with durable rock.

2. Erosion

- Location shown on 2005 Annual Inspection Report map
 No evidence of erosion

Areal extent _____ Depth _____

Remarks

3. Obstructions (siltation and vegetation)

Type _____ No obstructions

Location shown on site map Areal extent _____

Size _____

Remarks Toe trenches have silt accumulation, but it is not considered detrimental.

4. Functioning as Designed

Remarks Drainages and toe trenches are functioning as designed.

Perimeter Ditches/Off-Site Discharge

1. **Material Degradation** Location shown on site map No evidence of degradation

Material type: Soil Areal extent _____

Remarks _____

2. **Erosion** Location shown on 2005 Annual Inspection Report map
 No evidence of erosion

Areal extent _____ Depth _____

Remarks:

3. **Obstructions (siltation and vegetation)** Type _____ No obstructions

Location shown on site map Areal extent _____

Size _____

Remarks _____

4. **Functioning as Designed**

Remarks Ditches for off-site discharge are functioning as designed.

Detention/Sedimentation Ponds A, B, and C

1. **Evidence of Significant Erosion on Dam or Stream Outlet** Location shown on site map

Remarks No erosion on dam or stream outlet.

2. **Erosion** Location shown on site map No evidence of erosion

Areal extent _____ Depth _____

Remarks Erosion on inlet side of Pond A and Pond B. Photos taken for long-term comparative analysis. No intervention necessary at this time. Channel leading to Sediment Pond C was reconstructed by September 2005.

3. **Obstructions (siltation and vegetation)** Type _____ No obstructions

Location shown on site map Areal extent _____

Size _____

Remarks Tamarisk observed in Pond A

4. **Functioning as Designed**

Standpipes in good maintenance and functioning

Remarks The lid on the standpipe in Sediment Pond C is ajar and needs maintenance. The standpipe is still functioning properly.

VIII. TECHNICAL DATA – Mechanical Systems

1. LCRS and LDS System (Pipelines, Valves, Pumps, and Other Appurtenances)

- Properly secured/locked Functioning Routinely sampled Good condition
 Evidence of leakage Needs O&M Spare Parts N/A

Remarks The LDS does not contain enough water to collect samples.

2. LCRS and LDS Electrical and Telemetry

- Good Condition Needs O&M N/A

Remarks Flow meter in LCR 1 is not functioning properly.

VIII. TECHNICAL DATA – Pond 4

1. Fencing and Signage

- Location shown on 2005 Annual Inspection Report map
 Gates secured N/A
 Evidence of vandalism

Remarks: Fence in good condition. Deer gates replaced with pedestrian gates in 2005.

2. Condition of berms

- Evidence of erosion Areal extent _____ Depth _____
 Holes, burrows, biointrusions locations shown on map

Remarks Good condition.

3. Siltation

Areal extent: 95% of pond floor Depth: Up to 2 feet N/A

Siltation not evident

Remarks Siltation is evident, but it does not impact the evaporative function of the pond.

4. Liner

- Holes/cracks Location shown on site map
 No evidence of leakage Sandbags

Remarks: Some sandbags rows have been replaced with gravel-filled tubes, but more need to be replaced. See 2005 Annual Inspection report.

LCRS and LDS System (Pipelines, Valves, Pumps, and Other Appurtenances)

- Properly secured/locked Functioning Routinely sampled Good condition
 Evidence of leakage Needs O&M Spare Parts N/A

Remarks No water in LCRs. Pond is virtually dry.

5. Telemetry System

- In good condition and working

Remarks _____

6. Life Saver Station

- Emergency equipment readily available
 Emergency equipment in acceptable condition

Remarks: Mouse droppings need to be removed from cabinets.

General remark: Housekeeping around Pond 4 is inadequate. Uninstalled gravel-filled tubes are haphazardly stored on top of the berm. Tripping hazards exist. The area needs to be cleaned up.

IX. REMEDY PERFORMANCE ASSESSMENT

A. Ground Water Remedies: The ROD for surface and ground water (OU III) was completed in June 2004. The Annual Data Summary Report (September 2005) discusses performance of monitored natural attenuation.

B. Source Control Remedies

What are the remedial goals for source control?

Radiologically contaminated materials have been disposed of in an on-site repository that has been transferred to the LTS&M program. Since October 2001, the LTS&M Program is responsible for managing all additional radiological contamination per the LTS&M manuals. Residual radioactive contaminated material eroded from supplemental standard properties is transported to the TSF and is subsequently disposed of in the Grand Junction Disposal Cell.

C. Overall Observations

Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The contaminant source was removed to 40 CFR 192 standards. Contamination remaining in supplemental standards areas is scanned by LTS&M representatives during excavations and in the event of erosion. Contaminated material is managed in accordance with LTS&M procedures.

Although there is no direct evidence that institutional controls have been violated to date, difficulty has been noted in obtaining some of the landowners' cooperation with institutional controls within restrictive easement areas where there is a prohibition on removal of soils from the easement. In one instance, a pond was placed in the supplemental standards area on property MP-01084-VL. In another instance, the landowner of property MG-01030-VL has built roads in and near supplemental standards areas without consulting DOE.

Adequacy of LTS&M

Describe issues and observations related to the implementation and scope of LTS&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

The LTS&M procedures are adequately implemented. The LTS&M procedures do not include restoration success criteria at the former millsite. There are restoration repairs required that are the responsibility of the City of Monticello. The restoration issues presently do not affect the protectiveness of the remedy.

Early Indicators of Potential Remedy Failure Including Adequacy of Institutional Controls

Describe issues and observations such as unexpected changes in the cost or scope of LTS&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

Section 7 of the Annual Data Summary Report (October 2004 through April 2005) indicates that the restoration period may be longer than the model predicted period.

X. PROJECTIONS

Date of next annual inspection: September 2006.

Date of next Five-Year Review: July 2007.

XI. ADMINISTRATIVE ISSUES

Check all that apply:

- Explanation of Significant Differences in progress ROD Amendment in progress.
 Site in operational and functional ("shake down") period; Transition to O&M or LTRA in progress.
 Notice of Intent to Delete in progress Partial site deletion in progress TI Waivers
 Other administrative issues: Full deletion dependent on OUIII ROD; full deletion not expected before 2045. Partial deletion became effective October 14, 2003.

XII. RECOMMENDATIONS

Progress implementing recommendations from last report or five-year review

Adequate progress has been made on recommendations listed in the 2004 Annual Inspection Report. Items recommended in the 2004 Annual Inspection Report that have not been completed were listed in the 2005 Annual Inspection Report with a mandatory completion date. DOE completed restoration work at the millsite in June 2005 but repairs were needed. These repairs were completed by September 30, 2005. DOE will work with the City of Monticello to finalize and implement a maintenance plan for the millsite.

New Recommendations, based on this annual review:

Recommendations are listed in Section 3 of the 2005 Annual Inspection Report.

XIII. PROTECTIVENESS STATEMENTS

The Five-Year Review will require you to make a protectiveness statement about your site based on the three questions below. Review these three questions in light of the annual remedy performance checklist that you have just completed. Although you may not be able to answer these questions as completely as in a Five-Year Review, document your opinion below in preparation for making a protectiveness statement on your next Five-Year Review.

Question A. Is the remedy functioning as intended by the decision documents?

Question B. Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection still valid?

Question C. Has any other information come to light that could call into question the protectiveness of the remedy?

- A. The remedy includes removal of contaminated material from the millsite and peripheral properties. This action is complete. Institutional controls were placed on supplemental standards properties. These controls have been finalized. The remedy is still functioning as designed.
- B. Some city utility lines originate within the city and extend out of city limits. If excavated, the utility lines outside the city limits could be buried in contaminated material. Exposure assumptions developed in the RI/FS are still valid. The remedy is still functioning as designed.
- C. Significant erosion that occurred on the millsite and peripheral properties was repaired by September 30, 2005. The remedy still remains protective and there were no instances of exposure. The remedy is still functioning as designed.

Print Your Name: Tom Kirkpatrick (Chief Inspector)

Today's Date: 10/25/05

Please send this completed checklist and any attachments to the site file and site repository.

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Annual Remedy Performance Checklist

I. GENERAL SITE INFORMATION													
Site Name: Monticello Radioactively Contaminated Properties	DOE RPM Name: Art Kleinrath												
State: Utah	DOE RPM Phone: 970-248-6037												
Checklist completion date: 10/13/05	EPA Site ID: UTD980667208												
Site Lead: Department of Energy													
Site Remedy Components: Institutional Controls, Information Repository, Cooperative Agreement, Administrative Record, and remaining items covered under Monticello Mill Tailings Site													
COR date: September 2, 1999 <input checked="" type="checkbox"/> Actual or <input type="checkbox"/> Projected													
Operational & Functional Date: 12/30/98* <input checked="" type="checkbox"/> Actual or <input type="checkbox"/> Projected <input type="checkbox"/> N/A *Construction Completion Date													
NPL deletion date: February 28, 2000 <input checked="" type="checkbox"/> Actual or <input type="checkbox"/> Projected													
II. CONTACTS													
<p><u>List important personnel associated with the site</u> (for reference purposes only, you do not have to contact these people) Name, title, phone number/email address: (see contact information below)</p> <p>US EPA RPM: Paul Mushovic</p> <p>State of Utah RPM: David Bird</p> <p>DOE LTS&M Representative: Joe Slade, Todd Moon</p> <p>Local authorities (e.g., city, town, county): Trent Schaeffer</p> <p>Information Repository Location: Monticello Field Office</p> <p>Other: _____</p>													
<p><u>List any contacts you made (e.g., LTS&M on-site representative, City Administrator, State Department of Transportation, etc.) in conducting this review:</u></p> <p>Name, title, phone number/email address:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Paul Mushovic</td> <td style="width: 40%;">Remedial Project Manger, USEPA</td> <td style="width: 30%;">303-312-6662</td> </tr> <tr> <td>David Bird</td> <td>Project Manager, UDEQ</td> <td>801-536-4219</td> </tr> <tr> <td>Joe Slade</td> <td>DOE LTS&M Representative</td> <td>435-587-2902</td> </tr> <tr> <td>Todd Moon</td> <td>DOE LTS&M Representative</td> <td>435-587-3115</td> </tr> </table> <p>Did you make a site visit during this review? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>		Paul Mushovic	Remedial Project Manger, USEPA	303-312-6662	David Bird	Project Manager, UDEQ	801-536-4219	Joe Slade	DOE LTS&M Representative	435-587-2902	Todd Moon	DOE LTS&M Representative	435-587-3115
Paul Mushovic	Remedial Project Manger, USEPA	303-312-6662											
David Bird	Project Manager, UDEQ	801-536-4219											
Joe Slade	DOE LTS&M Representative	435-587-2902											
Todd Moon	DOE LTS&M Representative	435-587-3115											

III. O&M COSTS

Readily available? Yes No; If yes, check all that apply:

What is your annual O&M cost total for the previous year? \$1,020,647
Breakout your annual O&M cost total into the following categories (use either dollars or %):

- Analytical (e.g., lab costs, biomonitoring, wildlife surveys): 10%
- Labor (e.g., site maintenance personnel): 30%
- Materials (e.g., treatment chemicals): 0%
- Oversight (e.g., project management): (includes travel) 22%
- Utilities (e.g., electric, gas, phone, water, vehicle): 12%
- Other (e.g., capital improvements: Includes subcontract labor and riprap) 26%

*Information provided above is for MVP and MMTS combined

O&M Organization:

City of Monticello
Federal Facility in-house

Describe unanticipated/unusually high or low O&M costs (go to Section VII to recommend optimization methods):

None.

IV. ON-SITE DOCUMENTS AND RECORDS

These documents will be required for the five-year review, verify that they are currently available on-site:

- LTS&M Manuals MS-00176-VL Record Book City Streets and Utilities Record Book
 - Highways 191 and 491 Record Book LTS&M As-built drawings
 - Property Completion Reports
 - Information Repository (including Cooperative Agreement which is located in IR 641a,b)
 - Daily access/Security logs (within TSF Record Book)
 - Site-Specific Health & Safety Plan Contingency/Emergency Response Plan (Section 4 of H&S Plan)
 - LTS&M/OSHA Training Records (Monticello City employees are current in training.)
- Other:

V. INSTITUTIONAL CONTROLS

Implementation and Enforcement at City Streets and Utilities

ICs include radiological scanning of eroded material, radiological scanning of all excavations, and removal of excavated or eroded radioactive material above 5 pCi/g.

Where are the ICs documented and/or reported?

(e.g., Deed Annotation – County Clerk and Recorder’s office) Date verified 9/23/03
(e.g., excavated material - LTS&M Record Books) Date verified 9/14/05

ICs are being properly implemented and enforced? Yes No, elaborate below

ICs are adequate for site protection? Yes No, elaborate below

Who is the responsible entity for compliance issues?

U.S. Department of Energy

- Reporting is up-to-date Yes No N/A
- Reports are verified by the lead agency Yes No N/A
- Violations have been reported Yes No N/A

Additional remarks regarding ICs: Deed annotations are not applicable to City Streets and Utilities.

Implementation and Enforcement at Highways 191 and 491

ICs include radiological scanning of eroded material, radiological scanning of all excavations. Radioactive material may be used for backfill or removed.

Where are the ICs documented and/or reported?

(e.g., Highway 191 Deed Annotation – County Clerk and Recorder’s office) Date verified 9/23/03
(e.g., excavated material - LTS&M Record Books) Date Verified: 10/14/05

ICs are being properly implemented and enforced? Yes No, elaborate below

ICs are adequate for site protection? Yes No, elaborate below

Who is the responsible entity for compliance issues?

U.S. Department of Energy

Reporting is up-to-date Yes No N/A
Reports are verified by the lead agency Yes No N/A
Violations have been reported Yes No N/A

Additional remarks regarding ICs: Deed annotations for UDOT properties are recorded by the San Juan County Clerk and Recorder in the following locations: E068703 B814 P0533, E068704 B814 P0534, E068705 B814 P0535-0536, and E068706 B814 P0537-0538

Implementation and Enforcement at MS-00176-VL

ICs include radiological scanning of the footprint of new habitable structures and eroded material. Radiological material is removed. Overlay zone with two-part building permit and deed annotation.

Where are the ICs documented and/or reported?

(e.g., Deed Annotation – County Clerk and Recorder’s office) Date verified 9/23/03
(e.g., Two-part City Building Permit [City Manager’s Office]) Date verified 9/23/03

ICs are being properly implemented and enforced? Yes No, elaborate below

ICs are adequate for site protection? Yes No, elaborate below

Who is the responsible entity for compliance issues?

U.S. Department of Energy

Reporting is up-to-date Yes No N/A
Reports are verified by the lead agency Yes No N/A
Violations have been reported Yes No N/A

Additional remarks regarding ICs:

The City of Monticello Ordinance 2003-2 formalizes the institutional controls for this property.
Deed annotations for this property are recorded by the San Juan County Clerk and Recorder in the following locations: E068885 B815 P0269 and E068986 B815 P0573

VI. SIGNIFICANT SITE EVENTS

Check all non-technical site events since the last checklist that affects or may affect remedy performance

- Community Issues
- Vandalism
- Maintenance Issues
- Other:

Elaborate on significant site events

All ICs (i.e., deed annotations, zoning changes) have been completed.

VII. REDEVELOPMENT (Not Applicable to this site)

VIII. TECHNICAL DATA

See Monticello Millsite Annual Reports

IX. REMEDY PERFORMANCE ASSESSMENT

A. Ground Water Remedies: Not Applicable to MVP

B. Source Control Remedies

What are the remedial goals for source control?

Remove all contaminated materials that exceed the 40 CFR 192 standards and dispose of at a suitable facility. Since October 2001, the LTS&M Program is responsible for managing all additional radiological contamination per the LTS&M manuals. Radiological contaminated materials encountered are either replaced in the easement or are transported to the TSF and are subsequently disposed of in a licensed facility.

Elaborate on basis for determining progress or lack of progress toward these goals:

Acceptable progress has been made based on a review of documentation in the LTS&M Record Books. City excavations are scanned; some radioactive material had been identified and transferred to the Temporary Storage Facility for management by DOE.

C. Overall Observations

Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The contaminant source was removed to 40 CFR 192 standards and the NPL site was delisted. Contamination remaining in supplemental standards areas is scanned by the LTS&M representative during excavations and in the event of erosion. Contaminated material is managed in accordance with LTS&M procedures.

Adequacy of LTS&M

Describe issues and observations related to the implementation and scope of LTS&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Based on a review of the LTS&M record books and on site visits, long-term protectiveness of the remedy is adequate. Contaminated materials are not being removed except in controlled instances when excavated from city streets. Long-term protectiveness has been implemented through completion of deed annotations and zoning changes. LTS&M personnel must continue to monitor the supplemental standards areas to ensure ICs are not violated.

Early Indicators of Potential Remedy Failure Including Adequacy of Institutional Controls

Describe issues and observations such as unexpected changes in the cost or scope of LTS&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

None identified.

X. PROJECTIONS

Administrative Issues

Date of next Five-Year Review: July 2007.

Date of next annual on-site inspection: September 2006.

Date of next monitoring event: As specified in LTS&M manuals: Weekly inspections.

A. Ground Water Remedies: Not applicable

B. Remedy Projections for the Long-Term

No significant changes projected.

DOE will request remedy modification. Target date of request:

Other modification(s) anticipated: None. Elaborate below. Target date:

Elaborate on Remedy Projections: N/A

XI. ADMINISTRATIVE ISSUES

Check all that apply:

Site has been transferred to LTS&M

Other administrative issues: _____

XII. RECOMMENDATIONS

Progress implementing recommendations from last report or five-year review

Is an optimization study scheduled? Yes; No, Not applicable

New Recommendations, based on this annual review:

Recommendations are listed in Section 3 of the 2005 Annual Inspection Report.

XIII. PROTECTIVENESS STATEMENTS

The Five-Year Review will require you to make a protectiveness statement about your site based on the three questions below. Review these three questions in light of the annual remedy performance checklist that you have just completed. Although you may not be able to answer these questions as completely as in a Five-Year Review, document your opinion below in preparation for making a protectiveness statement on your next Five-Year Review.

Question A. Is the remedy functioning as intended by the decision documents?

Question B. Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection still valid?

Question C. Has any other information come to light that could call into question the protectiveness of the remedy?

- A. The remedy includes removal of contaminated material from MVPs. This action is complete. Institutional controls were placed on supplemental standards properties. These controls are effective. Re-zoning of MP-00211 and MS-00176 has been completed. The remedy is still functioning as designed.
- B. There have been no changes in the physical conditions at the site or in the use of the site that would reduce the protectiveness of the remedy or render the initial risk analysis invalid. The remedy is still functioning as designed.
- C. City utility lines originate within the city and extend out of the city limits. If excavated, the utility lines outside of the city limits could be buried in contaminated material. There have been no instances of unmonitored excavations by the city or UDOT within potentially contaminated utility corridors or roadways. The remedy is still functioning as designed.

Print Your Name: Tom Kirkpatrick (Chief Inspector)

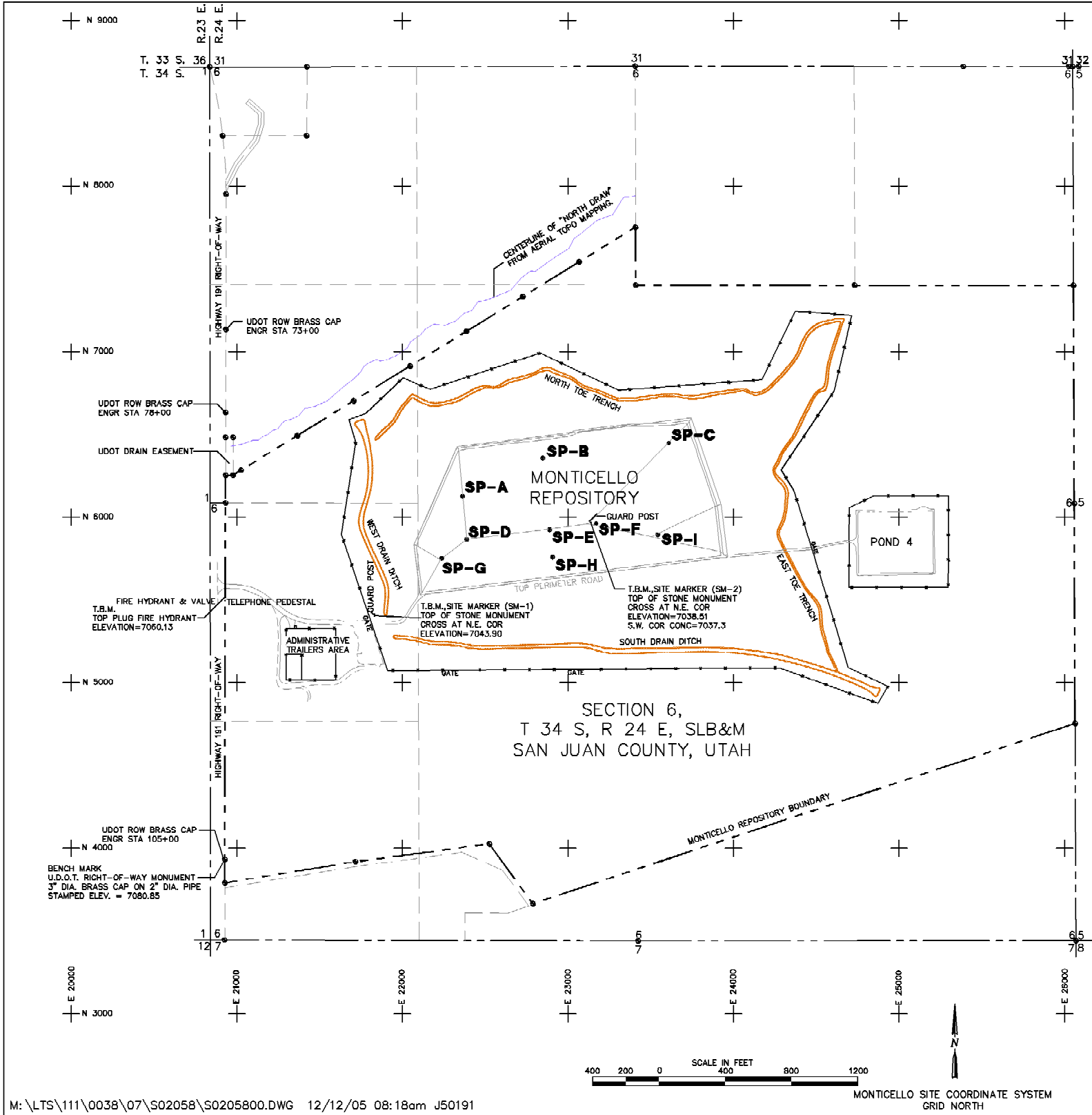
Today's Date: 10/25/05

Please send this completed checklist and any attachments to the site file and site repository.

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Appendix B

Settlement Plates Survey Data



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QUARTERLY SETTLEMENT PLATE ELEVATION DATA

SETTLEMENT PLATE I.D.	COORDINATES		QUARTER 1		QUARTER 2		QUARTER 3		QUARTER 4		QUARTER 5	
	NORTH (Y)	EAST (X)	NOV. 8, 2000	ELEV. DIFF.	MAR. 14, 2001	ELEV. DIFF.	MAY 8, 2001	ELEV. DIFF.	AUGUST 8, 2001	ELEV. DIFF.	DEC. 19, 2001	ELEV. DIFF.
SP-A	6,126.2	22,362.8	7042.50	ZERO	7042.50	-0.04	7042.46	-0.02	7042.44	ZERO	7042.44	ZERO
SP-B	6,355.8	22,848.4	7022.11	ZERO	7022.11	-0.01	7022.10	-0.03	7022.07	ZERO	7022.07	ZERO
SP-C	6,450.9	23,608.5	7008.42	ZERO	7008.42	-0.01	7008.41	-0.03	7008.38	ZERO	7008.38	ZERO
SP-D	5,865.4	22,388.7	7053.90	-0.05	7053.85	ZERO	7053.85	-0.02	7053.83	ZERO	7053.83	ZERO
SP-E	5,924.3	22,888.8	7040.25	-0.02	7040.23	-0.01	7040.22	-0.02	7040.20	-0.01	7040.19	ZERO
SP-F	5,963.6	23,171.2	7035.80	-0.03	7035.77	ZERO	7035.77	-0.03	7035.74	ZERO	7035.74	ZERO
SP-G	5,751.6	22,238.2	7054.22	-0.03	7054.19	ZERO	7054.19	-0.01	7054.18	ZERO	7054.18	ZERO
SP-H	5,798.3	22,906.4	7033.54	ZERO	7033.54	-0.01	7033.53	-0.02	7033.51	ZERO	7033.51	ZERO
SP-I	5,885.5	23,543.8	7022.12	-0.02	7022.10	ZERO	7022.10	-0.04	7022.06	+0.2	7022.08	ZERO

SETTLEMENT PLATE I.D.	ELEV. DIFF.	QUARTER 6		QUARTER 7		QUARTER 8		QUARTER 9	
		FEB. 5, 2002	ELEV. DIFF.	MAY 13-14, 2002	ELEV. DIFF.	AUGUST 16, 2002	ELEV. DIFF.	NOV. 13, 2002	ELEV. DIFF.
SP-A	ZERO	7042.44	ZERO	7042.44	+0.01	7042.45	-0.02	7042.43	ZERO
SP-B	+0.01	7022.08	-0.01	7022.07	+0.01	7022.08	-0.03	7022.05	ZERO
SP-C	ZERO	7008.38	-0.01	7008.37	+0.01	7008.38	-0.03	7008.35	ZERO
SP-D	-0.01	7053.82	ZERO	7053.82	ZERO	7053.82	-0.05	7053.77	ZERO
SP-E	-0.01	7040.18	+0.01	7040.19	+0.01	7040.20	-0.04	7040.18	ZERO
SP-F	ZERO	7035.74	ZERO	7035.74	+0.01	7035.75	-0.03	7035.72	ZERO
SP-G	-0.01	7054.17	+0.01	7054.18	ZERO	7054.18	-0.03	7054.15	ZERO
SP-H	ZERO	7033.51	ZERO	7033.51	+0.02	7033.53	-0.06	7033.48	ZERO
SP-I	-0.01	7022.07	+0.01	7022.08	ZERO	7022.08	-0.03	7022.05	ZERO

SETTLEMENT PLATE I.D.	ELEV. DIFF.	QUARTER 10		QUARTER 11		QUARTER 12		QUARTER 13	
		MAR. 25, 2003	ELEV. DIFF.	JUNE 5, 2003	ELEV. DIFF.	AUGUST 21, 2003	ELEV. DIFF.	NOV. 7, 2003	ELEV. DIFF.
SP-A	-0.02	7042.41	ZERO	7042.41	-0.01	7042.40	+0.02	7042.42	ZERO
SP-B	ZERO	7022.06	-0.02	7022.03	+0.03	7022.08	-0.02	7022.04	ZERO
SP-C	ZERO	7008.35	-0.03	7008.32	+0.04	7008.36	-0.03	7008.33	ZERO
SP-D	+0.01	7053.78	-0.04	7053.74	+0.02	7053.78	+0.01	7053.77	ZERO
SP-E	-0.01	7040.15	-0.03	7040.12	+0.03	7040.15	ZERO	7040.15	ZERO
SP-F	-0.02	7035.70	-0.01	7035.69	+0.01	7035.70	-0.01	7035.69	ZERO
SP-G	ZERO	7054.15	-0.02	7054.13	+0.01	7054.14	+0.01	7054.15	ZERO
SP-H	-0.01	7033.47	-0.01	7033.46	+0.01	7033.47	+0.01	7033.48	ZERO
SP-I	-0.01	7022.04	-0.03	7022.01	+0.04	7022.05	-0.01	7022.04	ZERO

SETTLEMENT PLATE I.D.	ELEV. DIFF.	QUARTER 14		QUARTER 15		QUARTER 16		QUARTER 17	
		JULY 16, 2004	ELEV. DIFF.	JUNE 29, 2005	ELEV. DIFF.		ELEV. DIFF.		ELEV. DIFF.
SP-A	-0.02	7042.42	ZERO	7042.37	-0.05				
SP-B	ZERO	7022.05	-0.01	7022.03	-0.02				
SP-C	ZERO	7008.36	+0.03	7008.34	-0.02				
SP-D	+0.01	7053.76	-0.01	7053.72	-0.04				
SP-E	-0.01	7040.15	ZERO	7040.12	-0.03				
SP-F	-0.02	7035.70	+0.01	7035.67	-0.03				
SP-G	ZERO	7054.15	ZERO	7054.13	-0.02				
SP-H	-0.01	7033.48	ZERO	7033.47	-0.01				
SP-I	-0.01	7022.05	+0.01	7022.03	-0.02				

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION OFFICE GRAND JUNCTION, COLORADO		Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AC13-02GJ79491	
MONTICELLO REPOSITORY SETTLEMENT PLATES SURVEY			
PREPARED: H. D. SURVEY	CHECKED: T.KIRKPATRICK	DATE PREPARED: DECEMBER 12, 2005	
PROJECT NUMBER: LTS-111-0038-07-000		FILENAME: S0205800	