

2003 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 23-25, 2003. A follow-up inspection of the Soil and Sediment properties was conducted on October 8, 2003. 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 is complete and is nearly complete at MMTS. MVP is in good condition; MMTS also is in good condition with the exception of the former millsite and peripheral property now owned by the City of Monticello. Maintenance on city-owned property has not been conducted and has resulted in erosion problems. Some repair of erosional features has been initiated, but not completed.

Vegetation on the repository cover is in its fourth year of growth following seeding and planting in spring 2000. Although vegetative cover has improved significantly since the 2002 inspection, it continues to be dominated by annual weedy species, primarily Russian thistle and cheatgrass. Many of the vegetative cover requirements, particularly shrub density and total (desirable) plant cover, are not expected to be met before 2007. A detailed report summarizing the trends in vegetation establishment on the repository will be prepared separately and submitted to EPA and Utah Department of Environmental Quality (UDEQ).

Revegetation of the former millsite is progressing. With the exception of some steep and gullied areas, vegetation has successfully established on the site. A number of erosion issues were identified by the U.S. Environmental Protection Agency (EPA) and DOE during the 2002 inspection and were noted again in 2003. This report provides a summary of those issues. EPA remains concerned that the City of Monticello is not adequately addressing erosion on the former millsite.

The wetland areas along Montezuma Creek and the adjacent hillside are in excellent condition. To date, 5.65 acres of restored wetland that meet U.S. Army Corps of Engineers wetland criteria are present on the millsite. DOE is required to restore 4.7 acres of wetland that meet specific EPA success criteria identified in the *Monticello Wetlands Master Plan* (P-GJPO-926). Results of the 2003 monitoring will be summarized and compared to EPA success criteria in a separate report that is submitted to EPA and UDEQ. Wetland areas will continue to be monitored annually in late July or early August until EPA success criteria are met.

DOE began erosion-repair work on the former topsoil borrow site in August 2003. The work was ongoing at the time of the 2003 inspection. In general, vegetation was well established in stable areas of the site, and the formerly gullied and eroded areas had been repaired. This report contains a summary of the remaining restoration issues at the site.

Although DOE believes no evidence of violation of institutional controls was observed, EPA believes the 2002 construction of a pond in Montezuma Creek on MP-01084-VL is a violation of institutional controls. 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 site 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 (LTS&M) Program on October 1, 2001. Repair items at the repository, such as reseeded if the repository cover vegetation does not meet success criteria, will be conducted under the LTS&M Program. The City of Monticello is responsible for repairing millsite restoration items.

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 results of the DOE annual inspection of the MMTS and MVP site.

Two LTS&M representatives monitor the sites to ensure that requirements identified in the *Monticello Long-Term Surveillance and Maintenance Administrative Manual* (GJO-2001-TAR, April 2002) are met. The LTS&M representatives are full-time employees permanently assigned to the site.

The following personnel from S.M. Stoller, the Technical Assistance Contractor at the DOE Grand Junction Office, conducted the inspection September 23-25, 2003:

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 (LTS&M representative)
T. Moon (LTS&M representative)

The following personnel observed the inspection and provided oversight:

A. Kleinrath – U.S. Department of Energy
P. Mushovic – U.S. Environmental Protection Agency
T. Brooks – U.S. Environmental Protection Agency
D. Bird – Utah Department of Environmental Quality

The following personnel observed a portion of the inspection on September 23 and 24, 2003:

L. McGee – National Energy Technology Laboratory
R. Staubly – National Energy Technology Laboratory
C. Carpenter – National Energy Technology Laboratory
T. Brooks – National Energy Technology Laboratory
V. Kothari – National Energy Technology Laboratory

The following personnel conducted a follow-up inspection of the Soil and Sediment properties on October 8, 2003:

T. Kirkpatrick – S.M. Stoller
M. Gardner – S.M. Stoller

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. 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 MMTS and MVP site. Repository features and photograph locations (PLs) are shown on Figure 2. Section 4 of this report contains noteworthy photographs taken during the inspection. Additional photographs not included in this report are filed in the LTS&M records. The Annual Inspection Checklists completed during the inspection are provided in Appendix A.

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 one mile, turning east on a paved road, and traveling for one-quarter mile. The LTS&M 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 normally kept locked at night; however, the office was left unlocked on September 23 to allow inspectors to work beyond normal closing hours. Inspectors locked the gate upon their exit.

The perimeter fence delineating DOE-owned property is a conventional barbed wire stock fence. Fences along the north and east boundaries were 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 has formed along one section of the west fence near perimeter signs P1 and P9 and should be repaired before more damage to the fence is done. (PL-1). Tumbleweed accumulations need to be removed from the fence near perimeter signs P10 and P17. Tumbleweeds and brush piles need to be removed from a section of the south fence between perimeter signs P29 and P24 and the wire should be re-stretched. During the inspection, a loose wire and clip was repaired near perimeter sign P29. There is a hole in the fence between perimeter signs P37 and P38 that needs to be repaired. 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 found to be in good condition. One sign along the east fence line existed but was not listed on the inspection drawing. The inspection drawing was updated to include all 39 signs (an entrance sign and perimeter signs P1 through P38). The LTS&M representatives routinely repair wind damage to signs. The following perimeter signs were bent and/or cracked: P3, P4, P5, P6, P12, P24, and P34. With the exception of perimeter sign P12, all damaged signs are legible and not in immediate danger of falling off the mounting post; they should be monitored and replaced when necessary. Perimeter sign P12 was replaced at the time of the inspection. The entrance sign on the perimeter fence was in good condition.

The fence surrounding the repository is 8-feet high with double gates on the west and east boundaries. The fence is in good condition. Tumbleweeds accumulate in various locations along the fence. Heavy accumulations of tumbleweeds noted in the 2002 inspection report along the south side had been removed. Minor accumulations of tumbleweeds were noted in this inspection

along the north side of the repository fence and at the deer gate in the northeast corner of the repository fence; these tumbleweeds should be removed. Gates are locked except when the repository is occupied. Four one-way deer gates, consisting of interlocking metal bars, exist at the corners of the repository fence to allow deer to escape from the repository. These gates were all closed. Deer were present on the repository cover early in the morning of October 23 prior to the start of the inspection but were gone during the inspection. Apparently, deer can jump the 8-foot high fence; there was no evidence of deer using the deer gates.

Site Markers

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

Plates

Nine settlement plates, identified by the letters A through I, are located on the repository and are in excellent condition. The protective polyvinyl chloride (PVC) pipe casings around settlement plates A and C, noted as loose during the 2002 inspection, had been repaired and were stable and immovable at the time of the 2003 inspection.

Data from quarterly surveys of the settlement plates indicate the absence of settling. The EPA and DOE agree that settlement plate data do not indicate settlement problems. During the June 2003 Federal Facilities Agreement meeting, EPA, UDEQ, and DOE agreed to complete a three-year settlement plate survey study, which ends in November 2003, and then evaluate the data and decide whether continued monitoring is necessary.

Monitor Wells

There are no monitor wells within the repository boundaries.

Manholes

There are 5 manholes within the repository boundary; all were in good condition. Covers to manholes 1 and 3 were opened for visual observation but the manholes were not entered at the time of the inspection. No maintenance items were identified. Safety latches identified during the 2002 inspection as being needed have been installed.

At the time of the 2003 inspection, all aspects of the telemetry system were working properly, with the exception of the flow meter in LCR 1. The LTS&M representative explained that the maximum pump rate multiplied by the pumping time is used to determine the volume of water pumped from LCR 1. After obtaining approval from EPA and UDEQ, DOE will install a mechanical flow meter in the LCR system.

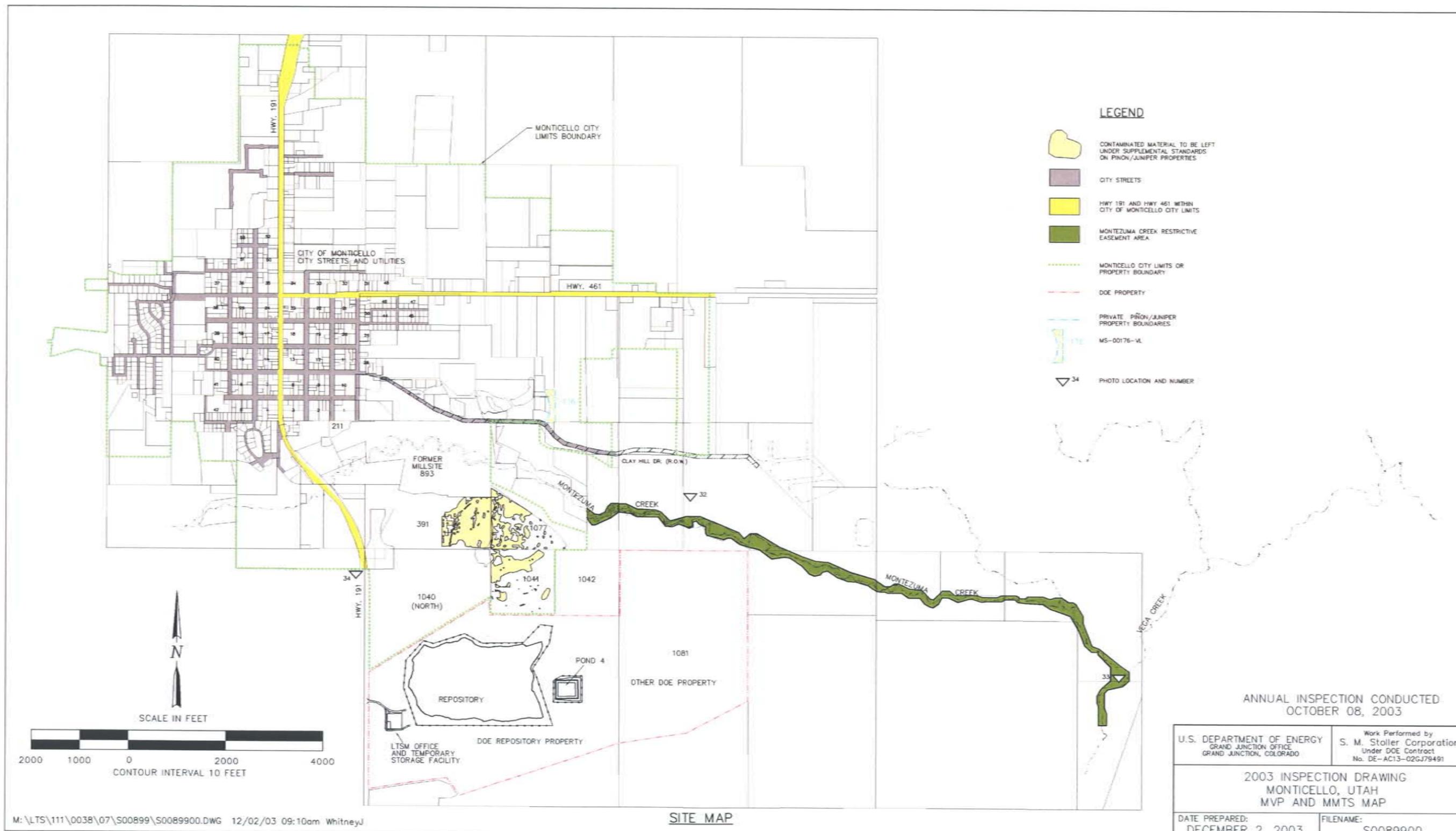


Figure 1. MVP and MMTS Map

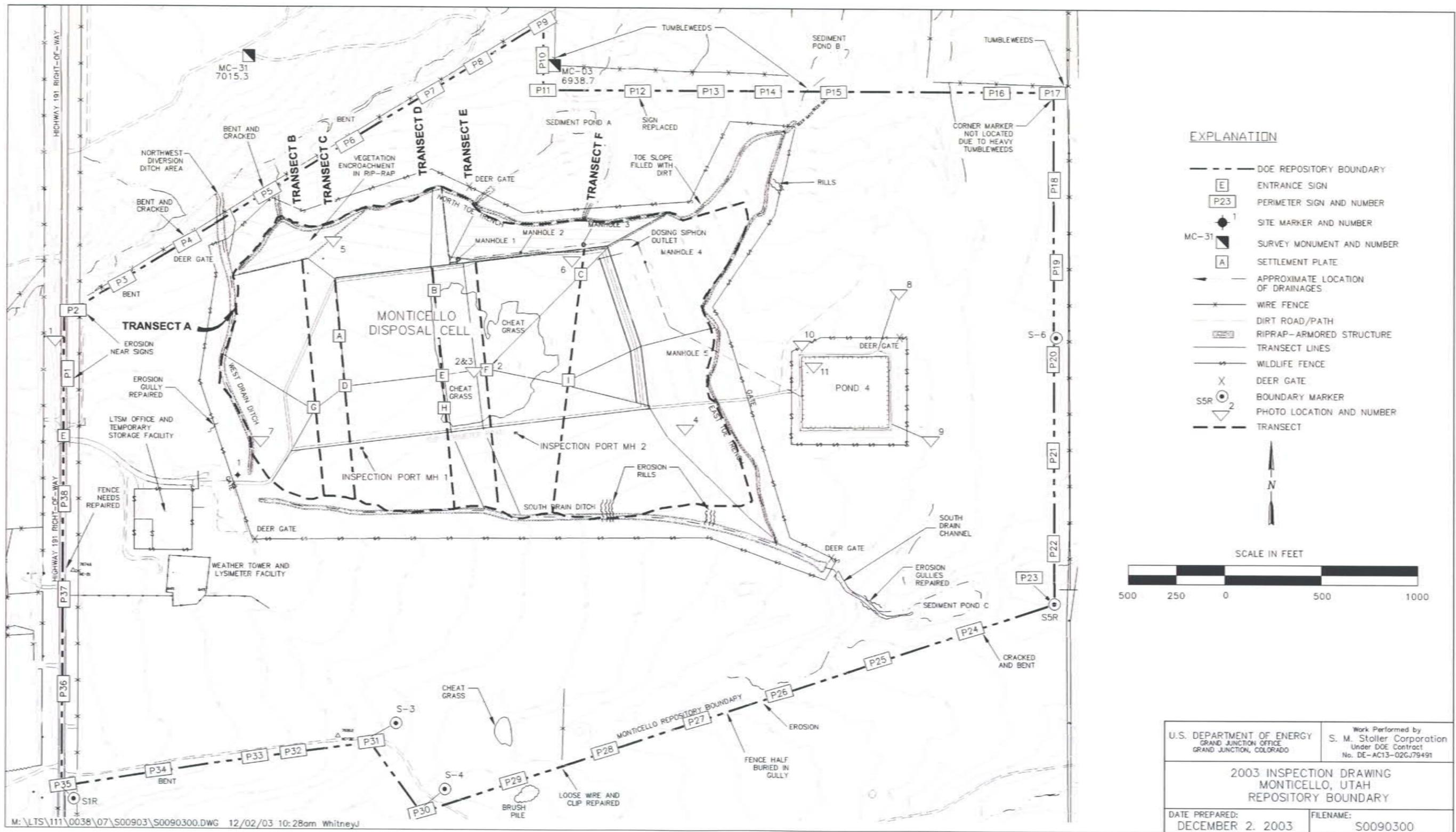


Figure 2. Monticello, Utah, Repository Boundary

2.1.2 Transects

The repository was divided into transects as shown on Figure 2. Inspectors walked each transect to ensure a thorough inspection.

Top of Disposal Cell

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. In 2001 and 2002, the vegetative cover was dominated by weedy species. In 2003, plant cover and diversity had noticeably improved (PL-2 and PL-3); however, vegetative cover continued to be dominated by annual weedy species such as cheatgrass (*Bromus tectorum*), Russian thistle (*Salsola pestifer*), lambsquarter (*Chenopodium album*), and pigweed (*Amaranthus*). Vegetative cover on the disposal cell is required to meet specific acceptance criteria before revegetation is considered successful. These acceptance criteria 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). Given the progress of revegetation since 2000, reclamation specialists believe that many of the vegetative cover requirements, particularly shrub density and total (desirable) plant cover, are not likely to be met before 2007. Results of the 2003 monitoring will be summarized and compared to acceptance criteria in a separate report that is submitted to EPA and UDEQ. Vegetation will continue to be monitored annually in September.

Overall, the top of the disposal cell is in good condition. Settling, slumping, and significant erosion were not observed. As in 2002, 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. Erosion rills also were noted on the south side of the repository just above the south drainage channel. No maintenance action is required; however, inspectors should monitor these features. 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 (PL-4). These features also do not present a problem but should 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 (PL-5). Inspectors also noted that herbaceous and woody plants are encroaching into riprap-covered areas (PL-5 and PL-6). 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. Vegetation was

observed growing in the upper portion of the west drainage channel, but it does not affect the function of the channel (PL-7). At the 2003 annual inspection, the rock channels were in excellent condition.

The south drainage channel is in excellent condition. Erosion rills on the north side of the south drainage channel appear to be stabilized by plant growth. These rills, generally two inches wide and two inches deep, should be inspected in the future to verify they have stabilized. Some erosion rills were up to six inches deep and twelve inches wide. They are outside the footprint of disposed tailings and do not affect the integrity of the disposal cell. 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 would create hydraulic jumps that could result in channel scouring. It was agreed that no corrective action was required; however, the channel should be monitored to determine if scouring occurs. No scouring was observed during the 2003 inspection; the west drainage channel is in good condition.

An erosion gully, noted in the 2002 Annual Inspection Report, leading to the west side of the west drainage channel has been repaired.

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. 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. There is no need for maintenance of these toe trenches.

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. There was no evidence of water reaching the spillways. All three spillways were in good condition. Although tamarisk (*Tamarix ramosissima*), an undesirable shrub species, was removed from Ponds A and B in 2002, it was identified in Pond A during the 2003 annual inspection. Tamarisk control is an on-going maintenance item and the LTS&M representative will cut the plants and apply herbicide to the stalks to prevent the species from proliferating. The metal grate on the top of the standpipe in Sediment Pond C was tilted to one side. It is recommended that the grate be reset and fastened in place.

During the 2002 inspection, erosion channels leading to Pond C were identified. During the August 27, 2002, FFA meeting, EPA, UDEQ, and DOE agreed that corrective measures to halt this erosion are not required. However, DOE decided to repair the channel as a best management practice. Rock armor has been placed in the south drainage channel outside the repository fence. At the time of the 2003 inspection, the channel work had not been completed. Inspectors noted that rock in the center of the channel needed to be removed and placed along the edge of the channel to create a better water conduit. The contractor has re-worked the channel since that time, creating a more defined channel.

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

2.2 Temporary Storage Facility (TSF)

The TSF is outside the repository but within the perimeter fence. It is a gravel 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 were in excellent condition. The concrete bin, rolloff bins, and drums also were in excellent condition. The tarpaulin used to cover the concrete bin was being replaced with a removable frame/metal cover. The cover was being constructed at the time of the 2003 inspection. At the time of the inspection, there was approximately 6 cubic yards of contaminated material in storage.

A review of the Temporary Storage Facility Record Book verified general compliance with LTS&M procedures. Training records were available and training was up to date. No compliance or maintenance issues with the TSF were identified during the 2003 inspection.

Inspectors noted there were lapses in the weekly inspections of the Temporary Storage Facility. From October 2, 2002 through September 18, 2003, there were 40 inspections recorded in the TSF Record Book. Although the reports do not indicate any problems with the TSF, weekly inspections should be conducted on schedule and documented.

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 shown 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. A vehicle gate is on the west side of the fence, and deer gates are at the northeast and southwest corners of the fence. The fence and gates are in excellent condition. Tumbleweeds have accumulated in the northeast corner deer gate. These weeds should be removed. The 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 has been replaced along the south side of Pond 4 since the 2002 inspection, but rope on the other sides of the pond is degrading and should be replaced. 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 was 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 generally good condition. The polypropylene rope attached to the buoy in the middle cabinet on the north side of the pond showed evidence of solar degradation and should be replaced (PL-8). The latch and/or hinges on the door of the safety cabinet in the southeast corner of Pond 4 were not functioning properly and should be repaired. This condition made it difficult to open the door to access emergency equipment (PL-9). The LTS&M representatives will replace the buoy rope and repair the cabinet door.

As noted in the 2002 annual inspection report, a rope escape ladder installed in the northeast corner of the pond is too short and may not hold the weight of personnel attempting to use it. A new replacement ladder was in the safety cabinet in the northeast corner of Pond 4.

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 was very low, with only a small amount of water standing in the northeast corner of the pond. There may be a long-term wind erosion concern as pond water continues to evaporate and bottom sediment is exposed.

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. Some of the sandbags have ruptured and many of the ropes are of questionable integrity. At the time of the inspection, eight gravel-filled polypropylene pipes had been installed in place of sandbag rows. This method of holding down the liner appears to be effective. The sandbag rows will be replaced with gravel-filled pipes, as necessary.

During the 2002 annual inspection, tamarisk was growing in sediment in the bottom of the lined pond. The tamarisk plants have been cut, the stalks have been sprayed with herbicide, and the plants have been left within the contaminated area to biodegrade (PL-10). Earlier in the year, the LTS&M representatives dug up one of the larger plants and determined that the roots are not damaging the liner; the roots grow parallel to the liner upon reaching it (PL-11).

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

2.4 Former Millsite

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

When remedial action was completed, DOE transferred the former millsite and other DOE-owned property to the City of Monticello. Under the terms of the cooperative agreement between DOE and the City of Monticello, 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.

This property has been 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 2003 inspection, vegetation was successfully established in most areas. Vegetative cover was sparse on the steeper side slopes and in gullied areas. A number of erosion issues were identified by EPA and DOE during the 2002 inspection and were noted again in 2003. Following is a summary of the primary issues and some of the proposed solutions.

- Riprap within the western drainage channel along Highway 191 was eroded during a summer 2003 storm event; runoff overflowed the banks of the channel and caused significant gully erosion in downslope areas. At the time of the inspection, DOE was re-lining the channel with larger, more angular rock. Inspectors and EPA/UDEQ representatives noted the newly placed rock needed to be rearranged to form a more defined channel. Since the inspection, a more defined channel was created.
- Two major drainage channels/gullied areas transport runoff from the former topsoil borrow area south of the millsite to Montezuma Creek on the millsite. The City of Monticello had recently lined portions of these channels with angular riprap; however, the job was left unfinished, with the bottom 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 (PL-12). The two drainage channels join 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 into Montezuma Creek. Runoff waters from the September 9 storm had eroded the area around the culverts (PL-13). Installation of larger and/or additional culverts (or, as originally recommended, a foot bridge) is recommended. The EPA representative also recommended the drainage channel below the culverts be constructed and armored so that runoff waters do not “jump the ditch” and flow directly into Montezuma Creek. Where the channel enters the creek (in an easterly direction), the existing riprap should be removed, a trapezoidal channel should be constructed, and new riprap should be carefully placed.

- DOE had recently cleaned out the retention pond on MP-00391. Representatives from EPA/UDEQ noted that material on the dam face needed to be compacted. Additionally, the downstream side of the culvert placed in the dam was bent and needs to be straightened or cut off, as the contorted opening was routing water away from the rocked channel (PL-14).
- In an effort to prevent gullying of the road leading to the MP-00391 retention pond, DOE had recently bladed a small drainage ditch along the road and placed riprap in it for stability (PL-15). Inspectors noted that the newly placed riprap fills the ditch and will likely redirect runoff to the road surface rather than into the ditch. A more defined ditch needs to be constructed.
- Overland runoff from the Christensen property is forming gullies on the southwestern millsite slope. Inspectors and EPA/UDEQ representatives concurred that runoff from the Christensen property needs to be controlled and re-routed if future erosion is to be avoided. A number of solutions were suggested, including repairing the former “Christensen ditch” (PL-16) and assessing the Christensen property for possible on-site erosion-control work.
- Runoff from upland areas is eroding the walking path at numerous locations (see millsite drawing) (PL-17).
- Runoff and sediment from the Blue Mountain Meats property north of the millsite have destroyed the integrity of the diversion ditch along the north boundary of the millsite; runoff has overflowed the ditch and formed gullies on the millsite side slope. Sediments need to be removed, and the ditch needs to be maintained on a regular basis.
- Runoff has overflowed the rock drainage channel between Steele’s property (north of the millsite) and Montezuma Creek because tumbleweeds have collected in and clogged the channel; as a result, gullies have formed on the millsite side slope. This channel needs to be maintained and the gullies need to be repaired.
- The drainage ditch adjacent to the millsite access road has filled with sediment in the area east of Steele’s rock drainage channel. As a result, runoff has overflowed the ditch and formed gullies below the road. This ditch needs to be maintained.
- Immediately west of the millsite access road turn-around, a silt fence has caused runoff waters to form gullies in the upland side slope (PL-18).
- Large gullies have formed on the side slope below Goodknight Spring, and sediment has been deposited in the Seep Pond wetland (PL-19). The sediment is negatively affecting the wetland area by raising the surface elevation and lowering the water table (relative to the soil surface). As of July 29, 2003, approximately 1,500 square feet of wetland was present in the Seep Pond. This area may not be considered wetland by July 2004, when the next wetland monitoring is scheduled. Although the loss of this wetland would not significantly affect the total wetland acreage on the millsite, when combined with other potential wetland area losses, it may become significant in the long term.

- A large gully has formed on the side slope below Highway Seep (PL-20), and sediment has been deposited in Backwater Wetland #1. The sediment has already 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 does not meet the criteria for wetland. Further deposition needs to be prevented in this area to avoid affecting the remaining wetland area. Removal of the current sediment deposit is not recommended at this 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).
- Large gullies have formed on the side slope above Backwater Wetland #1 (PL-21); the ditch above the walking path needs to be re-sized to handle runoff.
- Riprap below culverts installed beneath the walking path (immediately northwest of Backwater Wetland #1) has “blown out” from excessive runoff (PL-22). Flows above the culvert need to be rerouted.
- 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 needs to be armored with rocks (PL-23). The culvert where Deer Draw crosses under the supplemental standards fence needs to be removed, and the drainage that collects water needs to be lined with rock. The rock drainage channel has been damaged by recent storms; the rock needs to be distributed evenly over the length of the channel to prevent hydraulic jumps from occurring. The bottom seventy feet of the rock channel is filled with silt, which should be removed.
- Revegetation of the 2002 repair of the haul road ditch is inadequate. The area needs to be contour plowed and reseeded.

Wetland areas on the former millsite are in excellent condition overall. To date, 5.65 acres of restored wetland that meet U.S. Army Corps of Engineers wetland criteria are present on the millsite. DOE is required to restore 4.7 acres of wetland that meet specific EPA success criteria identified in the *Monticello Wetlands Master Plan* (P-GJPO-926). Results of the 2003 monitoring will be summarized and compared to EPA success criteria in a separate report that is submitted to EPA and UDEQ. Wetland areas have been and will continue to be monitored annually in late July or early August until EPA success criteria are met.

EPA/UDEQ representatives and inspectors noted several potential problem areas associated with wetlands along Montezuma Creek. Most of these were first noted during the 2002 inspection:

- Several feet of sediment has been deposited in the Montezuma Creek channel between the Highway 191 culvert and western-most foot bridge, destroying the wetland plant species previously established in this area. Since the time of the 2003 inspection, the sediment has been removed, restoring the channel to its previous grade, and seeded with a wetland seed mix. If the channel maintains surface flows and/or adequate subsurface moisture, local willow stock could be planted along the channel edges in early spring (March-early April) 2004.

- Surface flows in an approximately 350-foot section of stream channel adjacent to and downstream of the well T01-27/T01-28 seeps have been minimal or nonexistent since the channel was constructed in 2001. Consequently, willow plants or other woody species were never planted in this section and have not naturally established there. It is questionable whether a thriving wetland can be established in this section. Loss of this section of wetland would not significantly affect the current wetland acreage on the millsite. This section of creek will continue to be monitored for wetland plant establishment.
- The creek channel immediately upstream of Somerville’s diversion structure has become clogged with tumbleweeds and has collected sediment from adjacent upland areas. Wetland plants within the channel above the diversion structure are healthy and thriving and do not appear to be negatively affected by the additional sediments, as they appear to maintain considerable moisture. The clogging of the channel by tumbleweeds potentially could have negative effects on the wetland by “choking out” wetland species. It is recommended that tumbleweeds be removed routinely from this area as well as other areas within the Montezuma Creek channel.
- Rock was placed across the stream channel for use as a stream crossing at the east end of the millsite property. EPA representatives have wanted this feature removed but were concerned about the possible consequences of this action on the upstream wetland area. Presently, the channel area below the rock crossing is dry and rocky and does 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 is not believed that the upstream wetland area would be significantly affected, as surface and/or subsurface moisture for hundreds of feet upstream of the rock crossing have been present since restoration was completed.

Several infestations of Canada thistle (*Cirsium arvense*), a Utah state-listed noxious weed, have been identified on the millsite property. It is recommended that these infestations, shown in Figure 3, be treated in the late spring and fall each year with herbicide.

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. This sign has been installed, but it is small and not prominently displayed.

A number of ground water monitor wells exist on the property as part of Operable Unit III. These wells are monitored quarterly and maintained by Operable Unit III personnel. No physical damage to any of the wells was observed. One well, MW00-03 had a PVC extension glued to it that keeps the locking lid from being closed. The extension should be removed and the well should be kept locked.

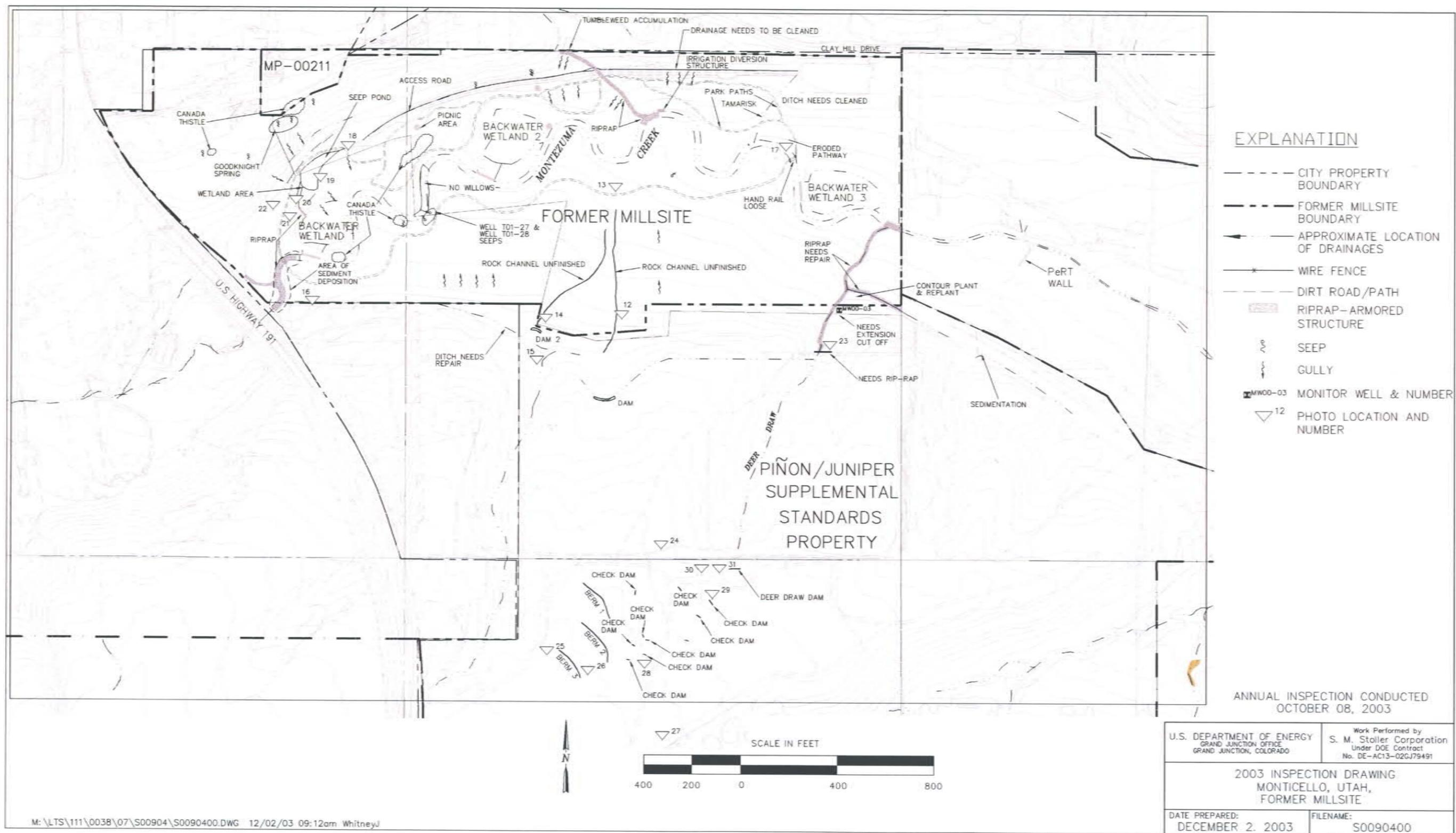


Figure 3. Monticello, Utah, Former Millsite

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

A special zoning district for property number MP-00211 was approved by the City of Monticello and formalized through a zoning overlay map. This zoning district disallows construction of buildings until DOE certifies that the building footprint is free of contamination. No further action is required on implementation of this institutional control.

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 2003 inspection (PL-24). During the 2002 inspection, 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 2003 inspection, the erosion-control work was ongoing (see Figure 3). Following is a summary of the primary issues remaining for this area:

- Three concentric, terraced berms were constructed on the contour in the southwest corner of the topsoil borrow site. Inspectors and EPA/UDEQ representatives noted that, except in a small area in the eastern portion of the southwest corner, these berms appeared to be effectively controlling runoff and erosion (PL-25). The berms had not been extended to the “high ridge” that borders the southwest corner on the east where vegetation is adequately established. A gully had formed in this area (PL-26) during the large storm event on September 9, 2003. DOE responded by reconstructing an existing drainage ditch south and above the site to control run-on flows (PL-27). Inspectors concurred that the newly bladed ditch needed to be water-barred or covered with riprap to maintain its integrity. In addition, small earthen check dams were constructed along the pathway of the gully to slow the flow of runoff (PL-28). It was suggested that these small dams be compacted. Since the time of the 2003 inspection, the bladed ditch was covered with riprap and the small dams were compacted.
- Although most of the repaired areas on the topsoil borrow site had been ripped by a D-4 dozer on the contour, one small area had been ripped in a down slope direction (PL-29) and seeded. It was recommended that this area be re-ripped on the contour.
- DOE had recently restored the former haul road between the topsoil borrow site and millsite by ripping the soil surface and reconstructing water bars along the length of the road. With the exception of a suggestion to further compact the water bars, inspectors and EPA/UDEQ representatives noted that the reclaimed haul road was in excellent condition.
- Sediments within the Deer Draw retention pond (at the north end of the topsoil borrow site) had recently been removed and placed on the downside of the dam face (PL-30). It was recommended that these sediments be regraded and compacted and that runoff waters be diverted to avoid the dam face.

- A ditch adjacent to the road leading to the Deer Draw retention pond had recently been bladed (PL-31). Inspectors recommended that this road and/or ditch be water barred to divert runoff into the retention pond (rather than to the gulch below the retention pond).

2.6 Government-Owned Piñon/Juniper Properties

Properties identified as MP-00391-VL, Phase III; MP-01077-VL, 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 LTS&M office were reviewed; there have been no 25-year storm events since the last annual inspection.

The supplemental standards properties 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. Inspectors walked the entire fence line and noted that the fences were in excellent condition.

There was no evidence of contaminated material being transported by humans from the supplemental standards properties. Erosion was noted in areas immediately west of the former haul road, filling the haul road ditch with sediment (see Figure 3). This ditch should be radiologically scanned to determine if radioactive material is eroding from supplemental standards areas. Also, the ditch should be cleaned of sediment to prevent over topping and subsequent uncontrolled releases of storm water onto MP-00179. Monitoring for erosion and soil removal by humans will continue.

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 erosion, soil removal, or construction of habitable structures. Monitoring for these occurrences should continue.

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 would not be built on contaminated material.

The LTS&M representative is required to determine annually whether ownership of this property has changed. The LTS&M representative reviewed records in the San Juan County Clerk and Recorder's Office on September 17, 2003, and verified that the property has 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.

Although access arrangements had been made for the inspection to be conducted on September 23-25, the owner of property MG-01029 requested the inspection be conducted at a later date because hunters were currently leasing the property. The owner's request was honored and a follow-up inspection was conducted on October 8, 2003.

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 and the surrounding stream bank remains in the same over-grazed condition that it was in during the 2002 annual inspection (PL-32). The owner constructed a new elk fence in 2003 on the east side of his property that allows elk to graze in Montezuma Creek immediately east of the breached pond. Elk were grazing there at the time of the inspection. Based on the owner's previous grazing practices, it is likely that vegetation along the creek will be denuded, and wetland areas will be destroyed.

Inspectors noted road-building activities had occurred on supplemental standards property MG-01029-VL; an existing road has been improved (PL-33). Construction primarily occurred on the canyon walls outside the contaminated areas. Although construction equipment crossed supplemental standards areas, soil had not been removed by blading or dozing operations within the contaminated areas. Evidence of a campsite was found in the creek bottom near a contaminated area, but the inspectors determined it was outside the delineated supplemental standards area. The roads and campsite location were surveyed with a global positioning unit at the time of the inspection. There was no indication of violation of institutional controls.

In summary, DOE believes there has been no violation of the institutional controls stipulated (required) 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 destroy wetland areas. EPA, UDEQ, and DOE should make a determination if the loss of vegetation along Montezuma Creek, which could lead

to soil loss by erosion, is a violation of the restrictive easement that does not allow removal of soils from a supplemental standard area.

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 LTS&M representative's office. The LTS&M 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; however, 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 on May 27, 2003.

The inspection team reviewed several radiological as-built drawings and the City Streets and Utilities Record Book. No deficiencies were identified; however, the need for continued attention to detail was stressed.

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. Two former excavations where contaminated material was unearthed (the southern end of 1st East and the corner of 2nd East and 4th South) were inspected. City paving operations in progress on 2nd East Street were inspected. Throughout the course of the two-day inspection, city streets were randomly driven and no un-monitored excavations were identified.

In accordance with *Monticello LTSM Operating Procedures for Supplemental Standards Properties*, Volume II, April 2002, the LTS&M representatives are radiologically scanning spoils from city streets and utilities excavations within the city limits. Radioactive materials remaining in the sidewalls or the bottom of an excavation are not removed unless that material needs to be removed to conduct the utility work.

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

Highway 491, formerly known as Highway 666, was formally renamed in 2003. 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 LTS&M representative's office. All excavations of Highways 191 and 491 are radiologically monitored by the LTS&M representative. Utah Department of Transportation (UDOT) has the option of using contaminated material for backfill or hauling it to the TSF.

The LTS&M 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. UDOT personnel replaced a culvert at the southwest end of the road fill over Montezuma Creek (PL-34) and routed storm water through a pipe directly into the Montezuma Creek culvert beneath Highway 191. Clean fill material was placed over the culvert. No contaminated material had been removed

The 2002 annual inspection report noted that DOE had not annotated UDOT property deeds for supplemental standards areas with a warning that radioactive materials are present, a description of the contamination, and a description of the risks associated with the contamination, as required. The deeds were annotated with this information on April 9, 2003; however, the documentation was not available in the Information Repository.

2.11 Administrative

Through FFA meetings, DOE has committed to various administrative requirements. The following documents were reviewed as part of this annual inspection:

- Radiological as-built drawings
- Repository Record Book
- Pond 4 Record Book
- City Streets and Utilities Record Book
- Highways 191 and 491 (formerly 666) Record Book
- MS-00176-VL Record Book
- Government-Owned Piñon and Juniper Properties Record Book
- OU II Montezuma Creek Soil and Sediment Properties Record Book
- Temporary Storage Facility Record Book

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 detail contained in the record books identified above is adequate. The EPA representative commented that the level of detail in the Repository Record book is better than in previous years.

EPA commented that signature/initials logs for some of the record books contained entries of personnel who no longer work on the project. The signature/initials logs for each record book were updated at the time of the inspection to account for employees who no longer work for the contractor. Inspectors also placed the current version of the property checklists in the front cover of the applicable record book at the time of the inspection.

There are many entries in the Government-Owned Piñon and Juniper Properties Record Book and the OU II Montezuma Creek Soil and Sediment Properties Record Book that demonstrate the LTS&M representatives are adequately monitoring the properties. However, there are no notations that state “The quarterly inspection was conducted on DD, MM YY.” It is recommended that better documentation using specific language from the LTS&M Operating Procedures be kept regarding inspections.

The LTS&M representatives, as required by the LTS&M 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. The backup copy also contains loose-leaf documentation of pertinent information. It is recommended that dividers be placed in the three ring binder so that the information is organized in a more accessible manner.

Inspectors determined that the following documents were unavailable and should be placed in the Information Repository:

- 2002 Annual Inspection Report
- Deed Restrictions
- Repository and Pond 4 Groundwater Contingency Plan (February 1998)

3.0 Recommendations

3.1 Repository

1. An erosion gully has formed along one section of the west fence near perimeter signs P2 and P3 (see discussion on page 4).

Recommendation: The gully should be filled in and run-off rerouted to prevent reoccurrence.

2. Tumbleweeds have accumulated on the fence near perimeter signs P11 and P18 and between perimeter signs P24 and P29. Brush piles also impact a section of the south fence between perimeter signs P24 and P29 (see discussion on page 4).

Recommendation: The LTS&M representative should remove the tumbleweeds and brush piles at these locations and re-stretch the wire.

3. There is a hole in the fence between perimeter signs P37 and P38 (see discussion on page 4).

Recommendation: The LTS&M representative should repair the fence at this location.

4. The following perimeter signs were bent and/or cracked: P3, P4, P5, P6, P24, and P34 (see discussion on page 4).

Recommendation: The LTS&M representative should continue to monitor signs and replace them when they become illegible or as otherwise needed.

5. Minor accumulations of tumbleweeds were noted in this inspection along the north side of the repository fence and at the deer gate in the northeast corner of the repository fence (see discussion on page 5).

Recommendation: The LTS&M representative should remove these tumbleweeds and continue to monitor the fence lines and remove tumbleweeds as necessary.

6. During the June 2003 FFA meeting, EPA, UDEQ, and DOE agreed to complete a three-year settlement plate survey study, which ends in November 2003 (see discussion on page 10).

Recommendation: The November 2003 settlement plate survey should be conducted and then EPA, UDEQ, and DOE should evaluate the data and decide whether continued monitoring is necessary.

7. The flow meter in LCR 1 is inoperable (see discussion on page 10).

Recommendation: After obtaining approval from EPA and UDEQ, DOE should install a mechanical flow meter in the LCR system.

8. Reclamation specialists believe that many of the vegetative cover requirements, particularly shrub density and total (desirable) plant cover, are not likely to be met before 2007 (see discussion on pages 10 and 11).

Recommendation: Continue monitoring vegetative cover each year in early September.

9. Erosion rills were observed adjacent to the gravel road on the north side of the repository and on the south side of the repository just above the south drainage channel (see discussion on page 11).

Recommendation: Continue monitoring the rills. No intervention is necessary at this time.

10. Tamarisk was identified in Pond A (see discussion on page 12).

Recommendation: The LTS&M representative should cut the plants and apply herbicide to the stalks to prevent the species from proliferating.

11. The metal grate on the top of the standpipe in Sediment Pond C was tilted to one side (see discussion on page 12).

Recommendation: The LTS&M representative should reset the grate and fasten in place.

3.2 Temporary Storage Facility

1. There have been lapses in the weekly surveillance of the TSF (see discussion on page 13).

Recommendation: The LTS&M representatives should ensure that all scheduled surveillances are conducted on time and documented in the Temporary Storage Facility Record Book.

3.3 Pond 4

1. Tumbleweeds have accumulated in the northeast corner deer gate (see discussion on page 13).

Recommendation: The LTS&M representative should remove these weeds.

2. The rope barrier on the west, north, and east sides of Pond 4 is degrading (see discussion on page 13).

Recommendation: The LTS&M representative should replace the ropes.

3. The polypropylene rope attached to the buoy in the middle cabinet on the north side of the pond showed evidence of solar degradation (see discussion on page 14).

Recommendation: The LTS&M representative should replace the rope.

4. The latch and/or hinges on the door of the safety cabinet in the southeast corner of Pond 4 were not functioning properly (see discussion on page 14).

Recommendation: The LTS&M representative should repair the cabinet.

5. Sandbags attached to ropes that hold down the Pond 4 liner have deteriorated (see discussion on page 14).

Recommendation: Continue monitoring sand bags and replace as necessary.

3.4 Former Millsite

1. A number of erosion issues were identified by EPA and the City of Monticello's restoration contractor during the 2002 inspection and were noted again in 2003 (see discussion on pages 15 through 17). The erosion issues are primarily a result of inadequate upland drainage control and poor maintenance of existing drainage control structures.

Recommendation: DOE should work with the City of Monticello to determine a schedule for the repairs and institute a maintenance program to keep existing structures in operable condition. If the City is unwilling or incapable of repairing the damage and maintaining the property, DOE should provide funding and direction to a subcontractor to conduct required repair and maintenance.

2. Surface flows in an approximately 350-foot section of stream channel adjacent to and downstream of the well T01-27/T01-28 seeps have been minimal or nonexistent since the channel was constructed in 2001. Loss of this section of wetland would not significantly affect the current wetland acreage on the millsite (see discussion on page 17).

Recommendation: Continue monitoring this section of the stream for wetland plant establishment.

3. The creek channel immediately upstream of Somerville's diversion structure has become clogged with tumbleweeds and has collected sediment from adjacent upland areas (see discussion on page 17).

Recommendation: It is recommended that tumbleweeds be routinely removed from this area as well as other areas within Montezuma Creek.

4. Rock was placed across the stream channel for use as a stream crossing at the east end of the millsite property (see discussion on page 17).

Recommendation: Upon completion of repairs in the North Draw, this structure should be removed from the creek channel.

5. Several infestations of Canada thistle, a Utah state-listed noxious weed, have been identified on the millsite property (see discussion on page 18).

Recommendation: It is recommended that these infestations be treated in the late spring and fall each year with herbicide.

6. One monitoring well had a PVC extension glued to it that prevents the lid from being closed and locked (see discussion on page 21).

Recommendation: The extension should be removed and the well should be kept locked. Other OU III wells should be inspected and repaired if necessary.

3.5 Topsoil Borrow Area

1. One small area had been ripped in a down slope direction (see discussion on page 21).

Recommendation: This area should be re-ripped on the contour and re-seeded.

2. Sediments within the Deer Draw retention pond (at the north end of the topsoil borrow site) had recently been removed and placed on the downside of the dam face (see discussion on page 22).

Recommendation: These sediments should be regraded and compacted and runoff waters should be diverted to avoid the dam face.

3. A ditch adjacent to the road leading to the Deer Draw retention pond does not drain into the pond (see discussion on page 22).

Recommendation: This road and/or ditch should be water barred to divert runoff into the retention pond.

3.6 Soil and Sediment Properties

1. The ranching practices conducted on property MP-01084-VL destroy wetland areas (see discussion on page 23).

Recommendation: EPA, UDEQ, and DOE should make a determination if the loss of vegetation along Montezuma Creek, which could lead to soil loss by erosion, is a violation of the restrictive easement that does not allow removal of soils from a supplemental standard area.

3.7 Highways 191 and 491

1. DOE is required to annotate UDOT property deeds for supplemental standards areas with a warning that radioactive materials are present, a description of the contamination, and a description of the risks associated with the contamination, as required. The deeds have been annotated with this information, but the documentation was not available in the Information Repository (see discussion on page 26).

Recommendation: DOE should place copies of the UDOT property deed annotations in the information repository.

3.8 Administrative

1. There are no notations in the Government-Owned Piñon and Juniper Properties Record Book and the OU II Montezuma Creek Soil and Sediment Properties Record Book that state: “The quarterly inspection was conducted on DD, MM YY” (see discussion on page 25).

Recommendation: It is recommended that better documentation using specific language from the LTS&M Operating Procedures be kept regarding inspections.

2. The backup copy of each record contains loose-leaf documentation of pertinent information (see discussion on page 26).

Recommendation: Dividers should be placed in the three ring binders so that information is organized in a more accessible manner.

3. Inspectors determined that the Annual Inspection Reports, deed restrictions, and Repository and Pond 4 Groundwater Contingency Plan (February 1998) were unavailable.

Recommendation: These documents should be placed in the Information Repository.

4.0 Photographs

Baseline photographs were taken during the inspection. The locations of the photographs listed below are identified in Figures 1 through 3.

Photograph Location Number	Azimuth	Description
PL-1	N/A	Fence post along Highway 191.
PL-2	90	View east of Zone A1 vegetation from site marker 2
PL-3	270	View west of Zone A1 vegetation from site marker 2
PL-4	N/A	Typical hole/burrow in Zone B.
PL-5	45	Silt deposition in riprap area (NW portion of cover); also note vegetation encroachment.
PL-6	310	Vegetation encroachment near Manhole 2.
PL-7	360	West Drainage Channel.

Photograph Location Number	Azimuth	Description
PL-8	60	Inspecting water safety items at Pond 4.
PL-9	90	DOE, EPA, UDEQ, and NETL representatives struggling with malfunctioning life-saving equipment door.
PL-10	180	Vegetation along west edge of Pond 4. Note lack of tamarisk.
PL-11	N/A	Tamarisk removed from Pond 4. Note change of direction of root growth upon encountering liner.
PL-12	10	Drainage channel between topsoil borrow area and millsite. Note gully next to riprap.
PL-13	180	Culverts beneath walking path. Note eroded area adjacent to ditch.
PL-14	200	Downstream side of culvert in MP-00391 retention Pond.
PL-15	170	Road leading to MP-00391.
PL-16	120	Erosion within Christensen's ditch just above confluence with Montezuma Creek.
PL-17	110	Runoff from upland areas has eroded walking path.
PL-18	165	Gully in upland area of millsite.
PL-19	320	Gullies below Goodknight Spring. Note sediment deposition in Seep Pond (foreground).
PL-20	310	Gully below Highway Seep.
PL-21	45	Gully on north side of Backwater Wetland #1.
PL-22	150	Riprap below culverts.
PL-23	270	Deer Draw at supplemental standards boundary.
PL-24	10	Borrow area showing successfully revegetated area.
PL-25	55	Borrow area showing runoff-control berm.
PL-26	190	Borrow area showing gully formation.
PL-27	90	Borrow area showing ditch needing riprap.
PL-28	20	Borrow area showing check dam in need of compaction.
PL-29	20	Borrow area showing area needing to be ripped on contour.
PL-30	85	Borrow area showing Deer draw retention pond dam.
PL-31	275	Borrow area showing road near Deer Draw retention pond.
PL-32	285	Elk ranch below former millsite. Note denuded vegetation, breached dam, and new fence in foreground.
PL-33	60	Improved road dozed up hillside toward city landfill.
PL-34	0	New culvert on west side of Highway 191. Culvert is buried along road embankment and empties directly into the culvert that goes beneath the highway.



MNT 9/2003. PL-1. Fence post along Highway 191.



MNT 9/2003. PL-2. View east of Zone A1 vegetation from Site Marker 2.



MNT 9/2003. PL-3. View west of Zone A1 vegetation from Site Marker 2.



MNT 9/2003. PL-4. Typical hole/burrow in Zone B.



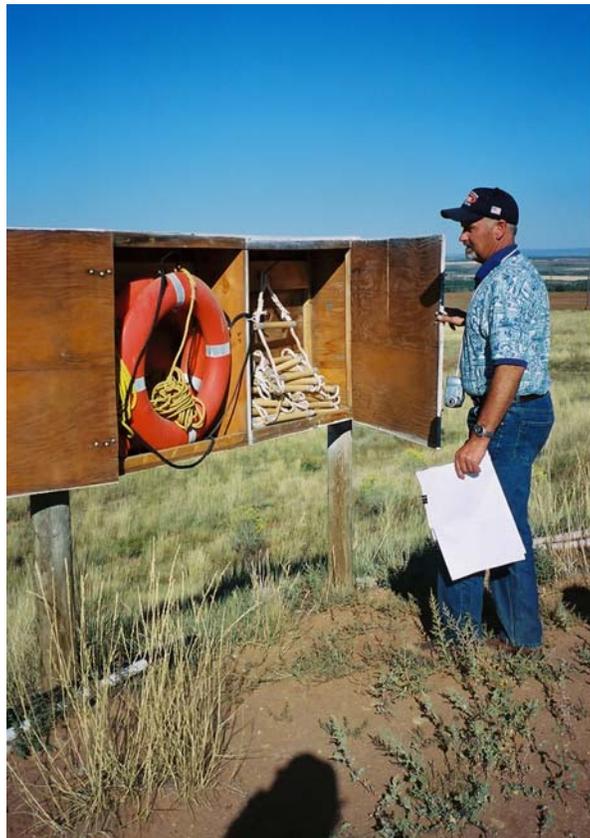
MNT 9/2003. PL-5. Silt deposition in riprap area (NW portion of cover); note vegetation encroachment.



MNT 9/2003. PL-6. Vegetation encroachment near Manhole 2.



MNT 9/2003. PL-7. West Drainage Channel.



MNT 9/2003. PL-8. Inspecting water safety items at Pond 4.



MNT 9/2003. PL-9. DOE, EPA, UDEQ, and NETL representatives struggling with malfunctioning life-saving equipment door.



MNT 9/2003. PL-10. Vegetation along west edge of Pond 4. Note lack of tamarisk.



MNT 9/2003. PL-11. Tamarisk removed from Pond 4. Note change of direction of root growth upon encountering liner.



MNT 9/2003. PL-12. Draining channel between topsoil borrow area and millsite. Note gully next to riprap.



MNT 9/2003. PL-13. Culverts beneath walking path. Note eroded area adjacent to ditch.



MNT 9/2003. PL-14. Downstream side of culvert in MP-00391 retention pond.



MNT 9/2003. PL-15. Road leading to MP-00391.



MNT 9/2003. PL-16. Erosion within Christensen's ditch just above confluence with Montezuma Creek.



MNT 9/2003. PL-17. Runoff from upland areas has eroded walking path.



MNT 9/2003. PL-18. Gully in upland area of millsite.



MNT 9/2003. PL-19. Gullies below Goodknight Spring. Note sediment deposition in Seep Pond (foreground).



MNT 9/2003. PL-20. Gully below Highway Seep.



MNT 9/2003. PL-21. Gully on north side of Backwater Wetland #1.



MNT 9/2003. PL-22. Riprap below culverts.



MNT 9/2003. PL-23. Deer Draw at supplemental standards boundary.



MNT 9/2003. PL-24. Borrow area showing successfully revegetated area.



MNT 9/2003. PL-25. Borrow area showing runoff-control berm.



MNT 9/2003. PL-26. Borrow area showing gully formation.



MNT 9/2003. PL-27. Borrow area showing ditch needing riprap.



MNT 9/2003. PL-28. Borrow area showing check dam in need of compaction.



MNT 9/2003. PL-29. Borrow area showing area needing to be ripped on contour.



MNT 9/2003. PL-30. Borrow area showing Deer Draw retention pond dam.



MNT 9/2003. PL-31. Borrow area showing road near Deer Draw retention pond.



MNT 9/2003. PL-32. Elk ranch below former millsite. Note denuded vegetation, breached dam, and new fence in foreground.



MNT 9/2003. PL-33. Improved road dozed up hillside toward city landfill.



MNT 9/2003. PL-34. New culvert on west side of Highway 191. Culvert is buried along road embankment and empties directly into the culvert that goes beneath the highway.

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: 11/19/03	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: 2004 <input type="checkbox"/> Actual or <input checked="" type="checkbox"/> Projected	
Operational & Functional Date: _____ <input type="checkbox"/> Actual or <input type="checkbox"/> Projected <input type="checkbox"/> N/A	
NPL deletion date: Post ROD <input type="checkbox"/> Actual or <input checked="" type="checkbox"/> Projected ROD projected for 2004 Partial deletion date: 10/14/2003 <input checked="" type="checkbox"/> Actual	
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? \$709,000

Breakout your annual O&M cost total into the following categories (use either dollars or %):

- Analytical (e.g., lab costs): 0%
- Labor (e.g., site maintenance personnel): 38%
- Materials (e.g., treatment chemicals): 2%
- Oversight (e.g., project management): (includes travel) 20%
- Utilities (e.g., electric, gas, phone, water): 5%
- Other (e.g., capital improvements): Includes rip-rap and fence 35%

*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 extension. Topsoil borrow area reconstruction. Channel repair along Highway 191.

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 Checklists
- Site-Specific Health & Safety Plan⁸ Contingency/Emergency Response Plan⁹ (Section 4 of H&S Plan)
- LTS&M/OSHA Training Records Settlement Monument Records
- Ground water monitoring records Repository and Pond 4 LCRS and LDS Monitoring Records
- Leachate Analytical data¹⁰ Waste disposal/shipping papers¹¹ (in TSF Record Book and in file drawer)

¹ Located in IR 575, 570,574,601² April 2003 Version³ Annual Updates approved between 5/27/03 and 6/17/03⁴ Material is documented in the Repository Record book and logbook 3-ring binder (binder needs to be segregated by topic)⁵ Pond 4 included with Repository – not separate record books.⁶ Last update April 2003⁷ Attachment 5 of the Final Covenant Deferral Request Jan 2000 IR537⁸ August 2001 (IR 576)⁹ Last update April 2003¹⁰ Located in telemetry computer¹¹ 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	<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 :

Institutional controls are formalized on the Quit Claim Deed recorded at the San Juan County Clerk and Records office at E061691 B788 P0100-0113 and E062130 B789 P0450-0452.
Erosion problems exist on the former millsite.

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	<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:

*Fence around supplemental standards area is in good repair. Some minor maintenance is recommended.

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:

A pond has been installed in Montezuma Creek within the supplemental standards area of MP-01084-VL. DOE, EPA, and UDEQ will determine if this action violates IC's.

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

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

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 |

Persons evaluating these properties should check for any significant erosion, deposition, and/or soil removal along the stream bed.

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

New elk fencing on MP-01084-VL may result in overgrazing of wetlands along Montezuma Creek as it has in previously fenced areas.

Roads in the canyon appear to have been recently improved (by bulldozer). No soil material has been removed from the creek area, and the roads do not compromise the IC's

VIII. TECHNICAL DATA – Repository Cover

List the types of data that are available:

What is the source report?

Settlement Plate Data

FFA Bimonthly Report

Vegetation Assessment

2002 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 18 inches

Remarks A few areas shown on 2003 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 _____ Depth _____

Remarks Numerous holes/burrows (all about 2-4" in diameter, on average) in Zone B; very few elsewhere.

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.

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.

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

Remarks _____

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 2003 Annual Inspection Report map
 No evidence of erosion

Areal extent _____ Depth _____

Remarks: DOE is in the process of repairing erosion below the south drainage channel.

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 noted.

2. **Erosion** Location shown on site 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 Tamarisk observed in Pond A

4. **Functioning as Designed**

Standpipes in good maintenance and functioning

Remarks Screen on top of Pond C standpipe is ajar and should be fixed.

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 not functioning properly

VIII. TECHNICAL DATA – Pond 4

- 1. Fencing and Signage** Location shown on 2003 Annual Inspection Report map
 Gates secured N/A
 Evidence of vandalism

Remarks: Fence in good condition. Need to replace rad rope on N, W, & E side. Phone numbers on signs verified.

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 Situation 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 Sand bags are being replaced with gravel-filled tubes. Tamarisk formerly growing in sediment has been cut and herbicide has been applied to the stalks.

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 Need to replace rope escape ladder and polypropylene ropes on buoys.

IX. REMEDY PERFORMANCE ASSESSMENT

A. Ground Water Remedies: Surface and Ground Water OU III is still in the RI/FS stage. The ROD is anticipated in 2004.

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.

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. These repairs 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.

None identified.

X. PROJECTIONS

Date of next annual inspection: September 2004

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 deletions dependent on OUIII ROD
Partial deletion became effective October 14, 2003

XII. RECOMMENDATIONSProgress implementing recommendations from last report or five-year review

Of the 22 recommendations listed in the 2002 Annual Inspection Report (MMTS and MVP), three recommendations have not been completed satisfactorily. They are: Should the LTS&M representative continue to monitor city utility excavations outside of the project boundary? Is Property MP-01084-VL in compliance with institutional controls (construction of a pond and overgrazing of supplemental standards areas)? Is the City of Monticello adequately restoring, using, and maintaining the former millsite and peripheral properties under their ownership?

New Recommendations, based on this annual review:

Recommendations are listed in Section 3 of the 2003 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 are have been finalized.
- 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.
- C. Significant erosion has occurred on the millsite and peripheral properties. Although the erosion does not impact the protectiveness of the remedy, remedial action objectives at the site have not been met.

Print Your Name: Tom Kirkpatrick (Chief Inspector)

Today's Date: 11/19/03

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

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: 11/19/03	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? \$709,000
Breakout your annual O&M cost total into the following categories (use either dollars or %):

- Analytical (e.g., lab costs): 0%
- Labor (e.g., site maintenance personnel): 46%
- Materials (e.g., treatment chemicals): 4%
- Oversight (e.g., project management): (includes travel) 23%
- Utilities (e.g., electric, gas, phone, water): 12%
- Other (e.g., capital improvements): 15%

*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):

South drainage channel extension. Topsoil borrow area reconstruction. Channel repair along Highway 191.

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 employees are current in training.)
- Other: Signature logs in record books were updated at the time of the inspection.

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 9/23/03

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: 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: 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: 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 since the last annual inspection.

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

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. Re-paving of city streets was in progress at the time of the inspection. Re-paving operations generated contaminated soils that were identified by the LTS&M Representative and managed in accordance with the LTS&M Operating Procedures.

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 2004

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

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 2003 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.
- 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.
- 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.

Print Your Name: Tom Kirkpatrick (Chief Inspector)

Today's Date: 11/19/03

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