



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 8  
999 18<sup>TH</sup> STREET - SUITE 300  
DENVER, CO 80202-2466  
<http://www.epa.gov/region08>

**SEP 10 2002**

Ref: 8EPR-F

Ms. Donna Bergman-Tabbert, Director  
Grand Junction Project Office  
Department of Energy  
Post Office Box 2567  
Grand Junction, CO 81502-2567

Subject: Monticello NPL Sites - CERCLA Five Year Reviews

Dear Ms. Bergman-Tabbert:

This is to inform you that the U.S. Environmental Protection Agency has reviewed and has concurred with the findings in the Second CERCLA Five Year Reviews for the Monticello NPL Sites. On September 6, 2002 we forwarded copies of the documents to EPA Headquarters.

The "Second Five-Year Review Report for Monticello Radioactively Contaminated Properties Monticello, Utah, San Juan County, Utah" was concurred on by Terry Anderson on August 9, 2002.

The "Second Five-Year Review Report for Monticello Mill Tailings (U.S. Department of Energy) City of Monticello, San Juan County, Utah was concurred on by Terry Anderson on August 22, 2002.

We thank the Department of Energy for preparing the documents in a timely manner. We would further note that the next CERCLA Five Year Reviews must be completed within five years of the date of concurrence by EPA. The next five year reviews for the Monticello NPL sites should be submitted in August 2007.

Sincerely,

A handwritten signature in black ink that reads "Max H. Dodson Acting".

Max H. Dodson  
Assistant Regional Administrator  
Ecosystems Protection and  
Remediation

cc: K. Gray UDEQ



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**AUG – 6 2002**

Ref: 8EPR-F

**MEMORANDUM**

**SUBJECT:** Monticello NPL Sites - Five Year Reviews

**FROM:** Paul S. Mushovic (RPM) *PSM*  
Federal Facilities Program

**TO:** Tracy Hopkins  
US EPA Headquarters  
Mail Code 5204G  
Ariel Rios Building  
1200 Pennsylvania Avenue N.W.  
Washington, DC 20460

Please find enclosed signed copies of the Monticello NPL Sites - 2<sup>nd</sup> Five Year Reviews. The documents were prepared earlier this year and were previously submitted to you in draft form for review. Your comments have been incorporated as requested.

The “Second Five-Year Review Report for Monticello Radioactively Contaminated Properties Monticello, Utah, San Juan County, Utah” was signed by Terry Anderson on August 9, 2002.

The “Second Five-Year Review Report for Monticello Mill Tailings (U.S. Department of Energy) City of Monticello, San Juan County, Utah was signed by Terry Anderson on August 22, 2002.

I will work with the Department of Energy to get an electronic version of the reports; however, there are some foldout maps which will not be included in the text.

Should you have any questions please contact me at (303) 312-6662.

cc: without copies  
M. Downs

# Five-Year Review Report

**Second Five-Year Review Report  
for Monticello Mill Tailings  
(U.S. Department of Energy)  
City of Monticello  
San Juan County, Utah**

**June 2002**



**U.S. Department  
of Energy**

**GRAND JUNCTION OFFICE**

# Five-Year Review Report

## Second Five-Year Review Report For Monticello Mill Tailings (USDOE) City of Monticello San Juan County, Utah

June 2002

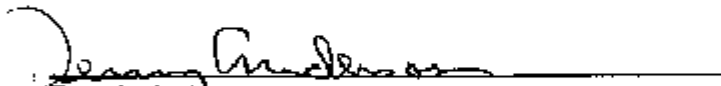
Prepared by  
U.S. Department of Energy  
Grand Junction Office  
Grand Junction, Colorado

Approved by:

Date:



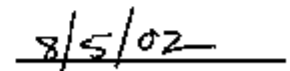
Art Kleinrath  
LTSM Program Manager  
U.S. Department of Energy, Grand Junction Office



Terry L. Anderson  
Director of Federal Facilities Program, Region 8  
U.S. Environmental Protection Agency



Brad T. Johnson  
CERCLA Branch Manager  
Utah Department of Environmental Quality



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- Attachment 3 Leachate Collection and Removal System Water Quantity Data
- Attachment 4 Interview Results
- Attachment 5 Observations from the 2001 Annual Inspection

## List of Acronyms

AEC	Atomic Energy Commission
ARAR	applicable or relevant and appropriate requirement
BMPA	Best Management Practice Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm	centimeter
DOE	U.S. Department of Energy
EA	environmental assessment
EPA	U.S. Environmental Protection Agency
ESD	Explanation of Significant Differences
FFA	Federal Facility Agreement
ft	feet
GJO	Grand Junction Office
GPS	global positioning system
IRA	interim remedial action
IWMA	Interim Waste Management Area
LTSM	Long-Term Surveillance and Maintenance
MMTS	Monticello Mill Tailings Site
MRAP	Monticello Remedial Action Project
MVP	Monticello Vicinity Properties
NCP	National Contingency Plan
NPL	National Priorities List
O&M	operation and maintenance
OU	operable unit
pCi/g	picocuries per gram
PeRT	permeable reactive treatment
RI/FS	Remedial Investigation/Feasibility Study
RO	reverse osmosis
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act of 1986
SFMP	Surplus Facilities Management Program
TDS	total dissolved solids
TSF	temporary storage facility
UDEQ	Utah Department of Environmental Quality
UDOT	Utah Department of Transportation
UPDES	Utah Pollutant Discharge Elimination System
VCA	Vanadium Corporation of America
WWTP	wastewater treatment plan
ZVI	zero-valent iron

## Executive Summary

The Monticello Mill Tailings Site (MMTS) Operable Units (OUs) I and II have been remediated by the U.S. Department of Energy (DOE) Grand Junction Office (GJO) in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986. The MMTS includes the former uranium mill tailings site near Monticello, Utah (OU I), and peripheral properties (OU II). A record of decision (ROD) has not yet been issued for OU III, contaminated surface and ground water on and downgradient of the former millsite.

The remedy for the MMTS included removal of radioactively contaminated soils, uranium mill tailings, and processing materials to an on-site repository. It also included leaving some radioactively contaminated soils in place and applying supplemental standards and institutional controls to ensure that the remedy remains protective of human health and the environment. The remedy for contaminated ground and surface water is not finalized; however, an interim ROD is in place. The effects of the interim remedy are unknown and the characteristics of the ground and surface water are currently being addressed. A ROD for the remedy for ground and surface water is anticipated in 2004.

This CERCLA five-year review is required by statute. Section 121 (c) of CERCLA requires that remedial actions resulting in any hazardous substances, pollutants, or contaminants remaining at a site above levels that allow for unlimited use and unrestricted exposure be reviewed every five years to ensure protection of human health and the environment.

This is the second five-year review conducted for the MMTS. Since the last five-year review, remedial activities at OU I and OU II have been completed. The remedy for these OUs have been constructed in accordance with the ROD. The remedy is protective of human health and the environment.

The remedy for completed remedial activities for OU I is protective of human health and the environment in the short and long-term. The remedy for completed remedial activities for OU II is protective of human health and the environment in the short-term; however, a pending zoning change for property MP-00211 needs to be completed for the remedy to be protective of human health and the environment in the long-term. The long-term protectiveness of OU III cannot be determined until a remedy is selected and documented in a record of decision.





## **Five-Year Review Summary Form, cont'd**

### **Issues:**

Rock armor in the repository storm water (runoff) drainage channels is degrading.

Erosion is occurring at the north end of the west repository drainage channel and at the east end of the south repository drainage channel.

### **Recommendations and Follow-up Actions:**

The existing rock in the drainage channels is being overlain with rock meeting durability specifications.

The two repository drainage channels are scheduled to be repaired. The schedule is contingent upon identification of funding. The repair will be monitored to ensure that erosion has ceased.

### **Protectiveness Statements:**

The remedy at OU I (the repository and former millsite) is protective of human health and the environment and exposure pathways that could result in unacceptable risks are being controlled. Although the native vegetation has not established at both the millsite and repository, the remedies at these sites currently are protective.

The remedy at OU II (the peripheral properties) currently protects human health and the environment because the contaminants have been removed in accordance with relevant and applicable or appropriate requirements. However, in order for the remedy to be protective in the long-term, a zoning change prohibiting construction of habitable structures on City owned property identified as MP-00211 must be completed.

A protectiveness determination of the remedy at OU III (surface and ground water) cannot be made at this time until further information is obtained. Further information will be obtained by taking the following actions: completing an Interim Remedial Action, updating the Remedial Investigation, and preparing the Feasibility Study. A remedy will be selected and documented in a ROD for this OU. It is expected that these actions will be completed by July 2004, at which time a protectiveness determination may be made.

No comprehensive site-wide protectiveness statement can be made for the MMTS since the remedy for OU III has not yet been selected.

### **Long-term Protectiveness:**

The remedy for completed remedial activities for OU I is protective of human health and the environment in the short and long-term. The remedy for completed remedial activities for OU II is protective of human health and the environment in the short-term; however, a pending zoning change for property MP-00211 needs to be completed for the remedy to be protective of human health and the environment in the long-term. The long-term protectiveness of OU III cannot be determined until a remedy is selected and documented in a record of decision.

### **Other Comments:**

Maintenance items and minor issues listed in Section VIII of this report that do not affect current or future protectiveness have been omitted from this summary form.

# Monticello Mill Tailings Site Monticello, Utah Second Five-Year Review Report

## I. Introduction

The purpose of the five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports. In addition, five-year review reports identify issues found during the review, if any, and identify recommendations to address them.

The five-year review is a statutory requirement for the MMTS. CERCLA Section 121 (c) states the following:

*If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such review, and any actions taken as a result of such reviews.*

The U.S. Environmental Protection Agency (EPA) interpreted this requirement further in the National Contingency Plan (NCP) (40 CFR 300.430(f)(4)(ii)) which states:

*If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

DOE conducted the five-year review of the remedy implemented at the MMTS in San Juan County, Utah. Contractor personnel assisted DOE with the review and EPA and the Utah Department of Environmental Quality (UDEQ) provided oversight. The Long-Term Surveillance and Maintenance (LTSM) Project Manager conducted this review for the entire site from September 2001 through May 2002. This report documents the results of the review.

This is the second five-year review for the MMTS. The triggering action for this statutory review is the date of the first five-year review report (February 13, 1997.) This five-year review is required by statute because contamination remains at the site above levels that allow for unlimited use and unrestricted exposure.

## II. Site Chronology

**Table 1 – Chronology of Site Events**

Event	Date
Vanadium and uranium milling processes were conducted at the site resulting in four tailings piles, contaminated soils, contaminated buildings, contaminated processing equipment, and contaminated surface water and groundwater.	1941 - 1960
The Atomic Energy Commission regraded and stabilized tailings piles. Fill dirt and rock were spread over the tops and sides of all tailings piles.	1964
Contaminated soils were removed from surrounding ore-storage areas and used as fill material to partially bury the mill foundations.	1965
Millsite was accepted into the Surplus Facilities Management Program to ensure safe caretaking and decommissioning of government facilities that had been retired from service but still contained radioactive contamination. Monticello Remedial Action Project (MRAP) was established.	1980
Two removal actions were initiated in 1983 (and completed in 1984)	1983
Remedial activities for vicinity properties were separated from MRAP and the Monticello Radioactively Contaminated Properties [also known as Monticello Vicinities Project (MVP)] was established.	1983
The MVP was placed on the National Priorities List (NPL).	June 10, 1986
The MMTS was placed on the NPL.	November 16, 1989
Inclusion of proposed repository site in on-site determination.	1990
Remedial Investigation/Feasibility Study – Environmental Assessment for MMTS completed	January 1990
Federal Facility Agreement signed.	February 1990
MMTS Record of Decision (ROD) signed.	September 1990
Millsite remedial activity initiated.	1992
Conceptual repository liner design completed. This design was later determined to be unacceptable.	April 1993
DOE determined that the on-site alternative remained the preferred remedy.	December 22, 1994
Enforcement action taken against DOE for unpermitted discharge to Montezuma Creek.	March 1995
Pre-Final Design and Specification Package for Millsite Remediation	April 28, 1995
Repository construction initiated.	October 27, 1995
First CERCLA 5-Year Review	February 13, 1997
Interim ROD for Operable Unit III signed.	September 29, 1998
Explanation of Significant Differences issued to provide the rationale for applying supplemental standards to MVP and MMTS properties in which contamination was left in place.	February 1999
Tailings removal completed.	August 31, 1999
Covenant Deferral Request allowing transfer of federal property prior to completion of cleanup activities.	February 6, 2000
Repository construction completed.	May 19, 2000
Transfer of millsite to the City of Monticello	May, 2000
Millsite restoration completed (except for vegetation).	July 17, 2000

## III. Background

### Physical Characteristics

The MMTS and MVP Site are located in San Juan County, in and near the City of Monticello in southeastern Utah. The millsite encompasses a 110-acre tract of land formerly owned by DOE. The millsite is now owned by the City of Monticello and is surrounded by property owned by the City of Monticello, the Utah Department of Transportation (UDOT), and

private parties. The millsite is situated in an east-trending alluvial valley formed by Montezuma Creek, a small intermittent stream that flows from the Abajo Mountains immediately to the west. Elevations at the millsite range between 6,820 feet (ft) above sea level at the southeast corner to 6,990 ft at the northwest corner. Attachment 1 shows the location of the three OUs for MMTS and a portion of the area included in the Monticello Vicinity Properties (MVP) Site.

## **Land and Resource Use**

Prior to 1941, the site was undeveloped and used for grazing. The original Monticello mill was constructed in 1941 with government funding by the Vanadium Corporation of America (VCA). Vanadium milling operations ceased in 1955. Uranium milling continued until 1960, at which time, all milling operations ceased at the site.

The site remained idle until the Bureau of Land Management used the site for offices and warehousing prior to the start of MMTS activities. The millsite was used as an interim repository for tailings removed from MVPs. Repository excavation was started November 6, 1995.

Once the contaminated material was removed, ownership of the millsite and adjacent peripheral properties was transferred to the City of Monticello for reconstruction. Upon completion of reconstruction, the City-owned property will be opened for public recreational use. The land transfer was conducted in accordance with CERCLA requirements for transferring federal property prior to completion of all remedial actions. The Assistant Regional Administrator of U.S. EPA and the Governor of Utah approved a covenant deferral request allowing transfer of the millsite prior to completion of OU III and the millsite was transferred to the City of Monticello in May 2000.

The repository, which remains under DOE ownership, will remain closed to the general public.

## **History of Contamination**

The original Monticello mill was constructed in 1941 with government funding by the VCA to provide vanadium during World War II. VCA operated the mill until early 1944 and again from 1945 through 1946 producing vanadium as well as a uranium-vanadium sludge. In 1948, the U.S. Atomic Energy Commission (AEC) purchased the site. Uranium and vanadium milling operations began again in 1949 under the auspices of AEC. Vanadium milling operations ceased in 1955, but uranium milling continued until 1960 when the mill was permanently closed.

Four tailings piles, resulting from processing vanadium and uranium ore, were left at the millsite following the cessation of milling operations. The informal names for the separate tailings piles are the Carbonate Tailings Pile, the Vanadium Tailings Pile, the Acid Tailings Pile, and the East Tailings Pile. The Carbonate and Vanadium Tailings Piles received wastes from a salt-roast and carbonate-leach milling process until approximately 1955. The acid and east tailings ponds were then constructed to receive the wastes from the acid leach and carbonate-leach process. Approximately one million tons of ore was processed at the mill. The total combined in-place volume of the four tailings piles and surrounding contaminated soils and related by-product material was approximately 2.2 million cubic yards.

## Initial Response

In 1961, the AEC regraded, stabilized, and revegetated the East Tailings Pile by spreading tailings sand from the other three piles over its surface. In 1964, the mill was dismantled. In 1965, approximately 6 to 12 inches of topsoil were removed from the ore-storage areas and used as fill to partially bury the mill foundations. In 1974 and 1975, contaminated soil was removed from the former ore-storage areas and placed on the previously stabilized surface of the East Tailings Pile.

DOE, under the authority of the Atomic Energy Act, initiated the Surplus Facilities Management Program (SFMP) in 1978 to ensure safe caretaking and decommissioning of government facilities that had been retired from service but still contained radioactive contamination. In 1980, the millsite was accepted into the SFMP and the Monticello Remedial Action Project (MRAP) was established.

In 1983, remedial activities for vicinity properties were separated from MRAP with the establishment of the MVP Project. The MVP Site was listed on the National Priority List (NPL) on June 10, 1986, and was remediated pursuant to a ROD dated November 29, 1989. The selected remedy for cleanup of the MVP Site was excavation of tailings, ore, and related by-product material from vicinity properties; temporary storage on the millsite; and final disposal in the same repository described for OU I of the MMTS. Remediation of the MVP Site was completed in 1999 and deletion from the NPL became effective February 28, 2000. The MVP site is mentioned in this five-year review of the MMTS because of its close relationship to the MMTS. Approximately 300,000 cubic yards of material was removed from the MVP's, stored in an interim repository on the millsite, and subsequently disposed of in the on-site repository.

The MMTS was placed on the NPL on November 16, 1989. In January 1990, DOE completed the Remedial Investigation/Feasibility Study (RI/FS)-Environmental Assessment (EA) for the millsite. The RI/FS-EA included analyses sufficient to enable DOE to assess the impacts of the remedial action alternatives as required under the National Environmental Policy Act.

The MMTS ROD was signed by all parties in September 1990, and the remedies were selected for remediation of the millsite and peripheral properties. The remedies required the removal of contaminated soils and tailings. Placement of contamination in an on-site repository was also selected. DOE purchased property south of the millsite necessary for construction and implementation of the remedy.

## Basis for Taking Action

Contamination at the MMTS resulted from the storage and milling of vanadium and uranium ores. The millsite included four stabilized tailings impoundments (the Carbonate, Vanadium, Acid, and East piles) and an area once occupied by the mill buildings. Extensive radiological and heavy metal contamination of these areas resulted directly from ore storage and processing. Adjoining properties have lesser degrees of contamination transported by wind, water, or human action. Contaminants derived from the millsite also affect surface water, ground water, and alluvial sediments along downstream reaches of Montezuma Creek.

The primary ore- and tailings-borne contaminants are radionuclides in the uranium decay series, particularly thorium-230, radium-226, radon-222, and daughters of radon-222. These occur mostly in byproduct material, as defined in the Atomic Energy Act of 1954. Significant exposure pathways affecting human health include:

- Inhalation of radon-222 and its daughters, which emit alpha radiation;
- External whole-body exposure to radionuclides that emit gamma radiation; and
- Inhalation and ingestion of dust containing thorium-230 and radium-226, which emit alpha and gamma radiation.

Other contaminants include arsenic, beryllium, cadmium, chromium, copper, lead, molybdenum, nickel, uranium, selenium, vanadium, and zinc. These elements either occur naturally in uranium ores or were contributed by the milling processes.

For radionuclides in byproduct material (as defined in the Atomic Energy Act), the cleanup standards for uranium mill tailings in 40 CFR 192 are considered relevant and appropriate. These standards require that average radium-226 concentrations in soil not exceed the background level by more than 5 picocuries per gram (pCi/g) in the surficial 15 centimeters (cm), or by more than 15 pCi/g in successively deeper 15 cm layers, averaged over 100 square meters. If these cleanup standards are met, the property concerned can be released for unlimited use and unrestricted exposure. Radon-222 releases from the repository may not exceed an average of 20 picocuries per square meter per second or increase the annual average concentration of radon-222 in air outside the disposal site by more than 0.5 picocuries per liter.

The extent of contamination of surface soil by these radioactive and nonradioactive elements was delineated by mapping the distribution of radium-226. The use of radium as a proxy for other metals contained in the ore and tailings is justified because the other elements, excluding uranium and vanadium, passed through the mill circuit with radium to the tailings piles where they resided in concentrations approximating those found in ore. Further, no transport mechanism has been identified that would account for the segregation and dispersal of one of the non-ore elements independently of others.

#### **IV. Remedial Actions**

##### **Remedy Selection**

The ROD for the MMTS was signed on September 20, 1990. The ROD identified three remedial actions to be conducted in three OUs. The selected remedies for OU I (Millsite Tailings and Millsite Property) and OU II (Peripheral Properties) are identified in the ROD. A separate ROD will be completed for OU III (Surface Water and Ground Water) in 2004. The ROD for OU III was deferred until the effects on the aquifer of the removal of the source of contamination could be determined.

The primary remedial action objective for OU I was to excavate tailings and other byproduct material and hazardous substances located on the millsite to levels protective of human health and the environment and to dispose of the resulting contaminated materials in an on-site repository located approximately one mile south of the millsite. The ROD required the

repository to be capped to protect the ground water, isolate the waste from the environment, and to control the escape of radon gas.

The remedial action objective of OU II was to remove contamination from peripheral properties and place the material in the OU I repository. The remedy reduces radiation exposure to the public by removing contaminated material or by implementing the use of supplemental standards for areas in which contamination was left in place. Under 40 CFR 192.21 and 192.22, supplemental standards allow leaving some or all of the contamination in place where remedial actions would:

- pose a clear and present risk of injury to workers or to members of the public,
- directly produce health and environmental harm that is clearly excessive compared to the health and environmental benefits, or
- have an unreasonably high cost relative to the long-term benefits.

An explanation of significant differences (ESD) was issued in February 1999, which documents the decision to implement supplemental standards on OU II properties. For those supplemental standards properties where contamination was left in place, institutional controls in the form of restrictive easements were implemented which prohibit construction of habitable buildings within the area of the contaminated floodplain. The restrictive easements also prohibit man caused disturbance (such as removal of the material or activities that will cause the material to erode) within the contaminated areas. Furthermore, the State of Utah Engineer's office has prohibited the development of wells in the shallow alluvial aquifer within the area of the Montezuma Creek floodplain defined by the contaminated plume.

Originally, contaminated soil and sediment transported downstream from the millsite by Montezuma Creek was addressed under OU III. However, subsequent to the remediation of the contaminated properties, a decision was made to address the remedy selection for the OU III properties along Montezuma Creek under OU II. This reorganization of remedial actions was not significant enough to require the ROD to be amended by an ESD.

## **Remedy Implementation**

A Federal Facility Agreement (FFA) among DOE, EPA, and UDEQ, pursuant to Section 120 of CERCLA/SARA, became effective December 1988. DOE, EPA, and UDEQ agreed to perform response actions at the MMTS and MVP Site in accordance with the FFA. DOE is the lead agency that provides the principal staff and resources to plan and implement response actions. EPA and UDEQ share responsibility for oversight of activities performed under the FFA; EPA is the agency with ultimate responsibility and authority but shares its decision making with UDEQ.

Remedial actions conducted under CERCLA began in 1992. Construction of support and control facilities, including limited removal of mill tailings, began in 1992 and continued during the 1993 through 1995 construction seasons. The repository design was completed in August 1995 and construction of the repository commenced in November 1995. The repository construction, including placement of the liner system, leachate collection and removal system, and leak detection system, was completed in the fall of 1996. Placement of tailings in the repository began in 1997 and the repository cap was completed in 2000.



The selected remedy for OU I and OU II consisted of constructing an on-site repository for permanent disposal of tailings, removal of tailings from the former millsite and peripheral properties, and placement the contaminated materials in the repository. Several facilities were constructed to implement the selected remedial actions. These facilities are described below.

**Repository**—A double-lined repository was constructed approximately 1 mile south of the millsite. It was designed to contain 2.3 million cubic yards of contaminated material with the ability to expand the cell to contain 2.6 million cubic yards. Approximately 2.54 million cubic yards of contaminated materials were placed in the repository prior to its closure in 1999. A multi-layer cover that includes a lined radon barrier was constructed over the placed contaminated materials. The top of the cover primarily consists of native vegetation to blend in with the surrounding terrain; however, slopes steeper than 18:1 (horizontal to vertical) have been covered with rock.

Runoff control ditches have been constructed around all disturbed areas to limit off site sedimentation. These ditches channel water to one of three sediment ponds located around the repository. The sediment ponds are designed to trap the sediment while allowing water to pass through. There are two sediment ponds located along the north side of the repository. The third pond is situated on the southeast corner.

**Millsite Access Area**—The millsite access area is located in the northeast corner of the former millsite. The access was the entry for vehicles transporting tailings from the vicinity and peripheral properties to the interim repository where tailings were stored prior to final disposal in the repository. It remained an access and egress point for work on the millsite until remedial actions were completed, at which time the access trailer and offices were removed. A decontamination pad in the access area was used to remove contamination from equipment leaving the millsite, the pad remains but is no longer used for that purpose. The access area including the paving, decontamination pad, and fencing around the access area has been turned over to the City of Monticello as part of the millsite land transfer to allow the city to develop the land for recreational purposes.

**Pond 1**—Pond 1 was located on the northeastern side of the millsite, adjacent to the millsite access area. The lined pond collected water used to decontaminate vehicles exiting the millsite. The water in Pond 1 was used for dust control on contaminated areas of the millsite or pumped to Pond 3. The pond was removed at the completion of remedial activities.

**Pond 2**—Pond 2, located on the south side of Montezuma Creek, was designed as a temporary pond to collect contaminated runoff from the interim repository. The lined pond was made inactive due to redesign and construction of alternate on-site drainage controls following a release of untreated stormwater into Montezuma Creek in 1995. Pond 2 was modified to serve as the recirculation pond for the decontamination facility at the millsite end of the haul road between the millsite and the repository. When this decontamination facility was abandoned, Pond 2 was used to contain brine produced by the on-site wastewater treatment plant (WWTP). Pond 2 was removed as part of the remedial action effort.

**Pond 3**—Pond 3, located on the east side of the millsite, was lined and collected contaminated water from the millsite area through a system of runoff-control ditches.

Water removed from tailing excavations was also pumped to Pond 3. Pond 3 held approximately 5 million gallons of water, which was used for dust control in contaminated areas on the millsite and in the repository. The water level in Pond 3 was maintained to ensure capacity for a single 25-year, 24-hour storm event. When this water level was exceeded, water was pumped from Pond 3 to the WWTP for treatment to established effluent standards and discharged to Montezuma Creek. Alternatively, depending on water management requirements, water was also pumped to Pond 4 via a pipeline installed in 1997. Pond 3 and the pipeline to Pond 4 were removed as part of the remedial action effort.

**Pond 4**—Pond 4, located east of the repository, is used to contain water and leachate removed from the repository leachate collection and leak detection systems. It was also designed to collect runoff during tailings placement prior to cover construction. During tailings placement, water was pumped from Pond 4 to the WWTP for treatment. Over the long-term, the pond has been sized to function as an evaporation pond. The pond has a triple liner to ensure that ground-water quality will be protected.

Pond 4 has a capacity of 18 million gallons used to contain transient drainage (leachate) from the repository. The pond is expected to remain in use for up to 20 years depending on the flow of leachate from the repository. Pond 4 will be decommissioned when liquid draining from the repository becomes minimal or nonexistent. At that time, DOE may replace the pond with smaller storage tanks.

**Wastewater Treatment Plant (WWTP)**—The millsite WWTP was used to treat water from Pond 3 or Pond 4 before it was released to Montezuma Creek. Samples of the discharged water were collected and analyzed to ensure compliance with Utah Pollutant Discharge Elimination System (UPDES) standards. The WWTP was designed to remove heavy metals, radionuclides, and total dissolved solids (TDS) from contaminated ground water and surface water. Two treatment processes were used. One was precipitation followed by filtering. The other was a reverse osmosis (RO) treatment process. These processes were used in combination or separately depending on influent water quality. The equipment comprising the precipitation process was housed in two 48-ft trailers. Precipitation in Trailer 1 removed certain heavy metals and radionuclides. Adjustments to the pH of the water processed in Trailer 1 were made in Trailer 2, which also contained a membrane filtration system for filtering out particulate matter. A third trailer was available for final polishing, but was not successfully used. Initially, activated alumina was used to remove selenium, then zero-valent iron (ZVI) was used. The activated alumina required the removal of sulfates which required the use of barium chloride.

The WWTP could not be operated to remove both selenium and barium to UPDES standards. Operation of the WWTP with the ZVI did not prove successful because adequate flow through the columns could not be attained along with sufficient residence time in the columns to remove selenium. The RO unit removed all contaminants of concern but generated a brine waste stream which required management. Use of the RO was primarily to remove selenium and TDS. The processed water from the RO unit was blended with water from the trailers.

The WWTP was initially operated at the MMTS in May 1995. This operation was a pilot to test contaminant removal efficiencies, but a substantial volume of water was treated in

1995 and 1996. Trailer 3 was initially placed into service in 1997 with an activated alumina resin following modifications completed in the summer of 1996. Additional modifications were made in 1997 to meet the barium standard established by the State on April 28, 1997. These modifications were not successful and the RO unit was brought in to ensure that the UPDES standards could be met. The plant successfully treated over 50 million gallons prior to being dismantled in May 1999.

**Interim Waste Management Area (IWMA)**—Remediation of both the MVP Site and MMTS generated wastes containing other than byproduct material that required special management. An IWMA was established on the millsite in June 1995 to store and manage these wastes. The IWMA was operated in conformance to the State of Utah Hazardous Waste Management Rules. During the 1997 construction season, wastes in the IWMA were treated to meet the repository waste acceptance criteria and disposed of in the repository. The only treatment required was to render liquid wastes non-liquid. All wastes were removed from the IWMA in the fall of 1997 and winter of 1998 and the facility was closed in 1999 as required by the Closure Plan identified in the Special Waste Management Plan.

**Best Management Practice Area (BMPA)**—The BMPA was used for the storage of contaminated soils that required more containment than that attained at the interim repository, but were not hazardous or liquid wastes requiring management at the IWMA. The types of waste stored at the BMPA were soil contaminated with waste oil that also contained lead in concentrations up to 1,500 milligrams per kilogram. The BMPA was located to the west of the Acid Tailings Pile, south of Montezuma Creek. The area was bermed and covered with plastic. The purpose of the additional containment was to prevent uncontrolled release of the waste material. The wastes stored in the BMPA were placed in the repository during the 1998 construction season and the area was remediated to radiological standards.

**Interim Repository**—The interim repositories were located on the East Tailings Pile and on the south side of the millsite east of the Acid Tailings Pile. The areas were used for the interim storage of tailings from the MVP and peripheral properties and had a capacity of approximately 350,000 cubic yards. The areas included access roads, drainage control structures, and Pond 2. Runoff from these areas was routed to Pond 3 via the onsite collection ditches. The materials placed here were moved to the permanent repository during construction seasons 1998 and 1999.

**Haul Road**—Trucks were used to transport tailings along the 1.2-mile haul road that was constructed between the millsite and the repository. Use of the dedicated haul road reduced remediation traffic on U.S. Highway 191. Decontamination pads were constructed at both ends of the haul road. In 1997, trucks were decontaminated by removal of visible loose contamination, but not for free release. The purpose of the decontamination was to ensure that contamination on the trucks did not fall off and contaminate the haul road. Starting in 1998 the haul road was operated as a contaminated haul road to improve haul cycle times. The decontamination pads were removed as part of the remedial action. Runoff from the haul road was contained and drained to Pond 3. The haul road and surrounding areas were periodically tested to ensure contamination was contained on the haul road. All contaminated surfaces on and adjacent to the haul road were remediated in 1999.

The clean haul road embankment in North Draw was used for fill material by the City of Monticello as part of the millsite restoration activity. The City of Monticello conducted the restoration pursuant to a Cooperative Agreement between DOE and the City. In 2001, the haul road was removed, graded to blend in with the adjacent topography, and revegetated.

**Support Area**—The support area is located west of the repository, adjacent to U.S. Highway 191. This area contained office trailers, lunchrooms, restrooms, and other administrative and employee facilities required for contractor and subcontractor use during remediation and restoration activities. The area was constructed in 1995 prior to initiating repository construction. Due to the completion of the repository and demobilization of construction activities, most of these facilities were removed in 2000. One office trailer remains for LTSM use.

In 1999, a Temporary Storage Facility (TSF) was constructed in the support area for use by DOE and the City of Monticello for the storage of contaminated materials. These materials may be removed from supplemental standards areas or adjacent areas that become contaminated above applicable standards as a result of contaminant transport from supplemental standards areas. The TSF is maintained by DOE under the LTSM Program.

A cooperative agreement between the City of Monticello and DOE was executed in 1998 in which the City was to complete the restoration of the millsite. The City subcontracted the millsite restoration design, which was approved by DOE, EPA, and UDEQ, and issued a notice to proceed with construction in August 2000. The millsite restoration and installation of wetlands areas were completed in 2001. Since the millsite was seeded in the fall of 2001, it is too early to determine the success of this effort. Wetlands and upland monitoring will be conducted to ensure successful establishment of plant communities.

OU III addresses ground and surface water contamination. On September 29, 1998, an interim ROD was signed in which continued monitoring of ground and surface water was specified to characterize the changed conditions brought on by millsite and peripheral property remediation. Quarterly water monitoring is on-going. The interim ROD also includes installation of a permeable reactive treatment (PeRT) wall as a treatability study to determine if it will adequately remove contaminants from the water. The PeRT wall was installed in June 1999. The interim remedial action (IRA) also required implanting institutional controls to prevent use of contaminated water. A focused RI/FS which incorporates results of the PeRT wall investigation and further characterization and analysis are anticipated to lead to a ROD for OU III in 2004.

### **System Operations/Operation and Maintenance (O&M)**

The Monticello Project was transferred to the LTSM Program at the DOE–GJO on October 1, 2001. This program provides stewardship to DOE sites that contain low-level radioactive materials and have no ongoing mission. The LTSM Program is tasked with ensuring compliance with applicable regulations, licenses, and agreements, and ensuring disposal sites remain protective of human health and the environment. LTSM activities are implemented through the LTSM Program in accordance with the Monticello LTSM documents.

LTSM contractor employs staff the Monticello site on a full time basis to conduct activities identified in the Monticello LTSM documents. The major components of the LTSM activities include the following:

- Monitoring the leachate collection and leak detection systems of the repository and Pond 4 to ensure the integrity of the liners.
- Monitoring the vegetative cover of the repository for erosion and settlement and evaluating the success of the vegetation.
- Maintaining pumps and other mechanical systems, telemetry, fences, storm water controls, signage, and monuments.
- Receiving and responding to public inquiries.
- Providing oversight of any work pertaining to city streets and utilities, such as surveying excavation spoils for contaminated soil, and furnishing a temporary storage facility for contaminated material until it can be transported to the Grand Junction Disposal Cell.
- Providing oversight to supplemental standards properties that includes surveillance for erosion or disturbance of soils and checking for unauthorized construction.
- Providing oversight of any construction work performed in supplemental standards area by UDOT and the City of Monticello; surveying spoils for contamination; and furnishing temporary storage for contaminated material until it can be transported to the Grand Junction, Colorado, Disposal Cell.
- Conducting radiological surveys to support construction of habitable structures on supplemental standards properties.
- Monitoring activities conducted on the former millsite to ensure compliance with the requirements of the cooperative agreement with the City of Monticello.
- Monitoring institutional controls established to maintain protectiveness of the repository and supplemental standards properties.

## **V. Progress Since the Last Five-Year Review**

The first five-year review of the MMTS was conducted in 1997. Since that time, approximately 2.5 million cubic yards of contaminated material from OU I, OU II, and the MVPs site have been placed in the on-site repository. The repository was capped in accordance with design specifications in May 2000 and seeded in the spring of the same year.

Removal of contaminated materials has been completed on OU I and OU II properties. Closeout reports demonstrating compliant remediation have been approved by EPA and UDEQ for all OU I and OU II properties that do not have ground water contamination. Closeout reports have been submitted to EPA and UDEQ for approval for those properties that do have ground water contamination.

The millsite and adjacent properties were transferred to the City of Monticello in May 2000. The City completed the restoration of the millsite according to design specifications and reseeded the property in the fall of 2001. The property has not been released for public use because the recently seeded areas have not yet had time to establish vegetation that will protect the site from erosion.

OU I and OU II were transferred to the LTSM Program administered by DOE–GJO. LTSM activities have commenced.

Under OU III, an interim remedial action has been implemented. Ground and surface water monitoring is on going. The PeRT wall has been installed and the treatability study is in progress. A ROD for OU III is scheduled to be completed in 2004.

O&M costs include cap and drainage structure maintenance, telemetry system maintenance, sampling and analysis of the leachate collection system, property inspections, radiological monitoring of supplemental standards areas, and office building maintenance. Currently, two full time employees residing in the area are stationed at the site to conduct LTSM activities. The projected LTSM budget for fiscal year 2002 (October 1, 2001 through September 30, 2002) is \$370,000. This figure includes the LTSM budget for the related MVP site.

## **VI. Five-Year Review Process**

### **Administrative Components**

The activities scheduled for conducting this five-year review included community notification, site inspection, interviews with stakeholders and local government officials, and development of the five-year review report including review by EPA and UDEQ.

The LTSM Program initiated the five-year review by conducting a physical inspection of the site on September 19 and 20, 2001. The physical inspection was combined with the first annual site inspection required by the LTSM Program. Representatives from DOE, EPA, UDEQ, and the DOE contractor participated in the inspection. Results and details of the inspection are detailed in the *2001 Annual Inspection of the Monticello Mill Tailings (USDOE) and Monticello Radioactively Contaminated Properties Sites* report prepared by DOE in April 2002.

### **Community Involvement**

Announcements were published on April 17, 2002 in two local newspapers, the *San Juan Record* and the *Blue Mountain Panorama*, describing the CERCLA five-year review process and providing the public with information on how to contact DOE and local LTSM Representatives. Copies of the announcements are provided in Attachment 2. Announcements were published in these two newspapers on May 1, 2002, informing the public that the draft five-year review reports were available and that the official comment period began on May 1, 2002, and ended on May 31, 2002. Copies of these announcements are also provided in Attachment 2. No public comments were received by DOE during the public comment period.

The Monticello City Manager, Mayor, Chief of Police, and Fire Chief were requested to be interviewed concerning the MMTS and MVP. The San Juan County Administrator, County

Commission Chairman, County Road Supervisor, and an environmental engineer from UDOT were also solicited for interviews.

A public notification of the availability of this report [the *Second Five-Year Review Report for Monticello Mill Tailings (USDOE)*] will be published in two local newspapers.

## **Document Review**

This five-year review consisted of a review of relevant documents including the LTSM records.

Documents reviewed include the following:

- Monticello Mill Tailings Site Declaration for the Record of Decision and Record of Decision Summary
- U.S. Environmental Protection Agency Region VIII Hazardous Waste Management Division Five-Year Review (Type Ia), Monticello Mill Tailings Site (San Juan County, Utah)
- Cooperative Agreement DE-FC 13-99GJ79485 between the City of Monticello and the U.S. Department of Energy
- LTSM documents including the Monticello Long-Term Surveillance and Maintenance Administrative Manual and the Operating Procedures (Volumes I, II, and IV)
- Record Field Books for the Monticello LTSM Program:

Repository Record Book

Pond 4 Record Book

Government-Owned P/J Properties Record Book

OU II Montezuma Creek Soil and Sediment Properties Record Book

TSF Record Book

## **Data Review**

Water production data from the repository and Pond 4 Leachate Collection and Removal Systems were reviewed. Action leakage rates have not been exceeded; therefore, mixing calculations as specified in the Groundwater Contingency Plan are not required to be conducted. These data are provided in Attachment 3. Analytical results from Pond 4 are reviewed annually to determine if hazardous constituents are present.

Results of radiological scanning of city streets and utilities in the field record books and on the radiological survey maps were reviewed for accuracy and completeness.

Surface and ground water monitoring data for OU III indicate concentrations of contaminants have decreased in comparison to pre-millsite remediation levels. Pre-millsite remediation average concentrations are compared to the range of concentration measured in 2001 for key contaminants at several long-term monitoring locations.

## Site Inspection

A site inspection was conducted on September 19 and 20, 2001. DOE LTSM personnel conducted the inspection. Representatives from EPA, UDEQ, and DOE and its support contractor were present. DOE, EPA, and UDEQ agreed that the physical inspection of the site would serve as both the CERCLA five-year review site inspection and the annual inspection required under the LTSM Program. Results of the annual inspection are detailed in the *2001 Annual Inspection of the Monticello Mill Tailings (USDOE) and Monticello Radioactively Contaminated Properties Sites* report prepared by DOE in April 2002.

A review of courthouse records to determine zoning changes or deed annotations was not conducted during the site inspection because of DOE's frequent contact with the City of Monticello. The City has not yet rezoned MP-00211 to prohibit the construction of habitable structures; however, rezoning is anticipated to be completed in the summer of 2002.

## Interviews

Interviews were solicited with local officials that were considered to be most interested or knowledgeable concerning the site.

Questions from the list below were asked during the interviews; however, each official was not asked all of the questions on the list. Only questions pertinent to the function of the office were asked of individual officials. The list of questions used in interviews is as follows:

- What is your impression of the project? (general sentiment)
- Do you have any specific problems complying with the terms of the cooperative agreement?
- Are there any plans to change the recreational use of the former millsite? If so, have these plans been submitted to the National Park Service?
- Are you aware of any projects or activities that could disturb the wetland areas along Montezuma Creek?
- Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.
- What effect have site operations had on the surrounding community?
- Is there a continuous onsite LTSM presence? If so, please describe staff and activities.
- Do you feel well informed about the site's activities and progress?



- Have there been communications or activities (site visits, inspections, reporting activities, etc.) conducted by the City of Monticello regarding the millsite? If so, please give purpose and results.
- Have there been any complaints, violations, or other incidents related to the site requiring a response by the City of Monticello? If so, please give details of the events and results of the responses.
- What are the fire department's responsibilities regarding the millsite and have you responded to any fires or situations as the site?
- During your travels in the vicinity of the millsite, have you ever noticed any unusual activities?
- Do you have any concerns regarding possible mill tailings contamination in UDOT rights-of-way on Highways 191 and 666?

The following individuals were specifically contacted for interviews concerning the MMTS and MVP:

Mr. Trent Schaeffer – Monticello City Manager  
 Mr. Dale Black – Monticello Mayor (during remedial activities)  
 Mr. Scott Pehrson – Monticello Mayor Elect  
 Mr. Kent Adair – Monticello Chief of Police  
 Mr. Terrill Slade – Monticello Fire Chief  
 Mr. Rick Bailey – San Juan County Administrator  
 Mr. Ty Lewis – San Juan County Commission Chairman  
 Mr. Doug Pehrson – San Juan County Road Supervisor  
 Mr. Daryl Friant – Utah Department of Transportation Environmental Engineer

Mr. Lewis was unavailable and did not reschedule an interview at another time. Each of the other officials participated in an interview. Mr. Black's tenure as mayor expired before he was contacted for an interview. Questions concerning potential problems or benefits associated with the Monticello projects were asked. Each individual was also asked if there were any complaints or if they were asked to respond to the MMTS in any official capacity. All interviewees reported that they had no concerns and that they were rarely, if ever, required to respond to complaints about the project. Results of the interviews are provided in Attachment 4.

Notification of this CERCLA 5-year review and the opportunity for public comment was provided in the local media. Interviews with business entities, adjacent property owners, and other interested persons were only solicited through this notice. No comments, concerns, or requests for information were received by DOE; therefore, no interviews with the general public were conducted.

## **VII. Technical Assessment**

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

The review of documents and the results of the site inspection indicate that the remedy is functioning as intended in the Monticello Mill Tailings Site Declaration for the Record of Decision and Record of Decision Summary.

The remedy for OU I, removal of tailings, ore, and process-related material from the former millsite location along Montezuma Creek and placement in an on-site repository, has been completed. The material has been isolated from the environment by placement in the lined repository, which has been capped to prevent the escape of radon gas. Water draining from the repository is collected in the leachate collection and removal system and leak detection system and is pumped to the evaporation pond. The rate of drainage from the repository has decreased and capacity of Pond 4 remains adequate.

Seeding of the millsite was completed in 2001 under a cooperative agreement with the City of Monticello, but it is too early to assess the success of this effort.

Planting and seeding of the repository cover was completed in 2000. The vegetative cover providing erosion control and transpiration of the repository is established. However, a cheat grass monoculture that may eventually crowd out desirable species is developing. Cheat grass will be monitored and mitigating actions will be taken if necessary.

LTSM activities have been implemented at the repository and former millsite. They involve periodic surveillances and annual inspections by the DOE LTSM program staff.

The remedy for OU II, removal of radioactively contaminated soil and process related by-product materials from peripheral properties and placement with OU I materials, has been completed. As allowed under a principal relevant and appropriate requirement (40 CFR 192.21 and 192.22), supplemental standards were approved for certain properties allowing some of the low-level radioactively contaminated soil to remain in place. Radiation exposure to the public has been reduced at these supplemental standards properties. The control of radiation exposure is maintained through land use and access restrictions.

The final remedy for OU III, remediation of surface and ground water, has not been selected. An Interim Remedial Action ROD for OU III was implemented in 1998. The effects of the removal of tailings and tailings-contaminated soil on contamination in surface and ground water are being further investigated under OU III. A treatability study involving a Permeable Reactive Treatment (PeRT) wall downgradient of the former millsite to remove contaminants from the ground water has been constructed. The effectiveness of the PeRT wall is currently being studied and the results will be considered in the selection of the final remedy. Water wells are prohibited by a ground water management policy issued by the Utah State Engineer's office from being constructed in the contaminated aquifer. A ROD identifying the final remedy is anticipated in 2004.

Question B: Are the exposure assumptions, toxicity data, cleanup levels and remedial action objectives (RAOs) used at the time of the remedy still valid?

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. The exposure assumptions, identified in the *Final Remedial Investigation/Feasibility Study-Environmental Assessment for the Monticello, Utah Uranium Mill Tailings Site* (January 1990), toxicity data and cleanup levels have not changed since the ROD was signed.

Federal regulations have been promulgated that lower the drinking water standard for arsenic and finalize the standard for uranium. The new standards potentially affect decisions that will be made concerning OU III. The new regulations will be considered in selecting a final remedy for OU III in 2004.

The remedial action objective to eliminate the potential for exposure of the population of Monticello to enhanced levels of radon gas and gamma radiation has been accomplished through source removal and implementation of institutional controls.

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

No anomalous conditions suggesting failure of the remedies were found during the site inspection. Establishment of native vegetation at the former millsite and on the repository is a long-term concern, but it does not bring into question the protectiveness of the remedy. The five-year review of LTSM documents did not indicate that the protectiveness of the remedy is compromised. Transient water drainage rates from the repository and Pond 4 demonstrate that action leakage rates of the repository and Pond 4 liners have not been exceeded and that transient drainage from the repository is declining as predicted. LTSM monitoring and radiological surveying have not identified contamination inconsistent with what is known or expected. There is no other information that calls into question the protectiveness of the remedy.

Technical Assessment Summary

The remedy for OU I and OU II is functioning as intended by the ROD. There have been no changes in the physical conditions or the use of the site that would adversely affect the protectiveness of the remedy. Applicable or relevant and appropriate requirements (ARARs) cited in the ROD have been met. There have been no changes in the toxicity factors for the contaminants of concern that were used in the baseline risk assessment, and there have been no change to the standardized risk assessment methodology that could affect the protectiveness of the remedy.

Cleanup of radiological constituents was carried out in accordance with cleanup standards for soil and buildings provided in 40 CFR Part 192 regardless of site-specific risk levels. These standards were established to be protective of exposure to radon gas and gamma radiation, particularly in habitable structures. The standards have not changed since the ROD was signed and toxicity data for radon gas and gamma radiation are still valid.

The *Final Remedial Investigation/Feasibility Study-Environmental Assessment for the Monticello, Utah Uranium Mill Tailings Site* (January 1990), also evaluated risks for exposure to nonradiological chemicals in soil. For all chemical constituents except uranium, exposure assumptions, toxicity data, and cleanup levels have not changed since the ROD was signed. However, recent toxicological studies suggest that a lower, more conservative reference dose (RfD) for uranium ingestion is justified (*Federal Register*, December 7, 2000). Based on these studies, EPA calculates that a RfD of 0.6 µg/kg/day is appropriate—a value 1/5 of that currently provided in EPA's *Integrated Risk Information System* (IRIS). Based on the current uranium RfD in IRIS, EPA Region III (EPA 2001) has calculated a soil screening level for residential use of 230 mg/Kg to be protective. If the RfD of 0.6 mg/kg/day is more appropriate, then a soil screening level of 46 mg/Kg would be considered protective for residential use. All of the soils at

the mill tailings site have been remediated to well below this level and would be protective even if, in the future, the lower RfD for uranium is formally adopted and revised in IRIS. Additionally, deed restrictions ensure the millsite will not be used for residential purposes; higher concentrations of uranium in soil would be adequately protective for non-residential uses (e.g., golf course, agriculture).

The RAO to eliminate the potential for exposure of the local population to elevated levels of radon gas, gamma radiation, and chemical in soil has been accomplished through source removal and implementation of institutional controls.

The remedy for OU III will be selected in 2004. A technical assessment summary for OU III will be included in the next five-year review report.

## VIII. Issues

Issues identified during the 2001 annual inspection that could potentially affect the protectiveness of the remedy are listed in Table 2. Issues identified during the inspection that do not affect the protectiveness of the remedy are included in Attachment 5.

**Table 2 – Issues**

Issue	Currently affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
<b>Repository OU I</b>		
Rock in the drainage channels is degrading	N	Y
Erosion is occurring at the exit of the west drainage channel.	N	Y
<b>Government-Owned Piñon/Juniper Properties OU II</b>		
Fencing is not complete around these properties.	N	Y

## IX. Recommendations and Follow-up Actions

**Table 3 – Recommendations and Follow-up Actions**

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Affects Protectiveness	
				Current	Future
<b>Repository</b>					
Rock in the drainage channels is degrading	Rock meeting durability specifications should be placed in the channels over the existing rock. The rock armor should extend up the sides of the channel to maintain design capacity. (This action has been completed since the time of the inspection).	DOE	EPS/UDEQ	N	Y
Erosion is occurring at the exit of the west drainage channel.	The rock armor of the channel should be extended beyond the eroded area and terminated at a point where erosion will not occur. This action will not be completed until funding is determined.	DOE	EPA/UDEQ	N	Y
<b>Government-Owned Piñon/Juniper Properties</b>					
Fencing around these properties is not complete.	The properties should be fenced upon identification of funding.	DOE	EPA/UDEQ	N	Y

## **X. Protectiveness Statements**

Protectiveness statements for the individual OUs of the MMTS are listed below:

### **OU I—Millsite Remediation and Repository Construction**

The remedy at OU I is protective of human health and the environment and exposure pathways that could result in unacceptable risks are being controlled.

Millsite remediation has been completed in accordance with the ROD. Property completion reports demonstrate that soil remediation achieved the numeric standards set forth in the primary ARAR (40 CFR 192). Institutional controls are in place to limit public exposure to contaminated groundwater. LTSM activities have been implemented to ensure that the remedy remains protective of human health and the environment. Restoration of the millsite is complete; however, the success of establishment of vegetation cannot be determined yet because it was seeded in the autumn of 2001 and has not been through a complete growing cycle. Several years may be required before the vegetation is successfully established on cover. Wetland areas have been constructed in accordance with the *Wetlands Master Plan*. Yearly monitoring will be conducted to determine the success of wetlands reconstruction.

The repository has been constructed in accordance with the remedy specified in the ROD. The repository is closed, capped, and revegetated. LTSM activities have been implemented to ensure that the remedy remains protective of human health and the environment. LTSM activities include limiting public access, monitoring the leachate collection and removal system, and monitoring physical attributes of the repository and associated structures and equipment. There are no issues that currently affect the protectiveness of the remedy.

### **OU II—Peripheral Properties**

The remedy at OU II currently protects human health and the environment because the contaminants have been removed in accordance with relevant and applicable or appropriate requirements. However, in order for the remedy to be protective in the long-term, a zoning change prohibiting construction of habitable structures on City owned property identified as MP-00211 must be completed.

Soil remediation of OU II was conducted in accordance with the remedy specified in the ROD. Property completion reports demonstrate that contamination was removed to numeric levels set forth in the primary ARAR or that supplemental standards, in compliance with 40 CFR 192.21 and 192.22, were applied to the properties at which contamination was left in place. Institutional controls have been implemented at the supplemental standards properties to limit public exposure to unacceptable levels of contamination. LTSM activities have been implemented to ensure that institutional controls remain protective of human health and the environment.

Uranium exists on property number MP-00211 which is owned by the City of Monticello. No habitable structures exist on this property and the City has no plans to build habitable structures in the future. The City has agreed to place a zoning restriction

on this property that will prohibit the construction of habitable, but the zoning restriction is not yet in place.

### **OU III—Surface- and Ground-Water Remedial Action Project**

A protectiveness determination of the remedy at OU III cannot be made at this time until further information is obtained. Further information will be obtained by taking the following actions: completing an Interim Remedial Action, updating the Remedial Investigation, and preparing the Feasibility Study. A remedy will be selected and documented in a ROD for this OU. It is expected that these actions will be completed by July 2004, at which time a protectiveness determination may be made.

### **Comprehensive protectiveness statement covering all remedies at the MMTS**

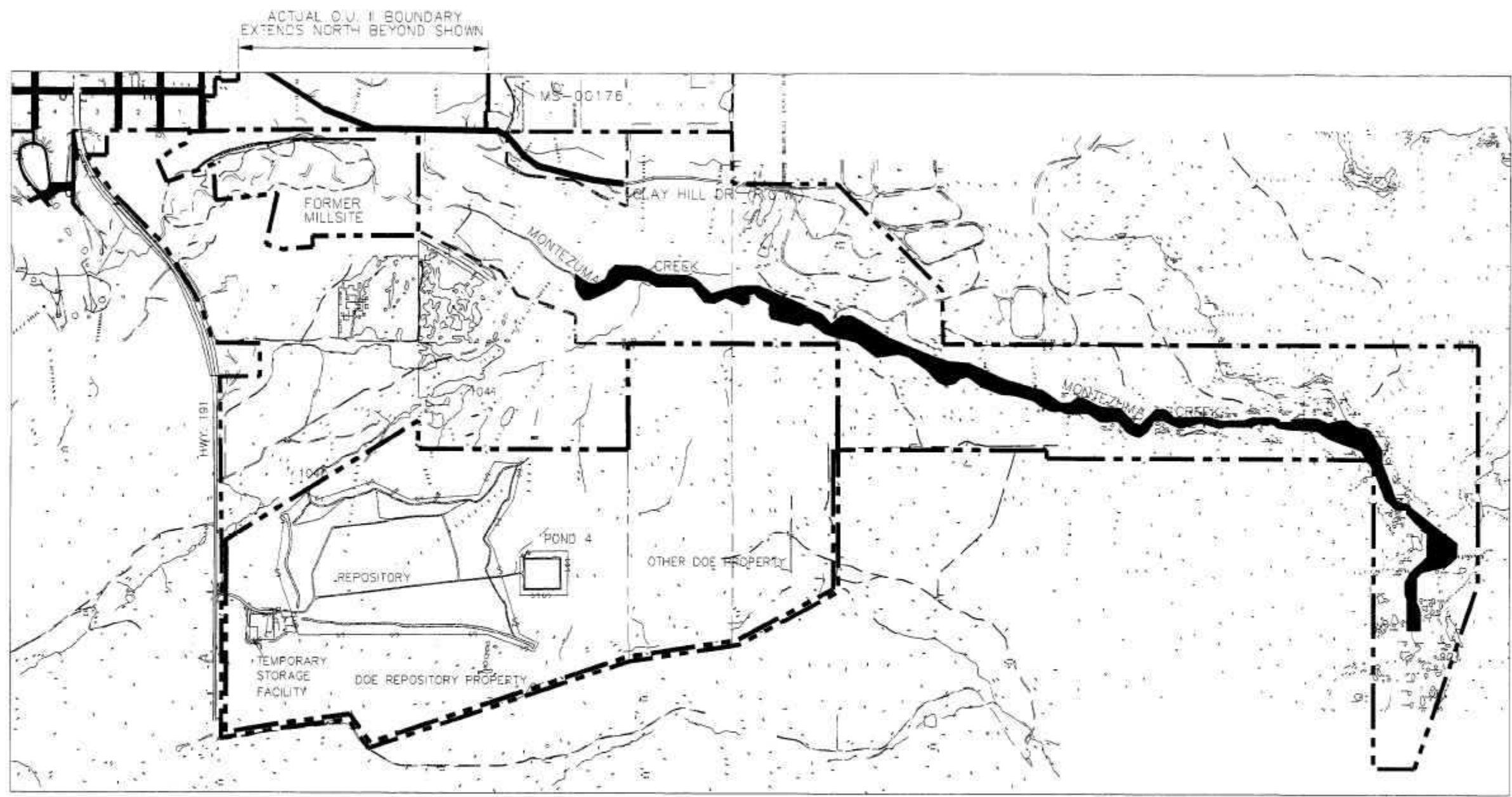
No comprehensive site-wide protectiveness statement can be made for the MMTS since the remedy for OU III has not yet been selected or constructed.

## **XI. Next Review**









The next five-year review for the MMTS is required in June 2007, five years from this review.

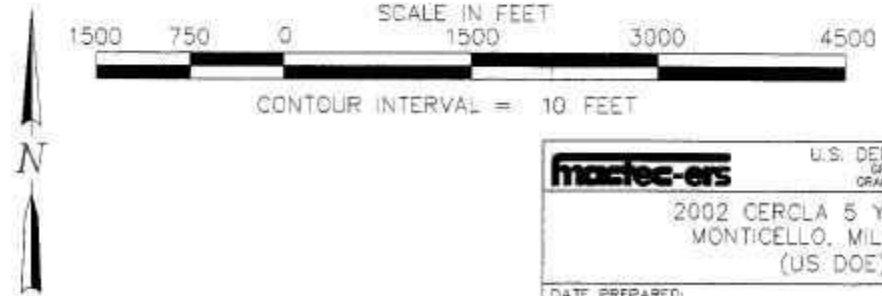
## **Attachment 1**

### **Site Map**



**LEGEND**

-  CONTAMINATED MATERIAL TO BE LEFT UNDER SUPPLEMENTAL STANDARDS ON PINON/JUNIPER PROPERTIES
-  CITY STREETS
-  HWY 191 AND HWY 666 WITHIN CITY OF MONTICELLO CITY LIMITS
-  MONTEZUMA CREEK RESTRICTIVE EASEMENT AREA
-  MONTICELLO CITY LIMITS BOUNDARY
-  PRIVATE PINON/JUNIPER PROPERTY BOUNDARIES
-  OU I BOUNDARY
-  OU II BOUNDARY



<b>mactec-ers</b>	U.S. DEPARTMENT OF ENERGY GRAND JUNCTION OFFICE GRAND JUNCTION, COLORADO	
	2002 CERCLA 5 YEAR REVIEW MONTICELLO, MILL TAILINGS (US:DOE)	
DATE PREPARED:	APRIL 19, 2002	FILENAME: S0075900



**Attachment 2**

**CERCLA 5-Year Review Announcement**

**The U.S. Department of Energy Grand Junction Office  
has initiated a Five-Year Review for the Monticello Mill Tailings (U.S.  
DOE) Site and the Monticello Radioactively Contaminated Properties  
(Monticello Vicinity Properties) Site**

Representatives from the U.S. Department of Energy (DOE), Grand Junction Office (GJO) are taking the lead in conducting the Five-Year Reviews required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for the Monticello Mill Tailings (U.S. DOE) Site and the Monticello Radioactively Contaminated Properties (Monticello Vicinity Properties) Site. These reviews serve as a checkup to ensure that the selected cleanup strategy continues to protect human health and the environment. This will be the second such review performed for the Monticello Mill Tailings Site and the Monticello Radioactively Contaminated Properties (Monticello Vicinity Properties) Site since the start of remediation in 1987. The remediation included removing and relocating approximately 2.5 million cubic yards of uranium mill tailings and contaminated material from the millsite, adjacent properties, and vicinity properties to a repository constructed south of Monticello, Utah. Land use restrictions in conjunction with supplemental standards are in place to ensure that any contamination left in place is not dispersed and does not adversely affect human health or the environment. Information on these two sites is available on the DOE-GJO Website located at [www.gjo.doe.gov/monticello/index.htm](http://www.gjo.doe.gov/monticello/index.htm)

The review team is studying information about the sites, conducting interviews with selected city, county, and State officials, and writing a report detailing the results of the review. The public is encouraged to contact the DOE-GJO representative indicated below with suggestions on areas of concern to be included in this review.

**Art Kleinrath  
U.S. Department of Energy  
Grand Junction Office  
2597 B 3/4 Road  
Grand Junction, CO 81503  
970-248-6037  
1-800-269-7145**

A draft report of this Five-Year Review is expected to be available for comment in early May. Upon completion the finalized document will be available for public review at the following addresses:

Monticello Repository Office Complex  
7031 South Highway 191  
Monticello, UT 84535  
435-587-4000

U.S. Department of Energy  
Grand Junction Office  
Technical Library  
Grand Junction, CO 81503  
970-248-6085

**THE U.S. DEPARTMENT OF ENERGY GRAND JUNCTION  
OFFICE HAS INITIATED A FIVE-YEAR REVIEW FOR THE  
MONTICELLO MILL TAILINGS (U.S. DOE) SITE AND THE  
MONTICELLO RADIOACTIVITY CONTAMINATED  
PROPERTIES (MONTICELLO VICINITY PROPERTIES) SITE**

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Representatives from the U.S. Department of Energy (DOE), Grand Junction Office (GJO) are taking the lead in conducting the Five-Year Reviews required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for the Monticello Mill Tailings (U.S. DOE) Site and the Monticello Radioactivity Contaminated Properties (Monticello Vicinity Properties) Site. These reviews serve as a checkup to ensure that the selected cleanup strategy continues to protect human health and the environment. This will be the second such review performed for the Monticello Mill Tailings Site and Monticello Radioactivity Contaminated Properties (Monticello Vicinity Properties) Site since the start of remediation in 1987. The remediation included removing and relocating approximately 2.5 million cubic yards of uranium mill tailings and contaminated material from the millsite, adjacent properties, and vicinity properties to a repository constructed south of Monticello, Utah. Land use restrictions in conjunction with supplemental standards are in place to ensure that any contamination left in place is not dispersed and does not adversely affect human health or the environment: Information on these two sites is available on the DOE-GJO Website located at [www.gjo.doe.gov/monticello/index.htm](http://www.gjo.doe.gov/monticello/index.htm).

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Grand Junction, CO 81503  
970-248-6085

**The U.S. Department of Energy Grand Junction Office  
Solicits Comments on the Five-Year Review Documents for the  
Monticello Mill Tailings  
(U.S. DOE) Site and the Monticello Radioactively Contaminated  
Properties  
(Monticello Vicinity Properties) Site**

Representatives from the U.S. Department of Energy (DOE), Grand Junction Office (GJO) are taking the lead in conducting the Five-Year Reviews required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for the Monticello Mill Tailings (U.S. DOE) Site and the Monticello Radioactively Contaminated Properties (Monticello Vicinity Properties) Site. These reviews, of which this is the second, serve as a checkup to ensure that the selected cleanup strategy continues to protect human health and the environment. We invite the public to comment on the effectiveness of the cleanup in meeting the protection goal. The remediation included removing and relocating approximately 2.5 million cubic yards of contaminated material and the implementation of use restrictions on certain lands. Information on these two sites is available on the DOE-GJO Website located at [www.gjo.doe.gov/monticello/index.htm](http://www.gjo.doe.gov/monticello/index.htm).

The draft Five-Year Review reports are available for public comment. Interested parties may review the draft reports at the Monticello Repository Office Complex located at 7031 South Highway 191, Monticello, UT 84535. Comments on the reports may be submitted to:

**U.S. Department of Energy Grand Junction Office  
Attn: Art Kleinrath  
2597 B 3/4 Road  
Grand Junction, CO 81503**

Mr. Kleinrath may also be contacted via phone by calling 1-800-399-5618 or 970-248-6037. The official comment period begins May 1, 2002 and ends May 31, 2002.

Upon completion the finalized document will be submitted to U.S. EPA for acceptance. The final document will be available at the following locations:

Monticello Repository Office Complex  
7031 South Highway 191  
Monticello, UT 84535  
435-587-4000

U.S. Department of Energy  
Grand Junction Office  
Technical Library  
Grand Junction, CO 81503  
970-248-6085

**THE U.S. DEPARTMENT OF ENERGY GRAND JUNCTION  
OFFICE SOLICITS COMMENTS ON THE FIVE-YEAR REVIEW  
DOCUMENTS FOR THE MONTICELLO MILL TAILINGS (U.S.  
DOE) SITE AND THE MONTICELLO RADIOACTIVITY  
CONTAMINATED PROPERTIES (MONTICELLO VICINITY  
PROPERTIES) SITE**

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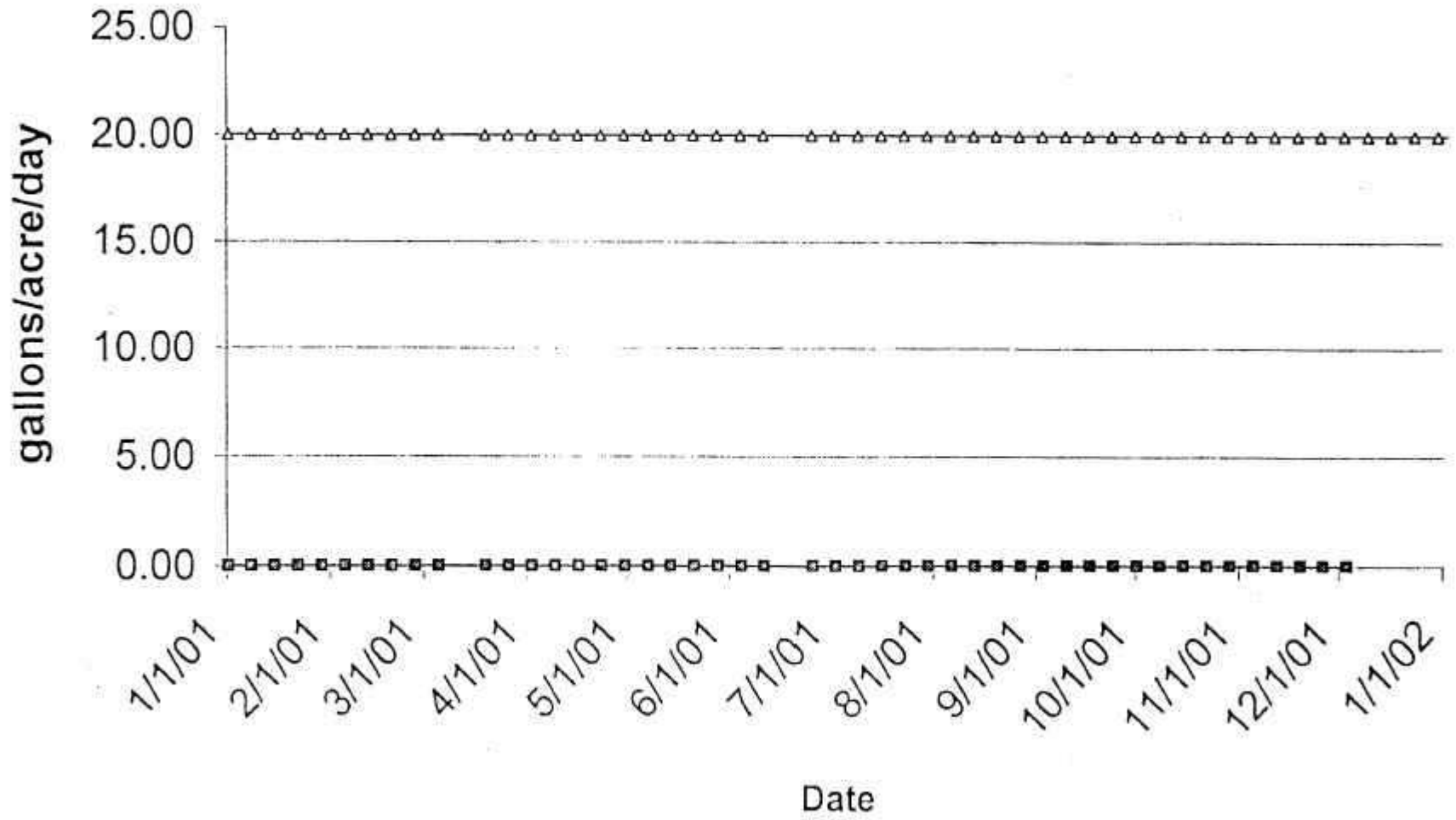
**Monticello Repository  
Office Complex  
7031 South Hwy 191  
Monticello, UT 84535  
435-587-4000**

**U.S. Department of Energy  
Grand Junction Office  
Technical Library  
Grand Junction, CO 81503  
970-248-6085**

**Attachment 3**

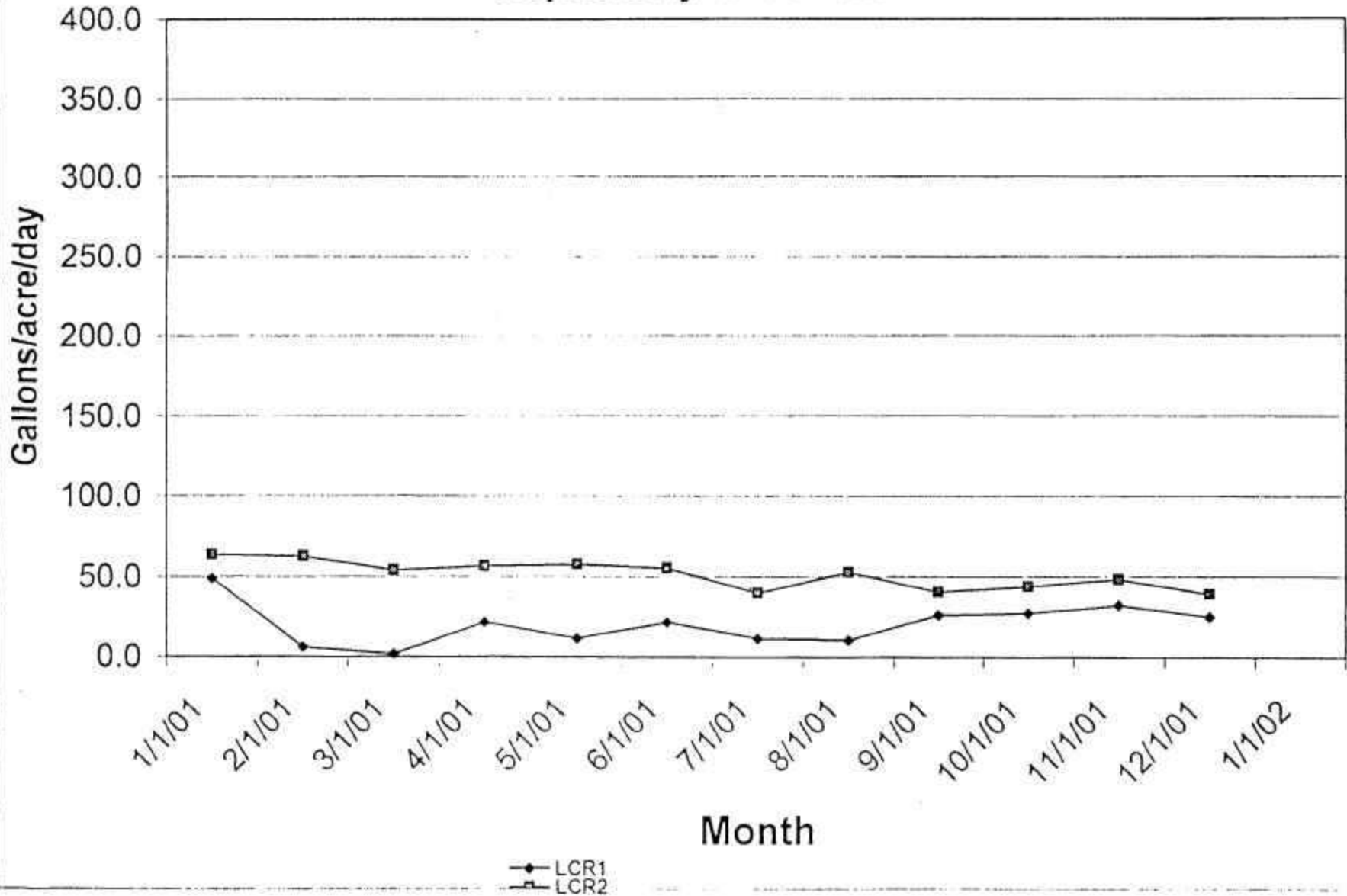
**Leachate Collection and Removal System  
Water Quantity Data**

# Repository LDS Data



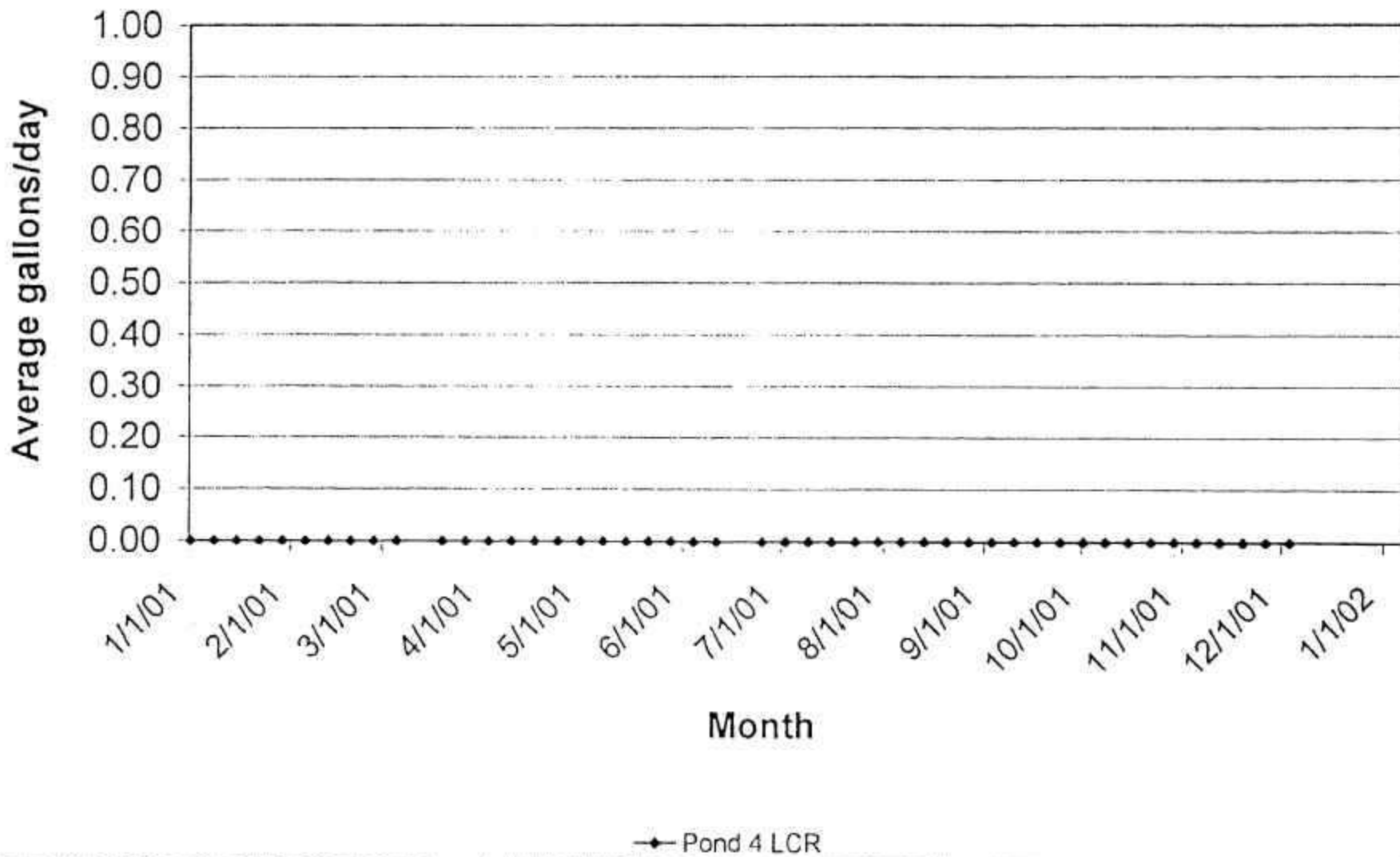
→ LDS1      → LDS2      → Repository Action Level  
LDS 1 & LDS 2 plot points are identical

### Repository LCR Data





### Pond 4 LCR Data



Total Gallons Pumped from LDS1 as Measured by Flowmeter Weekly Basis						Inflow average between pumping events to 0.8 ft level in sump or dry						
Week Begin	Total for Week	Average Per Day	Gallons Per Acre Per Day	***	Number of Days	Comments	Extent Date	Total Amount	Average Per Day	Gallons Per Acre Per Day	Number of Days	Comments
12/25/00	0											
1/1/01	0											
1/8/01												
1/15/01												
1/22/01												
1/29/01	11					Pump turned on to test						
2/5/01	0											
2/12/01	0											
2/19/01	0											
2/26/01	7					Pumped for water sampling						
3/5/01	0											
2/12/01	0											
3/19/01	0											
3/26/01	0											
4/2/01	0											
4/9/01	0											
4/16/01	0											
4/23/01	0											
4/30/01	0											
5/7/01	0											
5/14/01	0											
5/21/01	0											
5/28/01	0											
6/4/01	0											
6/11/01	0											
6/18/25	0											
6/25/01	2					Pumping ocured due to power outages						
7/2/01	0											
7/9/01	0											
7/16/01	0											
7/23/01	0											
7/30/01	0											
8/6/01	0											
8/13/01	0											
8/20/01	0											
8/27/01	0											
9/3/01	0											
9/10/01	1											
9/17/01	0											
9/24/01	0											
10/1/01	0											
10/8/01	0											
10/15/01	0											
10/22/01	0											
10/29/01	0											
11/5/01	0											
11/12/01	0											
11/19/01	0											
11/26/01	0											
12/3/01	0											
12/10/01												
12/17/01												
12/24/01												
12/31/01												
1/7/02												

Total Gallons Pumped from LDS2 as Measured by Flowmeter Weekly Basis						Inflow average between pumping events to 0.8 ft level in sump						
Week Begin	Total for Week	Average Per Day	Gallons Per Acre Per Day	***	Number of Days	Comments	Extent Date	Total Amount	Average Per Day	Gallons Per Acre Per Day	Number of Days	Comments
12/25/00												
1/1/01	0											
1/8/01												
1/15/01		0.0	0.0									
1/22/01												
1/29/01	12					Pump turned on to test						
2/5/01	0											
2/12/01	0											
2/19/01	0											
2/26/01	13					Pumped for water sampling (only 13 gallons used) Flow meter to be replaced it read 790 gallons pumped						
3/5/01	0											
2/12/01	0											
3/19/01	0											
3/26/01	0											
4/2/01	0											
4/9/01	0											
4/16/01	0											
4/23/01	0											
4/30/01	0											
5/7/01	0											
5/14/01	0											
5/21/01	53					power bump started pumps						
5/28/01	0											
6/4/01	0											
6/11/01	8											
6/18/25	0											
6/25/01	8											
7/2/01	19											
7/9/01	0											
7/16/01	0											
7/23/01	2											
7/30/01	0											
8/6/01	0											
8/13/01	0											
8/20/01	0											
8/27/01	0											
9/3/01	0											
9/10/01	13											
9/17/01	0											
9/24/01	0											
10/1/01	0											
10/8/01	0											
10/15/01	0											
10/22/01	0											
10/29/01	0											
11/5/01	0											
11/12/01	1											
11/19/01	0											
11/26/01	0											
12/3/01	0											
12/10/01												
12/17/01												
12/24/01												
12/31/01												
1/7/02												

Total Gallons Pumped from Pond 4 LCR as Measured by Flowmeter Weekly Basis						Inflow average between pumping events						
Week Begin	Total for Week	Average Per Day		***	Number of Days	Comments	Extent	Total	Average	Gallons Per	Number	
							Date	Amount <sup>a</sup>	Per Day	Acre Per Day	of Days	Comments
12/25/00	0											
1/1/01	0											
1/8/01												
1/15/01												
1/22/01												
1/29/01	6					Pump turned on to test						
2/5/01	0											
2/12/01	0											
2/19/01	0											
2/26/01	11											
3/5/01	0											
2/12/01	0											
3/19/01	0					Automatically pumped when power restored from transducer change out						
3/26/01	249											
4/2/01	0											
4/9/01	0											
4/16/01	0											
4/23/01	0											
4/30/01	0											
5/7/01	0											
5/14/01	0											
5/21/01	104											
5/28/01	0					power bump started pumps						
6/4/01	0											
6/11/01	32					Pumping occurred due to power outages						
6/18/25	0											
6/25/01	16					Pumping occurred due to power outages						
7/2/01	0											
7/9/01	0											
7/16/01	0											
7/23/01	31											
7/30/01	0											
8/6/01	45											
8/13/01	0											
8/20/01	0											
8/27/01	28											
9/3/01	0											
9/10/01	0											
9/17/01	0											
9/24/01	28											
10/1/01	0											
10/8/01	0											
10/15/01	177					Pumped down P4LDS sump 1 gallons of clean water						
10/22/01	0											
10/29/01	0											
11/5/01	0											
11/12/01	7											
11/19/01	0											
11/26/01	8											
12/3/01	0											
12/10/01												
12/17/01												
12/24/01												
12/31/01												
1/7/02												

Total Gallons Pumped from LCR1 as Measured by Flowmeter Monthly Basis						Pond4 LDS Telemetry		Pond 4 Evaporation Pond Elevation			
Month Begin	Total for Month	Average Per Day	Gallons Per Acre Per Day	DA YS	Comments	Weekly Basis		Weekly Basis			
						Week Begin	Level Measure	Level Measurement	Feet Above 6938.0	Over 12' MAX	
12/4/00	14821	529.3	52.9	28							
1/1/01	13769	393.4	39.3	35		12/25/00	0.86	6941.80	3.80	(8.20)	Telemetry Reading
2/5/01	2128	60.8	6.1	35	Telemetry System is still being reprogrammed Data is not valid	1/1/01	0.84	6941.70	3.70	(8.30)	Telemetry Reading
3/5/01	498	17.8	1.8	28	Telemetry System is still being reprogrammed Data is not valid	1/8/01					No Reading
4/2/01	6034	215.5	21.6	28	LCR1 flow meter down during March approx 6000 gallons pumped	1/15/01					No Reading
5/7/01	4035	115.3	11.5	35	LCR1 flow meter down approx 4000 gallons pumped	1/22/01					No Reading
6/4/01	6020	215.0	21.5	28		1/29/01	4.38	6943.10	5.10	(6.90)	Telemetry Reading/ New level readings uninstalled
7/2/01	3262	116.5	11.7	28		2/5/01	4.38	6943.10	5.10	(6.90)	Telemetry Reading
8/6/01	3737	106.8	10.7	35		2/12/01	4.38	6943.10	5.10	(6.90)	Telemetry Reading
9/3/01	7300	260.7	26.1	28	LCR1 flow meter down estimated 7300 gallons pumped	2/19/01	4.36	6943.20	5.20	(6.80)	Telemetry Reading
10/1/01	7650	273.2	27.3	28	LCR1 flow meter has been tested LCR1 pump need to be replaced	2/26/01	4.37	6943.20	5.20	(6.80)	Telemetry Reading
11/1/01	8975	320.5	32.1	28	Pump Wiring problems corrected Flow meter still not functioning correctly	3/5/01	4.36	6943.30	5.30	(6.70)	Telemetry Reading
12/3/01	8716	249.0	24.9	35	Pump Wiring problems corrected Flow meter still not functioning correctly	3/12/01	4.36	6943.50	5.50	(6.50)	Telemetry Reading
1/7/02				35		3/19/01	4.38	6943.50	5.50	(6.50)	Telemetry Reading
Total	72124					3/26/01	4.36	6956.10	5.50	(6.50)	Telemetry Reading
Total Gallons Pumped from LCR2 as Measured by Flowmeter Monthly Basis						4/2/01	4.36	6943.40	5.40	(6.60)	Telemetry Reading
Month Begin	Total for Month	Average Per Day	Gallons Per Acre Per Day	DA YS	Comments	4/9/01	4.36	6943.60	5.60	(6.40)	Telemetry Reading
12/4/00	15935	569.1	56.9	28		4/16/01	4.37	6943.50	5.50	(6.50)	Telemetry Reading
1/1/01	5150	147.1	14.7	35		4/23/01	4.36	6943.40	5.40	(6.60)	Telemetry Reading
2/5/01	21926	626.5	62.6	35	Telemetry System is still being reprogrammed Data is not valid	4/30/01	4.35	6943.30	5.30	(6.70)	Telemetry Reading
3/5/01	15121	540.0	54.0	28		5/7/01	4.35	6943.20	5.20	(6.80)	Telemetry Reading
4/2/01	15856	566.3	56.6	28		5/14/01	4.34	6943.10	5.10	(6.90)	Telemetry Reading
5/7/01	20164	576.1	57.6	35		5/21/01	0.30	6938.10	0.10	(11.90)	No Reading
6/4/01	15535	554.8	55.5	28		5/28/01	4.33	6942.70	4.70	(7.30)	Telemetry Reading
7/2/01	11247	401.7	40.2	28		6/4/01	4.33	6942.50	4.50	(7.50)	Telemetry Reading
8/6/01	18488	528.2	52.8	35		6/11/01	4.33	6942.30	4.30	(7.70)	Telemetry Reading
9/3/01	11373	406.2	40.6	28		6/18/25	4.34	6942.10	4.10	(7.90)	Telemetry Reading
10/1/01	12342	440.8	44.1	28		6/25/01	4.32	6941.90	3.90	(8.10)	Telemetry Reading
11/1/01	13576	484.9	48.5	28		7/2/01	4.32	6942.85	4.85	(7.15)	Telemetry Reading
12/3/01	13787	393.9	39.4	35		7/9/01	4.32	6941.60	3.60	(8.40)	Telemetry Reading
1/7/02				35		7/16/01	4.32	6941.60	3.60	(8.40)	Telemetry Reading
Total	174565					7/23/01	4.32	6941.40	3.40	(8.60)	Telemetry Reading
Total Gallons Pumped from Pond 4 LDS Sump						7/30/01	4.32	6942.10	4.10	(7.90)	Telemetry Reading
Month Begin	Total for Month	Average Per Day	Gallons Per Acre Per Day	DA YS	Comments	8/6/01	4.32	6941.20	3.20	(8.80)	Telemetry Reading
12/4/00	0	0.0	0.0	28	Level is monitored / No pumping is required	8/13/01	4.32	6941.20	3.20	(8.80)	Telemetry Reading
1/1/01	0	0.0	0.0	35	Level is monitored / No pumping is required	8/20/01	4.32	6941.20	3.20	(8.80)	Telemetry Reading
2/5/01	0	0.0	0.0	35	Level is monitored / No pumping is required	8/27/01	4.32	6941.10	3.10	(8.90)	Telemetry Reading
3/5/01	0	0.0	0.0	28	Level is monitored / No pumping is required	9/3/01	4.32	6941.30	3.30	(8.70)	Telemetry Reading
4/2/01	0	0.0	0.0	28	Level is monitored / No pumping is required	9/10/01	4.32	6941.50	3.50	(8.50)	Telemetry Reading
5/7/01	0	0.0	0.0	35	Level is monitored / No pumping is required	9/17/01	4.32	6941.30	3.30	(8.70)	Telemetry Reading
6/4/01	0	0.0	0.0	28	Level is monitored / No pumping is required	9/24/01	4.32	6941.30	3.30	(8.70)	Telemetry Reading
7/2/01	0	0.0	0.0	28	Level is monitored / No pumping is required	10/1/01	4.32	6941.15	3.15	(8.85)	Telemetry Reading
8/6/01	0	0.0	0.0	35	Level is monitored / No pumping is required	10/8/01	4.32	6941.10	3.10	(8.90)	Telemetry Reading
9/3/01	0	0.0	0.0	28	Level is monitored / No pumping is required	10/15/01	1.86	6940.70	2.70	(9.30)	Telemetry Reading
10/1/01	0	0.0	0.0	28	Level is monitored / No pumping is required	10/22/01	1.88	6940.70	2.70	(9.30)	Telemetry Reading
11/1/01	0	0.0	0.0	28	Level is monitored / No pumping is required	10/29/01	1.91	6940.60	2.60	(9.40)	Telemetry Reading
12/3/01	0	0.0	0.0	28	Level is monitored / No pumping is required	11/5/01	1.91	6940.60	2.60	(9.40)	Telemetry Reading
1/7/02	0	0.0	0.0	35	Level is monitored / No pumping is required	11/12/01	1.93	6940.50	2.50	(9.50)	Telemetry Reading
Total	0					11/19/01	1.96	6940.50	2.50	(9.50)	Telemetry Reading
						11/26/01	1.98	6940.60	2.60	(9.40)	Telemetry Reading
						12/3/01	1.96	6940.70	2.70	(9.30)	Telemetry Reading
						12/10/01					Telemetry Reading
						12/17/01					Telemetry Reading
						12/24/01					Telemetry Reading
						12/31/01					Telemetry Reading
						1/7/02					Telemetry Reading

**Attachment 4**  
**Interview Results**

## **Interviews for 5 Year CERCLA Review**

One of the requirements of the 5 Year CERCLA Review is the by Mr. Gary Karriker (DOE contractor public relations specialist) over a two-day period on February 26 and 27, 2002. Those individuals interviewed were Trent Schafer, Monticello City Manager; Terrill Slade, Monticello Fire Chief; Kent Adair, Monticello Police Chief; Doug Pehrson, San Juan County Road Superintendent; Rick Bailey, San Juan County Administrator; and Daryl Friant, UDOT Environmental Engineer. Those not available for an interview at this time were Scott Pehrson, Monticello Mayor Elect and Ty Lewis, San Juan County Commissioner. The information gathered during these interviews is as follows:

### **Trent Schafer – Monticello City Manager**

*Question:* What is your general impression of the project?

*Response:* Mr. Schafer was very satisfied with the project from all aspects. DOE, EPA, and MACTEC-ERS personnel were very pleasant to work with and always very informative. He felt it was very important to remove mill tailings contamination from the vicinity properties and the millsite to reduce the exposure risk to the citizens of Monticello. He also felt the project had a very positive financial impact on the whole community.

*Question:* Are there any problems the City has in complying with the terms of the Cooperative Agreement?

*Response:* The terms of the Cooperative Agreement are very clear and easy to comply with. The LTSM staff is very helpful and the equipment DOE provided ensures the City has the means to comply with the Agreement.

*Question:* Are there any plans by the City to change the recreational use of the millsite?

*Response:* There are currently no changes planned in the original use plan submitted to the National Park Service.

*Question:* Do you know of or have any plans that could disturb the wetland areas along Montezuma Creek?

*Response:* I am not aware of any plans that would affect the wetland areas.

*Question:* Are you aware of any community concerns regarding the site before, during, or after remediation/reclamation?

*Response:* Nothing other than minor dust control problems during remediation.

*Question:* What effect have site operations had on the community?

*Response:* Project had no adverse effects it did, however, provide a huge economic stimulus to the City and surrounding communities. Monticello has experienced an economic downturn since the project ended.

*Question:* Is there a continuous onsite LTSM presence?

*Response:* Yes, Joe Slade is great to work with. He checks in with the City on a daily basis to ensure he has coverage for our planned current and future activities. The MACTEC–ERS Public Relations person also checks with me weekly to make sure we don't have any problems. These two people will always ensure that both their operations and ours work in harmony with one another.

*Question:* Do you feel well informed about the site's activities and progress?

*Response:* Yes, both the DOE Project Manager (J. Berwick) and the MACTEC–ERS Public Relations Person (G. Karriker) kept me well informed on all activities. Without these two people, the project would still be going on. The LTSM person (J. Slade), as I mentioned is great to work with.

*Question:* Have there been communications or activities conducted by the City regarding the millsite?

*Response:* The City has had communications with both DOE and EPA regarding millsite reclamation and conducted a tour with both agencies to address their concerns after millsite reclamation was complete.

*Question:* Have there been any complaints, violations or other incidents related to the site requiring a response by the City?

*Response:* Other than the fact that I had to talk to Kedrick Somerville about his access to the irrigation structure on the site. There haven't been any incidents or complaints.

### **Terrill Slade – Monticello Fire Chief**

*Question:* What are the fire department's responsibilities regarding the millsite and have you responded to any fires or situations at the site?

*Response:* The fire department is responsible for fire control and emergency response at the millsite. To date there have been no situations or activities that required the attention of the fire department. There was one burn permit issued to Joe Slade to burn weeds at the repository.

### **Kent Adair – Chief of Police**

*Question:* Has there ever been a complaint, violation or incident on the millsite that required a response by the Monticello Police Department?

*Response:* Other than the noise complaint by Tracy Hawkins during millsite remediation the Police Department has never been called to the millsite or noticed any unusual activities.



**Doug Pehrson – City Road Supervisor**

*Question:* During your travels in the vicinity of the millsite, have you ever noticed any unusual activities?

*Response:* Other than DOE/MACTEC-ERS activities I haven't ever seen anyone on the millsite, day or night.

**Rick Bailey – County Administrator**

*Question:* What responsibilities, if any, does the County have concerning fire control and emergency response at the former millsite?

*Response:* The City Fire Department is responsible for the millsite. The only time the County would respond is if the City needed and requested assistance.

*Question:* What is your overall opinion of the site and its operations during and after remediation/reclamation?

*Response:* Because the site is situated partially within the Monticello City limits and DOE was communicating with the City on MVP properties, the County didn't get very involved with the project. My impression of the project was positive concerning the actions of the DOE and MACTEC-ERS.

**Daryl Friant – UDOT Environmental Engineer**

*Question:* Do you have any concerns regarding possible mill tailings contamination in UDOT rights-of-way on Highways 191 and 666?

*Response:* UDOT has a planned project this coming summer to rebuild Highway 666 from Monticello to the Colorado State line. There is concern about possible mill tailings contamination in the UDOT rights-of-way. Mr. Friant asked if there was a program to cover his concern. He was told of DOE's LTSM Program and that it may cover any contamination removal to the City limits.

**Dale Black – Former Monticello City Mayor**

Mr. Black who was Mayor of Monticello during the period of active remediation was interviewed on April 17, 2001.

*Question:* What is your impression of the Project?

*Response:* Mr. Black's general impression of the project was good, from both a health perspective and an economic perspective.

*Question:* Do you have any specific problems complying with the terms of the Cooperative Agreement?

*Response:* The City of Monticello did not have any problems complying with the Cooperative Agreement.

*Question:* Are there any plans to change the recreational use of the former millsite? If so, have these plans been submitted to the National Park Service? Are you aware of any projects or activities that could disturb the wetland areas along Montezuma Creek?

*Response:* Before Mr. Black left as mayor, the City did not have any plans to change the recreational use of the former millsite, nor was he aware of any activities that would disturb the wetlands.

*Question:* Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.

*Response:* While he was mayor no complaints or concerns regarding the site or its operation were brought to his attention.

*Question:* What effect have site operations had on the surrounding community?

*Response:* The work and related activities that were performed on the millsite were of great economic value to Monticello and surrounding communities.

*Question:* Is there a continuous onsite LTSM presence? If so, please describe staff and activities.

*Response:* Mr. Black is aware of an LTSM presence through Joe Slade's activities and overall presence both at City Offices and in the field.

*Question:* Do you feel well informed about the site's activities and progress?

*Response:* Mr. Black felt he was always well informed of DOE activities and progress both through the DOE Project Manager and the MACTEC-ERS Owner Relations Representative.

*Question:* Have there been communications or activities (site visits, inspections, reporting activities, etc.) conducted by the City of Monticello regarding the millsite? If so, please give purpose and results.

*Response:* While the City was reclaiming the millsite they conducted numerous site visits to check the progress of the contractor and stayed in constant communication with DOE through Irwin Stewart and Gary Karriker.

*Question:* Have there been any complaints, violations, or other incidents related to the site requiring a response by the City of Monticello? If so, please give details of the events and results of the responses.

*Response:* There have been no complaints of incidents involved with the millsite requiring a response from the City.

*Question:* During your travels in the vicinity of the millsite, have you ever noticed any unusual activities?

*Response:* None.

*Question:* Do you have any concerns regarding possible mill tailings contamination in UDOT rights-of-way on Highways 191 and 666?

*Response:* Mr. Black has no concerns regarding contamination in UDOT rights-of-way on Highways 191 and 666.

### **Scott Pehrson – Monticello Mayor**

*Question:* What is your impression of the project? (general sentiment)

*Response:* The project was good for the community, provided a lot of jobs, and was great for the local economy.

*Question:* Do you have any specific problems complying with the terms of the cooperative agreement?

*Response:* Mr. Pehrson stated that he was not familiar with the Cooperative Agreement yet.

*Question:* Are there any plans to change the recreational use of the former millsite? If so, have these plans been submitted to the National Park Service?

*Response:* There are no plans to change from recreational use on the millsite.

*Question:* Are you aware of any projects or activities that could disturb the wetland areas along Montezuma Creek?

*Response:* There are no planned projects or activities that would disturb the wetlands.

*Question:* Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.

*Response:* Mr. Pehrson stated that he was not aware of any community concerns regarding the site or the operation of the site.

*Question:* What effect have site operations had on the surrounding community?

*Response:* The project had great economic value for the community.

*Question:* Is there a continuous onsite LTSM presence? If so, please describe staff and activities.

*Response:* The LTSM presence is outstanding through the activities of Joe Slade.

*Question:* Do you feel well informed about the site's activities and progress?

*Response:* Mr. Pehrson stated that he did not live in Monticello during the majority of the remedial activities and that he did not pay much attention to it when he did live in Monticello.

*Question:* Have there been communications or activities (site visits, inspections, reporting activities, etc.) conducted by the City of Monticello regarding the millsite? If so, please give purpose and results.

*Response:* Mr. Pehrson stated that he has not been involved with any millsite activities since being elected as mayor.

*Question:* Have there been any complaints, violations, or other incidents related to the site requiring a response by the City of Monticello? If so, please give details of the events and results of the responses.

*Response:* Mr. Pehrson is not aware of any complaints or violations regarding response by the City.

*Question:* What are the fire department's responsibilities regarding the millsite and have you responded to any fires or situations at the site?

*Response:* The county is responsible for first response with backup by the City Fire Department.

*Question:* During your travels in the vicinity of the millsite, have you ever noticed any unusual activities?

*Response:* No unusual activities at the millsite have been noticed.

*Question:* Do you have any concerns regarding possible mill tailings contamination in UDOT rights-of-way on Highways 191 and 666?

*Response:* Mr. Pehrson has no concerns with contamination in UDOT right-of-way on Highways 166 and 191. He is confident that the LTSM program will handle any new contamination appropriately.

**Attachment 5**

**Observations from the 2001 Annual Inspection**

Observations from the 2001 Annual Inspection

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Affects Protectiveness Current Future	
<b>Repository</b>					
The exterior field fence on the south side of the repository is frequently crossed by wildlife.	The LTSM Representative should stretch the fence and conduct minor repairs. (This action has been completed since the time of the inspection).	DOE	EPA/UDEQ	N	N
Emergency telephone numbers listed on the entrance gate are inadequate.	The sign on the entrance gate should be replaced with one that reads: Monticello, Utah Uranium Mill Tailings Repository No Trespassing The U.S. Department of Energy 24-Hour Telephone Number: (970)-248-6070 Local Telephone Numbers: Office 587-4000 459-4128 (Joe Slade-cell phone) 459-4980 (Todd Moon-cell phone) (This action has been completed since the time of the inspection).	DOE	EPA/UDEQ	N	N
Many signs along the exterior fence need to be repaired or replaced.	The LTSM Representative should repair or replace the signs as needed.	DOE	EPA/UDEQ	N	N
Deer are able to get inside the eight-foot fence on the repository. They are also able to get back out, although there is no evidence that the deer gates are used.	Three Options: 1) No action is required at this time since the deer do not become trapped within the fence. 2) The LTSM Representative should watch for deer and prop the deer gates open if deer remain on the repository for an extended period of time. 3) When vegetation has matured in the future, consideration should be given to allow deer or cattle to browse or graze on the repository.	DOE	EPA/UDEQ	N	N
Rainwater and snowmelt leak into Manhole 3 at the sump pump removal pipes.	Rock from around the exterior of the pipe should be removed and the pipes should be sealed from outside of the manhole.	DOE	EPA/UDEQ	N	N
When the covers to Manhole 1 and Manhole 3 are open, the potential exists for the manhole covers to inadvertently fall.	A secondary safety latch should be installed to prevent accidental closing of manhole covers.	DOE	EPA/UDEO	N	N
A monoculture of cheat grass may be developing on the repository that will crowd out desirable species.	No corrective action is required at this time. Identify the area with a GPS and continue to monitor it until a climax plant community is developed.	DOE	EPA/UDEQ	N	N

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Affects Protectiveness	
				Current	Future
Rock in the drainage channels is degrading	Rock meeting durability specifications should be placed in the channels over the existing rock. The rock armor should extend up the sides of the channel to maintain design capacity. (This action has been completed since the time of the inspection).	DOE	EPA/UDEQ	N	Y
Erosion is occurring at the exit of the west drainage channel.	The rock armor of the channel should be extended beyond the eroded area and terminated at a point where erosion will not occur. This action will not be completed until funding is determined.	DOE	EPA/UDEQ	N	Y
Erosion is occurring between the south drainage channel and Sediment Pond C.	The rock armor of the channel should be extended beyond the eroded area and terminated at a point where erosion will not occur. This action will not be completed until funding is determined.	DOE	EPA/UDEQ	N	N
Tamarisk is growing in Sediment Pond B and Sediment Pond C.	The LTSM Representative should cut the Tamarisk stalks and apply herbicide to each stalk. (This action has been completed since the time of the inspection).	DOE	EPA/UDEQ	N	N
<b>Temporary Storage Facility</b>					
The method practiced for removing contaminated material from the rolloff bins is unacceptable.	The rolloff bins should be replaced with a concrete three-sided bin with a concrete floor and a cover. (This action has been completed since the time of the inspection). Rolloff bins currently in use should be emptied into the concrete bin prior to offsite shipment.	DOE	EPA/UDEQ	N	N
Training records were not readily available	A list should be posted in the office indicating which contractor and City of Monticello employees have been trained for entry into the TSF. The list shall also indicate when their training expires. (This action has been completed since the time of the inspection).	DOE	EPA/UDEQ	N	N
<b>Pond 4</b>					
The emergency telephone numbers at Pond 4 are inadequate	The sign on the entrance gate should be replaced with one that reads: Monticello, Utah Uranium Mill Tailings Repository No Trespassing The U.S. Department of Energy 24-Hour Telephone Number: (970)-248-6070 Local Telephone Numbers: Office 587-4000 459-4128 (Joe Slade-cell phone) 459-4980 (Todd Moon-cell phone) (This action has been completed since the time of the inspection).	DOE	EPA/UDEQ	N	N
Paint is peeling on life saving station cabinets	Paint the life saving station cabinets.	DOE	EPA/UDEQ	N	N
Ropes on life buoys are degrading	Replace the ropes.	DOE	EPA/UDEQ	N	N
Sandbags and ropes holding down the Pond 4 liner are deteriorating.	Replace the sandbags with sand-filled tubes.	DOE	EPA/UDEQ	N	N

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Affects Protectiveness Current Future	
<b>Former Millsite</b>					
Adherence to land use restrictions applied to this property has been verified.	Continue monitoring and enforcement of land use restrictions.	DOE	EPA/UDEQ	N	N
<b>Government-Owned Piñon/Juniper Properties</b>					
Adherence to land use restrictions applied to this property has been verified.	Continue monitoring and enforcement of land use restrictions.	DOE	EPA/UDEQ	N	N
The potential for erosion exists.	Continue monitoring for erosion.	DOE	EPA/UDEQ	N	N
Fencing around these properties is not complete.	The properties should be fenced upon identification of funding.	DOE	EPA/UDEQ	N	N
<b>Soil and Sediment Properties</b>					
Adherence to land use restrictions applied to these properties has been verified.	Continue monitoring and enforcement of land use restrictions.	DOE	EPA/UDEQ	N	N
The potential for erosion exists.	Continue monitoring for erosion.	DOE	EPA/UDEQ	N	N
<b>Wetlands</b>					
The wetland areas throughout the site are in various stages of development.	Monitor the wetland areas in accordance with the Wetlands Master Plan until success criteria are met. Reconstruct wetland areas if they are unsuccessful.	DOE	EPA/UDEQ	N	N
<b>Administrative</b>					
As-built drawings of the repository, the Site Management Plan, and Annual Wetlands Report were unavailable.	As-built drawings of the repository, the Site Management Plan, and Annual Wetlands Report should be placed in the Information Repository.	DOE	EPA/UDEQ	N	N
The index to the MMTS Administrative Record was missing. The MVP and MMTS Administrative Records are intermixed and should be separated. File #216, the Operable Unit I Record of Decision, was missing from the files.	A quality assurance review of the Administrative Records and Information Repository should be conducted and deficiencies corrected. (This action has been completed since the time of the inspection).	DOE	EPA/UDEQ	N	N
The LTSM record books for various properties were lacking in detail and completeness.	Project management should conduct a review of record keeping requirements and corrective actions should be implemented by the LTSM Representatives. (This action has been completed since the time of the inspection).	DOE	EPA/UDEQ	N	N