

Appendix 7

Final Pollution Report (POLREP) (December 17, 1998) & Final Closeout Report, Cleveland Mill Superfund Site, Grant County, New Mexico (June 2000)

POLREP NO: 2nd and Final

Date: December 17, 1998
Subject: Cleveland Mill Superfund Site
From: Kathleen Aisling, Remedial Project Manager
To: Charles A. Gazda, Chief, RPB, Region 6
New Mexico Environment Department

CERCLIS#: NMD981155930
Incident Category: IPF
Start Date: 09/08/97
Completion Date: 12/10/98
NPL Status: NPL

SSID#: G9
Action Lead: PRP
State Notification: NMED
Response Authority: CERCLA
Action Memo Status: Signed 7/1//97

Site Lat: N 32°51'50"
Lon: W 108°15'25"

I. SITUATION INFORMATION

The Cleveland Mill Superfund Site occupies about 18 acres in southwestern New Mexico, approximately 5.5 miles north of Silver City in Grant County. Mining and milling operations, which occurred from the early 1900s until the 1950s, left numerous piles of tailings which eroded into about 10 acres of the Little Walnut Creek streambed. The tailings piles and the stream sediment contained metals in concentrations above health-based standards. Besides the risk posed by the tailings and sediment, site surface water was heavily impacted by acidic run-off from this material and seepage from springs underlying the waste piles.

The Site was pursued through CERCLA's remedial authorities until the spring of 1997 when conditions worsened. The Potentially Responsible Parties (PRPs) at the site, who were actively participating in the remedial process, signed an Administrative Order on Consent (AOC) agreeing to perform the removal action.

II. ACTIONS TAKEN

A total of 164,960 cubic yards of tailings and sediment with metals concentrations above remedial action goals was excavated, amended with limestone and placed in the on-site disposal cell. The cell was covered with a multi-layered cap and the cell and the site were seeded with an appropriate seed mix for the area. Actions at the site were performed by the PRPs with oversight by EPA and the New Mexico Environment Department. Revegetation was coordinated with the State and Federal Resource Trustees for the site.

The field activities at the site were completed on November 19, 1998, the date on which the last area of the site was seeded. The removal action was completed on December 10, 1998, the date of submittal of the final site report required by the AOC.

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III. FUTURE PLANS

The PRPs will initiate long term ground and surface water monitoring and site operations and maintenance as required by the 1993 Record of Decision and the 1995 Consent Decree. The evaluation of the success of the vegetation and erosion control efforts will be evaluated on a quarterly basis for at least three years from the date of completion of the removal action. EPA plans no further actions at this site under the removal program.

IV. ATTACHMENTS: No additional attachments



FINAL CLOSEOUT REPORT

**CLEVELAND MILL SUPERFUND SITE
Grant County, New Mexico**

**U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 6 Superfund Division**

June 2000

901108



**Cleveland Mill Superfund Site
Close Out Report
Concurrences**

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6/13/00
Date

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I. INTRODUCTION

This Final Close Out Report documents that the U.S. Environmental Protection Agency (EPA) and the Potentially Responsible Parties (these companies are referred to as the "participating companies" in this document) have completed construction activities for the Cleveland Mill Superfund Site (the "Site") in accordance with OSWER Directive 9320.2-09A-P, Close-out Procedures for National Priorities List Sites, January 2000. The December 17, 1998, final Pollution Report (POLREP), prepared by the EPA, documents that the PRPs have completed the time-critical removal action specified in the Action Memorandum for the Site and have fully met the terms of the Administrative Order on Consent (AOC). The EPA issued a No-Further-Action Amended Record of Decision (ROD), which stated that all necessary remediation is complete, on September 20, 1999. The EPA issued the Preliminary Close Out Report on September 23, 1999. The finalization of the Site Operations and Maintenance (O&M) Plan, the only remaining ROD activity when the PCOR was issued, has been accomplished. The EPA approved the O&M Plan on February 28, 2000.

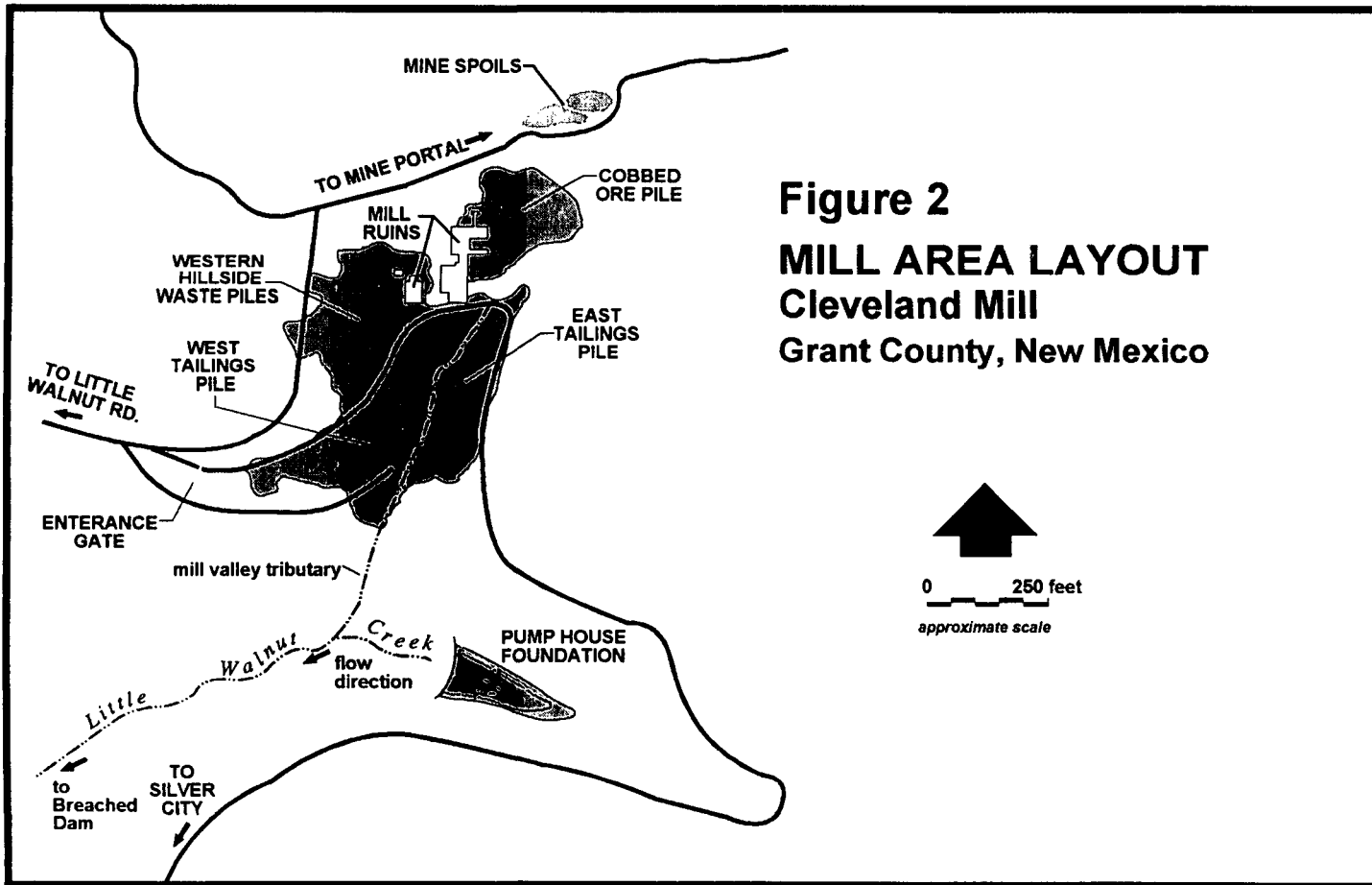
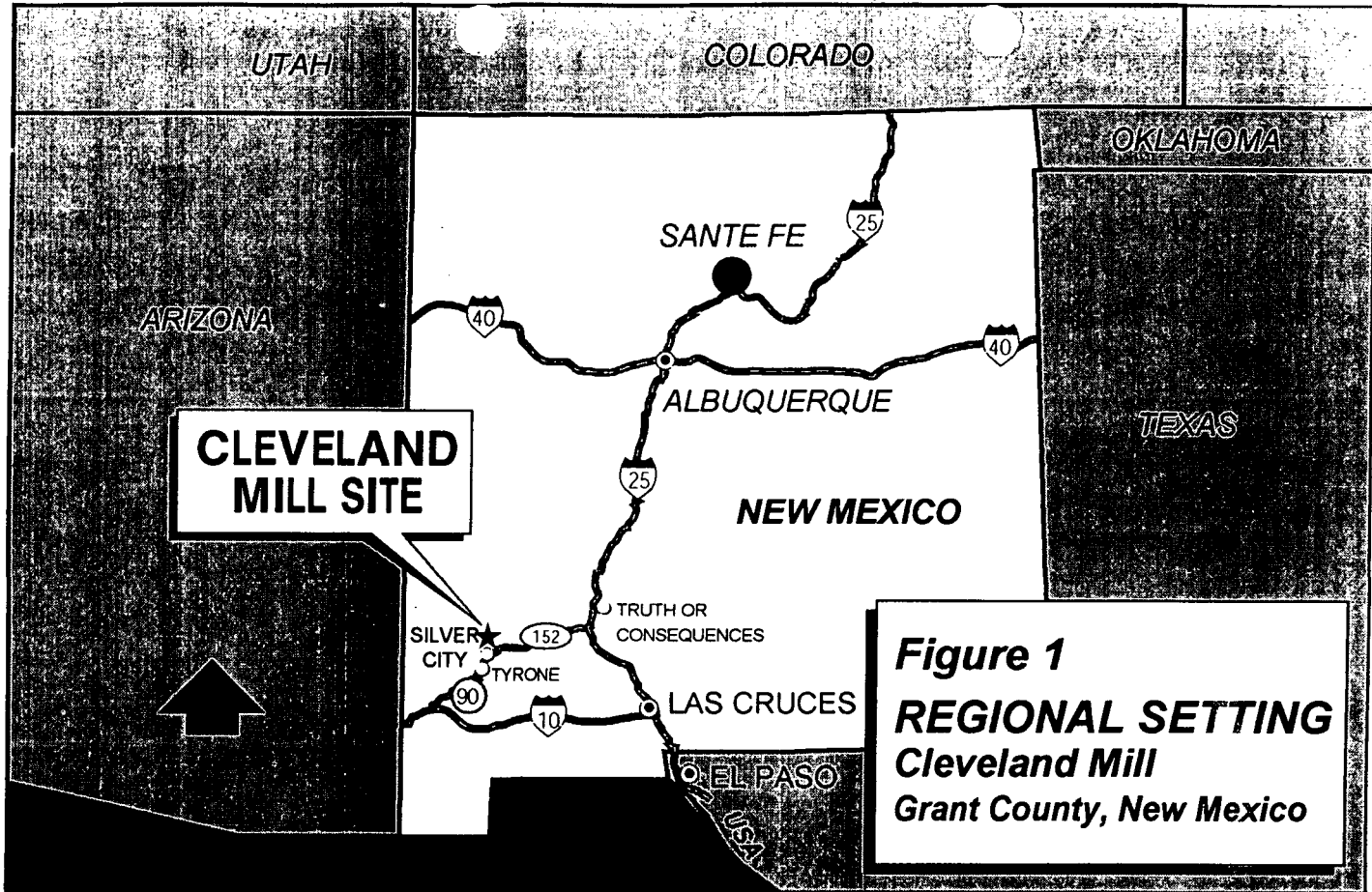
II. SUMMARY OF SITE CONDITIONS

Background

The Site, which contained an operating mine and mill in the early part of the century, is located at the headwaters of a small tributary of the Little Walnut Creek, 5.5 miles north of Silver City, in Grant County, New Mexico (See Figure 1). The Site occupies approximately 4 acres in mountainous terrain at an elevation of 7,100 feet above mean sea level (MSL), and it also occupies approximately 14 acres which extend down a drainage area and into the streambed of Little Walnut Creek. The Site is located in a rapidly developing residential area that is adjacent to the Gila National Forest and private lands. Downstream residences are concentrated along Little Walnut Creek. The nearest residence is located about 3,200 feet southwest of the Site. The population within a 3-mile radius of the Site is estimated to be 1,200.

Disposal of mill tailings and mine waste rock occurred in several areas of the Site during mining activities and during processing related to the Cleveland Mine. (See Figure 2.) These areas contained tailings and sediment contaminated with metals such as arsenic, beryllium, cadmium, lead, and zinc from the ore processing. Approximately 170,000 cubic yards of waste material were ultimately found to contain metals at concentrations that exceed standards based on risk to human health. This contaminated material was excavated, treated, and contained in an on-site disposal cell during the time-critical removal action.

The March 1993 Remedial Investigation (RI) report stated that a shallow on-site aquifer at the toe of the tailings was also contaminated with beryllium and cadmium, and residential wells downstream from the Site showed effects from the Site. The residential wells showed elevated concentrations of sulfates which are also found in the tailings, but the wells did not have any contaminants at concentrations exceeding health standards.



The threat of direct contact with Site contaminants in the soil media and in the surface water and the potential threat to residential drinking water wells from the Site tailings and sediment are the primary reasons the Site was proposed to the National Priorities List (NPL) on June 24, 1988, and added to the final NPL on March 31, 1989, with a Hazard Ranking Score of 40.37.

Remedial Investigation/Feasibility Study

The EPA performed the RI of the Site from 1990 through March 1992. The following contaminants were detected in the various Site media above risk-based health standards: arsenic, ranging from 4.1 to 3,020 mg/kg ; beryllium, ranging from 0.25 to 12.8 mg/kg; cadmium, ranging from 0.15 to 376 mg/kg; lead, ranging from 5.8 to 13,500 mg/kg; and zinc, ranging from 57.3 to 122,000 mg/kg .

On April 9, 1993, the EPA released the Proposed Plan of Action for the Site and started the public comment period on the Proposed Plan and the administrative record file which included the RI and Feasibility Study (FS) reports. The FS provided an in-depth analysis of remedial alternatives which included onsite and offsite treatment and disposal alternatives and a no action alternative. The FS concluded that no action at the Site could result in a potential health threat to the public through dermal contact with contaminated tailings and sediment and contaminated surface water, and a potential threat to nearby residents who rely on ground water for their drinking water.

ROD Findings

The EPA, in consultation with the New Mexico Environment Department (NMED), signed a ROD for the Site in September 1993, to address all contaminated areas of the Site. The overall Site remedy, as described in the 1993 ROD, would have addressed the current and potential threats to human health and the environment at the Site through excavation of the waste material, transportation of the waste material to a reprocessor for treatment, and disposal of the residuals at the reprocessing facility in an area where other tailings and residuals from ore-processing were disposed. The remedy in the 1993 ROD did not include a remedy for the shallow on-site aquifer because the EPA believed that the contamination would attenuate once the source was removed. Therefore, the 1993 ROD included ground water monitoring to ensure that the contamination did not worsen or spread to nearby residential wells prior to the source removal.

Design Criteria

The Removal Action Work Plan, submitted by the participating companies, was approved by EPA on September 1997. This work plan detailed the design criteria and the steps that would be undertaken to achieve the goals of the 1993 ROD. This plan was implemented by the

participating companies beginning in September 1997. The following section explains why a removal action was performed instead of the remedial action specified in the 1993 ROD.

Remedial Construction (Cleanup) Activities Performed

In a June 12, 1995, Consent Decree (CD), the participating companies agreed to implement the remedy specified in the 1993 ROD. However, the 1993 ROD remedy was not implemented because the search for an acceptable off-site disposal facility was ultimately unsuccessful, and, during the search, unanticipated weather events caused extensive contaminant migration at the Site. This contaminant migration increased the potential risk to human health and the environment and made the risk more immediate.

To address the immediate risks, on July 11, 1997, the EPA, with the concurrence of the NMED, issued an Action Memorandum that authorized a time-critical removal action to physically address the Site contamination and to restore affected surface areas at the Site. The participating companies agreed to implement this action through an AOC with the EPA which became effective on September 23, 1997. The field activities required by the AOC were completed on November 19, 1998, the date on which the last area of the Site was seeded. Completion of the final AOC requirement occurred on December 10, 1998, the date the participating companies submitted the Removal Action Final Report.

The time-critical removal action included:

- excavation of 164,960 cubic yards of contaminated tailings and sediment from the mine area, the mill area, and the streambed;
- neutralization of the acidic excavated material through admixing with limestone;
- disposal of the neutralized material in a limestone cell constructed at the Site;
- covering of the cell with a multi-layered cap,
- construction of erosion control measures such as terraces; and
- reseeded of the disturbed areas of the Site and the disposal cell cap.

Health-based remediation goals specified in the 1993 ROD (these goals were referred to as Remedial Action Goals in the 1993 ROD) and incorporated into the Action Memorandum included: arsenic, 30 milligrams per kilogram of soil (mg/kg); beryllium, 4 mg/kg; cadmium, 140 mg/kg; lead, 500 mg/kg; and zinc, 82,000 mg/kg. At the conclusion of the time-critical removal action, confirmatory samples were taken in all excavated areas of the Site to verify that all tailings and sediment with concentrations of contaminants higher than the remediation goals had been removed.

The EPA issued an Amended ROD for the Site on September 20, 1999, stating that no further response action was necessary; however, as explained in the Amended ROD, the continuation of ground water and surface water monitoring, operation and maintenance (O&M) of the constructed remedy, and implementation of the existing institutional controls will continue as specified in the 1995 CD. Institutional controls include restrictive covenants limiting the use of ground water and advising future owners about the risks of disturbing the cover and/or the underlying material. The EPA will amend the 1995 CD to reflect the changes in the Site cleanup approach which occurred because the time-critical removal action was performed.

Community Involvement Activities

In accordance with CERCLA Section 113 (k)(2)(13)(I-v) and 117, the EPA implemented the Community Involvement Plan in November 1990. In addition, the participating companies also initiated community involvement activities in accordance with the Removal Action Work Plan. Routine Site status summary fact sheets were published by EPA during the RI/FS and sent to parties on the EPA mailing list. Periodic Site updates were also published in the local newspaper. During the course of the cleanup activities at the Site, numerous public meetings, Site tours, onsite press conferences, formal open house meetings, and individual meetings with citizens and local officials took place. In addition, a Site completion ceremony was held on March 11, 1999, to mark the conclusion of Site construction activities.

III. DEMONSTRATION OF QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) FOR CLEANUP ACTIVITIES

Activities at the Site were consistent with the Site Action Memorandum, the AOC Statement of Work (SOW), and the August 27, 1997, Removal Action Work Plan. All procedures and protocol followed for soil, ground water, surface water, and air sampling and analysis during the time-critical removal action are listed in the sampling and analysis plan which is included in the Removal Action Work Plan. Adherence to these procedures and protocols is documented in the December 1998, Removal Action Final Report. This report also contains documentation of all the confirmatory sampling done at the Site as well as ground water monitoring, surface water monitoring, and air monitoring performed during the time-critical removal action.

The Quality Assurance Project Plan (QAPP), included in the Removal Action Work Plan, detailed quality assurance measures for the Site sampling and analytical program which were implemented during the time-critical removal action. The EPA has determined, under the QAPP, that all analytical results are accurate to the degree needed to show satisfactory completion of the time-critical removal action. In addition, a statistical analysis of each confirmatory sampling event was performed to ensure that the data sets met the remediation goals. These analyses were transmitted to the EPA on May 29, 1998, and on August 3, 1998, by the participating companies, and were reviewed and approved by EPA.

The Construction Quality Assurance Plan (CQAP), also included in the Removal Action Work Plan, was followed during the time-critical removal action. Inspection of the sediment control structures, construction and operation of the decontamination area, installation of the disposal cell cap, and construction of the disposal cell were performed as specified in the CQAP.

In support of the quality assurance objectives, the EPA made frequent visits to the Site to observe the excavation of tailings and sediment, the construction activities, and the restoration effort. The EPA participated in all confirmatory sampling events at the Site and took split samples of approximately 10-20 percent of the participating companies' confirmatory samples. The NMED was also present on a regular basis to provide oversight of the participating companies' actions and to assist in the collection of confirmatory samples. The QA/QC program utilized throughout the time-critical removal action conforms with EPA standards.

IV. MONITORING RESULTS

The Removal Action Work Plan prepared by the participating companies detailed a rigorous sampling and analysis program for the time-critical removal action. Specifically, sampling was required to 1) protect the off-site public, 2) protect onsite workers, and 3) confirm attainment of the remediation goals. The sampling program included:

- An initial air sampling program to determine the metals present in the Site dust;
- Daily continuous perimeter air monitoring for particulates, and speciation of the contaminants periodically;
- Personal air sampling for particulates of exclusion-zone worker during earth-moving activities;
- Confirmatory soil sampling for the five Site contaminants, and in 10% of the samples, for the entire suite of metals to check for any previously unidentified contaminants; and
- Ground water and surface water sampling for all Site contaminants.

The participating companies excavated tailings and sediment wherever Site contaminants were detected at levels higher than the remediation goals. Overall, contaminated tailings and sediment were excavated from depths of one to eight feet in the mine and mill location and along approximately 1 ½ miles of the Little Walnut Creek streambed. About 170,000 cubic yards of material was excavated, stabilized, and contained in the Site disposal cell. Confirmatory sampling showed that this quantity was sufficient to ensure that all contamination was removed from the Site, and that the remediation goals were achieved.

The Removal Action Final Report contains documentation of the complete results and accuracy of the confirmatory sampling program. Sufficient data has been gathered to demonstrate that cleanup levels specified in the 1993 ROD and the Action Memorandum are achieved and implemented, and the remedy is performing to design specifications. This action eliminated the threat to human health and the environment from direct contact with Site wastes and also eliminated the source of ground water contamination. Access to about four acres of the Site, where the stabilized material is contained, will be limited and the disposal cell will be maintained, while the remaining eight acres of the Site have been cleaned up to residential standards and are available for reuse.

V. SUMMARY OF OPERATION AND MAINTENANCE

Site O&M activities which will be performed by the participating companies include routine Site inspections to ensure that the cap on the disposal cell remains intact and that vegetative cover at the Site is sufficient to minimize erosion in the excavated areas. In addition, ground water and surface water monitoring will occur during the O&M period to ensure that the disposal cell remains intact and does not discharge contaminants to the environment, and to gather data to show that the removal of the contaminated tailings and sediment has eliminated the source of contamination. The participating companies, as agreed upon in the CD and accompanying Statement of Work and the AOC, and as detailed in the O&M Plan, have assumed all responsibility for O&M at the Site. In addition, under the CD and the O&M Plan, the participating companies shall perform ground water monitoring and surface water monitoring during the O&M period. Plans for O&M are in place and are sufficient to maintain the protectiveness of the remedy. The participating companies are fulfilling their obligation to perform the O&M.

Access to the Site (located in mountainous terrain) is limited through the use of gates and some fencing. Restrictive covenants, limiting land and ground water use in the disposal cell area were filed in August 1999. Therefore, all institutional controls are in place.

VI. SUMMARY OF REMEDIATION COSTS

The cost estimate for implementation of the 1993 ROD remedy for this Site was \$6.2 million; however, as described earlier in this document, the original ROD remedy was not implemented. The participating companies performed the cleanup specified in the Action Memorandum and in the AOC. Although the participating companies have not disclosed the cost of the remedy, the EPA believes that the costs were approximately the same as those estimated in the 1993 ROD, based on the 1993 ROD estimate of \$6.6 million for a remedial option similar to the removal action taken at the Site. The 1993 ROD estimated that annual O&M costs would be \$51,250. The participating companies have paid for EPA past costs and oversight costs, implementation of the cleanup, and O&M activities to date. Under the AOC, the CD, and the amended CD when it is issued, the PRPs will continue to pay O&M and oversight costs.

VII. PROTECTIVENESS

This Site meets all the site completion requirements as specified in OSWER Directive 9320.2-09A-P, Closeout Procedures for National Priorities List Sites. Specifically, confirmatory sampling verified that the Site has achieved the 1993 ROD remediation goals, and that all cleanup actions specified in the Site RODs and the Site Action Memorandum have been implemented. The Site risks associated with the tailings and sediment have been eliminated or reduced to acceptable levels through institutional controls, excavation, treatment, and onsite disposal. The only remaining activities to be performed are O&M activities, and ground water and surface water monitoring, which the participating companies have guaranteed. A bibliography of reports relevant to the completion of this Site under the Superfund program is attached.

VIII. FIVE-YEAR REVIEW

Because hazardous substances will remain at the Site at concentrations that exceed health-based standards after the completion of the RA, the EPA must conduct a statutory five-year review, pursuant to CERCLA Section 121 (c). The first five-year review report will be completed prior to September 2002, five years after the response action was initiated.

Approved by:

Myron O. Knudson, P.E., Director
Superfund Division
U.S. EPA Region 6

6/16/00
Date

VI. BIBLIOGRAPHY

Cleveland Mill Remedial Investigation Report, Silver City, New Mexico, (Ecology and Environment, prepared for New Mexico Environment Department, March 1993)

Cleveland Mill Feasibility Study, Silver City, New Mexico, (Ecology and Environment, prepared for New Mexico Environment Department, March 1993)

Record of Decision, Cleveland Mill Superfund Site, Silver City, New Mexico (United States Environmental Protection Agency, September 1993)

Removal Action Work Plan, Cleveland Mill Site, Grant County, New Mexico (Adrian Brown Consultants, August 27, 1997 with revisions dated November 21, 1997)

Streambed Sampling Plan, Cleveland Mill Site (Adrian Brown Consultants, April 16, 1998)

Cleveland Mill Site Removal Action Final Report (Adrian Brown Consultants, December 10, 1998)

Revised Reclamation and Revegetation Plan, Cleveland Mill Site (Adrian Brown Consultants, September 30, 1998)

Amended Record of Decision, Cleveland Mill Superfund Site, Silver City, New Mexico (United States Environmental Protection Agency, September 1999)

Preliminary Closeout Report - Cleveland Mill Superfund Site, (EPA, September 1999)

Cleveland Mill Site Operation and Maintenance Plan (Adrian Brown Consultants, February 24, 2000)