



**PRELIMINARY ASSESSMENT**

**CEDAR RESOURCES**  
**CERCLIS ID # COD983778416**

Prepared For:

**U.S. ENVIRONMENTAL PROTECTION AGENCY**  
**REGION VIII**

**CONTRACT NO. 68-W9-0025**

**WORK ASSIGNMENT NUMBER: 27-8JZZ**

January 24, 1994



**MORRISON KNUDSEN CORPORATION**  
**Environmental Services Division**  
7100 East Belleview Suite 300  
Englewood, Co 80111

# APPROVAL PAGE

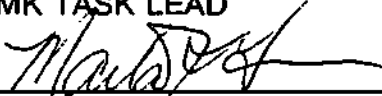
## PRELIMINARY ASSESSMENT

**CEDAR RESOURCES**  
CERCLIS ID # COD983778416

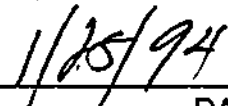
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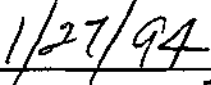
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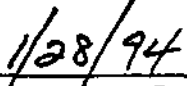
  
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MK TASK LEAD

  
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MK PRE-REMEDIAL MANAGER

  
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EPA SITE ASSESSMENT MANAGER

  
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## **1.0 INTRODUCTION**

Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), Morrison Knudsen Corporation-Environmental Services Division (MK) conducted a Preliminary Assessment of Cedar Resources in Conejos County, Colorado (CERCLIS ID # COD983778416). Information regarding the conditions at the site was collected to assess the potential threat to human health and the environment and to determine the need for additional action. This report was prepared in partial fulfillment of Work Assignment 27-8JZZ and ARCS contract number 68-W9-0025.

## **2.0 SITE DESCRIPTION**

### **2.1 Site Location**

The Cedar Resources mine is located in the southeast quarter of section 22 in township 36 north, range 4 east (Figure 1). The mine property is adjacent to the southern edge of Platoro, Colorado, which is in Conejos County. Site coordinates are 37°21'48" north latitude and 106°32'2" west longitude. The mine property is approximately 10 acres in area. Land use around the inactive site includes: residential, forest, and recreational (see Photo Log).

### **2.2 Site History**

The first claims in Platoro were staked in the 1880's, approximately 10 years after the ore discovery at Summitville. The Platoro Reservoir was constructed in 1952, establishing Platoro as a recreational area (Massey, 1989).

Until the 1960's only higher grade ore was mined at Platoro. Coronado Silver Corporation constructed a mill at the site in 1966 and began mining the lower grade ore. Approximately 44,000 tons of ore were produced by Coronado Silver from 1966 to 1974. In addition to milling underground ore, Coronado milled ore from the historical dumps around the Mammoth Revenue portal. Some waste rock was disposed of near the portal. The milled tailings were disposed of in the Wayne's Creek drainage (MK, 1993).

Union Mines acquired the Platoro property from Coronado Silver in 1979 (Massey, 1989). Eventually, Union Mines decided that reserves were not sufficient to justify operating the mine. The mine is currently inactive. The mine was allowed to flood after operations ceased. No reclamation of waste rock has taken place at the site.

In 1988 the Colorado Division of Wildlife (CDW) observed the Conejos River flowing red downstream of the Platoro Reservoir where Wayne's Creek enters the Conejos River and notified the U.S. Forest Service (USFS). CDW believes there may have been a major fish kill in the stretch of river where it was flowing red (USFS, 1992).

USFS collected surface water samples in 1988 and 1989. Samples were collected of water discharged into Wayne's Creek from the treatment plant. Elevated levels of arsenic were detected. Samples were also collected upstream and downstream from the confluence of Wayne's Creek with the Conejos River. Elevated levels of metals were detected in the sample collected downstream from the confluence (USFS, 1992). Samples collected by Colorado Department of Health (CDH) on May 29, 1992 of surface water seepage from the waste rock pile and sludge pond discharge had elevated levels of arsenic, iron, manganese, silver, sulfate, zinc and lead (CDH, 1992). Both locations discharge into Wayne's Creek. No sediment samples were collected.

## **2.3 Physical Setting**

The site is adjacent to the southern edge of Platoro, Colorado, which is situated in a valley formed by the Conejos River (Figures 2 & 3). Platoro is in the San Juan Mountains approximately 25 miles north of the Colorado-New Mexico border. Numerous campgrounds are within the target distance limit (Figure 2). Land use is limited by the rugged terrain. Summitville Mine is approximately six miles north of the site. Surface water from the site drains northwest to Wayne's Creek.

The site is approximately one mile southwest of the Conejos River. Wayne's Creek flows through the site and enters the Conejos River approximately one mile northeast of Cedar Resources. The Conejos River flows southeast approximately 60 miles to the Rio Grande River. Flow in the Conejos River is regulated by the Conejos Conservation District and averages approximately 7 cubic feet per second (cfs) in the winter months and 382 cfs in the summer months (Colorado Department of Wildlife, 1993).

The valley floor consists of alluvium derived from the Conejos River. The thickness of the alluvium is unknown. The type of and depth to bedrock in the area are unknown. Depth to water in wells in the Platoro area ranges from just below ground surface to 44 feet (Colorado State Engineer's Office, 1991). Direction of ground water flow from the site is presumed to be north toward the Conejos River.

Mean annual rainfall in the site vicinity is approximately 24 inches. Mean annual lake evaporation is 42 inches. The two-year twenty-four hour rainfall is 1.5 inches (Herschfield, 1961).

## **2.4 Regulatory Compliance History**

Union Mines has a permit to operate a water treatment plant. The permit was issued by CDH in 1982. The treatment system consists of a settling pond, equalization pond, polishing pond, sludge pond, neutralization, aeration tank, flocculation, clarification and rapid mix tank. The permit restricts the levels of metals discharged into Wayne's Creek and the Conejos River.

On July 7, 1989 CDH issued a Notice of Violation (NOV) to Cedar Resources. The NOV stated that pollutants were being discharged into Wayne's Creek and the Conejos River at levels exceeding those stipulated in the permit. The two sources identified in the NOV were decant from the sludge ponds and seepage from the waste rock pile. The NOV is included as Appendix C. The NOV stipulated that Cedar Resources begin collecting weekly water samples of the seepage from the toe of the waste rock pile and discharge from the decant structure associated with the tailings pond. The samples are analyzed for total arsenic, total recoverable copper, total recoverable cadmium, total recoverable zinc, total recoverable lead, total suspended solids and pH. On August 10, 1990 an agreement was reached between Cedar and CDH regarding the NOV. Cedar Resources agreed to continue treating the seep and operating the treatment plant.

## **3.0 PRELIMINARY PATHWAY ANALYSIS**

### **3.1 Waste Characteristics**

Sources of mine seepage from the site are: 1) waste rock and ore stock piles located inside the mine which are below the ground water table, 2) waste rock and ore stock piles

on the ground surface near the mine portal and 3) milled tailings disposed of in a surface impoundment in the Wayne's Creek drainage approximately 150 feet northwest of the waste rock and ore piles (Figure 3). Approximately 155,000 cubic yards of waste rock and ore were present on the ground surface during the site reconnaissance conducted on July 22, 1993. The amount of waste rock and ore present inside the mine is unknown.

According to head assays conducted by Hazen Research, samples collected of ore and waste rock contained 0.035% lead, 0.037% zinc and 1.83% sulfur, and 0.013% lead, 0.035% zinc and 0.434% sulfur, respectively (Hazen Research, 1993).

There are two underground storage tanks which contain diesel fuel. The capacity of the tanks is 20,000 gallons. No other wastes were identified during the site reconnaissance.

### **3.2 Air Migration Pathway**

There is no vegetative or man-made cover over the waste rock and ore on the ground surface or the milled tailings to the north. The ore and waste rock on the ground surface are not containerized. Contaminants may be released during high wind events. No air samples have been collected downwind of the ore and waste rock to test for particulate releases.

The town of Platoro is adjacent to the mine site. The closest residence is approximately 200 feet from the site. There are three rare species within the 4-mile target distance limit: Sierra corydalis, Colorado Divide whitlow-grass and Canyon bog-orchid (Colorado Natural Heritage Program, 1993). These species are candidates for being listed as threatened or endangered. Wetlands occur within 500 feet of the site on Wayne's Creek.

The air migration pathway target population was estimated using the USGS Quadrangle Maps and the average persons per household for Conejos County (U.S. Census Bureau, 1992):

| <u>Distance</u>                    | <u>Population</u> |
|------------------------------------|-------------------|
| 0 - $\frac{1}{4}$ mile             | 60                |
| $\frac{1}{4}$ - $\frac{1}{2}$ mile | 40                |
| $\frac{1}{2}$ - 1 mile             | 18                |
| 1 - 2 miles                        | 10                |

|             |    |
|-------------|----|
| 2 - 3 miles | 10 |
| 3 - 4 miles | 0  |

### **3.3 Ground Water Migration Pathway**

The residents of Platoro use ground water as a source of drinking water. There are no containment structures at the site which would prevent contaminated ground water from percolating downward and into the shallow ground water system.

A pad of inert waste rock was constructed to an elevation approximately two feet above the previous ground elevation (Massey, 1989). All ore and waste rock material were placed on the pad. The location of the pad and when it was constructed are unknown. The effectiveness of the pad at retarding downward migration of contaminated ground water is unknown. Containment for other waste rock not located on the pad is nonexistent. Depth to ground water in the area is approximately three feet. Likelihood of a release to ground water is considered to be high. The likelihood of release of acid mine drainage to the shallow ground water system is considered to be high.

A complaint was filed with the Drinking Water Branch, Region VIII EPA on May 17, 1991. The complaint was filed by an anonymous caller who claimed to live in Platoro. The complainant alleged that pH in his drinking water was between 3.5 and 3.7 (U.S. EPA, 1991). There is no information in the file as to whether any follow up action was taken in response to the complaint.

Another resident of Platoro had his private well tested in 1990. The sample was analyzed for arsenic, cyanide, iron, lead, pH and zinc. Cyanide was detected at 15 parts per billion (ppb); zinc was detected at 1800 ppb. The pH of the water was 4.3 units (Eckberg, 1992).

Three monitor wells are located on mine property (Figure 3). Well construction details and analytical results of samples collected from these wells were unavailable. There are no known uses of ground water other than for drinking water.

The number of permitted wells within four miles of the site was obtained from the Colorado State Engineer's Office.

| <u>Distance</u>                    | <u>Number of Documented Wells</u> | <u>Number of Users</u> |
|------------------------------------|-----------------------------------|------------------------|
| 0 - $\frac{1}{4}$ mile             | 24                                | 60                     |
| $\frac{1}{4}$ - $\frac{1}{2}$ mile | 16                                | 40                     |
| $\frac{1}{2}$ - 1 mile             | 7                                 | 18                     |
| 1 - 2 miles                        | 4                                 | 10                     |
| 2 - 3 miles                        | 4                                 | 10                     |
| 3 - 4 miles                        | 0                                 | 0                      |

### **3.4 Surface Water Migration Pathway**

Surface water from the site drains northwest approximately 300 feet where it enters Wayne's Creek (Figure 2). Wayne's Creek flows east approximately one mile to the Conejos River. Its flow is estimated at <10 cfs (cubic feet per second).

A diversion ditch was excavated by Union Mines upslope from the mine site to divert upland runoff around the waste rock/ore pile area. The location and effectiveness of the diversions are unknown. A dam was constructed by Coronado Silver downstream from the waste rock pile to prevent contaminated sediments from entering Wayne's Creek. However, the dam was breached in the past, and releases have occurred from the ponds which are part of the water treatment system (MK, 1993). The likelihood for release of contaminants to the surface water migration pathway is considered to be high.

Samples of surface water seepage from the waste rock pile, tailings dam, sludge pond discharge and Conejos River (upstream and downstream) were collected by the Colorado Department of Health (CDH) on May 29, 1992. Arsenic levels, in downstream order were 16,000 ppb at the waste rock pile, 1,400 ppb at the tailing dam, 66 ppb at the sludge ponds and non-detect in both Conejos River samples. Lead levels were 47 ppb and 15 ppb at the waste rock pile and tailing dam, respectively. Lead and cadmium were not detected in the three downstream locations. Cadmium levels were 36 ppb and 9 ppb at the waste rock pile and tailing dam, respectively. Zinc levels ranged from 15,000 ppb at the waste rock pile to 72 ppb at the sludge ponds. Samples collected from the Conejos

River were not analyzed for sulfates or zinc. No sediment samples were collected (CDH, 1992).

A water treatment facility treats the majority of mine seepage before it enters Wayne's Creek. Analytical results of effluent samples indicate that on at least one occasion, effluent from the treatment plant exceeded the water quality standards for arsenic and zinc (CDH, 1989). An unknown quantity of acid mine drainage which emanates from inside the mine and from the toe of the waste rock pile is not collected and treated and is discharged to Wayne's Creek. Surface water samples collected by USFS in 1988 and 1989 in the Conejos River downstream of the confluence with Wayne's Creek indicate releases have occurred in the past.

There are no drinking water intakes on the Conejos River within 15 miles downstream of the site (Colorado State Engineer, 1993). The rare Canyon bog-orchid (*Plantanthera sparsiflora* var. *ensifolia*) may be present along the surface water pathway (CNHP, 1993).

Approximately 32 acres of wetlands are within 500 feet of the water treatment ponds and adjacent to Wayne's Creek. The wetlands continue to the Conejos River. The Conejos River is stocked annually with brown and rainbow trout. Average biomass is approximately 18 pounds per acre (Colorado Division of Wildlife, 1993).

### **3.5 Soil Exposure Pathway**

Fences surrounding the site are in severe disrepair. Cattle graze on land adjacent to the site. Airborne dust from the waste pile was observed during the site reconnaissance. No soil samples have been collected downwind of the waste piles.

At present, the mine is inactive. There is one on-site worker who runs the pumps which pump acid mine drainage to the water treatment plant. The nearest residence is approximately 200 feet north of the site. There are no schools or daycare centers within 200 feet of the site. There is no documentation indicating recreational or resource use of the property.

## **4.0 SUMMARY AND CONCLUSIONS**

The Cedar Resources mine in Platoro, Colorado is an inactive gold mine. Ore, waste rock and milled tailings are on the ground surface and not covered. An unknown quantity of waste rock is inside the mine and in contact with ground water. Acid mine drainage emanates from inside the mine and the waste rock and ore piles. The majority of drainage is collected and treated. However, an unknown amount of acid mine drainage which emanates from the toe of the waste rock pile is not collected and treated. This seepage enters Wayne's Creek and eventually the Conejos River.

There is no vegetative cover on the waste rock and ore piles or the milled tailings which would prevent contaminated dust from becoming airborne. At present, there is one on-site worker who may be exposed to contaminated dust. The southern edge of the town of Platoro is adjacent to the site. The nearest residence is approximately 200 feet from the site.

There are several private wells in Platoro. A complaint was filed in 1991 alleging drinking water contamination. Another resident of Platoro had his drinking water tested. Cyanide and zinc were detected in a sample collected from the well, and the pH of the water was 4.3.

Surface water samples were collected by USFS and CDH along the surface water migration pathway. Samples collected downstream of the Wayne's Creek - Conejos River confluence had elevated levels of metals. No sediment samples were collected. The Conejos River is stocked annually with brown and rainbow trout. Wetlands occur within 500 feet downstream of the site. One rare plant may inhabit the surface water pathway, but no threatened or endangered species or drinking water intakes have been identified within the 15-mile downstream segment.

## **5.0 REFERENCES**

Colorado Department of Health (CDH), letter to Cedar Resources, 7-23-92.

CDH, letter to Union Mines, 4-18-89.

Colorado Division of Wildlife, personal communication with John Alves, 7-27-93.

Colorado Natural Heritage Program (CNHP), letter to Stafford Dusenbury, 7-20-93.

Colorado State Engineers Office, well permit records, 12-31-91.

Colorado State Engineer's Office, personal communication with Paul Clark, Conejos River Commissioner, 4-30-93.

Eckberg, Myron, letter to Colorado Mined land Reclamation Division, 3-9-92.

Hazen Research, Head Assays of Platoro Ore and Waste Rock, obtained from CDH files, 6-15-93.

Hershfield, D.M. Rainfall Atlas of the United States, U.S. Weather Bureau Technical Paper No. 40, 1961.

Massey, Dean, letter to CDH, 7-31-89.

Morrison Knudsen (MK), Field Notes from Site Reconnaissance, 7-22-93.

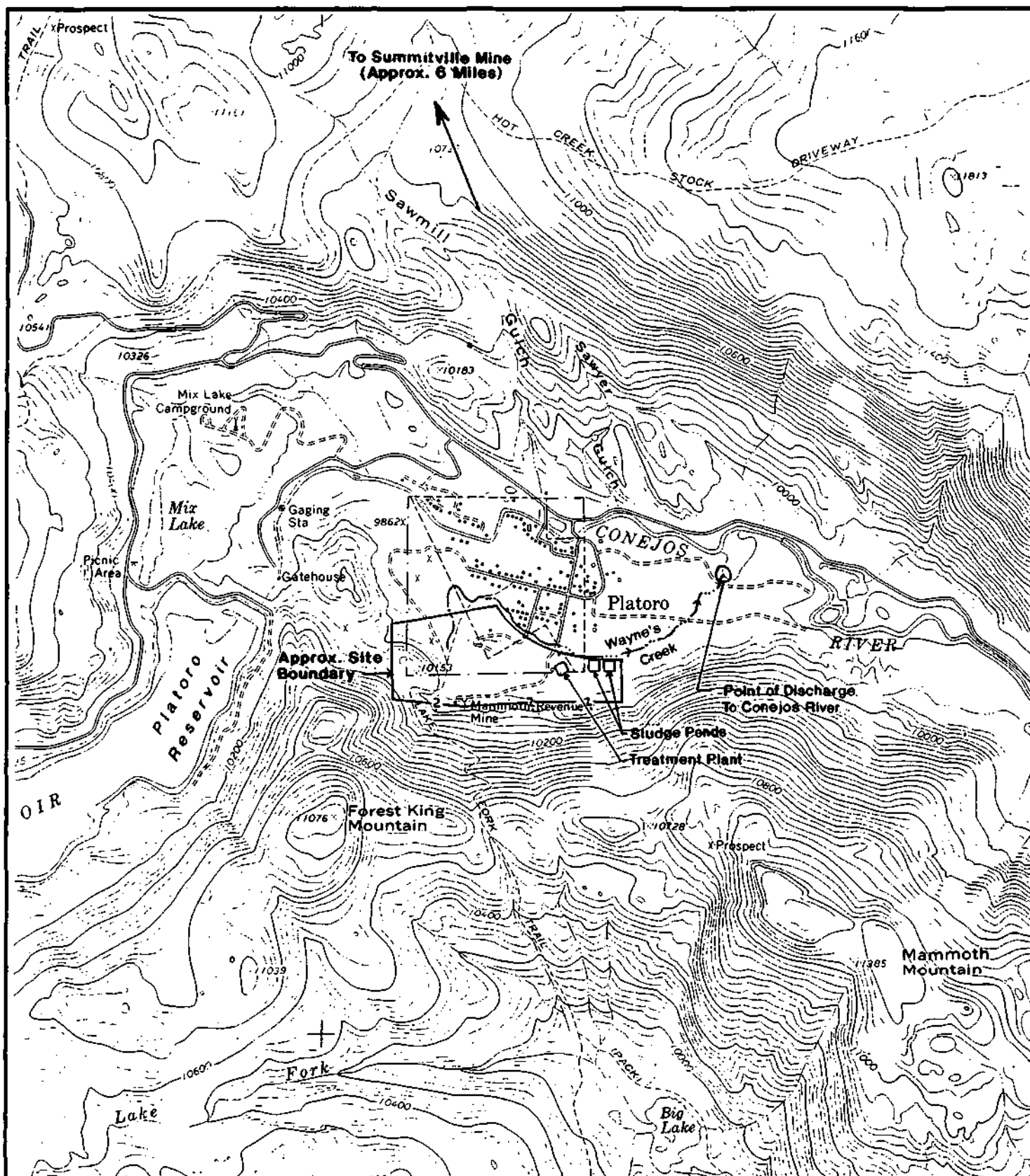
Steffen, Robertson & Kirsten, Baseline Environmental Inventory of Union Mines Property Near Platoro, May, 1985.

U.S. Census Bureau, Summary of Housing and Population Statistics for Conejos County, Colorado, 1992.

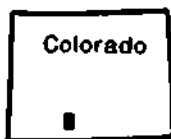
U.S. Environmental Protection Agency, Internal Memo from Drinking Water Branch to Mining Waste Branch, 5-17-93.

U.S. Forest Service (USFS), letter to Colorado Department of Natural Resources, 1-8-92.

U.S. Geological Survey (USGS), 7.5 Minute Quadrangle of Platoro, Colorado, 1967.



north



Map Location

0 1000



Scale in Feet

Figure 1

**Site Location**  
**CEDAR RESOURCES**  
 Platoro, Colorado

Source: USGS 7.5' Topo. Map of Platoro, Colorado

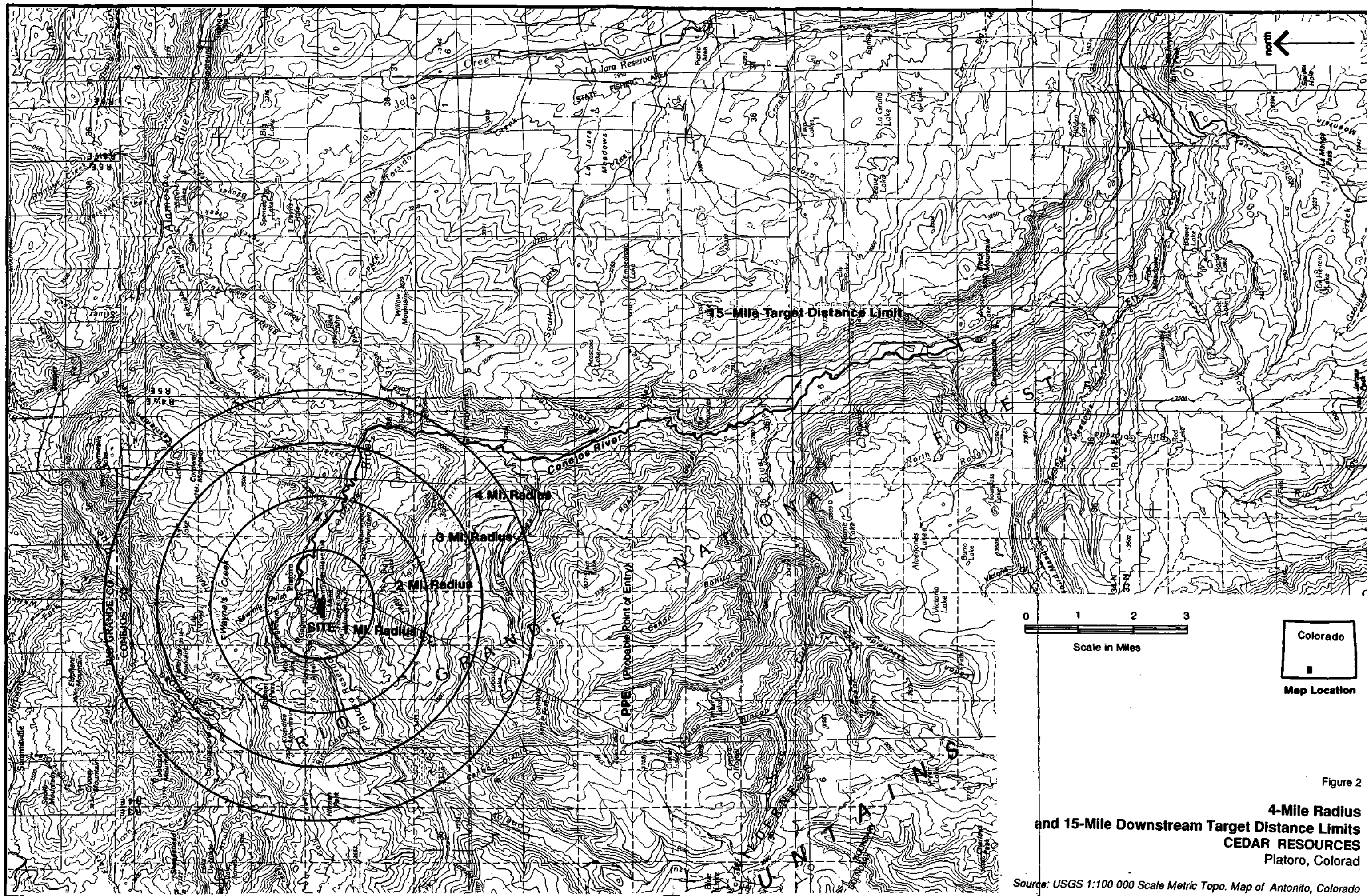
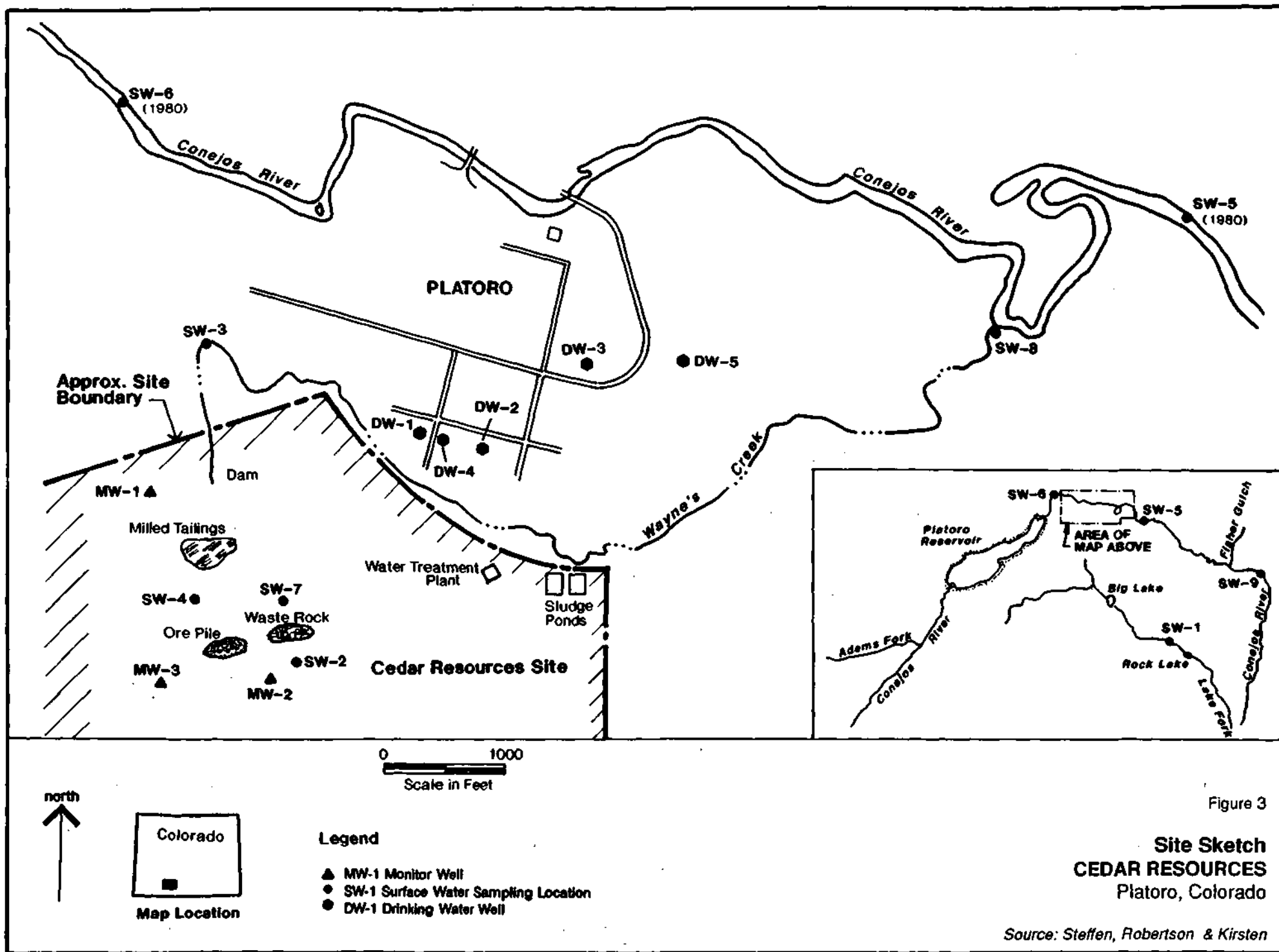


Figure 2  
**4-Mile Radius  
and 15-Mile Downstream Target Distance Limits  
CEDAR RESOURCES  
Platoro, Colorado**  
Source: USGS 1:100 000 Scale Metric Topo. Map of Antonito, Colorado



**APPENDIX A**

**EPA PRELIMINARY ASSESSMENT FORM**

## Cedar Resources - 01/21/94

OMB Approval Number: 2050-0095  
 Approved for Use Through: 4/95

|                                                                  |                            |                                   |                                             |                                    |                                 |  |
|------------------------------------------------------------------|----------------------------|-----------------------------------|---------------------------------------------|------------------------------------|---------------------------------|--|
| POTENTIAL HAZARDOUS<br>WASTE SITE<br>PRELIMINARY ASSESSMENT FORM |                            |                                   |                                             | IDENTIFICATION                     |                                 |  |
|                                                                  |                            |                                   |                                             | State:<br>CO                       | CERCLIS Number:<br>COD983778416 |  |
|                                                                  |                            |                                   |                                             | CERCLIS Discovery Date:<br>8-27-93 |                                 |  |
| 1. General Site Information                                      |                            |                                   |                                             |                                    |                                 |  |
| Name:<br>Cedar Resources                                         |                            |                                   | Street Address:<br>US.Forest Service Rd 250 |                                    |                                 |  |
| City:<br>Platoro                                                 | State:<br>CO               | Zip Code:<br>81129                | County:<br>Conejos                          | Co. Code:                          | Cong. Dist:                     |  |
| Latitude:<br>37 21' 48.0"                                        | Longitude:<br>106 32' 2.0" | Approx. Area of Site:<br>10 acres | Status of Site:<br>Inactive                 |                                    |                                 |  |
| 2. Owner/Operator Information                                    |                            |                                   |                                             |                                    |                                 |  |
| Owner:<br>Union Mines                                            |                            |                                   | Operator:<br>Union Mines                    |                                    |                                 |  |
| Street Address:<br>575 Union Blvd                                |                            |                                   | Street Address:<br>575 Union Blvd           |                                    |                                 |  |
| City:<br>Lakewood                                                |                            |                                   | City:<br>Lakewood                           |                                    |                                 |  |
| State:<br>Co                                                     | Zip Code:<br>80228         | Telephone:<br>989-1508            | State:<br>Co                                | Zip Code:<br>80228                 | Telephone:<br>989-1508          |  |
| Type of Ownership:<br>Private                                    |                            |                                   | How Initially Identified:<br>Other          |                                    |                                 |  |

|                                                                   |                                                 |                                          |                                 |
|-------------------------------------------------------------------|-------------------------------------------------|------------------------------------------|---------------------------------|
| POTENTIAL HAZARDOUS<br>WASTE SITE<br>PRELIMINARY ASSESSMENT FORM  |                                                 | IDENTIFICATION                           |                                 |
|                                                                   |                                                 | State:<br>CO                             | CERCLIS Number:<br>COD983778416 |
|                                                                   |                                                 | CERCLIS Discovery Date:<br>8-27-93       |                                 |
| 3. Site Evaluator Information                                     |                                                 |                                          |                                 |
| Name of Evaluator:<br>Stafford Dusenbury                          |                                                 | Agency/Organization:<br>MK Environmental | Date Prepared:<br>1/21/94       |
| Street Address:<br>7100 East Belleview                            |                                                 | City:<br>Denver                          | State:<br>Co                    |
| Name of EPA or State Agency Contact:<br>Pat Smith                 |                                                 | Telephone:<br>303-293-1262               |                                 |
| Street Address:<br>999 18th Street Suite 500                      |                                                 | City:<br>Denver                          | State:<br>Co                    |
| 4. Site Disposition (for EPA use only)                            |                                                 |                                          |                                 |
| Emergency<br>Response/Removal<br>Assessment<br>Recommendation: No | CERCLIS<br>Recommendation:<br>Lower Priority SI | Signature:                               |                                 |
| Date:                                                             | Date:                                           | Name:                                    |                                 |
|                                                                   |                                                 | Position:                                |                                 |

## Cedar Resources - 01/21/94

POTENTIAL HAZARDOUS

WASTE SITE

PRELIMINARY ASSESSMENT FORM

## IDENTIFICATION

|        |                 |
|--------|-----------------|
| State: | CERCLIS Number: |
| CO     | COD983778416    |

|                         |
|-------------------------|
| CERCLIS Discovery Date: |
| 8-27-93                 |

## 5. General Site Characteristics

Predominant Land Uses Within  
1 Mile of Site:  
Residential  
Forest/Fields

Site Setting:  
  
Rural

Years of Operation:  
Beginning Year: 1979  
  
Ending Year: 1993

Type of Site Operations:  
Mining  
Metals

Waste Generated:  
Onsite

Waste Deposition Authorized  
By: Present Owner

Waste Accessible to the Public  
Yes

Distance to Nearest Dwelling,  
School, or Workplace:  
200 Feet

## 6. Waste Characteristics Information

| Source Type | Quantity        | Tier | General Types of Waste: |
|-------------|-----------------|------|-------------------------|
| Pile        | 1.55e+05 cu yds | V    | Mining Waste            |
| Pile        | 2.00e+04 sq ft  | A    |                         |

Physical State of Waste as Deposited  
Solid

## Tier Legend

|                 |                 |
|-----------------|-----------------|
| C = Constituent | W = Wastestream |
| V = Volume      | A = Area        |

Cedar Resources - 01/21/94

| POTENTIAL HAZARDOUS<br>WASTE SITE<br>PRELIMINARY ASSESSMENT FORM |                                                                     | IDENTIFICATION                                                          |                              |
|------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------|
|                                                                  |                                                                     | State: CO                                                               | CERCLIS Number: COD983778416 |
|                                                                  |                                                                     | CERCLIS Discovery Date: 8-27-93                                         |                              |
| 7. Ground Water Pathway                                          |                                                                     |                                                                         |                              |
| Is Ground Water Used for Drinking Water Within 4 Miles:<br>Yes   | Is There a Suspected Release to Ground Water:<br>Yes                | List Secondary Target Population Served by Ground Water Withdrawn From: |                              |
| Type of Ground Water Wells Within 4 Miles:<br>Private            | Have Primary Target Drinking Water Wells Been Identified: Yes       | 0 - 1/4 Mile                                                            | 60                           |
|                                                                  |                                                                     | >1/4 - 1/2 Mile                                                         | 40                           |
|                                                                  |                                                                     | >1/2 - 1 Mile                                                           | 18                           |
| Depth to Shallowest Aquifer:<br>3 Feet                           | Primary Target Population: 3                                        | >1 - 2 Miles                                                            | 10                           |
|                                                                  |                                                                     | >2 - 3 Miles                                                            | 10                           |
| Karst Terrain/Aquifer Present:<br>No                             | Nearest Designated Wellhead Protection Area:<br>None within 4 Miles | >3 - 4 Miles                                                            | 0                            |
|                                                                  |                                                                     | Total                                                                   | 138                          |

Cedar Resources - 01/21/94

POTENTIAL HAZARDOUS

WASTE SITE

PRELIMINARY ASSESSMENT FORM

## IDENTIFICATION

State: | CERCLIS Number:  
CO | COD983778416CERCLIS Discovery Date:  
8-27-93

## 8. Surface Water Pathway

Part 1 of 4

Type of Surface Water Draining  
Site and 15 Miles Downstream:  
Stream  
RiverShortest Overland Distance From Any  
Source to Surface Water:300 Feet  
0.1 MilesIs there a Suspected Release to  
Surface Water: YesSite is Located in:  
>100 yr - 500 yr floodpla

## 8. Surface Water Pathway

Part 2 of 4

Drinking Water Intakes Along the Surface Water Migration Path: No

Have Primary Target Drinking Water Intakes Been Identified: No

Secondary Target Drinking Water Intakes:  
None

Cedar Resources - 01/21/94

POTENTIAL HAZARDOUS

WASTE SITE

PRELIMINARY ASSESSMENT FORM

## IDENTIFICATION

State:

CO

CERCLIS Number:

COD983778416

CERCLIS Discovery Date:

8-27-93

## 8. Surface Water Pathway

Part 3 of 4

Fisheries Located Along the Surface Water Migration Path: Yes

Have Primary Target Fisheries Been Identified: Yes

Secondary Target Fisheries:

None

## 8. Surface Water Pathway

Part 4 of 4

Wetlands Located Along the Surface Water Migration Path? (y/n) Yes

Have Primary Target Wetlands Been Identified? (y/n) No

Secondary Target Wetlands:

Water Body/Flow(cfs)

Frontage(mi)

minimal stream/ &lt;10

0.1 to 1

Other Sensitive Environments Along the Surface Water Migration Path: Yes

Have Primary Target Sensitive Environments Been Identified: No

Secondary Target Sensitive Environments:

Water Body/Flow(cfs)

Sensitive Environment Type

minimal stream/ &lt;10

Small areas for maintenance of unique bio

## Cedar Resources - 01/21/94

POTENTIAL HAZARDOUS

WASTE SITE

PRELIMINARY ASSESSMENT FORM

## IDENTIFICATION

|              |                                 |
|--------------|---------------------------------|
| State:<br>CO | CERCLIS Number:<br>COD983778416 |
|--------------|---------------------------------|

|                                    |
|------------------------------------|
| CERCLIS Discovery Date:<br>8-27-93 |
|------------------------------------|

## 9. Soil Exposure Pathway

Are People Occupying Residences or  
Attending School or Daycare on or  
Within 200 Feet of Areas of Known  
or Suspected Contamination: Yes  
Total Resident Population: 118

Number of Workers Onsite: 1 - 100

Have Terrestrial Sensitive Environments Been Identified on or Within  
200 Feet of Areas of Known or Suspected Contamination: No

## 10. Air Pathway

|                                |                                          |
|--------------------------------|------------------------------------------|
| Total Population on or Within: | Is There a Suspected Release to Air: Yes |
| Onsite 0                       |                                          |
| 0 - 1/4 Mile 60                | Wetlands Located                         |
| >1/4 - 1/2 Mile 40             | Within 4 Miles of the Site: Yes          |
| >1/2 - 1 Mile 18               |                                          |
| >1 - 2 Miles 10                | Other Sensitive Environments Located     |
| >2 - 3 Miles 0                 | Within 4 Miles of the Site: Yes          |
| >3 - 4 Miles 0                 |                                          |
| Total 128                      |                                          |

## Sensitive Environments Within 1/2 Mile of the Site:

| Distance   | Sensitive Environment Type/Wetlands Area(acres)          |
|------------|----------------------------------------------------------|
| >1/4 - 1/2 | Wetlands (1 to 50 acres)                                 |
| >1/4 - 1/2 | Small areas for maintenance of unique biotic communities |

**APPENDIX B**

**PA WORKSHEET**

**Preparer's Name: STAFFORD DUSENBURY**

**Location: REGION VIII**

**Site Name: CEDAR RESOURCES**

**Date: JULY 29, 1993**

**PA Worksheet**

**MAJOR CONSIDERATIONS**

- A) DOES ANY QUALITATIVE OR QUANTITATIVE INFORMATION EXIST THAT MAY INDICATE AN OBSERVED RELEASE TO AIR, GROUND WATER, SOIL OR SURFACE WATER?

Describe: **Acid mine drainage to Wayne's Creek and Conejos River.**

- B) IF THE ANSWER TO #1 IS YES, IS THERE EVIDENCE OF DRINKING WATER SUPPLY CONTAMINATION OR ANY OTHER TARGET CONTAMINATION (i.e. food chain, recreation areas, or sensitive environments)? **No.**

Describe: **No SW intakes within 15 miles on Conejos. Wetland immediately downstream but did not appear stressed. Letter dated 5-17-91 from Drinking Water Branch to Mining Waste Branch Region VIII EPA states complaint of low pH water in private well.**

- C) ARE THERE SENSITIVE ENVIRONMENTS WITHIN A 4-MILE RADIUS OR 15 DOWNSTREAM MILES OF THE SITE? **Yes.** IF YES, DESCRIBE IF ANY OF THE FOLLOWING APPLY:

- Multiple sensitive environments?

**Wetland downstream on Wayne's Creek.**

- Federally designated sensitive environment(s)?

**Sierra corydalis, Colorado Divide Whitlow - grass and Canyon bog - orchid are rare species being considered for listing as threatened.**

- Sensitive environment(s) downstream on a small or slow flowing surface water body?

- D) IS THE SITE LOCATED IN AN AREA OF KARST TERRAIN?

Describe: **No.**

- E) DOES THE WASTE SOURCE LIE FULLY OR PARTIALLY WITHIN A WELLHEAD PROTECTION AREA AS DESIGNATED ACCORDING TO SECTION 1428 OF THE SAFE DRINKING WATER ACT? **No.**

- F) DOES ANY QUALITATIVE OR QUANTITATIVE INFORMATION EXIST THAT PEOPLE LIVE OR ATTEND SCHOOL ON ONSITE CONTAMINATED PROPERTY? **No.**

Describe:

**SITE INFORMATION**

1. SITE NAME: **Cedar Resources Mine**

ADDRESS:

CITY: **Platoro** COUNTY: **Conejos** STATE: **CO** ZIP:

EPA ID:

LATITUDE: **37° 21' 48" N** LONGITUDE: **106° 32' 2" W**

2. DIRECTIONS TO SITE (From nearest public road):

**Route 285 south from Denver to Route 112 west to Route 14 (in Del Norte) south to USFS Route 330 to USFS Route 250.**

3. SITE OWNERSHIP HISTORY (Use additional sheets, if necessary):

A. Name of current owner: **Union Mines Inc.**

Address: **575 Union Blvd. Suite 206**

City: **Lakewood** County: **Jefferson** State: **CO** Zip: **80228**

Dates: **From 1979 To present** Phone **989-1508**

B. Name of previous owner: **Coronado Silver**

Address: **Unknown**

City: County: State: Zip:

Dates: From To Phone:

Source of ownership data: **7-31-89 letter from Dean Massey to CDH.**

4. TYPE OF OWNERSHIP (Check all that apply):

Private **X** State\_\_\_\_ Municipal\_\_\_\_  
Federal\_\_\_\_ County\_\_\_\_ Other (describe):\_\_\_\_\_

5. NAME OF SITE OPERATOR: **Union Mines**  
ADDRESS: **575 Union Blvd. Suite 206**  
CITY: **Lakewood** COUNTY: **Jefferson** STATE: **CO** ZIP: **80228**  
PHONE: **989-1508**

**BACKGROUND/OPERATING HISTORY**

6. DESCRIBE OPERATING HISTORY OF SITE:

**Mining in Platoro began in the 1880's. A mill was constructed in 1966. The mine was purchased from Coronado Silver in 1979 and operated as a gold mine through 1987. The mine is currently inactive.**

Source of information: **7-31-89 letter from Dean Massey to EPA.**

7. DESCRIBE SITE AND NATURE OF SITE OPERATIONS (property size, manufacturing, waste disposal, storage, etc.):

**Mine is currently inactive. Property size is approximately 10 acres. Waste rock and ore pile are present on-site. Milled tailings are located immediately northwest of waste rock and ore pile. Water treatment at the facility has been under NPDES permit since 1987.**

Source of information: **7-22-93 site reconnaissance.**

8. DESCRIBE ANY EMERGENCY OR REMEDIAL ACTIONS THAT HAVE OCCURRED AT THE SITE:

**None.**

Source of information:

9. ARE THERE RECORDS OR KNOWLEDGE OF ACCIDENTS OR SPILLS INVOLVING SITE WASTES?  
**Yes.**

Describe: **Untreated acid mine drainage has flowed into Wayne's Creek and Conejos River.**

Source of information: **1-8-92 letter from USFS to Colorado Dept. of Natural Resources.**

10. DISCUSS EXISTING SAMPLING DATA AND BRIEFLY SUMMARIZE DATA QUALITY (e.g., sample objective, age/comparability, analytical methods, detection limits and QA/QC):

U.S. Forest Service collected samples in 1988 and 1989 from the Conejos River and treatment effluent. No information was available on data quality. Colorado Department of Health collects samples from where treated water discharges into Wayne's Creek twice monthly for metals and once a week for pH, oil and grease.

Source of information: 1-8-92 letter from USFS to Colorado Dept. of Natural Resources; personal communication with John Kubek CDH.

#### WASTE CONTAINMENT/HAZARDOUS SUBSTANCE IDENTIFICATION

11. FOR EACH SOURCE AT THE SITE, SUMMARIZE ON TABLE 1 (page 12): 1) Methods of hazardous substance disposal, storage or handling; 2) size/volume/area of all features/structures that might contain hazardous waste; 3) condition/integrity of each storage disposal feature or structure; and 4) types of hazardous substances handled.

12. BRIEFLY EXPLAIN HOW WASTE QUANTITY WAS ESTIMATED (e.g. historical records or manifests, permit applications, air photo measurements, etc):

Waste quantity was estimated based on direct observation.

Source of information: Site reconnaissance conducted on 7-22-93.

13. DESCRIBE ANY RESTRICTIONS OR BARRIERS ON ACCESSIBILITY TO ONSITE WASTE MATERIALS:

The sources are fenced, but contamination may be present beyond the fence.

Source of information: 7-22-93 site reconnaissance.

GROUND WATER CHARACTERISTICS

14. ANY POSITIVE OR CIRCUMSTANTIAL EVIDENCE OF A RELEASE TO GROUND WATER?

Describe: Person living in Platoro called EPA and claimed the pH of his drinking water was 3.5 to 3.7. Another resident of Platoro had his water tested. Cyanide was detected at 0.015 ppm; zinc was detected at 1.8 ppm. pH of his water was 4.3.

Source of information: 5-17-91 communication from Region VIII EPA Drinking Water Branch to Mining Waste Branch; 3-9-92 letter from Myron Eckberg to Colorado Mined Land Reclamation Division.

15. ON TABLE 2 (page 13), GIVE NAMES, DESCRIPTIONS, AND CHARACTERISTICS OF GEOLOGIC/HYDROGEOLOGIC UNITS UNDERLYING THE SITE.

16. NET PRECIPITATION: Mean annual = 8"; annual lakke evaporation = 38"

SURFACE WATER CHARACTERISTICS

17. ARE THERE SURFACE WATER BODIES WITHIN 2 MILES OF THE SITE? Yes.

|                 |                 |            |
|-----------------|-----------------|------------|
| Ditches_____    | Lakes_____      | Pond_____  |
| Creeks <u>X</u> | Rivers <u>X</u> | Other_____ |

18. DISCUSS THE PROBABLE SURFACE RUNOFF PATTERNS FROM THE SITE TO SURFACE WATERS:

Site drains northwest to Wayne's Creek which is approximately 300 feet offsite.

19. PROVIDE A SIMPLIFIED SKETCH OF SURFACE RUNOFF AND SURFACE WATER FLOW SYSTEM FOR 15 DOWNSTREAM MILES (see item #36).

20. ANY POSITIVE OR CIRCUMSTANTIAL EVIDENCE OF SURFACE WATER CONTAMINATION? Yes.

Describe: Wayne's Creek was stained red from acid mine drainage from the site.

Source of information: 7-22-93 site reconnaissance.

21. ESTIMATE THE SIZE OF THE UPGRADIENT DRAINAGE AREA FROM THE SITE: 172 acres.

Source of information: USGS 7.5 minute quadrangle Platoro, Colorado

22. DETERMINE THE AVERAGE ANNUAL STREAM FLOW OF DOWNSTREAM SURFACE WATERS

Water body: **Wayne's Creek** Flow: **0 to 10** cfs

Water body: **Conejos River** Flow: **7 to 382** cfs

Water body: Flow: cfs

Source of information

23. IS THE SITE OR PORTIONS THEREOF LOCATED IN SURFACE WATER? **No**

24. IS THE SITE LOCATED IN A FLOODPLAIN (Indicate flood frequency)? **Unknown.**

25. IDENTIFY AND LOCATE (see Item #36) ANY SURFACE WATER RECREATION AREA WITHIN 15 DOWNSTREAM MILES OF THE SITE:

**Conejos River downstream from Platoro Reservoir is used for fishing.**

Source of Information: **Colorado Division of Wildlife, 7-26-93.**

26. TWO YEAR 24-HOUR RAINFALL: **1.5 inches**

27. DISCUSS GROUND WATER USAGE WITHIN FOUR MILES OF THE SITE:

**There are approximately 40 permitted wells in the Platoro area within  $\frac{1}{2}$  mile of the site. There are approximately 15 permitted wells between  $\frac{1}{2}$  and 4 miles of the site.**

Source of Information: **Colorado State Engineer, well permit records.**

28. SUMMARIZE THE POPULATION SERVED BY GROUND WATER ON THE TABLE BELOW:

| <u>Distance</u><br>(miles)    | <u>Population</u> |
|-------------------------------|-------------------|
| 0 - $\frac{1}{4}$             | $\approx$ 60      |
| $\frac{1}{4}$ - $\frac{1}{2}$ | $\approx$ 40      |
| $\frac{1}{2}$ - 1             | $\approx$ 18      |

|       |      |
|-------|------|
| 1 - 2 | = 10 |
| 2 - 3 | = 10 |
| 3 - 4 | 0    |

Source of information:

29. IDENTIFY AND LOCATE (see Item #36) POPULATION SERVED BY SURFACE WATER INTAKES WITHIN 15 DOWNSTREAM MILES OF THE SITE:

**None.**

30. DESCRIBE AND LOCATE FISHERIES WITHIN 15 DOWNSTREAM MILES OF THE SITE (i.e., provide standing crop of production and acreage, etc.):

**The Conejos River downstream from the Platoro Reservoir is stocked annually with brown and rainbow trout. Average biomass is 18 pounds per acre.**

Source of information: **Colorado Division of Wildlife, 7-26-93.**

31. DETERMINE THE DISTANCE FROM THE SITE TO THE NEAREST OF EACH OF THE FOLLOWING LAND USES

| <u>Description</u>                     | <u>Distance</u><br>(miles) |
|----------------------------------------|----------------------------|
| Commercial/Industrial<br>Institutional | .25 mile                   |
| Single Family Residential              | 0.04                       |
| Multi-Family Residential               | None.                      |
| Park                                   | 2                          |
| Agricultural                           | None.                      |

Source of information: **USGS 7.5 minute quadrangle Platoro, Colorado**

32. SUMMARIZE THE POPULATION WITHIN A FOUR-MILE RADIUS OF THE SITE:

| <u>Distance</u><br>(miles) | <u>Population</u> |
|----------------------------|-------------------|
| On Site                    | 1                 |
| 0 - 1/4                    | ≈ 60              |
| 1/4 - 1/2                  | ≈ 40              |
| 1/2 - 1                    | ≈ 18              |
| 1 - 2                      | ≈ 10              |
| 2 - 3                      | ≈ 10              |
| 3 - 4                      | 0                 |

Source of information: USGS 7.5 Minute quadrangle of Platoro, Colorado.

OTHER REGULATORY INVOLVEMENT

33. DISCUSS ANY PERMITS:

County:

State: NPDES permit

Federal:

Other:

Source of information: CDH, 1993.

34. SKETCH OF SITE

Include all pertinent features, e.g., wells, storage areas, underground storage tanks, waste areas, buildings, access roads, areas of ponded water, etc. Attach additional sheets with sketches of enlarged areas, if necessary.

See Figure 3

↑

35. SURFACE WATER FEATURES

Provide a simplified sketch of surface runoff and surface water flow system for 15 downstream miles. Include all pertinent features, e.g., Intakes, recreation areas, fisheries, gauging stations, etc.

See Figure 2

↑

TABLE 1  
WASTE CONTAINMENT AND HAZARDOUS SUBSTANCE IDENTIFICATION

| SOURCE TYPE                         | SIZE<br>(Volume/Area)    | ESTIMATED<br>WASTE QUANTITY      | SPECIFIC<br>COMPOUNDS      | CONTAINMENT*                                                            | SOURCES<br>OF INFORMATION |
|-------------------------------------|--------------------------|----------------------------------|----------------------------|-------------------------------------------------------------------------|---------------------------|
| Waste Rock and ore (ground surface) | 15,555 yd <sup>2</sup>   | 155,000 yd <sup>3</sup>          | Pb, Zn, As, Cd, Cu, Fe, Mn | GW: waste pad<br>SW: dam and pump<br>Air and on-site soil: none.        | 7-22-93 on-site recon.    |
| Milled Tailings                     | ≈ 20,000 ft <sup>2</sup> | depth of milled tailings unknown | unknown                    | GW: none<br>SW: dam<br>Air and on-site soil: none                       | 7-22-93 on-site recon     |
| Waste rock and ore (inside mine)    | unknown                  | unknown                          | unknown                    | GW: none<br>SW: pumped to treatment plant<br>Air and on-site soil: none |                           |
| Underground Storage Tanks           | 20,000 gallons           | unknown                          | diesel fuel                | GW: good<br>SW: good<br>Air and on-site soil: good                      | 7-22-93 on-site recon.    |
|                                     |                          |                                  |                            |                                                                         |                           |

\* Containment of each source from the perspective of each migration pathway (e.g., ground water pathway - non-existent, natural or synthetic liner, corroding underground storage tank; surface water - inadequate freeboard, corroding bulk tanks; air - unstablized slag piles, leaking drums, etc.)

TABLE 2  
HYDROGEOLOGIC INFORMATION

| STRATA NAME/DESCRIPTION | THICKNESS<br>(ft.) | HYDRAULIC CONDUCTIVITY<br>(cm/sec) | TYPE OF<br>DISCONTINUITY | SOURCE<br>OF INFORMATION |
|-------------------------|--------------------|------------------------------------|--------------------------|--------------------------|
| Conejos River Alluvium  | unknown            | $\approx 10^{-2}$                  | Conejos River            | 7-22-93 site recon       |
|                         |                    |                                    |                          |                          |
|                         |                    |                                    |                          |                          |
|                         |                    |                                    |                          |                          |
|                         |                    |                                    |                          |                          |

Discontinuity within four-miles from the site (e.g., river, strata "pinches out", etc.)

## **APPENDIX C**

### **PHOTO LOG**



Photo No.

1

Site Name:

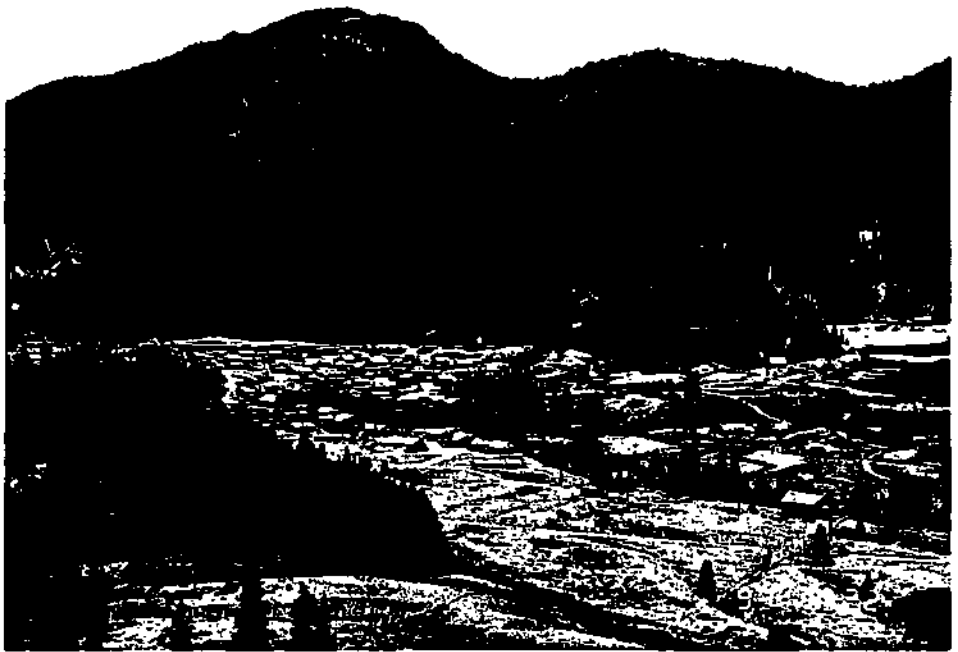
Cedar Resources

Location:

Platoro, Colorado

CERCLIS #:

None



Photographer/Witness Stafford Dusenbury

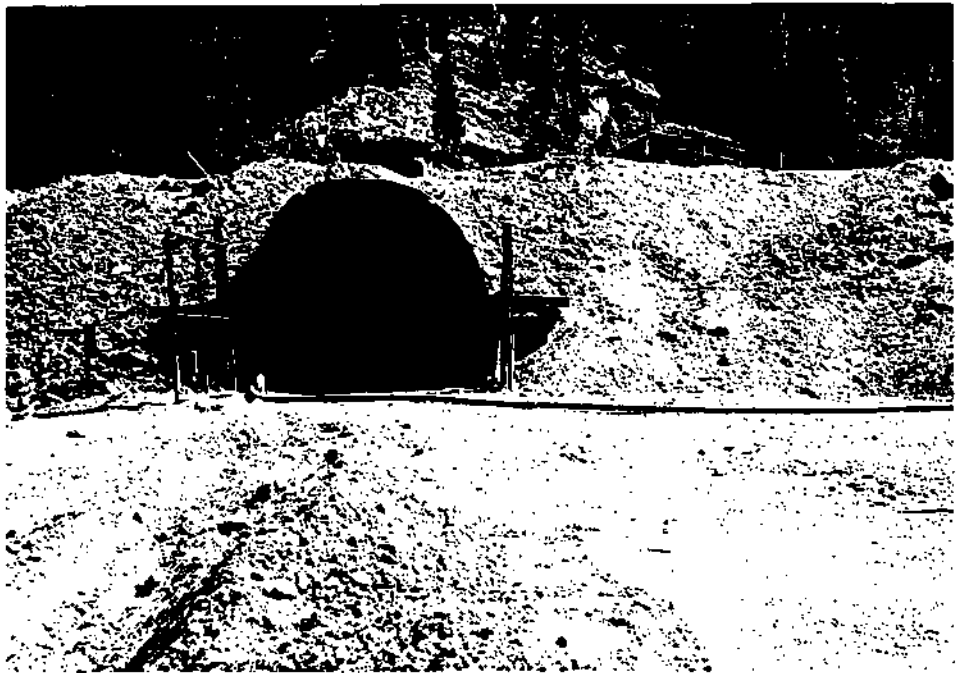
Date 7-22-93 Time 1400

Direction \_\_\_\_\_

Description Town of Platoro

Photo No.

2



Photographer/Witness Stafford Dusenbury

Date 7-22-93 Time 1415

Direction \_\_\_\_\_

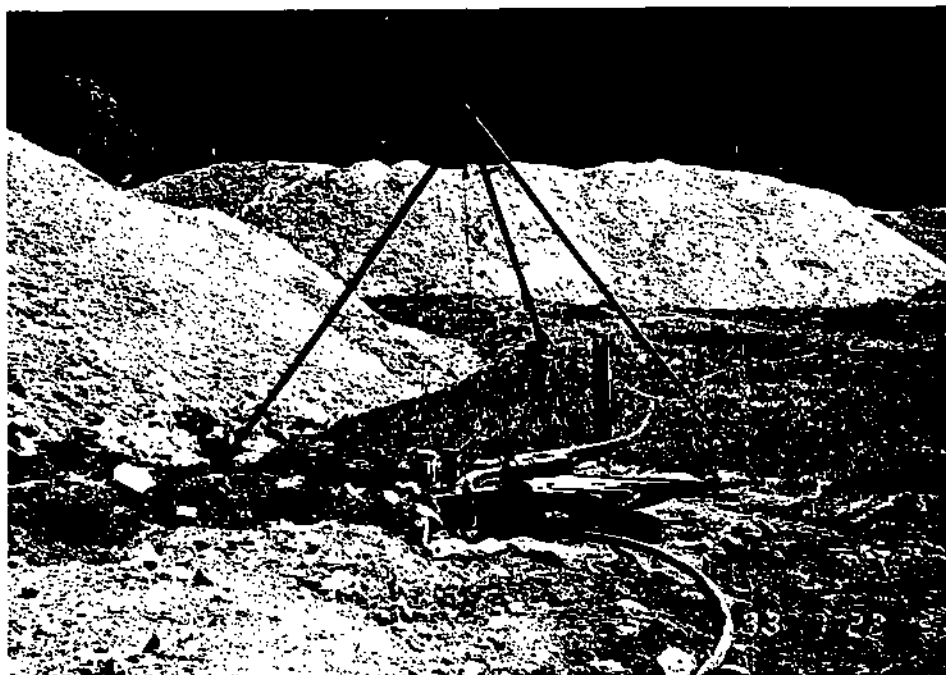
Description Main Portal with hose coming out of portal.

Page 1

Of 6

Photo No.

3



Site Name:

Cedar Resources

Location:

Platoro, Colorado

CERCLIS #:

None

Photographer/Witness Stafford Dusenbury

Date 7-22-93

Time 1430

Direction \_\_\_\_\_

Description Pump at toe of waste rock pile

Photo No.

4



Photographer/Witness Stafford Dusenbury

Date 7-22-93

Time 1445

Direction \_\_\_\_\_

Description Seepage flowing in Wayne's Creek to milled tailings from toe of waste rock pile.

Page 2

Of 6

Photo No.

5



Site Name:

Cedar Resources

Location:

Platoro, Colorado

CERCLIS #:

None

Photographer/Witness

Date 7-22-93

Time 1500

Direction

Description Wayne's Ck downstream of dam (monitor well in foreground; cabin in background).

Photo No.

6



Photographer/Witness Stafford Dusenbury

Date 7-22-93

Time 1515

Direction

Description Looking back from milled tailings to waste rock (on left) and ore (on right) piles.

Page 3

Of 6

Photo No.

7



Site Name:

Cedar Resources

Location:

Platoro, Colorado

CERCLIS #:

None

Photographer/Witness Stafford Dusenbury

Date 7-22-93

Time 1530

Direction \_\_\_\_\_

Description Wayne's Creek (looking upstream) upstream from water treatment plant

Photo No.

8



Photographer/Witness Stafford Dusenbury

Date 7-22-93

Time 1545

Direction \_\_\_\_\_

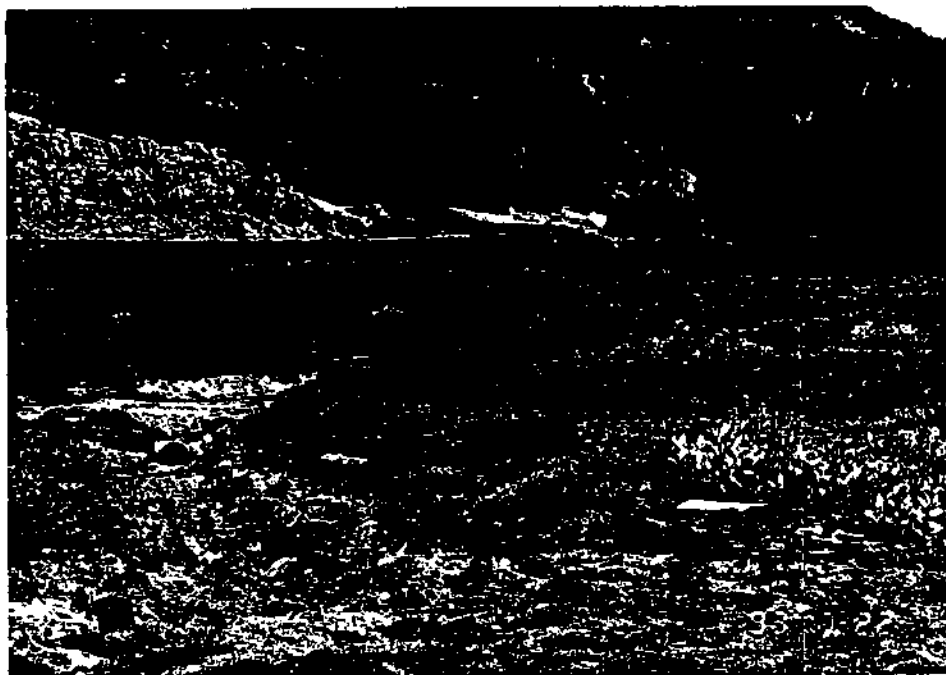
Description Wayne's Creek looking downstream into Cedar Resources property

Page 4

Of 6

Photo No.

9



Site Name:

Cedar Resources

Location:

Platoro, Colorado

CERCLIS #:

None

Photographer/Witness Stafford Dusenbury

Date 7-22-93

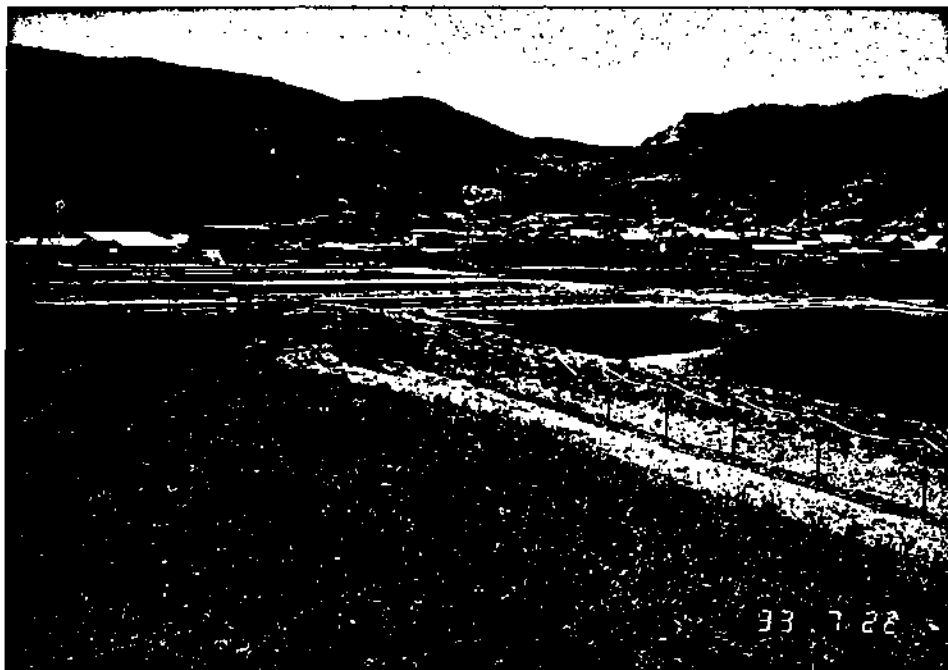
Time 1600

Direction

Description Wayne's Creek downstream of process ponds, with wetlands in background.

Photo No.

10



Photographer/Witness Stafford Dusenbury

Date 7-22-93

Time 1615

Direction

Description Process Ponds; Wayne's Creek on other side of ponds; water treatment plant on left

Page 5

Of 6

Photo No.

11



Site Name:

Cedar Resources

Location:

Platoro, Colorado

CERCLIS #:

None

Photographer/Witness Stafford Dusenbury

Date 7-22-93

Time 1630

Direction \_\_\_\_\_

Description Fences surrounding ponds in sever disrepair.

Photo No.

12



Photographer/Witness Stafford Dusenbury

Date 7-22-93

Time 1645

Direction \_\_\_\_\_

Description Private campground adjacent to Cedar Resources. Wayne's Creek in foreground.

Page 6

Of 6

**APPENDIX D**

**CDH NOTICE OF VIOLATION**

+

BEFORE THE DEPARTMENT OF HEALTH

DIVISION OF ADMINISTRATION

STATE OF COLORADO

---

NOTICE OF VIOLATION AND CEASE AND DESIST ORDER

---

IN THE MATTER OF: CEDAR PETROLEUMS, INC.  
PLATORO PROJECT  
PERMIT NO: CO-0038954  
CONEJOS COUNTY, COLORADO

---

TO: Cedar Petroleum, Inc.

FINDINGS OF FACT

Pursuant to the authority vested in the Division of Administration of the Colorado Department of Health ("the Division") by 25-8-301 to 308, C.R.S. (1982), which authority has been delegated to me by the Executive Director of the Department, I hereby make the following Findings of Fact:

1. Cedar Petroleum, Inc. ("Cedar Petroleum") operates an underground exploratory precious metals mine ("the mine") located near the town of Platoro, Colorado.
2. The mine is the subject of Colorado Discharge Permit System Permit No. CO-0038954 ("the permit") which was effective on May 1, 1987 and is scheduled to expire on March 31, 1992.
3. The permit was originally issued to Union Mines, Inc., and on November 23, 1987, the permit was transferred to Cedar Petroleum.
4. Under the terms and conditions of the permit, Cedar Petroleum is authorized to discharge wastewater associated with the mine. Treated minewater is authorized to be discharged from outfall 001 to an unnamed ditch ("the ditch") which enters the Conejos River; decant from the sludge ponds is authorized to be discharged from outfall 002 to the same ditch (at a point downstream from 001).

5. On April 20, 1989, a representative of the Division inspected the mine and associated properties. The representative collected samples of water from various locations in the area. The samples were analyzed by the Laboratory Division of the Colorado Department of Health according to standard test procedures and were found to contain the following pollutants:

| Pollutant*                   | Ditch, above<br>permitted<br>discharges | Ditch, below<br>permitted<br>discharges | Conejos River,<br>upstream of<br>confluence with<br>ditch | Conejos River<br>downstream of<br>confluence with<br>ditch |
|------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------------------------|------------------------------------------------------------|
| Arsenic                      | 5000                                    | 4000                                    | <10                                                       | 11                                                         |
| Cadmium                      | 11                                      | 8.3                                     | <0.3                                                      | <0.3                                                       |
| Copper                       | 560                                     | 470                                     | <25                                                       | <25                                                        |
| Lead                         | 30                                      | 12                                      | <5                                                        | <5                                                         |
| Zinc                         | 3000                                    | 2500                                    | <10                                                       | 10                                                         |
| Iron                         | 78,000                                  | 74,000                                  | 480                                                       | 630                                                        |
| Manganese                    | 12,000                                  | 9,100                                   | 130                                                       | 150                                                        |
| Total<br>suspended<br>solids | 140 mg/l                                | 150 mg/l                                | <10 mg/l                                                  | <10 mg/l                                                   |

\*results in micrograms per liter unless otherwise noted

6. On April 27, 1989, a representative of the Division inspected the mine site. The representative observed a tailings pond located adjacent to the ditch and approximately one mile above the permitted discharge points. The representative collected a sample of the water which was discharging from the tailings pond into the ditch via the decant structure. The sample was analyzed according to standard testing procedures by the Laboratory Division of the Colorado Department of Health and found to contain the following levels of pollutants:

| <u>Pollutant</u> | <u>Concentration, in micrograms/liter</u> |
|------------------|-------------------------------------------|
| Arsenic          | 29,000                                    |
| Cadmium          | 29                                        |
| Copper           | 3500                                      |
| Lead             | 380                                       |
| Zinc             | 16,000                                    |
| Iron             | 560,000                                   |
| Manganese        | 53,000                                    |
| TSS              | 160 milligrams/liter                      |

7. The tailings pond described in paragraph 6 above is not presently in use, that is, it does not receive fresh tailings from any milling operation. Runoff entering the tailings pond and falling onto the tailings pond is discharged via the decant structure into the ditch. Cedar Petroleum, in conjunction with its exploratory mining operation, has placed an ore pile and a waste rock pile in such a location that any runoff coming in contact with the ore and/or waste material is directed to the tailings pond and ultimately is released via the decant structure into the ditch.

8. On May 8, 1989, a representative of the Division again inspected the mine site. The representative observed and photographed a discrete waste stream of water coming from the toe of the ore pile described in paragraph 7 above. This discrete waste stream flowed into the tailings pond area which then discharged via the decant structure into the ditch, which is a tributary to the Conejos River.

9. On May 8, 1989, the Division representative collected a sample of the water discharging from the toe of the ore pile described in paragraph 8 above. The sample was analyzed according to standard testing procedures by the Laboratory Division of the Colorado Department of Health and found to contain the following levels of pollutants:

| <u>Pollutant</u> | <u>Concentration, in micrograms/liter</u> |
|------------------|-------------------------------------------|
| Arsenic          | 68,000                                    |
| Cadmium          | 77                                        |
| Copper           | 9100                                      |
| Lead             | 630                                       |
| Zinc             | 52,000                                    |
| Iron             | 1,500,000                                 |
| Manganese        | 170,000                                   |
| TSS              | 12 milligrams/liter                       |

10. The ditch and the Conejos River are "state waters" as defined by C.R.S. 25-8-103(19).

11. The decant structure associated with the tailings pond and the discrete waste stream flowing from the toe of the ore pile are "point sources" as defined by C.R.S. 25-8-103(14).

12. The discharge from the ore pile and the discharge from the decant structure associated with the tailings pond contain "pollutants" as defined by C.R.S. 25-8-103(15).

13. At no time relevant to the above-stated facts did Cedar Petroleum hold a permit authorizing a discharge of pollutants into state waters from any discharge points other than those identified in the permit. Neither the decant structure nor the discrete waste stream flowing from the toe of the ore pile is identified in the permit as an allowable point of discharge.

#### NOTICE OF VIOLATION

You are hereby notified that the facts stated above constitute violations of the C.R.S. 25-8-501(1) which provides in pertinent part: "No person shall discharge any pollutant into any state water from a point source without first having obtained a permit from the Division for such discharge".

You are further notified that the facts stated above constitute violations of Part II A. 10 of the permit which states: "Any discharge to the waters of the State from a point source other than specifically authorized by this permit is prohibited".

CEASE AND DESIST ORDER

Based upon the foregoing Findings of Fact and Notice of Violation, and pursuant to the provisions of 25-8-605, C.R.S. (1982), I hereby order you to:

1. take whatever measures necessary to Cease and Desist violating the permit and the Colorado Water Quality Control Act;
2. notify the Division, in writing, within 10 days of issuance of this order, of the measures you plan to take or have taken to comply with paragraph 1 above, both on an immediate and on a long-term basis;
3. beginning immediately, collect grab samples from the wastestream from the toe of the ore pile and the discharge from the decant structure associated with the tailings pond on a weekly basis and analyze for total arsenic, total recoverable copper, total recoverable cadmium, total recoverable zinc, total recoverable lead, total suspended solids and pH. Record estimates of flow rates from both sampling sites. Submit the flow estimates and analytical results on a weekly basis to the following:  
  
Colorado Department of Health  
Water Quality Control Division  
Permits and Enforcement Section  
4210 E. 11th Avenue  
Denver, CO 80220
4. submit in writing to the Division, within 10 days of issuance of this order, a detailed plan for performing a study on bioaccumulation of heavy metals (including, at a minimum, cadmium, lead and zinc) and arsenic in fish tissue for the Conejos River from the Platoro Reservoir to Antonito, Colorado. Include in your response, time frames for implementation and completion of the study;
5. following Division review, perform the bioaccumulation study described in paragraph 4 above and submit the results to the Division within 10 days of completion;
6. submit in writing to the Division, within 15 days of issuance of this order, a report describing all measures taken to mitigate any impact of the unauthorized discharge prior to the issuance of this order. Include in your reply, a chronology outlining your response to the incident beginning with the time when you first became aware of any problem;

7. submit to the Division, in writing, within 10 days of issuance of this order, a statement of your intent to comply herewith.

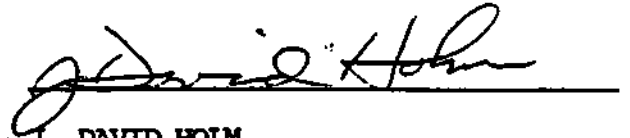
Pursuant to section 25-8-603, C.R.S. (1982), you are required to submit to the Division an answer admitting or denying each paragraph of the Findings of Fact and responding to the Notice of Violation. Section 603 also provides that the recipient of a Notice of Violation may request the Division to conduct a hearing to determine the validity of the Notice, including the Findings of Fact. Such request shall be filed in writing with the Division. Both the answer and the request for hearing, if any, shall be filed no later than 30 days after issuance of this order. The filing of an answer does not constitute a request for hearing. Absent such a request, the validity of the factual allegations and the Notice of Violation shall be deemed established in any subsequent proceeding. You are also advised that any person who violates any provision of any permit issued under 25-8-101 to 703, C.R.S. (1982 and 1985 supp.) or any provision of 25-8-101 to 703, C.R.S. (1982 and 1985 supp.) or any final Cease and Desist Order or Clean-Up Order shall be subject to a civil penalty of not more than \$10,000 per day for each day during which such violation occurs. Further, any person who recklessly, knowingly, intentionally, or with criminal negligence discharges any pollutant into any state waters commits criminal pollution of state waters if such discharge is made in violation of any permit issued under 25-8-101 to 703, C.R.S. (1982 and 1985 supp.), or in violation of any Cease and Desist Order or Clean-Up Order issued by the Division. You are further advised that any person engaged in any operation or activity which results in a spill or discharge of oil or other substance which may cause pollution of the waters of the state, shall notify the Division of the discharge. If said person fails to so notify, said person is guilty of a misdemeanor, and may be fined or imprisoned or both.

Nothing herein contained, particularly those portions requiring certain acts to be performed within a certain time, shall be construed as a permit or license, either to violate any provisions of the public health laws and regulations promulgated thereunder, or to make any discharges into state waters.

For further clarification of the rights of recipients of Notices of Violation, including the potential imposition of penalties and possible criminal liability, you are advised to consult the Water Quality Control Act, sections 25-8-101 to 703, C.R.S. (1982 and 1985 supp.).

Issued at Denver, Colorado, this 7<sup>th</sup> day of July, 1989.

COLORADO DEPARTMENT OF HEALTH  
Division of Administration

A handwritten signature in cursive script, appearing to read "J. David Holm", is written over a horizontal line.

J. DAVID HOLM  
Director  
Water Quality Control Division

**APPENDIX E**

**CERCLA ELIGIBILITY FORM**

# CERCLA ELIGIBILITY QUESTIONNAIRE

Site Name: Union Mine at Platoro

City: Platoro

State: CA

EPA ID Number: None

**I. CERCLA ELIGIBILITY**

Yes

No

Did the facility cease operations prior to November 19, 1980?

—

✓

If answer YES, STOP, facility is probably a CERCLA site.

If answer NO, Continue to Part II.

**II. RCRA ELIGIBILITY**

Yes

No

Did the facility file a RCRA Part A application?

—

X

If YES:

1. Does the facility currently have interim status?

—

X

2. Did the facility withdraw its Part A application?

—

X

3. Is the facility a known or possible protective filer?  
(facility filed in error)

—

X

4. Type of facility:

Generator X Transporter — Recycler —  
TSD (Treatment/Storage/Disposal) —

Does the facility have a RCRA operating or post closure permit?

—

X

Is the facility a late (after 11/19/90) or non-filer that has been identified by the EPA or the State? (facility did not know it needed to file under RCRA)

—

unknown.

If all answers to question in Part II are NO, STOP, the facility is a CERCLA eligible site.

If answer to #2 or #3 is YES, STOP, the facility is a CERCLA eligible site.