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HEINRICHS

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SPECIAL USE PERMIT APPLICATION

ALTA TAILINGS LEACH AND RECLAMATION PROJECT

Submitted to:

San Miguel County
Planning and Building Department
305 West Colorado Avenue
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Telluride, Colorado 81435

Submitted by:

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EXHIBIT A - LEGAL DESCRIPTION

The Alta Project is located in San Miguel County near the abandoned Alta townsite about four miles south of Telluride (EXHIBIT B). Areas to be mined include three mine dumps located at the Alta site and Tailings Deposit #1 which is located 1,000 feet West of the Alta site. Material mined from these sites will be moved onto a second old tailings deposit called the Tailings Deposit #2 which is located 2,000 feet northwest of the Alta site and 1,000 feet north of Tailings Deposit #1. The two tailings deposits are located on the Viola patented placer claim and the mine dumps are on the adjacent Home patented millsite claim, both of which are owned by Silver Mountain Industries, Inc. Map 1 (Exhibit C) shows the tailings deposits and dumps along with the claim boundries. The area is in the Uncompahgre National Forest which is under the jurisdiction of the U. S. Forest Service. The legal description of the Viola claim, from the patent survey description (patent survey number 20165) recorded in Book 324, page 353, at the San Miguel County courthouse, is as follows:

> "Survey No. 20165, embracing a portion of sections 15, 21, and 22 in Township 42 north of Range 9 west of the New Mexico Meridian, in the Upper San Miguel Mining District, San Miguel County, Colorado.
>
> Beginning for the description of the Viola placer claim at corner No. 1, a spruce post four inches square, four feet long, with metal cap on top marked VP-1x20165 and HMS-4x15037B, with mound of stone, identical to corner No. 4, of survey No. 15037B, the Home mill site claim; from which said quarter Section corner bears south 40 degrees 31 minutes east 2,334.74 feet distant:
>
> Thence, first course, north 16 degrees west 355.41 feet to corner No. 2, a spruce post four inches square, four feet long, with metal cap on top marked VP-2x20165, with mound of stone:
>
> Thence, second course, north 74 degrees east 448.31 feet to witness corner to corner No. 3, a spruce post four inches square, four feet long, with metal cap on top marked VP-WC-3x20165, with mound of stone, 481.88 feet to corner No. 3, on steep bank and not established:
>
> Thence, third course, north 15 degrees 57 minutes west 192.41 feet to witness corner to corner No. 4, a spruce post four inches square, four feet long, with metal cap on top marked VP-WC-4x20165, with mound of stone, 218.56 feet to corner No. 4, near corner of cottage and not established:
>
> Thence, fourth course, north 6 degrees 20 minutes west 160.54 feet to corner No. 5, a spruce post four inches square, four feet long, marked with metal cap on top and VP-5x20165 and TCP-8x16062, with mound of stone, identical with corner No. 8, of said Survey No. 16062:

Thence, fifth course, north 42 degrees 12 minutes 45 seconds east 21.63 feet to corner No. 6, identical with corner No. 1, of said Wild Dog placer claim:

Thence, sixth course, south 89 degrees 57 minutes west 765.68 feet to corner No. 7, identical with No. 2, of said Wild Dog placer claim:

Thence, seventh course, north 1320 feet to corner No. 8, identical with corner No. 3, of said Wild Dog placer claim:

Thence, eighth course, south 89 degrees 57 minutes west 660.17 feet to corner No. 9, identical with corner No. 4, of said Wild Dog placer claim;

Thence, ninth course, north 89 degrees 56 minutes west 1,318.68 feet to corner No. 10, a spruce post four inces in diameter, four feet long, with metal cap on top marked VP-10x20165, with mound of stone:

Thence, tenth course, south 660 feet to corner No. 11, a spruce post four inches square, four feet long, with metal cap on top marked VP-11x20165, with mound of stone:

Thence, eleventh course, north 89 degrees 56 minutes west 659.34 feet to corner No. 12, a spruce post four inches square, four feet long, with metal cap on top marked VP-12x20165, with mound of stone:

Thence, twelth course, south 1,980 feet to corner No. 13, a spruce post four inches square, four feet long, with metal cap on top marked VP-13x20165, with mound of stone:

Thence, thirteenth course, south 89 degrees, 56 minutes east 1,495.84 feet to corner No. 14, a spruce post four inches square, four feet long, with metal cap on top marked VP-14x20165, with mound of stone:

Thence, fourteenth course, north 74 degrees east 1,670.74 feet to corner No. 1, the place of beginning: the premises herein granted containing 305.629 acres.

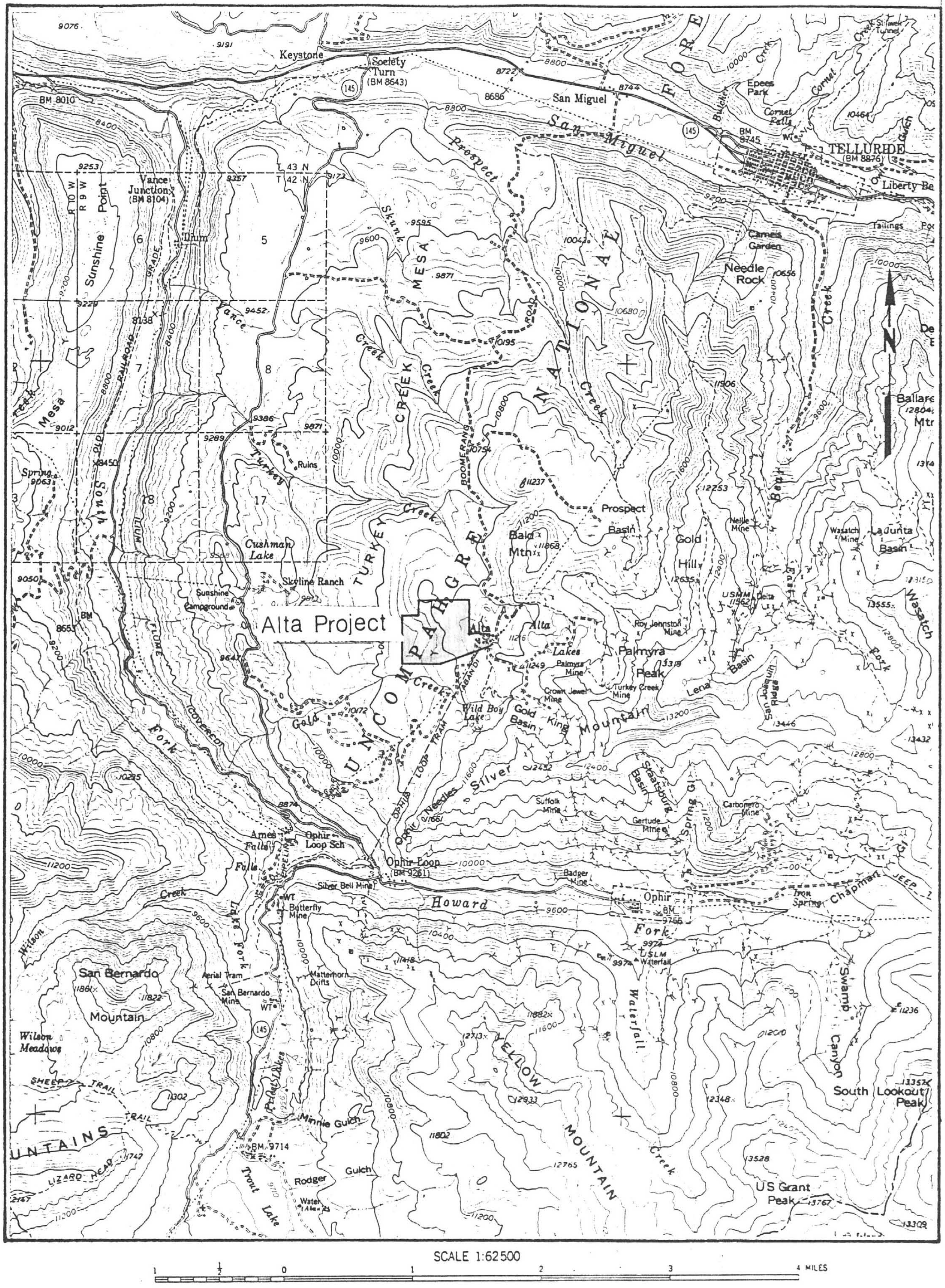


Exhibit B Index Map, Alta Tailings Leach Project.

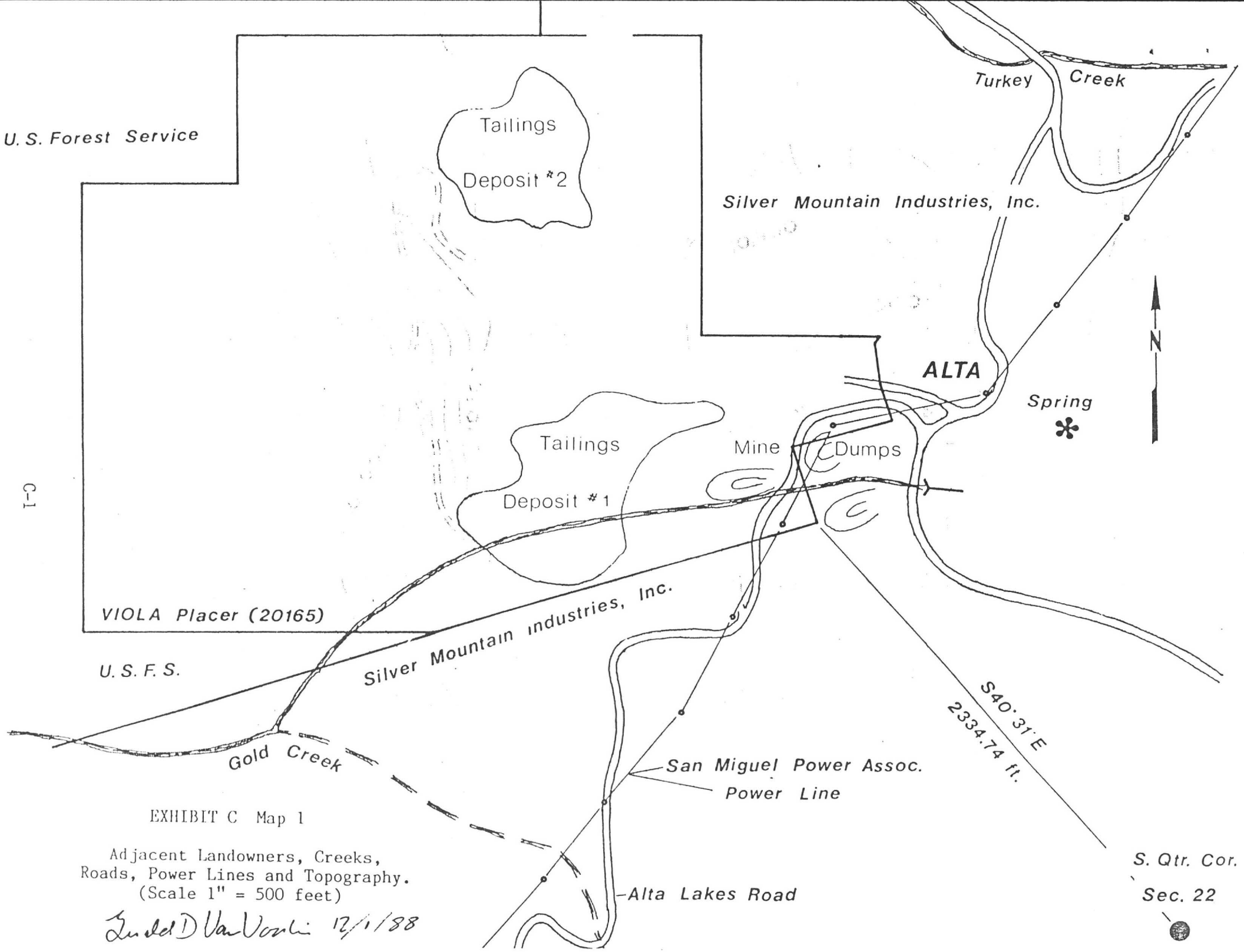
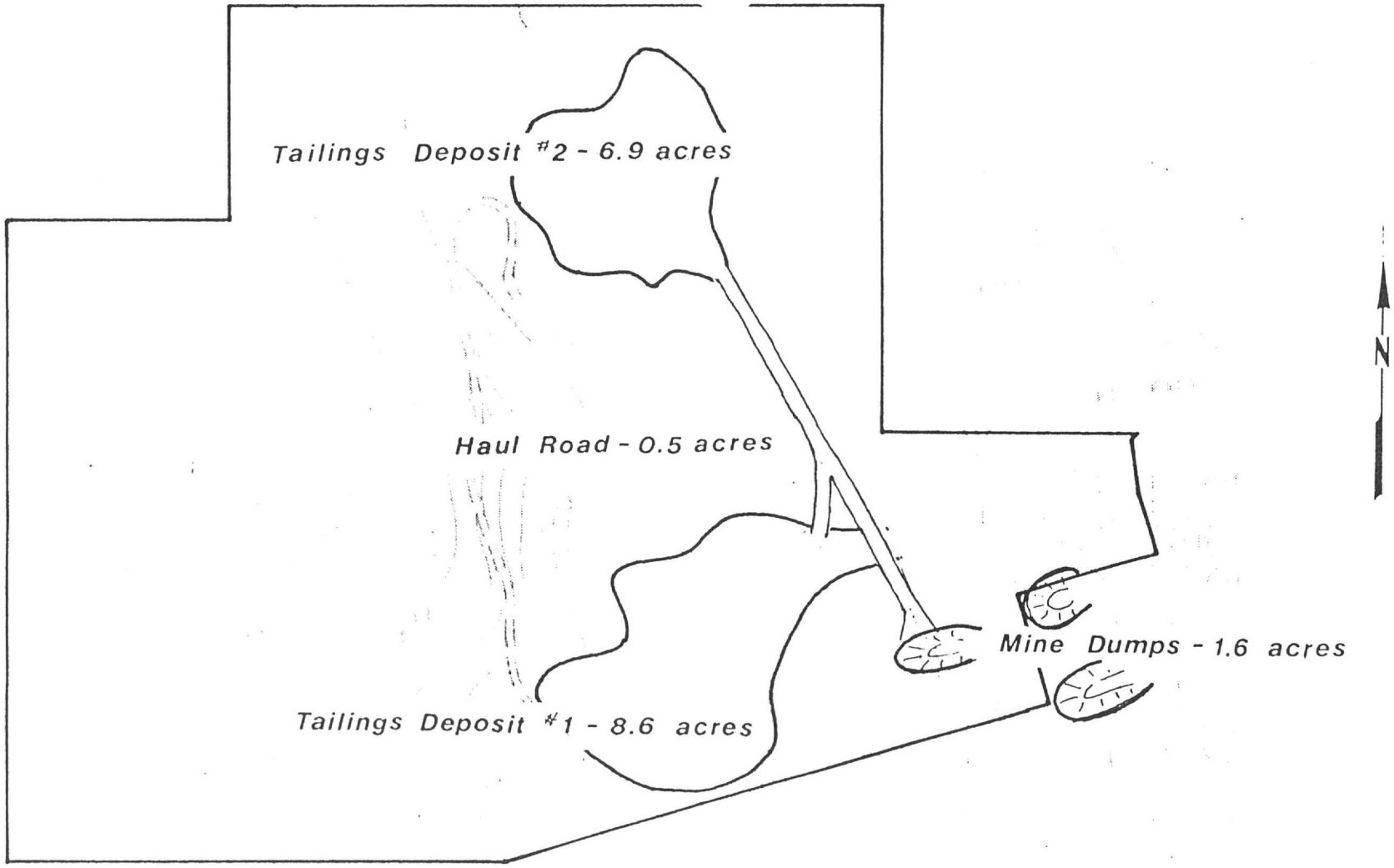


EXHIBIT C Map 1

Adjacent Landowners, Creeks, Roads, Power Lines and Topography. (Scale 1" = 500 feet)

Gerald D Van Vorhis 12/1/88



Total Affected Area - 17.6 acres

EXHIBIT C Map 2

Affected Lands.
(Scale 1" = 500 feet)

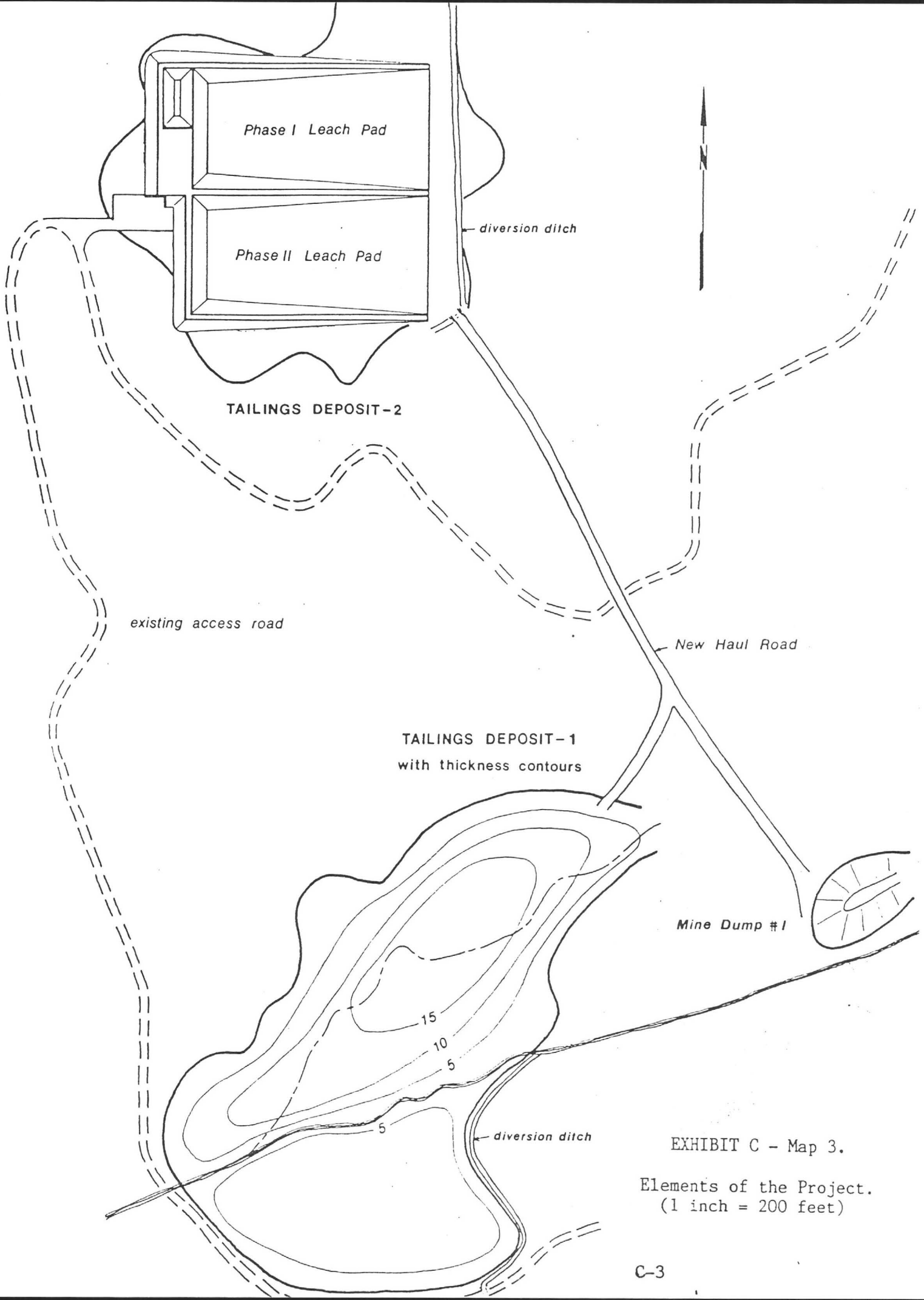


EXHIBIT C - Map 3.

Elements of the Project.
(1 inch = 200 feet)

EXHIBIT D - MINING PLAN

1. INTRODUCTION

This project has the objective of recovering gold and silver from old mill tailings and mine dumps near the abandoned Alta townsite in the Upper San Miguel Mining District, San Miguel County. The project will be contained within patented mining claims owned by Silver Mountain Industries, Inc. and leased to Socorro Mining, Inc. As shown on Map 1 (Exhibit C) immediately adjacent surface landowners to the project are the U. S Forest Service to the west and Silver Mountain Industries to the east.

Access to the area is by the Alta Lakes Road, a county road, from State Highway 145 (Exhibit B). As shown on Map 2 (Exhibit C), the total disturbed and affected areas associated with the project will be 17.6 acres. The principal resource to be processed is an 8.6 acre tailings deposit, known as tailings deposit #1. An estimated 146,000 tons of commercial grade material is currently stored in a small valley just south of the Alta site. In addition, approximately 16,000 tons of old mine waste dumps are available for treatment. The mine dumps cover an area of 1.6 acres at the Alta site.

The proposed Processing Site is within a second tailings deposit with a surface area of 6.9 acres, known as Tailings Deposit #2, located on Turkey Creek Mesa about 2,000 feet northwest of Alta. Tailings Deposit #2 has a much lower precious metal content than Deposit #1 and cannot be profitably treated. However, it represents a good location for the Processing Site and for disposal of leach residue from the planned operations. The mixture of agglomerated tailings and waste rock will stabilize the area and allow revegetation. Reclamation of the Tailings Deposit #1 area, mine dump areas, and stabilization of the Tailings Deposit #2 area and neutralizing the acid-forming constituents of the dump and tailings materials will be beneficial to the environment.

Mining operations will consist of moving the dump and tailings materials to the Processing Site. The mine dump rock will be used in the base and front face of the heap to provide drainage and slope stability. The tailings will be agglomerated with cement and lime to increase their porosity and permeability. The agglomerated tailings will be loaded onto Leach Pads where they will be leached with a dilute alkaline cyanide solution to remove the gold and silver, rinsed, and then detoxified with a hydrogen peroxide solution to destroy all the residual cyanide. The leached residue will be graded to a natural contour with a slope of 33% or less and revegetated with native grasses.

It is planned that an average of eight people will be employed for the project during the summer months.

2. PROCESSING SITE PREPARATION AND CONSTRUCTION OPERATIONS

Figure 1 is a schedule of the planned operations. Map 3 (Exhibit C) shows the various elements of the project. Figure 2 shows details of the Phase I Leach Pad layout along with the Barren Solution Pond and the Process Plant Site. After the first Leach Pad is loaded and leaching is underway, a second Leach Pad will be excavated and lined for Phase II as shown on Figure 3.

2.1 Excavation

The heap leach facility will be located on the relatively flat Tailings Pond #2 area which has a grade of 3% to 5%. Initially, the tailings will be excavated to form a 400-foot long by 200 foot wide sloping surface with a grade of 3% to the west end. The Leach Pad, Barren Solution Pond, and Process Plant sites will be excavated and built up with a bulldozer and scraper and final grading will be done with a road grader. The pad will be enclosed by a birm made up of tailings pushed out during the excavation work. The containment birm will have a constant top elevation. An anchor trench will be dug around the inside edge of the birm for the purpose of burying the edge of the liners. A drainage ditch will be necessary in front of the leach pad to drain water out of the old tailings pile. At the beginning of the second season, a second identical leach pad will be excavated.

2.2 Leach Pad Design Factors

The dump rock has a density of 110 pounds per cubic foot and the agglomerated tailings have a density of 80 pounds per cubic foot. The dump rock and the agglomerated tailings have an angle of repose of 37 degrees, and the inside of the containment birm will have a horizontal to vertical slope of 2:1. The outside slope of the containment birm will have a horizontal to vertical ratio of at least 3:1.

The leach pad will be built in two phases. As shown on Figure 2, the area of the liner inside the top edge of the birm for Phase I will measure 400 feet down slope and 200 feet across slope. The front part of the leach pad, which will have a depth 12.5 feet below the top of the birm, will be left empty to be used as the Pregnant Solution Storage Area. Solution storage capacity is a critical factor for this project because of the large seasonal snowmelt.

2.2.1 Liner Design The base for the Leach Pad, Barren Pond, and Plant Site will be the tailings of Tailings Deposit #2. As final grading is done, care will be taken that at least one foot of tailings covers the area to be lined. The liners will cover the Leach Pads, Barren Solution Pond, and Plant Site.

A 60-mil high density polyethylene (HDPE) base liner will be installed to confine any leaking solutions to the leak detection system. A layer of Geonet fabric will be installed between the base liner and the primary liner. The primary liner will be 60-mil HDPE material. The liner installation will be contracted to an experienced professional installation group. Leak detection will be through perforated pipes between the two liners in the front corner of each Leach Pad and the Barren Solution Pond. These corners will be excavated slightly deeper than the floor of the Pads and Pond. Solutions from any leaks will readily migrate to the lowest points through the Geonet permeable layer. Figure 3 shows the details of the liners and leak detectors.

Prior to loading the mine dump material, a protective layer of 12-inches of damp tailings will be installed to cover the area of the leach pad liner where the equipment will operate. The mine dump rock will be loaded to form a dike across the front of the heap as shown on Figure 4 as well as a drainage layer. Figure 5 shows the heap configuration at the beginning and end of the Phase II heap construction.

3. WATER BALANCE

3.1 Solution Containment

Solution containment is a primary concern for the project because of the large spring snowmelt. Sufficient storage capacity must be designed into the system in order to contain the solutions until the system has been detoxified.

The following factors are crucial in determining the water balance:

mean precipitation, May - October	17.7 in.	(1)
mean lake evaporation, May - October	25.9 in.	(2)
100-year 24-hour stormwater event	2.8 in.	(3)
mean annual maximum snowpack	18.5 in.	(4)
100-year maximum snowpack	25.0 in.	(4)
in-place tailings water content	7%	(5)
agglomerated tailings water content	17%	(5)
agglomerated tailings void volume	52%	(5)
mine dump material void volume	35%	(5)
heap dynamic storage capacity	4.5%	(5)

(1) Soil Conservation Service computer files- Ames, Colorado, station.
(2) Climatic Atlas of the United States, U S Dept Commerce, June 1968.
(3) NOAA Atlas 2, v III-Colorado, U S Dept Commerce, 1973.
(4) Soil Conservation Service snow survey computer files.
(5) Dawson Metallurgical Laboratory, Murray, Utah, report, 1988.

The dynamic capacity of 4.5% is the amount of solution moving through the heap at a given time and is the amount that will drain out of the heap after irrigation is terminated.

The planned solution application rate to the heap is 0.005 gpm per square foot of area with a maximum total flow of 120 gpm. This requires the irrigation of 24,000 square feet at any given time.

3.1.1 Pregnant Solution Storage Area A 15-foot wide area at the low end of each Leach Pad will be left open for the storage of solution. Accounting for the inside slope of the containment birm and the angle of repose of the heap, the open area of each Pad will have a capacity of 82,900 cubic feet (cf). Under normal operating conditions only the lower 3 to 4 feet of this area will be filled with solution.

3.1.2 Barren Solution Pond The Barren Solution Pond will have dimensions of 100 feet by 50 feet and a depth of 10 feet. The pond walls slope at a 2:1 ratio to the bottom which has dimensions 10 feet by 60 feet. This gives a volume of 25,300 cf. There will be a spillway between the Barren Solution Pond and the Pregnant Solution Storage area so that overflows will be contained.

3.1.3 Heap Solution Storage Capacity The agglomerated tailings have a capacity to store 52% by volume of solution or 31% by weight beyond the 17% added for agglomeration. The dump rock has a void volume of about 35%. Therefore, the 386,000 cf of mixed material contained below the top of the containment birm in each Leach Pad will store at least 35% by volume. This amounts to 135,000 cf for each Leach Pad.

In addition, the heap material above the top of the birm will hold about 4.5% of its volume of water when the irrigation system is in operation. In an emergency, this amount of water could be stored by irrigating the heap.

3.1.4 Total Solution Storage Capacity For Phase I, the Pregnant Solution Storage Area, Barren Pond, and heap material below the top of the containment birm will have a total capacity of 243,000 cf. The total lined area will be 91,200 square feet. For Phase II, the two Pregnant Solution Storage Areas, Barren Solution Pond, and Two heaps will have a total capacity of 461,000 cf. The total lined area in this case will be 175,600 square feet.

3.1.5 Stormwater containment According to the 'NOAA Atlas 2, Volume III-Colorado (1973)' the precipitation from a 24-hour 100-year stormwater event in this area would be 2.8 inches of water. For the lined area including the Barren Pond , Plant Site, and Leach Pad, this equates to 21,300 cf of water to be contained for Phase I and 41,000 cf for Phase II. These volumes are well within the storage capacity of the system.

3.1.6 Snowmelt Containment U. S. Soil Conservation Service snow survey data for the Opher Loop site, which is located at an elevation of 11,320 feet in section 11 T42N R9W, and the Trout Lake Site, which is located at an elevation of 9,780 feet in section 8 T41N R9W, have been used to determine average and 100-year snowmelt values. These data show that the average snowpack contains a maximum water content of 18.5 inches. This equates to 129,000 cf of water within the lined area for Phase I and 249,000 cf for Phase II.

On Figure 5, the snowpack data are transformed, according to procedures described by Linsley, et al (6), to obtain snowpack frequency plots. From this, 100-year snowpack values of 25 inches of contained water are obtained for both sites. This equates to 190,000 cf of water within the lined area for Phase I and 366,000 cf for phase II. These volumes are well within the designed capacities of the lined system.

As noted above, the heap also has a dynamic storage capacity of about 4.5% of the heap volume. This gives an extra safety margin in the event of an extraordinary snowmelt. Table I summarizes the solution containment capacities and requirements.

(6) Linsley, et al, 'Hydrology for Engineers', McGraw-Hill, 1982

		STORAGE CAPACITY (cubic feet)				STORAGE REQUIREMENT (cubic feet)		
	Lined Area (sq ft)	Preg Storage	Barren Pond	Heap	TOTAL CAPACITY	100 yr. Rain	Snowmelt Average (18.5")	Snowmelt 100 yr. (25")
Phase I	91,200	83,000	25,000	139,000	243,000	21,300	140,600	190,000
Ohase II	175,600	166,000	25,000	278,000	461,000	41,000	270,700	366,000

Table I. Solution Containment Capacities and Requirements.

3.2 Water consumption.

3.2.1 Agglomeration As noted above, 10% moisture must be added to the tailings in the agglomeration process. At the maximum planned agglomeration rate of 20,000 tons per month, 64,000 cf of water will be used each month for this purpose. This amounts to 11.1 gpm on a 24 hour basis. During the first operating season, make up water will be taken from the spring near the old townsite. At the beginning of the second season, when agglomerated material is being loaded onto the Phase II Leach Pad, the snowmelt water contained within the Phase I liner will be used for agglomeration. The 86,000 tons of tailings to be agglomerated during the second season will require 275,000 cf of water.

3.2.2 Leaching At the commencement of leaching of a new lot of agglomerated material, 4.5% of water must be added for the leach solutions to percolate through the heap. For the maximum of 20,000 tons of material added each month, this amounts to 29,000 cf of solution or 5.0 gpm.

3.2.3 Evaporation Evaporation is an effective means of disposing of excess water during the summer months. From May through October, lake evaporation exceeds precipitation in the region by 8.2 inches. In addition, if the leach solutions are sprayed onto the heap the evaporation losses increase substantially. Based on engineering data for water sprays and experience on other projects, it is estimated that about 5% of the amount sprayed will be lost to evaporation, or about 6 gpm at a spray rate of 120 gpm. On the other hand, water losses can be minimized by using a drip irrigation system to deliver the leach solutions. In that case the evaporative losses would be negligable. Both drip and spray systems will be used to balance the evaporative loss with the precipitation gains.

No agglomeration is planned during the third operating season and snowmelt from the second winter will be used for rinsing the heap.

3.3 Runoff Diversion

Outside the perimeter, there are no major drainages that intersect the Leach Pad area. However, as a safety measure diversion ditches will be cut across the east end of the site as shown on Map 3.

4. MINING OPERATIONS

Mining and agglomeration are planned to be completed over a two-year period. These operations will be shut down during the months of heavy snowfall from November through April.

4.1 Mine Dumps

Initial mining will be of lowermost of three old mine dumps at the Alta townsite. This material will be loaded into contracted dump trucks or the scraper and hauled to a stockpile at the processing site. It will be used to fill the bottom 2 to 3 feet of the leach pads to provide drainage for the leach solutions as well as a dike across the front of the heap. The mineralized parts of these dumps comprise about 16,000 tons of broken rock from the development work in the mines and about 10 days will be required at the start of Phase I to move 6,000 tons from an area less than one-acre. It will be picked up and loaded onto the Leach Pad with a front end loader. As shown on Map 3, a temporary haul road will be cleared from just below the Alta site to the Tailings Deposit #2. The road will cause disturbance of an area one-half acre and will be used to haul both the dump material and tailings from Deposit #1. These operations will be classified as a major disturbance under the state guidelines.

4.2 Tailings Deposit #1

Once the mine dump material has been loaded onto the Leach Pad, mining operations will shift to removing Tailings deposit #1. This deposit contains 146,000 tons of old mill tailings which will be excavated and moved to a stockpile at the Processing Site over two summer seasons. Map 3 shows thickness contours map of tailings Deposit #1. It is planned to move about 60,000 tons from within a four-acre area at the north end of the deposit during the first season. An elevated scraper will be used by a contractor to pick up the tailings and haul them to the stockpile. These operations will be classified as a major disturbance under state guidelines.

The remainder of the mineralized mine dumps and Tailings Deposit #1 will be mined and moved during the second operating season.

4.2.1 Water Diversion A temporary diversion ditch will be dug along the east edge of the deposit, as shown on Map 3, to divert the water which currently flows from the Blackhawk adit across the southeast corner of the deposit.

4.2.2 Water Requirements No water will be required for these operations unless dust suppression is necessary. In that case, the water would come from the project water supply which is a spring called Jackie #1. Potable water will be carried to the site by the workers.

4.2.3 Sanitary Facilities Portable toilet facilities for the workers will be provided under terms of the agreement with the mining contractor.

5. HEAP LEACH FACILITY

5.1 Electric Power

Electric Power will be delivered to the processing site from the Ames-Telluride transmission line by the San Miguel Power Association. A maximum of 60 kw of power will be required for the leaching and agglomerating operations.

5.2 Water

Water for the operation will be taken from the spring called 'Jackie #1' which is located east of the Alta townsite. It is estimated that an average of 12 gallons per minute will be consumed during the leaching and agglomeration operations. A 1.25-inch diameter PVC pipeline will be installed from the spring to the plant site.

5.3 Ore Preparation

Agglomeration of the tailings will start after the dump material has been loaded onto the heap. Figure 7 shows the arrangement of equipment for agglomeration. Material from the stockpile will be loaded into a hopper with the front end loader. A conveyor will then carry it to a surge hopper which will be kept full by the loader operator. The material will be removed from the surge hopper at a measured rate by an auger driven with a variable speed motor. Lime and cement will be fed into an auger at a rate of 10 pounds each per ton of tailings by vibratory feeders and the auger will discharge the lime-cement mixture onto the tailings feed auger where the cement, lime and tailings will be thoroughly mixed. The conveyor will unload the tailings-lime-cement mixture into the rotating drum agglomerator. The drum will be 48 inches in diameter and 20 feet long. In the drum, 10% by weight of solution will be added and the tailings-lime-cement mixture will become pelletized as it rolls down the rotating drum. The solution will contain sufficient sodium cyanide so that the agglomerated material will contain one pound sodium cyanide per ton of material. The agglomerating drum will be located within the Leach Pad liner in order that and solution spills will be contained. A series of conveyors will carry the agglomerated material across the Leach Pad to a stacking conveyor which will be used to load the heap. The agglomerated material will be stacked in two lifts to a height of approximately 28 feet above the top of the containment birm.

5.4 Leach System

Leaching will be accomplished by distributing a dilute alkaline sodium cyanide solution from the Barren Solution Pond onto the surface of the heap through a drip irrigation system such as that marketed by Netafim, Inc., at a rate of 0.005 gallons per minute per square foot. The solutions will contain approximately 0.1% by weight NaCN and will have a pH greater that 10.5. The lime used in the agglomeration process will provide sufficient alkalinity for the duration of the project, but the pH will be monitored on a daily basis to insure that it is maintained at an acceptable level. After the solutions percolate through the heap and dissolve the gold and silver, they will flow into the Pregnant Solution Holding area. From there, they will be pumped to the adjacent Recovery Plant.

5.5 Processing Facilities

5.5.1 Processing Plant Figure 8 is a process flow diagram. The Processing Plant will be mounted in a shipping container and will require only temporary supports such as railroad ties. The Merrill-Crowe zinc precipitation process will be employed to remove the dissolved gold and silver from the leach solutions. The barren solution will flow from the plant to the Barren Solution Pond where necessary sodium cyanide additions will be made to maintain the desired concentrations. Empty cyanide drums will be triple rinsed with fresh water, flattened, and buried within the heap.

The Process Plant area will be underlain by liner material so that any solution or chemical spills will drain to the Barren Pond. A wooden platform will be built around the Chemical Storage, Laboratory, and Processing Plant facilities.

5.5.2 Laboratory and Storage A Laboratory and chemical storage facility will be housed in a second shipping container. The Laboratory will be equiped with an atomic absorption photospectrometer for determining gold and silver concentrations in the solutions, an electronic pH meter, and apparatus for titrating solution cyanide contents. A third shipping container will be used for secure Cyanide Storage.

5.5.3 Fence A six-foot chainlink fence will be erected around the top of the containment birm in order to enclose the entire heap, pond, and plant site complex. This will require 2,000 feet of fencing. 'No Trespassing' and 'Danger Cyanide' signs will be posted on the fence at the corners and at 200 ft intervals along the sides.

5.5.4 Office Trailer An Office Trailer will be parked outside the fence adjacent to the Plant Site. A septic tank and leach field will be installed at the Office Trailer. Bottled water will be provided for potable water requirements.

6. DETOXIFICATION

As planned, leaching will be completed during the early winter season of 1991. During the final stage of leaching, the cyanide content of the solutions will not be replenished in order to lower the free cyanide content of the solutions by the actions of cyanicides in the leach material. Laboratory tests show that cyanide levels decrease relatively rapidly with time. The concentration of cyanide in the solution will be lowered further in the spring by dilution with snowmelt water.

These dilute solutions will be processed through activated carbon to remove any residual gold and silver and circulated through the heap as a rinse. They will then be treated with hydrogen peroxide to destroy the free cyanide and to precipitate metal ions as insoluable compounds. Approximately 0.01% hydrogen peroxide will be added to the solution. It will then be circulated through the heap until acceptable free cyanide levels are acheived. It is anticipated that one to two pore volumes (one pore volume = 2,000,000 cf) of recirculated solution will be adequate because of the large porosity of the material. The solutions will be pumped at a rate of 400 to 500 gpm in order that the detoxification can be completed in less than two months.

7. EQUIPMENT LIST
(or equivalent Equipment)

Mine Dumps (total of 20 days)

1	3-yard Loader
3	20-ton Dump Trucks or 13-yard Scraper
1	Cat D-8 Bulldozer

Tailings (two seasons)

1	13-yard Scraper

Leach Pad (30 days during construction)

1	Cat D-8 Bulldozer (same machine as for mine dumps)
1	Backhoe
1	Grader
1	Small Trencher

Leach Pad (two seasons)

1	3-yard Loader (same machine as for mine dumps)
1	Loading Hopper and Conveyor
1	Surge Bin and Variable Speed Conveyor
1	Agglomerator
1	Discharge conveyor
1	Radial Stacking Conveyor
4	Agglomerate transport conveyors
1	Cement Bin
1	Lime Bin

Process Plant at Leach Pad (three seasons)

1	Shipping Container for Cyanide Storage
1	Shipping Container for Laboratory and Storage
1	Portable Merrill Crowe Plant
1	Office Trailer
2	Pickup Trucks

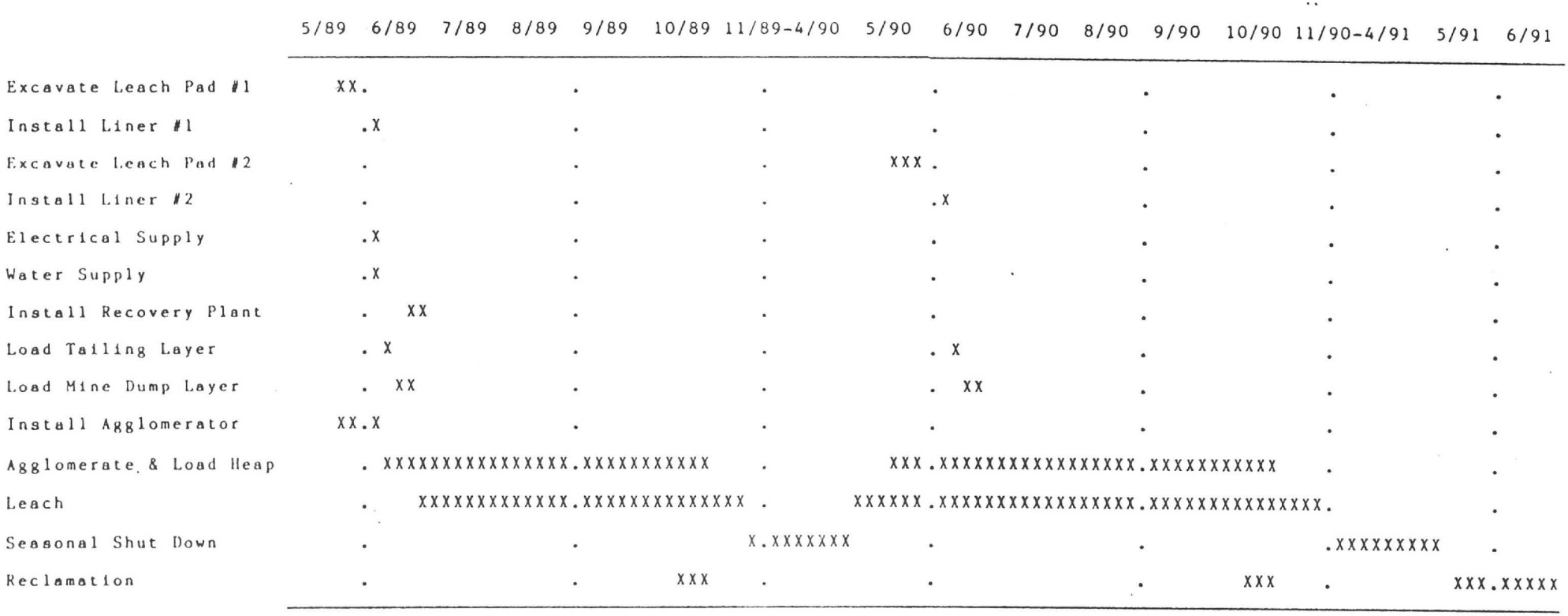


Figure 1. Alta Project Schedule.

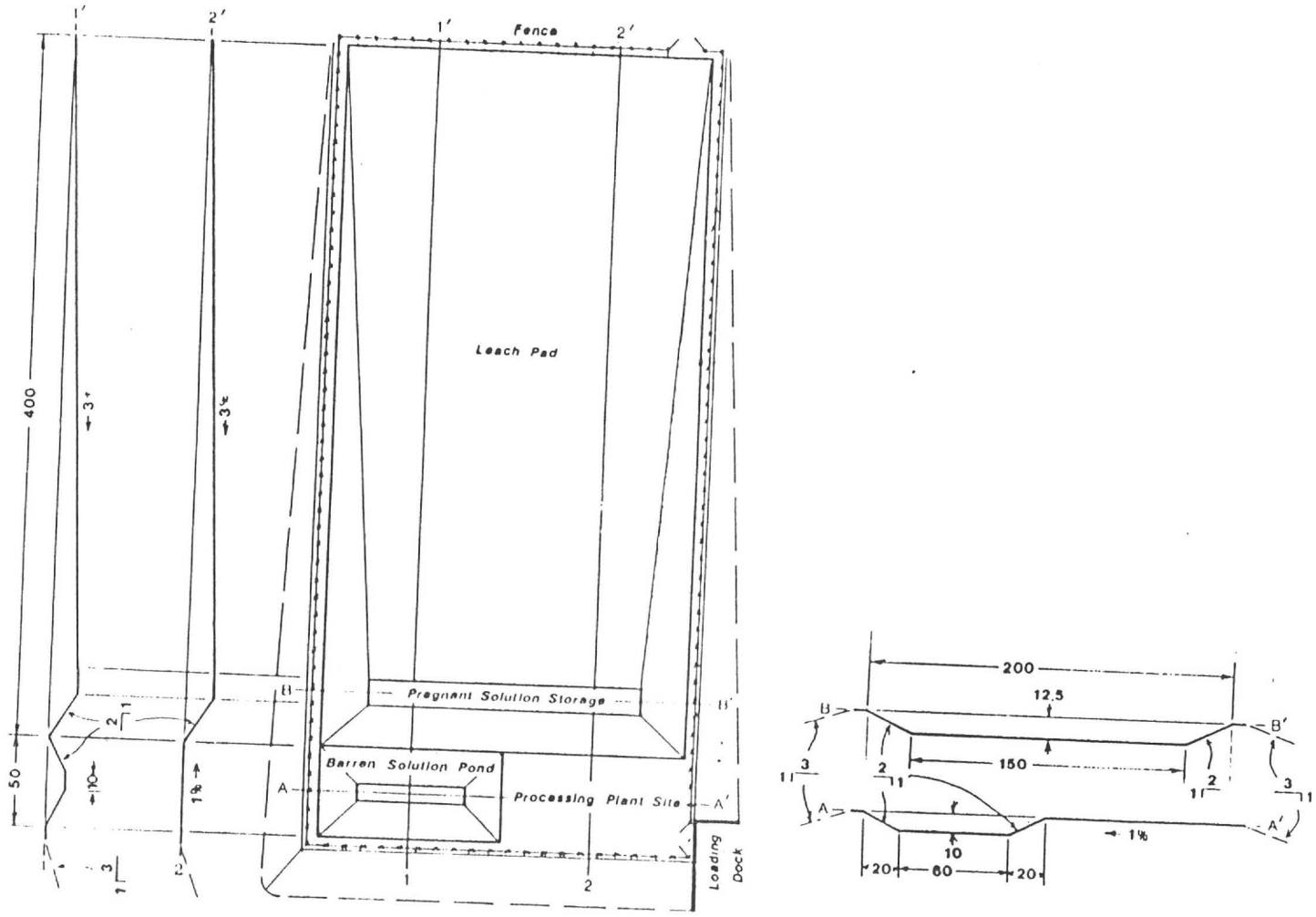


Figure 2. Phase I Leach Pad, Barren Pond, and Process Plant Layout.

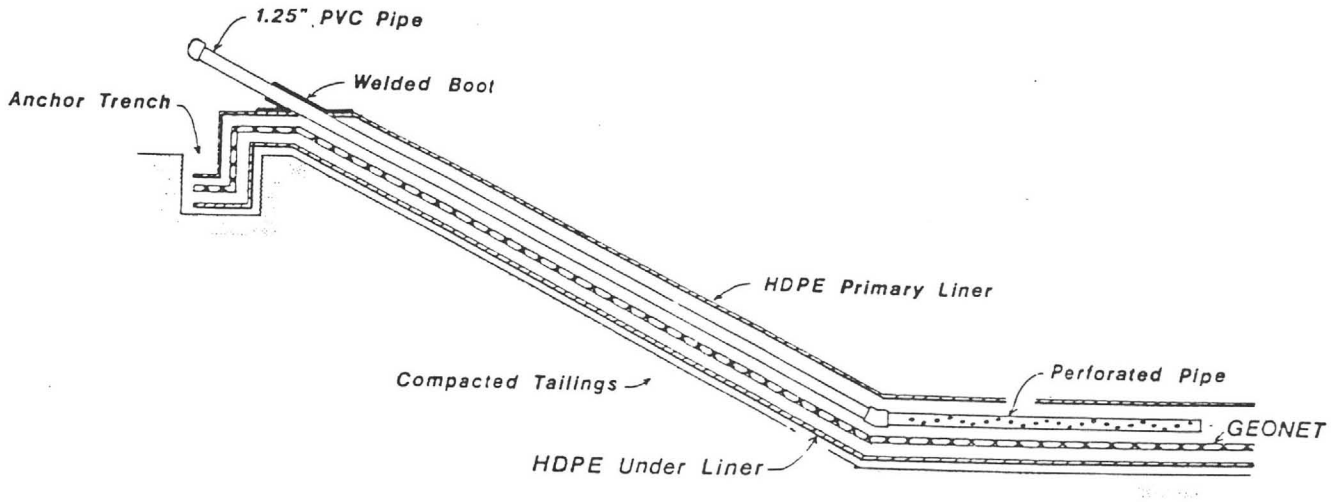


Figure 3. Liner and Leak Detector Detail.

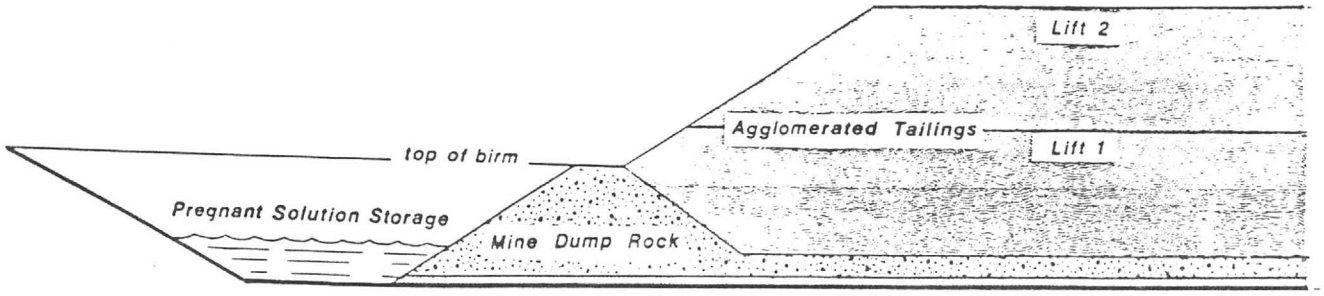


Figure 4. Cross Section Showing Heap Construction.

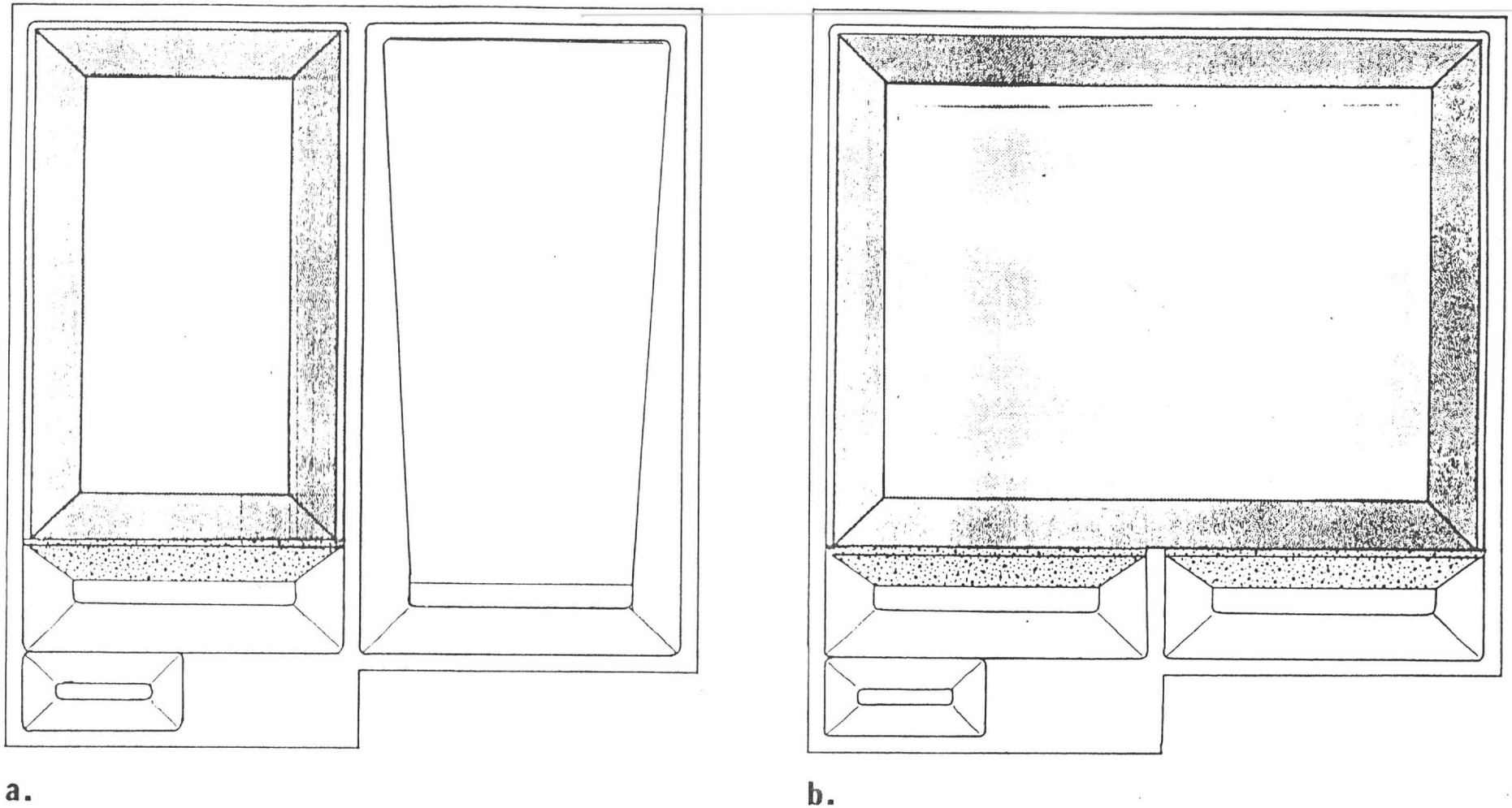


Figure 5. Heap Construction: a) Start of Phase II, b) end of Phase II.

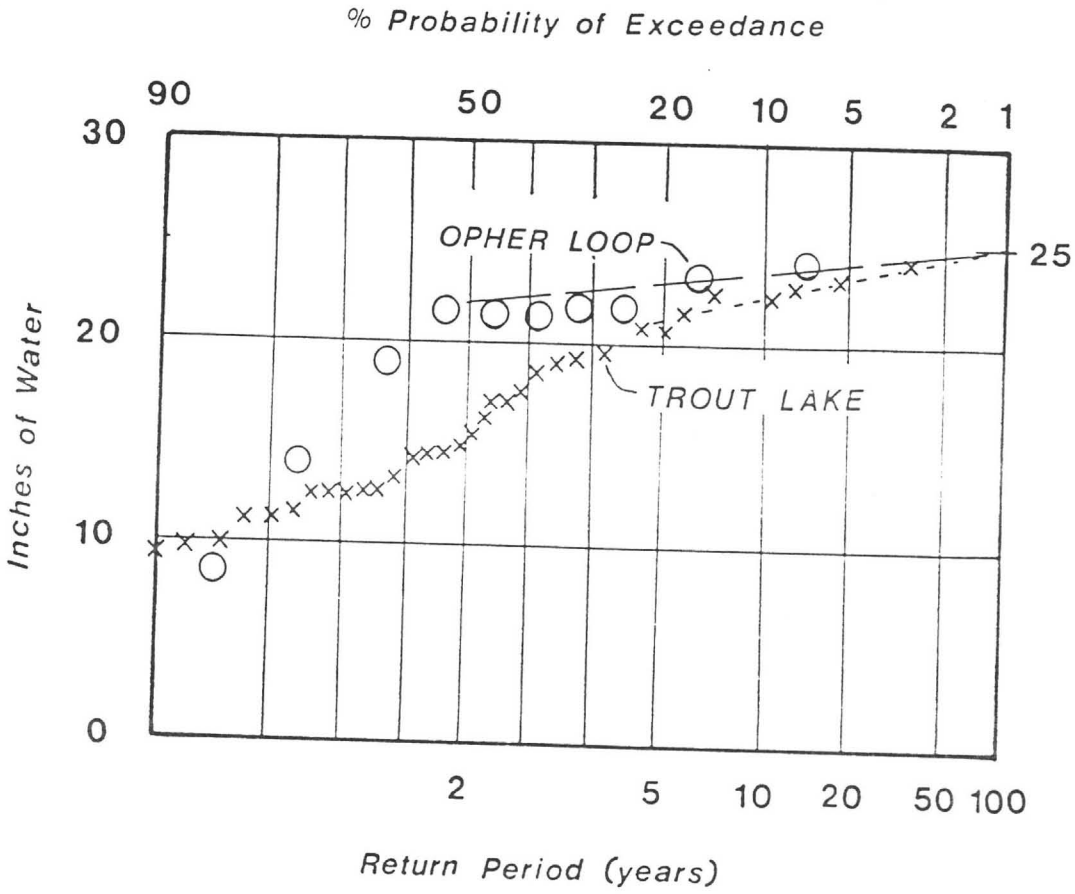


Figure 6. Snow Survey Data Analysis.

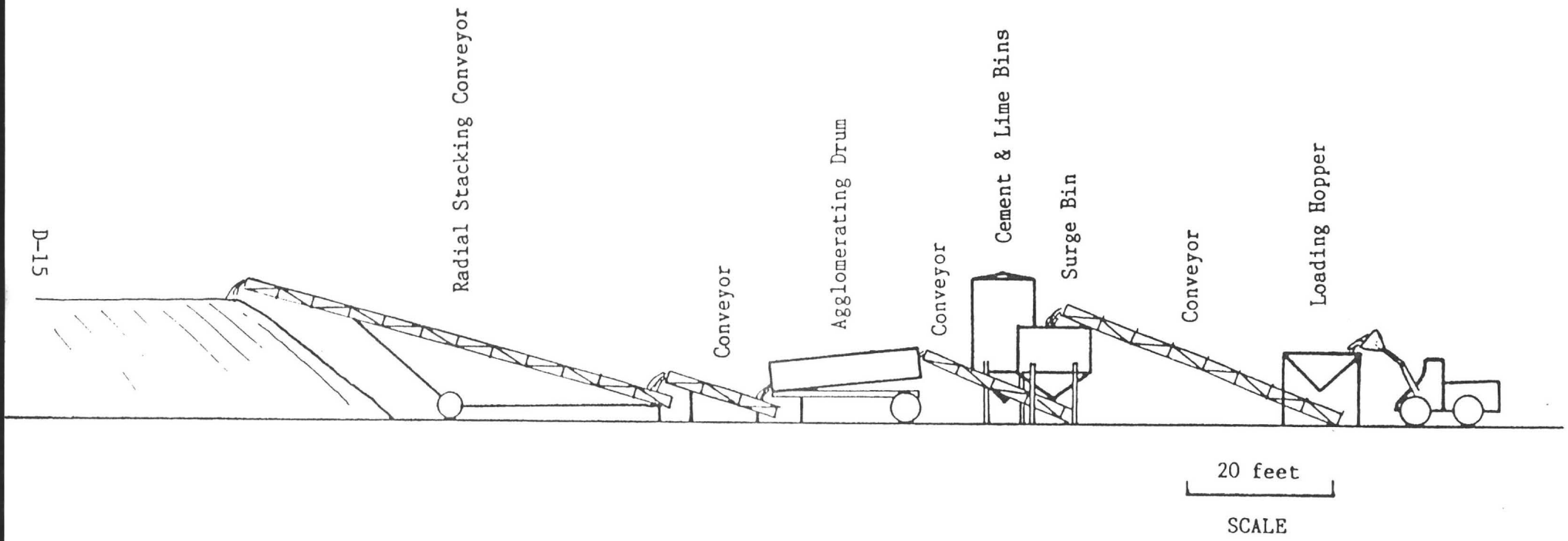


Figure 7. Agglomeration Equipment.

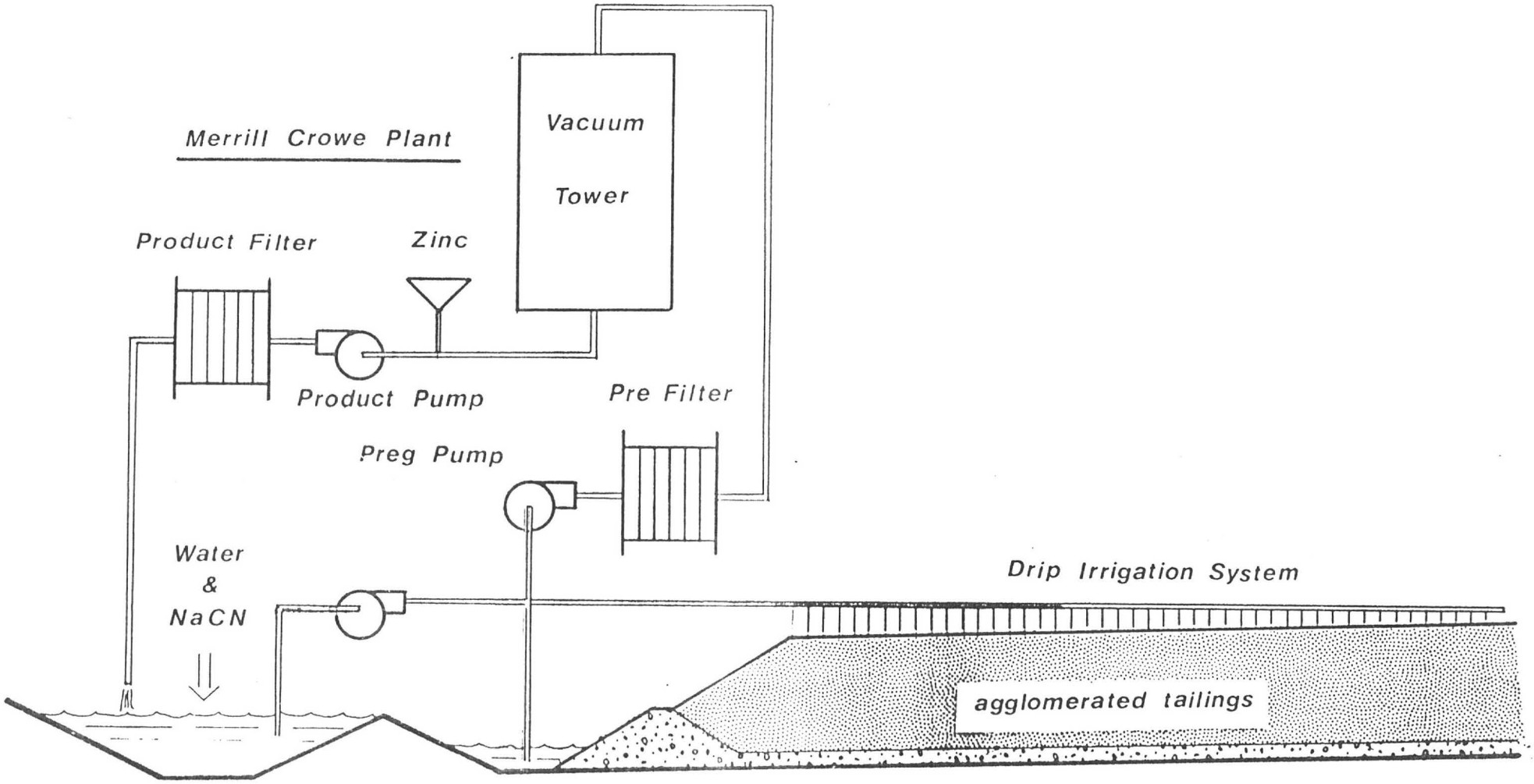


Figure 8. Process Plant Flow Diagram.

EXHIBIT E - RECLAMATION PLAN

1. RECLAMATION OF THE HEAP

After the heap has been detoxified, it will be recontoured to a maximum 33% slope using a bulldozer. The Pregnant Solution Holding Area and Barren Pond will be filled and exposed parts of the liner covered with leached residue in order that the area can be seeded and revegetated.

2. REVEGETATION OF THE MINED AREAS AND THE HEAP

2.1 Alta Mine Dumps Reclaimation of the mined areas will be done at the end of each phase of mining. As the dump rock is removed, the underlying soil will be exposed. The disturbed area will be fertilized, mulched, and seeded according to recommendations of representatives of the Soil Conservation Service and the San Miguel County agent. It is assumed that the addition of 100 pounds of pounds of diammonia phosphate per acre, two tons of hay mulch per acre, and 14 pounds of grass seed per acre will be adequate. The following mix of native grass has been recommended by an agent of the Soil Conservation Service:

Species	Lbs per Acre
Hard Fescue	1.6
Mountain Brome	10
Slender Wheatgrass	2.2

2.2 Tailings Deposit #1 It is planned to remove material from the Tailings Deposit #1 starting at the north end closest to the Alta townsite and progressing south. Removal of the tailings will expose the underlying soil which will be prepared and planted. As the mining progresses, a similar program to that proposed for the mine dumps will be carried out: the areas will be fertilized, mulched and seeded. By the end of the second operating season, it is anticipated that this revegetation program will have covered the entire Tailings Deposit #2 area so that it will be vegetated the following summer. A second option for part of the area is use the water flowing from the Blackhawk Adit in order to form a pond behind the old tailings dam. This option will be at the descretion of the propery owners.

2.3 Tailings Deposit #2 (Processing Site) The Process Plant, Laboratory, Chemical Storage Container, Office Trailer, Fence, and Water Line will all be removed from the site. After the Heap has been recontoured, the entire site will be fertilized, mulched, and seeded. It is anticipated that the cement and lime added for agglomeration will neutralize the acid forming minerals in the tailings so that the leach residue will be neutral or alkaline. Samples of the agglomerated and leached material will be submitted to the county agent for determination of necessary chemical additions to produce a suitable soil substitute medium to sustain a good long term vegetative growth. The fact that the untreated tailings support sparce alpine grasses and spruce growth indicates that the treated tailings will be a satisfactory growth medium.

2.4 Haul Road After the hauling of mine dumps and tailings is completed, the haul road will be restored to the natural contour and then fertilized, mulched and seeded.

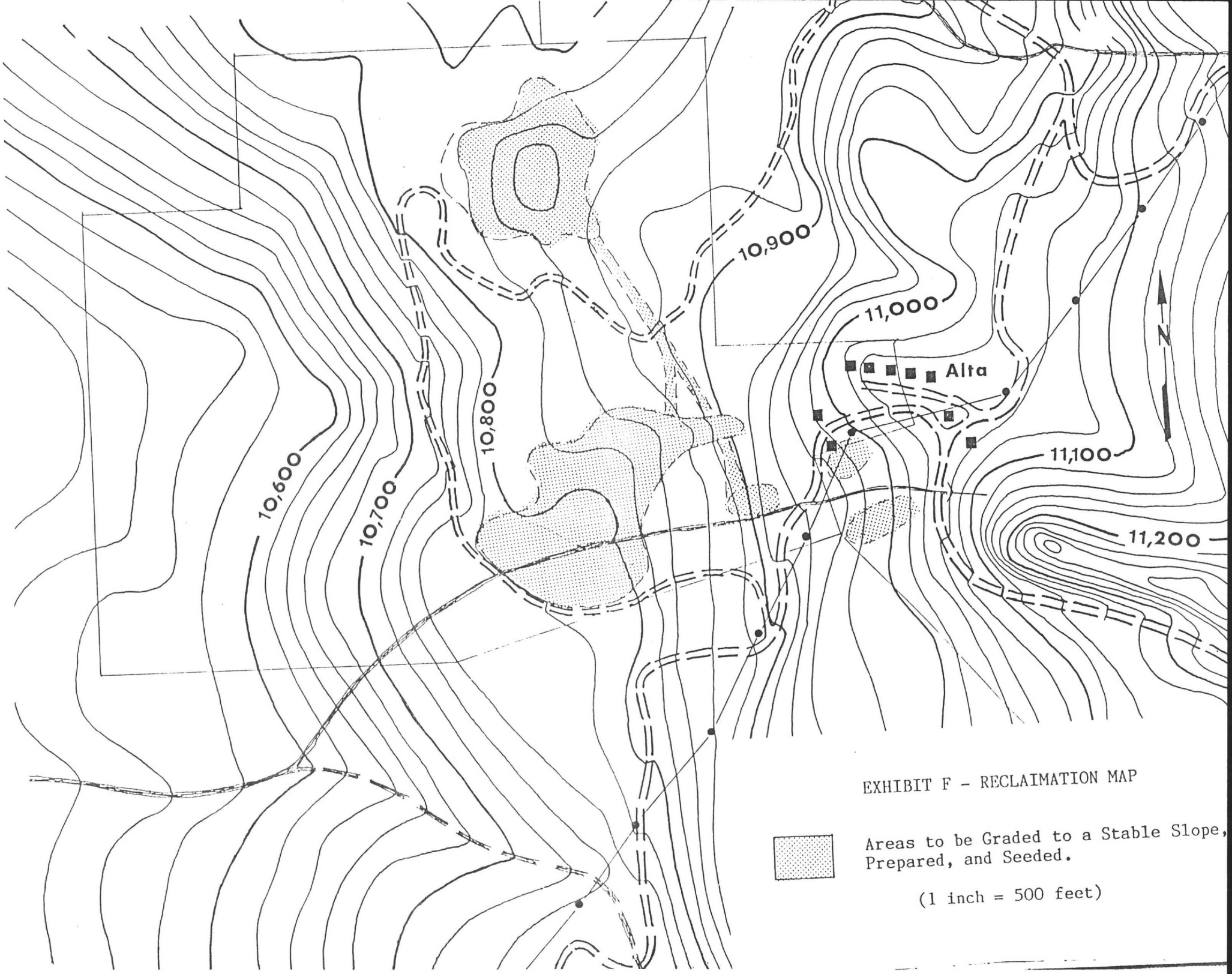


EXHIBIT F - RECLAIMATION MAP

Areas to be Graded to a Stable Slope, Prepared, and Seeded.

(1 inch = 500 feet)

EXHIBIT G - WATER INFORMATION

As the solutions will be contained within the impermeable liner until the levels of free cyanide and metal prescribed by the Department of Natural Resources are achieved, the operation will have no impact on surface or groundwater. As shown on Exhibit B, the project is located well below the lakes and ponds in the Alta area.

1.0 DIVERSIONS

Water from the Blackhawk Adit which will be diverted from Tailings deposit #1 (Map 3, Exhibit C) will continue to flow into Gold Creek. The diversion will keep the water from flowing through the tailings deposit where it has potential for eroding the tailings and for picking up soluable metals.

Water diverted from Tailings Deposit #2 flows only during the heaviest spring snowmelt. It will be diverted to the Turkey Creek drainage. The diversion will eliminate the potential erosion of the tailings and the possible associated dissolution of metals.

2.0 SOURCE OF PROCESS WATER

It is estimated that a maximum of 17 gpm of water will be used in the agglomeration process. An additional 5 gpm will be necessary to saturate the material under leach. Approximately 3 gpm will be used for other purposes giving a total maximum water use of 25 gpm. Part of this requirement will be met by precipitation within the area of the liner. For example, as described in sections 3 and 6 of Exhibit D, all of the snowmelt water from the winter after the first operating season will be used in agglomerating the Phase II heap and the snowmelt water from the second winter will be used for rinsing the leach residue.

Process water requirements for the operation will come from the spring "Jackie #1" described in the decree which is included in this section and shown on Map 1 (Exhibit C). The decree allows 0.25 cubic feet per second (112 gpm), of which 0.05 cfs (22 gpm) may be for domestic uses, to be diverted from the spring. Therefore, sufficient water for the planned operation is available from the spring. A 1.25" plastic pipeline will be strung from the spring to the plant site.

Filed in The District Court
Water Division Four

SEP 12 1984

Kay Phillips, Clerk _____

DATE OF MAILING
9-12-84

DISTRICT COURT, WATER DIVISION NO. 4, COLORADO

CASE NO. 84CW-38

FINDINGS AND RULING OF THE REFEREE AND DECREE

IN THE MATTER OF THE APPLICATION FOR WATER RIGHTS OF:

Silver Mountain Industries, Inc., a Utah corporation, in San Miguel County, San Miguel River Drainage.

Applicant Silver Mountain Industries, Inc., a Utah Corporation, by its president, J. Risser, of 2165 N. 1400 East, Provo, Utah, 84601, by Application filed March 16, 1984, requests a surface water right.

FINDINGS OF FACT

1. All notices required by law of the filing of this application have been given.

2. The Referee has jurisdiction of this case.

3. The time for filing of statements of opposition has expired and no such statements have been filed.

4. Applicant requests an Abs. Decree for .5 c.f.s., and a Conditional Decree for 1 c.f.s. of water to be diverted from Jackie Spring No. 1 out of the South Fork of the San Miguel River at the point of diversion located at a point N 16°37′ West 1627 feet from the S/4 corner of Section 22, Township 42 North, Range 9 West, N.M.P.M.

5. Applicant has begun an appropriation of .25 c.f.s. of water at the point of diversion referenced above and will apply the water to the benefical uses of industri al and domestic.

RULING

The Applicant is GRANTED CONDITIONAL water rights for .25 c.f.s. of water for industri al use, of which .05 c.f.s. may be used for domestic purposes to the JACKIE SPRING #1,

from the point of diversion above-described with an appropriation date of August 31, 1979, adjudication date of 1984.

During the month of September, 1988, and every four years thereafter until the conditional decree is absolute, the owner or user thereof, if it is desired to maintain the same, shall file with this Court an application for quadrennial finding of reasonable diligence with the Water Clerk of this Court. Upon the sale or other transfer of this conditional water right, the transferee shall file with this Court a notice of transfer which shall state:

(1) The title and case number of this case;

(2) The description of the conditional water right transferred;

(3) The name of the transferor;

(4) The name and mailing address of the transferee.

Applicant shall notify any transferee of the requirements of this paragraph.

The owner of this conditional water right shall notify the Clerk of this Court of any change in mailing address.

Dated this 12th day of September, 1984.

Aaron R Clay

Aaron R. Clay
Water Referee
Division No. 4

No protest was filed in this matter. The foregoing ruling is confirmed and approved, and is made the Judgment and Decree of this court.

Dated: 10-3-84

Robert A Brown
Water Judge

Mailed A Copy of this Document to all parties in this case.

Dated 10/4/84

Kay Phillips, Water Clerk

EXHIBIT H - WILDLIFE INFORMATION

The following steps are planned to mitigate the concerns of the Division of Wildlife as expressed on the Mined Land Wildlife Evaluation form (page H-2):

1) The area within which sodium cyanide is being used will be enclosed by a six-foot chainlink fence.

2) Leach Solutions will be completely contained within the area of the impermeable liner.

3) Solution containment areas will be covered with netting to keep birds out of the toxic solutions.

4) After mining is completed, the mined areas and haul road will be prepared and seeded with native grasses according to specifications of the U. S. Soil Conservation Service.

5) After leaching is completed, the heap will be detoxified according to specifications of the Mined Land Reclamation Board and the heap will be graded to a stable slope, prepared and seeded. The leach residue will have increased stability and the contained acid-forming constituents will be neutralized as a result of the lime and cement added during the agglomeration process.

MINED LAND WILDLIFE STATEMENT/EVALUATION (Revised)

for limited impact and select regular mine applications

The following information pertaining to wildlife is provided for use by Mined Land Reclamation Board in their consideration of a mining permit for:

LaPinta Mines/Silver & Gold/ T42N, R9W, Sec. 21 and 22

Name/Type and Location of Mine (Legal)

Wildlife Species list:

Elk, mule deer, blue grouse, snowshoe hare, pine martin, pine squirrel and numerous small birds, mammals, raptors and non-game wildlife inhabit this area.

Endangered/critical species/impacted:

None

Critical habitats/vegetative communities impacted:

As long as the toxic chemicals are totally contained in the immediate processing area, the impacts on critical habitats should be minimal.

Assessment of impact:

The area is currently under-going a natural reclamation from historic mining activities. Some of this natural reclamation will be disturbed. Containment of the cyanide leachate and associated heavy metals is our greatest concern. The leach sites might impact small mammals and birds which come in contact with the cyanide.

Mine Reclamation recommendations (include key species/habitats for which restoration is designed).

Operational control of the leachate and associated metals and liquids is of paramount importance to this project. Hydrologic runoff control and offsite diversion of the existing stream in the mine site are necessary to protect downstream vegetation, soils, and stream water quality. Final examination of the spoils pile should include a long term hydrologic control. The existing area in the lower tailings site is relatively flat. I recommend containment of the tailings, replacement of topsoil and planting a mountain meadow variety of forbs and grasses suitable for this elevation and site aspect.

Prepared By: Rick Sherman Date: 11/23/88

Submitted By: Rick Sherman Date: 11/23/88

This statement is void if not processed within 1 year.
This analysis does not constitute approval of application.

EXHIBIT I - SOILS INFORMATION

The region surrounding the Project Area has been mapped and classified by the U. S. Soil Conservation Service. Soils in the area are classified as mapping unit 605 with the following description:

605-- Scout family cobbly loam, 10 to 60 percent slopes 1/88

This deep, well drained soil is on hilly uplands and sideslopes. It formed in glacial materials and alluvium derived dominantly from fine grained igneous rock. Elevation is 9,500 to 11,500 feet. The average annual precipitation is about 25 to 40 inches, the average annual air temperature is 32 to 36 degrees F., and the average frost-free season is 50 to 75 days.

Unit Composition Included in this unit are small areas of Seitz, Wapshilla, Snowdon, and Needleton soils. Also included are small areas of rock outcrop and rubble land. Included areas make up about 20 percent of the total acreage.

Typical Profile Typically, the surface is covered with a mat of needles and duff 1.5 inches thick. The surface layer is very dark gray silt loam 2 inches thick. The subsurface layer is dark brown cobbly silt loam 3 inches thick. The next layer is light reddish brown cobbly silt loam 9 inches thick. The subsoil is brown extremely stoney sandy loam 23 inches thick. The substratum to a depth of 60 inches is light brownish gray very cobbly loam.

Properties Permeability of the Scout family is moderately to very rapid. Available water capacity is low to moderate. Effective rooting depth is 60 inches or more. Runoff is slow to medium, and the hazard of water erosion is low to high.

Present Vegetation The present vegetation in most areas is mainly Englemann spruce and subalpine fir. The understory plant community is mainly elk sedge, common juniper, kinnikinnick, and Oregon grape.

Potential Vegetation The potential plant community on the Scout family soil is an Englemann spruce - subalpine fir woodland with an understory of elk sedge, dwarf blueberry, common juniper, and kinnikinnick. Understory production varies with canopy density. The annual average production of air-dry understory vegetation ranges from 250 to 500 pounds per acre.

Use and Management This map unit is used mainly for timber production. It is also used for recreation and wildlife habitat.

EXHIBIT J - VEGETATION INFORMATION

1.0 SURROUNDING AREA

Vegetation in the area surrounding the tailings deposits and mine dumps has been mapped by the U. S. Soil Conservation Service and is described as follows:

Present Vegetation The present vegetation in most areas is mainly Englemann spruce and subalpine fir. The understory plant community is mainly Elk Sedge, common juniper, kinniknnick, and Oregon grape.

Potential Vegetation The potential plant community on the Scout family soil is an Englemann spruce - subalpine fir woodland with an understory of elk sedge, dwarf blueberry, common juniper, and kinnikinnick. The annual average production of air-dry understory vegetation ranges from 250 to 500 pounds per acre.

2.0 MINE DUMPS

The mine dumps at the Alta site consist of broken waste rock from the old mines. This material does not support vegetative growth.

3.0 TAILINGS DEPOSITS #1 AND #2

These areas currently support sparce alpine grasses and a few stunted Englemann spruce trees on about 10% of the area. There are several reasons for the poor vegetative growth in these areas. First, the material contains sulfide minerals which produce acid when they oxidize. Second, the tailings consist of finely ground quartz vein material and contain little nutriant for plant growth. Third, the tailings contain esentially no organic matter.

The attached photographs show the present vegetation.

Photo 1. Looking south from the north edge of Tailings Deposit #1.

Photo 2. Looking west from the east edge of Tailings Deposit #2.

Year		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1980	Precipitation	3.99	3.44	2.96	2.17	4.23	0.00	2.05	2.27	0.99	2.05	1.99	0.75	26.89
	Temperature-max	46	55	50	63	70	80	83	80	75	73	50	47	
	min	-2	-5	-10	-7	28	27	36	32	26	3	-13	-2	
	ave	26	28	27	35	44	57	61	57	52	45	24	25	
1981	Precipitation	0.53	0.71	2.58	0.83	3.09	1.71	5.57	2.84	3.36	1.82	1.09	0.76	24.89
	Temperature-max	51	57	53	72	72	82	80	81	---	72	63	51	
	min	3	-7	0	2	20	22	36	37	---	11	1	0	
	ave	27	27	29	42	45	56	59	57	---	42	32	30	
1982	Precipitation	3.00	1.61	3.61	0.84	1.84	0.84	2.22	6.42	5.39	4.58	1.39	1.95	30.69
	Temperature-max	49	56	50	62	68	80	80	77	73	64	59	52	
	min	-12	-20	-7	8	20	28	32	39	28	8	8	-11	
	ave	21	23	30	36	45	52	58	58	51	40	35	24	
1983	Precipitation	1.03	1.89	4.07	2.40	2.61	2.89	2.29	3.59	2.23	0.97	1.42	1.63	24.62
	Temperature-max	49	52	56	59	71	78	81	77	75	63	54	47	
	min	-1	-6	0	0	16	26	37	39	24	0	12	-10	
	ave	25	26	31	32	42	52	59	58	52	39	29	23	
1984	Precipitation	0.67	1.54	2.52	1.32	0.93	3.87	4.77	4.2	3.36	1.33	3.24	4.46	32.21
	Temperature-max	47	49	53	61	77	77	88	75	76	63	62	45	
	min	-22	-9	-9	5	9	26	37	37	31	23	-5	-9	
	ave	18	23	28	36	49	52	59	56	51	44	31	24	
1985	Precipitation	2.79	1.52	4.82	0.53	1.67	1.68	4.85	3.86	4.85	4.68	1.25	1.72	34.22
	Temperature-max	46	50	50	59	68	81	84	---	75	60	55	45	
	min	-21	-26	-8	8	16	32	37	---	20	9	-9	-4	
	ave	19	18	30	36	46	56	58	---	47	34	29	26	

EXHIBIT K. Ames Weather Station Monthly Precipitation (inches) and Temperature (degrees F) Data. (U S Soil Conservation Service)

GIS DCW Sitename: [illegible]

Data Type	SNOW
State FIPS Code	08
USGS. Hydrologic Unit Code	14020001
County name	San Miguel
Station I.D.	07M1[illegible]

Standard Hydrologic Exchange Format

Latitude	Longitude	Elevation (ft.)
37.54	107.49	11530

Section	Township	Range	County FIPS
11	43N	09W	113

Unit = inches

year/	January			February			March			April			May		
card	date	dep	swe	date	dep	swe	date	dep	swe	date	dep	swe	date	dep	swe
76-1	1/30	22	5.1	2/23	30	7.0	2/25	[illegible]	10.1	3/29	46	12.0	4/28	45	13.9
77-1	1/30	17	[illegible].3	1/27	21	4.[illegible]	2/24	23	5.[illegible]	3/29	29	7.7	4/28	11	3.4
78-1				1/30	50	11.0	2/27	54	16.0	3/29	62	21.3	4/26	44	15.6
79-1				1/30	62	17.4	2/27	62	17.6	3/28	74	22.9	4/26	60	23.6
80-1				1/28	41	10.0	2/28	51	16.3	3/28	66	21.3	4/25	54	20.0
81-1				1/28	18	3.8	3/23	22	5.0	3/25	34	8.6	4/28	19	6.3
82-1				1/29	[illegible]	[illegible].4	[illegible]	50	15.1	3/25	60	18.9	4/26	49	19.0
83-1				1/[illegible]	35	7.8	2/23	44	10.9	3/25	70	17.8	4/25	62	21.4
84-1				1/23	49	15.5	2/23	56	17.6	3/26	75	22.5	4/23	68	24.6
85-1				1/30	57	11.[illegible]	2/27	54	16.6	3/28	71	20.9	4/30	60	21.8
86-1				1/30	30	8.5	2/26	[illegible]	11.6	3/27	45	13.7	4/30	46	16.2
87-1				1/28	47	[illegible]	2/24	[illegible]	16.4	3/27	76	21.6	4/30	52	19.3

[illegible] DB2 Stationname: TROUT LAKE

Data Type	SNOW
State FIPS Code	08
USGS. Hydrologic Unit Code	14030006
County name	San Miguel
Plat on I.D.	07M09
Standard Hydrologic Exchange Format	TRLC2

Latitude	Longitude	Elevation (ft.)
[illegible]	107.53	9780

Section	Township	Range	County FIPS
	41N	09W	113

Year/ Card	February date	February dep	February swe	March date	March dep	March swe	April date	April dep	April swe	May date	May dep	May swe
49-1	1/31	063	11.3	2/27	055	14.7	3/31	064	17.2	5/01	024	9.0
50-1	1/31	044	9.7	2/28	041	12.0	3/31	041	9.[illegible]	5/11	000	0.0
51-1	1/01	042	9.1	2/27	041	9.0	4/01	055	8.0	5/02	033	6.7
52-1	1/29	063	14.7	3/28	064	20.2	3/30	070	22.8	4/29	047	22.[illegible]
53-1	1/30	036	9.6	2/27	034	9.4	3/31	040	12.7	5/[illegible]	025	7.3
54-1	1/31	0[illegible]	5.8	2/27	000	6.3	3/31	041	9.5	4/30	000	0.0
55-1	1/30	017	5.0	3/01	041	8.5	3/31	036	9.3	5/31	000	0.0
56-1	1/31	0[illegible]	11.3	2/29	051	18.5	3/30	047	14.1	4/[illegible]	011	6.1
57-1	1/[illegible]	0[illegible]	10.7	1/[illegible]	05[illegible]	[illegible].0	4/01	058	16.7	5/[illegible]	041	11.4
58-1	1/[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12.5	3/31	048	[illegible]	[illegible]	[illegible]	[illegible]
59-1	1/[illegible]	0[illegible]	3.5	[illegible]	[illegible]	5.5	3/30	037	11.6	5/[illegible]	[illegible]	[illegible]
60-1	1/29	0[illegible]	6.8	2/29	036	18.0	3/30	048	17.0	4/15	019	11.1
61-1	[illegible]	0[illegible]	4.6	2/27	[illegible]	6.4	3/[illegible]	025	6.3	4/[illegible]	[illegible]	11.[illegible]
62-1	[illegible]	0[illegible]	[illegible].0	[illegible]	[illegible]	[illegible]	[illegible]	055	15.2	4/27	047	13.[illegible]
63-1	[illegible]	[illegible]	3.8	[illegible]	[illegible]	10.8	3/29	37	12.7	4/[illegible]	[illegible]	[illegible]
64-1	[illegible]	[illegible]	[illegible]	2/[illegible]	[illegible]	6.0	3/27	46	10.1	4/[illegible]	[illegible]	11.1
65-1	1/[illegible]	[illegible]	12.2	2/[illegible]	[illegible]	15.8	3/[illegible]	06	19.2	4/[illegible]	[illegible]	14.1
66-1	1/[illegible]	[illegible]	[illegible]	2/24	41	11.0	3/[illegible]	36	10.6	4/[illegible]	[illegible]	[illegible]
67-1	1/30	[illegible]	[illegible]	[illegible]	[illegible]	12.1	3/[illegible]	[illegible]	11.[illegible]	4/[illegible]	[illegible]	[illegible]
68-1	1/30	41	10.3	2/27	56	14.8	3/28	48	16.2	4/29	47	17.4
69-1	1/29	52	11.1	2/26	56	16.0	3/27	58	19.1	4/29	22	8.[illegible]
70-1	1/[illegible]	[illegible]	9.[illegible]	2/[illegible]	15	10.9	3/31	49	14.9	4/[illegible]	42	13.7
71-1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.4	[illegible]	[illegible]	2.1
72-1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.[illegible]
73-1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14.0	3/[illegible]	57	19.5	[illegible]	56	17.[illegible]
74-1	1/30	44	11.9	2/27	44	13.4	3/28	40	14.5	4/28	14	10.4
75-1	1/30	[illegible]	11.[illegible]	[illegible]	[illegible]	15.5	3/[illegible]	73	22.[illegible]	4/27	[illegible]	24.[illegible]
76-1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12.7	[illegible]	44	14.7	4/[illegible]	[illegible]	11.1
77-1	[illegible]	[illegible]	1.9	[illegible]	[illegible]	[illegible]	[illegible]	30	5.1	4/[illegible]	0	0.[illegible]
78-1	[illegible]	47	18.4	[illegible]	41	16.4	[illegible]	60	22.7	4/27	51	14.0
79-1	1/30	[illegible]	15.1	[illegible]	[illegible]	18.0	3/28	67	21.1	4/26	[illegible]	18.4
80-1	[illegible]	[illegible]	10.7	[illegible]	[illegible]	16.0	3/28	72	[illegible]	[illegible]	46	20.1
81-1	1/[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3/28	28	[illegible]	4/[illegible]	[illegible]	0.[illegible]
82-1	[illegible]	[illegible]	11.8	[illegible]	[illegible]	[illegible]	3/28	61	20.1	4/[illegible]	48	17.0
83-1	1/[illegible]	[illegible]	6.[illegible]	[illegible]	[illegible]	10.0	3/[illegible]	[illegible]	16.5	4/27	[illegible]	[illegible]
84-1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17.0	3/[illegible]	65	20.[illegible]	4/[illegible]	69	21.1
85-1	[illegible]	4[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	57	16.7	4/30	[illegible]	[illegible]

[illegible] DBQ Watershed: TRULT LAKE

Data Type	SNOW
State FIPS Code	08
USGS Hydrologic Unit Code	14030005
County name	San Miguel
Plot on I.D.	07M09
Standard Hydrologic Exchange Format	TRLC2

Latitude	Longitude	Elevation (ft.)
[illegible].50 '	107.53	9780

Section	Township	Range	County FIPS
	41N	09W	113

Year/	February			March			April			May		
Card	date	dep	swe	date	dep	swe	date	dep	swe	date	dep	swe
49-1	1/31	063	11.3	2/27	055	14.7	3/31	064	17.2	5/01	024	9.0
50-1	1/31	044	9.7	2/28	041	12.0	3/31	041	9.2	5/01	000	0.0
51-1	1/01	042	9.1	2/27	041	9.0	4/01	035	8.0	5/02	033	6.7
52-1	1/29	063	14.7	2/28	064	20.2	3/30	071	22.8	4/29	047	12.4
53-1	1/30	036	9.6	2/27	034	9.4	3/31	040	12.7	5/01	025	7.0
54-1	1/31	0[illegible]	8.8	2/27	030	6.3	3/31	041	9.5	4/30	000	0.0
55-1	1/30	017	6.0	3/01	041	8.5	3/31	036	9.3	5/01	000	0.0
56-1	1/31	0[illegible]	11.5	2/19	051	13.5	3/30	047	14.1	4/29	011	6.3
57-1	1/31	0[illegible]	10.7	2/28	051	[illegible].0	4/01	058	16.7	5/02	041	12.5
58-1	1/[illegible]	[illegible]	[illegible]	2/26	[illegible]	12.5	3/31	041	10.4	5/03	[illegible]	[illegible]
59-1	1/31	0[illegible]	5.5	3/02	017	5.5	3/30	037	11.4	5/01	[illegible]	[illegible]
60-1	1/29	0[illegible]	6.8	3/29	034	13.0	3/30	048	17.0	4/28	019	11.1
61-1	[illegible]	0[illegible]	4.6	3/27	037	6.4	3/28	025	6.3	4/27	[illegible]	11.[illegible]
62-1	[illegible]	[illegible]	[illegible]	2/[illegible]	041	14.1	3/30	059	15.5	4/27	0[illegible]	13.[illegible]
63-1	[illegible]		3.8	2/27	--	10.8	3/29	37	12.[illegible]	4/28	[illegible]	6.5
64-1	[illegible]	[illegible]	[illegible]	2/26	27	6.1	3/27	43	10.8	4/28	[illegible]	11.1
65-1	1/29	4	12.2	2/24	49	15.6	3/29	66	19.2	4/28	[illegible]	14.2
66-1	1/[illegible]	[illegible]	9.1	2/24	43	11.0	3/13	28	10.8	4/28	3	[illegible]
67-1	1/30	[illegible]	[illegible]	2/21	42	11.1	3/27	4[illegible]	11.[illegible]	4/27	[illegible]	[illegible]
68-1	1/30	-0	10.8	2/27	56	14.9	3/18	48	16.2	4/29	47	17.4
69-1	1/29	51	1[illegible].1	2/26	56	16.0	3/17	58	19.1	4/28	22	8.9
70-1	1/[illegible]	[illegible]	9.8	2/26	35	10.9	3/31	4[illegible]	14.9	4/28	-1	13.7
71-1	[illegible]	[illegible]	7.9	2/27	[illegible]	1[illegible].0	3/30	35	1[illegible].4	4/[illegible]	[illegible]	2.1
72-1	1/[illegible]	[illegible]	7.4	2/[illegible]	[illegible]	9.5	3/30	32	7.[illegible]	4/30	[illegible]	0.[illegible]
73-1	1/30	4	[illegible]	2/28	[illegible]	14.0	3/27	67	19.6	4/27	52	13.[illegible]
74-1	1/30	24	11.9	2/27	44	16.4	3/28	40	14.5	4/28	24	10.5
75-1	1/30	[illegible]	11.[illegible]	2/28	71	15.6	3/28	72	22.[illegible]	4/29	[illegible]	24.[illegible]
76-1	1/[illegible]	[illegible]	[illegible]	2/28	[illegible]	12.[illegible]	3/29	44	14.7	4/28	[illegible]	11.1
77-1	1/[illegible]	[illegible]	1.8	2/[illegible]	9	[illegible].1	3/29	30	5.1	4/27	0	0.[illegible]
78-1	1/[illegible]	47	13.4	2/27	53	16.4	3/29	60	21.3	4/27	31	14.0
79-1	1/30	[illegible]	15.1	2/27	57	18.0	3/28	67	21.2	4/26	15	18.6
80-1	1/29	3	10.7	2/27	[illegible]	16.0	3/28	72	21.[illegible]	4/26	43	10.3
81-1	1/[illegible]	[illegible]	3.8	2/[illegible]	13	3.8	3/28	28	7.1	4/26	3	0.[illegible]
82-1	1/[illegible]	[illegible]	11.8	2/[illegible]	47	16.3	3/28	61	20.3	4/[illegible]	18	17.0
83-1	1/[illegible]	[illegible]	6.7	2/27	[illegible]	10.0	3/27	[illegible]	10.5	4/27	[illegible]	2.2
84-1	1/[illegible]	[illegible]	17.4	2/[illegible]	55	17.0	3/26	65	20.[illegible]	4/28	57	21.1
85-1	[illegible]	4	[illegible]	2/27	[illegible]	[illegible]	3/28	57	16.7	4/30	37	13.9

EXHIBIT L - RECLAMATION COSTS

As described in Exhibit E, reclamation will consist of grading the heap to a stable slope, restoring the haul road to a natural contour, and preparting and seeding all of the disturbed areas according to recomendations of the Soil Conservation Service and County Extension Agent. The fence, water pipeline, process plant. laboratory, storage container and office trailer will be removed from the site.

D-8 Cat for recontouring heap 40 hours D-8 time @ $125	$5,000
D-8 Cat for restoring road, 8 hrs @ $125	1,000
mulch (poor quality hay @$40/ton x 2 tons/acre x 17.6 acres)	1,400
fertilizer (30-10-0 @ 330 lbs/acre x $0.10/lb x 17.6 acres)	600
grass seed (14 lbs/acre x $3/lb x 17.6 acres)	750
equipment rental for seeding and fertilizing	1,000
Labor (2 men 1 month)	5,000
Total Cost	$14,750

It is recommended that the reclamation bond be set at $15,000.

EXHIBIT O - LEGAL RIGHT TO ENTER

This section will contain a notarized statement by the owner that La Pinta Mines, Inc. holds a lease on the property and an assignment agreement from La Pinta Mines to Socorro Mining, Inc.

EXHIBIT P - OWNERS OF RECORD

The owner of record of the Viola Patented Placer claim and the Home Millsite claim is:

Silver Mountain Industries, Inc.
2244 Temple View Circle
Provo, Utah 84604

SOCORRO
MINING
INC.

ALTA TAILINGS LEACH PROJECT

San Miguel County, Colorado

December, 1988

1802 W. GRANT ROAD SUITE 110-8 • TUCSON, AZ 85745 • (602) 623-0445

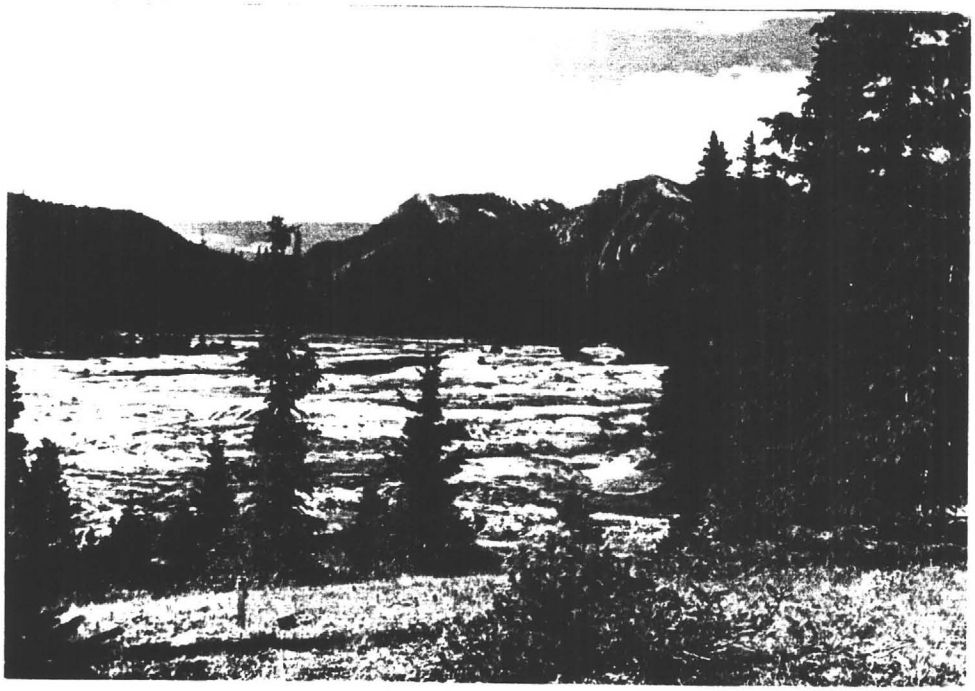


Photo 1. Looking south from the north edge of Tailings Deposit #1.

Photo 2. Looking west from the east edge of Tailings Deposit #2.

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Appendix 1 - Dawson Metallurgical Laboratory Report

SUMMARY

This report presents a plan for the development of a precious metals leaching project based on old mill tailings and mine dumps at the Alta townsite, located four miles southwest of Telluride, Colorado. Field surveys and sampling indicate that 146,000 tons of tailings, with an average grade of 0.056 ounces per ton gold and 2.24 ounces per ton silver, is available in the district. Based on the results of metallurgical laboratory testing, it is estimated that 5,800 ounces of gold and 218,000 ounces of silver would be recovered by the planned operation. There are also three old mine dumps of unknown grade available for treatment. This dump material will be used in the construction of the heaps and any leachable gold and silver will be recovered.

A two-year project to process the dumps and tailings will require an expenditure of $550,000 to achieve a positive cash flow. Payback of investment is expected to occur during the first year. Assuming prices of $400 per ounce for gold and $6.00 per ounce for silver, the completed project is projected to have a before tax profit of $1.53 million after recovery of the investment.

The principal initial risk in the project is the required permitting with County and State regulatory agencies. An application for a required special use permit has been prepared and submitted to the San Miguel County Planning Commission. An application will be submitted to the Mined Land Reclamation Division of the Colorado Department of Natural Resources before the end of 1988. The project has been reviewed with representatives of these agencies and it is anticipated that the permits will be received before April 1, 1989.

The costs of preparing permit applications, completing metallurgical tests, and paying advance minimum royalties to the end of 1988 total $48,000. Once the permit applications are accepted as being complete by the agencies, an additional $57,000 should be spent on engineering design work, further metallurgical testing, and fabrication of agglomeration equipment while the permitting is in process. These expenditures during the permit application period will allow development work to start early in the 1989 field season.

BACKGROUND

Alta is an old abandoned mining townsite located in mountainous terrain between Opher Loop and Telluride (Figure 1). Figure 2 shows the Alta tailings deposits and the outline of the Viola patented placer claim upon which the tailings deposits are located. Also shown are the county road which provides access to the area from state highway 145 and the electric transmission line from Ames to Telluride which crosses the project area.

Mining started at Alta in 1875 and was terminated in late 1929 when the mill and tram station burned. According to an old report, production during this time interval had a gross smelter value of about $7,000,000 in dollars of the day. The ore occurs as veins within the San Juan volcanics. Early milling was with stamps and gravity concentration. In 1918, a flotation plant was built and the production rate was increased to 200 tons per day. It is reported that the ore had a value at that time of $10.11 based on $20 per ounce gold and $0.70 per ounce silver prices. The early milling was not efficient and it left a substantial amount of gold and silver in the tailings.

Silver Mountain Industries, Inc., of Provo, Utah, owns a large block of patented mining claims around the Alta townsite. On December 14, 1987, La Pinta Mines, Inc. acquired an option to lease the Alta tailings deposits and mine dumps from Silver Mountain. The lease is now being assigned to Socorro Mining, Inc.

This opportunity was first brought to our attention in 1986 by C. H. Phillips, a consulting geologist, who had sampled the tailings and completed a reserve analysis on behalf of Silver Mountain Industries. At that time, Silver Mountain had given a right of first refusal to another group and we deferred work on the property. In October, 1987, Jackie Risser, president of Silver Mountain, contacted us and offered to lease the property after the right of first refusal expired at the end of the month. Accordingly, we visited the site in late October, just before the first winter snows, and sampled the Tailings Deposit #1 and carried out a tape and Brunton survey of the deposit. The samples obtained were delivered to Dawson Metallurgical Laboratories in Murray, Utah, where preparation was done for duplicate assaying, screen analyses, trial agglomeration, and bottle roll cyanide leach testing. Further sampling was done during the summer of 1988 and additional bottle roll and column leach tests were carried out.

Because the tailings are located at an elevation of 10,800 ft, we first investigated the feasibility of trucking them 35 miles west to a site at the top of Norwood Hill. This included filing an application for a special use zoning permit for the processing site with the San Miguel County Planning Commission. Opposition to the plan quickly developed amoung some of the Norwood residents, and it became apparent that such a permit would be difficult to obtain. At the same time, financial analyses of the project with a 35-mile truck haul indicated the economics to be marginal at summer of 1988 precious metals prices. Considering these problems, a plan has been developed for a leach project within the patented claims at the Alta site.

PERMITTING

Two permits are required for an operation at Alta: 1) a special use permit from San Miguel County, and 2) an operating permit from the Mined Land Reclamation Division of the state Department of Natural Resources.

Residents of the region are especially sensitive about any planned developments and it has been necessary to prepare a comprehensive special use permit application. In order to address all the concerns and present a strong case for the project, we have retained a planning consultant with experience in San Miguel County government. During the fall, the consultant guided representatives of the state Wildlife Division, Water Quality and Air Quality Divisions, and the U. S. Forest Service on tours of the project site and, consequently, we are receiving support for the project as a means of reclaiming the old tailings and mine dumps. The San Miguel County Planning Director has also visited the site and supports the concept of reclaiming the area.

The special use permit application is expected to be considered at the commission's mid-January meeting after thorough staff review. The permit should go to the county commissioners for final approval in February or March.

An application for a permit from the Mined Land Reclamation Division will be submitted in late December. According to Division representatives, the permit can be expected to be presented to the Mined Land Reclamation Board for approval 90 days after being accepted as being complete. Discussions have been held with representatives of the Division on several occasions to insure that the application is complete as submitted.

According to precedent, the project should not need a waste water discharge permit from the Water Quality Control Division of the Health Department because there will be no water discharge until after the system is detoxified and reclaimed. The Division representative who visited the site indicated that a permit should not be required. However, the Health Department is in the process of revising its regulations and the revised requirements are not known at this time.

At this point, the permitting is on track and we expect the final permits to be approved before April 1, 1989. By the nature of the permitting process, we will know of any problems as they occur.

RESERVES

There are two main tailings deposits at Alta. According to Phillips, Deposit #1 contains 154,000 tons with an average grade of 0.060 oz/ton gold and 2.49 oz/ton silver. His reserve is based on a series of samples taken from backhoe trenches. Phillips' samples of Deposit #2 indicate that its grade is too low to pay for retreatment. However, Deposit #2 is a good site for the processing facilities for material from Deposit #1 and for the permanent storage of the leach residue.

We took 35 samples of Deposit #1 from 14 auger holes which had a maximum depth of 13.5 feet. Only four of these auger holes reached the base of the tailings. In the reserve analysis, we also used the results of 13 samples obtained by Phillips from 7 backhoe pits. Figure 3 shows contours of the projected tailings thickness along with the auger hole and backhoe pit locations. The auger hole samples had an average weight of 20 pounds and give a good representation of the material. Sample preparation was done at Dawson Labs and assays were made in duplicate by Assay Lab, Inc., in West Jordan, Utah. Dawson Labs also prepared composites of the samples and conducted bottle roll cyanide leach tests, assay screen analyses, and column leach tests. Splits of the auger hole samples are available for future testing.

As shown on Figure 3, we defined a reserve of 146,000 short tons for Deposit #1. Assays used in determining the grade are listed on Table I. The grade, using the weighted average of all samples , is 0.056 oz/ton gold and 2.24 oz/ton silver. The deposit is divided into two parts by a small stream which originates from the Blackhawk adit. The main deposit contains 114,000 tons at an average grade of 0.059 oz/ton gold and 2.36 oz/ton silver. The south segment is adjacent to the old containment dam and it has a larger slime fraction than the main deposit. It contains 32,000 tons and has a lower average grade of 0.038 oz/ton gold and 1.40 oz/ton silver. For this reason, it will be mined last.

In addition to the tailings, there are several mine dumps in the area which contain mineralized rock. There are at least 16,000 tons of dump material which, according to the old reports, have a comparable recoverable grade to the tailings. A few samples from the surface of the dumps gave low assay results. However, it must be noted that mine dumps are extremely difficult to sample to determine their true grade. Generally, the surface material was the last waste out of the mine and does not represent the overall grade. The plan is to use the dump material as a drainage layer in the base of the heap. Any leachable gold and silver will be recovered but no credit is taken for the dump rock in the financial analysis.

METALLURGY

The bottle leach tests and column tests indicate that cyanide leaching of the tailings gives good recovery of both the silver and gold. Appendix 1 is a Dawson Lab report of the results of the screen analysis. It appears that the silver recovery is good because much of the silver is in the slime fraction thereby providing good contact with the leach solution. The minus 325 mesh fraction makes up 20% of the samples tested and averages 6.1 oz/ton silver; the slime fraction contains more than 50% of the total silver. Silver is evenly distributed in the coarser fractions, averaging about 1.2 oz/ton.

Gold is somewhat concentrated in the +35 mesh fraction which makes up 18% of the samples and it is uniformly distributed in the finer fractions. The gold in the coarse sand fraction causes a 'nugget effect' which results in somewhat erratic assay results. Duplicate and triplicate assays were done to account for the nugget effect. All the size fractions give good leach recovery of the gold.

ALTA PRECIOUS METALS

Site	Location (* Phillips)		SAMPLE Length (feet)	SAMPLE Gold (ounces/ton)	SAMPLE Silver (ounces/ton)	COMPOSITE Length (feet)	COMPOSITE Gold (ounces/ton)	COMPOSITE Silver (ounces/ton)
A	*8		3.3	0.061	5.81			
	*9		5.5	0.082	3.21	8.8	0.072	4.51
B	500N	100E	4.0	0.047	1.80			
			4.5	0.042	2.68	8.5	0.045	2.24
C	400N	0E	4.0	0.060	2.28			
			4.5	0.073	2.54			
			5.0	0.073	3.22	13.5	0.072	2.68
D	400N	100E	4.0	0.054	1.75			
			4.5	0.035	1.47			
			5.0	0.104	3.01	13.5	0.066	2.12
E	350N	50E	4.0	0.038	1.33			
			4.5	0.040	2.03			
			4.0	0.044	1.30	12.5	0.041	1.55
F	*12		10.0	0.032	1.87	10.0	0.032	1.87
G	300N	0E	4.0	0.072	2.00			
			4.5	0.061	1.38			
			3.5	0.061	5.11	12.0	0.095	2.67
H	300N	50E	4.0	0.053	2.57			
			4.5	0.048	2.02			
			4.0	0.059	2.84	12.5	0.053	2.48
I	300N	100E	4.0	0.062	1.62			
			4.5	0.042	3.73			
			4.0	0.044	1.39	12.5	0.049	2.25
J	200N	0E	4.0	0.055	1.80			
			4.5	0.067	1.88			
			4.0	0.060	2.54	12.5	0.061	2.07
K	*4		5.8	0.076	2.92			
	*5		4.3	0.053	1.87			
	*13		3.0	0.085	2.34	13.1	0.071	2.44
L	200N	100E	4.0	--	--			
			4.5	0.054	1.84			
			4.0	0.059	3.60	12.5	0.056	2.72
M	100N	0E	4.0	0.032	1.52			
			5.5	0.050	2.40	9.5	0.042	2.03
N	*14		9.0	0.053	1.96	9.0	0.053	1.96
O	*2		5.0	0.149	2.66			
	*3		3.0	0.082	2.16			
	*15		4.0	0.044	3.74	12.0	0.097	2.90
P	0N	0E	4.0	0.051	2.42			
			4.5	0.033	2.09	8.5	0.041	2.25
Q			8.0	0.036	1.44	8.0	0.036	1.44
R	100S	100W	6.0	0.051	2.00	6.0	0.051	2.00
	(Main Deposit weighted average)					194.9	0.0590	2.355
S	60S	60E	4.0	0.048	2.10			
			4.5	0.057	2.38	8.5	0.052	2.25
T	*11		4.0	0.064	1.66	4.0	0.064	1.66
U	*1		2.0	0.029	0.93	2.0	0.024	0.93
V	200S	0E	6.0	0.023	0.98	6.0	0.023	0.98
W	*16		7.0	0.023	0.73	7.0	0.023	0.73
	(South Segment weighted average)					27.5	0.0380	1.404
	OVERALL WEIGHTED AVERAGE					222.4	0.0564	2.237

Table I. Samples, Assays, and Average Grades for Tailings Deposit #1.

Dawson conducted agglomeration tests which demonstrated that large amounts of cement and lime (20 pounds each) are necessary to form pellets of this material. We decided to use smaller amounts with the expectation that pellets were not necessary. The material was agglomerated with 10 lbs/ton cement, 5 lbs/ton lime, and 1 lb/ton NaCN. A sandy agglomerate was produced which had excellent permeability. A column leach recovery plot is shown on Figure 4. The material for the test consisted of a 132-pound composite, weighted by sample length, of all the auger hole samples. Initial percolation rates were set at 0.003 gpm/sq ft, but were increased to 0.005 gpm/sq ft after two weeks. The leach solution contained 2 lbs/ton NaCN.

The projected final recoveries for the column are 0.042 oz/ton gold and 1.50 oz/ton silver which is in line with the bottle roll results. The recovery plots show that most of the gold was recovered before the silver started leaving the column. This was because the free cyanide content of the effluent was very low until one pore volume of solution had passed through the column. At that point, both the cyanide level and the silver recovery increased rapidly. About 2.5 lbs/ton of cyanide was consumed in the column test. Based on our experience on other projects, we expect the cyanide consumption in the heap to be slightly less than that in the column test. Considering the column leach and bottle roll results, we project a cyanide consumption of about 2.2 pounds per ton.

PROPOSED PROJECT

As planned, the project will span two operating seasons with final reclamation being done early in the third season. Figure 5 is a project schedule showing the sequence of work required to complete the project.

As was discussed previously, the first step has been to prepare and file permit applications with the State Division of Mined Land Reclamation and the San Miguel County Planning Commission. Our plan is to move ahead with project engineering design work and further metallurgical work after the permit applications are accepted as being complete, while the permitting process is underway. Approximately $105,000 will be spent before April 1,1989 for these purposes and for minimum royalty payments. If additional work is required on the permits, the expenditures will be reduced or delayed.

The mine dump material and agglomerated tailings will be heap leached in a two-phase program. Figure 6 shows the elements of the project. The two tailings deposits are separated by approximately 1,000 feet giving a haul distance in the range 1,000 to 2,000 feet. Our plan is to use an elevated scraper to pick up the tailings from Deposit #1 and move them to the agglomeration site at Deposite #2. The mine dump material will have to be hauled about the same distance. Contracted dump trucks will be used for this purpose.

Excavation of the first leach pad and installation of the liner is planned to take place in late May and early June 1989. Figure 7 shows the Phase I leach pad layout. The most critical design problem for a heap leach project at the Alta site is the containment of the large spring snowmelt prior to the time the system has been detoxified. Snow survey data from the Opher Loop (which is located to the north above Alta) and Trout Lake Soil Conservation Service sites

have been analyzed to determine the amount of water contained in both average and '100-year' snow accumulations. At Alta, the expected amount of water in an average snowpack is 18.5 inches while a 100-year snowpack contains 25.0 inches. As a means of containing the snowmelt water, the leach pad has been designed with an enclosing birm so that it will have more than enough capacity to store 25" of water over the entire lined surface.

The liner system required by the Division of Mined Land Reclamation is shown on Figure 8. It consists of a primary liner and a leak containment underliner, both made of 60 mil HDPE material. Between the two liners is a permeable layer of Geonet material which will permit the migration and detection of any solutions leaking through the primary liner. This is an expensive system with an installed cost of about $1.60/ sq ft. It represents the largest component of development cost for the project.

Figure 9 is a cross-section showing how the heap will be built. The front part of the leach pad will be left vacant in order that it can be used as the pregnant solution storage area. Snowmelt water will be stored in this vacant area and within the part of the heap below the top of the containment birm. The dump rock and the agglomerated tailings both have sufficient porosity to store large amounts of water. The first step in heap construction will be to spread a 12" layer of unagglomerated tailings to protect the liner from the equipment used to load the heap. Next, a 2' layer of dump rock will be loaded to provide drainage for the heap. A dike of dump rock will be loaded across the front of the heap for the purpose of stabilizing the tailings when the heap is flooded with snowmelt water. The agglomerated tailings will be loaded with a radial stacking conveyor directly from the agglomeration circuit.

While the leach pad is being excavated and the liners installed, portions of the mine dumps will be hauled to the stockpile area and the tailings agglomeration equipment will be set up. Figure 10 shows the agglomeration equipment which will be fabricated before the start of the field season. Loading of the first segment of the heap should start in mid-June and first production will occur in July. After a one-month start up period, material will be added at a rate of 15,000 tons per month. Leaching will commence as soon as 10,000 tons is loaded in July and will continue into the winter months. The first product will be available for sale within 10 days of the time leaching commences thereby reducing the working capital requirements.

Approximately 60,000 tons of material will be loaded onto the Phase I heap by early November when winter weather is expected to terminate agglomeration operations. Drip irrigation lines will be buried in the top of the heap and will permit delivery of leach solutions in subfreezing temperatures. Preparations will be started during the first season for the installation of the Phase II liner early in the second season.

Figure 11 shows the heap configuration at the beginning and end of Phase II. All of the remaining tailings from Deposit #1 will be agglomerated, loaded and leached during the second season. The snowmelt water accumulated during the winter will be used as agglomeration make-up water during the early part of the second season. Completion of leaching during the second season will probably require leaching into the winter months using the buried drip irrigation

system. The second season will also include some of the reclamation work specified by the Division of Mined Land Reclamation. As material is removed from Tailings Deposit #1 and the mine dump areas, the cleared areas will be prepared and seeded according to recomendations of the Soil Conservation Service. Final reclamation will be done early in the third season. This will include detoxification of the heap, grading the heap to a stable slope, and preparing and seeding the remaining disturbed areas. Snowmelt water accumulated during the second winter will be used for rinsing the heap as part of the detoxification process. Final detoxification will be done with hydrogen peroxide.

As shown on Figure 12, the Merrill-Crowe zinc precipitation process will be used to recover the gold and silver from the leach solutions. We have extensive experience in operation of a Merrill-Crowe plant. Process plant, laboratory, reagent storage, and shop facilities will consist of portable shipping containers. Office facilities will be in a housetrailer. A propane fired furnace will be used to smelt the precipitates to form silver-gold bullion.

Three-phase power is available from a transmission line, owned by the San Miguel Power Association, which cuts through the property. The Association has given a quote of $9,000 to connect the processing site to the power line. Water is available from a spring near the old townsite. A decree is in hand which permits use of the water.

FINANCIAL PROJECTIONS

Based on the available metallurgical information, we assume a recovered grade of 0.040 oz/ton gold and 1.50 oz/ton silver. Therefore, at $400/ounce gold and $6.00/ounce silver prices:

Recovered Value = 0.040 oz/t Au x $400/oz + 1.50 oz/t Ag x $6.00/oz

= $25.00 per ton

Gross Recovered value = $25/ton x 146,000 tons

= $3,628,000

The attached Preliminary Spreadsheet gives an overview of the financial outlook for the project at $25 per ton recovered value for the material. The fixed investment and working capital requirements to a positive cash flow are estimated at $350,000 and $200,000 respectively for a total of $550,000.

It is projected that the investment would be recovered over the first operating season. The completed project would have a net profit before tax, but after repayment of investment, of $1.53 million.

December, 1988
G. D. Van Voorhis
A. T. Swarthout

Table II. Alta Tailings Leach Project Spreadsheet.

Alta12/88	4th q 88	1st q 89	4/89	5/89	6/89	7/89	8/89	9/89	10/89	11/89 -4/90	5/90	6/90	7/90	8/90	9/90	10/90	11/90 -4/91	5/91	6/91	Total
Fixed Investment ($000)																				
Legal & Permitting	10	5	25																-25	15
Engineering	5	5																		10
Vehicles			25																-12	13
Recovery Plant			20																-10	10
Agglomerator		25	35																-25	35
Lab Equipment				5															-3	2
Buildings, Fences		5	10	5															-5	15
Leach Pads					150							125								275
Water Supply				5																5
Power Supply				15																15
Subtotal	15	40	115	30	150	0	0	0	0	0	0	125	0	0	0	0	0	0	-80	395
Operating Costs ($000)																				
Equipment Rentals				10	15	15	15	15	5	5	10	15	15	15	15	5		5	10	170
Payroll		5	5	5	14	14	14	14	14	30	7	14	14	14	14	14	20	7	7	226
Cyanide					14	28	41	41	41			41	55	55	55	28				399
Cement & Lime					4	8	11	11	11			11	15	15	15	8				109
Power, Fuel, Lub				1	2	3	3	3	3	8	2	3	3	3	3	3	6	2	1	49
Reagents, assays					3	5	5	5	5	3	3	5	5	5	5	5	5	10	10	79
Parts, Repairs			3	3	3	3	3	3	3	3	3	3	3	3	3	3	5	1		48
Office, G&A			5	10	4	4	4	4	4	10	7	4	4	4	4	4	5	4	2	83
Management Fees		5	10	10	10	10	10	10	10	20	10	10	10	10	10	10	10	5	5	175
Royalties	33	7	3	2	3	2	3	3	37	55			19	44	48	48	56			363
Subtotal	33	17	26	41	72	92	109	109	133	134	42	106	143	168	172	128	107	34	35	1701
TOTAL COSTS	48	57	141	71	222	92	109	109	133	134	42	231	143	168	172	128	107	34	-45	2096
Sales ($000)						250	308	372	372	186		186	436	480	480	375	183			3628
Sales Less Costs	-48	-57	-141	-71	-222	158	199	263	239	52	-42	-45	293	312	308	247	76	-34	45	1532
Cummulative Net	-48	-105	-246	-317	-539	-381	-182	81	320	372	330	285	578	890	1198	1445	1521	1487	1532	
Production Summary																				
Tons Agglomerated (000)					5	10	15	15	15			15	20	20	20	10				145
Cummulative Tons (000)					5	15	30	45	60			75	95	115	135	145				
Ounces Gold Produced						400	500	600	600	300		300	700	750	750	600	300			5800
Ounces Silver Produced						15000	18000	22000	22000	11000		11000	26000	30000	30000	22500	10500			218000

EXPLAINATION OF COSTS

Legal & Permitting	Costs of setting up joint venture or partnership and permitting. A $25,000 bond is anticipated as a permit stipulation.
Engineering	Preparation of maps and drawings for permit application. Design work for leach pads recovery plant and agglomeration equipment. Additional metallurgical test work.
Recovery Plant	Fabrication of a 100 gpm Merrill Crowe plant.
Agglomerator	Design and fabrication of an 100 tph rotating drum agglomerator with loading hoppers and conveyors.
Laboratory Equipment	AA photospectrometer, scales and balances, etc.
Buildings & fences	Shipping containers to serve as plant, lab, and chemical storage facilities and house trailers for the office and on-site living accomodations. Leach pad & pond fences.
Leach Ponds	Excavation work, compaction of base layer, installation of HDPE liners by contract crew.
Water Supply	Piping from the spring to the plant site.
Power Supply	Connection to the existing powerline.
Equipment Rentals	D-6 bulldozer, 3-yard loader, 13-yard scraper.
Payroll	Five men, $8/hr base, 60 hrs/wk, 18% taxes.
Cyanide	2.2 pounds per ton @ $1.25/pound delivered.
Cement & Lime	15 lbs/t combined cement and lime @ $0.05.
Power, Fuel & Lub	Electrical power, diesel, and lubricants.
Reagents & Assays	Chemicals such as zinc, diatomaceous earth, acid for precipitate treatment, and fluxes.
Parts & Repairs	Maintenance and repair of agglomerator and recovery plant.
Office, G&A	Rent of office, telephone, liability insurance and part time help.
Management Fees	Payments for management services & expenses.
Royalties	10% NSR royalty to Silver Mountain Industries ($2,500/month minimum preproduction royalty).

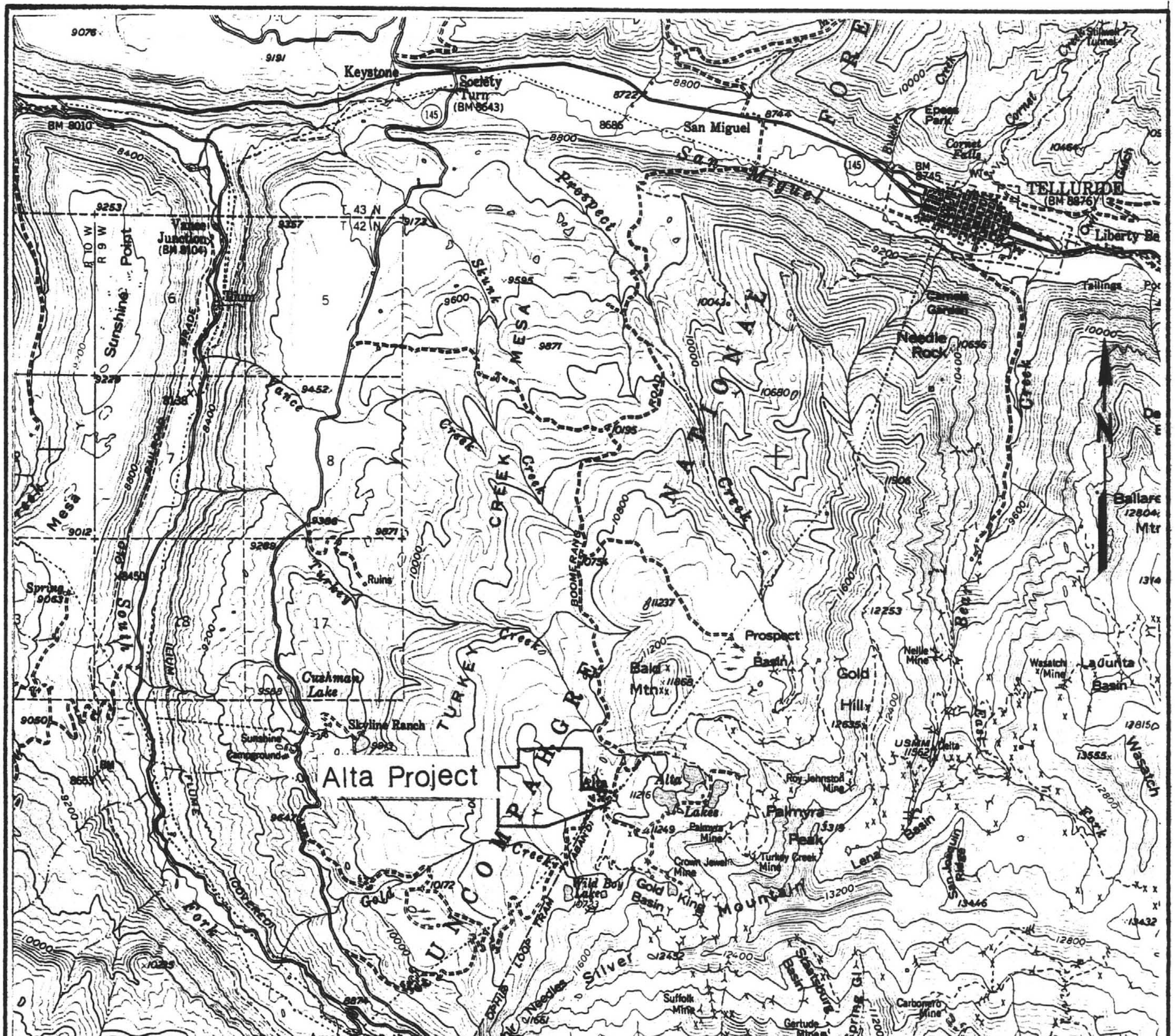


Figure 1. Index Map.

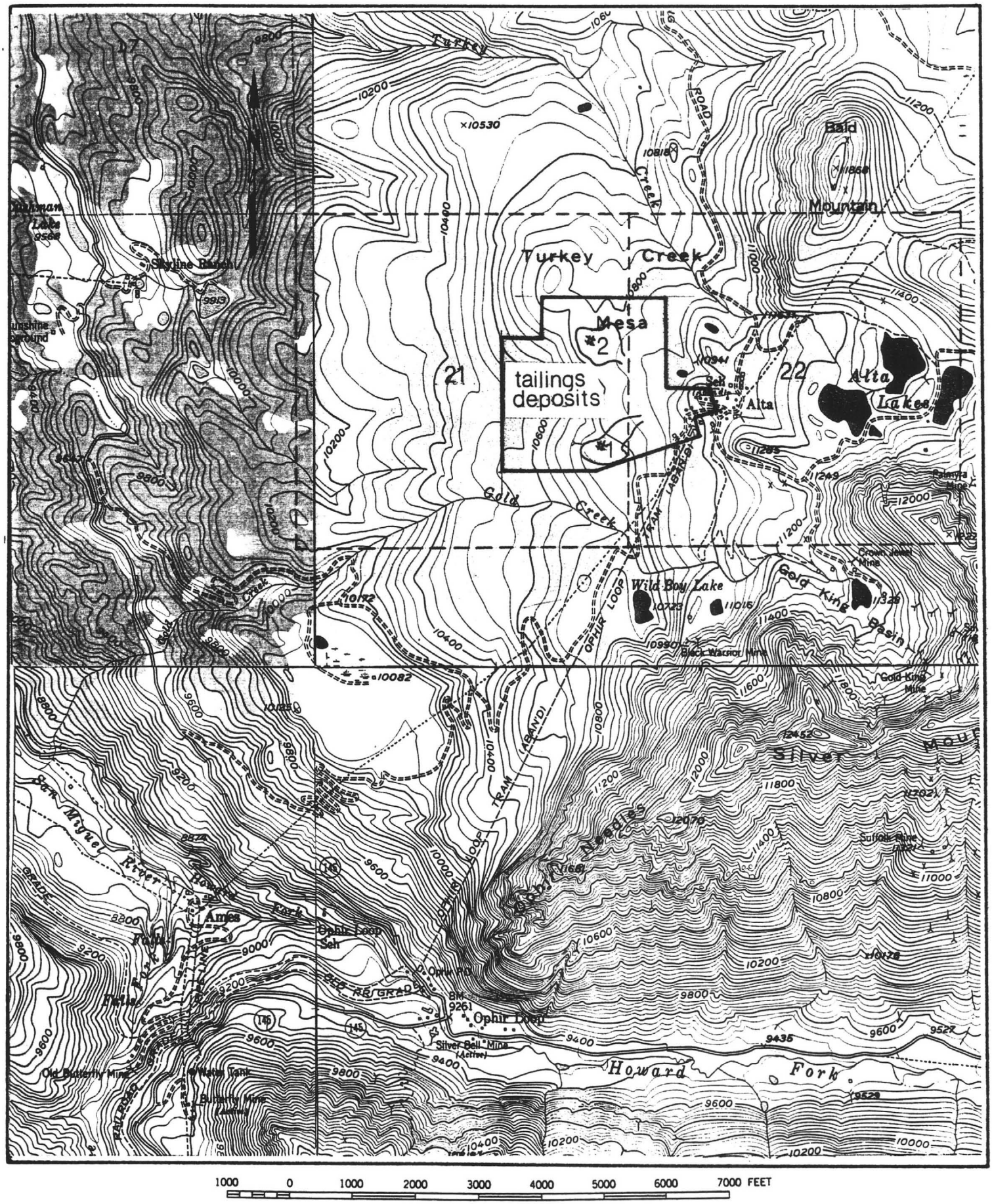


Figure 2. Area Map.

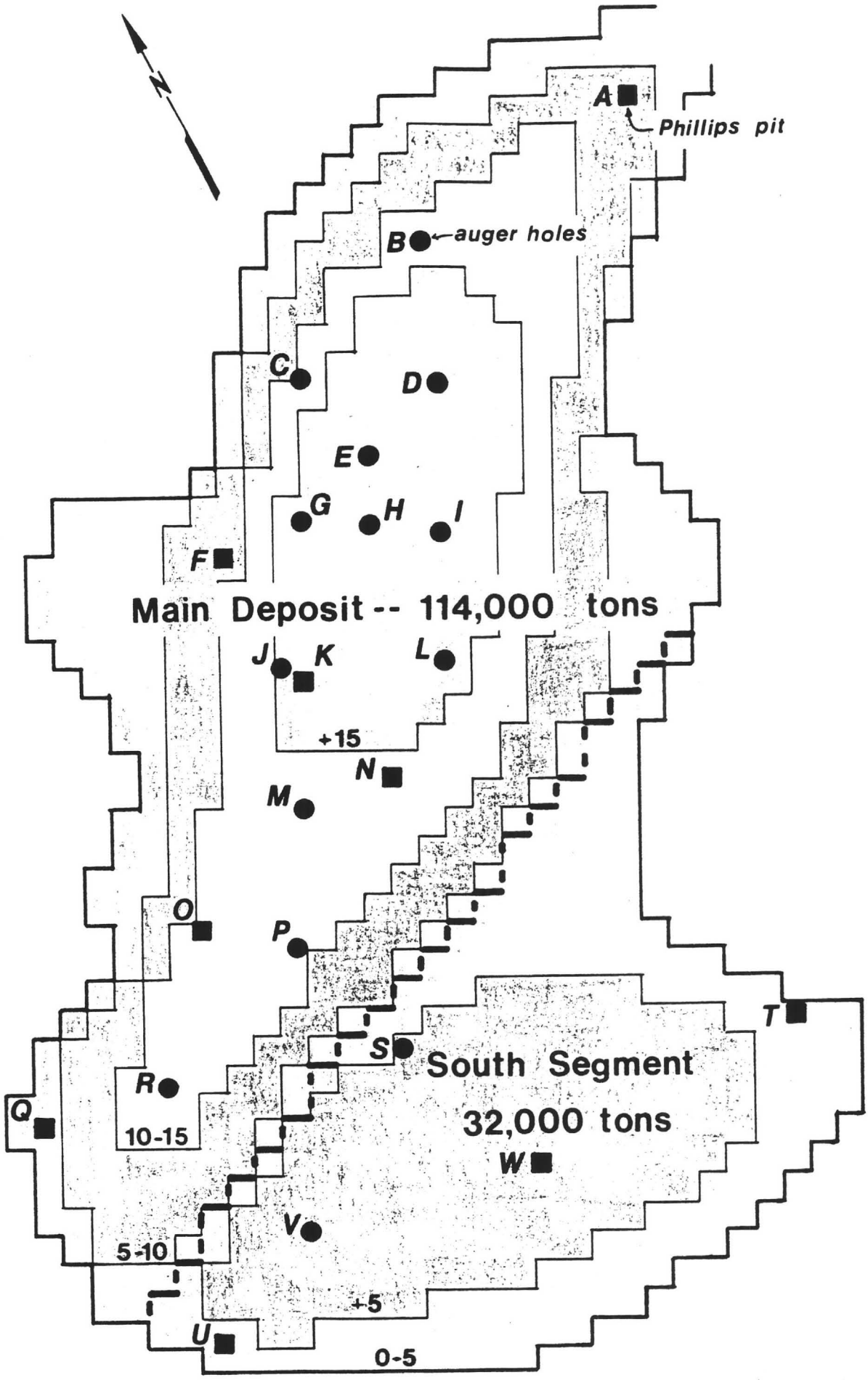


Figure 3. Alta Tailings Leach Project, Ore Reserve Map (1 inch = 100 feet).

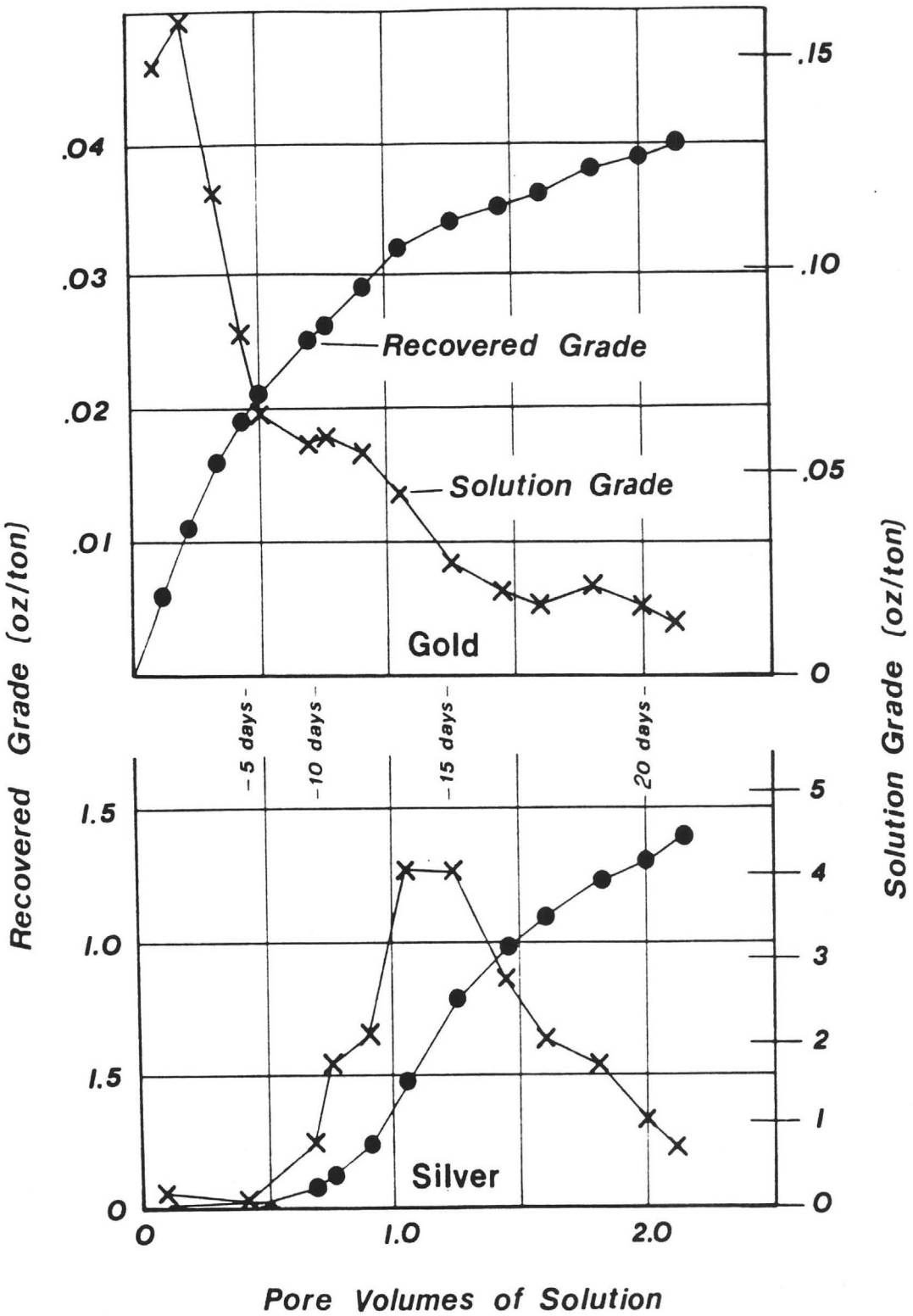


Figure 4. Alta Tailings Leach Project, Column Leach Test Results.
(Dawson Metallurgical Laboratories)

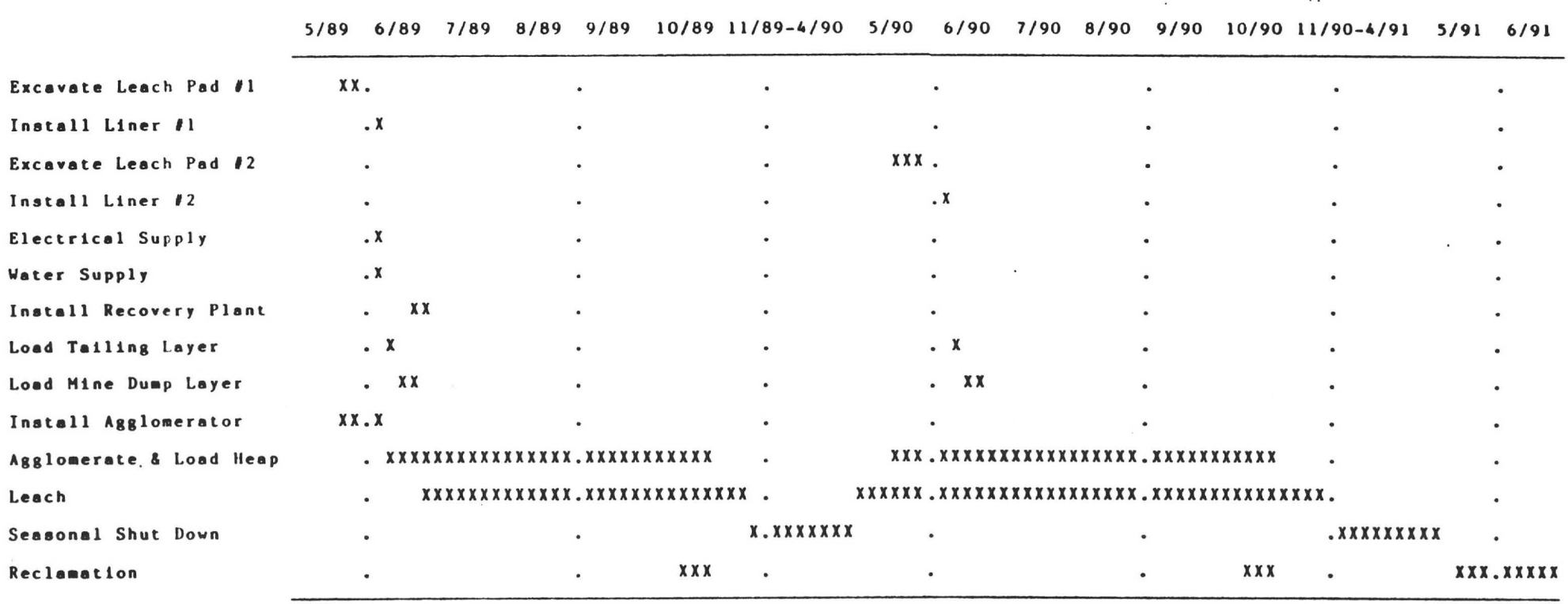


Figure 5. Alta Tailings Leach Project, Schedule.

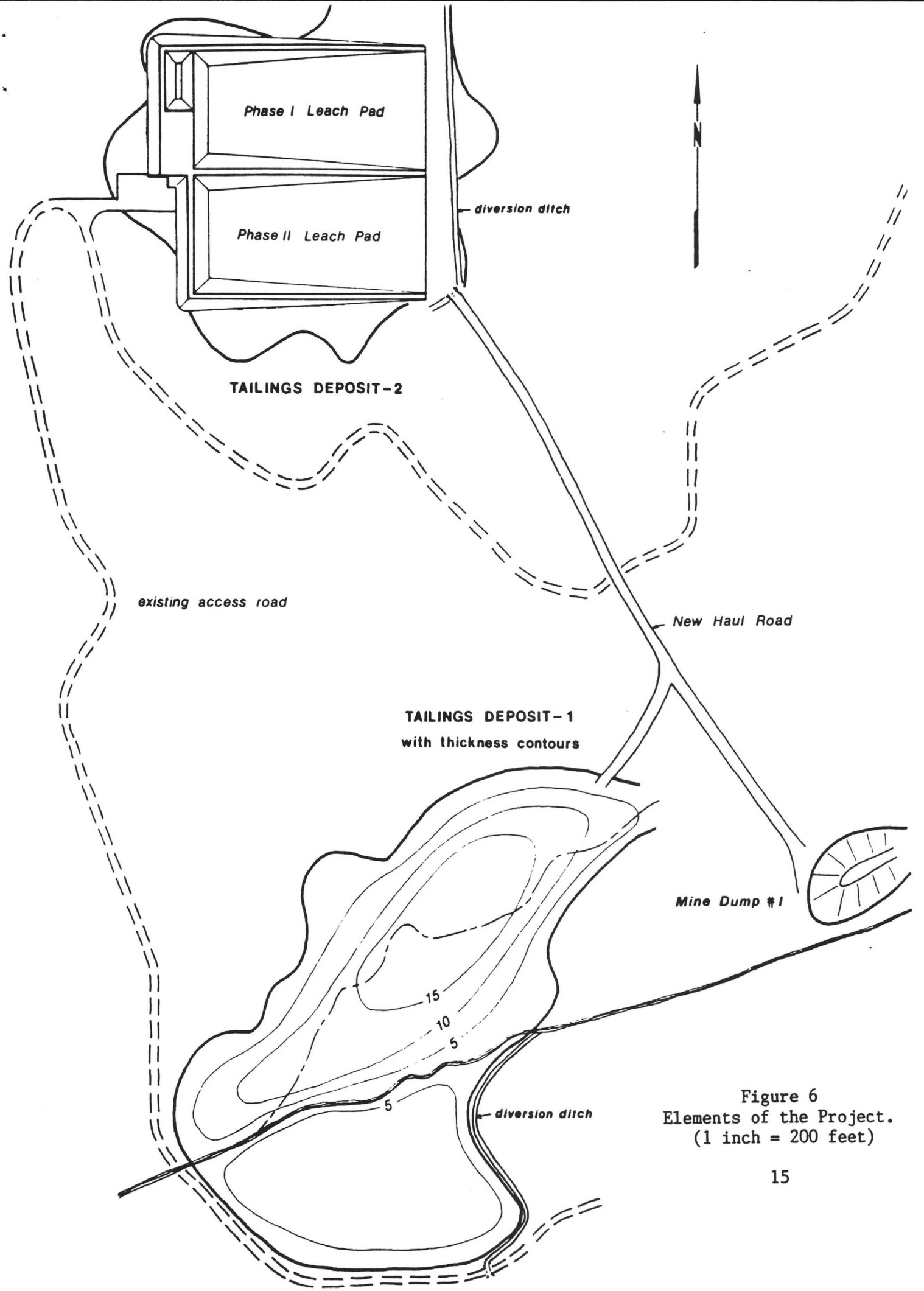


Figure 6
Elements of the Project.
(1 inch = 200 feet)

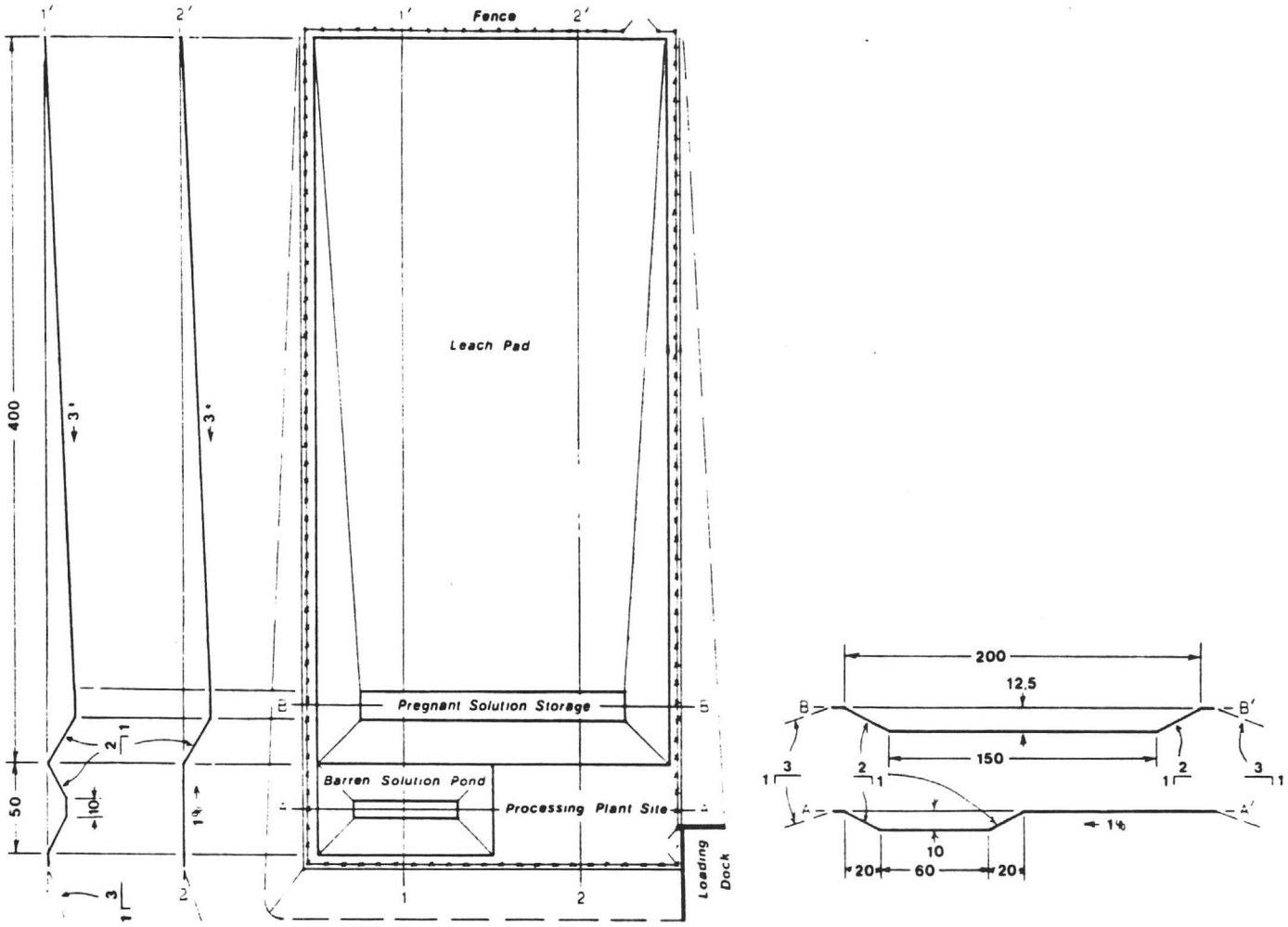


Figure 7. Phase I Leach Pad, Barren Pond, and Process Plant Layout.
(1 inch = 100 feet)

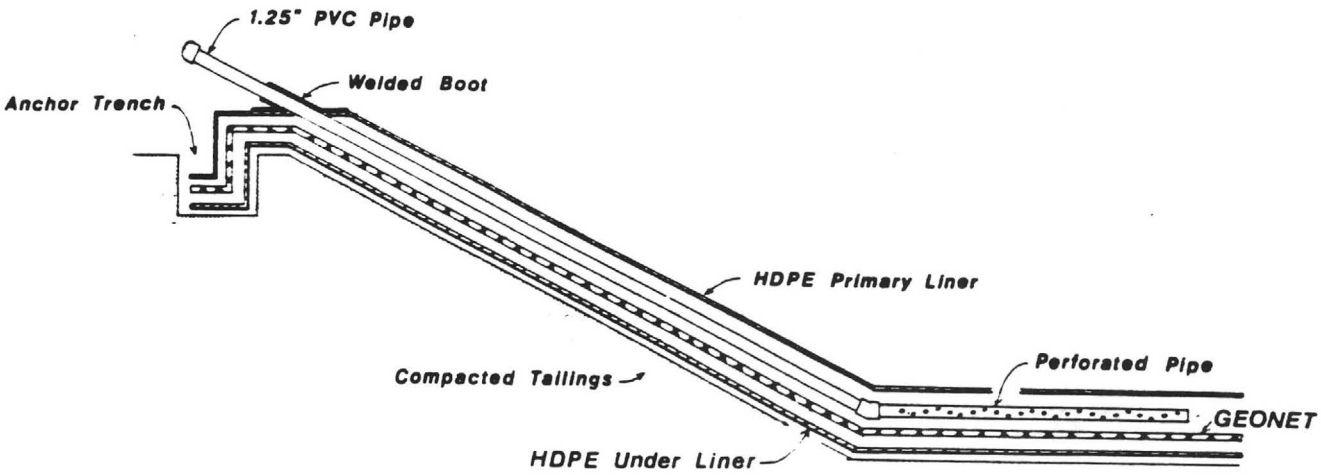


Figure 8. Liner and Leak Detector Detail.

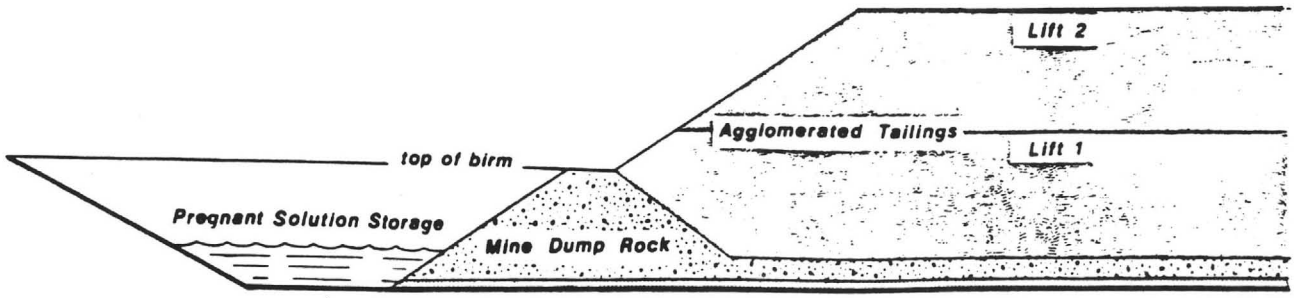


Figure 9. Cross Section Showing Heap Construction.

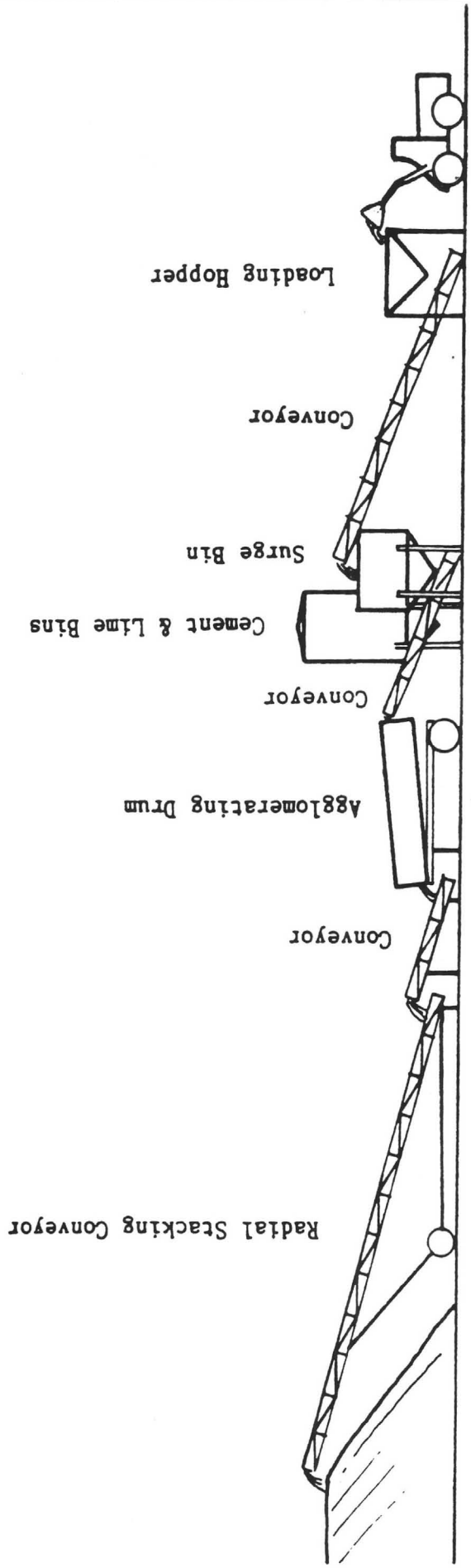
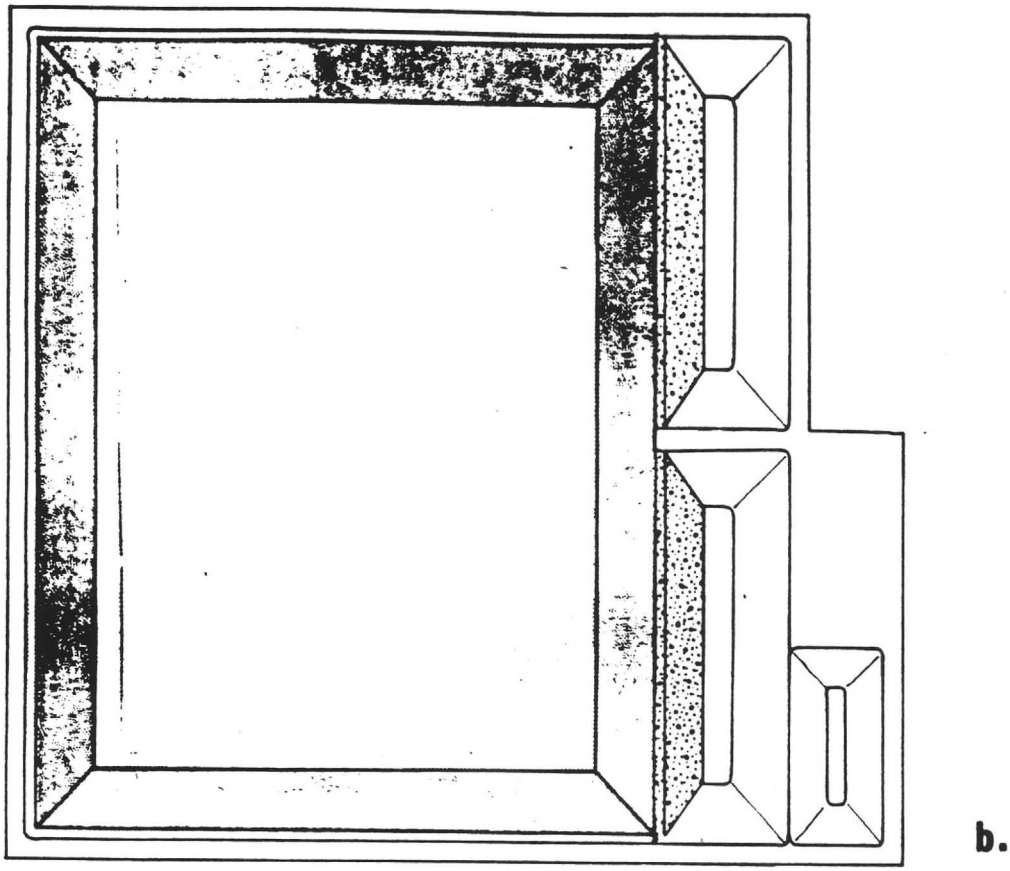
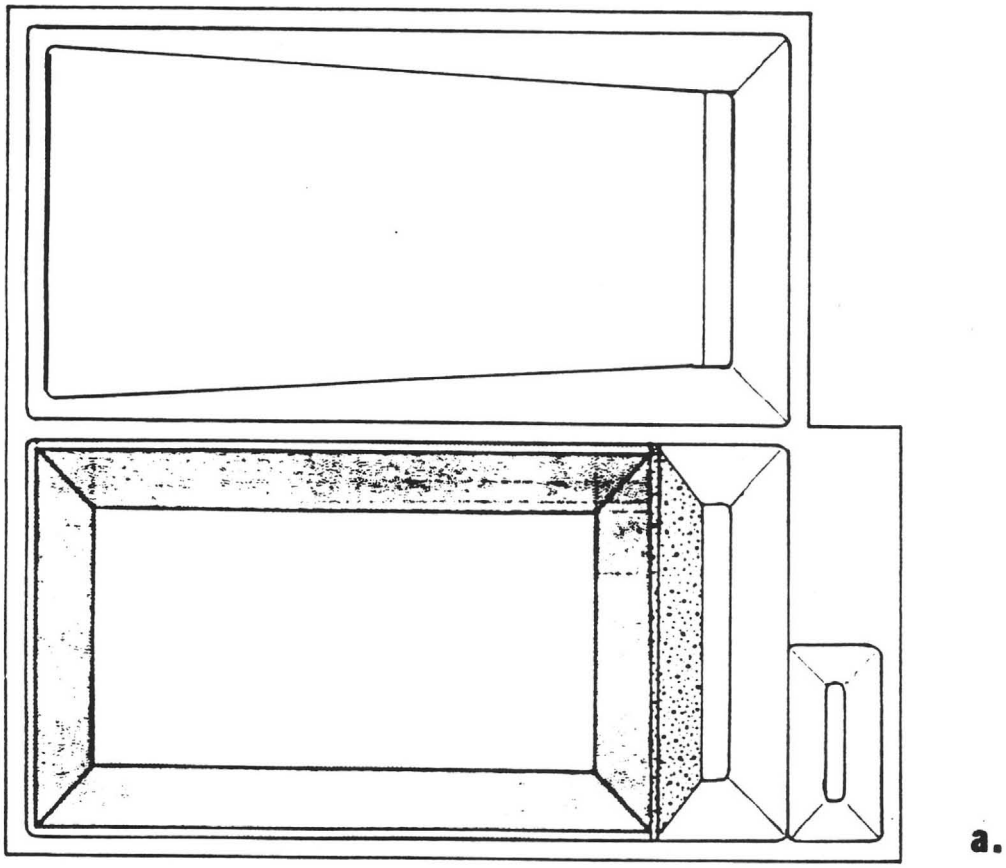


Figure 10. Agglomeration Equipment.



b.



a.

Figure 11. Heap Construction: a) Start of Phase II; b) End of Phase II.

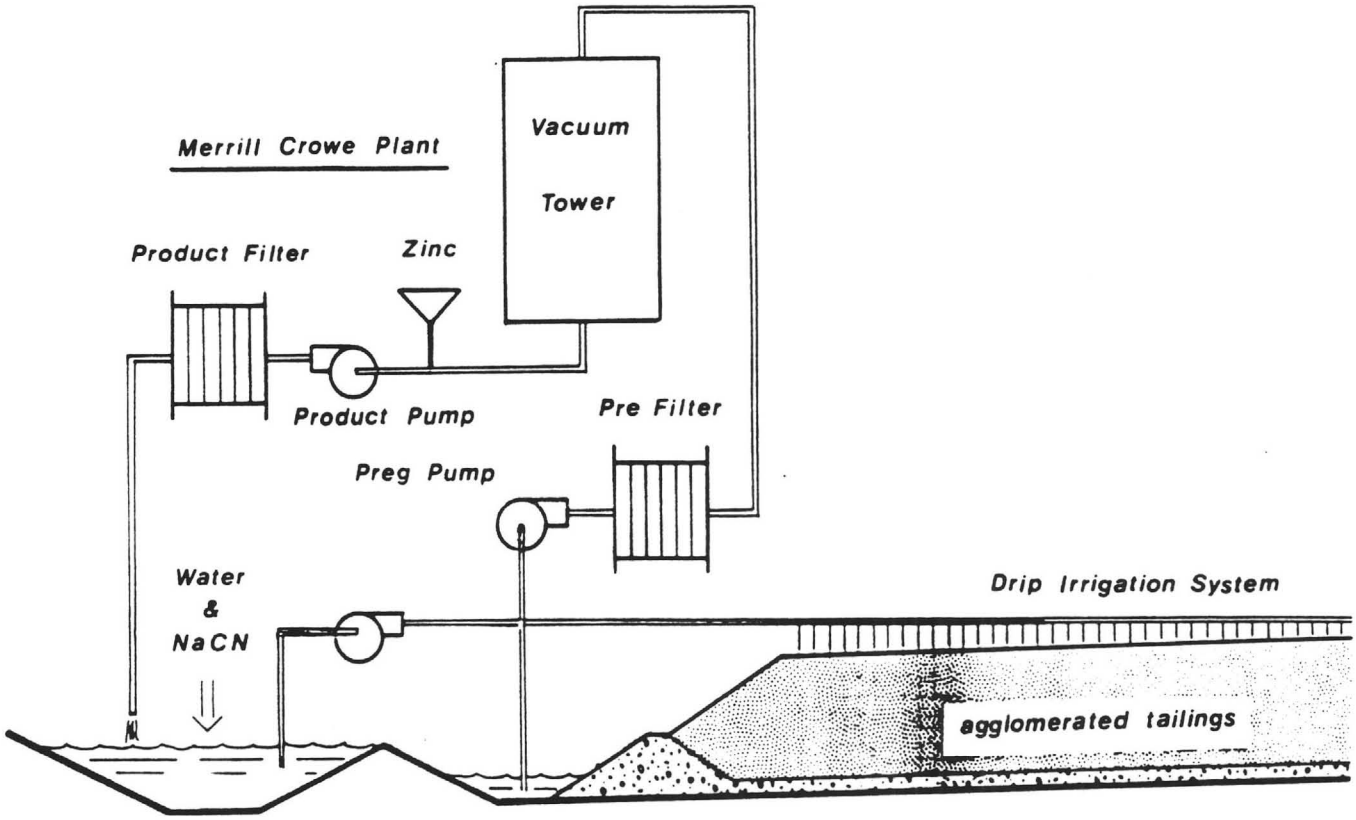


Figure 12. Process Flow Diagram.

APPENDIX 1

DAWSON
METALLURGICAL
LABORATORIES, INC.

P.O. Box 7685
5217 Major Street
Murray, Utah 84107-0685
Phone: 801-262-0922

January 27, 1988

LaPinta Mines, Inc.
1602 East Millcreek Way
Salt Lake City, Utah 84106

Attn: Mr. G.D. Van Voorhis

Subject: Assay Screen Analyses on Leach Residues of Two Composite Samples
Alta Tailings, Our Project No. P-1462.

Gentlemen:

In accordance with our discussions testing was conducted to obtain indications as to the leach residue analyses of size fractions on the two composite samples being evaluated in our laboratory. Because there was not sufficient residue from the initial tests for the assay screen analyses the leaches were repeated in order to obtain material for the screen tests.

The results of the leach tests are compared in the following table:

Comp No.	Test No.	Resi. Assay		Calc Head Assay		%Extraction		NaCN Consumed lb/Ton
		Au	Ag	Au	Ag	Au	Ag	
1	3	.015	0.49	.057	2.11	74.0	76.9	3.3
1	3A	.019	0.44	.059	2.02	67.9	78.3	4.2
2	4	.021	0.61	.066	2.29	68.2	73.5	4.6
2	4A	.015	0.60	.056	2.27	73.4	73.8	5.4

Assay screen analyses on the head samples and leach residues are compared in the following table:

		Composite No. 1								
		Head*				Leach Residue				
Mesh	% Wt	Assay-oz/T		% Dist.		% Wt	Assay-oz/T		% Dist.	
		Au	Ag	Au	Ag		Au	Ag	Au	Ag
+35	18.6	.184	1.40	50.7	12.5	19.8	.041	.58	42.9	25.9
35x100	41.7	.037	1.04	23.0	20.8	43.8	.014	.36	32.4	35.5
100x325	21.3	.045	1.34	14.3	13.6	20.7	.012	.39	13.1	18.2
325x0	18.4	.044	6.03	12.0	53.1	15.7	.014	.58	11.6	20.4
Calc Head	100.0	.067	2.08	100.0	100.0	100.0	.019	.44	100.0	100.0

Composite No. 2

Mesh	Head* % Wt	Head* Assay-oz/T Au	Head* Assay-oz/T Ag	Head* % Dist. Au	Head* % Dist. Ag	Leach Residue % Wt	Leach Residue Assay-oz/T Au	Leach Residue Assay-oz/T Ag	Leach Residue % Dist. Au	Leach Residue % Dist. Ag
+35	17.6	.080	1.12	22.7	8.6	18.3	.027	.53	33.4	16.2
35x100	38.5	.057	1.02	35.3	17.2	40.5	.009	.44	24.6	29.7
100x325	21.1	.057	1.37	19.6	12.7	21.7	.008	.44	11.1	15.8
325x0	22.8	.061	6.16	22.4	61.5	19.5	.023	1.18	30.3	38.3
Calc Head	100.0	.062	2.28	100.0	100.0	100.0	.015	.60	100.0	100.0

* Head Assay Screen Reported 12/30/87

% Extraction Each Size Fraction

	Composite No. 1 Au	Composite No. 1 Ag	Composite No. 2 Au	Composite No. 2 Ag
+35	77.7	58.6	66.3	52.7
35x100	62.2	65.4	84.2	56.9
100x325	73.3	70.9	86.0	67.9
325x0	68.2	90.4	62.3	80.8
Total	67.9	78.3	73.4	73.8

These results would indicate that the gold extractions are variable. However, with the increased silver content in the minus 325 mesh marked increase in silver recovery was obtained in this fraction.

Very truly yours,
DAWSON METALLURGICAL LABORATORIES, INC.

Harmel A. Dawson

Harmel A. Dawson,
President

HAD-cac

DAWSON METALLURGICAL LABORATORIES, INC.

P. O. BOX 7685
5217 Major Street
Murray, Utah 84107-0685
Phone: 801-262-0922

PROJECT NO. P-1462
DATE 1/6/88
BY GSN

TEST NO. 3A NAME Van Voorhis - La Pinta

Assay Screen Leach Residue 72 hour Leach @ 50% Solids & 10 lbs/ton NaCN Comp #1

Product	Weight	Assay Au	Assay Ag	Units Au	Units Ag	Distribution Au	Distribution Ag
Leach Solution	1002.4	0.040	1.58	0.4010	15.838	67.88	78.28
Leach Residue	998.6	0.019	0.44	0.1897	4.394	32.12	21.72
Head Calculated	1000.0	0.059	2.02	0.5907	20.232	100.00	100.00

Product	Weight	% Wt.	Assay Au	Assay Ag	Units Au	Units Ag	Distribution Au	Distribution Ag
+35 mesh	197.8	19.81	0.041	0.58	0.0081	0.115	42.89	25.86
-35 +100	437.9	43.85	0.014	0.36	0.0061	0.158	32.42	35.54
-100 +325	206.6	20.69	0.012	0.39	0.0025	0.081	13.11	18.16
-325	156.3	15.65	0.014	0.58	0.0022	0.091	11.57	20.44
Head Calculated	998.6	100.00	0.019	0.44	0.0189	0.444	100.00	100.00

OPERATION	Mix	NaCN Leach	NaCN Leach	Res.	Wet Screen	Dry Ro Tap	MESH	%
TIME		On 72hr	Off		325			
REAGENTS - LBS PER TON		3:00pm 1/6	1/9					
Comp 1 gm	1000.0							
H_2O ml	1000.0							
CaO gm	1.50							
NaCN		5.0						
NaCN Titrated lbs/T Sol'n			5.75					
CaO Titrated lbs/T Sol'n			0.1					
NaCN Consumed, lbs/T Ore			4.2					
CaO Consumed, lbs/T Ore			2.9					
MACHINE								
R.P.M.								
pH			11.4					
% SOLIDS	50							
TEMPERATURE								

REMARKS:

GRINDI
PRODU

DAWSON
METALLURGICAL
LABORATORIES, INC.

5217 Major Street
Murray, Utah 84107-0685
Phone: 801-262-0922

PROJECT NO. P-1462
DATE 1/6/88
BY GSN
Comp 2

TEST NO. 4A NAME Van Voorhis - LaPinta

Assay Screen Leach Residue 72 hour Leach @50% Solids & 10 lbs/ton NaCN

Product	Weight	Assay Au	Assay Ag	Units Au	Units Ag	Distribution Au	Distribution Ag	
Leach Solution	1003.9	0.041	1.67	0.4116	16.765	73.41	73.76	V1C
Leach Residue	994.1	0.015	0.60	0.1491	5.965	26.59	26.24	
Head Calculated	1000.0	0.056	2.27	0.5607	22.730	100.00	100.00	

Product	Weight	% Wt.	Assay Au	Assay Ag	Units Au	Units Ag	Distribution Au	Distribution Ag	V1G
+35 mesh	182.0	18.31	0.027	0.53	0.0049	0.097	33.39	16.15	
-35 +100	402.4	40.48	0.009	0.44	0.0036	0.178	24.61	29.65	
-100 +325	216.0	21.73	0.008	0.44	0.0017	0.096	11.74	15.92	
-325	193.7	19.48	0.023	1.18	0.0045	0.230	30.27	38.28	
Head Calculated	994.1	100.00	0.015	0.60	0.0148	0.601	100.00	100.00	

OPERATION	Mix		NaCN Leach		NaCN Leach	Res	Wet Screen	Dry Ro Tap					GRINDING PRODUCT	
TIME			On	72hr	Off		325							
REAGENTS - LBS PER TON			3pm 1/6		1/9									
Comp 2 gm	1000.0											MESH	%	
H_2O ml	1000.0											+ 10		
CaO	2.0											+ 14		
NaCN			5.0									+ 20		
												+ 28		
NaCN Titrated lbs/T Sol'n					5.43							+ 35		
CaO Titrated lbs/T Sol'n					0.1							+ 48		
NaCN Consumed lbs/T Ore					5.4							+ 65		
CaO Consumed lbs/T Ore					3.9							+ 100		
												+ 150		
MACHINE												+ 200		
R.P.M.												+ 325		
pH					11.4							-325		
% SOLIDS	50													
TEMPERATURE														

REMARKS: