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y 1984)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Serial Number
N-50229

MINERAL REPORT

Mineral Patent Application of COYOTE MINES, INC.
for the COYOTE MILL SITE #1, COYOTE MILL SITE #2,
COYOTE MILL SITE #3, COYOTE MILL SITE #4, COYOTE
MILL SITE #5, and COYOTE MILL SITE #6 Mill Site Claims

(TITLE)

LANDS INVOLVED

Clark County, Nevada

Legal Description

T. 28 S., R. 63 E., MDM
Section 22, Lots 14-21
and W½SE¼NE¼SE¼

Containing 24.35 Acres

Prepared by: Mark R. Chatterton

Certified Mineral Examiner #0058
Title

July 22, 1999
Date

BUREAU OF LAND MANAGEMENT
CERTIFIED
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Technical Approval:

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7/28/99
Date

Management Acknowledgment:

Michael J Dwyer
Name

Field Manager
Title

8/2/99
Date

Form 3060-1
(y 1984)

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Technical Approval - BLM Directorate:

Name

Title

Date

Concurrence - Office of the Solicitor:

Name

Title

Date

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Abbreviations Used in Report

AC	Alternating Current
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
CMI	Coyote Mines, Incorporated
ESA	Endangered Species Act
F	Fahrenheit
FLPMA	Federal Land Policy and Management Act
HP	Horse Power
KVA	Kilovolt
MDM	Mount Diablo Meridian
MPA	Mineral Patent Application
NDEP	NV Dept. of Environmental Protection
NDOT	Nevada Department of Transportation
NE	Northeast
NV	Nevada
ozt	Ounces Per Ton
PSI	Pounds per Square Inch
R/W	Right-of-Way
R&PP	Recreation and Public Purpose Act
SE	Southeast
W	West

1. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Coyote Mines, Inc. filed a mineral patent application on December 12, 1988, with the Nevada State Office of the Bureau of Land Management, in Reno, Nevada. The application is for 6 mill site claims which include COYOTE MILL SITE #1, COYOTE MILL SITE #2, COYOTE MILL SITE #3, COYOTE MILL SITE #4, COYOTE MILL SITE #5, and COYOTE MILL SITE #6.

The mill site claims are located in association with 3 patented lode claims and 10 unpatented lode and placer claims owned by the applicant and in the immediate vicinity of the subject mill sites. The mill sites are located adjacent to the patented lodes and they were evaluated for the potential of finding mineral deposits within the limits of the mill sites. The conclusion of the author is that the subject claims are not mineral-in-character.

Since the filing of the mineral patent application, Coyote Mines, Inc. has operated the mine and mill. Shut downs have occurred when equipment has worn out and is being replaced or because of employee turnover. Currently a gravity separation mill is in-place and capable of operating, however, it is currently shut down. The claimants have elected to change the recovery method from a gravity separation system to a small heap leach system to improve recovery. This is a reasonable action taken by Coyote Mines, Inc. and will ensure a greater return on their investment.

The claimants have used consultants to define the mineral resources on the patented mining claims. They have identified approximately 107,000 in-place tons on the patented Coyote, John and Sanford, and Whist lodes. An additional 9,500 tons are stockpiled on COYOTE MILL SITE #5 and COYOTE MILL SITE #6. These resources contain approximately 25,400 ounces of gold and 18,600 ounces of silver. Through the use of a mine model, CMI estimate by open pit mining that approximately 94 percent of the in-place resource or approximately 100,600 tons would be recovered. Combining this with the existing stockpiles the total resources is approximately 110,000 tons. These resources contain approximately 23,900 ounces of gold and 17,500 ounces of silver.

The gravity separation mill is capable of operating at a profit with the current price of gold. However, the recovery rate of the current mill is only 60 percent. Coyote Mines, Inc. has determined that the deposit is amenable to heap leach recovery with a significant improvement in recovery. Capital and operating costs of the leaching system have been evaluated and it is the author's conclusion that it also can operate at a profit. Coyote Mines, Inc. has already begun the process of siting the heap leach circuit and they anticipate obtaining their operating permit from the State of Nevada very shortly.

While a specific analysis of the total cost of improvements has not been made for the Coyote Mill Site claim group it is clear that several thousand dollars have been spent improving the claim group and putting their mill into operation.

Based on the author's findings and evaluation of Coyote Mines, Inc.'s use and occupancy of the claims it is concluded that COYOTE MILL SITE #1, COYOTE MILL SITE #2, COYOTE MILL SITE #3, Lot 17 of COYOTE MILL SITE #5, and Lot 15 of COYOTE MILL SITE #6 are being held in good faith and have qualifying uses for receiving a patent. The remaining mill site claim and portions of claims, COYOTE MILL SITE #4, Lot 16 of COYOTE MILL SITE #5, and Lot 14 of COYOTE MILL SITE #6, are on lands that are open to mineral entry and could be held in good faith to support the unpatented lode and placer mining claims held by the company. However, if not withdrawn from the mineral patent application the BLM will be obligated to contest these claims.

In summary there are 3 mining claims which have been previously patented that are associated with this patent application. Coyote Mines, Inc. has no other previously patented mining claims or mill sites. Based on review of CMI's qualifying occupancy and use of the subject mill sites they qualify for 14.35 acres of the current mineral patent application. Tables I and II provide the pertinent data.

Table I - Qualifying Mill Site Acreage

Number of Associated Mining Claims Previously Patented	Number of Associated Mining Claims Qualifying for Patent Under Concurrent Patent Application	Number of Associated Mill Sites Previously Patented	Resulting Mill Site Acreage Qualifying for Patent
3	0	0	14.35

Table II - Previously Patented Mining Claims and Mill Sites

Patent Number	Mineral Survey Number	Claim Name and Type of Claim(s) Patented (L=Lode) (P=Placer) (MS=Mill Site)	Date of Patent	Patentee
39608	2060	Coyote (L)	9/16/1904	Southern Nevada Mining and Milling Co.
976974	4578	John and Sanford (L) Whist (L)	3/31/1926 3/31/1926	Sanford A. Shuler Sanford A. Shuler

RECOMMENDATIONS

It is the author's recommendation that the COYOTE MILL SITE #1, COYOTE MILL SITE #2, COYOTE MILL SITE #3, Lot 17 of COYOTE MILL SITE #5, and Lot 15 of COYOTE MILL SITE #6 claims be clearlisted for patent. No reservations for rights-of-way are required for the recommended clearlist area because Coyote Mines Inc. either owns the right-of-way or the mill sites predate the grants. (Personal communication with Nevada State Office adjudication.) The acreage contained by this recommended clear listing is 14.35 acres, which is within the acreage limitations contained in the Solicitor's Opinion, M-36988 entitled, Limitations on Patenting Millsites under the Mining Law of 1872. The balance of the mill sites, COYOTE MILL SITE #4, Lot 16 of COYOTE MILL SITE #5, and Lot 14 of COYOTE MILL SITE #6 should be contested unless they are withdrawn from the mineral patent application.

2. INTRODUCTION

On December 12, 1988, Coyote Mines, Incorporated (CMI) submitted a mineral patent application (MPA) to the Nevada State Office of the Bureau of Land Management (BLM) in Reno, Nevada. On December 21, 1989, the Nevada State Office issued a decision notifying the applicant that mineral entry final certificate, has been issued dated December 19, 1989 for the following mill sites:

Name	BLM Serial No.	Type
COYOTE MILL SITE #1	NMC 455004	Mill Site
COYOTE MILL SITE #2	NMC 455005	Mill Site
COYOTE MILL SITE #3	NMC 533902	Mill Site
COYOTE MILL SITE #4	NMC 533903	Mill Site
COYOTE MILL SITE #5	NMC 533904	Mill Site
COYOTE MILL SITE #6	NMC 533905	Mill Site

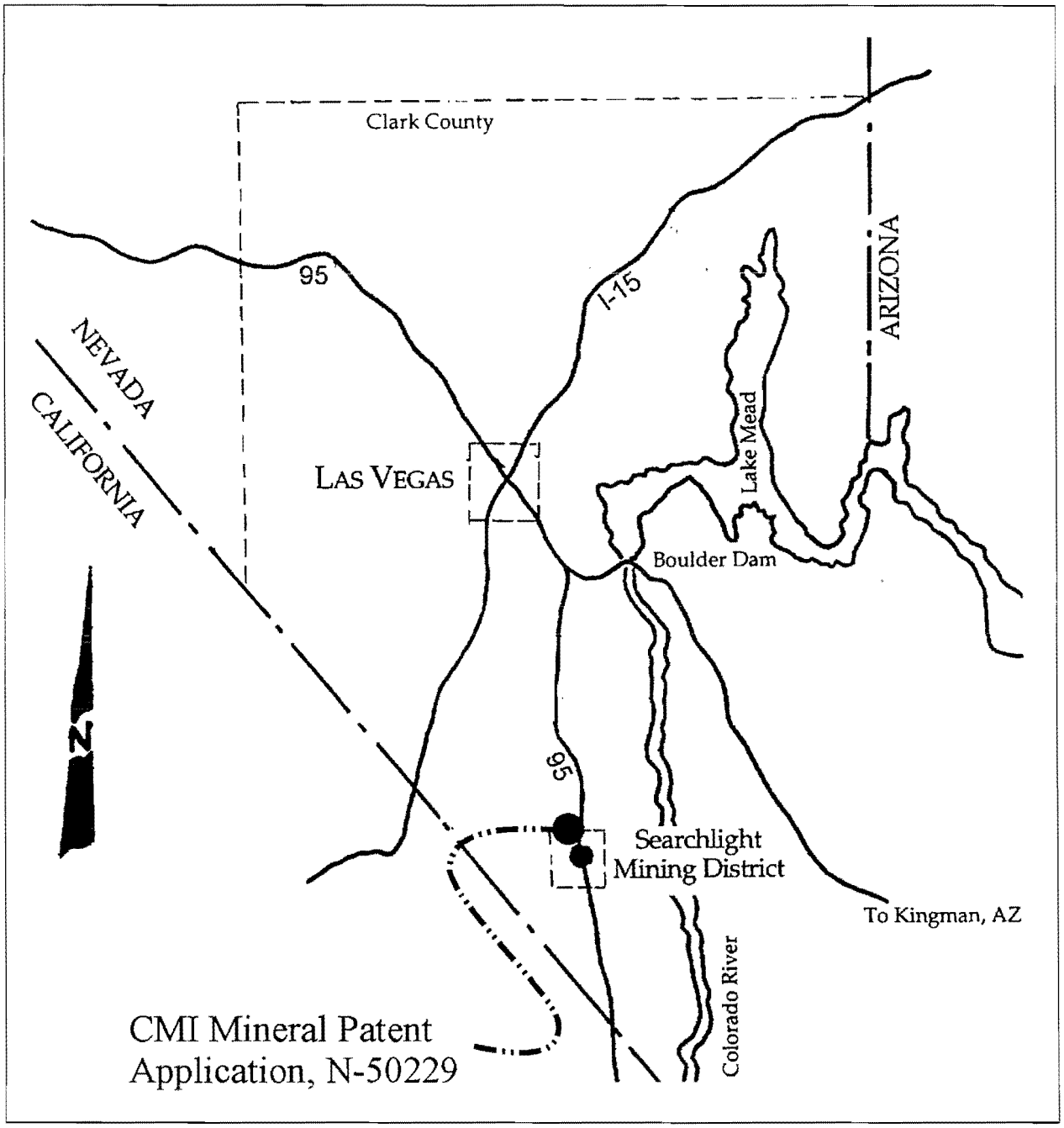
Prior to the issuance of the December 21, 1989, decision the State Director forwarded the case to the Las Vegas District (now the Las Vegas Field Office) requesting a field examination. The case was assigned to the author at that time. The general location of these mill sites is depicted on Map 1. The subject mill sites were located under the authority of the 1872 Mining Law, as amended (30 U.S.C. 29) and Federal regulations (43 CFR 3861 and 3862). The mill sites are dependent and associated with three previously patented lodes as well as several unpatented lode and placer mining claims which do not contribute to this MPA.

The purpose of this report is to determine if the requirements for proper use of the dependent mill sites under the General Mining Law of 1872, as amended have been met. This means that the mill sites are located on nonmineral-in-character land, that the area occupied by the mill sites are being used efficiently, and that the use and occupancy of the mill sites is proper for mining or milling purposes.

On April 27, 1990, CMI was notified by mail that the BLM was ready to conduct the field exam portion of their mineral patent application. The author's first site visit was on May 12, 1990. Since that first site visit, the author has visited the site many times and observed various activities on the mill sites. During these site visits various operational activities have been observed. They include running the mill, recovering gold from concentrates, doing production assays, mining from the patented lodes, maintaining equipment (both mine and mill), replace broken equipment, and install new equipment. When the author had questions concerning CMI's operations or when additional data was needed they always provided the requested information in a timely manner.

This report is based on site visits, previous reports, published and unpublished literature, data collected by CMI, samples taken by CMI, and interviews with the claimants and people knowledgeable about the mining, manufacturing, and marketing of small scale lode gold deposits. The purpose of this report is to present the findings and conclusions of the mineral examiner's investigation of the mill sites included in CMI's mineral patent application. These

findings and conclusions were used to formulate the mineral examiner's professional opinion as to the validity of the mill site claims examined and should not be used for purposes other than that for which the report was prepared and intended by the mineral examiner.



Map 1 - Index Map to CMI Mineral Patent Application N-50229

Source: Coyote Mines, Inc. A Small Mining & Milling Business, Corporate Profile, not dated. Map modified from original and adapted for this report by Mark R. Chatterton, March 4, 1999. Map not to scale.

3. LAND STATUS AND MINING CLAIM RECORD DATA

a. Land Status

Generally, the COYOTE MILL SITE claim block is found in Clark County, Nevada and more specifically in the southeast quarter of section 22, Township 28 South, Range 63 East, Mount Diablo Meridian (MDM). The subject claims contain an aggregate of 24.35 acres. These lands are located approximately 56 miles south of downtown Las Vegas, Nevada (See Map 1). Map 2 illustrates the location of the mill sites as they relate to the mineral patents held by CMI. Table III reflects the site specific legal description of each mill site. A copy of the Master Title Plat and all Historical Index pages for the MPA are in Appendix 1.

Table III - Legal Description of the COYOTE MILL SITE Claims

Claim Name	Serial #	Township	Range	Section	Subdivision	Acres
COYOTE MILL SITE #1	455004	28 South	63 East	22	Lot 20 Lot 21	2.49 1.54
COYOTE MILL SITE #2	455005	28 South	63 East	22	Lot 18	3.56
COYOTE MILL SITE #3	533902	28 South	63 East	22	Lot 19	2.50
COYOTE MILL SITE #4	533903	28 South	63 East	22	W½SE¼NE¼SE¼	5.00
COYOTE MILL SITE #5	533904	28 South	63 East	22	Lot 16 Lot 17	2.50 2.04
COYOTE MILL SITE #6	533905	28 South	63 East	22	Lot 14 Lot 15	2.50 2.22
					Total Acres	24.35

Table IV lists the survey monuments located during the course of this field investigation. The survey was conducted by the General Land Office and completed between April 15, 1939, and April 27, 1940. Figure 1 is a photo of the ¼ corner of sections 22 and 23, T. 28 S., R. 63 E., MDM. This ¼ corner is the northeast corner of COYOTE MILL SITE #6 and the claim block.

Figure 1 - Photo of brass cap ¼ corner, sections 22|23, T. 28 S., R. 63 E. MDM. Photo taken by Mark Chatterton, 1/6/1999.

Table IV - Survey Monuments

Cadastral Survey Monuments Recovered for T 28 S R 63 E During Field Examination				
Type	Sections	Zone 11 UTM Coordinates		Remarks
		Northing	Easting	
Section	14,15,22,23	3930417	688841	Brass Cap
Section	15,16,21,22	3930427	687242	Brass Cap
Quarter	22,23	3929600	687253	Brass Cap
Section	21,22,27,28	3928774	687263	Brass Cap
Section	22,23,26,27	3928809	688874	Brass Cap
Quarter	21,22	3929613	688857	Brass Cap

b. Permits

i. Water Pollution Control Permit NEV94113

On May 22, 1995, CMI received an approved Water Pollution Control Permit, NEV94113. This permit is for a small gravity separation mill for gold. It is effective for 5 years. The claimant is in the process of renewing this permit but is amending it to include a cyanide heap leaching circuit.

ii. Nevada State Reclamation Permit

On June 14, 1991, CMI filed a Small Mining Operations form with the Department of Environmental Protection, Bureau of Mining Regulation and Reclamation. This document can be found in Appendix 2. It indicates that CMI's area of disturbance is 4.07 acres which is less than the 5 acre requirement for obtaining a Reclamation Permit under State statute. CMI indicates that the patented property involved with the project are the areas encompassed by the Mineral Surveys.

Follow up inspections have been completed by the Department of Environmental Protection, Bureau of Mining Regulation and Reclamation in 1992 and several times since then. To date, the Department has not required CMI to obtain a Reclamation Permit. Appendix 3 contains two letters from CMI which address their compliance with the State of Nevada mining statutes.

CMI has filed a modification of the permit with the Department of Environmental Protection to modify their existing operations by including a small heap leach circuit. This modification request will be fully discussed later. If authorized, then CMI will eventually exceed the 5 acre limitation, however they will not exceed 5 total acres of disturbance on public lands.

iii. Surface Management Under 43 CFR 3809

CMI currently has a Notice on file with the Las Vegas Field Office. It is serialized as N54-90-052N. The Notice describes the proposed activities of milling stockpiles located on the Coyote patent and patent application areas. The Notice describes the milling process using a gravity separation circuit which uses a ball mill, a series of Reichert Spirals, and a shaking table. On October 21, 1996, an amendment to the Notice was prepared and submitted indicating that an impact mill would be used instead of a ball mill. On March 2, 1999 CMI again amended their notice by submitting an Application for Permit Modification to the Department of Environmental Protection. This amendment addresses a change in direction from a gravity separation system and a heap leach system.

c. Claim Data

The COYOTE MILL SITE claim group consists of 6 mill sites that are dependent on both patented lodes and unpatented lodes and placers. Table V lists the location information associated with the 6 mill sites that are the subject of this report.

Table V - CMI Claim Block Filing Information

Claim Name	BLM Serial Number	Date Located	County Book	Page
COYOTE MILL SITE #1	455004	11/23/1987	871201	00511
COYOTE MILL SITE #2	455005	11/23/1987	871201	00512
COYOTE MILL SITE #3	533902	11/15/1988	881206	00539
COYOTE MILL SITE #4	533903	11/15/1988	881206	00540
COYOTE MILL SITE #5	533904	11/15/1988	881206	00541
COYOTE MILL SITE #6	533905	11/15/1988	881206	00542

The Coyote mill site claim group is dependent on both patented and unpatented lode claims. Currently the patented claims held by CMI are:

Coyote	MS 2060	Patent No. 39608	Issued on 9/16/1904 to Southern Nevada Mining and Milling Co.
John and Sanford	MS 4578	Patent No. 976974	Issued on 3/31/1926 to Sanford Shuler
Whist	MS 4578	Patent No. 976974	Issued on 3/31/1926 to Sanford Shuler

There are no previously patented mill site claims. In addition to the 6 mill sites that are the subject of this MPA, CMI holds the following unpatented claims:

Name	Serial Number	Type	Location Date	Assessment
Coyote Blackbird	704732	Lode	9/17/1994	Current
Coyote Bluebird	720704	Lode	9/26/1995	Current
Coyote Redbird	720705	Lode	9/26/1995	Current
Coyote Bird #1	720706	Placer	9/26/1995	Current
Coyote Bird #2	720707	Placer	9/26/1995	Current

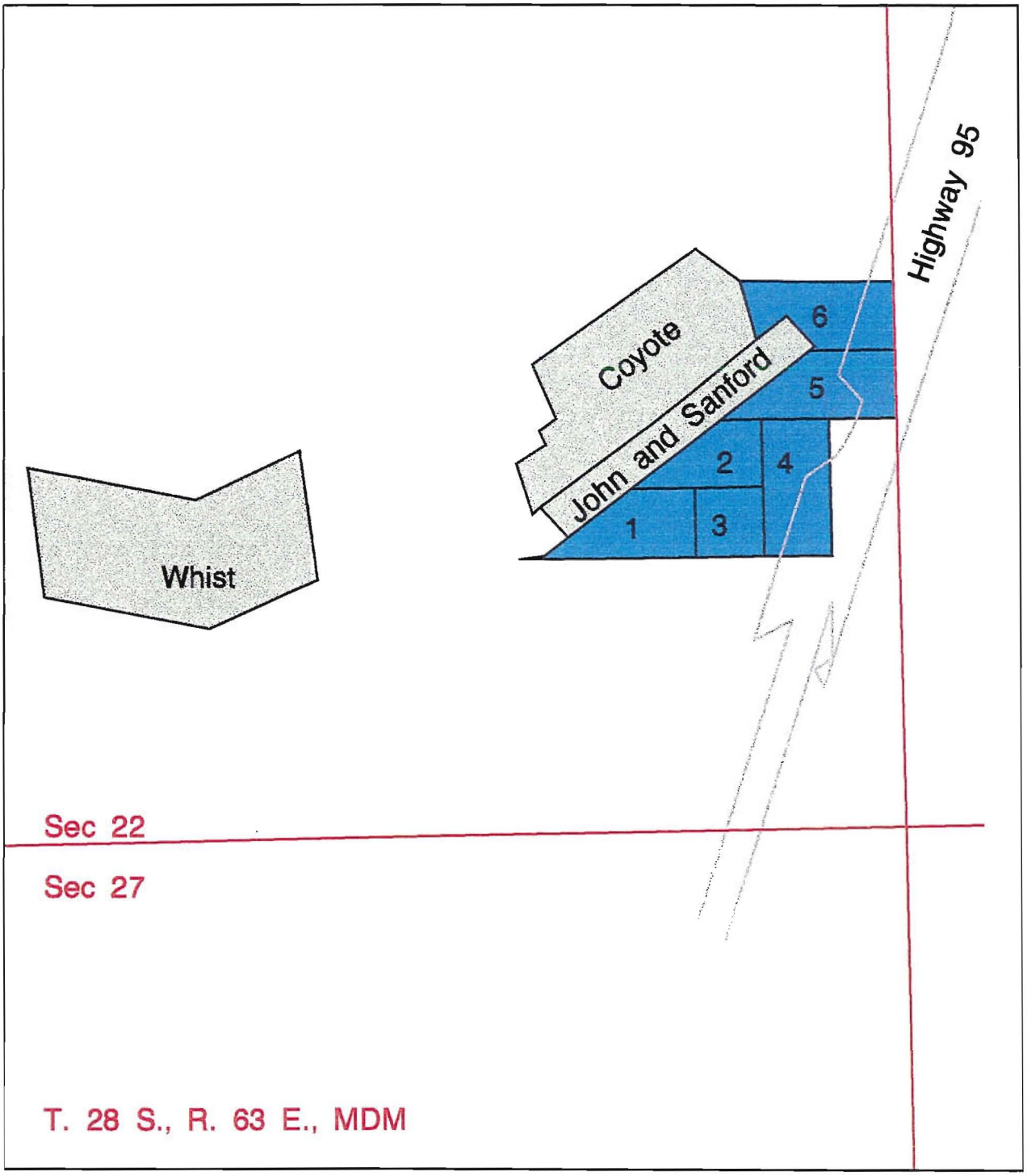
Name	Serial Number	Type	Location Date	Assessment
Coyote Bird #3	720708	Placer	9/26/1995	Current
Coyote Yellowbird	725619	Lode	11/1/1995	Current
Whistler One	725620	Lode	11/1/1995	Current
Whistler Placer #1	725621	Lode	11/1/1995	Current
Whistler Placer #2	725622	Lode	11/1/1995	Current

There are 6 rights-of-way that encumber the MPA area. They are listed in Table VI The most significant encumbrance is case number CC-020733, which is a Federal Aid Highway Act right-of-way, held by Nevada Department of Transportation (NDOT). The effect of this encumbrance is segregation from the General Mining Law of 1872, as amended when it was granted on April 13, 1939. That would mean that any portion of the mill sites located within the limits of the right-of-way would be null and void *ab initio.* Map 2 depicts the relationship of the NDOT right-of-way CC-020733 to the MPA.

Table VI - Encumbrances within the Mineral Patent Application Area

Serial Number	Holder	Description	Mill Site Crossed
CC-020733	Nevada Department of Transportation	Federal Aid to Highway Right of Way. Authorized 4/13/1939	COYOTE MILL SITE #4, #5, #6
N-46709	Coyote Mines, Inc.	Road. Authorized 11/10/1987	COYOTE MILL SITE #1, #2, #3, #4, #5, #6
N-48555	Coyote Mines, Inc.	Pipeline. Authorized 6/6/1988	COYOTE MILL SITE #1, #2, #3, #4, #5, #6
N-51417	Nevada Power Company and Sprint Central Telephone	Combined FLPMA Power Transmission and Telephone and Telegraph. Authorized 3/12/1990. This is post MPA.	COYOTE MILL SITE # 1, #2
N-52050	AT&T R/W	FLPMA Telephone and Telegraph. Authorized 12/12/1990	COYOTE MILL SITE #5
N-52985	Sprint Central Telephone	FLPMA Telephone and Telegraph. Authorized 9/3/1991	COYOTE MILL SITE #5

Map 2 - CMI Mill Site Group



Section Lines
Highway Right-of-Way
Patent Claims
COYOTE MILL SITES #1 - 6

N

500 0 500 1000 Feet

Prepared by: Mark Chatterton
May19, 1999

4. PHYSICAL FEATURES AND SURFACE IMPROVEMENTS

a. Physical Features

Regionally the Searchlight Mining District is a group of low hills on the east side of Piute Valley in the southern part of Clark County. These low hills form a westerly outlier at the southern end of the Opal Mountains, a highland area between the Colorado River and Highway 95. North of Searchlight, the highland area is arbitrarily divided into the Eldorado Mountains north of Nelson, Nevada and the Opal Mountains south of Nelson. Piute Valley drains into the Colorado River near Needles, California. The highland area continues south of Searchlight and forms the Newberry Mountains, similarly the Newberry Mountains are bound by the Colorado River and Highway 95. Highway 95 traverses the eastern side of Piute Valley. (Callaghan, 1939.)

The physiographic characteristics of Clark County are representative of the Great Basin Province. Much of the eastern portion of the county, however, has exterior drainage through the Colorado River. The MPA area is south of the divide between the Eldorado and Piute Valleys thus, as stated drains to the south into the Colorado River.

There are well developed pediments along the bases of the mountains on both the east and western slopes of Piute Valley. The altitude of the town of Searchlight, Nevada, which is centered in the mining district, is 3,500 feet and resting on the pediment surface. The nearby hills which range 3,700 feet to 4,200 feet rise above the pediment and merge with Piute Valley. In places the pediment surface is buried with several hundred feet of alluvial fill. Pediments are particularly prominent in this region and indicate that there has been a long period of erosion without local differential deformation. (Callaghan, 1939.)

The MPA area is within a low precipitation region of the western United States. The U.S. Weather Service has monitored temperature and precipitation in Searchlight, Nevada for over 30 years. They report the average annual precipitation at 7.83 inches. This is slightly greater than many parts of the region. There are no surface waters in the area and potable water is now derived through wells. Historically, the area obtained water from mine shafts. Ground water is found between 100 and 300 feet below the surface and generally does not follow permeable lithologic units but instead moves along joints, fractures and fault skarns. (Coates, 1999.)

Average temperature extremes range from 33° F in the winter to 104° F in the summer. Short duration extremes are seen in the area as low as 10° F and as high as 118° F. (Longwell et.al, 1965)

The vegetative community is predominantly a transition zone from Upper Sonoran to Lower Mojave desert communities. Creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) are the co-dominant species of the local vegetative community. This dominant vegetation is found in the alluvial fills. Where bedrock is exposed, the amount of creosote and bursage diminishes and a number of widely spaced fish-hook cactus (*Echinocactus acanthodes*) can be found. (Personal communication with BLM Botanist, Gail Mars-Smith, 1997.)

Wildlife in the vicinity of the MPA include the desert tortoise (*Xerobates agassizii*) (listed as threatened, Endangered Species Act of 1973 (ESA), gila monster (*Heloderma suspectum*), chuckwalla (*Sauromalus obesus*), kit fox (*Vulpes macrotis*), and the desert valley kangaroo mouse (*Microdipodops megacephalus albiventer*). The desert tortoise is listed as threatened and is under the protection of the ESA. All other species except for the kit fox are considered sensitive and could potentially be listed under the ESA. (Personal communication with BLM Wildlife Biologist, Jeanie Cole, 1997.)

The sensitivity level for prehistoric cultural resources encompassed by the MPA is considered to be low. This rating is based on the lack of association with environmental variables, such as water sources, edible resources, or sources of rock to use for tools and/or turquoise which are usually present in areas found to be rated high in sensitivity. (Personal communication with BLM Archeologist, Stan Rolf, 1999)

There are historic resource values associated with the Coyote and Blossom mines. These resources have been fully mapped by CMI in association with their continued investigation of the patented lodes for gold. This historic mining occurred from the turn of the century to the mid 1950's with the most active period occurring from 1903 to 1906. The historic resource values include old mine workings, associated head frames and other ancillary buildings. (Personal communication with BLM Archeologist, Stan Rolf, 1999)

b. Surface Improvements

Surface improvements in the area include Highway 95 which is a major north south trending highway that is well traveled by the public between Laughlin and Las Vegas, Nevada. Other access roads exist within the limits of the MPA, as previously described in the Land Status section.

Much of the following is from the Corporate Profile of Coyote Mines, Inc. prospectus of the same title. The prospectus is not dated, however, the BLM received a copy on October 12, 1994. Further reference to this prospectus will not be made. (Coyote Mines, 1994.)

Improvements to the MPA area include power, water, and telephone service provided by the major utility suppliers of southern Nevada. Electrical power is provided by a R/W, N-51417 as described in the Land Status section. The R/W consists of a 2708.47 foot long overhead powerline. Construction of the R/W was completed on July 12, 1983, at an installed cost of $9,127.00.

Electrical service provided to the MPA is as follows:

Main Power Distribution Center

- 3 phase, 480 volt AC KVA service which supplies electricity to the main water system and services all three phase motors in the gravity concentration milling circuit.

- Single-phase, 240 volt 200 amp AC service is supplied to the mobile homes, machine shop, laboratory, mill shop, mill shop annex, spiral building and all of the gravity concentration milling circuit.

Mill Power Distribution Center

- 3 phase, 480 volt AC and single-phase 100 amp service is supplied to all motors and electrical equipment used in the Gravity Concentration Milling Circuit.

Note: The electrical distribution system is underground (by cable and PVC tubing to all buildings.)

Water

On June 16, 1983, a water well was completed to supply water to the CMI properties. The well is 350 feet in depth, with the water level at 175 feet. The current pump delivers 55 gallons per minute continuously.

Well equipment consists of a 5 HP, three phase Berkeley pump, a 5,500 gallon holding tank, a 1 HP booster pump providing 45 PSI operating pressure, a 250 gallon pressure tank, associated valving and overload protection for the three phase motors. The system was constructed at a cost of $14,455.

In 1985, CMI applied for two water permits with the Nevada Division of Water Resources:

- Quasi Municipal for 4,360,00 gallons per year. Granted on February 7, 1994.

- Mining and Milling (permit #55280) for 58,972,320 gallons per year. This permit is pending actual usage in the Gravity Concentration Milling Circuit, etc. and is on an annual extension basis pending full production.

Monthly water meter readings are submitted to Nevada Division of Water Resources to maintain the permit. This has been done since 1986.

Telephone Service

Underground installation of telephone service was completed in 1986. This provided 50 pairs of telephone line services. The service line is 2,708.47 feet in length and runs from the County R&PP lease N-21747 to the MPA area. The underground construction required five 17 inch by 30 inch service boxes with a depth of 30 inches be installed. When the main trunk line was installed CMI also installed underground telephone cable to the various buildings, living quarters, laboratory, and security personnel.

On March 12, 1990, Central Telephone Company, now Sprint Central, was granted a right-of-way on behalf of CMI to ensure future maintenance of the telephone service. This is the shared R/W with Nevada Power Company, N-51417.

Access Roads

CMI holds N-46709 and N-48555 for access roads and pipelines that are inside and outside the MPA area. The alignment of the roads can be seen on Figure 2. The access roads and pipelines follow the same alignment.

CMI acquired right-of-way N-46709 for this intra access of the mill sites. The R/W consists of 2 separate roadways. Roadway 1 was constructed and commences at the highway engineering station #211 +52.81 on Highway 95 and traverses the property in a southwesterly direction along the southern boundary of the JOHN & SANFORD LODE MS #4578. Roadway 1 is 3082.79 feet long with a width of 45 feet.

Roadway 2 originates at highway engineering station #200 +82 at milepost 22.19 on Highway 95. It traverses the property in a northwesterly direction intersecting the southern boundary midway of the JOHN & SANFORD LODE MS #4578. Roadway 2 is 667.30 feet long with a width of 45 feet.

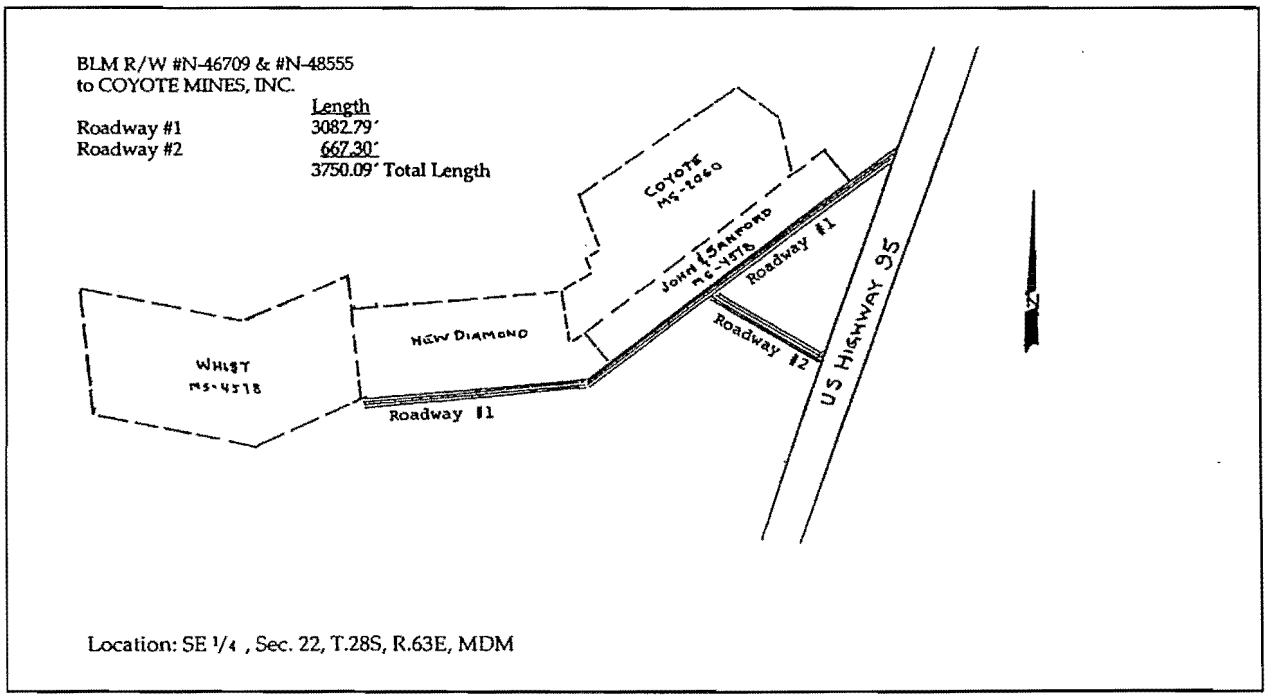


Figure 2 - Sketch Map of Right-of-Ways as they relate to the Patented Lodes.
Source: Coyote Mines, Inc. A Small Mining & Milling Business, Corporate Profile, not dated.

5. ENVIRONMENTAL CONSIDERATIONS

Reclamation of the mill sites would occur at the conclusion of all mining activities that might occur on the lodes. The claimants anticipate concurrent or interim reclamation to progress as they proceed with production. This would include short term storage of the tailings until a portion of the deposit has been mined out through open pit mining methods and then backfilling the pit area with these tailings. At the conclusion of the mining process it would be anticipated that the mill portion of the site will be salvaged and the land would be returned to pre-disturbance conditions. There would be a limited amount of dirt work associated with this reclamation. Post mining uses of the mill sites after proper reclamation could be for private residences and most likely would be due to close proximity to Searchlight, Nevada.

As stated in the Physical Features and Surface Improvements section the MPA area is habitat for the desert tortoise (*Xerobates agassizii*). This species was listed as threatened under the provisions of the ESA. Provisions of the ESA require the payment of off site mitigation fees for the loss of habitat which will occur as the mine and mill continue to develop. These fees are calculated based on the number of undisturbed acres of habitat on the date of listing. As of the writing of this report the mill sites contained approximately 3.1 acres of disturbance. All of this disturbance existed prior to listing of the desert tortoise. Under the current notice there are no plans to increase this acreage. Thus, there would be no fees in the foreseeable future associated with the desert tortoise. However, when approval for the heap leach system is received approximately 1 acre of new disturbance would occur.

Currently Clark County is assessing a mitigation fee of $578 per acre of disturbance. If and when CMI elects to expand disturbances they would be required to pay mitigation fees at this rate to the County.

The areas identified to be mined in the existing business plan would indicate that there would be little impact on historic structures. The mining would however, impact the surface and subsurface area of the Coyote and Blossom Mine and ultimately destroy the historic mine workings. It should be noted, however, that extensive detailed mapping of these working has already been completed and this would mitigate the need for additional cultural work to prevent the loss of cultural data.

There are no other environmental considerations associated with this MPA.

6. GEOLOGY AND MINERALIZATION

a. Geologic Setting

Clark County is the southern most county in Nevada. Most of the geomorphic features are typical of the Basin and Range physiographic province, with elongated north/south-trending ranges separated by wide valleys. The Geologic Setting depicted on Map 3, is adapted from Plate 41 of Eugene Callaghan's USGS Bulletin 906-D, Geology of Searchlight District Clark County, Nevada. The MPA is illustrated on Map 3 for reference purposes.

Bedrock of southern Clark County ranges consist almost entirely of two types; 1) bedrock of Precambrian Age, and 2) volcanic and plutonic rocks of Cretaceous(?) and Tertiary Age. Locally some Cretaceous(?) and Tertiary sedimentary deposits are incorporated but they constitute only a small part of the ranges. Paleozoic rocks occur only as isolated xenoliths in intrusive igneous bodies. The geologic structure of the southern part of the County also differs significantly. Faulting displacement is generally by way of high-angle faults with no thrust faults recognized in the region. Generally this region of the County has received less attention because of the types of rocks involved, thus only the major structures are shown on most geologic maps. (Longwell et.al., 1965.)

The Eldorado Mountain range consists largely of metamorphic and granitic rocks of Precambrian Age, cut by several younger intrusive bodies. Volcanic rocks overlie the older bedrock in small areas and form isolated foothills, on tilted faulted blocks, between the southern part of the range and the Colorado River. Foliation of the metamorphic rocks generally strikes almost north and dips 30° to 60° east, though there are local variations. At Searchlight the volcanic sequence consists of older and younger flows separated by an Upper Cretaceous or Tertiary quartz monzonite intrusive body. (Longwell et.al., 1965.)

The most conspicuous formation is a large body of quartz monzonite, which has intruded a group of older lava flows and breccias, and a body of gneiss, which extends southward from the Quartette mine. Dark-brown or gray andesite porphyry with conspicuous plagioclase phenocrysts occurs around the border of the quartz monzonite and likewise invaded the older rocks as dikes, sills, and irregular-shaped masses. The andesite is in turn intruded by the quartz monzonite. Earlier rocks and bedded arkose lies between the older and younger volcanic rocks northeast of the Blossom Mine. Only faulted remnants of the younger lavas occur in the northwest hills of the Searchlight District. (Callaghan, 1939.)

Gneiss is generally regarded as pre-Cambrian. The ages of the other rocks are unknown. However, it is believed that the quartz monzonite is Tertiary and closely related in age to large areas of quartz monzonite in the Ivanpah quadrangle, west of Searchlight. Callaghan, 1939, believes that the andesite porphyry is a border facies of the quartz monzonite. The intruded volcanic rocks are believed to be early Tertiary or possibly older while the later volcanic rocks are probably related to the late Tertiary volcanic rocks of the Ivanpah area.

Veins in the area are restricted to the older group of rocks (gneiss, older volcanics, and andesite porphyry). It appears that there is a genetic relationship between the veins and quartz monzonite because the veins are distributed around the monzonite body. It is possible however, that the quartz monzonite could only be a competent mass, while the other rocks were broken forming the fissures. The fissures could have been mineralized from another source at a later time. (Callaghan, 1939.)

When the andesite porphyry was intruded, the primary deformation of the older rocks occurred. Minor amounts of deformation also occurred when the quartz monzonite was intruded. With the exception of minor faulting which has displaced some of the veins, there has been little additional deformation to the younger volcanic rocks. As previously stated the extensive pediments indicate little deformation of the area in recent times. (Callaghan, 1939.)

b. Geologic History

Most of the geologic history described in this section is taken from Callaghan's 1939, USGS Bulletin 906-D, Geology of The Searchlight District, Clark County, Nevada. No further reference to this publication will be made. After reviewing Callaghan's 1939 publication and the author's own field observations, the author agrees with Callaghan's geologic setting and description of the area in and around the study area and does not believe it could be improved..

The pre-Cambrian gneiss was severely eroded removing a very large thick sequence of Paleozoic and Mesozoic rocks which were exposed to the west and north. This most likely created a very uneven surface on which large andesitic lava flows and tuffs or volcanic breccias were deposited. The true thickness of these flows are unknown. The andesitic flows and gneiss were subsequently intruded by magma in an intricate pattern which later cooled in part as andesite porphyry. Towards the end of the depositional process the magma also intruded the andesite porphyry and cooled as quartz monzonite. The early lava flows were altered into hornfels by the heat and solutions of the magma.

Regional movements pushing against the buttress of the quartz monzonite produced the fractures that were later mineralized. It is not clear if the mineralization is related to the quartz monzonite but if it is, then the solutions came from very deep within the body of the magma after the near surface body formed the quartz monzonite. It is also possible that the mineralization is related to a later igneous event and its relationship to the quartz monzonite being determined only by the previously developed fracture system.

After mineral deposition, the area was again uplifted and eroded, this most likely resulted in movement along the veins and brecciation of the host rock. It is possible that the mineral rich veins went through oxidation at this time because of the increased relief and potential for good circulation of ground water. Another series of lavas and fragmental rocks were laid down on the erosional surface and dikes of rhyolite and most likely andesite penetrated the older rocks including the quartz monzonite. A large mass of volcanic rocks was altered by hydrothermal fluids. Additional uplifting tilted the later volcanic rocks on the west side of the Searchlight District to the west. Faulting both along and across the veins, probably accompanied this uplift

sequence and erosion progressed partially filling Piute and Eldorado Valleys. It was during this erosional episode that the pediments of the area were developed.

Because of the lack of fossiliferous rocks in the area and the lack of using other methods of dating it is not possible to fit these events into a geologic timetable. It should be noted however, that the volcanic rocks of the region are generally believed to be of Tertiary Age and all rocks of the area except the gneiss are believed to be of Tertiary Age. This includes the granitoid intrusive rocks to the west.

Comparison of the quartz monzonite with similar intrusive deposits of Utah, Pioche, and Delamar areas would suggest that the quartz monzonite of the Searchlight district are probably early Tertiary. Mineralization would have closely followed the solidification of the quartz monzonite. The later lava (olivine rich basalt) flows correspond very well with other similar Pliocene age flows.

c. Mining History

i. Mining History of Area

The principal metallic mineral resources of the County are zinc, lead, gold, silver, copper, and manganese; small quantities of vanadium, cobalt, nickel, platinum, palladium, uranium, and tungsten have also been produced. The Searchlight mining district is considered one of the major districts in the County. The chief metals produced in the Searchlight mining district are gold and silver with minor amounts of copper, zinc, and lead. With the exception of small operations like CMI, significant mining has not occurred since the mid 1950's. Total production from the district is in excess of 247,000 ounces of gold and 353,000 ounces of silver with over 600,000 tons mined. The most significant production period ran from 1902 to 1910, with a second period of significant production occurring between 1935 and 1941. Total ounces of gold produced from 1902 to 1910 was 141,111 ounces and for silver 125,845 ounces. From 1935 to 1941, 30,694 ounces of gold and 96,660 ounces of silver were produced. This represents approximately 69 percent of the gold production and 63 percent of the silver production for the district. (Longwell, 1965.)

The Searchlight mining district has been studied by Ransome, 1907, Vanderburg, 1937, Callaghan, 1939, and Longwell et.al., 1965. The following is taken primarily from Longwell et.al. who refers back to Ransome, Vanderburg, and Callaghan.

Most of the veins show breccia of country rock cemented by quartz, but they differ in type in the southern and northern parts of the district. The MPA is found in the northern part of the district so this discussion will center on that area. However, it should be noted that the production in the southern portion of the district was far greater than that of the northern part.

Veins in the north area appear to be of lower-temperature type containing quartz with lamellar calcite and fewer traces of sulfides and have a higher ratio of gold to silver than in the south. The ore is largely oxidized and during the early years of mining, gold out produced silver.

With the exhaustion of near surface deposits, silver out produced gold in the later periods of production.

The two most important historic mines in the Searchlight District are the Quartette mine in the south and the Blossom mine in the north. Since the Blossom mine is centered on the deposit associated with the subject mill sites it is worthy of describing the historical aspect of its' deposit.

The deposit is approximately 2 miles north of Searchlight. Total production of gold and silver, which has been produced intermittently since 1903, is approximately 12,600 ounces of gold and 10,800 ounces of silver, with most of the production occurring prior to 1906.

The Blossom mine is at the contact of a sill-like tongue of quartz monzonite which is intruded into hornfels sized andesite and andesite porphyry. Most of the production came from a nearly flat or shallow saucer-shaped feature that cropped out on all sides of Blossom hill. The deposit was also mined from a gently dipping vein explored by approximately 1,400 feet of workings on three levels.

The quartz-cemented breccia of the flat vein is 10 feet or more thick, although the actual rock that hosted the gold had a maximum thickness of 3 feet. This consisted of fragments of silicified country rock and porous sugary quartz. Gold was visible in some of this material, and the ratio of gold to silver was 1 to 4. Free gold is found associated with limonite and small streaks of specular hematite. Rock from the west end of level 2 consisted of breccia of altered country rock and radiating aggregates of vuggy comb quartz. White and gray clay and a little secondary calcite occur in the vugs and openings. Lumps of massive calcite with a fibrous structure are included in the deposit and probably represent primary vein calcite. A few fragments show a little copper staining. The quartz is shattered, apparently by late post mineral movements, so that much of it can be mined with a pick. Many of the stopes in the gently dipping vein are 4 to 5 feet wide. The mineralized rock body at the west end of level 2 is 4 feet wide between the walls, but the deposit is restricted to lenses within this zone. On level 3 the vein fans out into a horse-tail type structure without definite walls.

A 120 foot inclined shaft on the top of the hill northwest of the main shaft follows a fracture containing about 6 inches of gouge and a little quartz. The workings on the flat deposit of the upper level are 28 feet below the collar of this shaft.

The gold occurs within flat lying quartz veins located near the margin of a quartz monzonite stock where it intrudes a porphyry andesite. Rocks are oxidized to the lowest levels in the workings and veins are found in the monzonite as well as along the intrusive contact.

The primary deposit underlying Blossom Hill formed a saucer shaped ring. Most of the deposit has been removed. As indicated there are three levels below Blossom Hill which have extracted another shallow dipping quartz vein. The gold occurs as electrum in vuggy quartz and is uncommon in the stock works found in dumps. (Electrum is naturally occurring gold alloy with more than 20% silver.) Specular hematite is common in some parts of the veins.

A north-striking fault on the east side of the deposit was noted by Ransome (1906) as a post-mineral fault. It is presently accessible underground from the fault incline shaft located on the Coyote lode patent. This post-mineral fault remains in the back of the shaft to its' final depth. Drifts on level two were worked into the hanging wall of the fault, and along the fault to the north, apparently in search of more mineral values. (Coyote Mines, 1994.)

The post-mineral faults are important in understanding and locating any unmined mineralized zones on the patented Coyote and John and Sanford lodes. The geologic relations among the Blossom Hill shear and the post-mineral fault are not clear. Regardless, the area between the Coyote shear and the Blossom Hill shear, in the vicinity of the post-mineral fault, is a likely target. (Coyote Mines, 1994.)

ii. Mining History of the Lands Involved

Much of the CMI mill sites were originally located as the JULIA T. lode mining claim, on August 22, 1900, by the Searchlight Mining and Milling Company. This claim was part of Mineral Survey No. 2834, completed by U.S. Mineral Surveyor Walter M. Brown. The survey was approved on November 15, 1906. Notation of improvements on the JULIA T. consisted of 5 shafts of various depths ranging from 10 to 30 feet deep. All shafts were 4 by 6 feet and ended in bedrock. Total value of these improvements was $350 in 1906. No other notations were made for the JULIA T. lode.

A review of Mineral Survey No. 2834 Plat shows the general location of these shafts in the northwest corner of the claim. Except for the discovery shaft which is located near the center line of the claim on the west end, the other 4 shafts are all in a line near the Coyote Lode. The JULIA T. lode mining claim was not granted a patent.

The Whist, New Diamond and John and Sanford Lodes were located on August 22, 1900, by Sanford A. Shuler, Grandfather to the President of CMI, Sanford A. Shuler Jr. Mineral Survey No. 4578 was approved November 12, 1923, by U.S. Mineral Surveyor Walter M. Brown for the Whist, New Diamond, and John and Sanford Lodes. The area of interest is the John and Sanford Lode, all of which conflicted with the JULIA T. lode described above and contains 6.700 acres.

As described in the Mineral Survey, one vein was identified on the John and Sanford Lode 137.1 feet S. 53°05' W., and 1362.77 feet N. 53°05' E. from the discovery monument. The discovery monument was located 162.2 N. 15°53' E. of post 1 of the John and Sanford Lode.

Six improvements were described in the mineral survey and include a 10 foot deep discovery shaft; a 270 foot main shaft 4 feet X 7 feet; a trench 4 feet wide, 6 feet deep, and 10 feet long; a trench 2 feet wide, 2½ feet deep, and 30 feet long; a 4 feet X 7 feet shaft 10 feet deep; and a shaft 4 feet X 6 feet, 3 feet deep. Other improvements included a frame house (which no longer exists).

The John and Sanford Lode was 200 feet wide. Except for the discovery shaft all described shafts and trenches of the JULIA T. Lode are found within the boundary of this claim.

During the field exam no evidence of historic mining activity can be seen within the limits of the COYOTE MILL SITE group which originally would have been the JULIA T. Lode.

It is not clear when the JULIA T. lode was abandoned by the Searchlight Mining Company. However, this mining claim no longer exists and the COYOTE MILL SITE group is now located in part over the same area.

d. Site Geology

Since the COYOTE MILL SITE claims are contiguous with the Coyote and John and Sanford lode patents it is important to understand not only the geology of the mill sites but also the geology and mineral deposits of the adjacent lodes. This section will describe the site geology and mineral deposits of the patented Coyote, Whist, and John and Sanford lodes as well as the mill sites.

The local geology of the northern end of the Searchlight mining district is somewhat more complex then the southern area. There is a much greater aerial extent of the quartz monzonite east of the Blossom mine. West of the mine is a large exposure of younger volcanic rocks that are chiefly andesite and rhyolite. Also east of the mine and Highway 95 is a prominent rhyolite dike cutting the quartz monzonite. No faulting was observed during the field investigation of the area.

The Blossom mine is located at the contact of a sill-like structure of quartz monzonite which extends from the main body of quartz monzonite. The vein host rock consist of andesite hornfels and andesite porphyry that is intrusive to the hornfels. Much of the area to the north and west of Blossom Hill are also these same older volcanic rocks.

The primary exception to this is a limited area west of Blossom Hill which consists primarily of younger volcanic rocks of andesite and rhyolite. There are also some very small isolated outcrops of these younger volcanic rocks in the north half of sections 22 and 23, T. 28 S., R. 63 E.

In the vicinity of the mill sites the area is a gently sloping pediment of quartz monzonite. The pediment is generally covered with a deposit of alluvial material that ranges in thickness from 1 to 5 feet. The upper limits of the alluvium is the growth medium providing the best material for reclamation. Structurally there are no geologic features which cause the author to develop a different geologic model than Callaghan, 1939. Callaghan's map provides the best geologic interpretation of the area in and around the MPA. Map 3 shows the general location of most of the later volcanic rocks and quartz monzonite as they relate to the Searchlight District. The mineral patent application area is drawn on Map 3. Map 4 is Callaghan's aerial geology map in the vicinity of the Blossom mine.

i. Rock Types of the Searchlight Mining District

Gneiss: A body of gneiss, derived from granite, occurs in the southern part of the Searchlight Mining District near the Quartette vein. The rock type was not observed in the vicinity of the MPA and will not be further described.

Older Volcanic Rocks: These volcanic rocks have had considerable modification caused by heat and solutions given off by the invading magmas. The original rocks were chiefly andesite flows and breccias. No evidence of basalts or rhyolites were observed during the field investigation of this rock type. Callaghan, 1939, believes that these older volcanic rocks have been metamorphosed either by contact or thermal processes. He further indicates that this change is reflected by the density and hardness of the rock and the presence of quartz and formation of epidote or clinozoisite. Other accessory minerals include biotite, magnetite and chlorite.

The metamorphism associated with the older volcanic rocks is highly variable along the contact with the intrusive body because of local structural conditions that affected the movement of the high-temperature solutions. "Hornfels" is used to describe the partly metamorphosed volcanic rocks as they have been converted to a very fine grained aggregate in which the original texture and structure are largely obliterated and new minerals formed. (Callaghan, 1939.)

The hornfels in the vicinity of the MPA are mostly dark greenish gray and very fine-grained. Flow structures and phenocrysts in the lavas and breccias are exposed through differential weathering. Most of the ferromagnesian minerals have been destroyed during alteration, however phenocrysts of plagioclase, chiefly andesine, are moderately well preserved. In some areas the plagioclase phenocrysts are so abundant that there is a potential for confusion with the andesite porphyry found in the area. Most of the ground mass is recrystallized from feldspar, quartz, and epidote or clinozoisite. Magnetite is scattered through much of the hornfels and also occurs in bunches. Weathering along the veins has caused some of the hornfels to become soft and clayey. (Callaghan, 1939.)

Andesite Porphyry: Andesite porphyry is generally the wall rock of many of the veins and is very abundant around the margins of the quartz monzonite body, and any large fracture would have involved this porphyry. Callaghan (1939), indicates that the porphyry has penetrated the gneiss and older volcanic rocks in a most complex fashion as dikes, sills, and masses having very irregular margins. It has also been suggested by Callaghan (1939), that the andesite porphyry is an early facies of the quartz monzonite intrusive bodies, and that there is only a slight lapse of time between the intrusions of the two. Finally it appears that the andesite porphyry has been somewhat modified by the quartz monzonite intrusion and by the vein-forming solutions. (Callaghan, 1939)

Weathered surfaces of the andesite porphyry are mostly brownish with conspicuous phenocrysts of white plagioclase. Underground this porphyry is gray near the veins and has a wide variation in the size and abundance of plagioclase phenocrysts. When there are only small phenocrysts of plagioclase it is difficult to distinguish, in the field, from porphyritic andesite of the older volcanic rocks and porphyritic facies of quartz monzonite, or even some of the porphyritic andesite in the younger volcanic rocks.

Quartz Monzonite and Associated Dike Rocks: A large rectangular shaped quartz monzonite body underlies an area east of the main part of the district and north of the mines east of Searchlight. It is considered part of a regional body or group of bodies that are known to occur in the area. These bodies have not been mapped. The contact is very irregular and many dikes and sill-like protuberances project into the invaded rock.

The margins of the quartz monzonite is mostly porphyritic, and both the size and proportions of phoenocrysts as well as the proportions of dark minerals and color are variable. The readily visible rock forming minerals include equal amounts of plagioclase and orthoclase, quartz, and biotite. Other minerals include augite, magnetite, apatite, and zircon. The orthoclase is light gray and the plagioclase is darker gray. The quartz is generally associated with the orthoclase as an inter-growth (Callaghan, 1939). Biotite is the most common of the ferromagnesian minerals but augite is moderately abundant. The magnetite grains are widely variable in size.

Callaghan, 1939, did not observe hornblend in hand specimens taken from the margins of the intrusive body. Further he did not find hornblend in any of the thin sections studied. The quartz monzonite classification is supported by the presence of the dioritic aspect of the rock including the presence of augite.

There are dike structural features found associated with the quartz monzonite body. The dikes are granophyre, lamprophyre or malchite, and light gray rhyolite (Callaghan, 1939). There is a very large and pronounced rhyolite dike north and east of the application area. Callaghan, 1939, believes the rhyolite dikes are related to the later volcanic rocks.

Later Volcanic Rocks: This is the youngest group of bedrock found in the area and is made up of fragmental or pyroclastic rocks and flows. The later volcanic rocks consist mainly of flows of basalt and rhyolite. The basalt flows are north and west of the study area and generally do not dominate this group of rocks. The basalt has a fine grained ground mass with phenocrysts of plagioclase and olivine. The hills northwest of the Blossom mine are underlain with light gray biotite andesite. The large phenocrysts are plagioclase and the smaller phenocrysts of biotite and hornblende. In general the younger volcanic rocks are more rhyolitic and latitic than the flows intruded by the quartz monzonite and they contain flows of olivine basalt.

ii. Structure

The structure of the Blossom mine and adjacent mill sites is relatively simple. The dominant feature is the intrusion of the quartz monzonite, which for the most part has been resistant to deformation. The quartz monzonite and adjacent older rocks that are in immediate contact with the intrusive body, have uplifted as a unit. The stresses of the uplift caused fracturing of the surrounding rock and provided a favorable depositional environment which was later mineralized. After mineral deposition a new phase of uplift caused some faulting of the mineralized rock and also tilting of the later volcanics away from the older volcanic rocks. (Callaghan, 1939)

Post-mineral faulting has cut a number of mineralized bodies. One of the more noteworthy was mapped by Ransome, in 1907. On page 73 of his report he sketches and describes a post-mineral fault which has isolated the Blossom mineralized zone. He clearly states that "the steeper fissure carries no ore and shows much crushing and slickensiding . . . It is apparently an unmineralized fault that has cut off the (Blossom) ore body in that (east) direction."

He further states that "Inspite of its unpromising character, drifts from 200 to 300 feet in length have been run on the 130, 230, and 330 foot levels." The lack of mineralization being found through these endeavors indicates that the throw on the fault must be at least 300 feet (Ransome, 1907). In other words no valuable mineralization should be found on the down throw side of the fault for a depth of at least 330 feet (Huskinson, 1991). Subsequent mining operations have exposed this fault, and it does, indeed, bring barren quartz monzonite into contact with the auriferrous rocks of the of the Blossom/Coyote Mine, and the CMI mill sites (Huskinson, 1991).

iii. Mill Site

The mill sites in their entirety are underlain by the quart monzonite body east of the Blossom mine. The geomorphology of the area is a gentle slope which is the surface of a local pediment. While there are no large exposures of bedrock in the vicinity of the mill sites, locally there are boulders of quartz monzonite which are exposed at the surface. The road cut of Highway 95 where it crosses COYOTE MILL SITE #4, COYOTE MILL SITE #5, and COYOTE MILL SITE #6 exposes the contact between the weathered surface of the quartz monzonite and the soils. Figure 3 is a photo of the contact visible in the road cut of Highway 95 taken at the turnoff into the Coyote Mines, Inc. mill site area and is located on COYOTE MILL SITE #4. This exposure is on the eastern margin of the mill sites.

As previously stated, the western side of the mill sites is adjacent to the John and Sanford lodes. The contact between the quartz monzonite and the mineralized zone can be observed in the mine openings on both the John and Sanford lode and the Coyote lode. The apparent strike of the exposed contact is N 4° W with an apparent dip of 37° East. Callaghan, 1939 in his description of the Blossom mine, describes this contact as having an average strike of N 13° E with a dip of 36° to 43° to the east. Thus, the trend most likely varies along the contact but the dip would appear to be realitivly consistent. Figure 4 is a photo of the contact on the John and Sanford lode. Figure 5 is a photo of the contact on the Coyote lode. Figure 6 is a photo along the alignment of the two contacts between the mineralized rock in the foot wall and the quartz monzonite in the head wall.

The alignment and angle of the contact between the mineralized rock and the quartz monzonite is such that it dips under the mill sites. The distance from the closest exposed contact to the mill sites is on the John and Sanford lode, approximately 200 feet. This would place the contact with the quartz monzonite contact at approximately 150 to 175 feet below the surface. Level three which is the deepest level of the Blossom mine is approximately 330 feet below the surface.

e. Mineral Deposit

i. Searchlight Mining District

Mineralization of the host rock in the Blossom mine area is generally by way of three events. First is by emanations that escaped during the crystallization of the quartz monzonite; second by vein-forming solutions, which were later and may or may not be related to the quartz monzonite; and third, by still later supergene (descending) solutions charged with acids that were formed by weathering of the primary ores. (Callaghan, 1939)

Evidence in the literature suggest that mineral deposition in the Searchlight District might be zonal. This is chiefly due to the difference between minerals and wall rock alteration from the mines in the south and the north. The veins in the southern mines generally contained sulphides of lead, zinc, copper and specular hematite distributed through the quartz. Mines of the northern part of the district contained very little sulphide minerals. Coarse-grained and lamellar calcite is found in the veins of the Blossom mine. Adularization and silification of wall rock is also evident in many of the northern veins and iron-stain is yellowish rather than the greenish or gray stain found in the southern veins. (Callaghan, 1939)

It is also suggested that this zonal deposition might be an indication of two ages of mineralization, but Callaghan who felt that there is a gradual transition from one to the other did not support this concept. It is more likely that the vein-forming solutions are from a common deep seated source and that portions of the quartz monzonite cooled at a different rate affecting the deposit of the minerals.

The mineral bearing veins of the District are unusual for lavas in Nevada yielding a high gold to silver ratio (1:1) and large production of base metals. However, like other districts in Nevada after an initial period of high yield (about 10 years) a long decline of production occurs. Generally after the initial period of high production, small production lasts for many years. This has held true with the Blossom mine.

The mineral deposit of the Searchlight District can be classified in various ways. To date, the minable mineral deposit has been chiefly valuable for gold and would be broadly classified as a siliceous gold deposit. For the most, part the vein material has been leached and weathered so it could be classified as oxidized. The deposit of the southern mines, (Quartette, Duplex, Good Hope, and Big Casino) show evidence that the original mineral content would cause the deposit to be classified as a complex sulphide or base metal veins with gold. Ferguson, 1929, associated these deposits with the Tertiary lavas. They are, however, associated with and are later than the quartz monzonite. This causes them to be much different than most of the Tertiary mineral deposits of Nevada. Callaghan, 1938 felt that the Searchlight deposits most commonly resembled the mineral deposits of the Cascade Range in Oregon. Burbank, 1933 grouped the deposits of this District in the group of epithermal base-metal and in 1933 represented the only deposit recognized in Nevada.

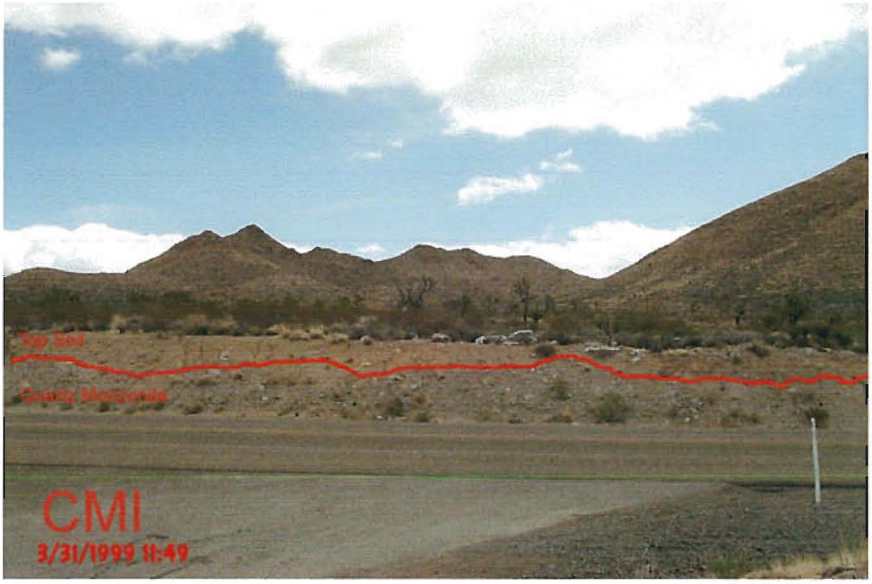


Figure 3 - Pediment Feature of the CMI Mill Sites. Road cut across from entrance of CMI mill sites. The line in the photo divides the quartz monzonite from the top soil. This is a pediment surface cut by Highway 95. Photo taken by Mark Chatterton.

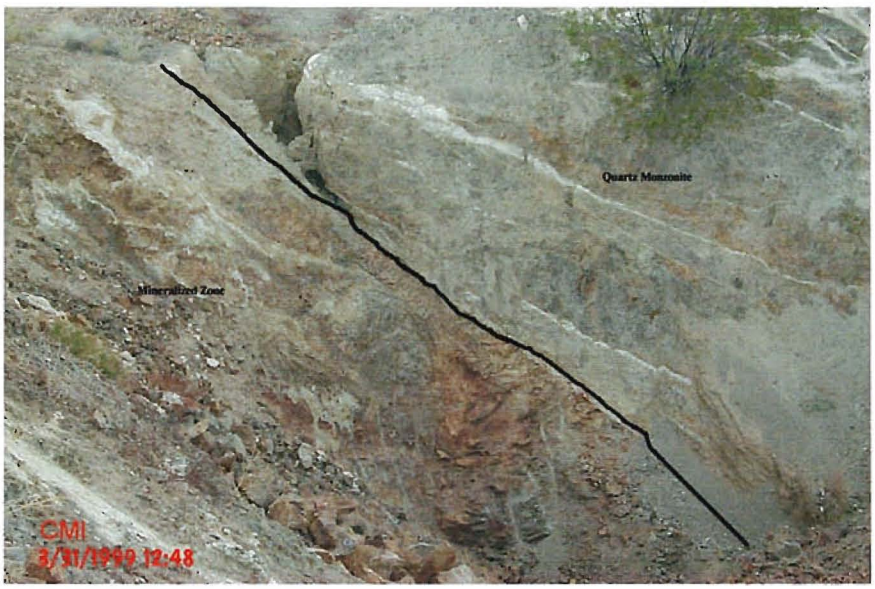


Figure 4 - Mineral Outcrop on John and Sanford Lode. This is a closeup of the mineralized zone and shows the angle of the contact between the quartz monzonite and the altered volcanic rock. Photo taken by Mark Chatterton.

Figure 5 - Mineral Outcrop on Coyote Lode. This is a view of the contact between the quartz monzonite and mineralized older volcanics. Photo taken by Mark Chatterton.

Figure 6 - Overview of the Volcanic Rock/Quartz Monzonite Contact. The center of the photos in figures 4 and 5 are pointed out. Photo taken by Mark Chatterton.

In 1939 when Callaghan completed his study of the Searchlight District he felt that only limited and small scale deposits would be discovered in the future. This has held true and the basis for this conclusion is the type of deposit (epithermal). All of the major mines of the district have gone inactive due to a lack of discovering new deposits. The southern mines had mineral deposition and production up to a depth of approximately 1000 feet while the mines in the northern part of the District are much shallower. The deepest workings of the Blossom mine is approximately 330 feet. Callaghan, 1939 felt that the mineral deposit on level three did have some minable shoots, but that these seams narrowed and did not present favorable conditions for valuable minerals at greater depths.

ii. Mill Sites

Within the limits of the CMI mill sites, no occurrences or outcrops of veins or mineralization were observed. Nor would there be any reason to believe that there would be. As illustrated in Figure 3 the mill sites are underlain by a pediment of quartz monzonite with the western margin of the monzonite occurring on the Coyote and John and Sanford Lodes. The contact between the quartz monzonite and the later volcanic rocks does appear to dip underneath the mill sites at an angle ranging from 36 to 43 degrees. In 1983 CMI had a water well drilled on the eastern margin of the John and Sanford Lode next to their trailer. This well is 200 to 300 feet from the outcrops shown in Figures 4 - 6. The well log indicates loose rock from the surface to 43 feet and the well bottomed in quartz monzonite at 350 feet. This is well below the workings of the Blossom mine and where Callaghan felt there was little prospect for valuable minerals. See Appendix 4 for copy of Well Drillers Report.

iii. Outlook for Coyote Mines, Inc. Mill

Coyote Mines, Inc.'s mining and milling operations (gravity circuit) are very typical of small scale mining, which consist of a series of steps which a claimant will cycle through to operate. The cycle consists of developing a mine schedule; mining a specific volume of mill feed to supply the mill for a specific period of time; shut down the mine operation and conduct maintenance of equipment; processing the stockpiled mill feed through the mill; shutting down the mill and conducting maintenance on mill and equipment; refine the concentrate to a final product to sale; evaluate the last mining sequence, then adjusting the mine schedule and milling equipment and methods used for the next round. Also intermixed with this cycle is dealing with major breakdowns. In addition, CMI is required to maintain their permits and when needed pursue new authorizations, such as the new permit application currently being considered by the Nevada Department of Environmental Protection.

Another activity that CMI has that interrupts the cycle is when they conduct activities on the unpatented mining claims. Historically with their limited resources the mill has been temporarily shut down while working on the other claims. Some to these activities include drilling, geologic mapping, collecting samples to assay, evaluation of the data collected, etc. Thus, when operating with a couple of employees there is only so much that can be done. All of these activities are related to operation of the mill by maintaining resources to feed the mill.

In a given year the mill may only directly run it's equipment for one-third to one-half of the year and while it is idle, the other mining related activities are being conducted. Other things that cause the mill to have periods when the mill is not operating include vacations and health related reasons. Health related reasons have become an issue because CMI has had so many problems when the Shulers' are not on property. Because of theft and damage to equipment, they now cease production while they are off property. The amount of time they are shut down because of this is from one to two months per year. In the last cycle, the mill operated for approximately two months during January and February of this year.

Since February 1999, CMI has been busy preparing to start up the proposed heap leach circuit. Activities such as preparing the application for permit modification, siting the location of the heap leach circuit, doing site clean up in the vicinity of the new facility, etc. have occupied their time. When the cyanide heap leach circuit is approved, installed, and operating this will change the previously described small miner cycle to a much more contentious metals recovery operation. The mining and loading of the heap will be done under contract while CMI will continue to operate the mill and metal recovery side of the operation. As of the writing of this report CMI has submitted the application for permit modification, filed the amendment for the 43 CFR 3809 Notice, sited the general location of the heap, and began clean-up areas of existing disturbance that will be part of the heap leach circuit.

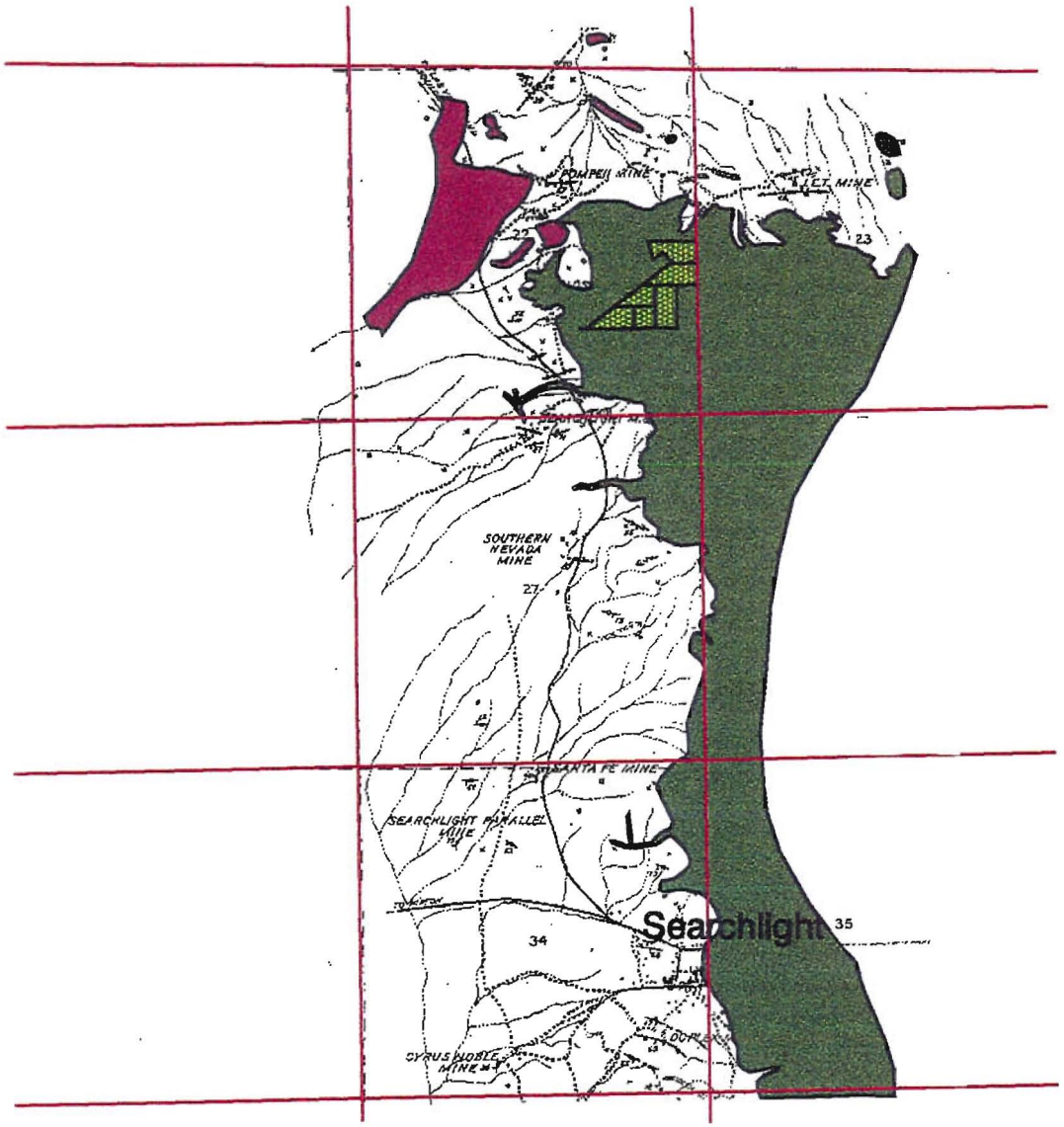
In July, 1994, William C. Bagby, PhD, prepared a mineral report entitled "Development Plan for the Coyote Mines, Inc. Mine and Mill Complex, Searchlight District, Nevada. This report provides an overview of the identified mineral resources held by CMI on the Coyote and John and Sanford Lode complex.

As indicated in the report there are approximately 9,500 tons of stockpiles which contain approximately 615 ounces of gold, located on the CMI mill sites. In addition, there are approximately 97,800 tons of in-place mineral resources which contain approximately 13,300 ounces of gold and 18,640 ounces of silver on the Coyote and John and Sanford Lode. These resources have been sampled and assayed. Using a small open pit mine model it is anticipated that approximately 92,400 tons of this mineral resource can be recovered.

Bagby, 1994, also felt that there are significant mineralized areas which are similar in nature and structure to continue to expand the known mineral deposit contained within the Coyote Mine complex of the Coyote and John and Sanford lodes. Most notably is an area identified as the Coyote shear zone which sampling has shown gold values ranging from .004 to.590 ounces of gold per ton. A three dimensional model has not been developed for this target. A copy of the 1994 Bagby report is found in Appendix 5.

In addition to the resources described on the Coyote and John and Sanford lodes, the Whist lode also has a mineral resource identified on it. In 1994, drilling, sampling, and assay work was done on the Whist. The results show a small mineral deposit of approximately 9,250 tons of in-place mineral resource which averages 1.24 ounces of gold per ton. (See Appendix 6.)

Map 3 - Geologic Setting of the Coyote Mines, Inc. Mineral Patent Application



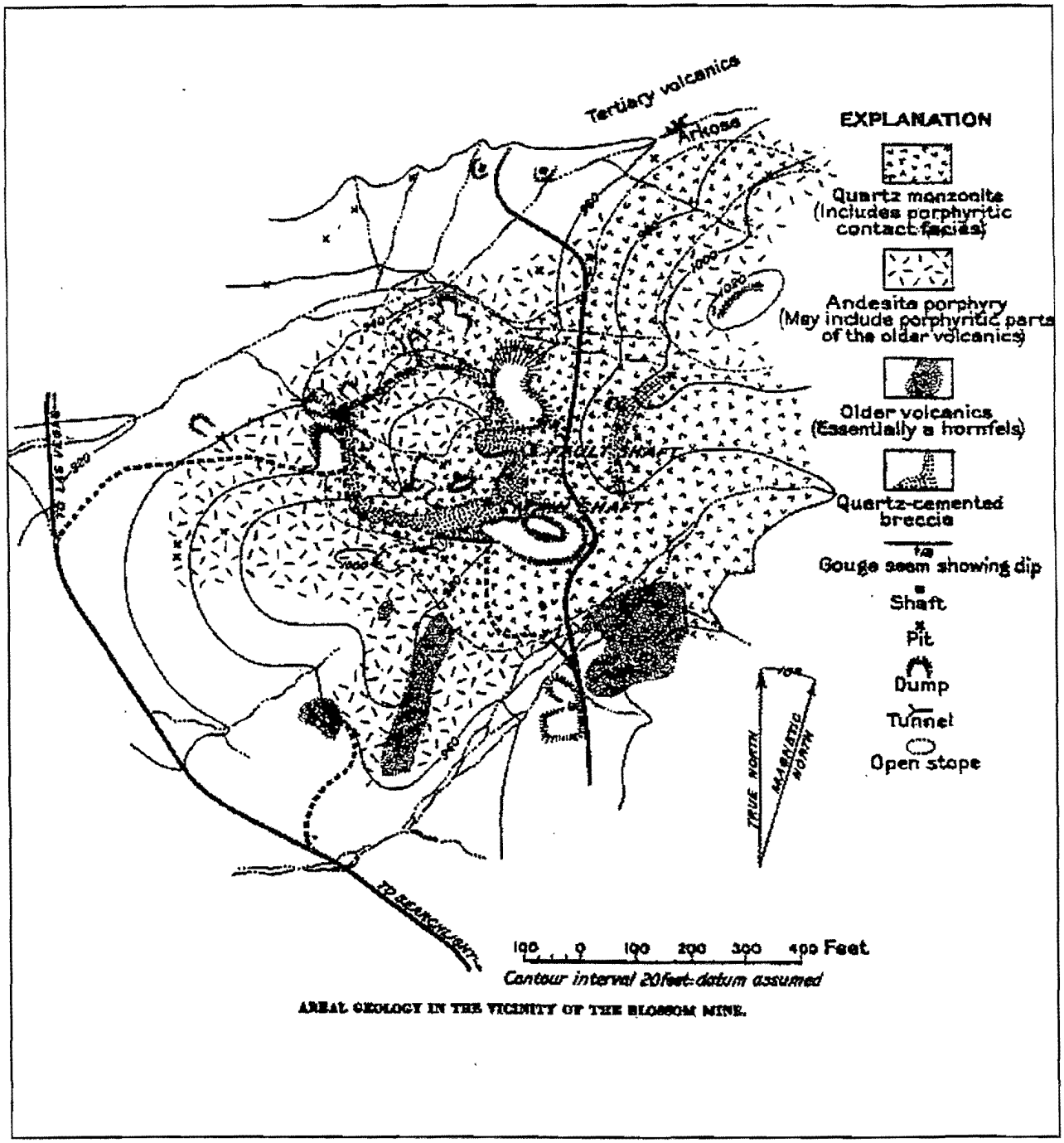
Section Lines
COYOTE MILL SITE Claim Group
Quartz Monzonite
Later Volcanic Rocks

N

2000 0 2000 4000 Feet

Prepared by: Mark Chatterton, May 20, 1999
Source: USGS Bulletin, 906-D

Map 4



AREAL GEOLOGY IN THE VICINITY OF THE BLOSSOM MINE.

Reprint of Plate 51 of USGS Bulletin 906-D, Geology of the Searchlight District Clark County, Nevada, by Eugene Callaghan, 1939

7. USE AND OCCUPANCY (Good Faith)

a. Chronology of Events Associated with Coyote Mill Site Claims

On October 13, 1986, Coyote Mines, Inc. was established as a sub-chapter S Corporation in the State of Washington. In December of 1988 the corporation filed their mineral patent application for the 6 mill site claims that are the subject of this mineral report. Prior to this, Sanford and Marilyn Shuler owned and conducted business on the associated patented lode claims Coyote, John and Sanford, and Whist. The subject mill sites are dependent upon these lodes along with other associated unpatented mining claims.

From May 1982 to October 10, 1985, the Shulers' entered into a lease agreement with Resource Opportunities to mine and mill on the patented lodes that they owned. CMI entered into a joint venture and formed a partnership called Southern Nevada Mining and Milling. From 1982 to October 10, 1985, the following work was done:

- Contracted services of a licensed well driller to drill and install a water distribution system to the mill equipment and all related buildings.
- Install basic electrical services.
- Construct primary roads.
- Cleared areas for building and mining equipment.
- Arranged for the initial survey of the Coyote Lode.
- Maintained and repaired all buildings, equipment, and vehicles.
- Procured and installed the mobile home/office.
- Installed a temporary telephone line.

From August to December 1984, and without authorization, the Resource Opportunity partners of Southern Nevada Mining and Milling, developed a heap leach and installed a Merrill Crow Zinc Plant, which ran it for approximately 6 months. During this operating period concentrates were turned into dores. The Resource Opportunity partners sold approximately 600 ounces of gold to Nevada Coin.

Starting in December 1984 the working relationship between the partners fell apart and by October 1985 through legal action the partnership was dissolved. Upon the dissolution of the partnership the Shulers' began the process of organizing Coyote Mines, Inc. As previously stated Coyote Mines, Inc. was established on October 13, 1986.

During the period of November 1986 to June 1987, CMI repaired buildings, equipment, machinery, vehicles, etc. Steps were also taken to cleanup a mercury release into their water well. In June 1987, CMI entered into a contract agreement with John Yeager of Searchlight, Nevada to run the mine and mill. CMI found in 1991 that Yeager and others removed equipment and concentrates without authorization. CMI terminated its' relationship with Yeager.

Coyote Mines, Inc. employed geology consultant Ed Huskinson to map all the properties controlled by them. Huskinson conducted sampling and developed the reserve estimate

described in the Mineral Deposit section of this report. In the fall of 1991 CMI made another attempt to hire a contractor to recover gold from the concentrates produced by their mill. Again CMI found that they were subjected to theft of concentrates and by July 1992, they released this contractor. As before when CMI surveyed the mill they found that equipment was significantly damaged.

CMI directly operated the mine and mill from September 1992 to October 1996. From 1992 through early 1995 CMI developed an operating plan which considered their reserves and how they should proceed with the development of the known resources. In doing this they added consultant William Bagby to their team. The consultant provided CMI with an accurate map and a good reserve estimate of the CMI resources. By late 1994 and early 1995 CMI started to test their mill after repairing it from the last round of contract services. In June of 1996 the mill started producing concentrates which were refined and sold to David H. Fell and Company, City of Commerce in California. Their receipts totaled about $13,800, for a 3 month period. Again CMI fell to theft from its' hired help who removed concentrates and destroyed equipment through poor maintenance. CMI (Shulers') discovered this loss and theft after returning from an extended trip to corporate headquarters in Issaquah, Washington.

A benefit of the 3 month operating period was that CMI was able to determine that they were not getting their anticipated recovery rate. In their operating plan CMI projected a recovery rate of 80 percent. They found that the mill, as designed, was only recovering approximately 50 percent (Shuler, 1996). Since the ball mill was severely damaged by their contract help CMI elected to try to improve recovery by installing a impact mill. This change over took about a year and testing determined that recovery only improved to about 60 percent. The mill is operational and continues to be used.

CMI was still a long way from their anticipated 80 percent recovery. It was determined through analysis that the poor recovery was due to the size and shape of the gold particles and the only way to improve recovery was to develop a leaching circuit.

To prepare, implement, and assist in running a leaching circuit, CMI entered into a partnership with Jim Coats a professional engineer. Mr. Coats has had experience in setting up and running leaching systems in the past. In February 1999, CMI completed their application for permit to use chemicals and submitted it to the Nevada Department of Environmental Protection (NDEP). This permit is pending review and approval from NDEP. Operations under this permit will be for a very small scale, 1 acre, cyanide heap leach. A copy of the permit application is found in Appendix 8. The primary circuit will be the heap leach system, however CMI will retain the gravity circuit which will be used when conditions are favorable for it.

b. Valid Uses

Coyote Mines, Inc. has occupied and used the subject mill sites for a number of years as indicated in the previous section which describes some of the chronological events of the claims. During the use of these claims CMI has improved the mill sites. A list of some of these improvements is found in Table VII. Other improvements are listed in Table VI.

Table VII - Use of Coyote Mill Site Claims

Description	Mill Site Claim
Mobile home for office of Coyote Mines and the Shuler's residence. 1977 FUQUA Mobile Home with attached storage room (67' x 14'). 2 bedroom, office, 2 baths, large kitchen/dining/living room, large porch, skirting, mercury flood lights (exterior), appliances, propane gas heater, hot water, 3-ton mobile home air conditioner, 2 single room air conditioners.	#2
Workshop and tool storage. Aluminum Machine Shop (36' x 8'). Insulated aluminum refrigerated trailer with fluorescent lighting, 240/120 volt outlets, water, metal benches, masonite floor, 6 large parts storage cabinets (60 drawers)	#2
Lab trailer. Laboratory - 1957 Goldstone (50' x 8'). Propane gas heater, hot water, electricity, swamp cooler, bench, shelves, office furniture, refrigerator, bookcases, hood, sink, cabinets, drawers, drafting table, closet, flourescent lighting.	#2
Equipment storage trailer. Yellow Storage Shed (30' x 8'). Insulated, electricity, floor to ceiling shelving (on all walls), work bench, tiled floor.	#2
Mobile home living quarter for mine workers (two). Duplex mobile trailer (each 40' x 10'). Each trailer has two complete studio apartments, consisting of bedroom/living room/kitchen, separate bath with tub/shower, and dressing room. Propane gas stove, electricity, refrigerator, swamp cooler, gas heat. Fully furnished, including dishes, silverware, pots, and pans, linens, etc.	#2
Large travel trailer for living quarters for mine workers (two). Duplex mobile trailer (each 40' x 10'). Each trailer has two complete studio apartments, consisting of bedroom/living room/kitchen, separate bath with tub/shower, and dressing room. Propane gas stove, electricity, refrigerator, swamp cooler, gas heat. Fully furnished, including dishes, silverware, pots, and pans, linens, etc.	#2
Well house shed with electricity and cement floor (5' x 4').	#2
Storage shed, white metal with electricity and wood floor (10' x 10').	#2
Storage shed, white metal with electricity and dirt floor (10' x 10').	#2

Table VII - Use of Coyote Mill Site Claims

Description	Mill Site Claim
Storage shed, wooden ¾ wall, electricity and cement floor (12' x 10').	#2
Mill shop laboratory and equipment storage area (20' x 13'). Insulated metal building, wood floor, fluorescent lighting, single and three-phase power outlets, metal benches and extensive metal shelving.	#3
Two story mill building (Spiral Building two levels, 44' x 10'). Metal building with 10" reinforced cement floor, electricity, access to all levels, including roof by metal stairway, outside mercury vapor lighting. Building contains 3 spirals, 3 sala pumps, 4 centrifuges, 1 Dutch State Mine screen, 1 gravity settling tank, 1 constant head water tank (180 gal), and 1 hoist.	#1 & #2
Mill processing area includes all equipment used for processing. Switchgear and controls for all components comprising the ore processing circuit, 8'x10' grizzly, 10-ton feed hopper, 3 conveyors, 28"x9" jaw crusher, 1 impact production mill, Diester #6 concentration table, 4' auger bin, 5' auger bin, 8'x30" gravity settling tank, and Marcy density scale.	#1, #2, & #3
Settling pond and water recovery area	#1
Used equipment and supply storage areas (two areas separated by road)	#1 & #3
Stockpiles of mill feed (6 stockpiles less then ¼ acre)	#5
350 feet water well	#2
Water tank (15 feet tall x 10 feet diameter) estimated volume 10,000 gal.	#2
Water tank (10 feet tall x 10 feet diameter) estimated volume 6,000 gal.	#2
Water tank (10 feet tall x 10 feet diameter) estimated volume 6,000 gal.	#1

Section 4 of this report, Physical Features and Surface Improvements, describes how CMI has made several service related improvements. This includes the acquisition and installation of rights-of-way (see Table VI); the installation of telephone and power; drilling of a water well and related water system; and the construction of access roads (see Figure 2).

A photo record of the gravity circuit is found in Appendix 7. These photos were prepared by CMI and depict the condition of the gravity mill.

On October 21, 1996, Coyote Mines, Inc. submitted an amendment to their Surface Management Notice filed under 43 CFR 3809 (see Appendix 8). This amendment changed the type of grinding equipment used by CMI. It also included a flow diagram of the gravity mill used by CMI. On March 2, 1999, CMI again amended their Notice by submitted an Application for Permit Modification (Appendix 9). This document also contains a flow diagram of the gravity mill (Figure 1, Section 445A.397 of the application). Based on these two flow diagrams, which are different, and the author's onsite visit of the gravity mill, the author has created a flow diagram of CMI's gravity mill circuit illustrated in Figure 7.

Since CMI has not reached the recovery rate they thought they would achieve when operating the gravity circuit, they have elected to develop a cyanide heap leach circuit. Figures 8 and 9 are renderings of their flow diagrams associated with the heap leaching circuit. Figure 9 contains reference numbers which relate to the specific equipment planned to be utilized by CMI when their permit is reviewed. Appendix 10 lists each of these items by the reference number shown in Figure 9. The items listed are described and an estimate of cost is included. Appendix 10 also includes other capital cost estimates for items not shown in Figure 9. This estimate includes most of the components required to construct the heap leach system and associated process plant. They estimate the capital cost of major components to be $47,304. This estimate includes piping, valves, pumps, liners, fencing, etc.

Coyote Mines, Inc. has the following equipment onsite in operating condition:

1 Fiat Allis front end loader, 545-B, wheeled and has a 3 cubic yard bucket
1 Payloader front end loader, H80-B, wheeled and has a 5 cubic yard bucket
1 Case backhoe, 35YC EC Series B 35 BEC
1 Dodge dump truck, 1957, 9 cubic yard capacity

All equipment and the gravity circuit have been maintained and are in operating condition. CMI continues to utilize this equipment and mill.

c. Other Use Factors

Other factors to consider in this evaluation are, 1) if there is an adequate mineral deposit (grade and size) that is being or can be readily processed by the mill; 2) the economic conditions for sale of the resource; and 3) a profitability analysis. The following address each of these areas.

i. Adequate Mineral Deposit (grade and size)

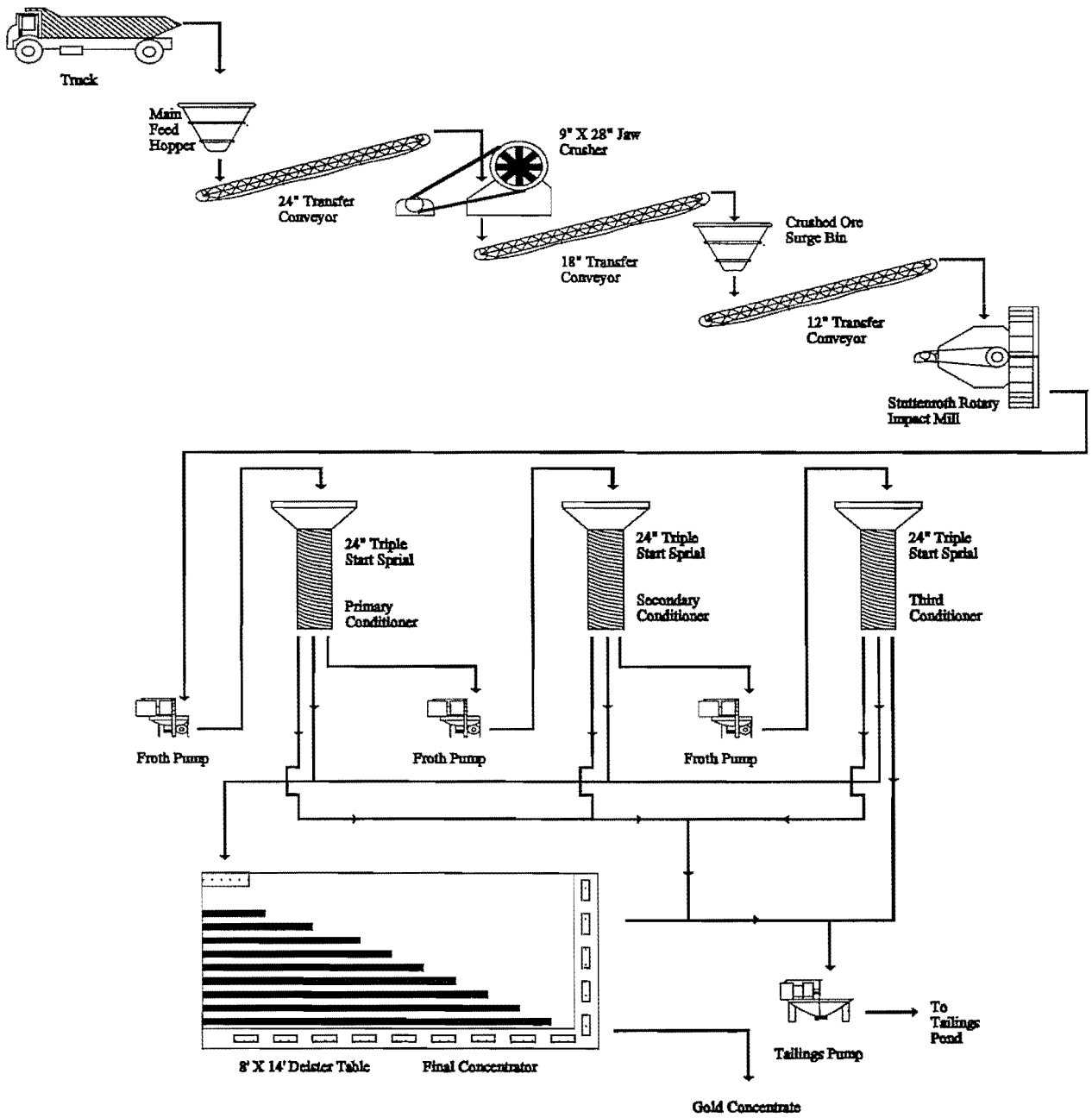


Figure 7 - Flow Diagram of Coyote Mines, Inc. Gravity Mill

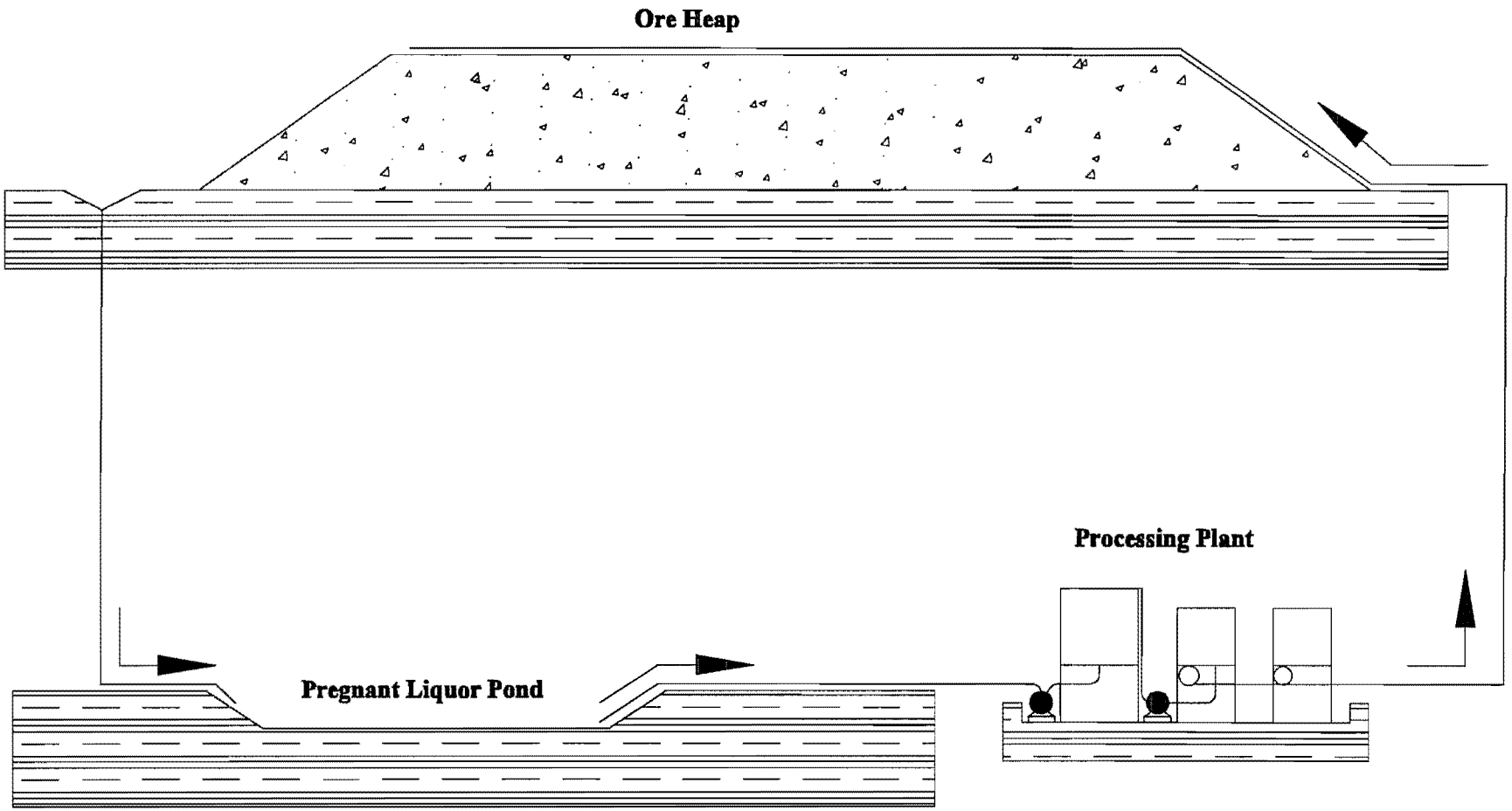


Figure 8 - Proposed Heap Leach System of Coyote Mines, Inc.

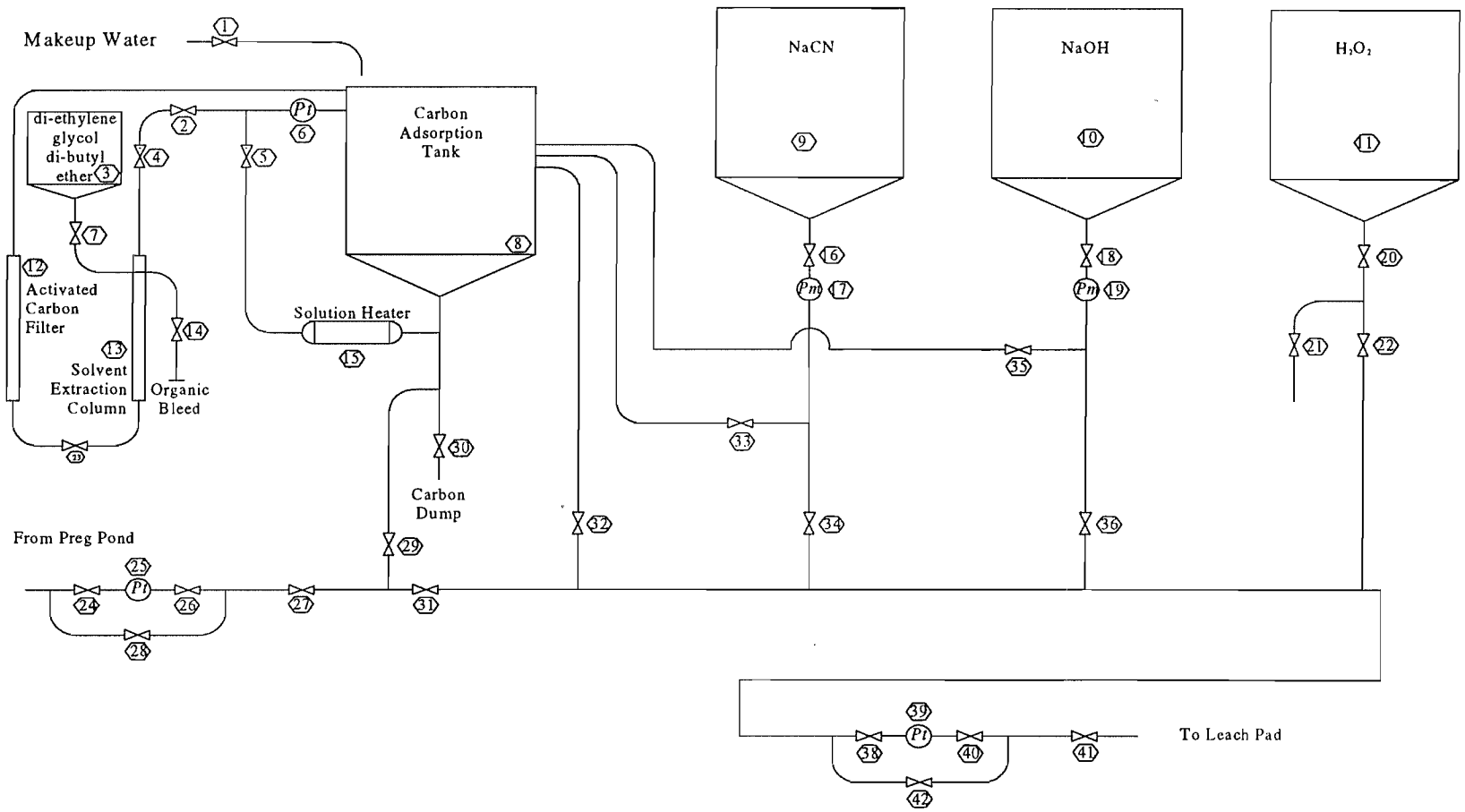


Figure 9 - Proposed Heap Leach Circuit of Coyote Mines, Inc.

Table VIII - Mineral Deposit Resources of CMI's Patented Lodes

Source	In Place Tons	Gold oz	Silver oz
Coyote/John and Sanford	97,800	13,300	18,640
Whist	9,250	11,470	
Stockpiles (mostly on John and Sanford, some on mill sites)	9,500	615	
TOTAL	116,550	25,385	18,640

Section 6 e. iii, of this report briefly describes the outlook of CMI's holdings associated with this mineral patent application. Based on the studies developed by CMI including review of this information and their reports, analysis, and estimates of resources and the author's own field investigation of the patented lodes, the following resources listed in Table VIII are considered readily available for processing by the gravity mill, heap leach circuit (when completed), or both.

Bagby, 1994, estimated that the in-place resources, of the Coyote/John and Sanford lode, could be recovered through small open pit mining techniques. Through the use of a model CMI estimates that they can mine approximately 92,400 tons of the estimated 97,800 tons of in-place resources. This would reduce the potential volume of recoverable gold to approximately 12,500 oz and silver to 17,500 oz. CMI did not supply an estimate of how much they could recover through mining on the Whist and the author is opting to use the same mining recovery rate as developed for the Coyote/John and Sanford lode of a little over 94 percent. That would mean that the potential volume of gold to recover on the Whist is approximately 10,800 oz of gold. All stockpiles on the mill sites can be processed. Based on this information there is approximately 23,900 ounces of gold and 17,500 ounces of silver that can be mined by the proposed mine model and existing stockpiles. These values are determined by taking 94 percent of the total ounces of gold and silver listed in Table VIII and rounding to the nearest 100 ounces.

ii. Economic Conditions for Sale of Resources

The average price of gold and silver per ounce for the year of 1989, when the First Half Final Certificate of the MPA was issued, was $409 and $5.416 respectively. Since that time the value of gold has been declining. The price of gold as of May 4, 1999, was $286.60 per ounce. This value does not necessarily represent the outlook for the value of gold. Silver prices have remained relatively stable for the last several years, centering around the current price of $5.375. When looking at the sale of futures for gold and silver at the one year and two year intervals the May 4, 1999, Wall Street Journal listed the futures as follows:

Time Period	Gold/oz.	Silver/oz.
June 2000	$298.80	$5.413
December 2001	$316.50	$5.332

Based on this information and the past market trend for gold and silver the author will use $300 per ounce for gold and $5.40 per ounce for silver to assess the value of gold and silver at the writing of this report.

iii. Profitability Analysis - Gravity Circuit

Capital Expenses

The intent of this analysis is to show the relationship between the profitability of operating the mill sites and CMI's gold resource contained within the associated lode deposits. CMI has other mining claims in the vicinity of the mill sites and there are known mineral resource present on these unrelated (to the mineral patent application) mining claims. In a MPA, which also considers unpatented mining claims, the report would also complete an analysis of the mineral deposit and determine if a discovery is present. The intent of this report is to show that CMI can operate the mill at a profit by processing ore from the patented lode claims in which the mill site claims are dependent. CMI is in the process of converting from their gravity circuit to a heap leach circuit to improve recovery.

Capital expenses associated with the gravity circuit that have occurred since the filing of the mineral patent application consist of obtaining the Stuttenroth Rotary Impact Mill. The mill cost CMI $7,500. All other capital expenses occurred prior to filing the MPA. The claimants have in place the gravity mill, lab, trailers, phone, power, water, etc. They also have equipment such as the dump truck, loaders, and backhoe which they own. The life expectancy of all the equipment and facilities exceed that of the known reserves. Thus, for the purposes of this examination previous capital expenses will be considered sunk and do not contribute to the cost of the operation as capital expenses.

Operating Expenses

Coyote Mines, Inc. has operated the mill intermittently for several years. This type of operation and the intermittent running of the mill is very typical of small scale operations. As previously described in the Chronology of Events Associated with the Coyote Mill Site Claims section of this report, CMI has had difficulty finding reliable and honest help.

Another factor that makes it very difficult to determine true operating costs directly related to the processing of the mineral deposit found on the associated lode patents is the activities associated with the unpatented properties, held by CMI. There is however, a period of time in June, July, and August of 1996 which best reflects a period of continuous operation showing the cost related to the operation of the mill and sale of gold. Table IX summarizes

CMI's general ledger for this time period. CMI has asked that the copies of the general ledgers be held in confidence and are under separate cover.

The types of costs that occurred in the Administrative, Mining, and Milling row of Table IX include, bank charges, contract employees, employee and employer wages, Nevada unemployment and workmen's compensation insurance (for on the job injury), business licenses, insurance on equipment and mill, general supplies, utilities, licenses, permits, and office supplies. The Exploration and Development row of Table IX is only for cost associated with the further mining of the mineral resources on the lode claims. The type of expenses include fuel, oil, repair and maintenance of mining equipment, repair and maintenance of materials handling equipment, and general supplies. The Pre-Production and Production expenses include the purchase and replacement of equipment; fuel, oil, and lubricants for the mill, repair and maintenance of equipment, supplies, and utilities (electricity). The Laboratory and Refining cost are associated with the repair and maintenance of lab equipment, purchase of chemicals, non-chemical supplies, and propane.

Table IX - Operating Expenses for June - August, 1996

Description	Jun	Jul	Aug	Total
Administrative, Mining and Milling	$4,846.53	$2,560.18	$1,024.03	$8,430.74
Exploration and Development	$100.47	$98.10	$85.81	$284.38
Pre-Production and Production	$169.19	$334.94	$665.58	$1,169.71
Laboratory and Refining	$103.36	$154.67	$209.49	$467.52
Total	$5,219.55	$3,147.89	$1,984.91	$10,352.35

During this period of running the mill, CMI produced 43.843 ounces of gold at a cost of $10,352.35. CMI sold the gold to David H. Fell and Company in Southern California for a total value of $16,559.82. This value ($16,559.82) is after deductions for the refining of the doré. Thus, with operating costs of $10,352.35 and value of the gold at $16,559.82, CMI operated at a profit of $6,207.47. Copies of the receipts for the sale of gold are considered confidential by CMI and are also held under separate cover. Appendix 11 is a copy of David H. Fell's refining schedule.

iv. Profitability Analysis - Heap Leach Circuit

Capital Expenses

As described in the previous section (Profitability Analysis - Gravity Circuit) the intent of this examination is to show the relationship of profitability between recovering a mineral resource that currently exists on 3 patented lode claims and the use of the mill sites described in this report.

Equipment for the proposed heap leach circuit has not been purchased and the associated capital expense has not occurred. CMI has provided a detailed breakdown of the equipment and supplies they will need to construct the proposed heap leach circuit. A copy of this can be found in Appendix 10. Cost associated with the construction of the processing facility is estimated to be approximately 10 percent of the total capital expense for the heap leach circuit. Table X lists the capital expenses for the processing facility based on the information presented by CMI and found in Appendix 10 and personal communications with Jim Coates, May 5, 1999, concerning the total capital expenses. In the development of the cost associated with constructing and operating the heap leach circuit, CMI placed some of the capital expenses in the projected yearly operational costs. These costs are found in Appendix 12 also provided by CMI. The line items listed in Table X give the specific pages for the source of the information. The total capital expenses, which includes purchase and installation of equipment, for both the heap and process facility is approximately $75,000.

Based on the information provided and a detailed review of this information, the author accepts these capital costs as reasonable. The estimated capital cost supplied in Appendix 10 was compared with Western Mine Engineering, Inc.'s "Mine and Mill Equipment Costs, An Estimator's Guide and Mine Cost Services." Not all items listed in Appendix 10 are found in this estimator's guide, however, the items that were found in the guide are comparable to those found in the Western Mine Engineering guide.

Operating Expenses

Coyote Mines, Inc. through Jim Coates, has developed an economic model for operating the heap leach circuit. A copy of this economic summary is found in Appendix 12. The operation and labor costs from the economic summary were compared to Western Mine Engineering, Mining Cost Service. The costs provided by CMI are comparable to those found in the Western Mine Engineering guide.

Under the design constraints developed by CMI, they would process approximately 36,500 tons of material a year. Based on this rate of production, CMI has from 2.5 to 3 years of mine life with their proven resources. The operating costs associated with this annual production are approximately $250,000 per year and will remain relatively constant over the life of the project. The types of operation covered by this estimate include contract mining to load and unload the heap, overhead, leased equipment, rents, supplies, fuel, electricity, labor, salaries, etc.

Table X - Summary of Capital Expenses

Description	Percent of Capital Cost	Total
Mill Equipment (Appendix 10, p. 11)		$47,304.00
Miscellaneous Materials and Equipment (Appendix 12, p. 4)		$5,500.00
Other Equipment and Supplies (Appendix 12, p. 2-4)		$12,275.00
Installation of Process Facility	10	$5,280.40
Installation of Heap Leach Pad and Leak Detection (Appendix 12, p. 6, 10% of Contract Mining)	10	$4,106.00
TOTAL		$74,465.40

A review of the this data (Appendix 12) appears to be reasonable and acceptable. The author does not see a benefit to recalculate these expenses. Page one of Appendix 12 is a summary of the capital, operating and gross revenues associated with the development and operation of the heap leach circuit. The gross revenues were developed based on the assumption of gold priced at $280 per ounce. Table XI is a new cost summary developed by the author taking into account the changes in capital expenses and an increased projection of the price of gold to $300 per ounce. No attempt has been made to calculate the amount of silver that will be recovered as the heap leach circuit operates. Any silver recovered will be added revenues. Based on this analysis, CMI will have a net income before taxes of $829,534 per year for the recovery of gold.

d. Efficient Use of Mill Sites

The proper use of mill sites requires that a claimant make efficient use of each 2.5 acre area of the mill site if it is located as a legal subdivision. If the mill site is located on lands that are surveyed into government lots then the efficiency of use is examined by the proper use of each lot. The following is a review of each mill site and how it is being put to use. The areas of use associated with this mineral patent application are fully mapped and illustrated on Map 5.

COYOTE MILL SITE #1, COYOTE MILL SITE #2, COYOTE MILL SITE #3, COYOTE MILL SITE #5, and COYOTE MILL SITE #6 claims are located on surveyed lots. Table III lists each mill site claim with it's respective legal description and related acreage. COYOTE MILL SITE #4 claim is the only claim located as a legal subdivision of the section. Table VII shows the use of the mining claims as they directly relate to the residences, equipment storage, laboratory, workshops, mill area, mill buildings, water tanks, etc. In addition to these areas, CMI has started to site the heap leach circuit in the vicinity of lot 21 of COYOTE MILL SITE #1. Thus, COYOTE MILL SITE #1, COYOTE MILL SITE #2, and COYOTE MILL SITE #3 are fully developed and put to efficient use.

Table XI - Economic Summary of Coyote Mines, Inc.

Economic Parameter	Unit	Months												One Year Totals
		1	2	3	4	5	6	7	8	9	10	11	12	
Ore Mined	tons		18,250						18,250					36,500
Est. Gold Produced	ozt		58	292	438	350	292	204	204	409	555	438	350	3,590
Est. Silver Produced	ozt													
Gross Revenue	$		17,400	87,600	131,400	105,000	87,600	61,200	61,200	122,700	166,500	131,400	105,000	1,077,000
Less Operating Costs	$	(16,298)	(66,496)	(10,739)	(9,564)	(10,764)	(12,514)	(10,764)	(67,671)	(10,764)	(9,264)	(10,764)	(11,864)	(247,466)
Net Operating Income	$	(16,298)	(49,096)	76,861	121,836	94,236	75,086	50,436	(6,471)	111,936	157,236	120,636	93,136	829,534

COYOTE MILL SITE #4 has some surface disturbance located in the northwest and southwest corners of the claim. The disturbance in the northwest area is a service road and water pipeline that supports one of the trailers located on COYOTE MILL SITE #2. These uses do not qualify as valid uses. The disturbance in the southwest corner of COYOTE MILL SITE #4 is the access road to the claim group from Highway 95. This access road is also supported by right-of-way, N-46709 granted to CMI in November, 1987. There are no residences, structures, stockpiles, waste rock dumps, or other qualifying uses on COYOTE MILL SITE #4. Since this is the only development on COYOTE MILL SITE #4, the claim does not contain qualifying uses for mineral patent.

COYOTE MILL SITE #5 consists of two government lots, lots 16 and 17. Lot 16 has two small stockpiles of mill feed located in the extreme north west corner of the lot. The total volume is approximately 40 cubic yards. These stockpiles are windrowed along the east edge of a road. This material could easily be stockpiled on lot 17 with the other mill feed stockpiles located on this claim. Lot 17 also contains stock piles of mill feed. There is approximately 100 cubic yards stockpiled on this lot. The stockpile of mill feed does qualify for use of the mill site. COYOTE MILL SITE #5, lot 17 can be considered put to a qualifying use and through efficiency of use, the 40 cubic yards located on lot 16 could be moved onto lot 17. Thus, lot 16 is not being put to a qualifying use and lot 17 is being properly used as a storage area for mill feed.

COYOTE MILL SITE #6 consists of two government lots, lots 14 and 15. Lot 14 has a very small stockpile of mill feed located in the extreme southwest corner of the lot. The total volume is approximately 10 cubic yards. This material could easily be stockpiled on lot 17 with the other mill feed stockpiles located on claim #5, or moved onto lot 15. There are no other qualifying uses associated with lot 14. Lot 15 has several stock piles of mill feed located on it. These stockpiles contain a volume of approximately 250 cubic yards of mill feed. The appearance of this mill feed is distinctly different from that located on COYOTE MILL SITE #5 and CMI has elected to keep them separate and distinct to help with grade control and tracking where the feed has come from. Lot 15 can be considered put to a proper use. Thus, lot 14 is not being put to use and lot 15 is being properly used as a storage area for mill feed.

In summary, COYOTE MILL SITE #1, COYOTE MILL SITE #2, COYOTE MILL SITE #3, lot 17 of COYOTE MILL SITE #5, and lot 15 of COYOTE MILL SITE #6 are being properly and efficiently used. COYOTE MILL SITE #4, lot 16 of COYOTE MILL SITE #5 and lot 14 of COYOTE MILL SITE #6 are not currently being put to proper use.

d. Legal Limitations on Mill Site Acreages

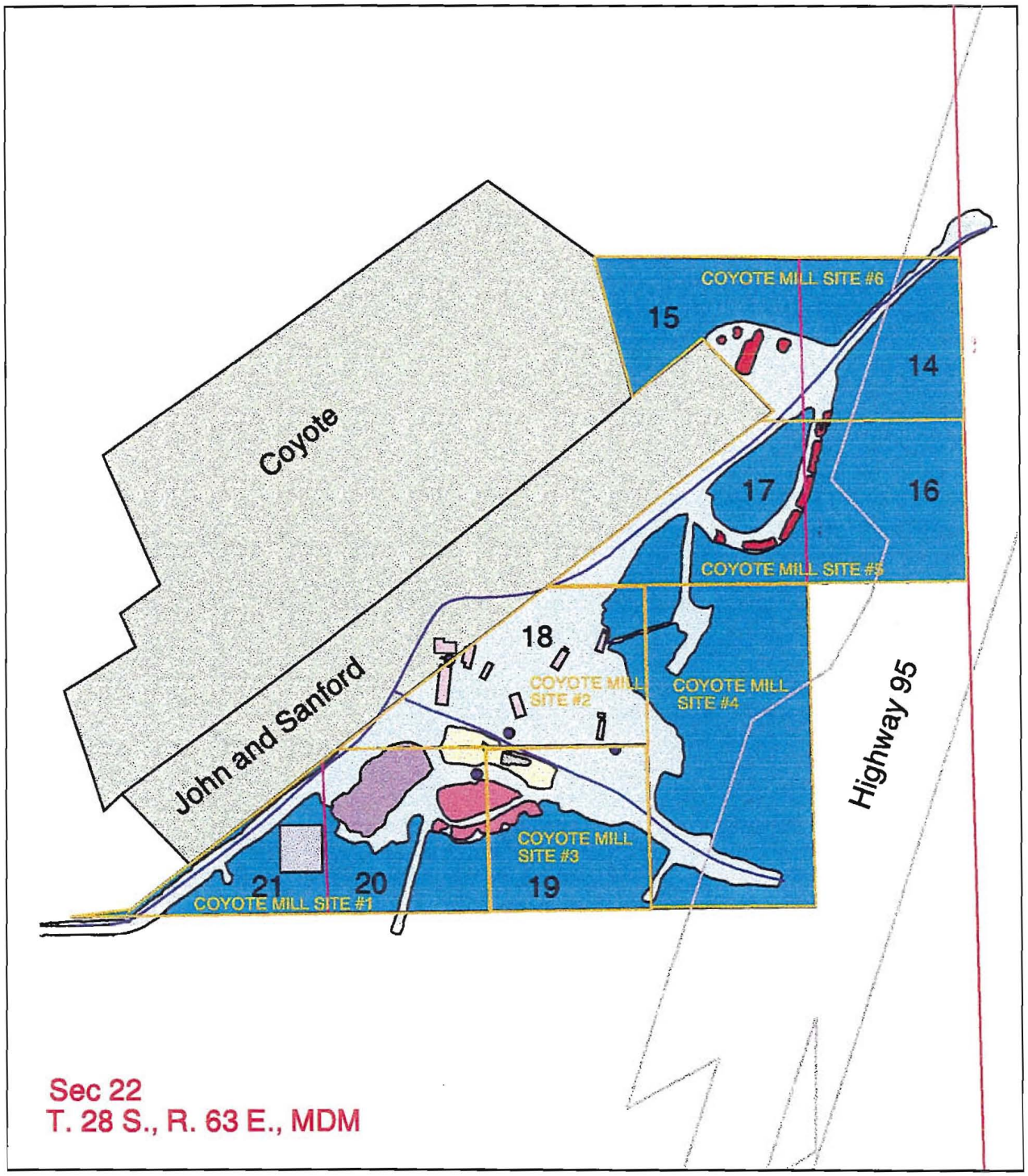
On November 7, 1997, the Solicitor issued an opinion entitled "Limitations on Patenting Millsites under the Mining Law of 1872." The Secretary of the Interior concurred with this opinion on November 12, 1997. The opinion gives direction on the number of acres that can be patented for qualifying mill sites. The opinion establishes that for mill sites up to 5 acres can be patented per each qualifying mining claim being currently patented, or previously patented when the previously patented mining claim is being mined.

Coyote Mines, Inc. has three patented lode claims that are directly associated with this mineral patent application. When incorporating the Solicitor's opinion, that would mean that a maximum of 15 acres could qualify if the associated three lode claims have qualifying or approved mining activities. The Nevada Department of Environmental Protection approves mining and reclamation plans associated with private lands. In CMI's case, Nevada Department of Environmental Protection has given a defacto approval of their mining activities by granting a waiver for filing a plan. Currently CMI is continuing to operate the mine while waiting for approval of a new heap leach circuit.

On July 20, 1999 the Nevada Department of Environmental Protection published a Notice titled "Notice of Proposed Action by the State of Nevada," based on this publishing the State of Nevada has made a "tentative determination to issue the modified permit." A copy of this Notice is found in Appendix 13. Based on this, CMI has created a "Mining and Production Schedule" for the heap leach operation. This schedule shows that CMI will mine from all three patented lode claims within the next three years. A copy of the "Mining and Production Schedule" can be found in Appendix 14.

After a review of the efficiency of use of the mill sites, COYOTE MILL SITE #4, lot 16 of COYOTE MILL SITE #5 and lot 14 of COYOTE MILL SITE #6 would be eliminated from the acreage qualify for patent. The qualifying parcels, COYOTE MILL SITE #1, COYOTE MILL SITE #2, COYOTE MILL SITE #3, lot 17 of COYOTE MILL SITE #5, and lot 15 of COYOTE MILL SITE #6, total 14.35 acres.

Map 5 - Use and Occupancy of Coyote Mines Mill Site Claims



Lot Lines
Right of Way N-46709
Section Lines
Highway Right-of-Way
Mill Sites Boundaries
Water Well
Undisturbed Mill Site Area
Water Tanks
Stockpiles
Mill Building and Lab

Settling Pond
Mill Area
Buildings
Bone Yard
Patent Claims
Limit of Disturbance
COYOTE MILL SITES #1 - 6
Proposed Heap Leach Area
20 Lot Number

100 0 100 200 300 400 500 Feet

N

Prepared by:
Mark Chatterton,
May19, 1999

8. MINERAL-IN-CHARACTER DETERMINATION

Coyote Mines, Inc. was asked to prepare a document which would address the mineral character of the Coyote Mill Site claims that are the subject of this report. In response CMI asked their consultant, William Bagby, to prepare a mineral-in-character report. This report was completed and is contained in Appendix 13.

The author agrees with the conclusions of Mr. Bagby's findings in that the land is not mineral-in-character. This is evidenced by the following:

- There are no surface indications that the altered zone which can be traced in the patented lode claims is found within the limits of the mill site claims.
- The depositional model for the Searchlight Mining District is an epithermal deposit.
- Extensive sampling on the patented lodes shows that the grade of the deposit decreases with depth. This also conforms with an epithermal deposit model.
- The estimated maximum depth of the gold zone under the John and Sanford lode is from 150 to 230 feet.
- The estimated maximum depth of the gold zone under the Coyote lode is 250 to 360 feet at its' southeast boundary.
- Based on the decreasing grade with depth on the CMI lodes, the estimated grade beneath the Coyote Mill Site claims would be less then 0.001 ounces of gold per ton. (Grade at a depth greater then 250 feet.)
- The water well drilled at the east edge of the John and Sanford lode was to a depth of 350 feet and bottomed in quartz monzonite.
- Epithermal deposits not only decrease in ounces per ton but with depth also decrease in tonnage.

Based on these findings it is the author's opinion that Bagby has made a correct interpretation as to the mineral character of the mill site claims. Therefore, based on the above factors, field observations, including structural analysis, together with the empirical model of an epithermal precious-metal deposit, that the lands underlying the mill sites are not mineral-in-character for locatable minerals.

During field observations no mineral materials were observed within the limits of the Coyote Mill Site claims. Since there are no observed mineral materials the Coyote Mill Site claims are not mineral-in-character for mineral materials. Nor has the BLM classified any of the lands associated with the MPA as prospectively valuable for any leasable mineral.

9. REFERENCES

Bagby, William G, PhD., 1994, Development Plan for the Coyote Mines, Inc. Mine and Mill Complex, Searchlight District, Nevada, Unpublished, p. 1-20.

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Coates, James A., 1999, Application for Permit Modification Coyote Mines, Inc. Small Scale Mining & Milling Operation in Clark County, Nevada, for Water Pollution Control Permit #NEV94113, Received By BLM March 2, 1999.

Coyote Mines, Inc. 1994, Corporate Profile: Coyote Mines, Inc. A Small Mining & Milling Business.

Ferguson, H. G., 1929, The Mining District of Nevada: Econ. Geology, vol. 24, p. 135.

Huskinson, E. Jr., 1991, Geology and Mineral Potential of the Coyote Millsite Claims Searchlight Mining District, Clark County, Nevada, Unpublished, p. 1-11.

Longwell, C.R., Pampeyan, E.H., Bower, Ben, and Roberts, R.J., 1965, Geology and Mineral Deposits of Clark County, Nevada: Nevada Bureau of Mines and Geology Bulletin 62.

Ransome, F. L., 1907, Preliminary Account of Goldfield, Bullfrog, and Other Mining Districts in Southern Nevada, US Geological Survey, Bulletin 303, p. 73.

Shuler, J.A., Jr., 1996, Amendment to Mining Notice #N54-90-052N Searchlight, NV., Coyote Mines, Inc.

Western Mine Engineering, 1998, Mine and Mill Equipment Costs, An Estimators's Guide and Mine Cost Services"

10. APPENDIX

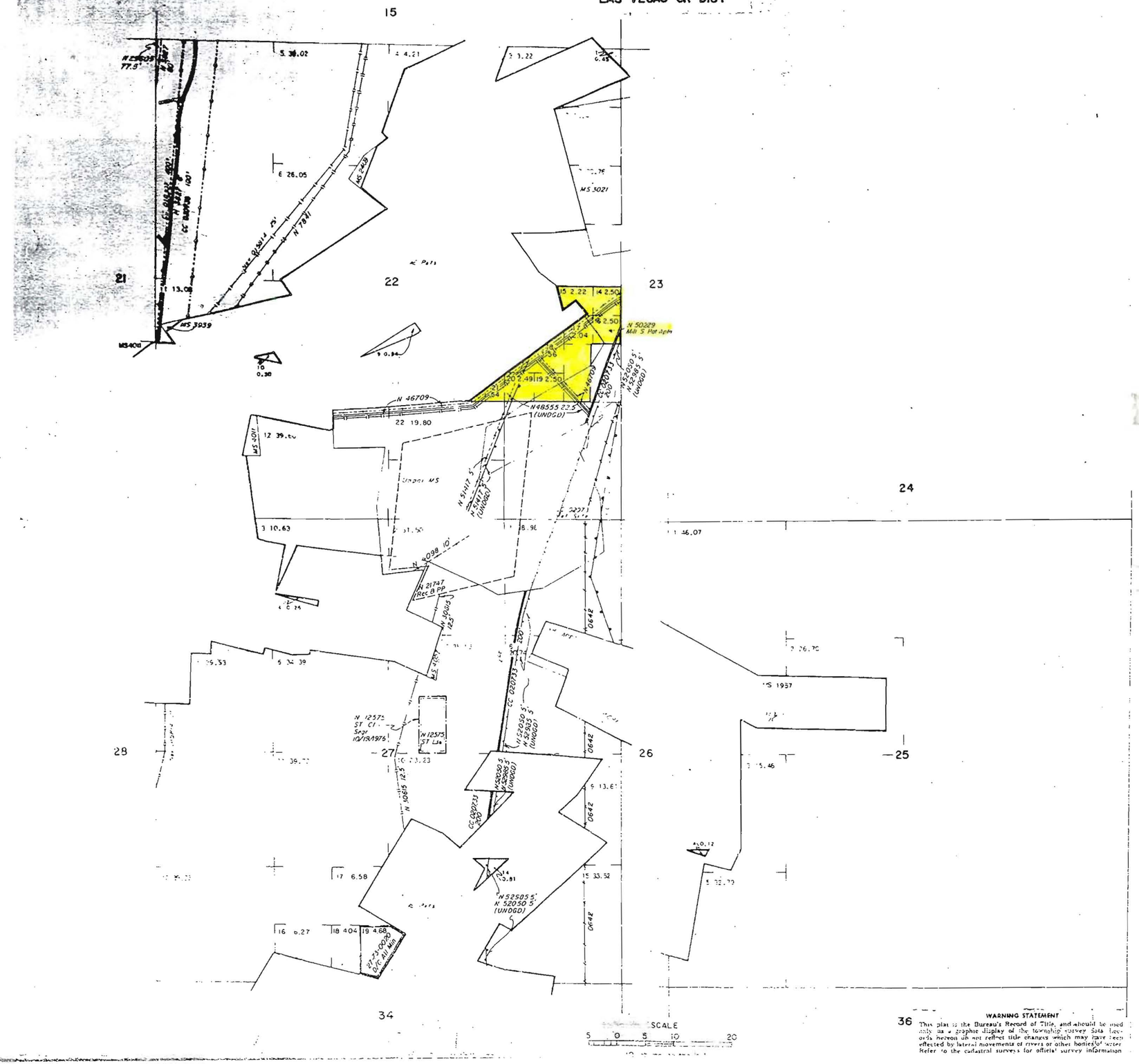
1. MTP SUPPL Secs 22, 25, 27, T. 28 S., R. 63 E. and Historical Index
2. Small Mining Operations Information and Documentation Filing
3. Letters from CMI concerning Compliance with NDEP Filing Requirements
4. State of Nevada, Well Drillers Report
5. Coyote Mines, Inc., Development Plan
6. Documentation of Mineral Resource on Whist Lode
7. Photos of Gravity Circuit
8. Amendment to Mining Notice N54-90-052N
9. Application for Permit Modification for Heap Leach Operations
10. Summary of Component Costs for Heap Leach Operation
11. David H. Fell & Co. Refining Schedule
12. Economic Summary for Heap Leach Operation
13. Notice of Proposed Action by the State of Nevada
14. Mining & Production Schedule for Coyote Mines, Inc.
15. Mineral-in-Character study for the COYOTE MILL SITE Claim Group

APPENDIX 1

TOWNSHIP 28 SOUTH RANGE 63 EAST OF THE MOUNT DIABLO MERIDIAN, NEVADA

CLARK COUNTY

LAS VEGAS GR DIST



STATUS OF PUBLIC DOMAIN LAND AND MINERAL TITLES

MTP
SUPPL Secs 22,25,27

INDEX TO SEGREGATED TRACTS				
RESURVEY	ORIGINAL SURVEY			
TRACT NO	T	R	SEC	SUBDIVISION

FOR ORDERS EFFECTING DISPOSAL OR USE OF UNIDENTIFIED LANDS WITHDRAWN FOR CLASSIFICATION, MINERALS, WATER AND/OR OTHER PUBLIC PURPOSES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS.

CC 018307 subject to all prior existing rights or claims

N 33410 10' Pwr Line affects
Sec 25 S 1/2 SW 1/4. (Within)
Sec 36 W 1/2 W 1/2 (Within)

Certain lands in Sec 27 of this Tp are affected by unrecorded public dedications for roads and utilities due to previous small Tr Cl. See the historical index for specific lands affected by small Tr Cl.

N 57141 NOPA-RBPP
Sec 27: portion of lots 1 & 2

N 58566 R/W Fiber Optic Line (UNDGD), 5'
Sec 22: Lot 16 and E 1/2 SE 1/4 NE 1/4 SE 1/4, SE 1/4 SE 1/4, W/1
Sec 27: Lots 1, 7, 8, 10, 14, 15, W/1

N 58109 R/W Grossled Roadway 60'
Sec 22: SE 1/4 SE 1/4 NE 1/4, W/1

N 61966 All Public Land in Section 27 Segregated from Appropriation Under the General Mining Law

SUPPL SURVEY ACCEPTED Sep 26, 1988

CURRENT TO	BY
1-23-90	LC
[illegible]	[illegible]
7-27-94	KB
6-29-95	KB
8-[illegible]-95	KB
10-[illegible]-97	KB

WARNING STATEMENT

This plat is the Bureau's Record of Title, and should be used only as a graphic display of the township survey data. Records hereon do not reflect title changes which may have been effected by lateral movements of rivers or other bodies of water. Refer to the cadastral surveys for official survey information.

N 080
T. 28 S
R 63 E

TOWNSHIP 28 SOUTH RANGE 63 EAST OF THE MOUNT DIABLO MERIDIAN, NEVADA

SECTION OR TRACT	SUBDIVISION: NE ¼ (NE NW SW SE)	NW ¼ (NE NW SW SE)	SW ¼ (NE NW SW SE)	SE ¼ (NE NW SW SE)	LOTS	OTHER DESCRIPTION	ACRES	KIND OF ENTRY -OR- PURPOSE OF ORDER	SERIAL FILE -OR- ORDER NUMBER	DATE OF ACTION	DATE POSTED	— REMARKS — E. G. DATE CLOSED, TERMINATED, REJECTED OR RESCINDED
					FOR ORDERS EFFECTING DISPOSAL OR USE OF UNIDENTIFIED LANDS WITHDRAWN FOR CLASSIFICATION, MINERALS, WATER, AND/OR OTHER PUBLIC PURPOSES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS							
22					MS 2060		31.14	ME Pat	39608	9/16/1904		MC 734
19												
28												
29												
30												
33						Subdiv Und; 28S 60E		R/W Searchlight & Northern RR	Nev 043260	2/7/1937	2/18/1976 1:00 pm	Canc 2/6/1976
33												
34						Subdiv Und; 29S 62E		R/W Barnwell & Searchlight RR	Nev 042762	5/11/1937	2/18/1976 1:00 pm	Canc 2/6/1976
34					MS 2391	29S 63E	52.947	ME Pat	45305	5/21/1907		MC 965
34					MS 2391		60.13	ME Pat	43791	7/31/1907		MC 539
34												
35					MS 2365	29S 63E	101.354	ME Pat	45291	7/31/1907		MC 962
22					MS 2394		17.75	ME Pat	43969	10/25/1907		MC 641; Excluding Lesch Lode MS 2365
34					MS 2706	29S 63E	6.214	ME Pat	46211	12/16/1907		MC 1087
25												
26					MS 1957		142.999	ME Pat	41323	12/26/1907		MC 659
34					MS 2795	29S 63E	60.60					MC 1159; Excluding MS 2331, Sew Cows Lode, Fraction
								ME Pat	46550	2/27/1908		Fraction
34					MS 2624		50.194	ME Pat	46207	3/9/1908		MC 1084; Excluding Monarch Fraction
27												
28					MS 2736		98.901	ME Pat	46520	6/15/1908		MC 1152
34					MS 2770	29S 63E	2.994	ME Pat	47216	7/1/1908		MC 1269
27												
34					MS 2635		85.32	ME Pat	48203	7/6/1908		MC 1065; Excluding Lucania Lode Fraction
35					MS 3413		7.39	ME Pat	93637	11/22/1909		
27												
34					MS 3330		16.561	ME Pat	99070	12/27/1909		
15												
22												
23					MS 2409		105.281	ME Pat	148161	8/4/1910		Excl Mine MS 2634, Somerset, Fraction
27					MS 3583		15.187	ME Pat	159478	10/27/1910		
27												
34					MS 2708		84.008	ME Pat	166300	12/15/1910		Excluding MS 2635
32							320.00	ME	CC 06328	8/14/1911		Canc 1/15/1919
34												
35					MS 2655		43.704	ME Pat	235537	12/7/1911		Excluding Water/Service Reservoir
13												
14												
23												
24					MS 3515		120.002					Excluding MS 3324, the Hard Pan Fraction, Mission Lode, Fraction
								ME Pat	242454	1/16/1912		lode unsurveyed
13												
23												
24					MS 3324		113.317	ME Pat	270747	5/1/1912		
12												
13					MS 3564	28S 64E	95.775	ME Pat	270750	6/1/1912		Excluding Hollis Lode S.F.B. Lode S 3408
22					MS 3839		59.36					Excluding American Belle, Forepaugh, Lost Aug. MS 2403
								ME Pat	272863	6/6/1912		unsurveyed

T. 28S
R. 63E
PAGE 1

TOWNSHIP 28 SOUTH RANGE 63 EAST OF THE MOUNT DIABLO MERIDIAN, NEVADA

SECTION OR TRACT	SUBDIVISION NE 1/4 NE	NE 1/4 NW	NE 1/4 SW	NE 1/4 SE	NW 1/4 NE	NW 1/4 NW	NW 1/4 SW	NW 1/4 SE	SW 1/4 NE	SW 1/4 NW	SW 1/4 SW	SW 1/4 SE	SE 1/4 NE	SE 1/4 NW	SE 1/4 SW	SE 1/4 SE	LOTS	OTHER DESCRIPTION	ACRES	KIND OF ENTRY -OR- PURPOSE OF ORDER	SERIAL FILE -OR- ORDER NUMBER	DATE OF ACTION	DATE POSTED	— REMARKS — E. G. DATE CLOSED, TERMINATED, REJECTED OR RESCINDED
FOR ORDERS EFFECTING DISPOSAL OR USE OF UNIDENTIFIED LANDS WITHDRAWN FOR CLASSIFICATION, MINERALS, WATER, AND/OR OTHER PUBLIC PURPOSES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS																								
34																								
35																	MS 3722		82.075	ME Pat	296553	10/15/1912		Excluding Bonanza lode MS 2624, Progress Lode in conflict Eclipse No. 3
21																								
22																								
27																								
28																	MS 4011		112.085					Excluding Koh-i-noor, Paragon lode unsurveyed, Louisa lode unsurveyed, except its
																								conflict with Gold Standard; Senator lode, except its conflict with Battle Creek;
																				ME Pat	298729	11/1/1912		Dora & New Year lode MS 2798 & Baby Phil MS 2758
35																	MS 4078		18.923	ME Pat	330228	5/2/1913		Excluding MS 3413
26																								
27																	MS 4082		33.254	ME Pat	335091	5/20/1913		Excluding Princess lode unsurveyed
34																	MS 4083		32.293					Excluding MS 3902, Diamond Wedge lode MS 2091, Searchlight & Spotted Horse lode,
																				ME Pat	338124	5/29/1913		MS 2366
27																	MS 4057		36.526	ME Pat	341528	6/17/1913		Excluding Henrietta lode MS 2834, Princess lode unsurveyed
34																	MS 3902		48.341	ME Pat	377104	1/14/1914		Excluding MS 2605, 2624, & Mesa, Elmira lode, MS 3708
34																	MS 4150		.952	ME Pat	397054	4/8/1914		Excluding Grand Central lode unsurveyed
27																		All	640.00					
30																		All	639.96					
31	X	X	X	X	X	X	X	X										28S 62E	320.39	Pittman Per	CC 012629	6/8/1921		Rel 5/28/1923
15																		All						
16																		All						
17																		All						
18																		All	2560.00	Pittman Per	CC 012673	6/8/1921		Canc 2/3/1926
7																		All						
8																		All						
9																		All						
10																		All	2560.00	Pittman Per	CC 012711	6/8/1921		Canc 12/16/1925
31									X	X	X	X	X	X	X	X		28S 62E	320.13	Pittman Per	CC 013539	2/4/1922		Canc 4/6/1926
22																	MS 4578		30.32					Excluding Blossom & Coyote lode MS 2050, said Dubuque & Chester No. MS 3939 &
																				ME Pat	976974	3/31/1926		Tr A of Dabu lode MS 2834
1																		All						
2																		All						
11																		All						
12																		All	2556.04	Pittman Per	CC 017026	6/18/1930		Canc 1/26/1932
					ENTIRE				TOWNSHIP									29S 63E		SO Wdl Colo. River Recl Proj				
																				(1st Form)		3/26/1931		Partially Rev SO 8/22/1931; Rev SO 6/6/1940. Rev 05/1945 See Next Page
1																		All						
2																		All						
3	X	X	X	X									X	X	X	X								
4					X	X	X	X	X	X	X	X												
5																		All						
6																		All						
7																		All						
8																		All						
9					X	X	X	X	X	X	X	X												
10	X	X	X	X									X	X	X	X								
11																		All						
12																		All						
13																				Continued on Page 3				

T. 28S
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PAGE 2

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TOWNSHIP 28 SOUTH RANGE 63 EAST OF THE MOUNT DIABLO MERIDIAN, NEVADA

SECTION OR TRACT	SUBDIVISION NE 1/4 NE	NE 1/4 NW	NE 1/4 SW	NE 1/4 SE	NW 1/4 NE	NW 1/4 NW	NW 1/4 SW	NW 1/4 SE	SW 1/4 NE	SW 1/4 NW	SW 1/4 SW	SW 1/4 SE	SE 1/4 NE	SE 1/4 NW	SE 1/4 SW	SE 1/4 SE	LOTS	OTHER DESCRIPTION	ACRES	KIND OF ENTRY -OR- PURPOSE OF ORDER	SERIAL FILE -OR- ORDER NUMBER	DATE OF ACTION	DATE POSTED	— REMARKS — E. G. DATE CLOSED, TERMINATED, REJECTED OR RESCINDED
FOR ORDERS EFFECTING DISPOSAL OR USE OF UNIDENTIFIED LANDS WITHDRAWN FOR CLASSIFICATION, MINERALS, WATER, AND/OR OTHER PUBLIC PURPOSES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS																								
14																		All		Continued from Page 2				
15	X	X	X	X									X	X	X	X								
16					X	X	X	X	X	X	X	X												
17																		All						
18																		All						
19																		All						
20																		All						
21					X	X	X	X	X	X	X	X												
22	X	X	X	X									X	X	X	X								
23																		All						
24																		All						
25																		All						
26																		All						
27	X	X	X	X									X	X	X	X								
28					X	X	X	X	X	X	X	X												
29																		All						
30																		All						
31																		All						
32																		All						
33					X	X	X	X	X	X	X	X												
34	X	X	X	X									X	X	X	X								
35																		All						
36																		All; 30S 62E		SO Partially Rev Colo. River Recl Proj SO 3/26/1931		8/22/1931		Rest GLO O 9/9/1931. Nev 051745
1																		All						
2																		All						
3	X	X	X	X									X	X	X	X								
4					X	X	X	X	X	X	X	X												
5																		All						
6																		All						
7																		All						
8																		All						
9					X	X	X	X	X	X	X	X												
10	X	X	X	X									X	X	X	X								
11																		All						
12																		All						
13																		All						
14																		All						
15	X	X	X	X									X	X	X	X								
16					X	X	X	X	X	X	X	X												
17																		All						
18																		All						
19																		All						
20																		All						
21					X	X	X	X	X	X	X	X												
22	X	X	X	X									X	X	X	X								
23																		All						
24																		All		Continued on Page 4				

TOWNSHIP 28 SOUTH RANGE 63 EAST OF THE MOUNT DIABLO MERIDIAN, NEVADA

FOR ORDERS EFFECTING DISPOSAL OR USE OF UNIDENTIFIED LANDS WITHDRAWN FOR CLASSIFICATION, MINERALS, WATER, AND/OR OTHER PUBLIC PURPOSES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS

SECTION OR TRACT	SUBDIVISION NE ¼				NW ¼				SW ¼				SE ¼				LOTS	OTHER DESCRIPTION	ACRES	KIND OF ENTRY -OR- PURPOSE OF ORDER	SERIAL FILE -OR- ORDER NUMBER	DATE OF ACTION	DATE POSTED	— REMARKS — E. G. DATE CLOSED, TERMINATED, REJECTED OR RESCINDED
	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE								
25																		All		Continued from Page 3				
26																		All						
27	X	X	X	X									X	X	X	X								
28					X	X	X	X	X	X	X	X												
29																		All						
30																		All						
31																		All						
32																		All						
33					X	X	X	X	X	X	X	X												
34	X	X	X	X									X	X	X	X								
35																		All						
36																		All; 30S 62E		GLO O Rest Colo. River Recl				
																				Proj SO 8/22/1931		9/9/1931		Open to Entry. Rev 051745
					ENTIRE				TOWNSHIP									22S 63E		EO Temp Wdl Pending Sur	5836	4/13/1932		Rev EO 6112 4/22/1933;Rev. 057435
					ENTIRE				TOWNSHIP									25S 64E		EO Rev EO 5836 4/13/1932	6112	4/22/1933		CE 9/13/1933;Rev 057435
2																								
3																								
10																								
11																								
14																								
15																								
22																								
23																								
26																								
27																								
28																								
33																								
35																		Subdiv Und; 24S 63E		R/W Trans & Tel Line	CC 018307	12/1/1934		
22													X							R/W Mat Site	CC 020730	4/13/1939		
2																								
11																								
14																								
22																								
23																								
26																								
27																		Subdiv Und; 26S 63E		R/W Hwy	CC 020733	4/13/1939		
3																								
10																								
15																								
22																								
27																								
28																								
33																								
34																		Subdiv Und; 25S 63E		R/W Trans Line	CC 020736	8/16/1939		Renew 8/16/1989;Convert to FLPMA 8/17/1988
3					X	X	X	X	X	X	X	X												
4	X	X	X	X									X	X	X	X								
9	X	X	X	X									X	X	X	X								
10					X	X	X	X	X	X	X	X												
																				Continued on Page 5				

T. 28S
R. 63E
Page 4

3 SLE

OSO
T. 28
R. 63
Page 4

TOWNSHIP 28 SOUTH RANGE 63 EAST OF THE MOUNT DIABLO MERIDIAN, NEVADA

FOR ORDERS EFFECTING DISPOSAL OR USE OF UNIDENTIFIED LANDS WITHDRAWN FOR CLASSIFICATION, MINERALS, WATER, AND/OR OTHER PUBLIC PURPOSES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS

Sec.	NE¼ NE	NE¼ NW	NE¼ SW	NE¼ SE	NW¼ NE	NW¼ NW	NW¼ SW	NW¼ SE	SW¼ NE	SW¼ NW	SW¼ SW	SW¼ SE	SE¼ NE	SE¼ NW	SE¼ SW	SE¼ SE	LOTS	OTHER DESCRIPTION	ACRES	KIND OF ENTRY OR PURPOSE OF ORDER	SERIAL FILE OR ORDER NUMBER	DATE OF ACTION	DATE POSTED	REMARKS — E. G. DATE CLOSED, TERMINATED, REJECTED OR RESCINDED
[illegible]					X	X	X	X	X	X	X	X								Continued from Page 4				
[illegible]			X	X									X	X	X	X								
[illegible]		X	X	X									X	X	X	X								
[illegible]					X	X	X	X	X	X	X	X												
17					X	X	X	X	X	X	X	X												
[illegible]		X	X	X									X	X	X	X								
33	X	X	X	X									X	X	X	X								
1?					X	X	X	X	X	X	X	X						29S 63E		SO Rev Colo. River Recl Proj				
																				SO 3/26/1931		6/6/1940		Nev 051745
35	X																			R/W Hat Site	CC 020817	6/10/1940		
22																		S½NE¼NE¼, N½SE¼NE¼		R/W Hat Site	CC 020880	6/10/1940		Rel 2/25/1986; Records noted 6/29/1995
32																		All; 29S 63E	640.00	Pittman Per	Nev 09387	10/13/1952		Exp 3/14/1956
31																		All; 29S 63E	640.00	Pittman Per	Nev 09388	10/14/1952		Canc 12/17/1956
35								X											40.00	SLUP	Nev 049453	1/6/1958		Canc 2/3/1960
35																								
36																		Subdiv Und; 28S 64E		R/W Trans Line	Nev 045212	5/5/1958		Proof of Construction 7/17/1957; Convert to FLPMA 2/26/1990
34																		Subdiv Und		R/W Radio Tower Site	Nev 045804	8/24/1960		
32											X	X						29S 63E	80.00	Pittman Per	Nev 047708	10/14/1960		Canc 5/22/1961
2																								
3																								
10																								
15																								
22																								
27																								
28																								
33																								
34																		Subdiv Und; 21S 62E		R/W Pipe Line	Nev 015814	11/2/1960		
34																	15, 16, 21			BLM O ST Cl 199	Nev 049898	5/25/1961	5/18/1965 2:30 pm	Vacated 7/21/1961
9																		All						
10																		All						
15																		All						
16																		All	2559.63	OG Lse	Nev 057509	6/1/1961		Term 5/31/1963
20																		All						
29																		All	1280.00	OG Lse	Nev 057510	6/1/1961		Term 5/31/1963
18																		All	643.04	OG Lse	Nev 057511	7/1/1961		Term 6/30/1962
6																		All; 27S 63E	1284.97	OG Lse	Nev 057512	7/1/1961		Term 6/30/1962
34																	15, 16, 21		1	ST Pat	1221323	7/21/1961		
35																		Subdiv Und; 29S 63E		R/W Trans Line	Nev 057664	10/5/1961		Proof of Construction 10/18/1961
29											X													
30																X								
32						X														R/W Hat Site	Nev 059097	12/21/1962		Amdt 6/12/1989
28											X	X			X									
29							X		X	X			X	X	X	X								
30		X	X	X	X			X					X											
33	X	X			X																			
36																	2, 3, 13			R/W Hwy	Nev 058548	1/18/1963		Proof of Construction filed 3/13/1967
																				Continued on Page 6				

TOWNSHIP 28 SOUTH RANGE 63 EAST OF THE MOUNT DIABLO MERIDIAN, NEVADA

SECTION OR TRACT	SUBDIVISION (NE ¼: ONE, NW, SW, SE; NW ¼: NE, NW, SW, SE; SW ¼: NE, NW, SW, SE; SE ¼: NE, NW, SW, SE)	LOTS	OTHER DESCRIPTION	ACRES	KIND OF ENTRY -OR- PURPOSE OF ORDER	SERIAL FILE -OR- ORDER NUMBER	DATE OF ACTION	DATE POSTED	REMARKS — E. G. DATE CLOSED, TERMINATED, REJECTED OR RESCINDED
FOR ORDERS EFFECTING DISPOSAL OR USE OF UNIDENTIFIED LANDS WITHDRAWN FOR CLASSIFICATION, MINERALS, WATER, AND/OR OTHER PUBLIC PURPOSES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS									
14					Continued from Page 5				
23									
26									Proof of Construction filed 9/3/1965; Partially Rel [illegible]
35			Subdiv Und; 27S 63E		R/W Pipe Line	Nev 050005	6/9/1964		
35			Subdiv Und; 29S 63E		Arpt Lse	Nev 065340	5/17/1965		Partially Rel 5/14/1972
3									
4									
10									
15									
16									
21									
22									
28									
33			Subdiv Und; 33S 65E		SLUP	Nev 066115	7/15/1965	8/3/1967 8:00 am	Exp 7/14/1967
3									
4									
10									
15									
21									
22									
28									
33			Subdiv Und; 28S 60E		R/W Trans Line, Substation				
					Site & Access Rd	Nev 056156	11/15/1966		Rel this Tp 5/9/[illegible]
34		14		1.59	SLUP	N 1125	4/25/1967	11/29/1972 2:00 pm	Canc 11/15/1972
	EN/BLM	TOWNSITE	See Rmks; 21S 55E		BLM O Proposed Cl Multiple Use	N 1575	7/17/1969		All public land in Tp is designated [illegible]
34			Subdiv Und		R/W Communications Site	N 3887	7/22/1969		Rel 10/[illegible]
27			W½NW¼NW¼SE¼	5.00	SLUP	N 3985	8/1/1969	4/2/1979 4:00 pm	Term 7/31/1976
	EN/BLM	TOWNSITE	See Rmks; 21S 55E		BLM O Cl Multiple Use	N 1575	8/14/1969		All public land in Tp is designated [illegible]
34			SW¼SE¼NW¼SW¼	2.50	SLUP	N 4078	10/1/1969	11/29/1972 2:00 pm	Canc 11/15/1972
3									
4									
10									
15									
16									
21									
22									
28									
33			Subdiv Und; 29S 64E		R/W Trans Line	N 3827	12/30/1969		Amdt Appvd 10/20/1975 to add Access Rd; Proof of Construction [illegible]
34			SW¼SW¼SW¼SW¼	2.50	SLUP	N 4343	7/22/1970		Canc 7/16/1980
2			Subdiv Und		R/W Trans Line	N 4065	2/6/1970		Proof of Construction Accepted 9/29/1972
35			Subdiv Und		R/W Pipe Line	N 5369	4/28/1971		Proof of Construction Accepted 9/14/1976
23			See Rmks		Mining Claim Occupancy Act Pat	27-22-0013	10/7/1971		W½NW¼NE¼SW¼, and E½NE¼SW¼, [illegible]
27		9 See Rmks		1.65	Mining Claim Occupancy Act Pat	27-23-0020	9/22/1972		N 2106 [illegible]
34		[illegible]	[illegible]	622.040	Sanitation Tax Pat	27-23-0039	11/3/1972		[illegible]
3			Subdiv Und; 28S 64E		R/W Tel & Teleg Line	N 8079	3/14/1975		Proof of Construction accepted 7/25/1980
10									
15									
					Continued on page 7				

TOWNSHIP 28 SOUTH RANGE 63 EAST OF THE MOUNT DIABLO MERIDIAN, NEVADA

SECTION	SUBDIVISION NE ¼				NW ¼				SW ¼				SE ¼				LOTS	OTHER DESCRIPTION	ACRES	KIND OF ENTRY —OR— PURPOSE OF ORDER	SERIAL FILE —OR— ORDER NUMBER	DATE OF ACTION	DATE POSTED	—REMARKS— E. G. DATE CLOSED, TERMINATED, REJECTED OR RESCINDED
	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	FOR ORDERS EFFECTING DISPOSAL OR USE OF UNIDENTIFIED LANDS WITHDRAWN FOR CLASSIFICATION, MINERALS, WATER, AND/OR OTHER PUBLIC PURPOSES, AND INDIAN TREATIES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS						
32																				Continued from pg 6				
28																								
33																		Subdiv Und		R/W Amdt Access Rd Access Rd.	N 3827	10/20/1975		Proof of Construction Accepted 10/20/1975
35																		Subdiv Und		R/W Water Tank Site, Pipeline &	N 11232	3/16/1976		
9																		See Rmks	5.00	MCOA Pat	27-76-0033	3/22/1976		W½E½SW¼SW¼SE¼, E½W½SW¼SW¼SE¼; N 5675
27																		E½SW¼SW¼NE¼	5.00	BLM O CI ST	N 12575	10/18/1976		Segr 10/19/1976
27																		E½SW¼SW¼NE¼	5.00	ST Lse	N 12575	10/19/1976		
22									X	X	X	X	X	X	X	X		(within)						
27	X	X	X	X	X	X	X	X										(within)	56.00	R&PP Classification	N 21747	1/9/1981		Segr
22																		M&B						
27																		M&B	56.00	R&PP Lse	N 21747	5/5/1981		Lse effective 5/5/1981;Renew 5/5/1986;Renew 5/5/1991
10																		All						
11																		All						
15																		All						
16																		All						
17																		All						
18																		All						
19																		All						
20																		All						
29																		All						
30																		All						
31																		All						
32																		All						Term 7/1/1986;OG Sim 12/86;No Apls
33																		All	8324.08	OG Lse	N 31846	6/12/1981		Lse effective 7/1/1981; Partiall [illegible] 6/13/1986; Partially [illegible] 9/93; No Apl [illegible]
1			X	X			X	X	X	X	X	X	X	X	X	X	1,2,3,4							
2			X	X			X	X	X	X	X	X	X	X	X	X	1,2,3,4							
3			X	X			X	X	X	X	X	X	X	X	X	X	1,2,3,4							
12	X	X	X	X	X	X	X	X									1 thru 8							
13		X	X	X	X	X	X	X	X	X			X	X	X	X	1,2,3							
14	X	X	X	X	X	X	X	X									1 thru 8							
21	X			X							X	X	X		X	X	1 thru 7		4306.73	OG Lse	N 33156	9/28/1981		Lse effective 10/1/1981;Term 10/4/1982;1/83 OG Sim. No Apls
25																								
36																	Subdiv Und			R/W Powerline	N33410	5/4/1982		
4			X	X			X	X	X	X	X	X	X	X	X	X	1-4							
5			X	X			X	X	X	X	X	X	X	X	X	X	1-4							
6			X	X				X	X			X	X	X	X	X	1-7							
7	X	X	X	X	X			X	X			X	X	X	X	X	1-4							
8																		All						No Apls
9																		All; 27N63E	3850.12	OG Lse	N 31860	3/18/1982		Lse effective 4/1/1982; Pore Aqui [illegible]
3																	1-	Subdiv Und						
10																	1	Subdiv Und						
15																	1	Subdiv Und						
22																	1-	Subdiv Und						
27																	1-	Subdiv Und						
28																		Subdiv Und						
33																		Subdiv Und		R/W Pipeline	N 7841	8/9/1982		
21	X	X	X	X	X	X	X	X	X	X	X	X		X			1-3							
22							X	X								X	1-13							
																				(Cont'd on p 8)				

TOWNSHIP 28 SOUTH RANGE 63 EAST OF THE MOUNT DIABLO MERIDIAN, NEVADA

SECTION	SUBDIVISION NE 1/4 NE	NE 1/4 NW	NE 1/4 SW	NE 1/4 SE	NW 1/4 NE	NW 1/4 NW	NW 1/4 SW	NW 1/4 SE	SW 1/4 NE	SW 1/4 NW	SW 1/4 SW	SW 1/4 SE	SE 1/4 NE	SE 1/4 NW	SE 1/4 SW	SE 1/4 SE	LOTS	OTHER DESCRIPTION	ACRES	KIND OF ENTRY —OR— PURPOSE OF ORDER	SERIAL FILE —OR— ORDER NUMBER	DATE OF ACTION	DATE POSTED	—REMARKS— E. G. DATE CLOSED, TERMINATED, REJECTED OR RESCINDED
	FOR ORDERS EFFECTING DISPOSAL OR USE OF UNIDENTIFIED LANDS WITHDRAWN FOR CLASSIFICATION, MINERALS, WATER, AND/OR OTHER PUBLIC PURPOSES, AND INDIAN TREATIES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS																							
																				(Cont'd from p 7)				
23					X		X	X	X	X	X	X	X	X	X	X	1-4							
25	X	X	X	X	X				X			X	X	X	X	X	1-5							
26		X	X		X	X		X	X		X	X		X	X		1-6							
27										X							1-12,14-19	NW SE SW						
28					X	X	X	X	X	X	X	X	X	X	X	X	1-9							
34																	15,16,21							
36																		All	4782.81	OG Lse	N 36594	11/10/1982		Lse effective 12/1/1982; Term 12/2/1983; OG [illegible]
3																		Subdiv Und						
4																		Subdiv Und						
10																		Subdiv Und						
15																		Subdiv Und						
16																		Subdiv Und						
21																		Subdiv Und						
22																		Subdiv Und						
28																		Subdiv Und						
33																		255 633 Subdiv Und		R/W Trans Line	N 23605	11/16/1982		
7	X	X	X	X	X			X	X			X	X	X	X	X	1-[illegible]	278 633	645.56	OG Lse	N 31860-A	7/8/1983	8/6/1985	Lse Eff 4/1/1982; Segs out of N 31860, 7/1/1983; Term [illegible]
33																		633 633	6.36	R/W Public Graveled Road	N 46953	12/30/1987		
22																X	5,12,13	W-1	2.58	R/W A/Rd, Wa Pipeline, Powerline	N 46709	11/10/1987		Amdt 4/12/1988; Amdt Mod 5/23/1988
22																X	9,10,14	W-1	3.87	R/W Natural Gas Pipeline (UNOCAL)	N 48555	6/6/1988		
22																	1-[illegible]	W 52 [illegible]	24.35	MC Final Cert	N 50229	12/19/1989		Coyote Mill Site 1-6;
22																	11,[illegible]	S SW SE	.311	Telephone Line (UNOCAL) R/W Power Distr Line,	N 51417	3/12/1990		
28											X	X						W-1						
29							X		X	X	X		X	X		X		W-1						
30			X	X	X			X					X				1-5	W-1						
31				X					X				X	X			3	W-1						
32						X	X											W-1						
33	X	X			X													W-1	14.01	R/W Telinet Wall and Pipeline	N 52370	5/24/1990		
2	X	X	X	X			X						X	X	X	X		W-1						
11					X	X	X	X	X	X	X	X						W-1						
14																	3,[illegible]	W-1						
22																	[illegible]	W-1						
23							X										[illegible]	W-1						
33																	[illegible]	W 1[illegible]	Total 313.99	R/W Telegraph (UNOCAL)	N 52850	12/12/1990		
25																		W-1; 5W (W-1)						
31				X					X	X	X	X	X	X	X	X		W-1						
32							X	X										W-1	1.091	R/W Powerline (UNOCAL)	N 54050	12/2/1991		Amdt 5/18/1992
30											X	X						W-1						
31	X	X	X	X	X													W-1						
32	X	X	X	X	X	X	X	X	X									W-1						
33									X	X	X	X		X	X	X		W-1; 255 633	Total 58.73	R/W Trenching	N 54649	11/25/1991		Mod 11/18/1991
3							X		X	X	X	X					3	W-1						
11					X	X	X	X	X	X	X	X						W-1						
12						X	X										1-5	W-1						
22																X	15	W-1; [illegible]						
23																	2	W-1; 235633E	Total 78.497	R/W Fiber Optic Cable (UNOCAL)	N 52985	8/30/1991	1/28/1993	Mod 7/2/1992
																				CONTINUED ON PAGE 9				

T --
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TOWNSHIP 28 SOUTH RANGE 63 EAST OF THE MOUNT DIABLO MERIDIAN, NEVADA

SECTION	SUBDIVISION: NE 1/4				NW 1/4				SW 1/4				SE 1/4				LOTS	OTHER DESCRIPTION	ACRES	KIND OF ENTRY —OR— PURPOSE OF ORDER	SERIAL FILE —OR— ORDER NUMBER	DATE OF ACTION	DATE POSTED	—REMARKS— E. G. DATE CLOSED, TERMINATED, REJECTED OR RESCINDED
	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	FOR ORDERS EFFECTING DISPOSAL OR USE OF UNIDENTIFIED LANDS WITHDRAWN FOR CLASSIFICATION, MINERALS, WATER, AND/OR OTHER PUBLIC PURPOSES, AND INDIAN TREATIES, REFER TO INDEX OF MISCELLANEOUS DOCUMENTS							
35																		SW¼NW¼NE¼NE¼: 135 TOT	Total 32.5	NOPS-REPP	N 57141	4/16/1993		Expired 4/16/1993; Canc 7/9/1993; Was [illegible]
35																		SW¼SW¼NE¼: 205 TOT	Total 22.50	REPP Rpt	27-94-0011	5/13/1994		N 71861 PG 5/13/1994
2							X	X	X	X	X	X					3	W/1						
11					X	X	X	X	X	X	X	X						W/1						
14						X	X										4.5	W/1						
22																X	14	W/1; [illegible]						
23							X			X	X						2	W/1						
27																	1,2,3,10,14,15	W/1; Sec [illegible]	Total 73.63	R/W Fiber Optic Line (NVRGR)	N 58666	6/13/1994		31 [illegible], 32 [illegible], 33 [illegible], 33 [illegible]; 21 [illegible], 23 [illegible], 24 [illegible], 25 [illegible], 26 [illegible], 2 [illegible], [illegible]
28					X	X	X	X	X	X	X	X	X	X	X	X	1-4	W/1:	[illegible]					
29																		W/1; All						
30																		W/1; All						
31																		W/1; All						
32																		W/1; All						
33																		W/1; 29S 63E	Total 5794.77	Cont P	[illegible] 6881	5/10/1994		
35																		W/1; S½SE¼NE¼						
22																		W/1: SW¼NW¼SW¼SW¼NW¼	.551	R/W Graveled Roadway	N 58109	5/26/1995		

TOWNSHIP 28 SOUTH RANGE 63 EAST OF THE MOUNT DIABLO MERIDIAN, NEVADA

Sec	Subdivision	Other Desc	Acres	Kind of Entry	Serial or Order Num	Date of Action	Date Posted	Remarks
26 27	Lots 1-6, W2E2, E2W2, NWNW, SWSW; Lots 1-12, 14-18, NWSW, NWSESW;	Key 16S 48E	1,944.03 Total 126,276.16	PX Segr	NVN61968	10/1/1997	10/1/1997	

APPENDIX 2

SMALL MINING OPERATIONS
INFORMATION AND DOCUMENTATION FILING

I. GENERAL INFORMATION

Owner Name: COYOTE MINES, INC.

OWNER Address: 1201 Sycamore Dr.,SE.; Issaquah, WA. 98027
Telephone # AC206-392-7289

Operator Name: COYOTE MINES, INC.

Operator Address: 1201 Sycamore Dr.,SE.; Issaquah, WA. 98027
Telephone #AC206-392-7289

PROJECT & CLAIM NAME: COYOTE MINES, INC.
Location of Mine: Searchlight District of Clark County, NV.
Section 22, Township 28S, Range 63 East, MDM

Calendar Year: 1991 Total Acres Distrubed: 4.073

Total Production: -0-

II. MAPS

A. PATENTED MINERAL SURVEY PROPERTY

B. UNPATENTED "BLM" MILL SITES

a. The boundaries of the Project Area are delineated on the subject maps

b. The surface ownership within the Project Area is COYOTE MINES, INC.

C. The areas to be affected and the nature of the disturbances including tailing impoundments, leach pads, waste rock dumps, buildings, roads and all other surface facilities are documented on the attached subject maps.

d. The areas within the project area which were previously affected by activities other than those of the operator or which will not be subject to additional or continuing disturbances because of activities may be expressed as follows:

SUMMARY OF DISTURBANCES (Past)

The subject area has a history beginning at the turn of the century and has been spasmodically active on a small scale level since that time. Most recently, activity has been limited to reworking old mine dump piles. Due to the cost of updating the safety of old underground mines, the decision has been made to limit future work to existing surface opportunities. Several shallow depressions have been observed on the property indicating prospecting activities over the past 90 years. These Areas are overgrown with native flora.

e. The location of any body of surface water within one-half mile down gradient from the operation which may be impacted by excess sedimentation resulting from the mining operation

NONE

SMALL MINING OPERATIONS INFORMATION AND DOCUMENTATION FILING

e. (continued)

Note: the nearest body of surface water is located 14 miles due East of the COYOTE MINES, INC.'s property, i.e.: the Colorado River.

f. The location of access roads that were created before January 1, 1981:

Refer to subject Maps. Access Road disects Coyote Mill Site #6 and traverses the southern boundary of the JOHN & SANFORD LODE MS #4578. The balance of this access road has been granted to COYOTE MINES, INC. BLM #N-46709, leased until 11/9/2017 and is renewable.

III. STATEMENT of proposed post-mining land use and a general description of the manner in which the post-mining use of the land will be attained by reclamation:

The BLM COYOTE MILLSITES are under patent application. The Shulers (officers and directors of COYOTE MINES, INC.) intend to make this property a retirement home. Mining on a small 2 person basis is anticipated to continue.

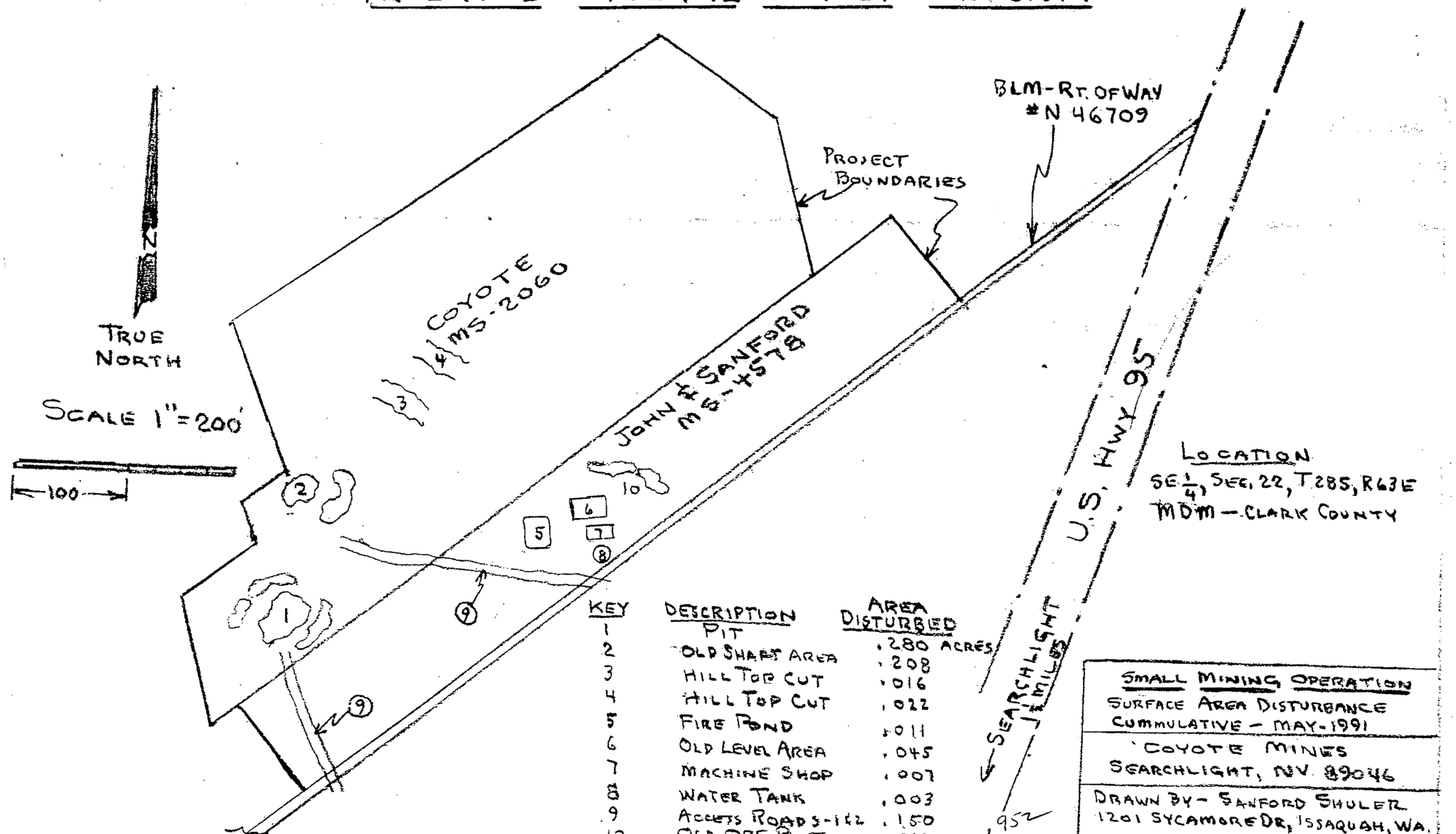
Reclamation of any disturbed land, not in use, will be reseeded.

Sanford A. Shuler Jr. Title: President

(Signature) SANFORD A. SHULER, JR.

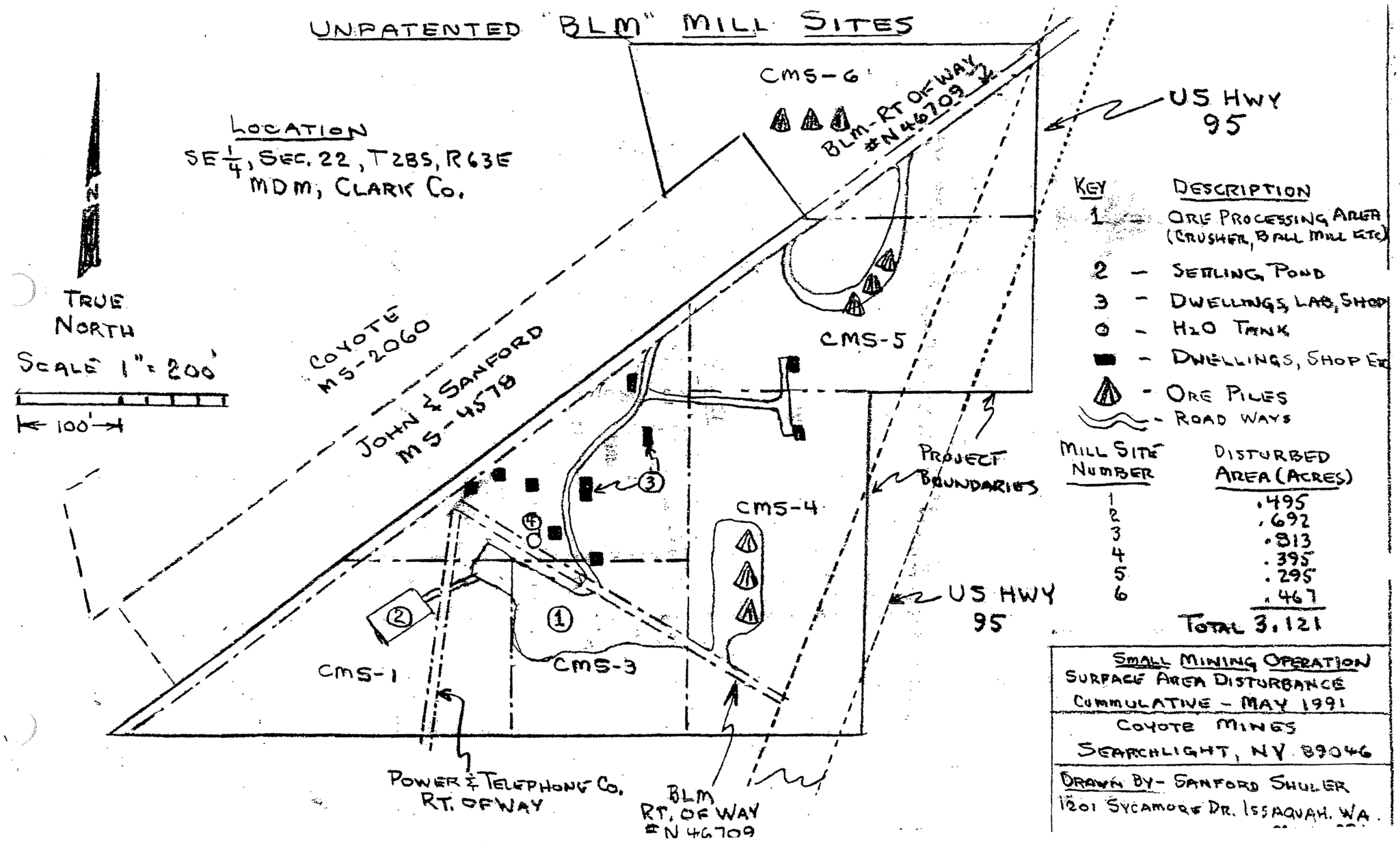
Tel. # 206-392-7289 Date: June 14, 1991

PATENTED MINERAL SURVEY PROPERTY



KEY	DESCRIPTION	AREA DISTURBED
1	PIT	.280 ACRES
2	OLD SHAFT AREA	.208
3	HILL TOP CUT	.016
4	HILL TOP CUT	.022
5	FIRE POND	.011
6	OLD LEVEL AREA	.045
7	MACHINE SHOP	.007
8	WATER TANK	.003
9	ACCESS ROADS-1&2	1.50
10	OLD ORE PILES	.210
		2.352

UNPATENTED "BLM" MILL SITES



MILL SITE NUMBER	DISTURBED AREA (ACRES)
1	.495
2	.692
3	.813
4	.395
5	.295
6	.467
TOTAL	3.121

APPENDIX 3

COYOTE MINES, INC.

ADMINISTRATIVE HEADQUARTERS
1201 SYCAMORE DR., S.E.
ISSAQUAH, WA 98027
TELEPHONE: (206) 392-7289

Ms. Runore Wycoff, Area Manager
United States Dept. of the Interior
Bureau of Land Management
Stateline Resource Area
4765 Vegas Drive
P.O. Box 26569
Las Vegas, Nevada 89126

Ref: N54-90-52N
Subj.: Response to R. Wycoff's letter of July 6, 1990 pertaining to operation of COYOTE MINES, INC.

Dear Ms. Wycoff:

This letter will acknowledge the receipt of your July 6, 1990 above referenced letter.

Addressing the second paragraph of the Reference Letter, we have met on two occasions with Mr. Tom Card, P.E.; Bureau of Mining Regulations & Reclamation, Department of Environmental Protection, State of Nevada, Carson City. Mr. Card has provided counsel plus copies of relevant "NDEP" Procedures and Statutes concerned with the required permitting procedures for the operation of a mining property in Nevada and with the use of hazardous materials in a Nevada mining operation. COYOTE MINES, INC. has not used hazardous chemicals (i.e.; cyanide, mercury, etc.) nor have we purchased or employed the use of such chemicals in our processing of ore up to the present time.

With the purchase and installation of our "Shaking Table Concentrators", we have been processing ore since the early Spring 1990. We are not in full production and we will not assume a full production schedule until we have fully compiled with the "Permitting Requirements" as set forth by the Nevada Department of Environmental Protection for a small mining operation. We have no plans to further disturb any of the BLM leased land areas.

In response to "Cultural Resources" as set forth in Paragraph #3 of the Reference Letter, it should be noted that with our June 1987 Application for two (2) BLM Road "Rights-of-Way" (RW#N46707) which borders and bisects the subject property, one of your Real Estate Appraisers, Mr. James McCollum, visited and explored portions of the COYOTE MINES, INC. lands relating to the "Rights-of Ways" and determined that there were no "Historic Resources" on the subject properties.

Commenting on Paragraph #4 of the Reference Letter, we have traversed the subject properties numerous times over the past seven (7) years and have not observed any Desert Tortoises or their habitats.

Also, upon receipt of your July 6 letter, we met with Mr. Gary Beckman, BLM Area Geologist, and have obtained information pertaining to the technical aspects and procedures or reclamation.

COYOTE MINES, INC.
ADMINISTRATIVE HEADQUARTERS
1201 SYCAMORE DR., S.E.
ISSAQUAH, WA 98027
TELEPHONE: (206) 392-7289

Ref.: N54-90-52N
Subj.: Response to R. Wycoff's letter of July 6, 1990 pertaining to operation of COYOTE MINES, INC.

When we have obtained the appropriate NDEP Permit to operate a full-scale mining operation, we shall notify your Office.

Very truly yours,

Sanford A. Shuler, Jr.
President

Cert.Mail #P-914-379-793

SITE LOCATION: Coyote Rd., 1½ Miles North Rt. 95; Searchlight, NV. 89046 • (not a mailing address)
Tel. No. (702) 297-1034

COYOTE MINES, INC.

ADMINISTRATIVE HEADQUARTERS
1201 SYCAMORE DR., S.E.
ISSAQUAH, WA 98027
TELEPHONE: (206) 392-7289

September 18, 1992

SEP 22 1992

LAS VEGAS DISTRICT
BUREAU OF
LAND MANAGEMENT

Mr. Pete Anderson
Environmental Mgmt. Specialist
Department of Conservation & Natural Resources
Division of Environmental Protection
Capitol Complex
333 W. Nye Lane
Carson City, Nevada 89710

REFERENCE: COYOLET .001 (Name of Site: Blossom Mine/Coyote Lode**)

Note: ** Correction in Name of Site: COYOTE MINES, INC.

SUBJECT: 1. Ltr. Sept. 9, 1992 re Sept. 1 Inspection Site

2. Telcon Sept. 18 regarding Site Inspection Report

Dear Mr. Anderson:

The activity observed on the Project Site is directly related to the refurbishment of the milling circuit and the installation of certain "up to date" components aimed at improving processing efficiency and water conservation. Specifically, we are rebuilding the jaw crusher, relining the Ball Mill, installing DSM Screens and Reichert Spirals (in place of the shaking table) and constructing and installing a water settling system to recirculate and conserve the processing water. In addition a small (10' x 15') addition is being added to the Mill Shop to house various and sundry pieces of materials and equipment. I do not believe that you observed our Laboratory Facility and Storage Facility which are functional and orderly.

With respect to our Security Person, Mr. Virgil Durham, who greeted you and Mr. Tecca upon your arrival on Site. I have instructed Mr. Durham to politely refer any inquiries pertaining to the Site or the Project direct to me or to my wife, Marilyn. Mr. Durham's function on the property is solely that of security. We have choosen this Policy because of our proximity to Highway 95 and the numerous visits to the Site by curious spectators.

No ore is being processed. However, we shall obtain the necessary permits, complete our formal employee training program, obtain our MISHA number assignment, etc. prior to formally operating the Processing Plant. However, we have been relocating ore from old tailings piles and have conducted a number of assays to establish potential values. Our objective is to organize a pilot operation and proceed from that status. In any event our long range plan is to remain small and controllable (2-3 person operation)

COYOTE MINES, INC.
ADMINISTRATIVE HEADQUARTERS
1201 SYCAMORE DR., S.E.
ISSAQUAH, WA 98027
TELEPHONE: (206) 392-7289

To: Mr. Pete Anderson

September 18, 1992

We have not disturbed "more than five acres" of either BLM or our private patented land. May I refer you to the "NOTICE OF INTENT" filed with BLM Las Vegas on June 19, 1990 (#N54-90-052N SEARCHLIGHT). the NOTICE OF INTENT is still current and contains detailed surveyed maps of all BLM distrubed land and represents 3.121 Acres.

May I also refer you to the Annual Report submitted March 30, 1992 to the Nevada Department of Minerals which states that we have 3.121 of BLM distrubed land and we also included .952 of disturbed land on our private, patented lands (a total of 4.073 acres including BLM and private lands).

Our SMALL MINING OPERATION REPORT was filed with Ms. Constance Taff on June 14, 1991 in advance of the required October 1, 1991 date. I am enclosing copies of the SMALL MINING OPERATION REPORT, which is still valid, since the maps included in the Report depict the areas of disturbance for the BLM lands (3.121 acres) and for the private, patented land (.952 acres), totally 4.073 acres.

On our next trip to the Carson City Area, I shall plan to schedule an appointment to review any of the above data.

Very truly yours,

Sanford A. Shuler, Jr.
President

cc: Glenn Miller, BLM - Stateline RA
Roger Haskins, BLM Office
Dan Tecca, NDEP
Tom Fronapfel, NDEP
Robert McQuivey, NDOW

ENCLOSURES: - Sept. 9 Letter and Inspection Report by P. Anderson
- SMALL MINING OPERATION REPORT for COYOTE MINES, INC.

SITE LOCATION: Coyote Rd., 1½ Miles North Rt. 95; Searchlight, NV. 89046 • (not a mailing address)
Tel. No. (702) 297-1034

COYOTE MINES, INC.
ADMINISTRATIVE HEADQUARTERS
1201 SYCAMORE DR., S.E.
ISSAQUAH, WA 98027
TELEPHONE: (206) 392-7289

RECEIVED
Bureau of Land Management

October 21, 1996

AMENDMENT TO MINING NOTICE
#54-90-052N
SEARCHLIGHT, NV.

Based upon a detailed review and evaluation of the current gravity concentration milling circuit performance data, it appears that approximately fifty percent (50%) of the head ore assay values were flowing to the tailings pond. An investigative program was initiated to determine the cause of this observation and to implement corrective action.

It was determined that the viscous resistance of the flattened particles produced by the Ball Mill was greater than the rounded particles produced by an Impact Mill. Consequently, the flattened particles would tend to ride "on the surface" of the moving slurry stream where as the rounded particles would tend to ride "on the surface" of the moving slurry stream where as the rounded particles having less viscous resistance would tend to sink to the surface of the "stream".

A Stuttenroth Impact Production mill has been installed to operate in conjunction or parellel with the Denver Ball Mill. A measurable improvement in free gold output has occurred.

Respectfully submitted,

Sanford A. Shuler Jr.

Sanford A. Shuler, Jr.

CC: Glen Miller, BLM Las Vegas Office
Connie Davis, NDEP, Carson City
Douglas Driesner, Dept. Minerals, Carson City

APPENDIX 4

WHITE—DIVISION OF WATER RESOURCES
CANARY—CLIENT'S COPY
PINK—WELL DRILLER'S COPY

STATE OF NEVADA
DIVISION OF WATER RESOURCES

WELL DRILLERS REPORT

Please complete this form in its entirety

OFFICE USE ONLY
Log No.
Permit No.
Basin

1. OWNER ADDRESS

2. LOCATION ¼ ¼ Sec. T. N/S R. E. Coun
PERMIT NO.

3. TYPE OF WORK
New Well ☐ Recondition ☐
Deepen ☐ Other ☐

4. PROPOSED USE
Domestic ☑ Irrigation ☐ Test ☐
Municipal ☐ Industrial ☐ Stock ☐

5. TYPE WELL
Cable ☐ Rotary
Other ☐

6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thickness
Loose Rock			43	43
Quartz Monzonite		43	350	307
First Water	275			

Date started , 19
Date completed , 19

7. WELL TEST DATA

Pump RPM	G.P.M.	Draw Down	After Hours Pump

BAILER TEST
G.P.M. Draw down feet hours
G.P.M. Draw down feet hours
G.P.M. Draw down feet hours

8. WELL CONSTRUCTION
Diameter hole inches Total depth 350 fe
Casing record
Weight per foot Thickness

Diameter	From	To
inches	0 feet	43 fe
inches	43 feet	350 fe
inches	feet	fe
inches	feet	fe
inches	feet	fe
inches	feet	fe

Surface seal: Yes ☑ No ☐ Type
Depth of seal
Gravel packed: Yes ☑ No ☐
Gravel packed from feet to fe

Perforations:
Type perforation
Size perforation
From 350 feet to fe
From 320 feet to fe
From 270 feet to 260 fe
From feet to fe
From feet to fe

9. WATER LEVEL
Static water level 125 Feet below land surface
Flow G.P.M.
Water temperature ° F. Quality

10. DRILLERS CERTIFICATION
This well was drilled under my supervision and the report is true the best of my knowledge.

Name
Address
Nevada contractor's license number
Nevada driller's license number
Signed
Date

USE ADDITIONAL SHEETS IF NECESSARY

O-627

APPENDIX 5

COYOTE MINES, INC.

DEVELOPMENT PLAN

FOR THE COYOTE MINES, INC.

MINE AND MILL COMPLEX, SEARCHLIGHT DISTRICT, NEVADA

DEVELOPMENT PLAN

FOR THE COYOTE MINES, INC.

MINE AND MILL COMPLEX, SEARCHLIGHT DISTRICT, NEVADA

Cash-Flow Analysis with Supportive Data and Interpretations

Prepared for Coyote Mines, Inc.
William C. Bagby, Ph.D..
Metallan International
Issaquah, WA 98027
July, 1994

SECTION A: COYOTE MINE & MILL OPERATION

The Coyote mine and mill, located in the Searchlight district, Clark County, Nevada, are located on the east and northeastern portion of the Blossom gold deposit (Figure A-1). This report provides a plan for developing the gold resource on the Coyote lode claim (Mineral Survey #2060) for the purpose of completing a patent for the Coyote mill site claims which are presently leased from the Bureau of Land Management (BLM).

Coyote Mill

Milling Circuit

The Coyote Mines, Inc. mill is a gravity-separation crushing and milling circuit designed to produce a gold-silver concentrate without the use of toxic chemicals. The mill and approximately 9500 tons of stockpiled ore are located on six BLM-leased mill site claims. These claims are contiguous with the John & Sanford (Mineral Survey #4578)and the Coyote patented lode claim to the northwest and total 24.35 acres (Figure A-2).

Ore is transferred from a dump truck to the milling circuit by first passing through a grizzly (Figure A-3). The grizzly separates oversized ore from smaller sizes and the classified ore then passes to the main feed bin. From there, the ore is metered onto a conveyor belt and transported to the jaw crusher where it is reduced in size to minus 3/8". The output of the jaw crusher is carried upward to the ball-mill-feed bin where it is fed directly into the intake of the ball mill where water is added.

The ball mill grinds the ore until it is classified and passed by a rotating screen located at the ball mill discharge. Ore that does not pass through the rotating screen is returned to the input of the ball mill for a second pass. Ore that passes the classifying screen is pumped to the second elevation of the Reichert spiral building where it is processed by a Dutch State Mine (DSM) screen. Particles not passing this screen are fed back to the ball mill for further reduction. Particles passing the DSM screen are channeled

to the inlet of the first of three Reichert spirals and begin a downward spiral path to the bottom.

At the bottom of the first spiral, the ore has separated into three distinct channels: concentrates, middlings, and tailings. The concentrates are directed into the concentrate receptacle, the middlings are collected and pumped up to the second spiral, and the tailings are transported to the tails container. This process of separation is repeated for the second and third spirals. At the discharge of the third spiral, the concentrates and tailings are added to the previous accumulations and the middlings are piped to a Diester shaking table where any remaining gold and silver are concentrated, extracted, and collected.

The tailings that remain from this process are moist and contain no toxic chemicals. Water has been the only agent used in processing the ore. An area on the mill site claims is available to handle tailings disposal. A pit with dimensions of 40'x60'x8' will be the temporary holding area for the tailings which will be stacked high and covered with plastic tarps to keep control of dust. As mining proceeds, the tailings will be used to back-fill and reclaim the open-pit.

Ore Concentration Costs

A breakdown of mill operating costs are given in Table A-1. The costs are based on a processing rate of four tons per hour through the mill. General and administrative (G&A) costs for the mill (Table A-1) are annual costs. The cost breakdown indicates a direct cost of $6.44 per ton of ore processed and annual G&A costs of $2032.80 per year. For purposes of calculating a cash-flow analysis, these costs are rounded to $2035 per year and $6.50 per ton for G & A and direct milling costs, respectively.

Gold Resource on the patented Coyote lode claim

The identified gold resource on the Coyote Mines, Inc. property consists of two parts: (1) ore stockpiles on the mill site claims and (2) a block of mineralized rock in the southwestern corner of the Coyote lode claim. The supporting data and the

interpretations of those data used in identifying the gold resource are given in Section B of this report.

Ore Stockpiles

Stockpiled ore on the mill site claims total about 9500 tons of ore and contain 615 ounces of gold. These stockpiles came from surface pits developed along the Coyote shear near the surface projections of the Coyote and Fault declines. The stockpiles are ready for the mill.

If the mill operates for 250 days per year and 8 hours per day, the stockpiles will keep the mill running for 297 days or 1 year and 10 weeks.

In-Place Gold Resource

The southwestern corner of the Coyote lode claim contains a resource of about 13,300 ounces of gold in 97,800 tons. This resource exists from the surface down to the floor of Level 2. The resource was determined by using continuous chip-panel samples on levels 1 and 2 to calculate grades. The volume of rock hosting the gold was calculated using the polygon method. The average specific gravity for quartz monzonite was used to calculate a tonnage factor.

The results indicate that the resource occurs as follows:

Surface to Level 1	50,265 tons, 8,143 ounces of gold
Level 1	5,052 tons, 1,113 ounces of gold
Between levels 1 and 2	40,751 tons, 3,973 ounce of gold
Level 2	1,714 tons, 85 ounces of gold
TOTAL	97,782 tons, 13,314 ounces of gold

Silver By-Product

Silver occurs with gold in the deposit and was analyzed in the underground chip-panel samples. The mean grades estimated for silver using the method of Link and others (1971) were used to estimate the grades of the polygons. The silver resource calculated is 18,640 ounces of silver in the 97,782 tons of rock.

Cash-Flow Analysis for a Small Open-Pit Mine Model

The gold and silver resource in the southwestern corner of the Coyote lode claim was used to perform a cash-flow analysis for mining and milling that resource. In order to do this, certain assumptions were made. The first assumption was to use the small open pit mine model used by the U.S. Bureau of Mines to estimate costs of mining gold resources identified through mineral-resource assessments on public lands (Camm, 1994, and references therein). The capital costs for mining have already been sunk in the property so they were assumed to be zero. Tailings disposal for the mill is considered inconsequential. The material will be moist and tentatively stored on the mill site claims until they are used in back-filling the mine pit. Thus, a tailings pond is not necessary for this type of operation and the capital costs ,which are minimal, are not included in the cash-flow analysis. The costs for milling the ore and the annual G&A costs are the actual costs of the Coyote Mines, Inc. mill. Details of the calculations are given in Table A-2.

The small open pit mine model begins by taking the resource and estimating an ore tonnage (reserve) by using recovery and dilution factors that are typical for small mines in the western United States. Thus, for the Coyote Mines, Inc. resource, the tonnage decreases from 97,782 tons to 92,404 tons for the tonnage of ore to be mined.

The mine life for the Coyote mine is constrained by the Coyote mill throughput of 8000 tons per year, assuming a work year of 250 days at 8 hours per day. By mining the resource at 8000 tons per year, the mine life will be 11.6 years

The stripping ratio was determined by using the formula developed by Camm (1994) which includes depth to the top of the ore and the density of the ore in the calculation. Since the ore body on the Coyote lode claim crops out on the surface, the depth to ore is zero, yielding a stripping ratio of 0.8.

The total annual operating costs are thus calculated to be $178,679 per year. This includes costs of mining and milling the ore and G&A costs of operation.

Revenues from selling the gold-silver concentrate were calculated using certain assumptions. First, the mill recovery of both metals was assumed to be 80%. This is typical for gravity concentration of oxidized gold ores. Secondly, it was assumed that the buyer of the concentrate would pay for 98% of the gold and 96% of the silver which accounts for the charge to process and refine a gold silver concentrate. And third, the gold price was assumed to be $380/ounce and the silver price $5.20/ounce. These prices are reasonable given the past year prices for these metals and the forecast near-future shortage in supply of precious metals (Smith Barney Shearson, 1993).

The resulting cash-flow analysis shows a positive cash flow of about $151,900 per year for 11.6 years. The cash-flow analysis is calculated according to Wellmer (1989). It is a pre-tax analysis and assumes constant dollars. A net-present-value (NPV) analysis of this cash flow over a period of eleven years yields a positive NPV of $481,000 or $290,000 at discount rates of 10% and 15%, respectively (Table A-3). This analysis indicates that the project is economically viable and has an internal rate of return of 28.25%. If mill output is increased either by adding shifts per day and (or) increasing operating days per year, the lifetime of the project is decreased and the NPV is still positive.

The ore stockpiles were not included in this analysis since it is assumed that they will be consumed in testing and optimizing the efficiency of the mill. Any future gold resource that is identified on the Coyote lode claim will increase the life time of the mill and the cash flow. Also, any mine dumps in the Searchlight district that are determined to contain a gold resource can also be used as mill feed to increase the productivity over time.

Gold Sources Other Than the Identified Resource

The identified gold resource on the Coyote lode claim may be only one third of what possibly exists on the claim. The Coyote shear is the geologic feature that hosts gold

on the Coyote lode claim. The shear zone has a surface expression of about 900 feet by 200 feet. If this zone contains gold at the same average grade as that in the southwestern corner of the claim, then the gold resource could be tripled.

An exploration program designed to test this shear zone is detailed in the geologic data section. The program consists of surface character and bulk sampling, followed by drilling to test gold-bearing zones in three dimensions.

Another source for mill feed in the Searchlight district exists in old mine dumps. Grab samples from several of the dumps indicate the presence of gold; but the results are highly variable. Several property owners in the Searchlight district that have been approached about sending dump material to the Coyote Mines, Inc. mill have expressed favorable interest. Once the Coyote Mines, Inc. mine and mill are in full operation, it would be prudent to investigate the dumps in the Searchlight district for tonnage and grades to identify new gold resources for the mill. Other nearby mining districts, such as the Eldorado Canyon district, should also be investigated.

SECTION B: SUPPORTING DATA AND INTERPRETATIONS

Early geologic work performed on the deposit was published by Ransome (1906) and Callaghan (1949) and reviewed by Longwell and others (1965). Recent geologic investigations include geologic mapping of the surface and Levels 1 and 2 of the underground workings on the Coyote lode claim by Ed Huskinson (Luadra Minerals, Kingman, AZ). That work was compiled by William C. Bagby Metallan International, Issaquah, WA) and is included in this report. In addition, chip-panel samples of the underground workings, grab samples from ore stockpiles, and character samples of surface exposures and mine dumps in the district were collected under the direction of both Huskinson and Bagby. Interpretation of the gold assay results and estimation of a gold resource were performed by Bagby. The exploration targets for the Coyote lode claim were developed by Huskinson and Bagby. This section of the report presents and interprets those data as supportive information to the gold resource and cash flow analysis given in Section A of this report.

Underground Workings

The underground workings on the Coyote Mines, Inc. property are accessible via the Fault decline. This decline has no head frame but is accessible through a dozer cut. The decline dips gently toward the east at its entrance. A second decline, the Coyote decline, exists on the property. This decline is caved near its collar and is not presently safe for daily access to the workings. However, the decline is useable and safe below the first level. The underground workings are also accessible via the Blossom decline located west of the Coyote decline. Although this decline is on the adjoining property and thus not available for use, it can serve as an additional exit should that be necessary for safety reasons.

The underground workings and geology were mapped by Ed Huskinson in early 1994. A Brunton compass attached to a tripod accompanied by tape for measurements

were used for control in the underground mapping. The lengths of the three declines were measured and their angles taken to provide a vertical projection of the collars for each shaft to Level 1. Control on the surface for these collars was tied to the re-survey of the Coyote lode claim performed by Robert Fulstone in March, 1983 (survey map in Coyote Mines, Inc. records). Steel in the mine drifts left behind by earlier workers caused an undetermined error in the mapping. This error was cumulative as mapping proceeded from the southwest to the north. Despite this problem, the map is acceptable for making an estimate of the gold resource on the Coyote lode claim. Level 1 was mapped where accessible and Level 2 was mapped where it extends beneath Level 1 in the southwest portion of the Coyote lode claim.

There are two main levels in the underground workings of the southwestern Coyote lode claim (Plate I). Level 1 is at a depth of about 88 feet (with a maximum depth from surface of about 95 feet) and is continuous for about 710 feet from its northeastern terminus to the southwest where it intersects, and continues beyond, the Coyote-Blossom claim boundary. Level 2 exists at a depth of about 25 feet beneath Level 1. Its maximum depth beneath the surface is about 137 feet. There is a level above Level 1 that we refer to as the Upper Level. This is caved for the most part west of the Coyote decline since it is shallow (a depth of about 25 feet from the surface at the Fault decline). Callaghan (1939) refers to three levels at the Blossom Mine. His level 1 is the Coyote Upper Level and his levels 2 and 3 are what we refer to as the Coyote Levels 1 and 2, respectively.

The general condition of the workings is good and, for the most part, they are safe for sampling and mapping. On Level 1, where the workings were driven along the Coyote Fault, the drift is extremely well-preserved. However, in other parts of the mine, particularly in stopes and along early, mineralized faults, the ground is loose and can be unsafe. Many of the stopes on all levels have been back-filled. In addition, there is hand-stacked gob (rock) along the ribs of many drifts and in some of the smaller stopes. The Upper Level is accessible only in the north part of the mine, off the Fault decline. Even

there, the back and ribs are partially caved. The Upper Level leading south of the Fault decline is filled with trash. Some of the cave-ins on the Upper Level reach the present ground surface. Other ore haulage ways and man ways throughout the mine between the levels are in various stages of decay; some are safe for entry, but some are unsafe.

Geology of the Underground Workings

The geology on Level 1, the Upper Level north of the Fault decline, and that portion of Level 2 beneath the mineralized block in the southwestern part of the mine was mapped by Ed Huskinson in February 1994. The results of the mapping provided the geologic basis for sampling in the underground workings (Plate I).

Several rock types occur in the mine but they are not always easily distinguishable due to their similarity in texture. These rocks are a porphyritic volcanic rock, a hornfels, and a granitic rock (quartz monzonite). The contact among these rocks is difficult to pinpoint due to the irregular nature of the intrusive contact between the quartz monzonite and older volcanic rocks and the irregular extent of hornfels metamorphism. The porphyritic rock hosts most of the gold.

These rocks are variously altered. Alteration associated with the gold-bearing hydrothermal system is now overprinted by younger, acidic supergene alteration that formed during oxidation of the sulfides in the gold deposit. Thus, iron-oxide staining and clay alteration occur throughout the deposit. The presence of iron oxide alone, however, does not indicate mineralized rock since the iron oxide is exotic in many places.

Two types of veins occur in the Coyote mine. One is quartz that is white to gray and is commonly iron-stained. This vein material carries gold. A second type of veining occurs in the Upper Level, north of the Fault decline. There, the veins are calcite and quartz-calcite veins with manganese staining along fracture surfaces. These veins carry neither gold nor silver in any appreciable amounts. The calcite veins may indicate a

mineralogical zoning in the deposit. Unfortunately, due to caved areas, this idea could not be tested.

There are two types of faults in the deposit which we have classified as pre- and post-mineral faults. The Coyote Fault is a very notable feature on Level 1, in the northeastern part of the workings. A drift was developed by previous miners along the strike of the fault, with the fault surface in the hanging wall. A red clay fault gouge identifies the fault surface which is devoid of any quartz or calcite veins. The fault strikes northerly and varies in dip between about 35 and 90 degrees east. This is a post-mineral fault. Direction of movement on the fault is presumed to be normal. It must be kept in mind, however, that regional tectonic forces in this part of Nevada did result in the formation of reverse faults. If the fault is normal, it is conceivable that gold mineralized rock occurs east of the fault, beneath younger alluvium. If the fault is a reverse fault, then any gold mineralized rock would have been eroded away.

The Blossom shear referred to in the published literature (Ransome, 1906; Callaghan, 1939) is a pre-mineral fault zone and is the main ore control in the deposit. From Level 1 up to the surface (through the Upper Level) this shear zone has been extensively mined, particularly on the Blossom property, west of Coyote. There have been several periods of movement and mineralization along this shear as shown by crushed quartz.

The shear strikes easterly and dips southerly in the southwestern corner of the Coyote lode claim. The dip is extremely variable and rolls from near-horizontal (in the back of Level 1 in the mineralized block) to at least 50 degrees. Importantly, where the shear flattens, it is broken apart into a series of horsetail faults. This occurs between the wooden door and the Coyote decline on Level 1. It is in this area that a mineralized block remains and is the block in which a gold resource is identified.

Samples from the Underground Workings

There have been several sets of samples collected from the Coyote underground workings. These were taken at different times, by different people, and analyzed at different laboratories. All of the sample sets are presented and discussed as to their reliability in estimating the average grade of gold in the deposit.

Character Samples

There are three sets of character samples for the underground workings of the Blossom-Coyote properties. The samples in these sets are either spot samples or isolated 5'x5' chip-panel samples used to identify which geologic features carry gold. The purpose of these samples was not to identify a tonnage and grade for any gold resource. Each set is identified by the person(s) who collected the samples.

(1) The first set is the Drobeck set collected by Pete Drobeck sometime around 1985 or 1986. Drobeck was not employed by Coyote mines, but instead, was performing reconnaissance geologic investigations in the Searchlight District for some unnamed major mining company. The analytical results for his samples were forwarded to Ed Huskinson when he began contract geologic work for Coyote Mines in 1992. Drobeck collected nine samples, all of which were collected on Blossom property adjacent to the Blossom decline. Of the nine samples, two (024 and 025) where collected on Level 1 east of the Blossom decline. All others where collected in stopes and other workings adjacent to and west of the Blossom decline. The Drobeck samples are given in Table B-1.

(2) The second set of character samples was collected by John Yeager in about 1980. This sample set contains 22 samples of which three were taken from the Blossom property and all others from the Coyote at selected spots throughout the mine. These samples were taken while Yeager was a contract miner to Coyote Mines, Inc. The analytical results and basic statistics are given in Table B-2.

(3) Ed Huskinson and Don Bunch, site manager, collected a set of character samples to test parts of the Fault decline, Levels 1 and 2, and the Upper level to the north, off the Fault decline, as part of the underground geologic mapping program in the Winter

and Spring of 1994. The purpose of these samples was to determine where gold occurred in order to indicate where chip-panel sampling might be valuable to estimate continuity and grade of gold mineralized rock. The results of this sampling program are provided in Table B-3.

Continuous Chip-Panel Samples

Two sets of chip-panel samples were taken in the Spring of 1994 to determine the continuity of gold and to estimate an average grade for the gold resource. These samples where taken continuously along the ribs of Levels 1 and 2. The area for each sample was a 5 foot by 5 foot panel. The sampling procedure was to chip rock off the rib within the panel area. The sample size collected was approximately equal for each panel. Sample locations are shown in Figure B-1 and results are given in Table B-4 and Table B-5

Basic Statistics

Basic statistics for all sample sets are given with the data in tables B-1 through B-5. Although averages, standard deviations, and coefficients of variation are given for the character sample sets, these statistics can not be used to estimate parameters for the population sampled. This is a limitation of character sampling. For this reason, it is important to remember that character samples provide an indication of the presence or absence of gold in rocks with certain geologic characteristics. (A possible exception to this is the Yeager sample set given in Table A-2. This set is sufficiently large enough to examine, or estimate population parameters. In fact, a *t*-test performed on the Yeager character sample set and the Level 1 chip-panel sample set indicate that it is possible that the sets sampled the same gold population.)

The chip-panel samples, however, may be used to estimate statistical parameters for the populations sampled. This is because the chip-panel samples were taken in continuous fashion along the ribs of the underground workings and the sample sets were sufficiently large enough for statistical analysis.. In this sense, they constitute a sampling method similar to that obtained by a drill hole. The lower detection limits for gold and

silver in the chip-panel samples were 0.005 and 0.05 ounces per ton, respectively. For purposes of calculation of statistics, any samples with grades below the detection limit were assigned a grade equal to 75 % of that limit.

Each chip-panel sample set exhibits lognormal behavior. That is, a very few percentage of the samples account for most of the gold values (Figures B-2 and B-3). For both Level 1 and Level 2, 10% of the samples account for 50% of the cumulated gold values. The coefficient of variation in each set was greater than 1.2 which means that the arithmetic average for the set is not an efficient estimator of the population mean. Thus, in order to use these sample sets to estimate the mean grade of the population sampled in each case, the geometric mean was calculated by the method of Link and others (1971). For Level 1, the mean of the population is estimated to be 0.162 Troy ounces of gold per ton. For Level 2, the mean of the population is estimated to be 0.033 Troy ounces of gold per ton.

These are very different numbers. To test the possibility that the sample sets did in fact sample different populations, a *t*-test was performed. The results indicate that the sample sets did sample two different populations of gold-bearing rock. This can be explained by the geology of the deposit.

The deposit is an epithermal precious-metal deposit. During the formation of this type of deposit, circulating hydrothermal waters carried gold in solution from deep in the system to the shallow, near-surface environment. Gold stayed in solution until temperature and oxidation conditions changed dramatically in the near-surface, causing the precipitation of gold and sulfides. Thus, higher gold grades are to be expected in the more shallow levels of the deposit. This is exactly what the chip-panel samples sets show to be the case at the Coyote mine.

The estimated population means were used as average grades for underground resource calculations where sample data do not exist and projections must be made. Since

the population means are lower than the arithmetic means for the same sample sets, there should be little possibility of over-estimating the grade in these areas.

Gold Resource Estimation for the Coyote Lode Claim

The chip-panel samples for the underground workings on Level 1 and Level 2 provide the basis for calculating a gold resource for this block of ground. The sample values were averaged over sections of continuous sampling to identify average grades for sections on each level (Figure B-4). The geometric mean which was estimated for the population on each level was used as the average grade for polygons where no samples existed. Polygons were drawn on each level to reflect geologic control of the gold mineralization (Figure B-5). Each level was taken as being 8 feet high and the amount of mined-out ground in each polygon was visually estimated. The calculated volumes and average grades assigned are given in Table B-6.

The volume of rock between the levels was assumed solid. Six volumes of rock were defined to calculate the resource between levels. The geometric grade from Level 1 was assumed to reach halfway to the top of Level 2. These seems reasonable since that distance is only 13.5 feet, or 2.5 times the chip-panel sample width. Below this, the average grade was assumed to be the geometric mean estimated for Level 2. The cross section for these volumes is shown in Figure B-6.

The volume of rock from the top of Level 1 to the surface was calculated as one half of a regular prism. The cross section for this prism is shown in Figure 9. This volume was estimated to be as much as 20% mined-out via stopes rising from Level 1. The average grade used for this volume was the estimated geometric mean (0.162 ounces of gold per ton) for Level 1. The decision to use this figure is supported by surface character samples above this block that go as high as 0.590 Troy ounces of gold per ton.
These calculations estimate a gold resource of 13,314 Troy ounces of gold in 97,782 tons of rock from the surface, down-dip to the floor of Level 2.

Silver Resource Estimate for the Coyote Lode Claim

Silver grades are given for all analyses in tables B-3 through B-8. The distributions of the observations for both levels are lognormal (tables B-4 and B-5). The average arithmetic grade on Level 1 is 0.34 Troy ounces of silver per ton and the average grade for Level 2 is 0.13 Troy ounces of silver per ton. The decrease in silver grade with depth mimics that observed for the distribution of gold in the deposit. Geometric means estimated by the method of Link and others (1971) for Level 1 and Level 2 are 0.22 and 0.09 Troy ounces of silver per ton, respectively.

The resource value for this deposit is primarily in the gold, with silver serving as a by-product. A silver resource estimated by using the geometric means for the populations sampled and applied to the tonnages derived from the polygons used for the gold resource yields a silver-resource estimate of 18,640 ounces of silver in 97,782 tons of rock.

Surface Samples

Several sets of character samples were taken from surface outcrops on the Coyote lode claim and Coyote mill site claims and from surface dumps owned either by Coyote Mines, Inc. or others in the Searchlight district by various investigators at different times. The results for surface samples that are not a part of any one cohesive sampling set are given in Table B-7 where the samples are simply grouped as either dump or outcrop samples. Dump samples from a coherent sample set taken from stockpiles of ore on the Coyote mill site claims are given in Table B-8.

The character samples from outcrops on the Coyote lode claim show a range in gold content from <0.005 to 0.590 Troy ounces of gold per ton. Again, due to the nature of these samples, they can not be used to identify a resource. However, the results indicate that gold is present in rocks that crop out on the Coyote lode claim.

Eight character samples were analyzed from five dumps in the Searchlight district. The values range from <0.003 to 1.090 Troy ounces of gold per ton. These results indicate that dumps in the district may provide a gold resource for operating the Coyote Mines, Inc. mill as a contract mill.

Importantly, three samples taken from outcrops on the Coyote mill site claims are all devoid of gold. This indicates that the location of the Coyote mill site claims is ideal since the mill is very close to the Coyote lode claim yet the mill site is not mineralized.

One set of dump samples was collected from ore stockpiles on the Coyote mill site claims. These stockpiles were originally gathered from surface pits and cuts on the Coyote lode claim to serve as initial mill feed for testing the Coyote mill. Each stockpile was sampled by collecting one or more bulk (5 pound) samples from each. The results of the stockpile sampling program are given in Table B-8.

The coefficient of variation for the total sample set from the ore stockpiles is 1.069. For lognormally distributed observations, the un-transformed mean of the observations is about 85% efficient as an estimator of the population mean if the coefficient of variation is about 1.2 (Link and others, 1971). For this data set, the coefficient of variation of 1.069 means that the arithmetic mean of 0.081 may be used to estimate the population mean. In this case, however, the observations were first split according to stockpile and an average grade calculated (Table B-9) for each stockpile. These numbers were used to calculate contained ounces of gold in the stockpiles Table B-10). Tonnages for the stockpiles were calculated using measurements of the stockpiles and measured tonnage factors. An average specific gravity was calculated from six measured specific gravities. The measured numbers are 1.46, 1.51, 1.44, 1.40, and 1.52. The average is 1.47 which yields a tonnage factor of 21.83 cubic feet per ton for the loose aggregate material in the stockpiles. The estimated resource in the ore stockpiles is 615 ounces of gold in 9,532 tons of stockpiled ore. The average grade calculated by dividing

these numbers is 0.065 Troy ounces of gold per ton. The estimated geometric mean of the population sampled is 0.057 ounces of gold per ton.

The grades obtained for samples from the stockpiles are consistent with those obtained for surface character samples and the underground chip-panel samples. Thus, although the stockpiles were not trenched, application of these data to calculations of contained ounces of gold is reasonable.

Exploration Targets on the Coyote lode claim

The geologic map of the Coyote lode claim made by Ed Huskinson shows sheared, altered, and quartz-vein-bearing rocks on the surface from near the Coyote decline north and northeast to the northernmost corner of the Coyote lode claim (Plate II). These rocks are locally stained by iron oxides and there are old mine and surface workings developed on some of them.

The Coyote shear zone is about 900 feet long and 200 feet wide. Character samples taken from the Coyote shear range in gold grade from 0.004 to 0.590 Troy ounces of gold per ton.

The shear is well-exposed between the surface projections of the Coyote and Fault declines where old stopes have caved-in. Other exposures of the shear are on Coyote Hill and northeast of the hill near the northernmost corner of the claim.

Callaghan (1939) published a geologic map of the Blossom deposit (his Plate 51) that shows a quartz-cemented breccia circling Blossom Hill and continuing sporadically to the northeast to Coyote Hill. It was this breccia that was mined on Blossom Hill and is now referred to as the Coyote shear on the Coyote lode claim. This zone is a prime exploration target. If the zone is gold-bearing to the same extent and average grade as the southwestern corner block of the claim, then the gold resource for the Coyote lode claim could be as much as three times the identified resource.

The character samples listed in Table B-7 for the Coyote shear are mostly located from between the Coyote and Fault declines and from the dozer cut just north of the Fault decline. Character sampling should continue to the northeast to determine the presence or absence of gold along strike. Secondly, chip-panel, channel, or trench-bulk samples should be collected from surface exposures of the shear where character samples indicate that gold is present. These bulk samples, together with detailed structural mapping of the surface exposures, will help determine the continuity of gold in the shear. Finally, a drill program should be initiated to test the vertical continuity of gold along the shear where the character and bulk sample results are positive. Several of the proposed drill holes are located on Plate II.

The results from the initial character samples from the Coyote shear are positive and indicate a good likelihood for the success of this exploration program.

Mine Dumps

An attractive option for the Coyote mill is for it to serve as a contract mill in the district. The source for mill feed to the mill would be the extensive mine dumps that exist throughout the district. Character samples collected from the Good Hope, Quartet, Blossom, and Coyote dumps indicate that gold is present (Table B-7). Although the average grades and tonnages for dumps in the district are unknown, these parameters could be determined through bulk sampling, measurements of dump sizes, and specific gravity determinations. Several property owners in the district have been informally approached about the possibility of selling dump material to the Coyote mill. Each owner approached has expressed a favorable interest in the idea. These dumps would add significantly to the life of the Coyote mill.

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List of Plates, Figures, and Tables for the Development Plan
Coyote Mine and Mill Complex
Searchlight District, Clark Country, Nevada

Plates

(I) Geologic map of the underground workings in the southwestern corner of the Coyote claim.
(II) Geologic map of the surface of the Coyote claim.

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(A2) Location of the mill site claims relative to lode claims and location of the mill and proposed tailings disposal area on the mill site claims.
(A3) Diagram of the milling circuit for the mill.

(B1) Map of underground workings in the southwestern corner of the Coyote claim showing the locations of chip-panel samples on levels 1 and 2.
(B2) Graph showing cumulative percentage of samples versus cumulative percentage of total gold value sampled by Level 1 chip-panel samples.
(B3) Graph showing cumulative percentage of samples versus cumulative percentage of total gold value sampled by Level 2 chip-panel samples.
(B4) Map of underground workings in the southwestern corner of the Coyote claim showing the averages of sections of ribs on levels 1 and 2.
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(B6) Cross section through the southwestern corner of the Coyote claim showing the polygons used to estimate grades and tonnages for the rock above Level1 and between levels 1 and 2.

Tables

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(B-2) Character samples collected by John Yeager throughout the Coyote mine.
(B-3) Character samples collected by Ed Huskinson and Don Bunch on levels 1 and 2 and the Upper Level off of the Fault decline in the Coyote mine.
(B-4a) Gold and silver grades for chip-panel samples from Level 1.
(B-4b) Basic statistics for chip-panel samples from Level 1.
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(B-6) Calculations for the gold resource in the southwestern corner of the Coyote claim.
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(B-9) Gold and silver grades for the ore stockpiles on a pile-by-pile basis.
(B-10) Calculations of the grades and tonnages for the ore stockpiles.

Figure 1-1 Map Identifying the Searchlight Mining District in Clark County, Nevada

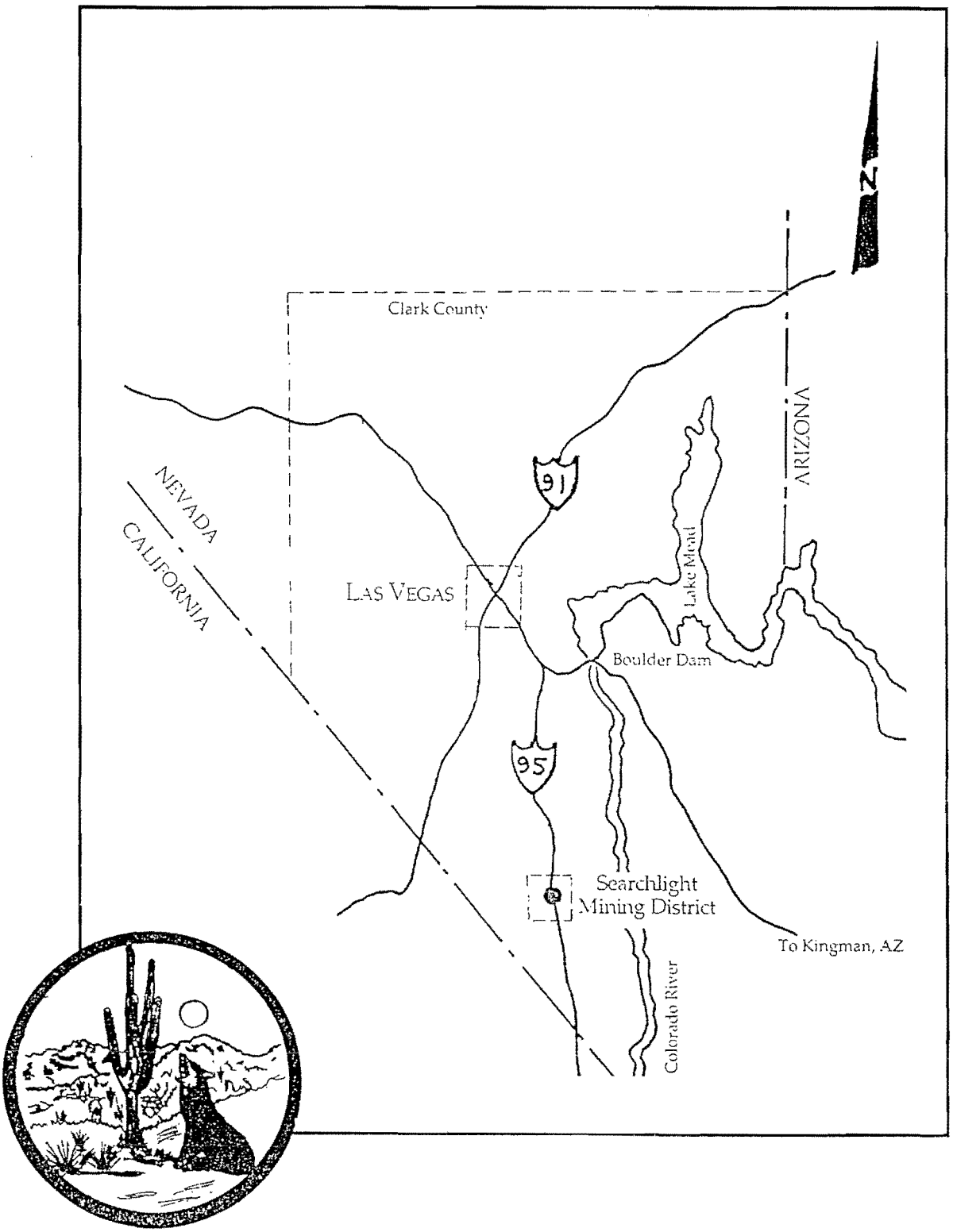
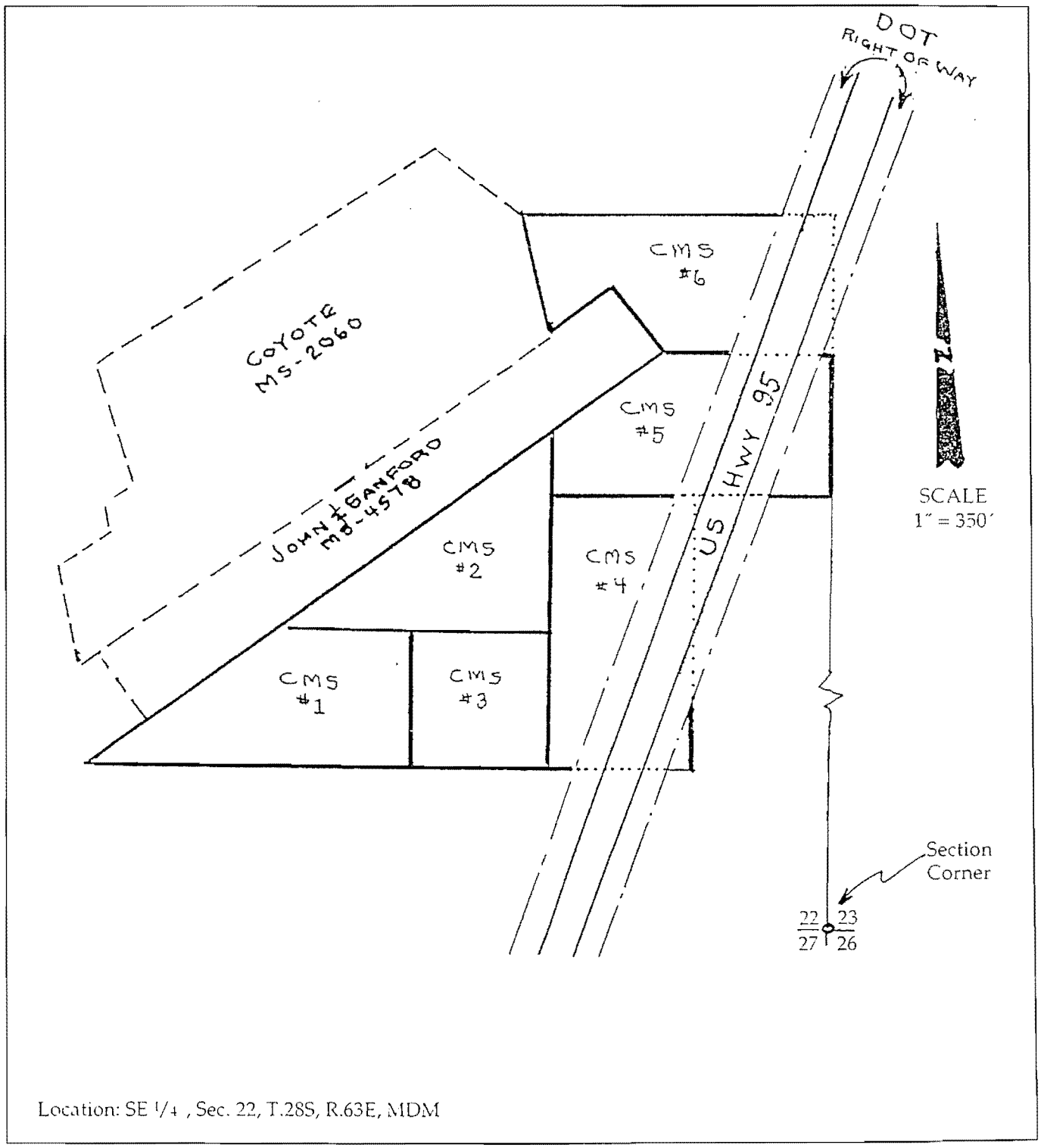


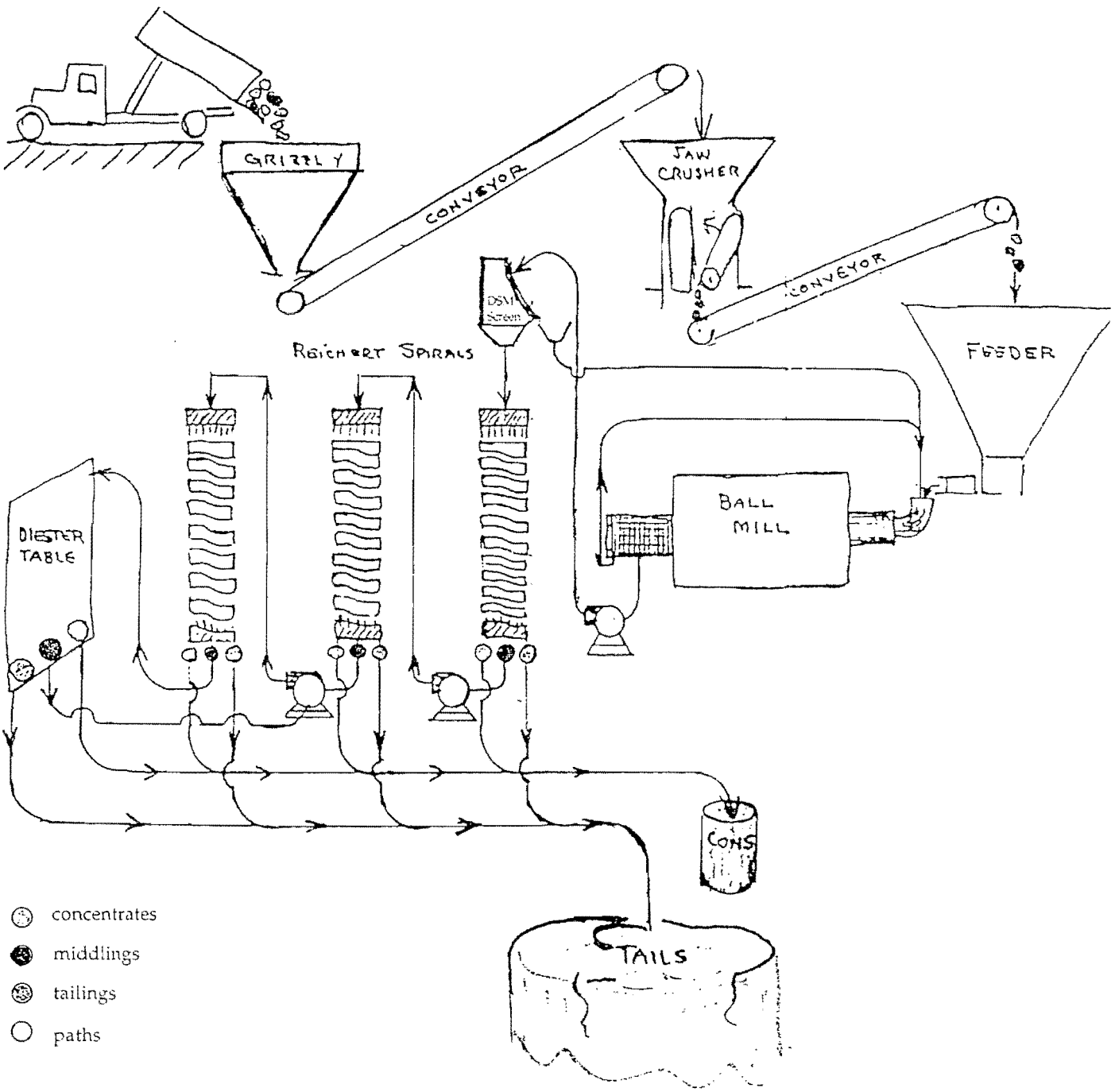
Figure A-2 Map of Coyote Mill Sites #1-6

COYOTE MINES, INC.'s six (6) BLM-leased Mill Sites have been surveyed and staked in accordance with the BLM official map (September 26, 1988), of these properties..



Location: SE 1/4 , Sec. 22, T.28S, R.63E, MDM

Figure A-3 Gravity Concentration Milling Circuit



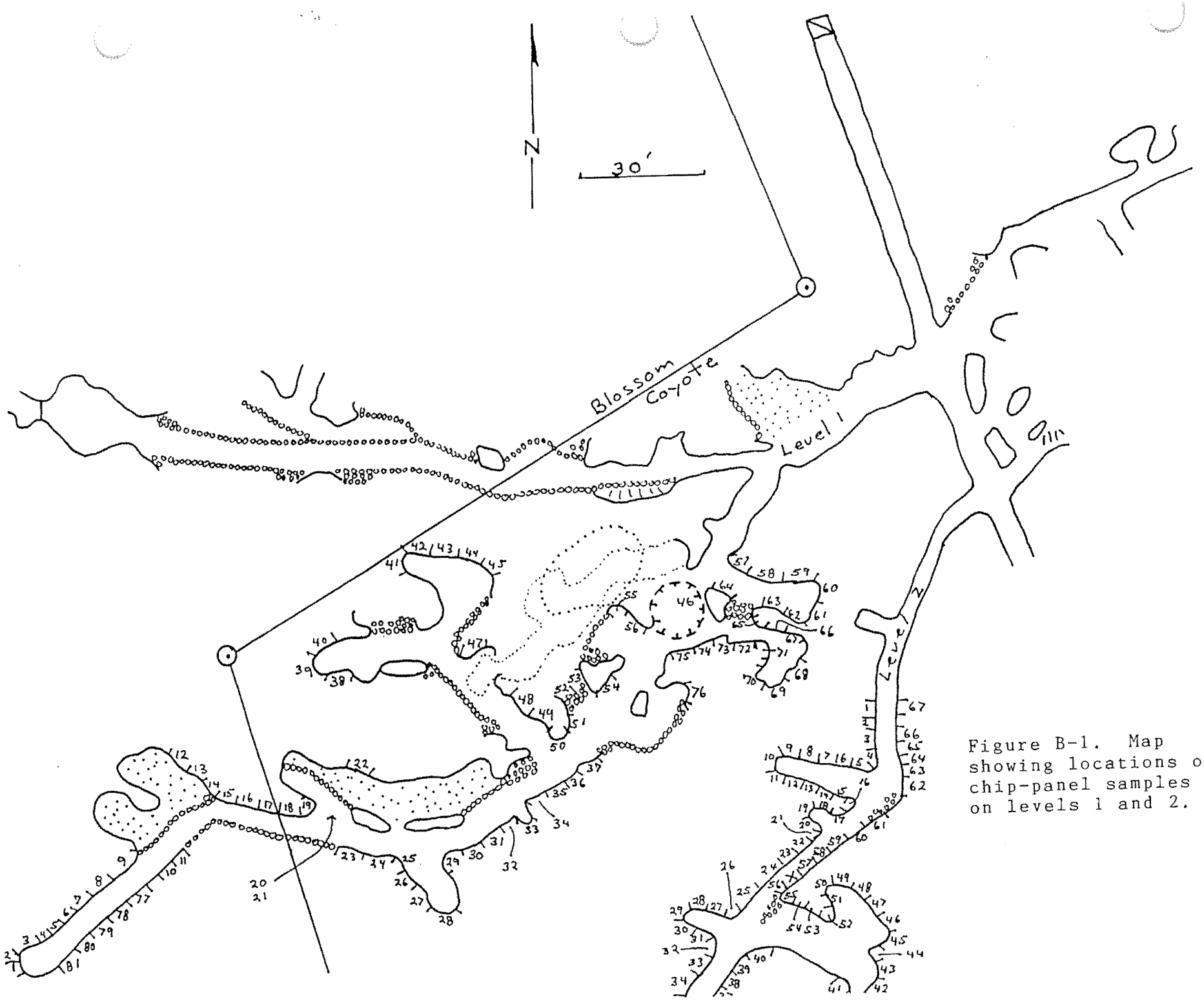


Figure B-1. Map showing locations of chip-panel samples on levels 1 and 2.

Figure B-2

Level 1 Chip-Panel Samples

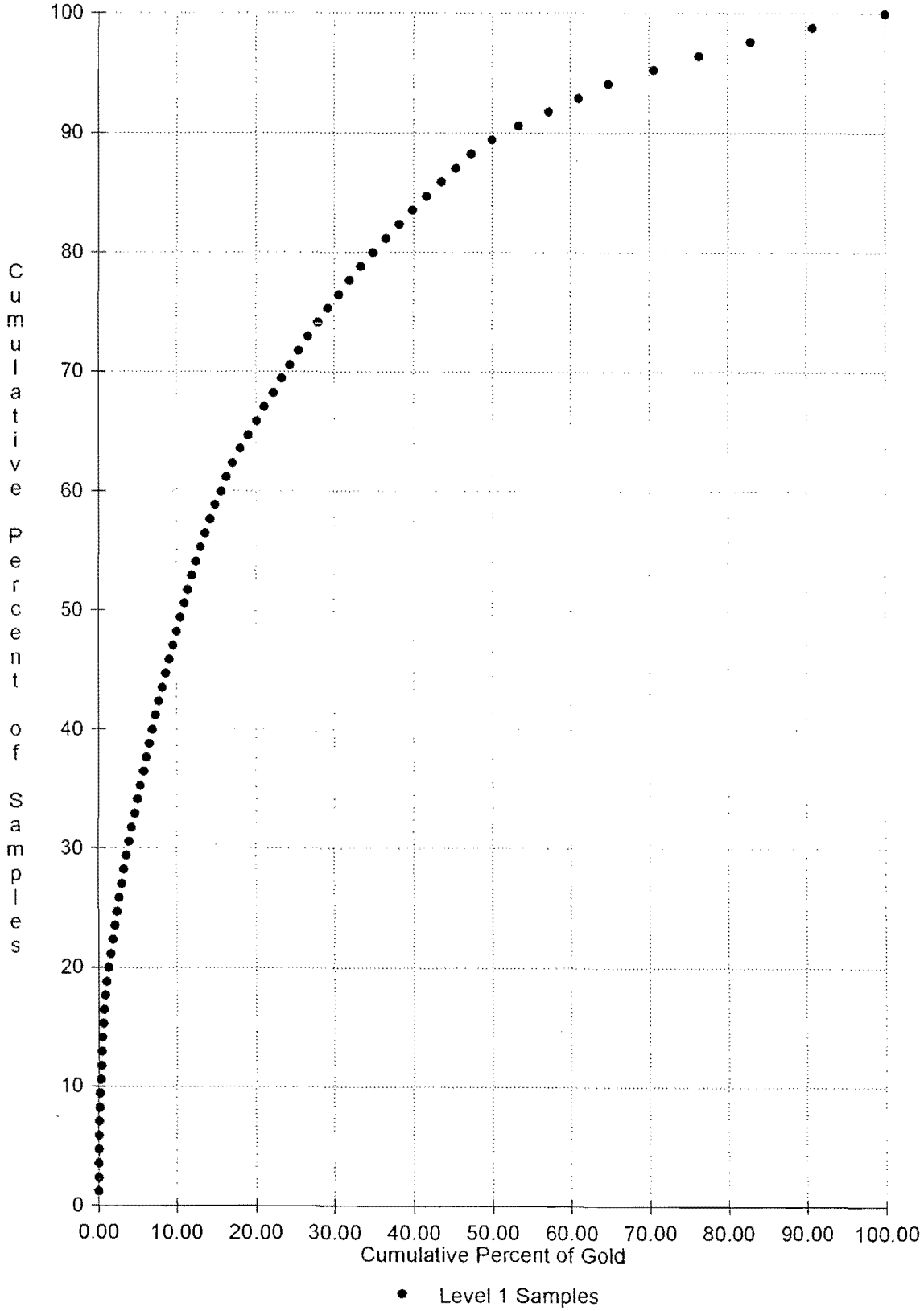
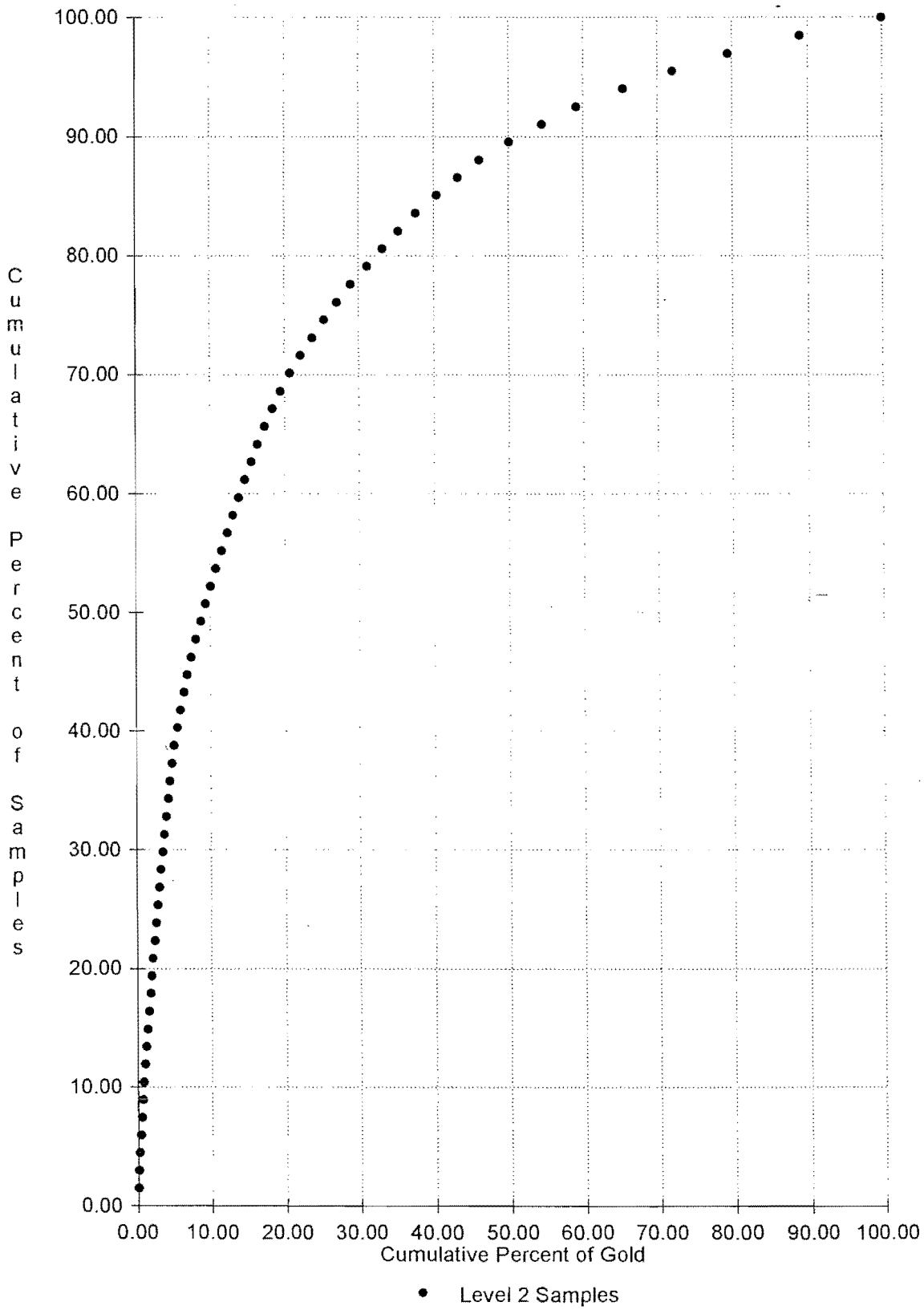


Figure B-3

Level 2 Chip-Panel Samples



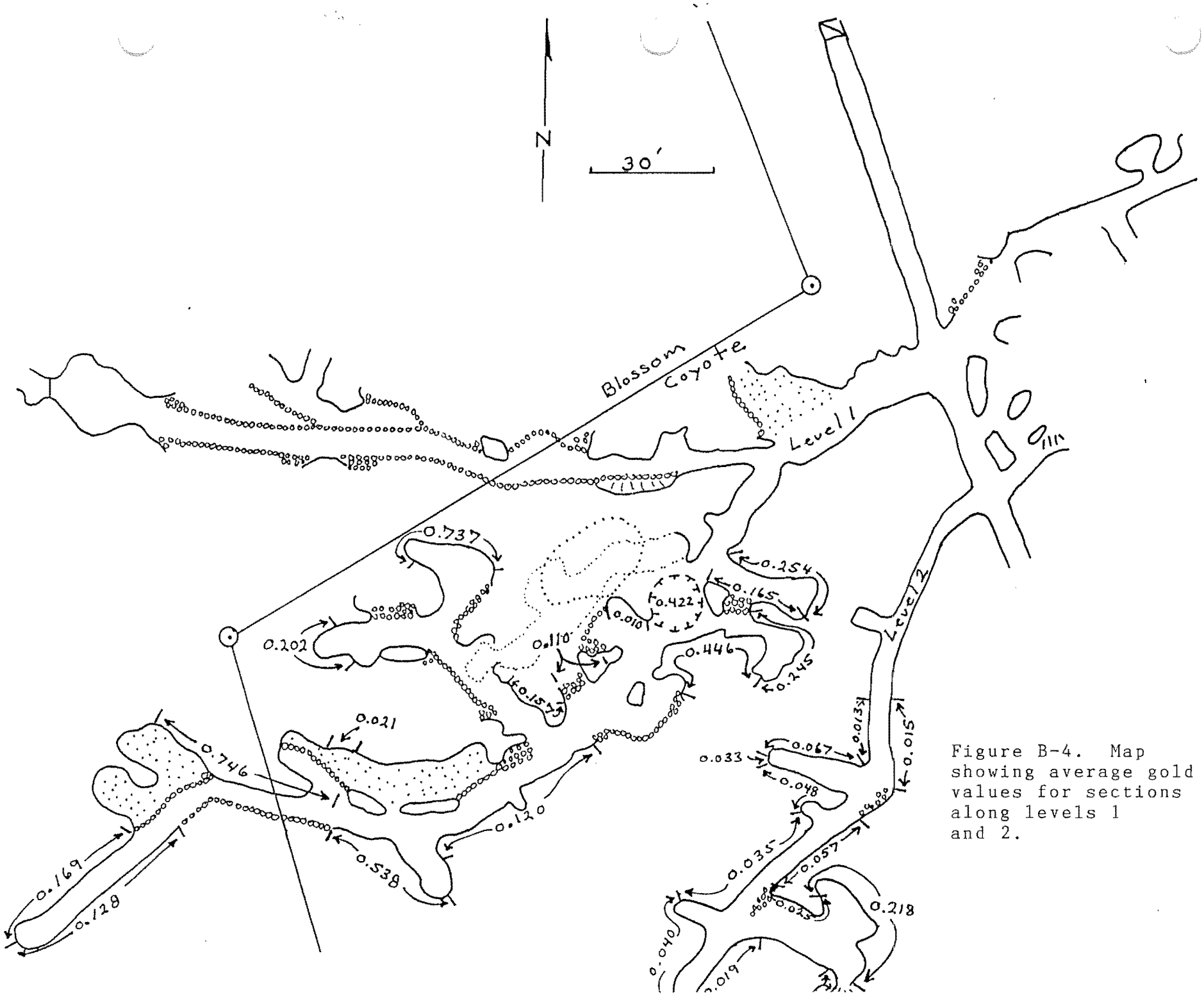


Figure B-4. Map showing average gold values for sections along levels 1 and 2.

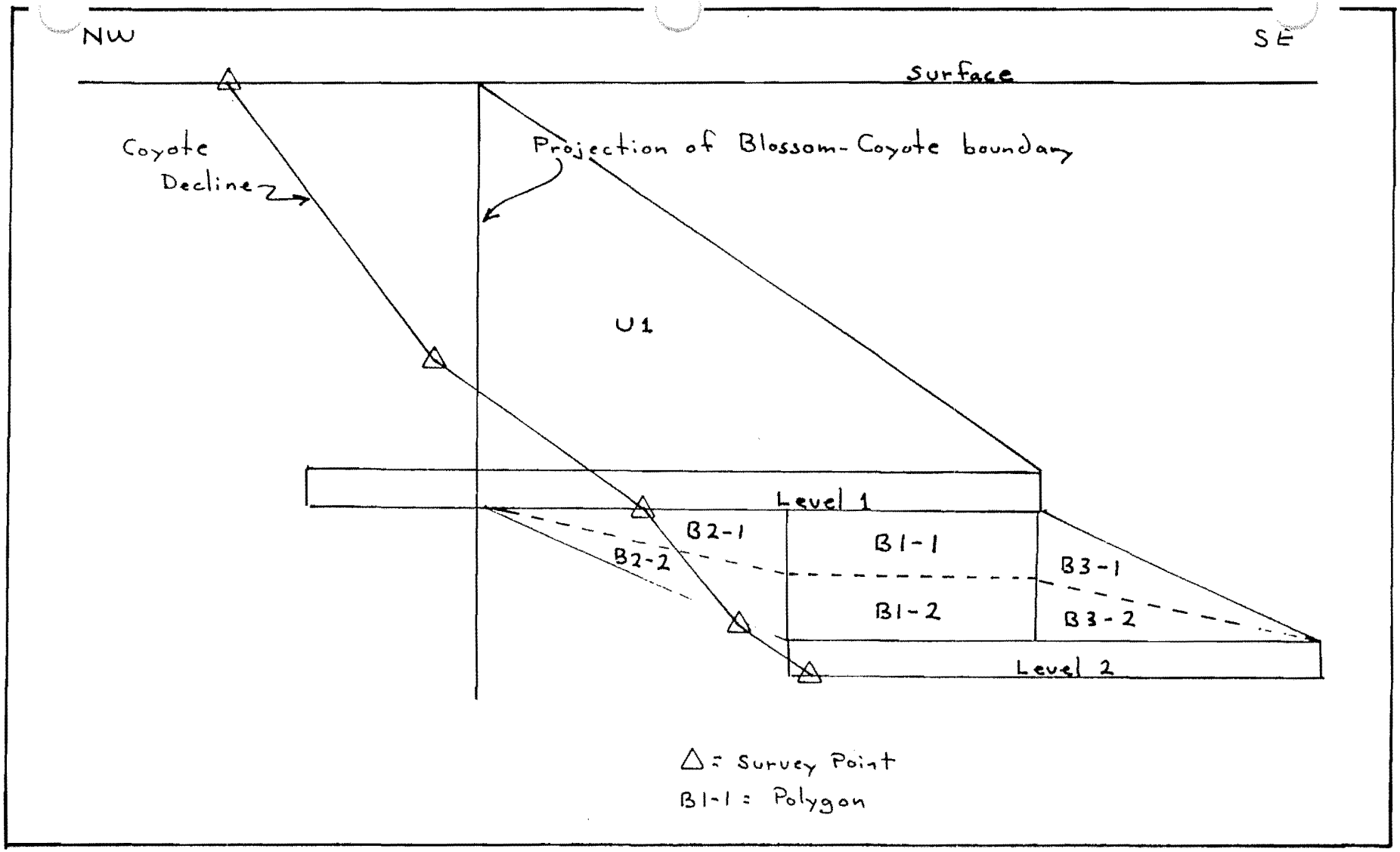


Figure B-6. Cross section showing polygons used to estimate the gold and silver resource in the southwestern corner of the Coyote lode claim.

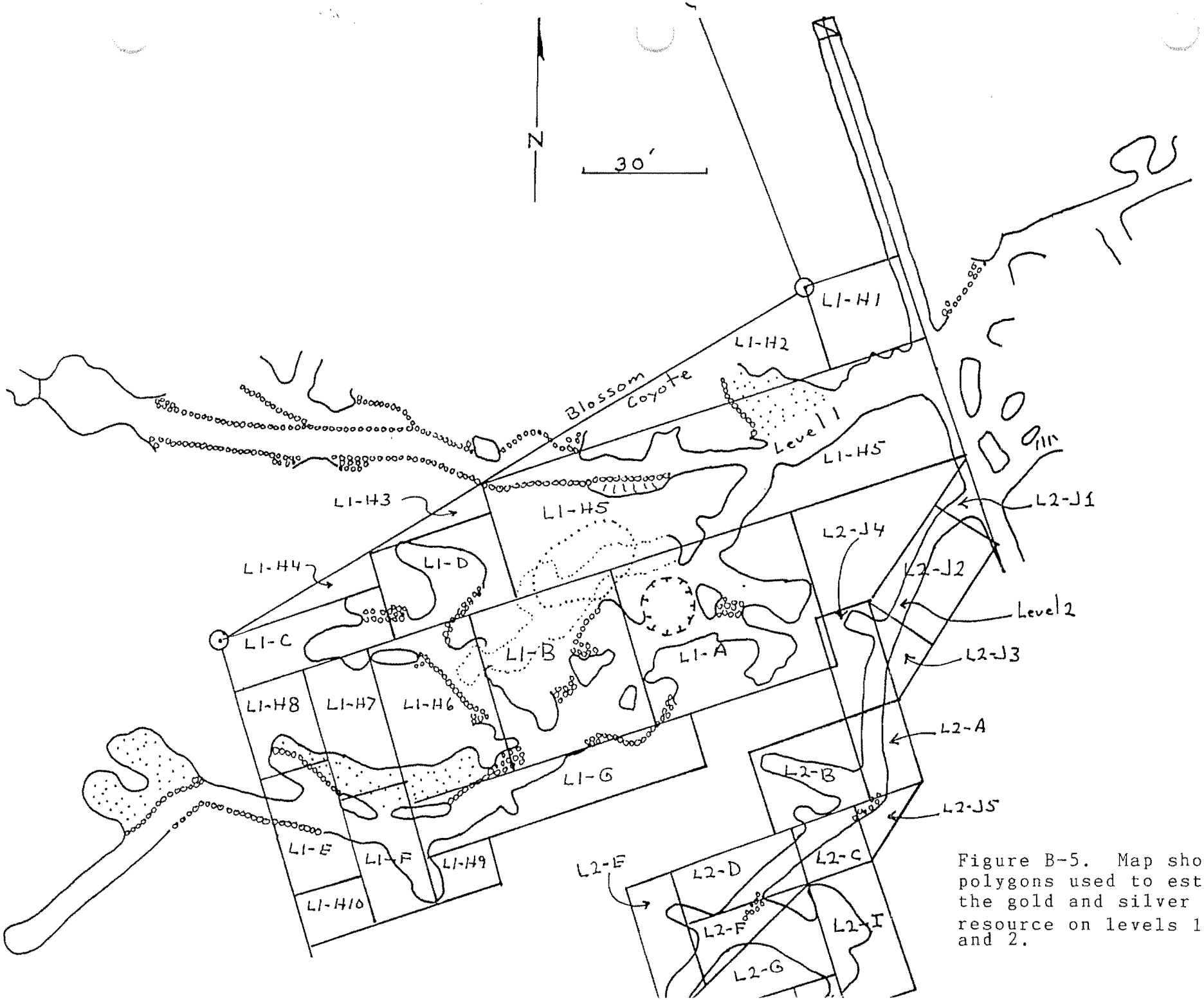


Figure B-5. Map showing polygons used to estimate the gold and silver resource on levels 1 and 2.

Table A-1. Breakdown of per-ton costs for ore handling and milling at the Coyote mill. General and administrative costs are given on an annual basis.

1994-1995

Costs of ore handling	
Labor (two people, full time; salary & benefits)	$5.50
Electrical energy at $0.0628 kwh	$0.46
Water pumping (assuming no recycling)	$0.04
Ore transport	$0.42
Taxes (based on 1992 rate of 2.44%)	$0.018
Total cost per ton (direct cost)	**$6.44**
General & administrative costs	
Accounting	$600.00
Bank charges	$70.00
Claims licenses, annual fees	
BLM assessment (6 Lode claims)	$630.00
Mining & milling water permit	$100.00
BLM right-of-way fee	$22.80
General supplies	$60.00
Office supplies, postage, reproductions	$125.00
Security (person in residence)	$0.00
Well maintenance and annual water test	$225.00
Road right-of-way maintenance	$200.00
Total annual G&A costs	**$2,032.80**

1997

BREAKDOWN OF ORE CONCENTRATION COSTS

Following is a breakdown of costs incurred in processing ore through the Coyote Mill. Costs assume four tons per hour processed through the Coyote Mill.

The basic general and administrative costs reflect an annual figure.

TABLE I

COSTS OF ORE PROCESSING (indirect cost)	COST/TON (1996)
Labor (2 people, FT; salary & benefits)	$ 10.50
Electrical energy at $0.060 kwh	$ .92
Water pumping (assuming no recycling)	$ .08
Ore transport from stockpiles (assuming no depreciation on equipment) repair & maintenance	$ .84
TOTAL COST PER TON	$ 12.34

TABLE II

GENERAL & ADMINISTRATIVE COSTS (direct cost)	COST/YEAR (1996)
Accounting	$ 750.00
Bank Charges	$ 110.00
Claims, licenses, permits, annual fees	
- BLM Annual Maintenance/Rental Fee At $100/lode or placer	$1000.00
- Mining & Milling Water Extension Permit	$ 100.00
- Water Pollution Control Permit	$ 200.00
- BLM "Right-of-Way" rental fee ($114.00/5 yrs.	$ 22.80
- Chemical Testing of Drinking & Process Water (Quarterly at $200.00)	$1120.00
General Supplies	$ 140.00
Office Supplies, Postage, Reproduction	$ 570.00
Security (1 person on site)	$ 000.00
Well Maintenance & annual water test	$ 225.00
Road "Right-of-Way" Maintenance	$ 200.00
TOTAL COST G & A	$4437.80

Table A-2. Calculations for estimating operating costs of a small open-pit mine on Coyote Mines, Inc. property. The equations used for estimating costs are from Camm (1994).

Geologic resource

97,782 short tons @ 0.136 Troy ounces of gold and 0.19 Troy ounces of silver per ton

Calculated ore tonnage

0.9 = open-pit recovery factor and 0.05 = mining dilution factor
ore tonnage = [(resource) x (recovery factor) x (1+dilution factor)] = 92,404
ounces of gold = 12,582 and ounces of silver = 17,557

Mine life and capacity

mill operates 250 days per year at a capacity of 4 tons per hour
8,000 tons per year milled
given ore tonnage, life of the mine is 11.6 years

Stripping ratio

equation is SR = [3.6078D x (density $^{0.3333}$) x (ore tonnage $^{-0.3333}$)] + 0.8572
D = depth to top of ore, which is 0 in this case, then stripping ratio = 0.8

Operating costs per year - 1992

6.5 = $/ton milled
16 = $/ton mined [(30.46 x (mine capacity $^{-0.316}$)) x (SR = 1)$^{0.684}$]
0.25 = $/ton G&A
$124,646 = mining cost per year
$52,000 = milling cost per year
$2035 = G&A cost per year

Calculation of annual revenues 1997

assume 80% gold and silver recovered by the mill
assume gold price of $380 and silver price of $5.20 per Troy ounce
assume buyer will pay 98% for gold and 96% for silver
871 ounces of gold recovered per year
854 ounces of gold paid for by buyer of concentrate
$324,518 = revenue from gold per year
1,220 ounces of silver recovered per year
1,171 ounces of silver paid for by buyer of concentrate
$6,090 = revenue from silver per year
$330,609 = total revenue per year

Table A-3. Cash-flow analysis for operating the Coyote Mines, Inc. mine and mill complex. The numbers assume constant dollars and are calculated pre-tax. i = discount rate, NC = net cash flow, q^-n is the discount factor. Cash flows are given in thousands of dollars. Two ways of analyzing cash flow are given based on the methods detailed by Wellmer (1989).

year =	0	1	2	3	4	5	6	7	8	9	10	11
Investment I=	500											
NC=		151	151	151	151	151	151	151	151	151	151	151
@ i=10%, q^-n=	1	0.91	0.83	0.75	0.68	0.62	0.56	0.51	0.47	0.42	0.39	0.35
@ i=15%, q^-n=	1	0.87	0.76	0.66	0.57	0.5	0.43	0.38	0.33	0.28	0.25	0.21
@ i=20%, q^-n=	1	0.83	0.69	0.58	0.48	0.4	0.33	0.28	0.23	0.19	0.16	0.13
@ i=28.25%, q^-n=	1	0.78	0.61	0.47	0.37	0.29	0.22	0.18	0.14	0.11	0.08	0.06
disc NC @10%	-500	137	125	113	103	93.8	85.2	77.5	70.4	64	58.2	52.9
disc NC @15%	-500	131	114	99.3	86.3	75.1	65.3	56.8	49.4	42.9	37.3	32.5
disc NC @20%	-500	126	105	87.4	72.8	60.7	50.6	42.1	35.1	29.3	24.4	20.3
disc NC @28.25%	-500	118	91.8	71.6	55.8	43.5	33.9	26.5	20.6	16.1	12.5	9.78

Number 1: Net Present Value (NPV) method

Formula: NPV = [(sum NC)(q^-n)]-I where q^-n = 1/(1+i)^n & NC = net cash flow and n = year number

NPV @ 10% =	481
NPV @ 15% =	290
NPV @ 20% =	153
NPV @ 28.25% =	-0

Number 2: Internal Rate of Return (IROR) method

For this method, the IROR is the interest rate at which NPV = 0.

At an IROR of 28.25%, the NPV = 0. See above calculations.

Table B-1. Character samples collected by Pete Drobeck on Level 1 near the Blossom decline.

Notes	Sample	Au (oz/t)	Log Au	Ag (oz/t)
bleached porphyry w/ 3% thin quartz veins	85020	0.019	-1.727	0.901
fine sulfides to FeOx, thin quartz veins	85021	0.650	-0.187	0.452
quartz breccia with hematite stain	85022	0.255	-0.593	0.998
selected quartz from 85022	85023	1.356	0.132	4.346
quartz breccia in stope pillar	85024	0.505	-0.297	19.950
sheared rock above 85024	85025	0.013	-1.883	2.730
strongly argillized and iron-stained rock	85026	0.000	-3.331	0.076
sheared, brecciated, bleached rock	85027	0.001	-2.854	0.079
selected quartz in 85027	85028	0.002	-2.787	0.131
Total number of samples	**9**			
Average		**0.311**	**-1.503**	**3.30**
Std Dev		**0.436**	**1.234**	**6.04**
Coeff Var		**1.400**	**-0.821**	**1.83**

Table B-2. Character samples collected by John Yeager throughout the Coyote mine.

Notes	Sample	Au (oz/t)	Log Au	Ag (oz/t)
Fault decline, 30 ft down 1st drift to N, white, red clay	Coyote 01	0.015	-1.824	0.03
Fault decline, 30 ft down 1st drift to S, channel, qtz vn	Coyote 02	1.620	0.210	0.72
Fault decline, 1st level, 50 ft S to 3rd drift right, vein	Coyote 03	0.080	-1.097	<0.01
Fault decline, very bottom, some qtz	Coyote 11	0.005	-2.301	<0.01
Main shaft, near bottom, white qtz	Coyote 16	0.910	-0.041	0.34
Fault decline, NE side between level 1 & 2, rotten zone	Coyote 17	0.020	-1.699	0.05
Fault decline, (?) wall, blasting sign, white-black clay	Coyote 18	0.005	-2.301	0.08
Main shaft, near bottom, far right, vein	Coyote 19	0.310	-0.509	0.16
Blossom side, 1st level, wall rk	Coyote 21	0.050	-1.301	0.14
Blossom side, 1st level ?, green rk	Coyote 22	0.005	-2.301	0.12
Coyote Side, 1st level, pillar, cc+qtz rk	Coyote 23	0.435	-0.362	0.33
Fault decline, 30 ft down, pillar, qtz bx	Coyote 24	0.065	-1.187	0.06
Fault decline, 5' from #24, qtz vein	Coyote 25	0.675	-0.171	0.40
Fault decline, 20 ft down, 10 ft above Coyote 2,	Coyote 26	0.785	-0.105	0.44
Fault decline, 10 ft down, N wall, qtz vein	Coyote 27	0.110	-0.959	0.23
Fault decline, 30 ft down, N wall, hard qtz	Coyote 28	0.025	-1.602	0.06
Fault decline, 30 ft down, hard qtz	Coyote 29	0.555	-0.256	0.28
Fault decline, inside pillar below slip, hard qtz	Coyote 30	0.420	-0.377	0.23
Fault decline, 20 ft down, S wall, 10 ft up from pillar, qtz	Coyote 31	1.100	0.041	0.25
Fault decline, @ entrance, S side, some qtz	Coyote 32	0.050	-1.301	0.05
Fault decline, 30 ft down 1st drift to S, same as Coyote 2	Coyote 33	1.800	0.255	0.66
Blossom side, shaft #1, 30 ft down, qtz, pillar W side	Coyote 34	0.675	-0.171	0.32
Total number of samples	**22**			
Average		**0.442**	**-0.880**	**0.23**
Std Dev		**0.520**	**0.835**	**0.20**
Coeff Var		**1.177**	**-0.949**	**0.87**

Table B-3. Character and isolated five-by-five foot chip-panel samples collected by Ed Huskinson and Don Bunch on Level 1 (C1 samples), Level 2 (C2 and CD samples), and Upper Level (UL samples).

Notes	Sample	Au (oz/t)	Ag (oz/t)
5X5 wooden door	C1-A	0.016	0.42
5X5 wooden door	C1-B	0.347	<0.05
hsg Lvl 1, wooden door	C1-C	0.406	<0.05
5X5 wooden door	C1-D	0.028	0.74
1x3' qtz, Lvl 2	C2-1	0.009	0.17
qtz vein Lvl 2	C2-2	0.245	0.19
3x5' qtz stckwrk Lvl 2	C2-3	0.081	0.07
3x3' fracture set Lvl 2	C2-4	<0.005	<0.05
qtz on branch Lvl 2	CD-1	0.035	<0.05
5x5' panel MnOx qtz	UL-1	0.029	<0.05
5x5' panel MnOx qtz	UL-2	0.006	<0.05
5x5' panel MnOx qtz	UL-3	0.010	0.07
5x5' panel sample	UL-4	0.025	<0.05
5x5' panel sample	UL-5	0.016	<0.05
calcite bx 3x3' panel	UL-6	0.005	<0.05
5x5' panel calcite bx	UL-7	0.006	<0.05
Fault decline, s side	FD 1 L	<0.005	0.12
Fault decline, s side	FD 1 U	<0.005	0.08
Fault decline, s side	FD 2 L	0.031	0.08
Fault decline, s side	FD 2 U	0.016	0.06
Fault decline, s side	FD 3 L	0.005	0.08
Fault decline, s side	FD 3 U	0.152	0.06

Table B-4a. Chip-panel samples collected from Level 1. If value is less than 0.005 (Au) or 0.05 (Ag), then the value is calculated as 75% of that low detection limit.

Sample	Au (oz/t)	Log Au	Ag (oz/t)	Log Ag		Sample	Au (oz/t)	Log Au	Ag (oz/t)	Log Ag
C1-01*	0.083	-1.081	0.12	-0.92		C1-40	0.168	-0.775	0.18	-0.74
C1-02*	0.194	-0.712	0.15	-0.82		C1-41	0.173	-0.762	0.19	-0.72
C1-03*	0.116	-0.936	0.13	-0.89		C1-42	0.355	-0.450	0.37	-0.43
C1-04*	0.450	-0.347	0.35	-0.46		C1-43	0.500	-0.301	0.52	-0.28
C1-05*	0.163	-0.788	0.12	-0.92		C1-44	1.764	0.246	1.63	0.21
C1-06	0.074	-1.131	0.08	-1.10		C1-45	0.891	-0.050	0.76	-0.12
C1-07	0.022	-1.658	0.04	-1.43		C1-46	0.422	-0.375	0.30	-0.52
C1-08	0.135	-0.870	0.18	-0.74		C1-48	0.097	-1.0132	0.12	-0.92
C1-09	0.288	-0.541	0.20	-0.70		C1-49	0.104	-0.9830	0.10	-1.00
C1-10	0.129	-0.889	0.14	-0.85		C1-50	0.348	-0.4584	0.25	-0.60
C1-10-1	0.010	-2.000	0.43	-0.37		C1-51	0.077	-1.114	0.08	-1.10
C1-11	0.044	-1.357	0.14	-0.85		C1-52	0.002	-2.6478	0.04	-1.43
C1-12	0.368	-0.434	0.26	-0.59		C1-53	0.031	-1.5086	0.10	-1.00
C1-13	0.245	-0.611	0.23	-0.64		C1-54	0.296	-0.5287	0.18	-0.74
C1-14	0.709	-0.149	0.41	-0.39		C1-55	0.018	-1.7447	0.10	-1.00
C1-15	0.087	-1.060	0.08	-1.10		C1-56	0.002	-2.6478	0.04	-1.43
C1-16	1.043	0.018	0.51	-0.29		C1-57	0.270	-0.5686	0.28	-0.55
C1-17	1.536	0.186	0.92	-0.04		C1-58	0.323	-0.4908	0.97	-0.01
C1-18	2.408	0.382	1.39	0.14		C1-59	0.456	-0.3410	0.34	-0.47
C1-19	1.026	0.011	0.58	-0.24		C1-60	0.105	-0.9788	0.20	-0.70
C1-20	0.019	-1.721	0.07	-1.15		C1-61	0.117	-0.9318	0.36	-0.44
C1-21	0.021	-1.678	0.05	-1.30		C1-62	0.262	-0.5817	0.93	-0.03
C1-22	0.004	-2.426	0.57	-0.24		C1-63	0.129	-0.889	0.25	-0.60
C1-23	2.105	0.323	1.42	0.15		C1-64	0.103	-0.9872	0.30	-0.52
C1-24	0.520	-0.284	0.22	-0.66		C1-65	0.492	-0.3080	0.47	-0.33
C1-25	0.299	-0.524	0.18	-0.74		C1-66	0.137	-0.8633	0.34	-0.47
C1-26	0.132	-0.879	0.06	-1.22		C1-67	0.196	-0.7077	0.38	-0.42
C1-27	0.070	-1.155	0.12	-0.92		C1-68	0.277	-0.5575	0.30	-0.52
C1-27-1	0.059	-1.229	0.04	-1.43		C1-69	0.123	-0.9101	0.27	-0.57
C1-28	0.104	-0.983	0.07	-1.15		C1-70	0.128	-0.8928	0.29	-0.54
C1-29	0.126	-0.900	0.07	-1.15		C1-71	0.215	-0.6676	2.50	0.40
C1-30	0.014	-1.854	0.10	-1.00		C1-72	0.440	-0.3565	0.60	-0.22
C1-31	0.014	-1.854	0.04	-1.43		C1-73	0.094	-1.0269	0.22	-0.66
C1-32	0.024	-1.620	0.07	-1.15		C1-74	1.511	0.1793	0.99	-0.00
C1-33	0.117	-0.932	0.10	-1.00		C1-75	0.069	-1.1612	0.19	-0.72
C1-33-1	0.129	-0.889	0.11	-0.96		C1-76A	1.010	0.0043	1.80	0.26
C1-34	0.454	-0.343	0.29	-0.54		C1-76B	0.101	-0.9957	0.24	-0.62
C1-35	0.071	-1.149	0.11	-0.96		C1-77	0.010	-2.0000	0.05	-1.30
C1-36	0.051	-1.292	0.04	-1.43		C1-78	0.002	-2.6478	0.04	-1.43
C1-36-1	0.090	-1.046	0.05	-1.30		C1-79	0.102	-0.9914	0.21	-0.68
C1-37	0.079	-1.102	0.11	-0.96		C1-80	0.329	-0.4828	0.31	-0.51
C1-38	0.359	-0.445	0.28	-0.55		C1-81	0.280	-0.5528	0.30	-0.52
C1-39	0.078	-1.108	0.09	-1.05						

Table B-4b: Statistics for chip-panel samples from Level 1 (see Table B-4a). Estimation of the mean (m) of the population is determined by the method of Link and others (1971). The value of phi for estimating the mean is from tables in that reference.

		Au (oz/t)	Log Au	Ag (oz/t)	Log Ag
Number of samples		85	85	85	85
	Average	0.313	-0.881	0.34	-0.70
	Std Dev	0.457	0.647	0.42	0.43
	Coeff Var	1.461	-0.735	1.25	-0.62
	Variance	0.209	0.419	0.18	0.19
Estimation of m of population using statistics of log values:					
			Au (oz/t)		Ag (oz/t)
	mean of logs = avg log		-0.881		-0.70
	variance of logs = s^2		0.419		0.19
	antilog = 10^avg log		0.132		0.20
	number samples = n		85		85
	T = 0.5*s^2		0.21		0.09
	phi of T = from table		1.230		1.093
	estimate mean = m		**0.162**		**0.22**

Table B-5a. Chip-panel samples from Level 2. If value is less than 0.005 (Au) or 0.05 (Ag) then the value is calculated as 75% of that low detection limit.

Sample	Au (oz/t)	Log Au	Ag (oz/t)	Log Ag		Sample	Au (oz/t)	Log Au	Ag (oz/t)	Log Ag
C2-01	0.032	-1.49	0.04	-1.43		C2-35	0.019	-1.72	0.17	-0.77
C2-02	0.005	-2.30	0.04	-1.43		C2-36	0.019	-1.72	0.13	-0.89
C2-03	0.002	-2.65	0.04	-1.43		C2-37	0.011	-1.96	0.04	-1.43
C2-04	0.013	-1.89	0.04	-1.43		C2-38	0.009	-2.05	0.07	-1.15
C2-05	0.028	-1.55	0.04	-1.43		C2-39	0.020	-1.70	0.04	-1.43
C2-06	0.059	-1.23	0.04	-1.43		C2-40	0.034	-1.47	0.10	-1.00
C2-07	0.040	-1.40	0.04	-1.43		C2-41	0.010	-2.000	0.04	-1.43
C2-08	0.009	-2.05	0.04	-1.43		C2-42	0.283	-0.548	0.28	-0.55
C2-09	0.198	-0.70	0.11	-0.95		C2-43	0.091	-1.041	0.59	-0.23
C2-10	0.033	-1.48	0.04	-1.43		C2-44	0.119	-0.924	0.21	-0.68
C2-11	0.003	-2.52	0.04	-1.43		C2-45	0.091	-1.041	0.28	-0.55
C2-12	0.009	-2.05	0.04	-1.43		C2-46	0.403	-0.395	0.30	-0.52
C2-13	0.007	-2.15	0.04	-1.43		C2-47	0.096	-1.018	0.14	-0.85
C2-14	0.168	-0.77	0.11	-0.96		C2-48	0.319	-0.496	0.18	-0.74
C2-15	0.010	-2.00	0.04	-1.43		C2-49	0.266	-0.575	0.10	-1.00
C2-16	0.046	-1.34	0.17	-0.77		C2-50	0.043	-1.367	0.05	-1.30
C2-17	0.079	-1.10	0.04	-1.43		C2-51	0.471	-0.327	0.23	-0.64
C2-18	0.037	-1.43	0.04	-1.43		C2-52	0.031	-1.509	0.09	-1.05
C2-19	0.075	-1.12	0.04	-1.43		C2-53	0.034	-1.469	0.05	-1.30
C2-20	0.059	-1.23	0.04	-1.43		C2-54	0.008	-2.097	0.05	-1.30
C2-21	0.066	-1.18	0.04	-1.43		C2-55	0.028	-1.553	0.06	-1.22
C2-22	0.033	-1.48	0.04	-1.43		C2-56	0.010	-2.000	0.08	-1.10
C2-23	0.037	-1.43	0.04	-1.43		C2-57	0.191	-0.719	0.08	-1.10
C2-24	0.025	-1.60	0.24	-0.62		C2-58	0.121	-0.917	0.13	-0.89
C2-25	0.069	-1.16	0.26	-0.59		C2-59	0.008	-2.097	0.04	-1.43
C2-26	0.008	-2.10	0.18	-0.74		C2-60	0.006	-2.222	0.12	-0.92
C2-27	0.006	-2.22	0.19	-0.72		C2-61	0.006	-2.222	0.04	-1.43
C2-28	0.010	-2.00	0.12	-0.92		C2-62	0.012	-1.921	0.05	-1.30
C2-29	0.008	-2.10	0.08	-1.10		C2-63	0.009	-2.046	0.04	-1.43
C2-30	0.092	-1.04	0.24	-0.62		C2-64	0.008	-2.10	0.08	-1.10
C2-31	0.121	-0.92	0.09	-1.05		C2-65	0.021	-1.678	0.16	-0.80
C2-32	0.024	-1.62	0.06	-1.22		C2-66	0.029	-1.538	1.97	0.29
C2-33	0.011	-1.96	0.04	-1.43		C2-67	0.010	-2.000	0.04	-1.43
C2-34	0.007	-2.15	0.14	-0.85						

Table B-5b: Statistics for chip-panel samples from Level 2 (see Table B-5a). Estimation of the mean (m) of the population is determined by the method of Link and others (1971). The value of phi for estimating the mean is from tables in that reference.

		Au (oz/t)	Log Au	Ag (oz/t)	Log Ag
Number of samples		67	67	67	67
	Average	0.064	-1.550	0.13	-1.10
	Std Dev	0.094	0.549	0.25	0.37
	Coeff Var	1.482	-0.354	1.87	-0.33
	Variance	0.009	0.301	0.06	0.13
Estimation of m of population using statistics of log values.					
			Au (oz/t)		Ag (oz/t)
	mean of logs = avg log		-1.550		-1.10
	variance of logs = s^2		0.301		0.13
	antilog = 10^avg log		0.028		0.08
	number samples = n		67		67
	T = 0.5*s^2		0.15		0.07
	phi of T = from table		1.159		1.071
	estimate mean = m		**0.033**		**0.09**

Table B-6. Calculation of the gold resource in the southwestern corner of the Coyote claim. Tonnage factor used is 12.08 cubic feet per ton. Total resource is 97,782 tons containing 13,314 ounces of gold.

POLYGON	GRADE	POLYGON VOLUME	AMOUNT REMAINING	VOLUME REMAINING	TONS	GOLD (oz) RESOURCE
L1-A	0.28	14352	0.3	4306	356	99
L1-B	0.09	11544	0.2	2309	191	18
L1-C	0.20	4592	0.5	2296	190	38
L1-D	0.74	5456	0.5	2728	226	166
L1-E	0.75	3944	0.5	1972	163	122
L1-F	0.54	3968	0.4	1587	131	71
L1-G	0.12	7488	0.6	4493	372	45
L1-H1	0.16	4200	0.9	3780	313	51
L1-H2	0.16	7476	0.8	5981	495	80
L1-H3	0.16	868	1	868	72	12
L1-H4	0.16	1440	1	1440	119	19
L1-H5	0.16	28520	0.6	17112	1417	229
L1-H6	0.16	8112	0.5	4056	336	54
L1-H7	0.16	4624	0.7	3237	268	43
L1-H8	0.16	3128	0.7	2190	181	29
L1-H9	0.16	1408	0.9	1267	105	17
L1-H10	0.16	1408	1	1408	117	19
	TOTAL Au RESOURCE ON LEVEL 1=				**5052**	**1113**
L2-A	0.014	2240	0.5	1120	93	1
L2-B	0.049	4000	0.7	2800	232	11
L2-C	0.057	1792	0.5	896	74	4
L2-D	0.035	3472	0.7	2430	201	7
L2-E	0.03	3120	0.8	2496	207	6
L2-F	0.025	1860	0.1	186	15	0
L2-G	0.018	3784	0.6	2270	188	3
L2-H	0.01	880	0.8	704	58	1
L2-I	0.218	3128	0.6	1877	155	34
L2-J1	0.033	936	0.2	187	15	1
L2-J2	0.033	4320	0.7	3024	250	8
L2-J3	0.033	1080	0.5	540	45	1
L2-J4	0.033	2600	0.6	1560	129	4
L2-J5	0.033	884	0.7	619	51	2
	TOTAL Au RESOURCE ON LEVEL 2 =				**1714**	**85**
B1-1	0.162	111375	1	111375	9220	1494
B1-2	0.033	111375	1	111375	9220	304
B2-1	0.162	70166	1	70166	5808	941
B2-2	0.033	70166	1	70166	5808	192
B3-1	0.162	64598	1	64598	5347	866
B3-2	0.033	64598	1	64598	5347	176
	TOTAL Au RESOURCE BETWEEN LEVELS =				**40751**	**3973**
U1	0.162	759000	0.8	607200	50265	8143
	TOTAL Au RESOURCE ABOVE LEVEL 1 =				**50265**	**8143**

Table B-7. Character samples collected from mine dumps in the district and from surface outcrops on the Coyote lode claim (MS #2060) and the unpatented Coyote mill site claims.

Sample	Au (oz/t)	Ag (oz/t)	Notes
DUMPS			
Good Hope 1	<0.003	0.07	
6-6-3	<0.003	0.025	
Good Hope 2	0.184	0.18	
BLOS DUMP 2	0.188	0.39	other side of coy dump on blossom
BLOS DUMP 1	0.218	0.3	other side of coy dump on blossom
COY DUMP 2	0.240	0.49	north side cor #2060
Quartet 1	0.405	0.53	Barney Miller hand-picked
COY DUMP 1	1.090	2.13	top NW cor #2060
OUTCROPS			
CS-3	<0.005	<0.05	north of Yeager dozer cut
Coyote 5	<0.005	<0.01	Coyote shear, dozer cut, white, red clay
Coyote 10	<0.005	<0.01	qtz rich rk, N side dump on John & Sanford
CMS 1-1	0.000	0.001	on mill site claims
CMS 3-1	0.000	0.001	on mill site claims
CMS 3-2	0.000	0.001	on mill site claims
CMS 6-1	0.000	0.001	on mill site claims
COY MINE 1	0.004	0.07	Coyote shear, sink hole cave-in
Coyote 6	0.005	<0.01	Coyote shear, Coyote Hill, red, white qtz
Coyote 9	0.005	<0.01	Coyote shear, dozer cut, vein below Coyote 5
CE-3	0.005	<0.05	Yeager dozer cut
CS-2	0.005	0.86	north of Yeager dozer cut
COY 3	0.005	0.020	Coyote shear, cave-in shear zone area
CS-4	0.006	0.05	north of Yeager dozer cut
CE-4	0.011	0.06	Yeager dozer cut
SD-2	0.014	<0.05	between Coyote & Fault declines
COY 2	0.022	0.016	Coyote shear, cave-in shear zone area
CS-1	0.023	0.08	north of Yeager dozer cut
Coyote 4	0.025	<0.01	Coyote pit, greenish qtz
Coyote 8	0.025	<0.01	Coyote shear, same vein as Coyote 6
COY MINE 2	0.027	0.07	Coyote shear, sink hole cave-in
Coyote 14	0.030	0.05	between Main and Faults shafts, yellow-orange qtz
Coyote 13	0.045	0.04	Coyote shear, alt rk E of Main shaft, old stope
CE-5	0.050	<0.05	Yeager dozer cut
Coyote 7	0.060	<0.01	Coyote shear, same vein as Coyote 6
OP #1	0.073	0.10	near fault decline
Coyote 12	0.085	0.08	flat stope, @ Blossom-Coyote boundary, qtz
COY 1	0.086	0.054	Coyote shear, cave-in shear zone area
CE-2	0.088	0.07	Yeager dozer cut
OP #3	0.140	0.32	near fault decline
SD-1	0.141	0.11	between Coyote & Fault declines
Coyote 15	0.165	0.07	Coyote pit, greenish qtz
OP #2	0.209	0.15	near fault decline
CE-1	0.220	0.13	Yeager dozer cut
COY 4	0.292	0.254	Coyote shear, cave-in shear zone area
COY MINE 3	0.590	0.42	Coyote shear, sink hole cave-in

Table B-8. Samples collected from ore stockpiles on the Coyote mill site claims. Estimation of mean (m) of population calculated according to the method of Link and others (1`971).

Sample	Au (oz/t)	Log Au	Ag (oz/t)	Log Ag	Sample	Au (oz/t)	Log Au	Ag (oz/t)	Log Ag
A-1	0.051	-1.292	0.04	-1.43	E-1	0.025	-1.602	0.14	-0.85
A-2	0.480	-0.319	0.35	-0.46	E-2	0.084	-1.076	0.06	-1.22
A-3	0.247	-0.607	0.63	-0.20	E-3	0.043	-1.367	0.29	-0.54
A-4	0.017	-1.770	0.09	-1.05	E-4	0.037	-1.432	0.17	-0.77
A-5	0.158	-0.801	0.30	-0.52	F-1	0.027	-1.569	0.10	-1.00
B-1	0.064	-1.194	0.05	-1.30	F-2	0.047	-1.328	0.05	-1.30
B-2	0.101	-0.996	0.12	-0.92	F-3	0.106	-0.975	0.06	-1.22
B-3	0.093	-1.032	0.11	-0.96	G-1	0.094	-1.027	0.04	-1.43
B-4	0.047	-1.328	0.04	-1.43	H-1	0.190	-0.721	0.58	-0.24
C-1	0.026	-1.585	0.04	-1.43	I-1	0.085	-1.071	0.16	-0.80
C-2	0.063	-1.201	0.11	-0.96	J-1	0.058	-1.237	0.25	-0.60
C-3	0.057	-1.244	0.05	-1.30	K-1	0.218	-0.662	0.28	-0.55
C-4	0.070	-1.155	0.09	-1.05	K-2	0.150	-0.824	0.08	-1.10
C-5	0.015	-1.824	0.04	-1.43	K-3	0.282	-0.550	0.14	-0.85
C-6	0.050	-1.301	0.07	-1.15	K-3 o/s	0.061	-1.215	0.22	-0.66
D-1	0.064	-1.194	0.11	-0.96	L-1	0.007	-2.155	0.04	-1.43
D-2	0.057	-1.244	0.43	-0.37	L-2	0.004	-2.398	0.12	-0.92
D-3	0.033	-1.481	0.16	-0.80	L-3	0.005	-2.301	0.04	-1.43
D-4	0.027	-1.569	0.20	-0.70	L-4	0.109	-0.963	0.04	-1.43
D-5	0.012	-1.921	0.15	-0.82	M-1	0.023	-1.638	0.11	-0.96
D-6	0.065	-1.187	0.20	-0.70	M-2	0.052	-1.284	0.24	-0.62
D-7	0.043	-1.367	0.26	-0.59	M-3	0.051	-1.292	0.18	-0.74
					M-4	0.033	-1.481	0.27	-0.57
Number of samples		45							
	Au (oz/t)	Log Au	Ag (oz/t)	Log Ag					
Average	0.162	-2.567	0.32	-1.85					
Std Dev	0.171	0.842	0.27	0.70					
Coeff Var	1.056	-0.328	0.83	-0.37					
Variance	0.015	0.361	0.04	0.24					
Estimation of m of population:									
			Au (oz/t)	Ag (oz/t)					
mean of logs = avg log			-2.567	-1.85					
variance of logs = s^2			0.361	0.24					
antilog = 10^avg log			0.003	0.01					
number samples = n			45	45					
T = 0.5*s^2			0.18	0.12					
phi of T = from table			1.092	1.060					
estimate mean = m			**0.003**	**0.01**					

Table B-9. Samples collected from the ore stockpiles on the Coyote mill site claims arranged by pile. Highlighted values indicate the average grade used to calculate contained ounces of gold in each pile.

	Sample	Au (oz/t)	Ag (oz/t)		Sample	Au (oz/t)	Ag (oz/t)
	A-1	0.051	0.03		E-1	0.025	0.14
	A-2	0.480	0.35		E-2	0.084	0.06
	A-3	0.247	0.63		E-3	0.043	0.29
	A-4	0.017	0.09		E-4	0.037	0.17
	A-5	0.158	0.30	Average grade E		**0.047**	**0.17**
Average grade A		**0.191**	**0.28**	Std Deviation E		0.022	0.08
Std Deviation A		0.166	0.21	coeff var		0.470	0.01
coeff var		0.870	0.05		F-1	0.027	0.10
	B-1	0.064	0.05		F-2	0.047	0.05
	B-2	0.101	0.12		F-3	0.106	0.06
	B-3	0.093	0.11	Average grade F		**0.060**	**0.07**
	B-4	0.047	0.03	Std Deviation F		0.034	0.02
Average grade B		**0.076**	**0.08**	coeff var		0.559	0.00
Std Deviation B		0.022	0.04		G-1	**0.094**	**0.03**
coeff var		0.286	0.00		H-1	**0.190**	**0.58**
	C-1	0.026	0.03		I-1	**0.085**	**0.16**
	C-2	0.063	0.11		J-1	**0.058**	**0.25**
	C-3	0.057	0.05		K-1	0.218	0.28
	C-4	0.070	0.09		K-2	0.150	0.08
	C-5	0.015	0.03		K-3	0.282	0.14
	C-6	0.050	0.07		K-3 o/s	0.061	0.22
Average grade C		**0.047**	**0.06**	Average grade K		**0.178**	**0.18**
Std Deviation C		0.020	0.03	Std Deviation K		0.082	0.08
coeff var		0.423	0.00	coeff var		0.461	0.01
	D-1	0.064	0.11		L-1	0.007	0.03
	D-2	0.057	0.43		L-2	0.004	0.12
	D-3	0.033	0.16		L-3	0.005	0.03
	D-4	0.027	0.20		L-4	0.109	0.03
	D-5	0.012	0.15	Average grade L		**0.031**	**0.05**
	D-6	0.065	0.20	Std Deviation L		0.045	0.04
	D-7	0.043	0.26	coeff var		1.437	0.00
Average grade D		**0.043**	**0.22**		M-1	0.023	0.11
Std Deviation D		0.019	0.10		M-2	0.052	0.24
coeff var		0.434	0.01		M-3	0.051	0.18
					M-4	0.033	0.27
				Average grade M		**0.040**	**0.20**
				Std Deviation M		0.012	0.06
				coeff var		0.309	0.00

Table B-10. Calculations of the contained ounces of gold and silver in the ore stockpiles on the Coyote mill site claims. Circ is circumference; H is height; L is length; W is width. Volume is calculated in cubic feet. Measured specific gravities for samples from different dumps were averaged in order to calculate a tonnage factor for the stockpiles.

Pile	Circ	Rad	H	L	W	Volume	Tons	Au (oz/t)	Au (oz)	Ag (oz/t)	Ag (oz)
A	165		10	67	36	24120	1105	0.191	211	0.28	308
B	106		7.5	42	24	7560	346	0.076	26	0.08	26
C	184		7.5	86	38	24510	1123	0.047	53	0.06	69
D	503	63.5	9			114009	5223	0.043	225	0.22	1127
E	87		8	36	28	8064	369	0.047	17	0.17	61
F	66		4	26	14	1456	67	0.060	4	0.07	5
G	45	8	4	16	16	804	37	0.094	3	0.03	1
H	56		3.5	21	16	1176	54	0.190	10	0.58	31
I	64		3	28	17	1428	65	0.085	6	0.16	10
J	68		3.5	25	24	2100	96	0.058	6	0.25	24
K1	36		3.5	15	13	683	31	0.178	6	0.18	6
K2	30		3	14	11	462	21	0.178	4	0.18	4
K3	48	9.75	5	20	19	1493	68	0.178	12	0.18	12
L	288		5	90	19	8550	392	0.031	12	0.05	19
M	288		5	111	21	11655	534	0.040	21	0.20	107
					Totals	208070	9532		615		1811
	Measured specific gravities						Average specific gravity =			1.47	
		1.46									
		1.51					Tonnage factor =			21.83	
		1.44									
		1.40									
		1.52									

APPENDIX 6

Coyote Mines, Inc.

Administrative Office:
1201 Sycamore Dr. SE
Issaquah, WA 98027
425-392-7289

Mine Site:
P.O. Box 9
Searchlight, NV 89046
702-297-1034
Fax. 702-297-1790

March 15, 1999

Mr. Mark Chatterton
Assistant Field Manager
Bureau of Land Mangement
4765 Vegas Drive
Las Vegas, NV 89108

Dear Mr. Chatterton,

Accompanying this letter are copies of field notes from Mineral Survey 4578 recorded on October 23, 1923 subsequent to the discovery of an outcrop of gold bearing ore, the excavation of evaluation trenches, the sinking of a shallow shaft and the construction of a habitable structure.

In 1994, the Whist claim and the surrounding area was sampled and assayed. A copy of a "Certificate of Analysis" issued by Legend, Inc of Reno, Nevada shows that the samples taken from areas outside the Whist were of very low grade. However, the composite, WHT-3, taken inside the boundary of the Whist averaged 5.844 troy ounces per ton gold and 2.80 troy ounces per ton silver.

It is the intention of Coyote Mines, Inc. to excavate approximately 9,250 tons of ore from a location adjacent to sample site WHT-3. This ore, averaging an estimated 1.24 troy ounces of gold per ton, will be placed under leach in early to mid 2000.

I hope that the attached information will assist you in your efforts.

Respectfully,

James A. Coates P.E.

Legend, Inc.
125 Manuel St.
Reno, Nevada 89502
Phone: (702) 786-3003

Certificate of Analysis

Submitted By: Coyote Mines — Laboratory # 20059
Client Number:
Attention: — Date: 10/31/94 Page 2 of

Method: * Initially reported as rerun or changed

Lab Code:	2012	2012	CHECK	CHECK
Element:	GOLD	SILVER	GOLD	SILVER
Units:	oz/t	oz/t	oz/t	oz/t
Sample Marks				
KR019	0.201	7.98		
RD-1	<0.003	<0.05		
WHT-1	<0.003	<0.05		
WHT-2	<0.003	0.08		
WHT-3	5.913*	3.18*	5.776*	2.42*
WHT-4	0.006	<0.05		
WHT-5	0.004	<0.05		

West Float

By: Mark F. Lewis
Manager/Metallurgist

A minus sign (-) is to be read "less than."
1 ppm = 0.0001% — 1 Troy oz./ton = 34.286 ppm — 1 ppm = 0.029167 Troy oz./ton

MINERAL SURVEY No. 4578.

LOT No.

Carson City *Land District.*

FIELD NOTES

OF THE SURVEY OF THE MINING CLAIM OF

Sanford A. Shuler,

KNOWN AS THE

Whist, New Diamond, and John and Sanford Lodes,

Searchlight *Mining District,*

Clark *County,* Nevada

Section 22 *Township* 28 S., *Range* 63 E., M.D.M.

Surveyed under instructions dated November 1, 1923,

by Walter M. Brown

Mineral Surveyor

Claim located See inside of page 19

Survey commenced November 6, 1923.

Survey completed November 12, 1923.

Address of Claimant's Attorney;

John O. Bender,
1125 Central Bldg.,
Los Angeles, Cal.

Name of Location or Lode	Located	Amended	Recorded
Whist	February 15, 1906	August 2, 1923	October 23, 1923
New Diamond	(October 9, 1900)	August 2, 1923	October 23, 1923
John and Sanford	(August 22, 1900)	August 2, 1923	October 23, 1923

WHIST LODE.

Beginning at Cor. No. 1.

On line 3-4, Sur. No. 4011, Connecting Link Lode, C. Kirkeby, claimant, at N.6°03'W. 453.94 ft. from Cor. No. 4; also

On N. Side line Senator lode, unsurveyed, claimant unknown, at S.78°06'E. 59.29 ft. from N. W. Cor. said lode.

A pine post 4 ins. square, firmly set and showing 28 ins. above a mound of earth, scribed W-1-4578, whence

S. W. Cor. Sec. 22, T. 28 S., R. 63 E., M.D.M., bears S.44°03'W. 1671.69 ft.

Feet. Thence N.6°03'W.

145.96 Cor. No. 3, Sur. No. 4011, Connecting Link lode; also Cor. No. 4, Sur. No. 4011, Red Top lode.

605.02 Intersect line 4-1, Sur. No. 3939, Cushman No. 1 lode, Sidney J. Parsons, claimant, at N.75°56'E. 627.38 ft. from Cor. No. 1 of said lode.

635.60 To Cor. No. 2.

On line 3-4, Sur. No. 4011, Red Top lode, at S.6°03'E. 119.61 ft. from Cor. No. 3 of said lode.

A pine post 4 ins. square, firmly set and showing 20 ins. above a mound of stone and earth, scribed W-2-4578, whence

Cor. No. 1, Sur. No. 3939, Cushman No. 1 lode, bears S.73°38'W. 631.47 ft.

Cor. No. 2, Sur. No. 3939, Dubuque lode, bears N.77°16'E. 255.40 ft.

Thence S.78°06'E.

57.85 Intersect line 4-1, Sur. No. 3939, Cushman No. 1 lode, at S.75°56'W. 817.04 ft. from Cor. No. 4, of said lode.

342.71 Intersect line 1-2, Sur. No. 3939, Dubuque lode, at N.34°11'W. 275.84 ft. from Cor. No. 1, of said lode.

Feet. WHIST LODE--continued.

815.85 To Cor. No. 3.

On line 5-1, Sur. No. 3939, Dubuque lode, at N.67°01'E. 334.54 ft. from Cor. No. 1, of said lode.

A pine post 4 ins. square, firmly set, and showing 2' ins. above a mound of stone and earth, scribed W-3-4578, whence

Cor. No. 4, Sur. No. 3939, Cushman No. 1 lode, bears N.8°02'30"E. 359.26 ft.

Thence N.67°01'E.

479.82 Cor. No. 4, Sur. No. 2060, Blossom lode, Southern Nevada Mining and Milling Company, claimant; also

Cor. No. 5, Sur. No. 3939, Dubuque lode.

559.41 To Cor. No. 4.

A pine post 4 ins. square, firmly set, and showing 18 ins. above a mound of earth, scribed W-4-4578.

No bearing objects available.

Thence S.6°03'E.

168.24 Cor. No. 4, New Diamond lode, of this survey.

280.22 Intersect line 4-5, Sur. No. 2060, Blossom lode, at S.22°33'E. 268.08 ft. from Cor. No. 4, of said lode.

313.55 Easterly end of lode line, whence

Discovery monument, a pine post 4 ins. square, firmly set and showing 24 ins. above a mound of earth and stone, scribed W-DISC-4578, bears S.67°01'W. 20 ft.

425.61 Intersect line 3-4, Sur. No. 2834, Dabu lode, Searchlight Mining and Milling Company, claimant, at N.66°15'E. 466.70 ft. from Cor. No. 3 of said lode.

627.10 To Cor. No. 5.

Identical with Cor. No. 3, New Diamond lode, of this survey; also

Identical with a corner of Tract "A", hereinafter

WHIST LODE--continued.

described.

A pine post 4 ins. square, firmly set and showing 26 ins. above a mound of stone and earth, scribed W-5-4578 and MD-3-4578, whence

Cor. No. 5, Sur. No. 2060, Blossom lode, and Cor. No. 5, Sur. No. 2834, Dabu lode, bears N.43°23'E. 107.91 ft.

Cor. No. 3, Sur. No. 2834, Dabu lode, bears N.70°46' 30"W. 315.70 ft.

Cor. No. 4, Sur. No. 2834, Dabu lode, bears N.6°15' 30"E. 204.44 ft.

Cor. Nos. 6 and 5, Sur. No. 2834, Dabu and Diamond lodes, respectively, bears N.58°44'E. 436.44 ft.

Cor. Nos. 7 and 4, Sur. No. 2834, Dabu and Diamond lodes, respectively, bears N.60°00'30"E. 432.75 ft.

N. W. Cor. of Tract "A", hereinafter described, bears S.85°12'W. 466.71 ft.

N. E. Cor. Senator lode, unsurveyed, bears S.15°25' 30"E. 363.67 ft.

Feet. Thence S.87°01'W.

491.56 S. W. Cor. Tract "A", hereinafter described; also Intersect line 2-3, Sur. No. 2834, Dabu lode, at S.5° 26'E. 363.41 ft. from Cor. No. 3 of said lode.

565.23 To Cor. No. 6.

On N. Side line Senator lode, unsurveyed, at N.74°06'W. 630.71 ft. from N. E. Cor. said lode.

A pine post 4 ins. square, firmly set, and showing 26 ins. above a mound of stone and earth, scribed W-6-4578, whence

Cor. No. 2, Sur. No. 2834, Dabu lode, bears S.23°35' E. 225.57 ft.

Thence N.78°06'W.

810.00 To Cor. No. 1, the place of beginning.

NEW DIAMOND LODE.

Beginning at Cor. No. 1.

Identical with Cor. No. 1, John and Sanford lode, of this survey.

On lines 2-3 and 7-1, Sur. No. 2834, Julia T. and California lodes, respectively, at S.41°31'E. 200 ft. from Cor. Nos. 3 and 7 of said respective lodes.

A pine post 4 ins. square, firmly set, and showing 22 ins. above a mound of stone and earth, scribed ND-1-4578 and JS-1-4578, whence

S. E. Cor. Sec. 22, T. 28 S., R. 63 E., M.D.M., bears S.47°59'20"E. 2139.15 ft.

Cor. No. 1, Sur. No. 2060, Coyote lode, and Cor. Nos. 1 and 6, Sur. No. 2834, Diamond and California lodes, respectively, bears N.56°16'30"W. 212.15 ft.

Cor. Nos. 2 and 5, Sur. No. 2834, Diamond and California lodes, respectively, bears N.60°21'30"W. 233.63 ft.

Cor. Nos. 3 and 8, Sur. No. 2834, Diamond and Dabu lodes, respectively, bears N.60°30'W. 233.24 ft.

Feet. Thence S.53°05'W.

147.69 To Cor. No. 2.

A pine post 4 ins. square, firmly set and showing 13 ins. above a mound of earth, scribed ND-2-4578.

No bearing objects available.

Thence S.85°12'W.

65.26 Intersect line 8-1, Sur. No. 2834, Dabu lode, at S.5°26' E. 210.00 ft. from Cor. No. 8 of said lode; also Intersect line 4-5, Sur. No. 2834, California lode, at S.5°26'E. 210.67 ft. from Cor. No. 5 of said lode.

1096.55 To Cor. No. 3.

Identical with Cor. No. 5, Whist lode, of this survey.

NEW DIAMOND LODE--continued.

Feet. Thence N.6°03'W.

201.49 Intersect line 3-4, Sur. No. 2834, Dabu lode, at S.86° 15'W. 43.62 ft. from Cor. No. 4 of said lode.

346.82 Intersect line 4-5, Sur. No. 2060, Blossom lode, at N.22°33'W. 288.57 ft. from Cor. No. 5 of said lode.

458.86 To Cor. No. 4.

On line 4-5, Whist lode, of this survey.

A pine post 4 ins. square, firmly set, and showing 25 ins. above a mound of earth, scribed ND-4-4578.

No bearing objects available.

Thence N.25°12'E.

1020.95 Cor. No. 7, Sur. No. 2834, Diamond lode; also

Intersect line 6-1, Sur. No. 2060, Blossom lode, at N.59° 07'E. 229.95 ft. from Cor. No. 6 of said lode; also

Intersect line 7-1, Sur. No. 2060, Coyote lode, at N.15° 01'W. 252.09 ft. from Cor. No. 1 of said lode.

1223.35 To Cor. No. 5.

A pine post 4 ins. square, firmly set, and showing 14 ins. above a mound of rock, scribed ND-5-4578, whence

Cor. No. 6, Sur. No. 2060, Blossom lode, and Cor. No. 6, Sur. No. 2834, Diamond lode, bears S.71°19'W. 420.98 ft.

Discovery monument, a pine post 4 ins. square, firmly set and showing 32 ins. above a mound of stone and earth, scribed ND-DISC-4578, and DISC-2834, bears S.60°39'W. 475.24 ft.

Thence S.6°03'E.

150.34 Intersect line 2-3, John and Sanford lode, of this survey; also

Intersect line 1-2, Sur. No. 2060, Coyote lode, at N.53° 55'E. 188.34 ft. from Cor. No. 1 of said lode; also

Feet. NEW DIAMOND LODE--continued.

Intersect line 3-4, Sur. No. 2834, Julia T. lode, at N.53°55'E. 134.04 ft. from Cor. No. 3 of said lode.

380.32 To Cor. No. 1, the place of beginning.

JOHN AND SANFORD LODE.

Beginning at Cor. No. 1.

Identical with Cor. No. 1, New Diamond lode, of this survey.

On lines 2-3 and 7-1, Sur. No. 2834, Julia T. and California lodes, respectively, as hereinbefore described; whence

S. M. Cor. Sec. 22, T. 28 S., R. 63 E., M.D.M., bears S.47°59'20"E. 2139.15 ft.

Discovery monument, a pine post 8x8 ins., firmly set and showing 34 ins. above the edge of a large waste dump, scribed JS-DISC-4578, bears N.15°53'E. 162.2 ft.

Thence N.41°31'W.

200.00 To Cor. No. 2.

Identical with Cor. No. 3, Sur. No. 2834, Julia T. lode; also

Identical with Cor. No. 7, Sur.No. 2834, California lode.

On line 1-2, Sur. No. 2060, Coyote lode, at N.53°55'E. 54.3 ft. from Cor. No. 1 of said lode.

A pine post 4 ins. square, showing 22 ins. above a mound of stone and earth, scribed JS-2-4578, 3-2834 and 7-2834.

No bearing objects available.

Thence N.53°55'E.

134.04 Intersect line 5-1, New Diamond lode, of this survey.

666.01 To Cor. No. 3.

Identical with Cor. No. 2, Sur. No. 2060, Coyote lode; also

Feet. JOHN AND SANFORD LODE--continued.

Identical with Cor. No. 4, Sur. No. 2834, Julia T. lode.

A pine post 4 ins. square, firmly set and showing 3 ft. above a mound of stone and earth, scribed JS-3-4578, 2-2060 and 4-2834.

Thence N.52°24'E.

653.45 Cor. No. 3, Sur. No. 2060, Coyote lode.

833.99 To Cor. No. 4.

Identical with Cor. No. 5, Sur. No. 2834, Julia T. lode.

A pine post 4 ins. square, firmly set, and showing 24 ins. above a mound of stone and earth, scribed JS-4-4578 and 5-2834.

No bearing objects available.

Thence S.41°31'E.

200.26 To Cor. No. 5.

On line 5-6, Sur. No. 2834, Julia T. lode, at N.41°31'W. 383.85 ft. from Cor. No. 6 of said lode.

A pine post 4 ins. square, firmly set, and showing 28 ins. above a mound of earth, scribed JS-4578.

No bearing objects available.

Thence S.53°05'W.

1499.87 To Cor. No. 1, the place of beginning.

Variation at all corners, 15°30'E.

LODE LINES.

As near as can be determined from present developments, the veins of the several locations embraced in this claim extend as follows from their respective discovery monuments;--

Whist lode, 20 ft. N.67°01'E., and 542.33 ft. S.67°01'W., thence 812.92 ft. N.78°06'W.

New Diamond lode, 439.05 ft. N.77°45'E., and 791.2 ft. S.77°45'W.

John and Sanford lode, 137.1 ft. S.53°05'W., and 1362.77 ft. N.53°05'E.

AREA.		Acres.
Total area, Whist lode, - - - - -		18.939
Area in conflict with		
Sur. No. 2060, Blossom lode, - -	0.244	
Sur. No. 2834, Dabu lode, - -	3.033	
Sur. No. 2834, Dabu lode, Tract "A", hereinafter described, - -	0.825	
Sur. No. 2834, Dabu lode (exclusive of Tract "A"), - - - - -	2.206	
Sur. No. 3939, Dubuque lode, - -	1.039	
Sur. No. 3939, Cushman No. 1 lode,	0.016	
Total Area, New Diamond lode, - -		11.709
Area in conflict wit		
Sur. No. 2060, Blossom lode, - -	4.801	
Sur. No. 2060, Coyote lode, - -	0.857	
Sur. No. 2834, Dabu lode, - -	4.182	
Sur. No. 2834, Diamond lode, - -	1.863	
Sur. No. 2834, California lode, -	0.685	
Sur. No. 2834, Julia T. lode, -	0.306	
John and Sanford lode, of this survey, - - - - - -	0.306	
John and Sanford lode, of this survey (exclusive of its conflict with Sur. No. 2834, Julia T. lode), -	0.000	
Total area, John and Sanford lode, -		6.700
Area in conflict with		
New Diamond lode, of this survey, -	0.306	

AREA--continued.

Sur. No. 2834, Julia T. lode, - - 6.700

Sur. No. 2834, Julia T. lode (exclusive of its conflict with New Diamond lode, of this survey) 6.394

TRACT "A".

Beginning at Cor. Nos. 5 and 3, Whist and New Diamond lodes, respectively, of this survey; thence S.67°01'W. 491.56 ft. to a point at the intersection of line 5-6, Whist lode, of this survey, and line 2-3, Sur. No. 2834, Dabu lode; thence N.5°26'W. 153.41 ft. to a point on line 2-3, Sur. No. 2834, Dabu lode, at 210 ft. from Cor. No. 3 of said lode; thence N.85°12'E. 468.71 ft. to the place of beginning; containing 0.825 acres.

The survey of each lode of this location is identical with the respective amended location as staked upon the ground.

LOCATION.

This survey is located in the S. ½ Sec. 32, T. 18 S., R. 63 E., M.D.M.

EXPENDITURE OF FIVE HUNDRED DOLLARS.

I certify that the value of the labor and improvements made upon or for the benefit of each of the locations embraced in said mining claim, by the claimant or his grantors, is not less than five hundred dollars, and that said improvements consist of;--

No. 1 The discovery shaft of the Whist lode, situated on the lode line at a point 130 ft. from the westerly end thereof, 4x6 ft., 10 ft. deep. In rock.

Value, $80.00

No. 2 A shaft which bears from a point on line 3-4, Whist lode, 79.59 ft. from Cor. No. 4 S.19°08'E. 208 ft., 4x6 ft., 10 ft. deep. In gravel. Value, $50.00

No. 3 A shaft which bears from a point on line 3-4, Whist lode, 79.59 ft. from Cor. No. 4, S.16°31'E. 191 ft., 4x6 ft., 10 ft. deep. In gravel. Value, $50.00

No. 4 A trench, the northerly end of which bears from a point on line 3-4, Whist lode, 79.59 ft. from Cor. No. 4, S.19°10'W. 140 ft., 7 ft. wide, 4 ft. deep, running S.22°W. 25 ft. In cemented gravel. Value, $100.00

No. 5 A trench, the northerly end of which bears from a point on line 3-4, Whist lode, 79.59 ft. from Cor. No. 4, S.22°26'W. 264 ft., 4 ft. wide, 3 ft. deep, running S.20°W. 28 ft. In gravel. Value, $50.00

No. 6 A trench, the northerly end of which bears from a point on line 3-4, Whist lode, 79.59 ft. from Cor. No. 4, S.28°05'W. 247 ft., 5 ft. wide, 2½ ft. deep, running S.15°W. 65 ft. In earth and gravel. Value, $100.00

No. 7 A trench, the northerly end of which bears from a point on line 3-4, Whist lode, 79.59 ft. from Cor. No. 4, S.34°35'W. 276 ft., 5½ ft. wide, 3 ft. deep, running S.3°W. 40 ft. In earth and cemented gravel.

Value, $80.00

No. 8 A shaft which bears from Cor. No. 1, Whist lode, N.40°41'E. 469 ft., 6x6 ft., 8 ft. deep. In rock.

Value, $80.00

No. 1 The discovery shaft of the New Diamond lode, which bears from the discovery monument N.67°E. 10 ft., 4x6 ft., 31 ft. deep. In rock. Value, $250.00

No. 2 A shaft, which bears from the discovery monument, New Diamond lode, S.72°W. 23 ft., 4x6 ft., 10 ft. deep. In rock. Value, $80.00

No. 3 A trench, the northerly end of which bears from the discovery monument, New Diamond lode, S.80°W. 43 ft.,

4½ ft. wide, 5 ft. deep, running S.7°E. 27 ft. In rock.

Value, $100.00

No. 4 A trench, the northerly end of which bears from Cor. No. 1, New Diamond lode, N.66°13'W. 175.5 ft., 4 ft. wide, 6 ft. deep, running N.7°W. 10 ft. In cemented gravel and rock. Value, $75.00

No. 1 The discovery shaft of the John and Sanford lode, which bears from Cor. No. 1 N.20°09'W. 117 ft., 5x6 ft., 10 ft. deep. In rock. Value, $30.00

No. 2 The main shaft of the consolidated claim, which bears from Cor. No. 1, John and Sanford lode, N.10°14'E. 166.5 ft., 4x7 ft. inside of 6x6 ins. timbers, 270 ft. deep. Some workings, particularly a northerly cross-cut, are said to exist at the bottom of this shaft; but owing to the absence of hoisting machinery and the age of the ladders, it was not deemed safe to descend. All in rock.

Value of 270 feet of shaft, $4,000.00

No. 3 A trench, the westerly end of which bears from Cor. No. 1, John and Sanford lode, N.40°32'E. 190 ft., 4 ft. wide, 6 ft. deep, running S.70°E. 10 ft. In cemented gravel and rock. Value, $75.00

No. 4 A trench, the westerly end of which bears from the discovery monument, John and Sanford lode. N.20°E. 43 ft., 3 ft. wide, 2½ ft. deep, running N.82°E. 30 ft. In soft rock. Value, $40.00

No. 5 A shaft which bears from a point on line N-S, John and Sanford lode, 323.2 ft. from Cor. No. 3, S.67°53'E. 67.5 ft., 4x6 ft., 10 ft. deep. In rock. Value, $30.00

No. 6 A shaft which bears from Cor. No. 3, John and Sanford lode, S.39°E., 69 ft., 4x6 ft., 8 ft. deep. In soil and soft rock. Value, $35.00

The surface of this consolidated claim is comparatively level, the general drainage being from the easterly end of the John and Sanford lode to the westerly end of the

Whist lode. Improvement No. 2, John and Sanford lode, is a common improvement, made for the benefit of the entire claim, all parts of which can best be developed and worked through this shaft. An undivided one third interest therein is hereby credited to each location embraced in this claim. All other improvements are credited to the respective locations upon which they are situated.

OTHER IMPROVEMENTS.

A frame house, the N.W.Cor. of which bears from Cor. No. 1, John and Sanford lode, N.40°32'E. 373.5 ft., 10x 31 ft., with an ell on east side thereof, 10x10 ft., and situated 10 ft. southerly from the N.E.Cor. of the main building. Course of long sides, S.2°E. Belongs to claimant herein.

INSTRUMENT.

This survey was made with a C. L. Berger light mining transit No. 4370. The courses were deflected from the true meridian, as determined by observation on Polaris at western elongation. The distances were measured with 100-ft. and 500-ft. steel tapes.

REPORT.

The lode line of each location of this claim was run directly upon the ground, and the several corners established by means of offsets from the lode lines. All tie lines were run either upon the ground, or by traverses, run upon the ground and submitted in a separate report herewith.

The post marking the S.E.Cor. Sec. 22, T. 28 S., R. 63 E., M.D.M., was missing, but its locus was established by re-running the tie from Cor. No. 1, Survey No. 2634,

Victory lode and finding the mound in which it stood and a 60d spike which I had set therein when re-setting the post at the time of making Sur. No. 2834, as described in the notes thereof. I then established another post at this point, with the same description as the previous one, viz; A pine post 4 ft. long, 4 ins. square, set 2½ ft. in a mound of earth and stone, scribed T.26 S., S.23 on its N.E. face; R.63 E., S.26 on its S.E. face; S.27 on its S.W.face; and S.22 on its N.W.face.

The S.W.Cor. Sec. 22, T. 26 S., R. 63 E., M.D.M., is a black porphyry rock 12x12x12 ins., set in a mound of rock, chiseled two notches on its north face and three notches on its east face. It is not correctly chiseled, but the notches actually appearing thereon are as described herein, and also in the approved field notes of Surveys Nos. 3939 and 4011.

These are the nearest standing corners of the public survey that can be found and identified.

I find the S. boundary of Sec. 22 to be 5275.45 ft. long, instead of 5277.36 ft., as approved.

Sur. No. 2060, Blossom and Coyote lodes:--

All corners mentioned herein are pine posts, properly set and scribed with the number of the corner and survey. I find that all lines mentioned herein agree within the allowable limit of error with the approved field notes of said survey. The following minor discrepancies were, however, reported by me in the field notes of Sur. No. 2834 (my first official survey), and are again reported herein, for the purpose of being consistent, viz; I find lines 4-5, 5-6 and 6-1, Blossom lode, to be S.22°23'E. 556.65 ft., N.63°40'E., and N.59°07'E., respectively, instead of S.22°34'E. 556.61 ft., N.63°39'E., and N.59°05'E., respectively, as approved; and lines 1-2, 2-3 and 3-1, Coyote lode, to be N.53°55'E., N.52°24'E. 653.48 ft., and S.15°

01'E., instead of N.53°54'E., N.52°23'E. 653.25 ft., and S.15°02'E., respectively, as approved.

Sur. No. 2834, Julia T., Dobu, Diamond and California lodes:--

All corners mentioned herein are pine posts, properly set and scribed with the number of the corner and survey. I find all courses and distances to be correct as approved.

Sur. No. 3939, Dubuque and Cushman No. 1 lodes:--

All corners mentioned herein are pine posts, properly set and scribed with the number of the corner and survey and the initial of the claim. I find all courses and distances to be correct as approved.

Sur. No. 4011, Connecting Link and Red Top lodes:--

All corners mentioned herein are pine posts, properly set and scribed with the number of the corner and survey and the initials of the claim. I find all courses and distances to be correct as approved.

Senator lode, unsurveyed:--

I found the N.E. and N.W. corners of this claim missing, the only evidence of their loci being the mounds of earth in which the corner posts were established at the time I made Sur. No. 4011. It is possible that this claim has been abandoned.

4-085.

FINAL OATHS FOR SURVEYS.

LIST OF NAMES.

A list of the names of the individuals employed by Walter M. Brown United States Mineral Surveyor, to assist in running, measuring, and marking the lines, corners, and boundaries described in the foregoing field notes of the survey of the mining claim of Sanford A. Shuler known as the Whist, New Diamond, and John and Sanford lodes, and showing the respective capacities in which they acted.

Light Wheatley, Chainman.

, Chainman.

, Axman.

, Flagman

FINAL OATHS OF ASSISTANTS.

~~XXX~~ I, Light Wheatley,

~~XXXX~~, do solemnly swear that ~~XX~~ I assisted Walter M. Brown, United States Mineral Surveyor, in marking the corners and surveying the boundaries of the mining claim of Sanford A. Shuler,

known as the Whist, New Diamond, and John and Sanford lodes, represented in the foregoing field notes as having been surveyed by said mineral surveyor and under his direction; and that said survey has been in all respects, to the best of ~~XX~~ my knowledge and belief, faithfully and correctly executed, and the corner and boundary monuments established according to law and the instructions furnished by the United States Surveyor-General for Nevada.

Light Wheatley, Chainman.

, Chainman.

, Axman.

, Flagman.

Subscribed and sworn to by the above-named persons before me this 12th day of November, 1923.

John T. Mayle
Notary Public.

My Commission expires November 16, 1924.

4—4861.

FINAL OATH OF U. S. MINERAL SURVEYOR.

I, Walter M. Brown, U. S. Mineral Surveyor, do solemnly swear that, in pursuance of instructions received from the United States Surveyor General for Nevada, dated November 1, 1923, I have, in strict conformity to the laws of the United States, the official regulations and instructions thereunder, and the instructions of said Surveyor General, faithfully and correctly executed the survey of the Mining Claim of Sanford A. Shuler, known as the WHIST, NEW DIAMOND and JOHN AND SANFORD lodes situate in Searchlight Mining District, Clark County, Nevada, in Section 22, Township No. 28 S., Range No. 63 E., M.D.M. and designated as Survey No. 4578, as represented in the foregoing field notes, which accurately show the boundaries of said mining claim as distinctly marked by monuments on the ground, and described in the attached copy of the location certificate, which was received by me from the Surveyor General with said instructions, and that all the corners of said survey have been established and perpetuated in strict accordance with the law, official regulations and instructions thereunder; and I do further solemnly swear that the foregoing are the true and original field notes of said survey and my report therein, and that the labor expended and improvements made upon said mining claim by claimant or his grantors are as therein fully stated, and that the character, extent, location, and itemized value thereof are specified therein with particularity and full detail, and that no portion of said labor or improvements so credited to this claim has been included in the estimate of expenditures upon any other claim.

Walter M. Brown
U. S. Mineral Surveyor.

Subscribed and sworn to by the said Walter M. Brown U. S. Mineral Surveyor, before me John T. Nagle, a Notary Public in and for Clark County, Nevada, this 12th day of November, 1923.

John T. Nagle
Notary Public.

My Commission expires November 16, 1924.

4—667

SURVEYOR GENERAL'S CERTIFICATE OF APPROVAL OF FIELD NOTES AND SURVEY OF MINING CLAIM

DEPARTMENT OF THE INTERIOR

OFFICE OF U. S. SURVEYOR GENERAL

Reno, Nevada

December 29, 1925

I, U. S. Surveyor General for Nevada

do hereby certify that the foregoing and hereto attached Field Notes and Return of the Survey of the Mining Claim of Sanford A. Shuler

, known as the

Whist, New Diamond and John and Sanford lodes

situate in Searchlight mining district,

Clark County, Nevada

in Section 22, Township No. 28 S, Range No. 63 E.,

M.D.M., designated as Survey No. 4578

executed by Walter H. Brown, U. S. Mineral

Surveyor, November 6-12, 1923, under my instructions dated

November 1, 1923, have been critically examined and the necessary corrections and explanations made, and the said Field Notes and Return, and the survey they describe, are hereby approved. The certified copy of the location certificate filed by the applicant for survey is on file in this office and a true copy of said certified copy of said location certificate is included and made a part of the transcript of the field notes.

J. E. Budden

U. S. Surveyor General for Nevada

4—666.

U. S. SURVEYOR-GENERAL'S FINAL CERTIFICATE ON FIELD NOTES.

Department of the Interior,

OFFICE OF U. S. SURVEYOR-GENERAL,

Reno, Nevada

December 29 1923 100

I, U. S. Surveyor-General for Nevada

do hereby certify that the foregoing transcript of the Field Notes, return and approval of the survey of the mining claim of Sanford A. Shuler

known as the Whist, New Diamond and John and Sanford lodes

situate in Searchlight

Mining District, Clark County, Nevada

in Section 22, Township No. 20 S., Range No. 63 E., M. D. B. & M., and designated as Survey No. 4578, has been correctly copied from the originals on file in this office; that said Field Notes furnish such an accurate description of said mining claim as will, if incorporated into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the locus thereof.

And I further certify that five hundred dollars' worth of labor has been expended or improvements made upon said mining claim by claimant or for each location of his grantors, and that said improvements consist of 10 shafts and 6 trenches, Value $5400.00

and that no portion of said labor or improvements has been included in the estimate of expenditures upon any other claim.

I further certify that the plat thereof, filed in the U. S. Land Office at Carson City, Nevada, is correct and in conformity with the foregoing Field Notes.

J. E. Bell

United States Surveyor-General for Nevada.

Carson City 014785.

The United States of America,

To all to whom these presents shall come, Greeting:

WHEREAS, in pursuance of the provisions of the Revised Statutes of the United States, Chapter Six, Title Thirty-two, and legislation supplemental thereto, there have been deposited in the General Land Office of the United States the Plat and Field Notes of Survey and the Certificate of the Register of the Land Office at Carson City, Nevada, accompanied by other evidence whereby it appears that Sanford A. Shuler

has entered and paid for the Whist, New Diamond, and John and Sanford lode mining claims,

designated by the Surveyor General as Survey No. 4578, embracing a portion of Section twenty-two in Township twenty-eight south of Range sixty-three east of the Mount Diablo Meridian, in the Searchlight Mining District, Clark County, Nevada,

and bounded, described, and platted as follows: Beginning for the description of the Whist lode claim, at corner No. 1, a pine post four inches square, twenty-eight inches above mound of earth, marked W - 1 - 4578, from which the southwest corner to Section twenty-two in Township twenty-eight south of Range sixty-three east of the Mount Diablo Meridian, bears south forty-four degrees three minutes west one thousand six hundred seventy-one and sixty-nine-hundredths feet distant;

Thence, first course, north six degrees three minutes west six hundred five and two-hundredths feet intersect line 4 - 1, a south line, of the Cushman No. 1 lode claim, Survey No. 3939; six hundred thirty and six-tenths feet to corner No. 2, a pine post four inches square, twenty inches above mound of stone and earth, marked W - 2 - 4578;

RECORD OF PATENTS Patent Number 976974

Carson City 014785.

Thence, second course, south seventy-eight degrees six minutes east fifty-seven and eighty-five-hundredths feet intersect said line 4 - 1 of the Cushman No. 1 lode claim; three hundred forty-two and seventy-one-hundredths feet intersect line 1 - 2 of the Dubuque lode claim, Survey No. 3939, at north thirty-four degrees eleven minutes west two hundred seventy-five and eighty-four-hundredths feet from corner No.1; eight hundred fifteen and eighty-five-hundredths feet to corner No. 3, a pine post four inches square, twenty-four inches above mound of stone and earth, marked W - 3 - 4578; situate on line 5 - 1 of said Dubuque lode claim, at north sixty-seven degrees one minute east three hundred thirty-four and fifty-four-hundredths feet from corner No. 1;

Thence, third course, north sixty-seven degrees one minute east four hundred seventy-nine and eighty-two-hundredths feet to corner No. 4 of the Blossom lode claim, Survey No. 2060; five hundred fifty-nine and forty-one-hundredths feet to corner No. 4, a pine post four inches square eighteen inches above mound of earth, marked W - 4 - 4578;

Thence, fourth course, south six degrees three minutes east two hundred eighty and twenty-two-hundredths feet intersect line 4-5 of said Blossom lode claim, at south twenty-two degrees thirty-three minutes east two hundred sixty-eight and eight-hundredths feet from corner No. 4; three hundred thirteen and fifty-five-hundredths feet to a point from which discovery bears south sixty-seven degrees one minute west twenty feet distant; four hundred twenty-five and sixty-one-hundredths feet intersect line 3 - 4 of the Dabu lode claim, Survey No. 2834, at north eighty-six degrees fifteen minutes east four hundred sixty-six and seven-tenths feet from corner No. 3; six hundred twenty-seven and one-tenth feet to corner No. 5, a pine post four inches square, twenty-six inches above mound of earth and stone, marked W - 5 - 4578 and N D - 3 - 4578;

976974

Carson City 014785.

Thence, fifth course, south sixty-seven degrees one minute west four hundred ninety-one and fifty-six-hundredths feet intersect line 2 - 3 of said Dabu lode claim, at south five degrees twenty-six minutes east three hundred sixty-three and forty-one-hundredths feet from corner No. 3; five hundred sixty-five and twenty-three-hundredths feet to corner No. 6, a pine post four inches square, twenty-six inches above mound of earth and stone, marked W - 6 - 4578;

Thence, sixth course, north seventy-eight degrees six minutes west eight hundred ten feet to corner No. 1, the place of beginning; the survey of the lode claim, as above described, extending one thousand three hundred seventy-five and twenty-five-hundredths feet in length along said Whist vein or lode;

Beginning, for the description of the New Diamond lode claim, at corner No. 1, a pine post four inches square, twenty-two inches above mound of stone and earth, marked ND - 1 - 4578 and JS - 1 - 4578, from which the southeast corner to said Section twenty-two, bears south forty-seven degrees fifty-nine minutes twenty seconds east two thousand one hundred thirty-nine and fifteen-hundredths feet distant;

Thence, first course, south fifty-three degrees five minutes west one hundred forty-seven and sixty-nine-hundredths feet to corner No. 2, a pine post four inches square, thirteen inches above mound of earth marked ND - 2 - 4578;

Thence, second course, south eighty-five degrees twelve minutes west sixty-five and twenty-six-hundredths feet intersect line 8 - 1 of said Dabu lode claim, at south five degrees twenty-six minutes east two hundred ten feet from corner No. 8; one thousand ninety-six and fifty-five-hundredths feet to corner No. 3, identical with corner No. 5 of said Whist lode claim;

Thence, third course, north six degrees three minutes west two hundred one and forty-nine-hundredths feet intersect line 3-4 of said Dabu lode claim, at south eighty-six degrees fifteen minutes west forty-three

Carson City 014785.

Beginning, for the description of the John and Sanford lode claim, at corner No. 1, identical with corner No. 1 of said New Diamond lode claim; from which discovery bears north fifteen degrees fifty-three minutes east one hundred sixty-two and two-tenths feet distant;

Thence, first course, north forty-one degrees thirty-one minutes west two hundred feet to corner No. 2, a pine post four inches square, twenty-two inches above mound of stone and earth, marked JS - 2 - 4578, 3 - 2834 and 7 - 2834; identical with corners Nos. 3 and 7 of the Julia T. and California lode claims, respectively, Survey No. 2834;

Thence, second course, north fifty-three degrees fifty-five minutes east six hundred sixty-six and one-hundredth feet to corner No. 3, a pine post four inches square, three feet above mound of stone and earth marked JS - 3 - 4578, 2 - 2060 and 4 - 2834; identical with corner No. 2 of said Coyote lode claim and corner No. 4 of said Julia T. lode claim;

Thence, third course, north fifty-two degrees twenty-four minutes east eight hundred thirty-three and ninety-nine-hundredths feet to corner No. 4, a pine post four inches square, twenty-four inches above mound of stone and earth, marked JS - 4 - 4578 and 5 - 2834; identical with corner No. 5 of said Julia T. lode claim;

Thence, fourth course, south forty-one degrees thirty-one minutes east two hundred and twenty-six-hundredths feet to corner No. 5, a pine post four inches square, twenty-eight inches above mound of earth, marked JS - 4578;

Thence, fifth course, south fifty-three degrees five minutes west one thousand four hundred ninety-nine and eighty-seven-hundredths feet to corner No. 1, the place of beginning, the survey of the lode claim, as above described, extending one thousand four hundred ninety-nine and eighty-seven-hundredths feet in length along said John and Sanford vein

and sixty-two-hundredths feet from corner No. 4; and from corner No.4 corner No. 5 bears south twenty-two degrees thirty-three minutes east one hundred thirty-five and eleven-hundredths feet distant; and from corner No. 5 corner No. 6 bears north sixty-three degrees forty minutes east three hundred thirty-two and sixty-two-hundredths feet distant; and from corner No. 6 corner No. 7 bears south fifteen degrees one minute east ten feet distant; and from corner No. 7 corner No. 8 bears north eighty-two degrees fifty-three minutes east six hundred thirty-seven and ninety-three-hundredths feet distant; three hundred forty-six and eighty-two-hundredths feet intersect line 4 - 5 of said Blossom lode claim, at north twenty-two degrees thirty-three minutes west two hundred eighty-eight and fifty-seven-hundredths feet from corner No. 5; four hundred fifty-eight and eighty-six-hundredths feet to corner No. 4, a pine post four inches square, twenty-five inches above mound of earth, marked ND - 4 - 4578;

Thence, fourth course, north eighty-five degrees twelve minutes east one thousand twenty and ninety-five-hundredths feet intersect line 6-1 of said Blossom lode claim, at north fifty-nine degrees seven minutes east two hundred twenty-nine and ninety-five-hundredths feet from corner No.6; also intersect line 7 - 1 of the Coyote lode claim, Survey No. 2060, at north fifteen degrees one minute west two hundred fifty-two and nine-hundredths feet from corner No. 1; one thousand two hundred twenty-three and thirty-five-hundredths feet to corner No. 5, a pine post four inches square, fourteen inches above mound of rock, marked ND - 5 - 4578, from which discovery bears south sixty degrees thirty-nine minutes west four hundred seventy-five and twenty-four-hundredths feet distant;

Thence, fifth course, south six degrees three minutes east one hundred fifty and thirty-four-hundredths feet intersect line 1-2 of said Coyote lode claim, at north fifty-three degrees fifty-five minutes east one hundred eighty-eight and thirty-four-hundredths feet from corner No. 1; three hundred eighty and thirty-two-hundredths feet to corner No. 1, the place of beginning; the survey of the lode claim, as above described, extending one thousand two hundred thirty and twenty-five-hundredths feet in length along said New Diamond vein or lode;

or lode;-expressly excepting and excluding from these presents all that portion of the ground hereinbefore described, embraced in said Blossom and Coyote lode claims Survey No. 2060; said Dubuque and Cushman No. 1 lode claims Survey No. 3939; and Tract "A" of said Dabu lode claim Survey No. 2834, described as follows; beginning at corner No. 5 of said Whist lode claim; thence south sixty-seven degrees one minute west four hundred ninety-one and fifty-six-hundredths feet; thence north five degrees twenty-six minutes west one hundred fifty-three and forty-one-hundredths feet; thence north eighty-five degrees twelve minutes east four hundred sixty-eight and seventy-one-hundredths feet to the place of beginning;- and also all veins, lodes, and ledges, throughout their entire depth, the tops or apexes of which lie inside of such excluded ground; the premises herein granted, containing thirty acres and thirty-two-hundredths of an acre.

Carson City 014705.

NOW KNOW YE, That there is therefore, pursuant to the laws aforesaid, hereby granted by the United States unto the said

Sanford A. Shuler

the said mining premises hereinbefore described, and not expressly excepted from these presents, and all that portion of the said vein lode, or ledge and of all other veins, lodes, and ledges throughout their entire depth, the tops or apexes of which lie inside of the surface boundary lines of said granted premises in said survey extended downward vertically, although such veins, lodes, or ledges in their downward course may so far depart from a perpendicular as to extend outside the vertical side lines of said premises: Provided, That the right of possession to such outside parts of said veins, lodes, or ledges shall be confined to such portions thereof as lie between vertical planes drawn downward through the end lines of said survey so continued in their own direction that such planes will intersect such exterior parts of said veins, lodes, or ledges: And provided further, That nothing herein contained shall authorize the grantee herein to enter upon the surface of a claim owned or possessed by another.

TO HAVE AND TO HOLD said mining premises, together with all the rights, privileges, immunities, and appurtenances of whatsoever nature thereunto belonging, unto the said grantee above named and to his heirs and assigns forever; subject, nevertheless, to the above-mentioned and to the following conditions and stipulations:

FIRST. That the premises hereby granted shall be held subject to any vested and accrued water rights for mining, agricultural, manufacturing, or other purposes, and rights to ditches and reservoirs used in connection with such water rights, as may be recognized and acknowledged by the local laws, customs, and decisions of the courts. And there is reserved from the lands hereby granted a right of way thereon for ditches or canals constructed by the authority of the United States.

SECOND. That in the absence of necessary legislation by Congress, the Legislature of Nevada may provide rules for working the mining claim or premises hereby granted, involving easements, drainage, and other necessary means to its complete development.

IN TESTIMONY WHEREOF, I, Calvin Coolidge, President of the United States of America, have caused these letters to be made Patent, and the Seal of the General Land Office to be hereunto affixed.

GIVEN under my hand, at the City of Washington, the THIRTY-FIRST day of MARCH in the year of our Lord one thousand nine hundred and TWENTY-SIX and of the Independence of the United States the one hundred and FIFTIETH

(SEAL)

By the President: Calvin Coolidge

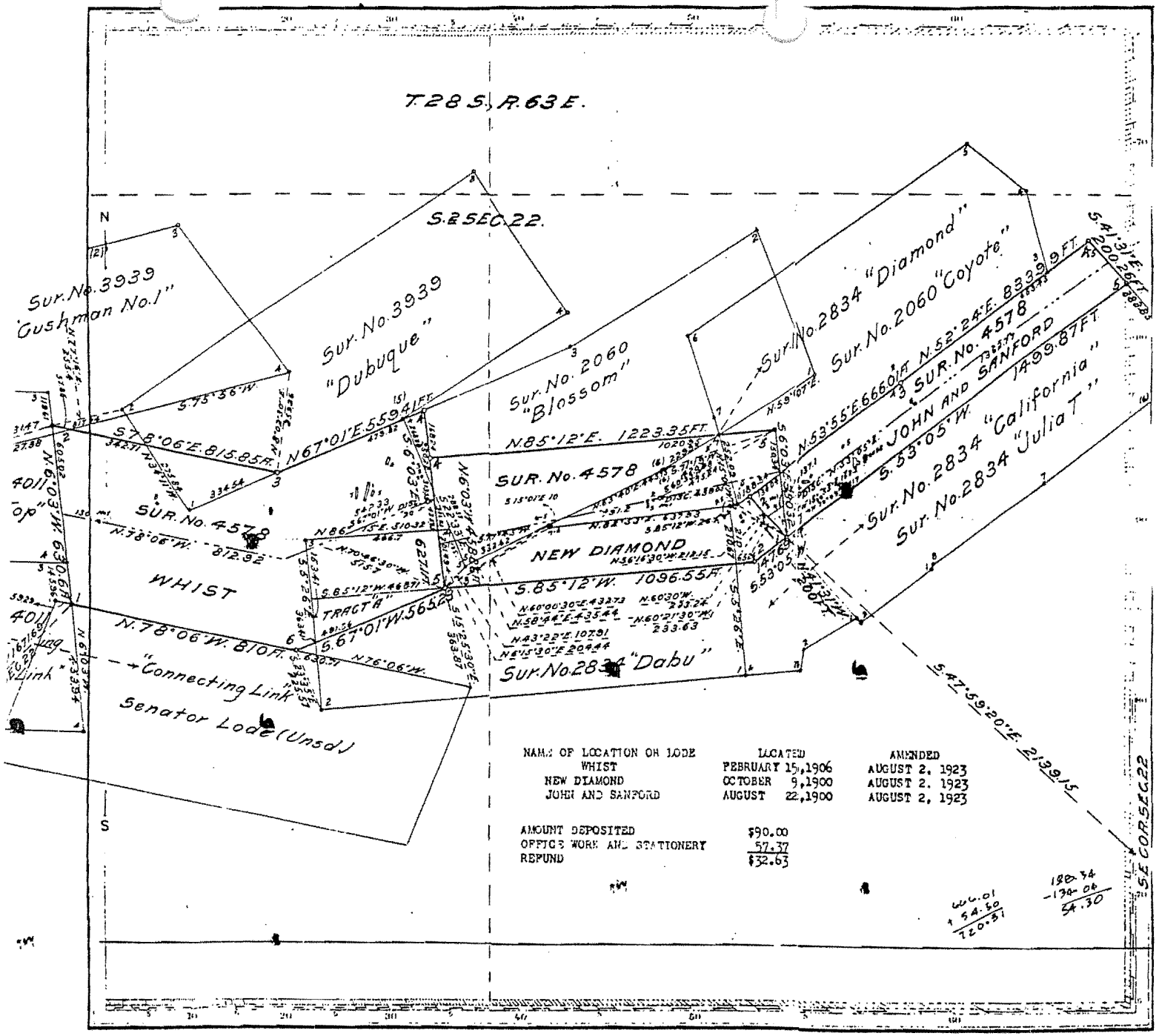
By Dwight F. Davis, Secretary,

W. P. LeRoy

Recorder of the General Land Office.

RECORD OF PATENTS, Patent Number 976974

(74-675)



Claim Located SEE TABLE 19

Mineral Survey No. 4578

CARSON CITY Land District.

PLAT

OF THE CLAIM OF
SANFORD A. SHULER

KNOWN AS THE
WHIST, NEW DIAMOND AND JOHN AND SANFORD LODES

IN SEARCHLIGHT MINING DISTRICT,
CLARK COUNTY, NEVADA

Containing an Area of _____ Acres.

Scale of 300 Feet to the inch.

Variation 15°30' EAST

SURVEYED NOVEMBER 6-12 19 23 BY

WALTER M. BROWN U.S. Mineral Surveyor.

The Original Field Notes of the Survey of the Mining Claim of SANFORD A. SHULER known as the "WHIST", "NEW DIAMOND" AND "JOHN AND SANFORD" LODES

from which this plat has been made under my direction, have been examined and approved, and are on file in this Office, and I hereby certify that they furnish such an accurate description of said Mining Claim as will, if monumented into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the locus thereof.

I further certify that Five Hundred Dollars worth of labor has been expended or improvements made upon said Mining Claim by claimant or for each location or HIS grantors and that said improvements consist of 10 SHAFTS AND 8 TRENCHES

VALUE $5405.00

that the location of said improvements is correctly shown upon this plat, and that no portion of said labor or improvements has been included in the estimate of expenditures upon any other claim.

And I further certify that this is a correct plat of said Mining Claim made in conformity with said original field notes of the survey thereof, and the same is hereby approved.

U.S. Surveyor General's Office.

RENO, NEVADA

DECEMBER 29, 1923

U.S. Surveyor General for NEVADA

204681

Figure 2
Patented Lode Claims

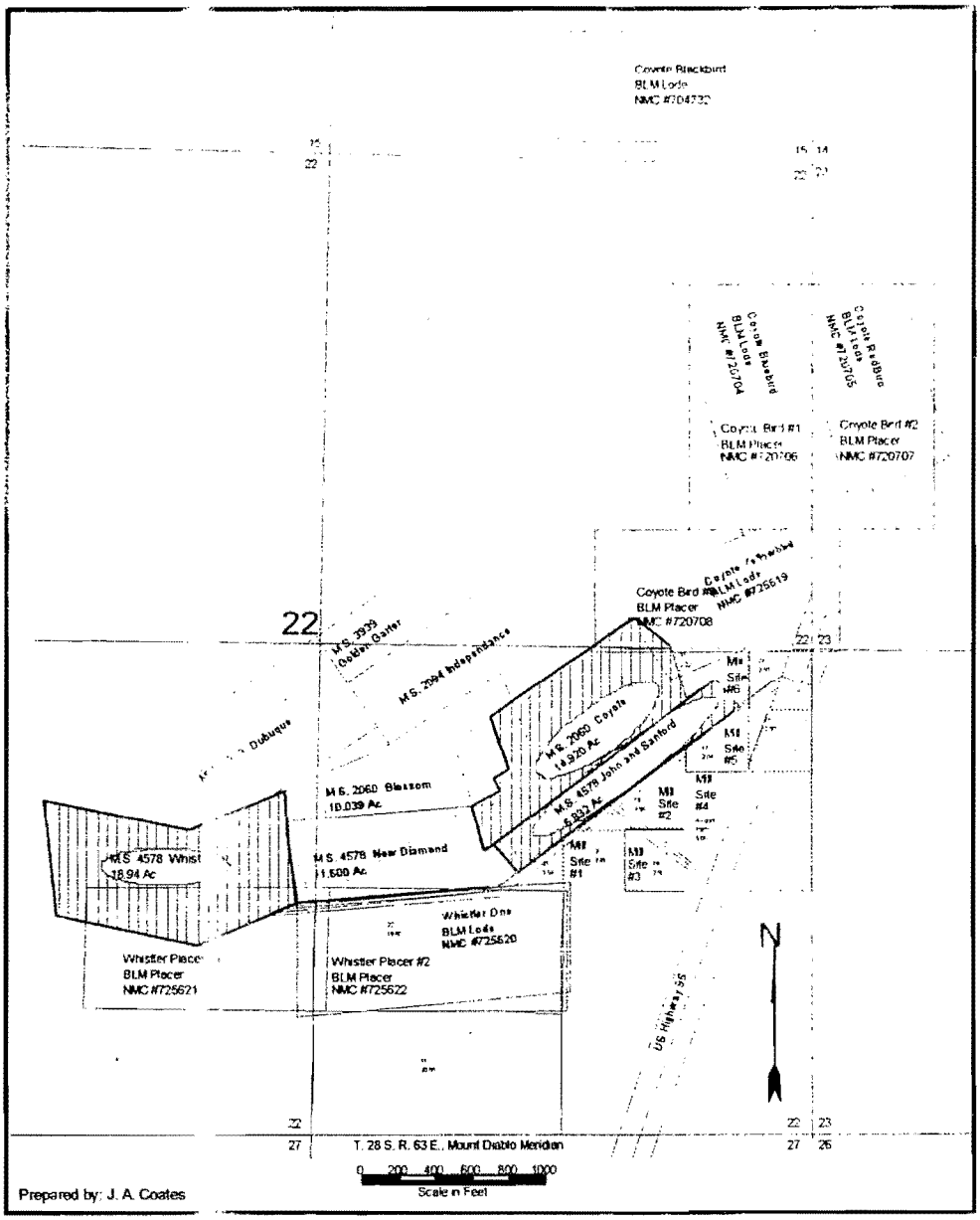
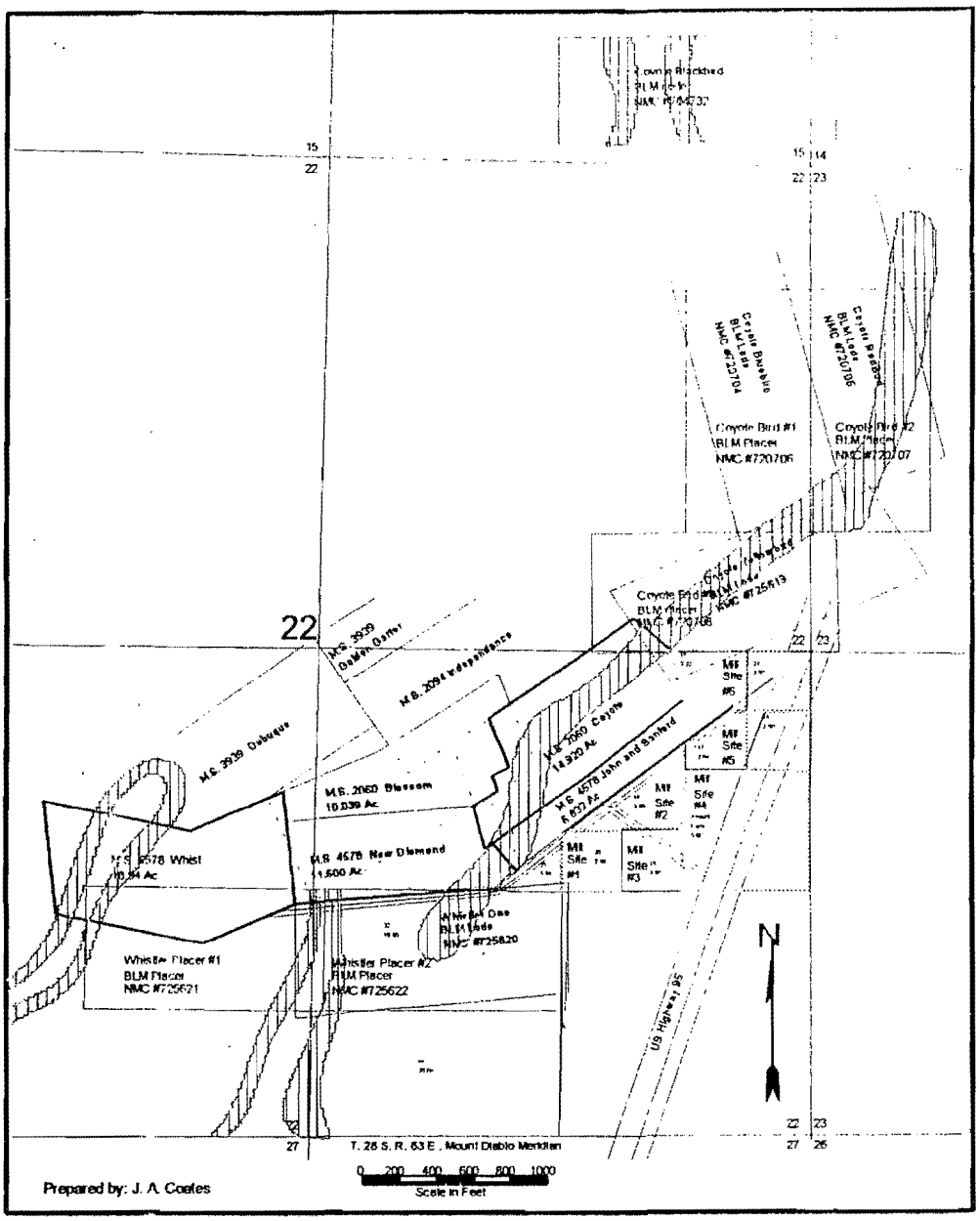
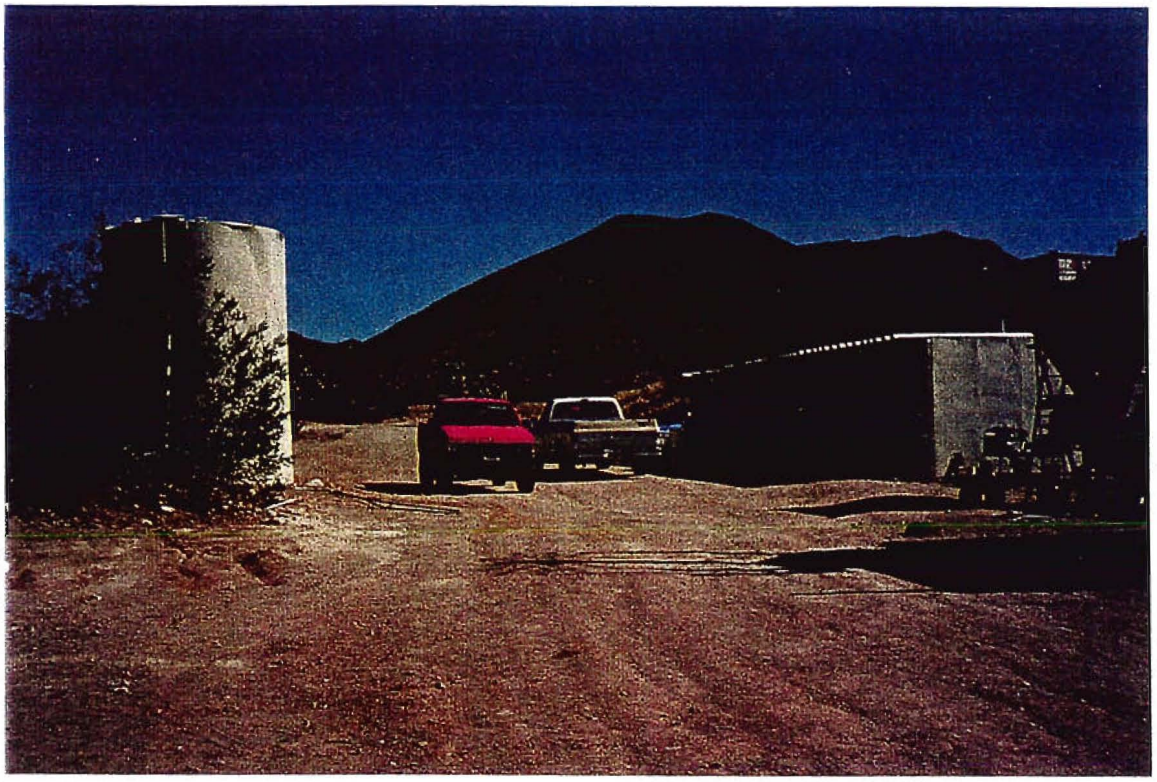


FIGURE 9
Infrared Aerial Survey

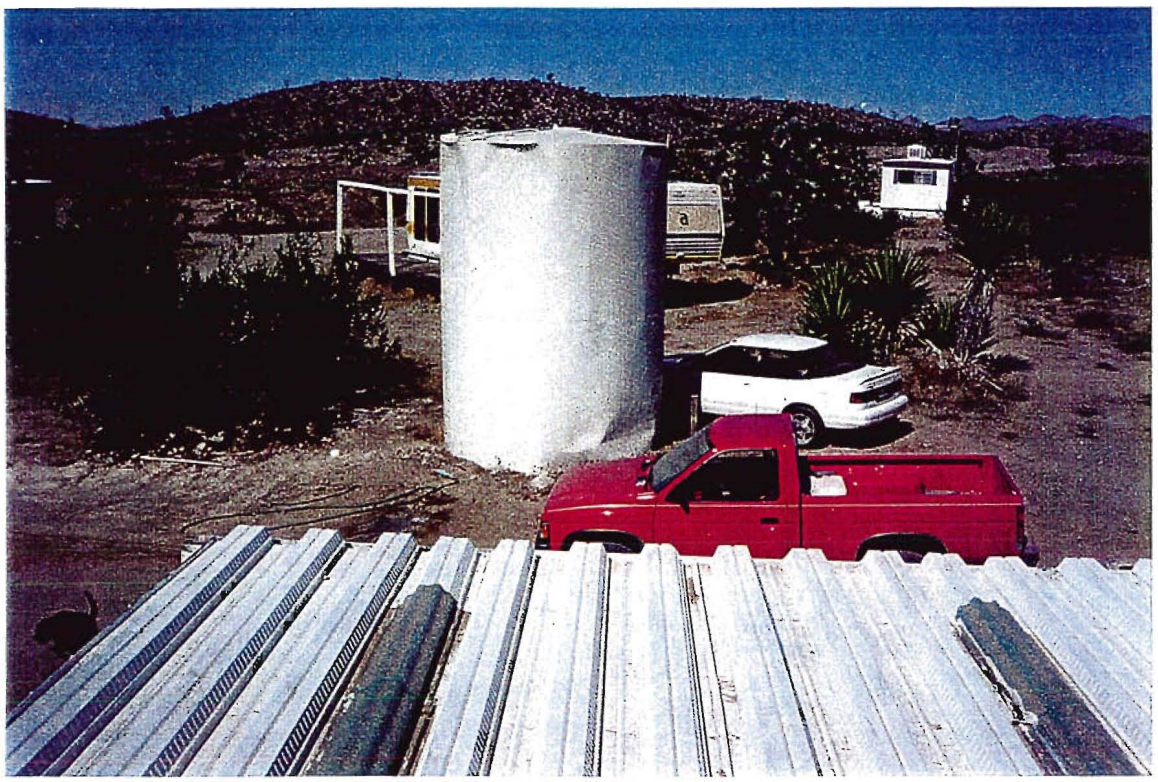


APPENDIX 7

COYOTE MINES, INC. (site)
SEARCHLIGHT, NV. 89046



MILL SHOP & ANNEX

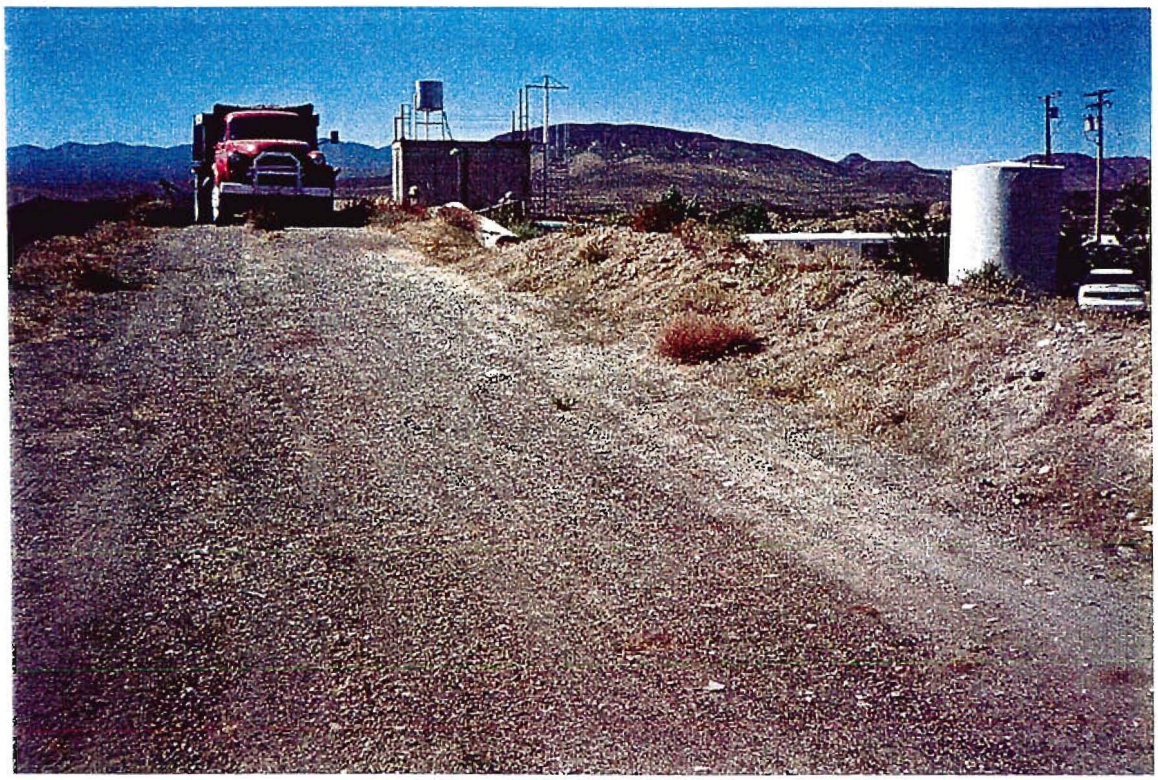


AUXILLIARY WATER TANK servicing
MILLING EQUIPMENT

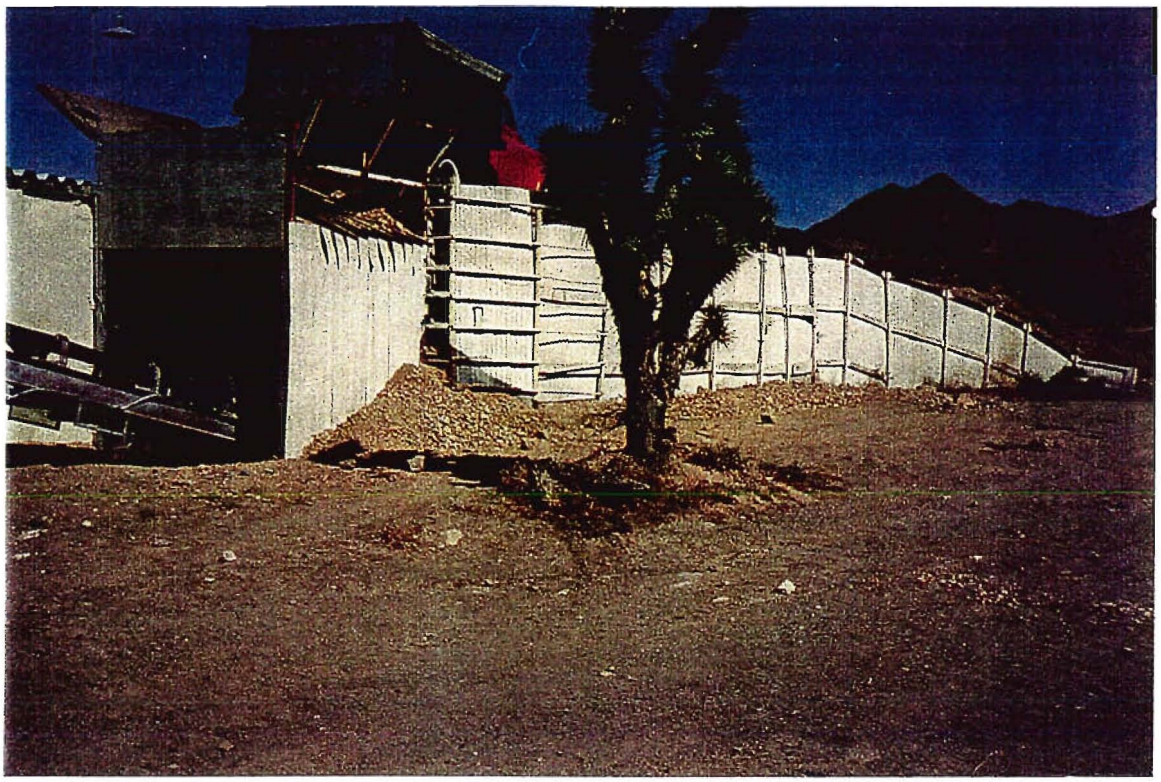
ENTRANCE TO MILL SHOP

INTERIOR OF MILL SHOP

INTERIOR OF MILL SHOP

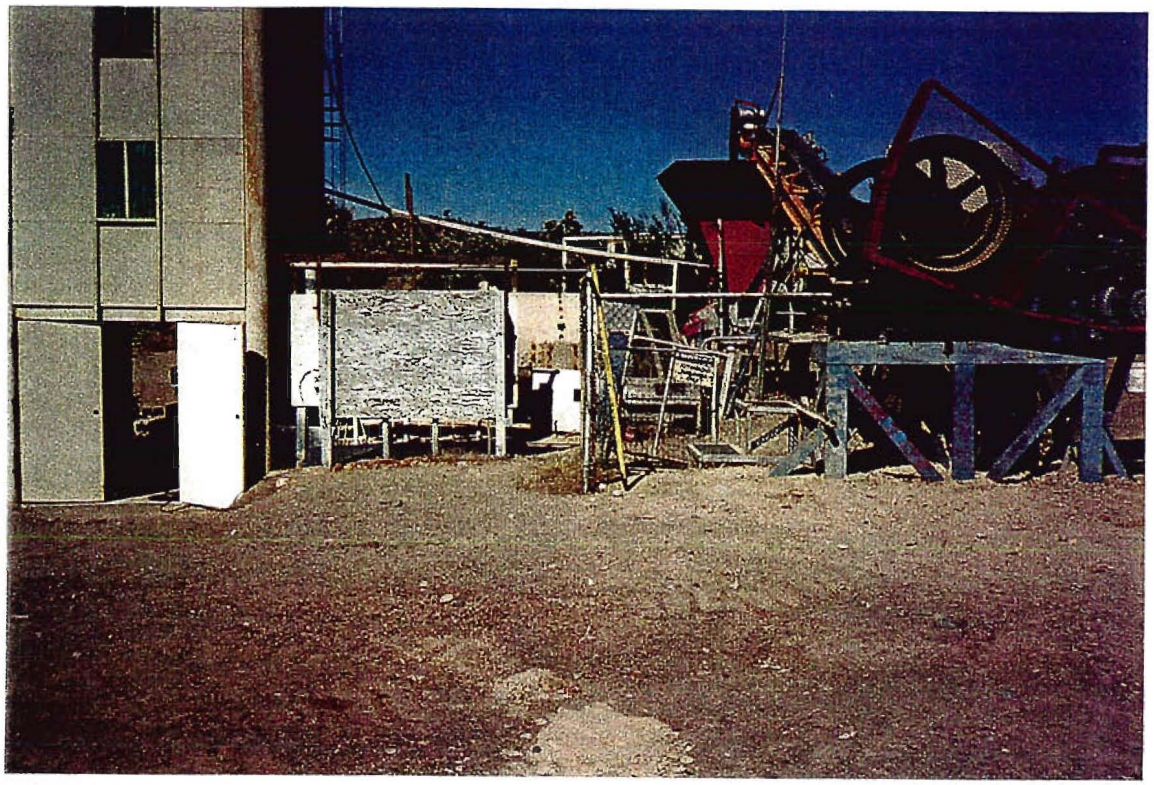


RAMP TO CRUSHER

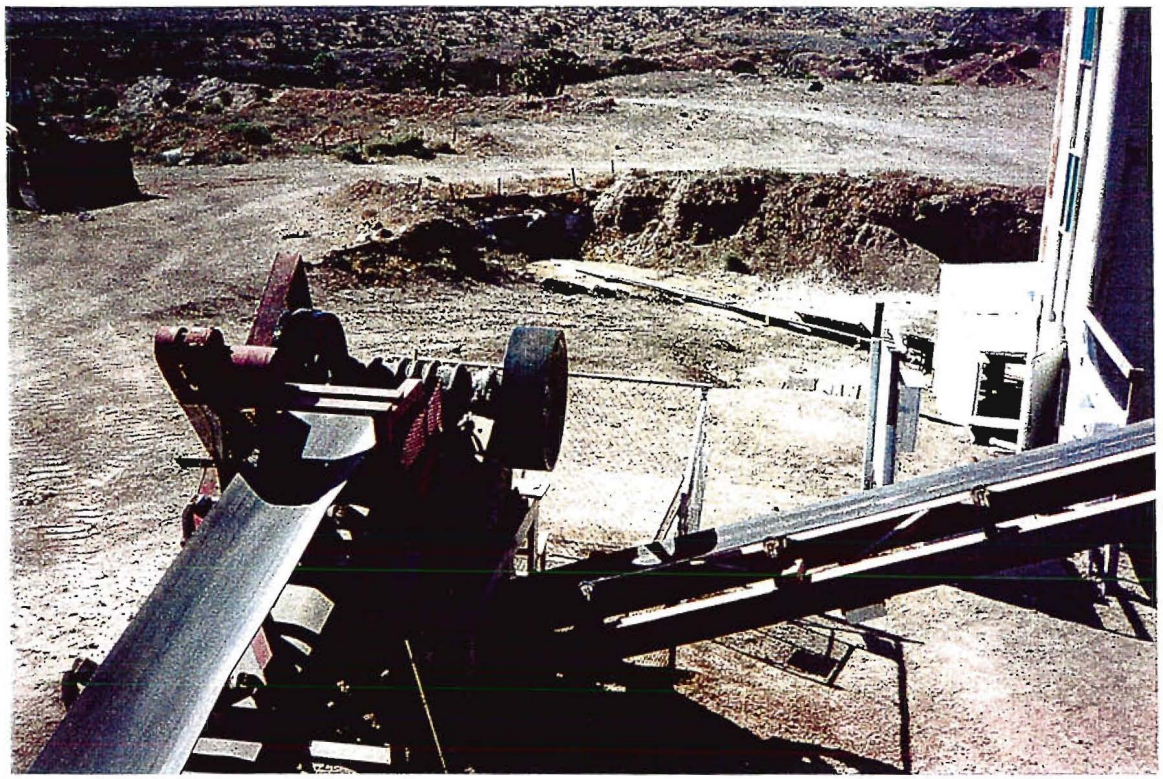


RAMP TO CRUSHER & OUTPUT OF CRUSHER TO CONVEYOR

CONVEYOR FROM CRUSHER

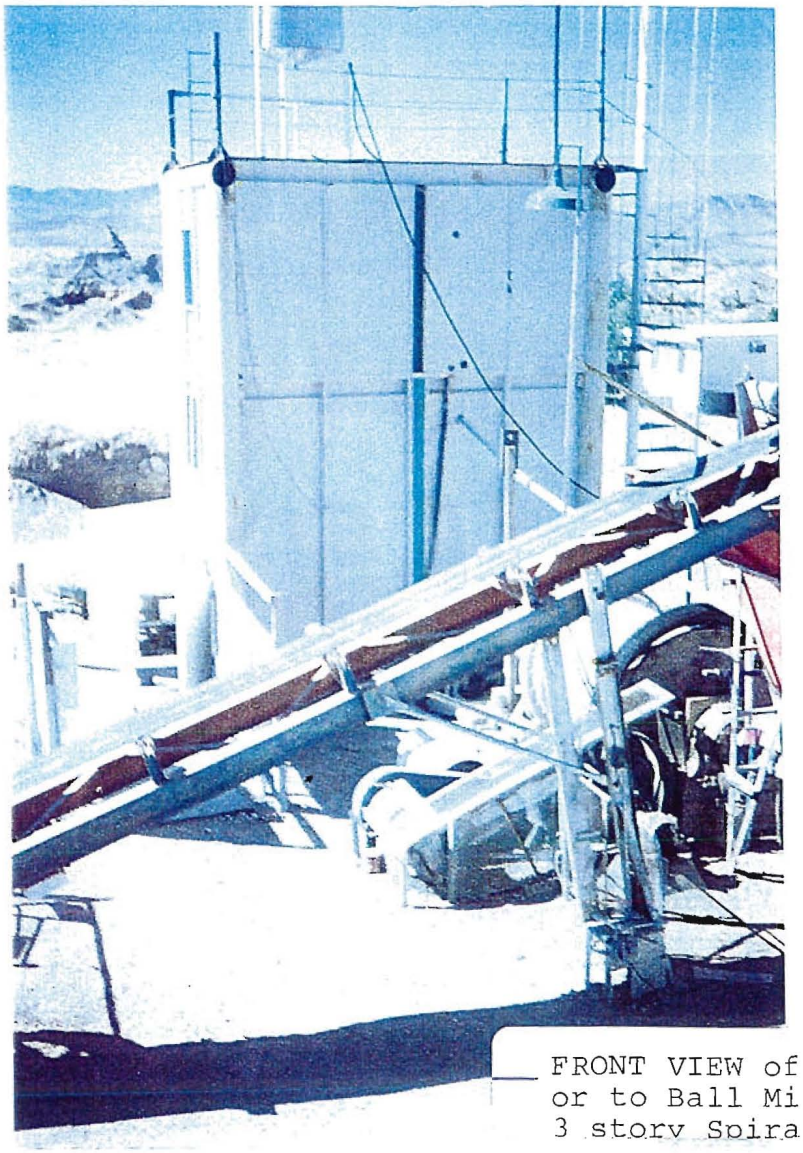


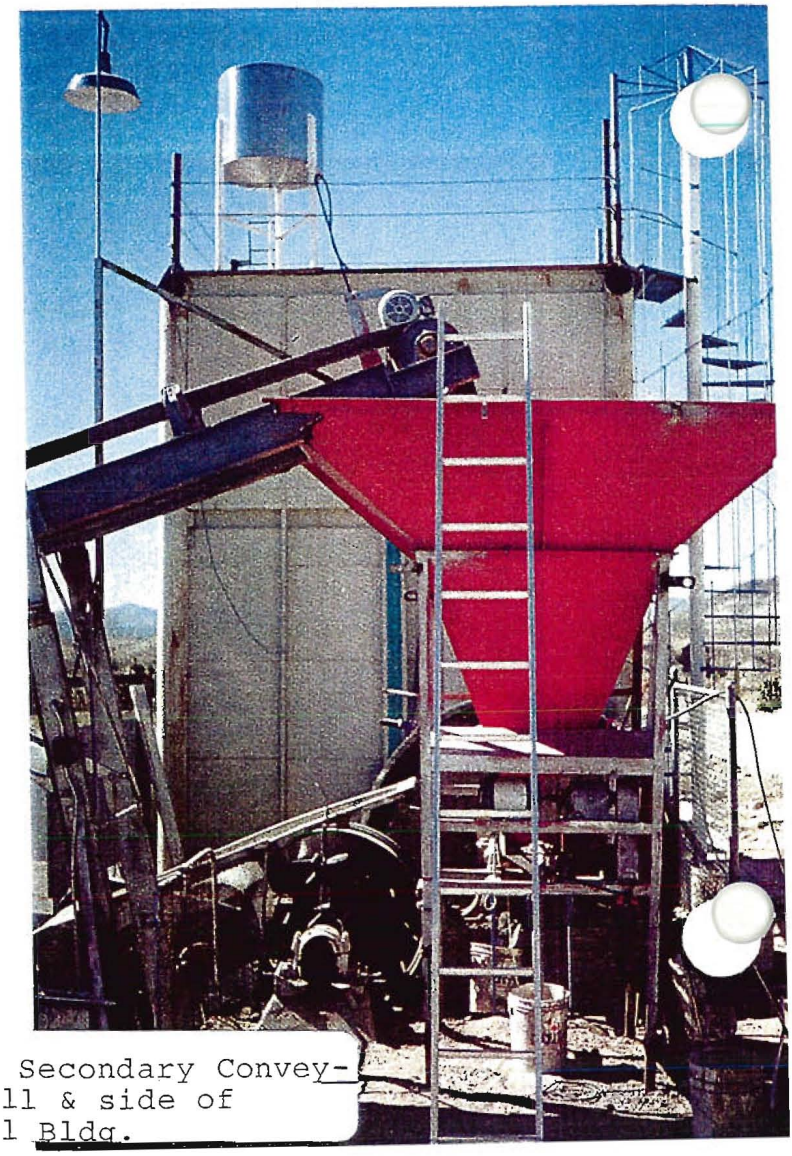
REAR VIEW PRIMARY CONVEYOR to
SECONDARY CONVEYOR TO BALL MILL
& REAR OF 3 Story SPIRAL BLDG.



PRIMARY CONVEYOR TO SECONDARY
CONVEYOR

SECONDARY CONVEYOR TO BALL MILL



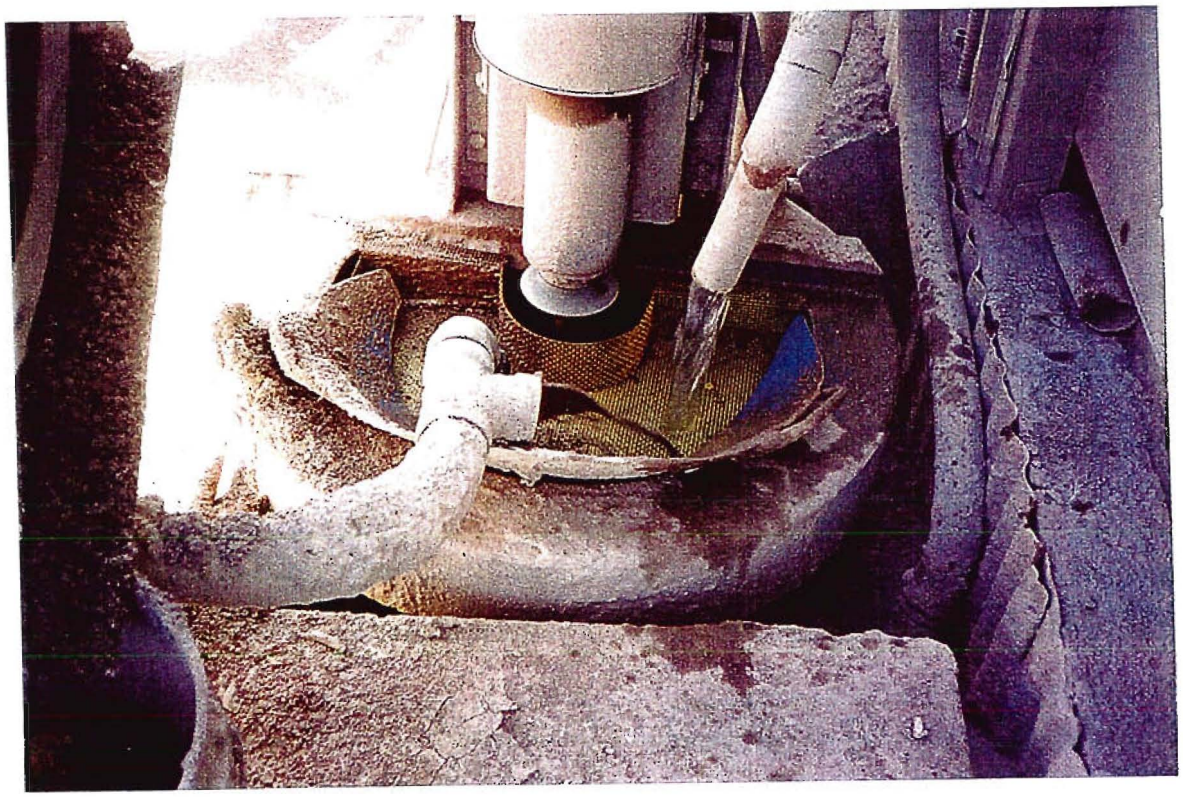


FRONT VIEW of Secondary Conveyor to Ball Mill & side of 3 story Spiral Bldg.

BALL MILL

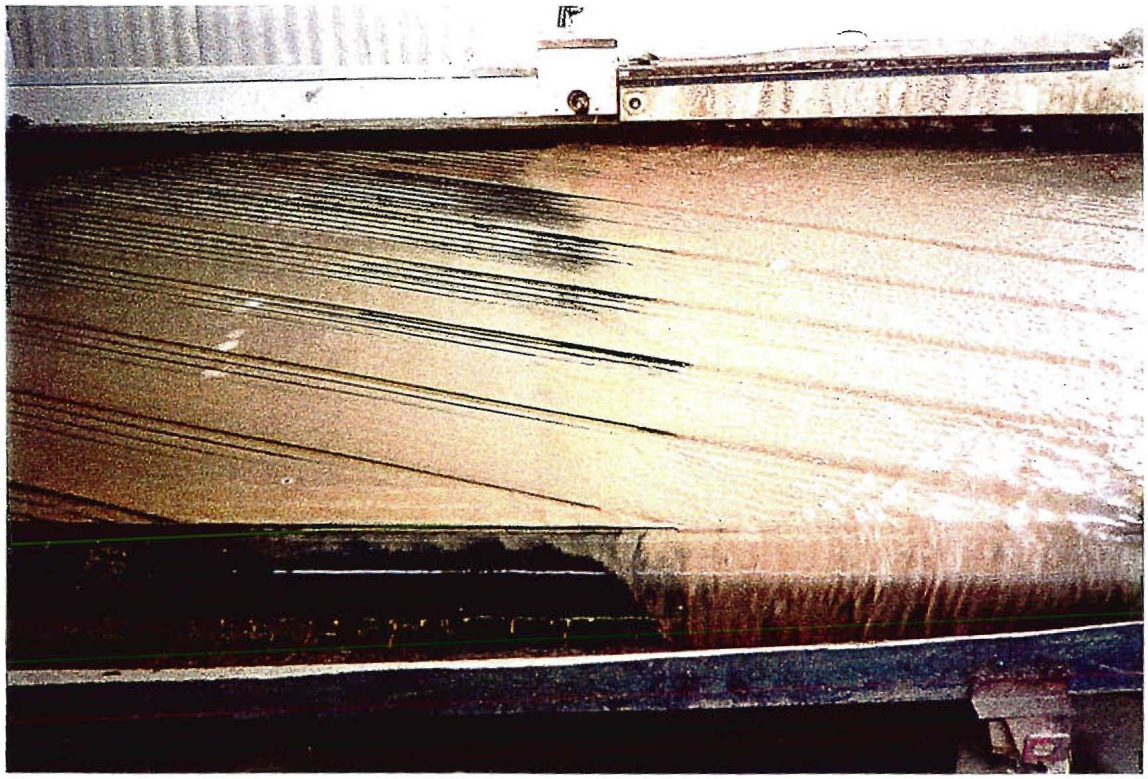
REAR SPIRAL BLDG. & HOUSING OVER TABLING AREA

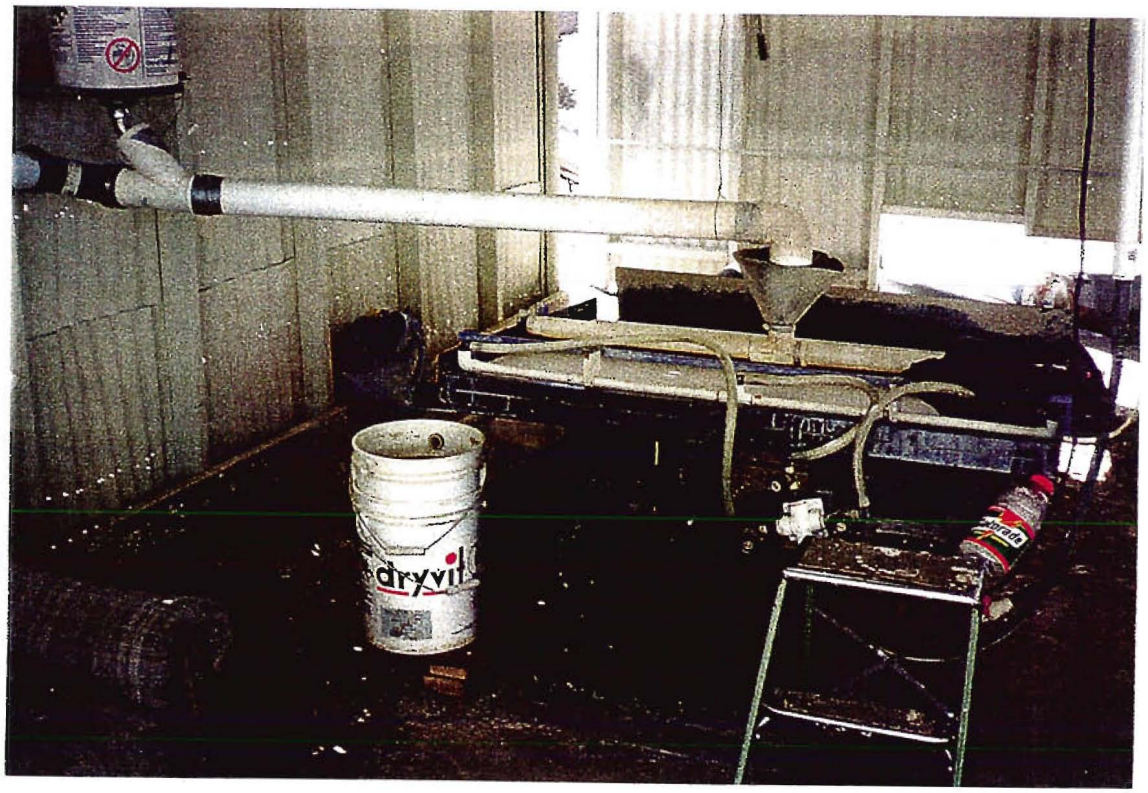
SCREEN at work on 3rd level of
SPIRAL BLDG.



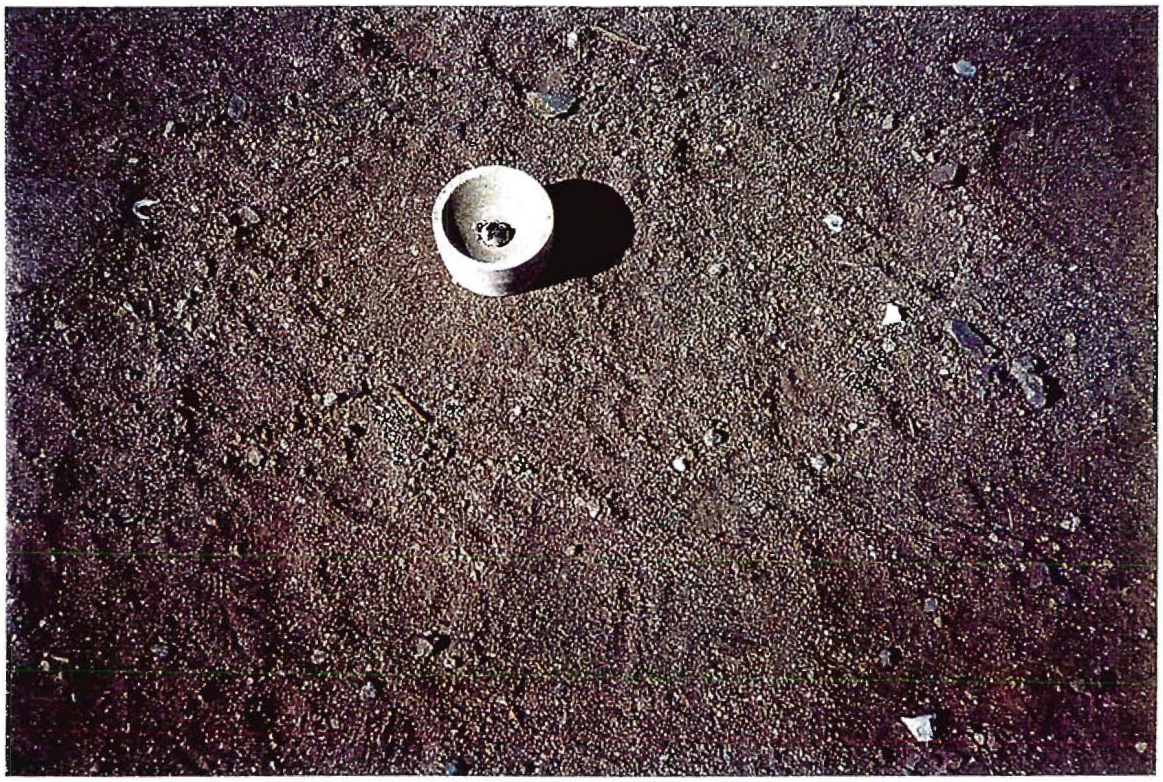
SPIRAL DISCHARGE INTO PUMP in
SPIRAL BLDG. (1st floor)

DIESTER TABLE at work

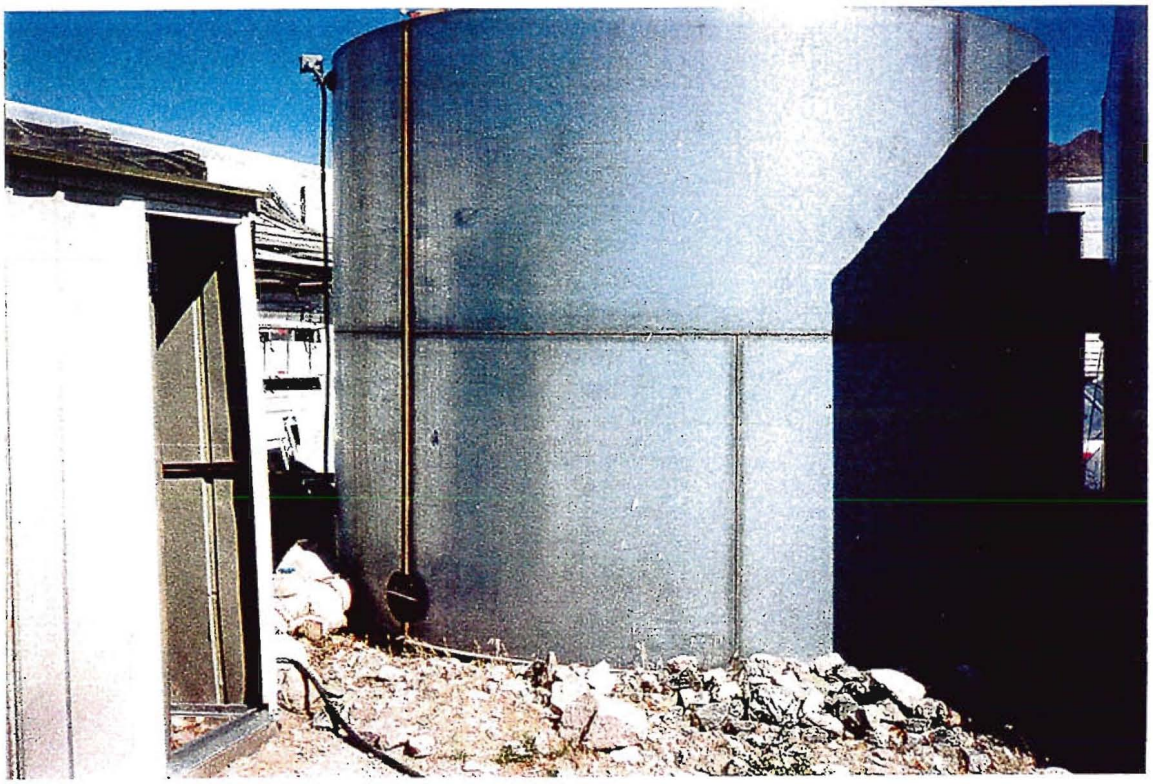




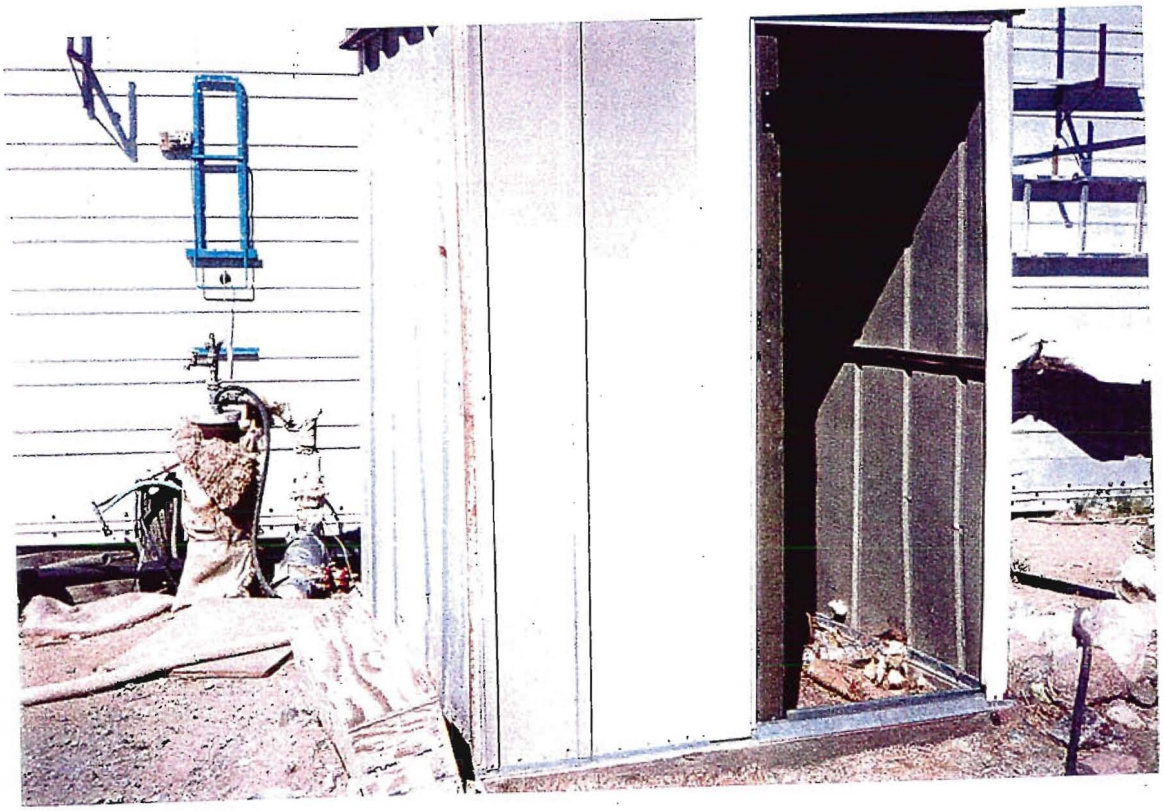
FINISHING TABLE



GOLD/SILVER BEAD from ASSAY

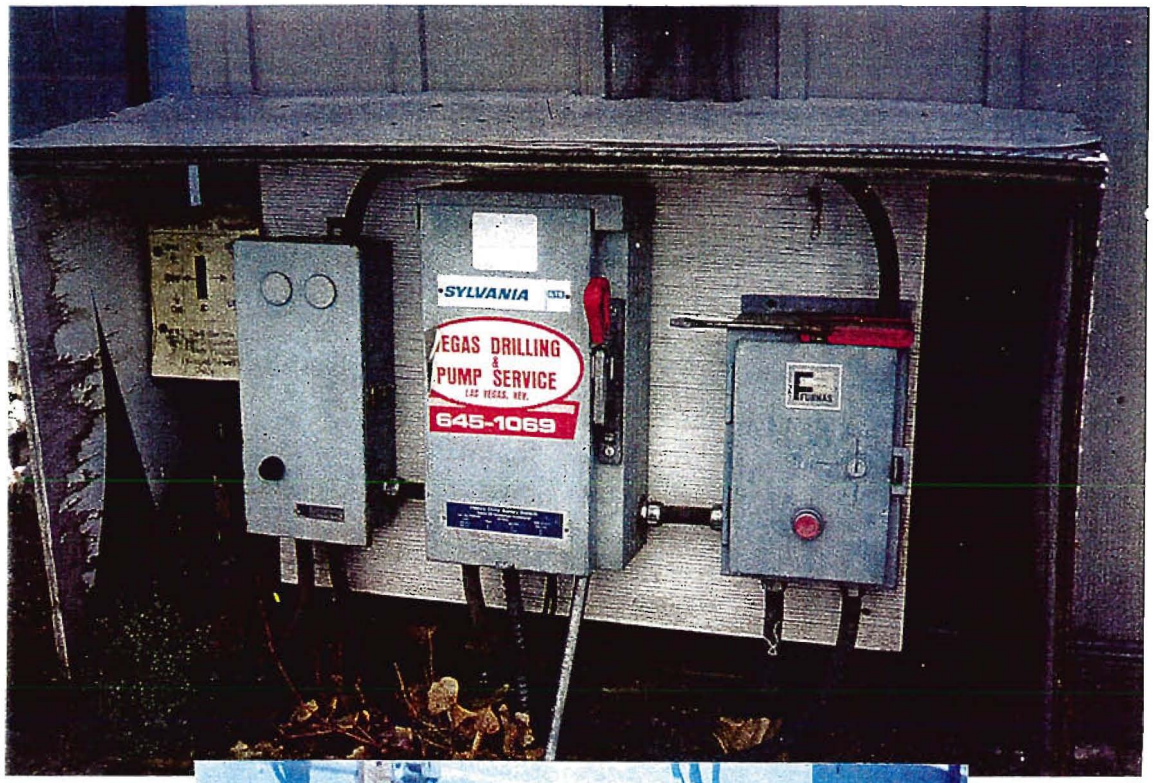


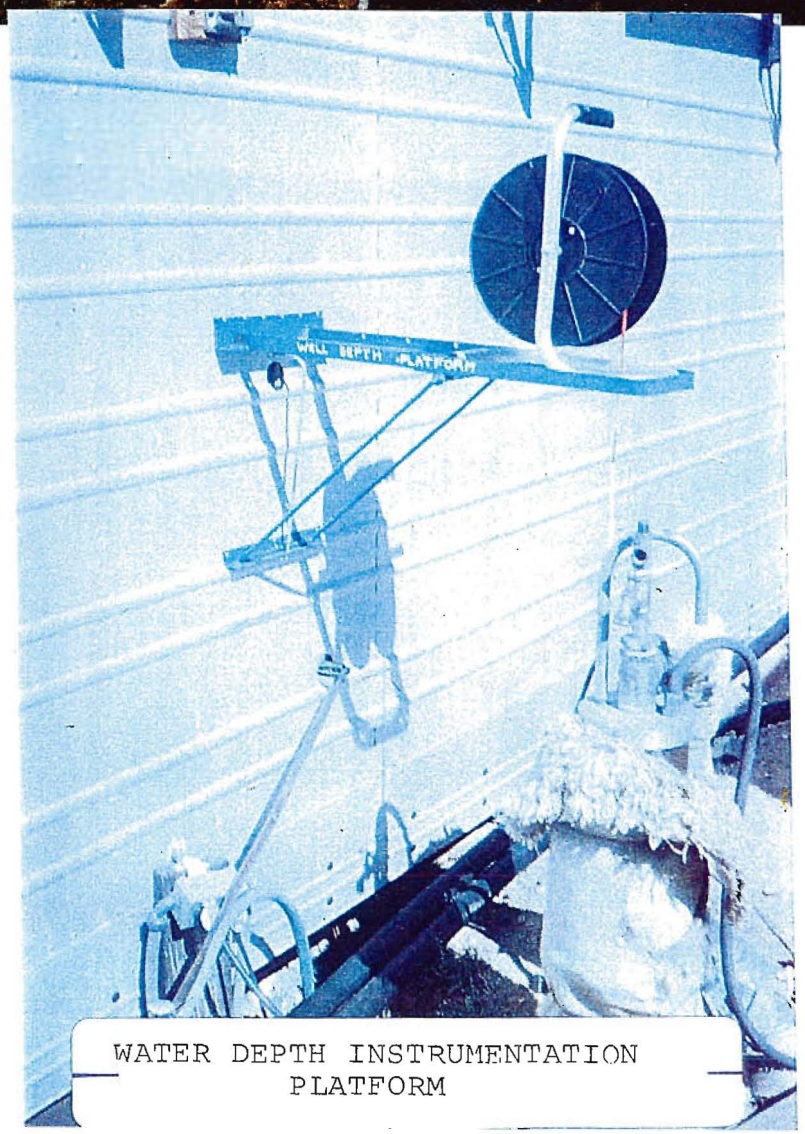
MAIN WATER TANK for Site



HOUSING FOR WATER PUMPS, etc.

ELECTRICAL BOARD for WATER





WATER DEPTH INSTRUMENTATION PLATFORM

APPENDIX 8

COYOTE MINES, INC.

ADMINISTRATIVE HEADQUARTERS
1201 SYCAMORE DR., S.E.
ISSAQUAH, WA 98027
TELEPHONE: (206) 392-7289

RECEIVED
Bureau of Land Management

October 21, 1996

AMENDMENT TO MINING NOTICE
#54-90-052N
SEARCHLIGHT, NV.

Based upon a detailed review and evaluation of the current gravity concentration milling circuit performance data, it appears that approximately fifty percent (50%) of the head ore assay values were flowing to the tailings pond. An investigative program was initiated to determine the cause of this observation and to implement corrective action.

It was determined that the viscous resistance of the flattened particles produced by the Ball Mill was greater than the rounded particles produced by an Impact Mill. Consequently, the flattened particles would tend to ride "on the surface" of the moving slurry stream where as the rounded particles would tend to ride "on the surface" of the moving slurry stream where as the rounded particles having less viscous resistance would tend to sink to the surface of the "stream".

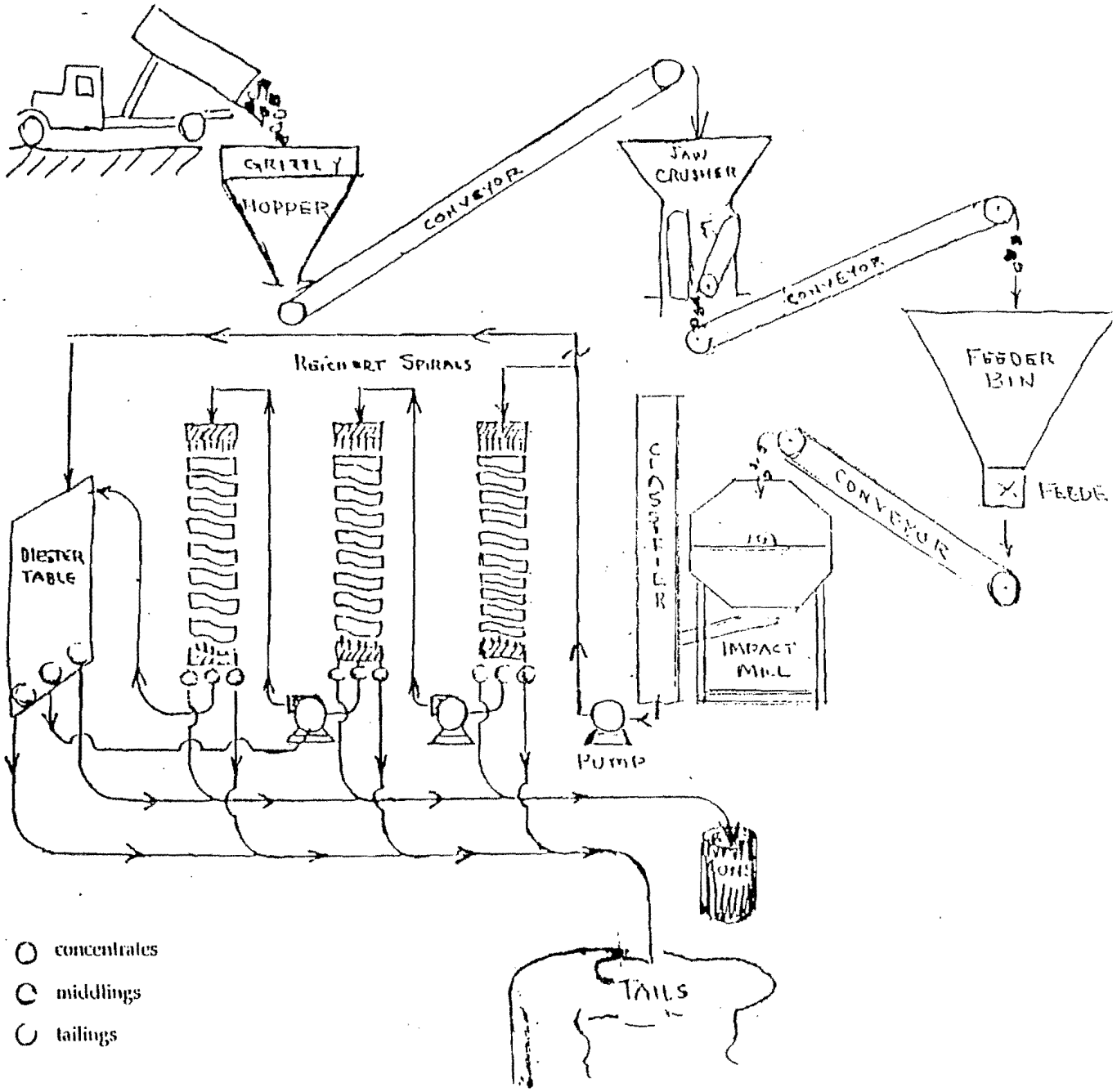
A Stuttenroth Impact Production mill has been installed to operate in conjunction or parellel with the Denver Ball Mill. A measurable improvement in free gold output has occurred.

Respectfully submitted,

Sanford A. Shuler, Jr.

CC: Glen Miller, BLM Las Vegas Office
Connie Davis, NDEP, Carson City
Douglas Driesner, Dept. Minerals, Carson City

GRAVITY CONCENTRATION MILLING CIRCUIT
(ALTERNATE CIRCUIT) IMPACT MILL



APPENDIX 9

Application for Permit Modification

.Coyote Mines, Inc

A SMALL SCALE MINING & MILLING OPERATION

In
CLARK COUNTY, NEVADA

Sections 14, 15, 22 & 23

Township 28S

Range 63E

Mount Diablo Meridian

Searchlight Mining District

Prepared by:

James A. Coates P.E.

RECEIVED
Bureau of Land Management
07:30

MAR 0 2 1999

LAS VEGAS
FIELD OFFICE
Las Vegas, Nevada

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OVERVIEW

COYOTE MINES, INC. is a small mining and milling business headquartered in Issaquah, Washington operating a small-scale mine in Clark County, Nevada under WATER POLLUTION CONTROL PERMIT #NEV94113. The permit was issued for the period from June ,1996 through June, 2000. A copy of the existing permit appears in Appendix 1.

Historically, the mine has produced gold and silver by gravity concentration. This application seeks a modification to the existing permit allowing low-grade ore to be processed chemically.

To facilitate review by the requisite agencies the structure of this application parallels the codified regulations NAC 445A.394, 445A.395, 445A.396, 445A.397, and 445A.398.

445A.394	2.(b)	Legal Structure of Applicant

Coyote Mines, Inc. is a Washington Corporation (#2-378821-9), incorporated 10/13/86, doing business as a Foreign Corporation (#37-87) in the State of Nevada. Pertinent information about the corporation is itemized in Table 2.

Table 2
Officers, Directors, Legal Counsel and Tax information

Officers:	Sanford A. Shuler - President Marilyn B. Shuler - Secretary / Treasurer
Directors:	Sanford A. Shuler Marilyn B. Shuler
Administrative Office:	1201 Sycamore Drive, S.E. Issaquah, WA. 98027 425-392-7289(telephone) 425-497-0823(FAX)
Site Location:	Coyote Mine Road 1-1/2 miles North of Searchlight US Highway 95 Searchlight, NV. 89046 Mailing Address: P.O. Box 9 Searchlight, NV 89046 702-297-1034 (telephone) 702-297-1790 (FAX)
Corporate Attorney:	H. Frank Crawford Vandeberg, Johnson & Gandra 1900 1st Interstate Plaza 1201 Pacific Avenue Tacoma, WA 98402-4391 206-383-3791
Mining Attorney:	Richard W. Harris Harrris, Trimmer & Thompson 6121 Lakeside Dr. Reno, Nevada 89511 702-825-4300
IRS Tax ID#	91-1351407

Mining and mineral processing operations will occur and be sited on patented and unpatented lode claims, unpatented placer claims and mill sites described in this section.

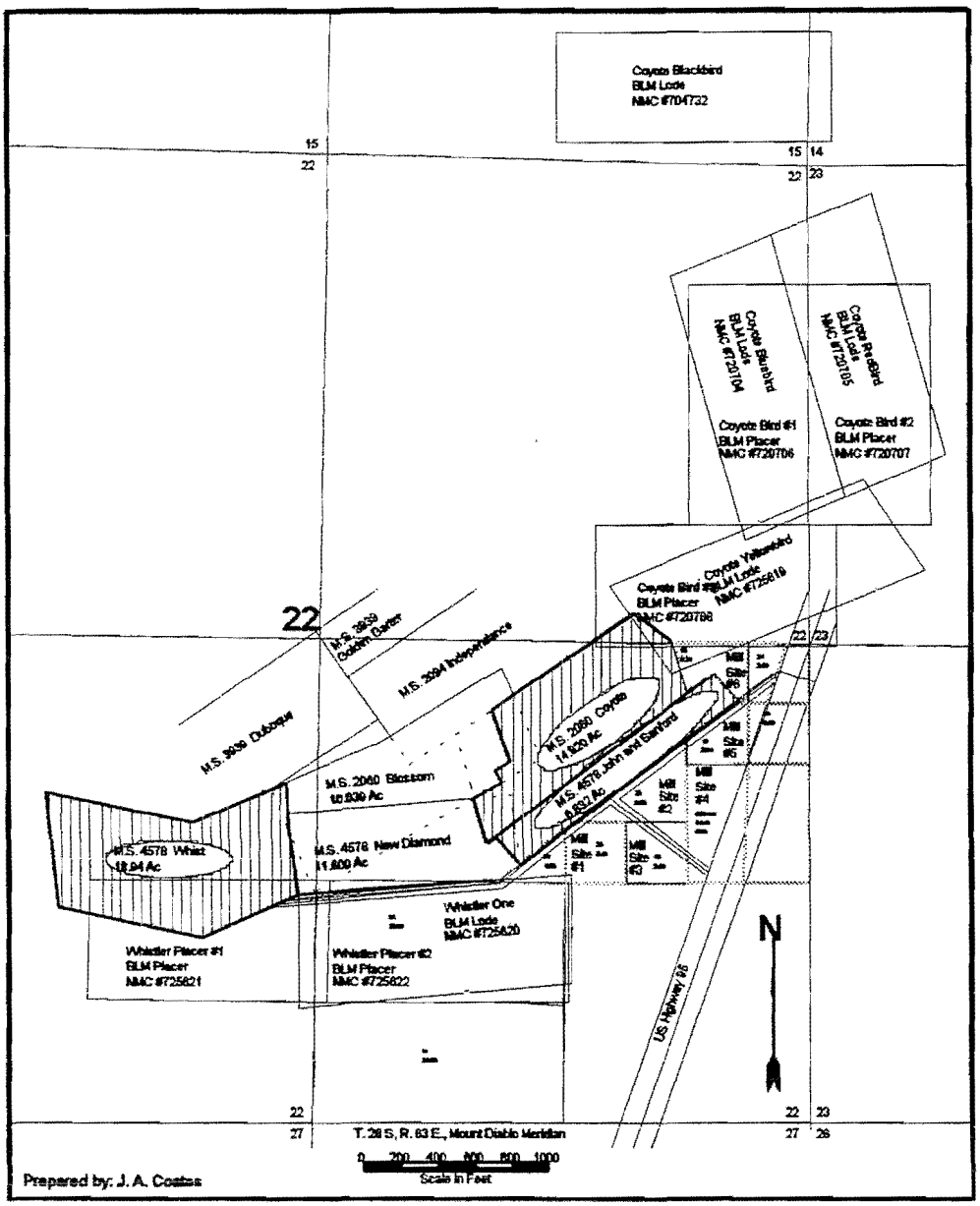
Patented Lode Claims

There are three patented properties totaling 38.06 acres owned by Coyote Mines, Inc. The name, size, location, plat filing information, tax data and ownership of each claim is listed in Table 3. The patented lode claims are those that are shaded with the hatching pattern in Figure 1.

Table 3
Patented Lode Claims

CLAIM	ACREAGE	DATA	DESCRIPTION
COYOTE LODE MS #2060	15.06	LOCATION:	SE¼ Section 22, Township 28S, Range 63E, MDM, Searchlight mining district, Clark County, Nevada
Owner of Record: Coyote Mines Inc.		SURVEY:	Survey Map filed with Clark County, Nevada on 3/21/1983 in Book #1705, Instrument #1664867, File 39, Page 85.
		TAX DATA:	District 700 Parcel 243-22-701-004
JOHN & SANFORD LODE MS #4578	6.6	LOCATION:	SE¼ Section 22, Township 28S, Range 63E, MDM, Searchlight, mining district, Clark County, Nevada
Owner of Record: Coyote Mines Inc.		SURVEY:	Survey Map filed with Clark County, Nevada, on 7/1/1987 in Book #840701, Instrument #00570, Map Type SV, File 046, Page 0055.
		TAX DATA:	District 700 Parcel 243-22-701-005
WHIST LODE MS #4578	16.4	LOCATION	SE¼, Section 22, Township 28S, Range 63E, MDM, Searchlight mining district, Clark County, Nevada
Owner of Record: Coyote Mines Inc.		SURVEY:	Survey Map filed with Clark County, Nevada on 12/7/1987 in Book #871207, Instrument #00558, File 047, Page 0034
		TAX DATA:	District 700 Parcel 243-22-301-004
TOTAL PATENTED ACRES	38.06		

Figure 1
Patented Lode Claims



Mill Site Claims (Awaiting issuance of final patent certificates)[1]

COYOTE MINES, INC. has ownership of six (6) contiguous mill site claims [2] totaling 24.35 acres which are under "Final Certificate of Patent" #N50229. Mineral processing and leaching operations discussed in this application will be sited on these claims.

The mill sites adjoin the southeast and northeast boundaries of the patented JOHN AND SANFORD LODE claim and abut US Highway 95. The Coyote mill sites are characterized in Table 4.

Table 4
Mill Site Claims Awaiting Patent Certificates

NAME	ACRES	LOTS	BLM #
COYOTE MILL SITE #1	4.03	#20, 21	NMC #455004
COYOTE MILL SITE #2	3.56	#18	NMC #455005
COYOTE MILL SITE #3	2.50	#19	NMC #533902
COYOTE MILL SITE #4	5.0	aliquot parts	NMC #533903
COYOTE MILL SITE #5	4.54	#16,17	NMC #533904
COYOTE MILL SITE #6	4.72	#14,15	NMC #533905
TOTAL	24.35		

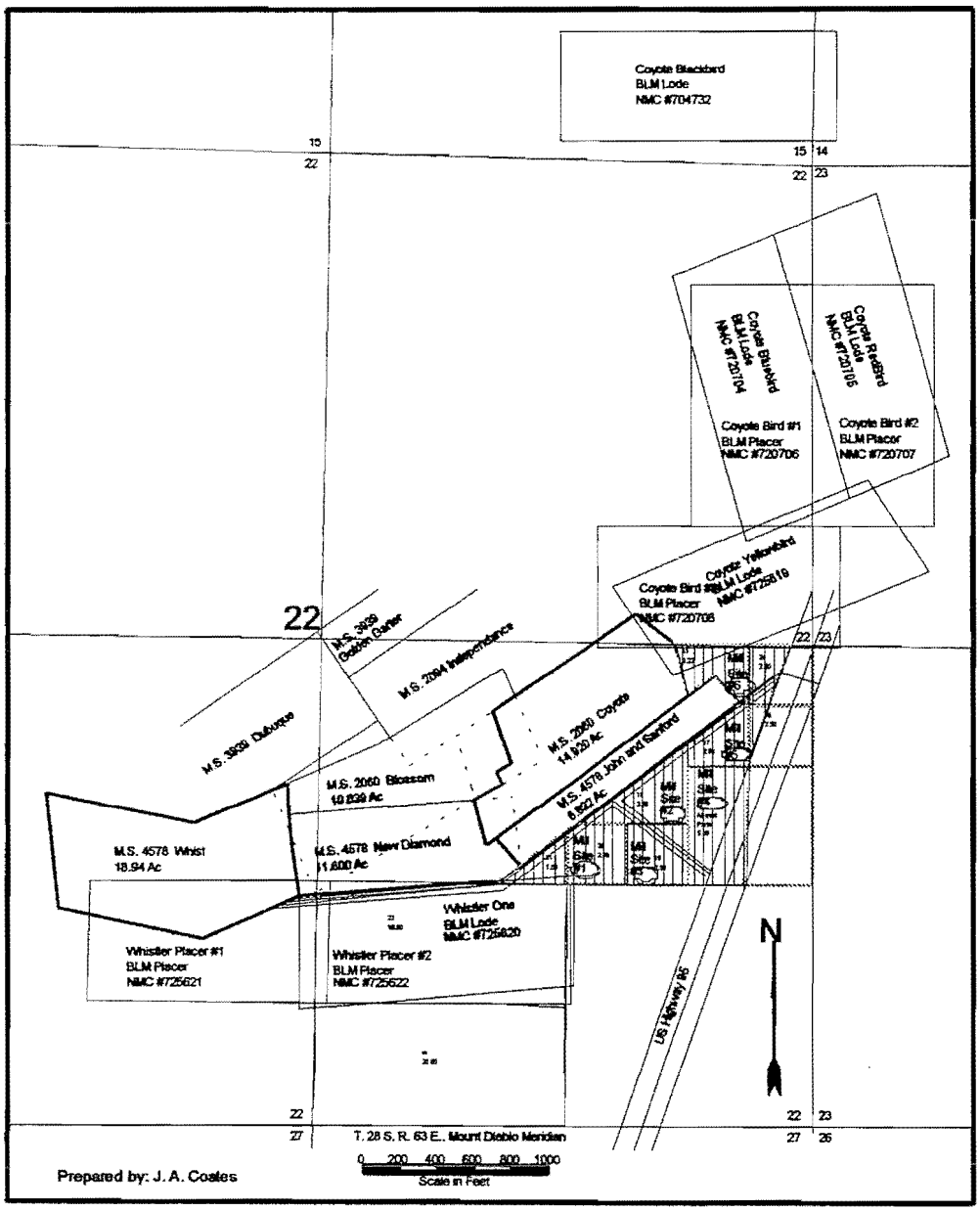
The locations of the mill site claims are illustrated in Figure 2 as the cross-hatched areas . The "Letter of Patent" has been issued by the BLM to COYOTE MINES, INC. but the final "Certificates" have not been issued pending action by the Department of the Interior. The "Letter of Patent" is presented as Figure 3.

---

1 COYOTE MINES, INC. filed an "Intent to Hold" with Clark County, NV. on 3/20/1989, Book #890320, Instrument #00731 and filed with BLM in Reno, NV. on 3/23/1989. This document relieves the Corporation of paying "Annual Rental Fees" for the six mill sites under Final Patent Application #N-50229.

2 COYOTE MINES, INC.'s patent application for the six (6) mill sites has been "grandfathered" and BLM assures that the patent is not under the present Federal Moratorium which currently denies patenting.

FIGURE 2
Mill Site Claims Awaiting Final Patent Certificate



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
NEVADA STATE OFFICE
850 Harvard Way
P.O. Box 12000
Reno, Nevada 89520-0006

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

N-50229
3864
(NV-943.6)

DEC 19 1989

DECISION

COYOTE MINES, INC. 1201 Sycamore Dr., S.E. Issaquah, WA 98027	: : :	Mineral Patent Application

MINERAL ENTRY ALLOWED

Inasmuch as you have submitted the required proofs and paid the purchase price required by law and regulations, we have issued final certificate dated December 19, 1989, covering the following millsites:

COYOTE MILL SITE #1
COYOTE MILL SITE #2
COYOTE MILL SITE #3
COYOTE MILL SITE #4
COYOTE MILL SITE #5
COYOTE MILL SITE #6

According to the regulations contained in 43 CFR 3851.5, after issuance of the final certificate, annual assessment work is not required. Therefore, recordation of intent to hold documents is not required on the above listed millsites included in mineral patent application N-50229.

If you have any questions, please call Elaine Lewis at (702) 328-6337.

Marla B. Bohl

Marla B. Bohl, Chief
Branch of Lands and Minerals Operations

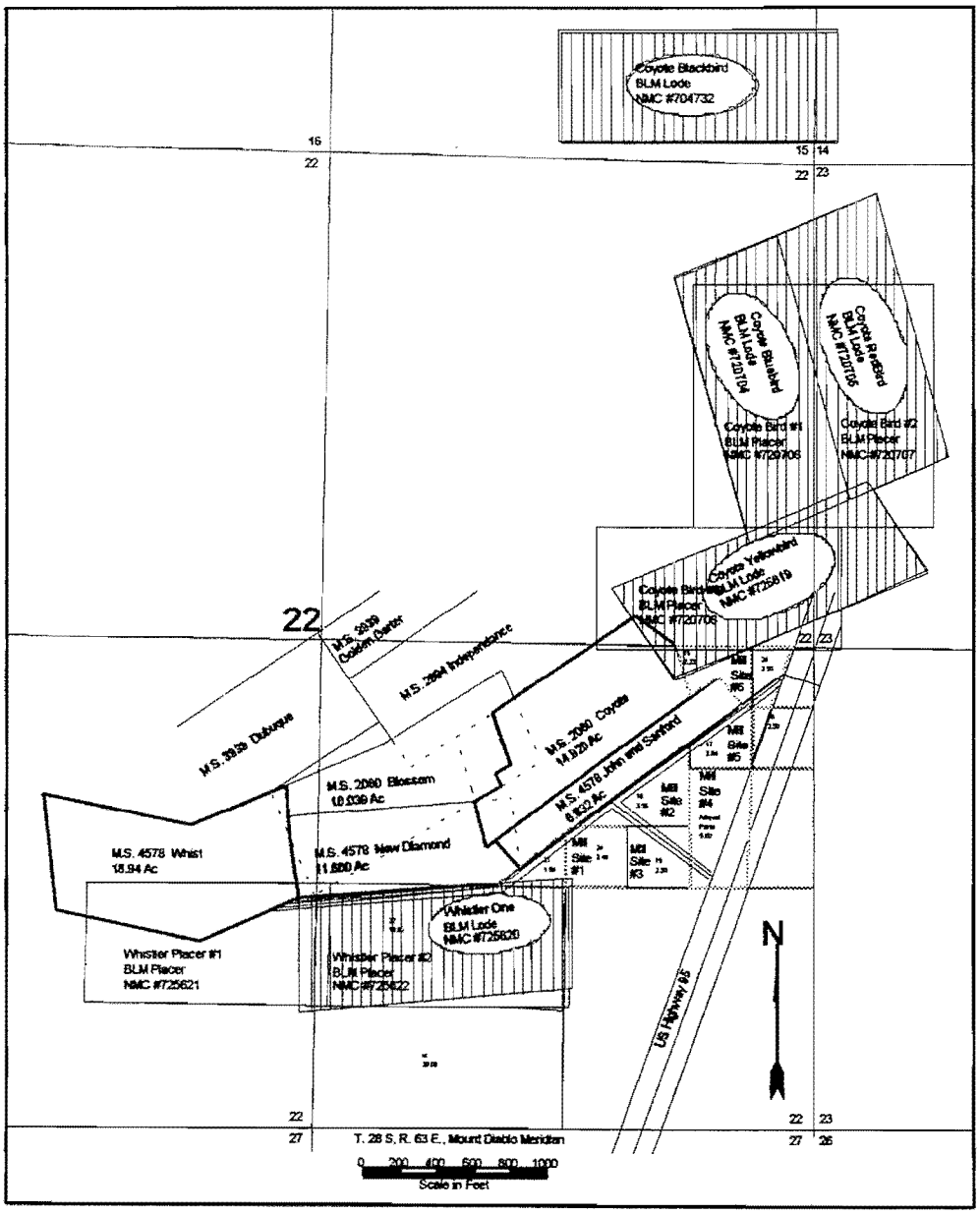
Unpatented Lode Claims

Coyote Mines, Inc. has filed and controls five (5) unpatented lode claims listed in Table 5. The locations of the claims are shown as the hatched areas in Figure 4.

TABLE 5 - Unpatented Lode Claims

COYOTE BLACKBIRD LODE	LOCATION: SE¼, Section 15, SW¼ Section 14, Township 28S, Range 63E, MDM, Searchlight Mining District, Clark County, State of Nevada.
NMC #704732	Original "Certificate of Location" filing with Clark County Recorder on 9/19/94, Book #940919, Instrument #00502. Filed with BLM, Reno, NV. on 9/22/95.
COYOTE BLUEBIRD LODE	LOCATION: NE¼, Section 22, Township 28S, Range 63E, MDM, Searchlight Mining District, Clark County, State of Nevada.
NMC #720704	Original "Certificate of Location" filing with Clark County Recorder on 9/26/95, Book #950926, Instrument #01467. Filed with BLM, Reno, NV. on 9/26/95.
COYOTE REDBIRD LODE	LOCATION: NE¼, Section 22,, NW¼ Section 23, Township 28S, Range 63E, MDM, Searchlight Mining District, Clark County, State of Nevada.
NMC#720705	Original "Certificate of Location" filing with Clark County Recorder on 9/26/95, Book #950926, Instrument #01468. Filed with BLM, Reno, NV. on 9/26/95.
COYOTE YELLOWBIRD LODE	LOCATION: 60% SE¼,NE¼ Section 22, 30% SW¼,NW¼ Section 23, Township 28S, Range 63E, MDM, Searchlight Mining District, .Clark County, State of Nevada.
NMC#725619	Original "Certificate of Location" filing with Clark County Recorder on 11/14/95, Book #941114, Instrument #01190. Filed with BLM, Reno, NV. on 11/29/95.
WHISTLER ONE LODE	LOCATION: S½ Section 22, Township 28S, Range 63E, MDM, Searchlight Mining District, Clark County, State of Nevada.
NMC#725620	Original "Certificate of Location" filing with Clark County Recorder on 11/14/95, Book #951114, Instrument # 01192. Filed with BLM, Reno, NV. on ll/29/95.

FIGURE 4
Unpatented Lode Claims



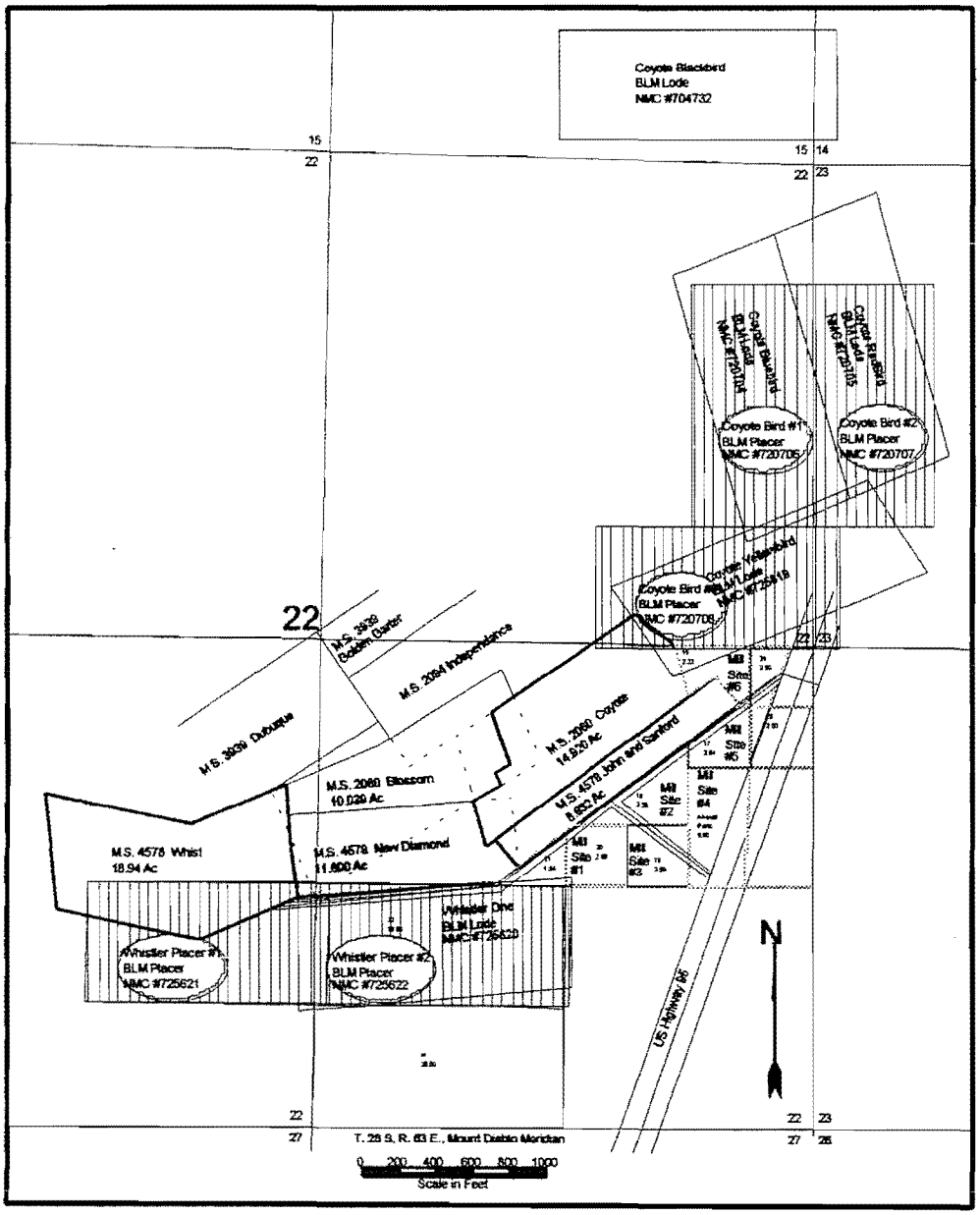
Unpatented Placer Claims

Coyote Mines, Inc. has filed and controls five (5) unpatented placer claims listed in Table 6. The locations of the claims are shown as the hatched areas in Figure 5.

TABLE 6 - Unpatented Placer Claims

COYOTE BIRD PLACER #1	LOCATION: 50% in SE¼,NE¼, NE¼ Section 22; 50% in NE¼, SE¼, NE¼ Section 23, Township 28S, Range 63E, MDM, Searchlight Mining District, Clark County, State of Nevada.
NMC#720706	Original "Certificate of Location" filing with Clark County Recorder on 9/26/95, Book #950926, Instrument #01470. Filed with BLM, Reno, NV. on 9/26/1995.
COYOTE BIRD PLACER #2	LOCATION: 50% in SW¼,NW¼,NW¼ Section 23; 50% in NW¼, SW¼ Section 23, Township 28S, Range 63E, MDM, Searchlight Mining District, Clark County, State of Nevada.
NMC#720707	Original "Certificate of Location" filing with Clark County Recorder on 9/26/95, Book #950926, Instrument #01471. Filed with BLM, Reno, NV. on 9/26/1995.
COYOTE BIRD PLACER #3	LOCATION: S½,SE¼,NE¼ Section 22; NE¼,NW¼, Section 23, Township 28S, Range 63E, MDM, Searchlight Mining District, Clark County, State of Nevada.
NMC#720708	Original "Certificate of Location" filing with Clark County Recorder on 9/26/95, Book #950926, Instrument #01472. Filed with BLM, Reno, NV. on 9/26/1995.
WHISTLER PLACER #1	LOCATION: N½,NE¼,SW¼ Section 22, Township 28S, Range 63E, MDM, Searchlight Mining District, Clark County, State of Nevada.
NMC#725621	Original "Certificate of Location"filing with Clark County Recorder on 11/14/95, Book #951114, Instrument #01194. Filed with BLM, Reno, NV. on 11/29/95.
WHISTLER PLACER #2	LOCATION: N½,SW¼,SE¼ Section 22, Township 28S, Range 63E, MDM, Searchlight Mining District, Clark County, State of Nevada.
NMC#725622	Original "Certificate of Location:" filing with Clark County Recorder on ll/14/95, Book #951114, Instrument #01195. Filed with BLM, Reno, NV. on 11/29/1995.

FIGURE 5
Unpatented Placer Claims



445A.394	**2.(d)**	**Notification of Proposed Development**

FIGURE 6
Notification of Proposed Development

COYOTE MINES, INC.

ADMINISTRATIVE HEADQUARTERS
1201 SYCAMORE DR., S.E.
ISSAQUAH, WA 98027
TELEPHONE: (206) 392-7289

February 11, 1999

Mr. Bruce Woodbury,
Chairperson
Clark County Commissioners
P.O. Box 551601
Las Vegas, NV. 89155-1681

RE: Notice of Intent to Engage in Mechanical and Chemical Beneficiation of Ore

Location: Section 22, Township 28S, Range 63E, Mount Diable Meridian, Searchlight Mining District, Clark County Nevada

Dear Mr. Woodbury;

Pursuant to NAC 445A.394 & 2(d) this letter is to inform you of Coyote Mines, Inc. intention to modify its existing small scale operations to include chemical processing of low grade ore.

Mineral processing will be sited on mill site claims which have been approved for patent and are awaiting the issuance of the final certificate.

Process water will be pumped from an existing well under Permit #55280, Certificate #14726 issued by the Nevada Division of Water Resources. Chemical processing of ore is scheduled to begin by late summer 1999 and will continue for approximately four years.

A "Notice of Intent to Operate" (54-90-052N Searchlight) is on file with the BLM District Office in Las Vegas with the Department of Minerals and the Nevada Department of Conservation and Natural Resources in Carson City.

Formal inquiries or questions may be addressed to our Administrative Headquarters in Issaquah, Washington. Locally, contact may be made with our Searchlight Operations.

Respectfully yours,

Sanford A Shuler Jr

Sanford A. Shuler, Jr.
President

SAS/mbs

SITE LOCATION: Coyote Rd., 1½ Miles North Rt. 95; Searchlight, NV. 89046 • (not a mailing address)
Tel. No. (702) 297-1034

445A.394	**2.(e)**	**Rate of Chemical Processing**

Ore will be excavated and placed under chemical leach at a rate not exceeding 36,500 short tons per calendar year.

445A.394	**2.(f)**	**Assessment of Area of Review**
Refer To Section 445A.395		

445A.394	**2.(g)**	**Meteorological Report**
Refer To Section 445A.396		

445A.394	**2.(h)**	**Engineering Design Report**
Refer To Section 445A.397		

445A.394	**2.(i)**	**Draft Operating Plan**
Refer To Section 445A.398		

445A.394	**2.(j)**	**Sample Analyses**
Refer To Section 445A.395		

Assessment of Area of Review

445A.395	**1.(a)**	**Hydrology and Lithology**

Surface water does not exist anywhere in the Area of Review. Groundwater is present in the area though not at a uniform depth. In general, the major lithologic units are massive quartz monzonites and andesitic flows. The units are transected by steeply dipping joint sets and occasional faults. Fluid movement is along the joints, fractures and through the fault skarns

rather than through any clearly identifiable permeable lithologic unit.

On June 16, 1983, Vegas Drilling and Pump Service of Las Vegas drilled and completed the well supplying potable and process water to the Coyote Mines, Inc. properties. The well is 350 feet in depth with the static water level at 175 feet. The installed 5 HP, pump delivers 55 of gallons of water per minute on demand. In over fifteen (15) years of continuous operation there has been no perceptible drop in the water level.

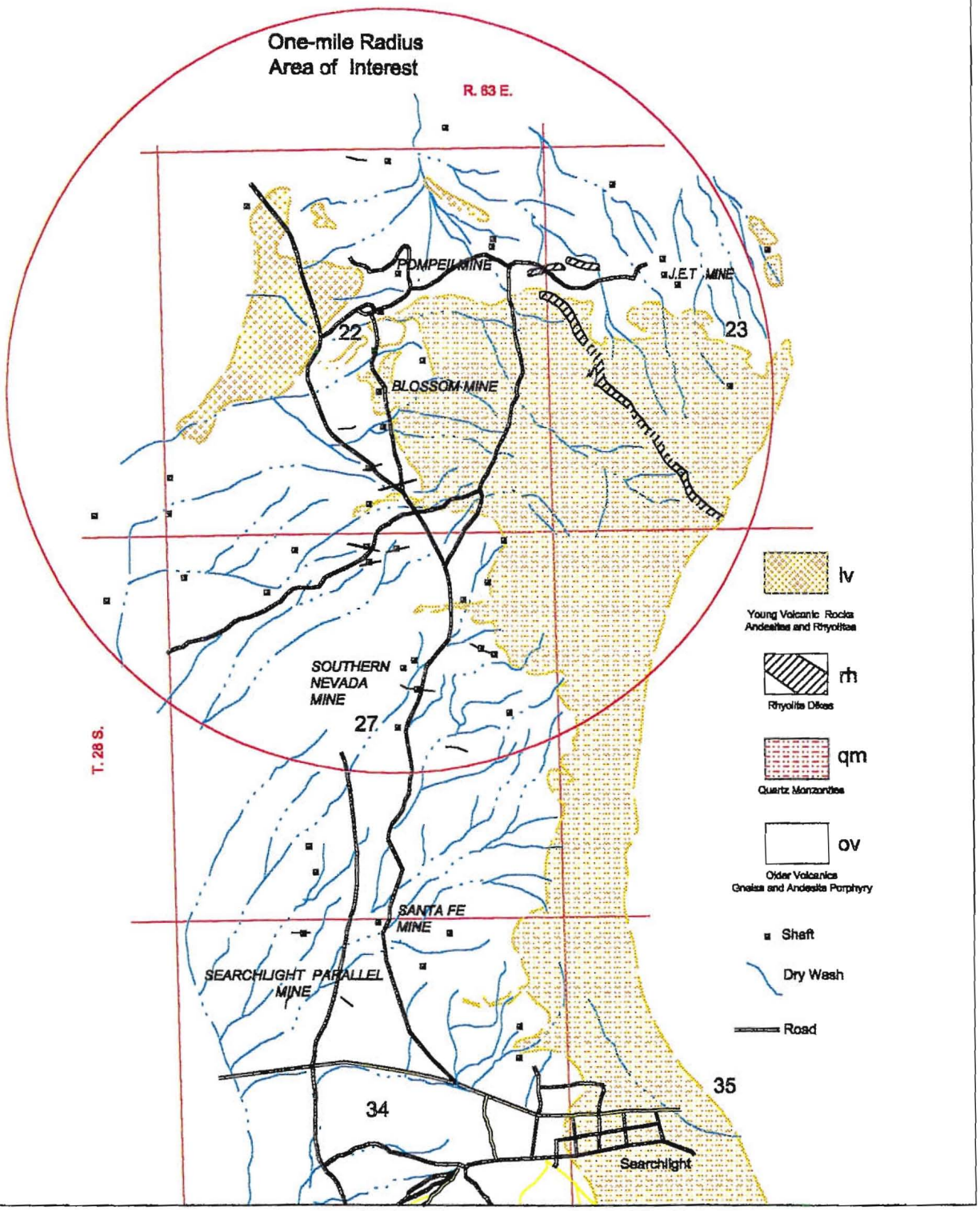
The Coyote Mine incline lies approximately 700 feet to the west of the well and is dry to a depth of approximately 300 feet. Water is encountered in an open, abandoned shaft north of the Coyote Mines Properties at a depth of 375 feet.

Based on the depths to water as measured in the existing well and the open shafts it may be concluded that there is no groundwater within 100) feet of the surface in Area of Review. In fact, the minimum depth to water occurs in the Coyote Mines, Inc. well at 175 below the surface.

445A.395	**1.(b)**	**Geologic Map**

Figure 7 is a geologic map which has been remastered from Bulletin 906 issued by the U.S. Geological Survey 1n 1939. The map was compiled from field work done in 1931 by Eugene Callaghan, H. E. Thomas, and T.P Thayer

The Searchlight mining district lies in a range of hills known as the Opal Mountains. The Opal Mountains appear to consist mainly of quartz monzonite with some granite overlain with andesitic flows. The granite in this location is uniformly a fine-grained grey rock, containing abundant biotite, some hornblende and considerable quantities of plagioclase as well as orthoclase. Titanate is a noticeable accessory mineral. The quartz is very inconspicuous and the general appearance of the rock suggests a fine-grained intermediate rock between a true granite and a quartz diorite. Schists and gneisses are the oldest rocks in the region and may be pre-Cambrian



Geologic Map

U.S.G.S Bulletin 609

COYOTE MINES, INC.

445A.395	**1.(c)**	**Topographic Map**

Figure 8 is a topographic map derived from portions of the two U.S. Geological Survey 7½ Minute topographic maps of the immediate area around the Coyote Mines properties. The northern portion of the map is from the provisional Nelson NW, NV quadrangle flown in 1984. The Southern portion of the map is from the provisional Searchlight Nevada quadrangle flown in 1989.

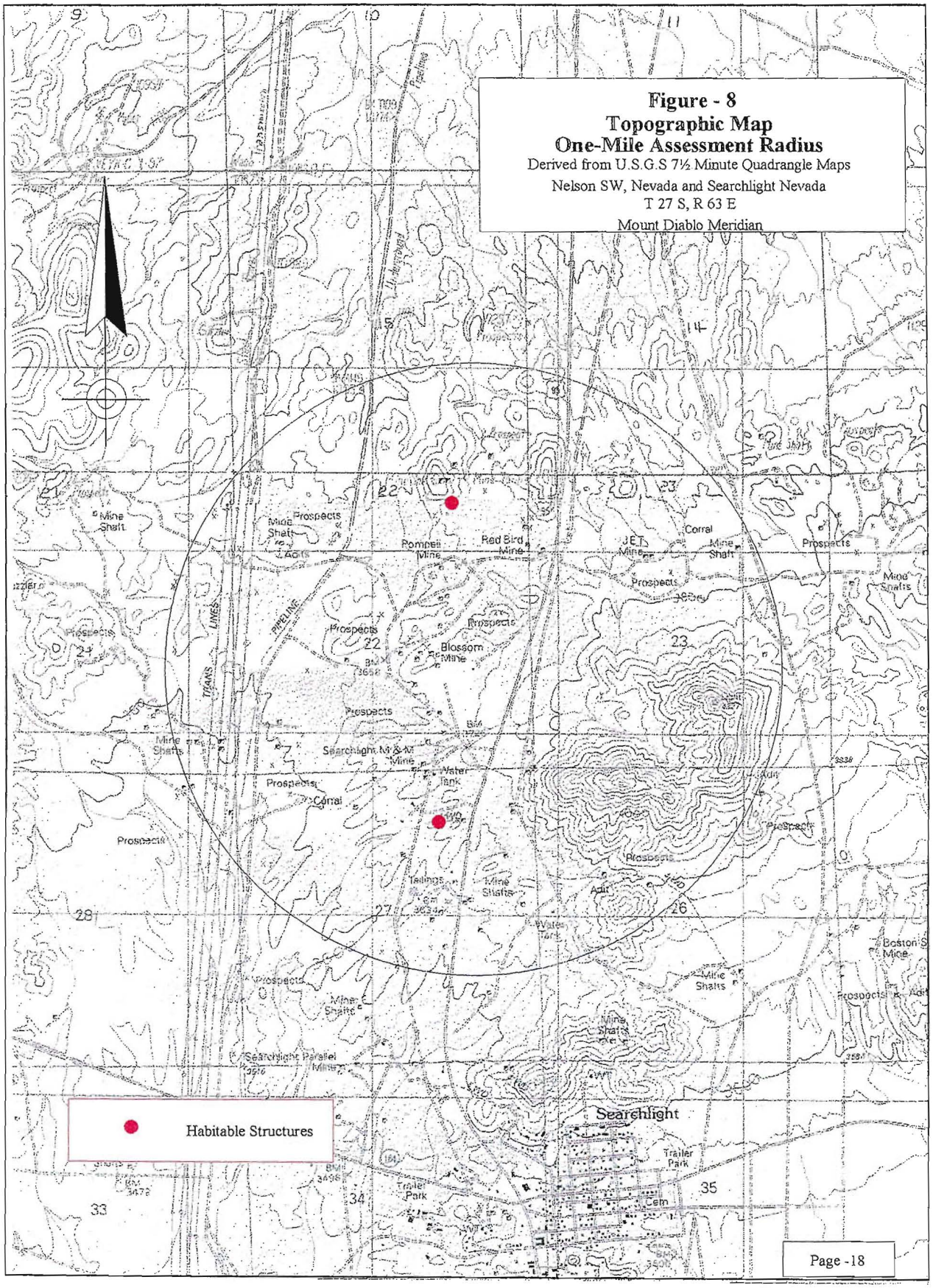


Figure - 8
Topographic Map
One-Mile Assessment Radius
Derived from U.S.G.S 7½ Minute Quadrangle Maps
Nelson SW, Nevada and Searchlight Nevada
T 27 S, R 63 E
Mount Diablo Meridian

445A.395	**1.(c)(1)**	**Surface Water**

A review of Figure 8 and field investigations reveal no lakes, ponds, streams, springs or seeps within a one mile radius of the Area of Review. Dry washes exhibiting characteristic of low energy, intermittent flow exist in the area.

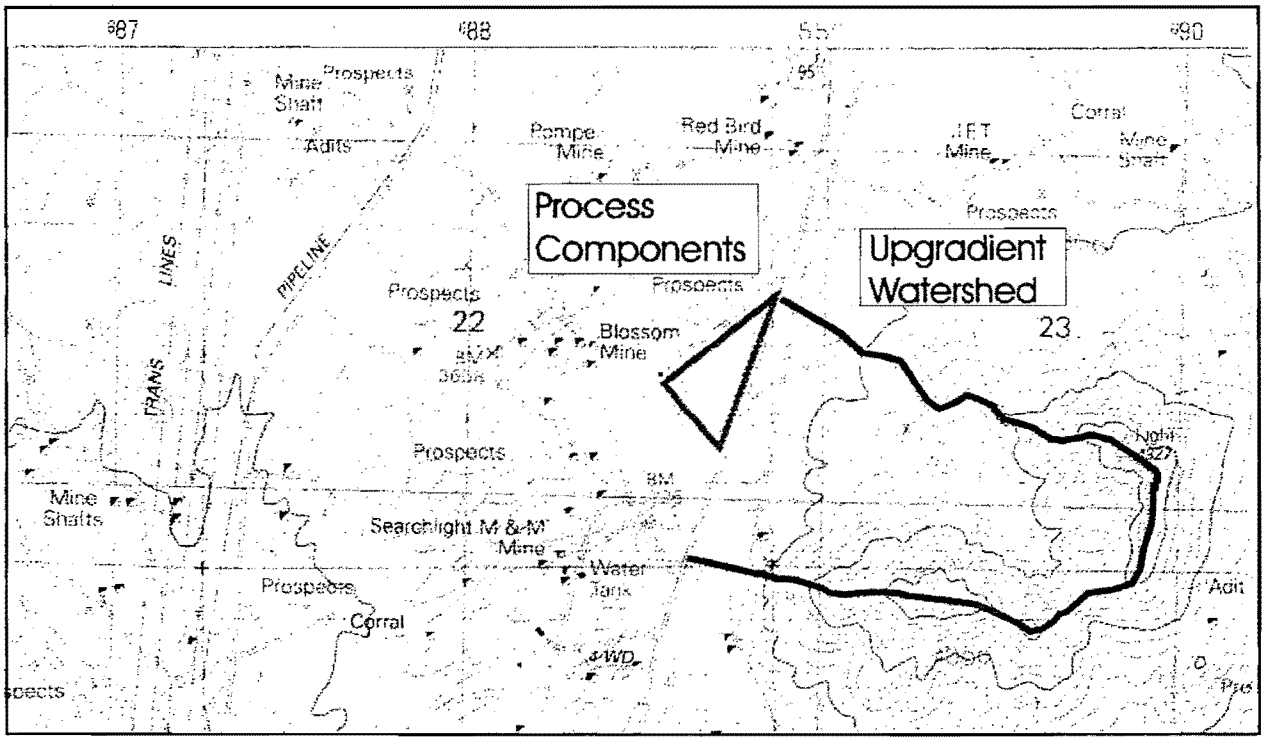
445A.395	**1.(c)(2)**	**Habitable Structures**

Other than the structures owned by the applicant, only two habitable structures are known to exist within one mile of the Area of Review. The locations of these structures are indicated in Figure 8.

445A.395	**1.(c)(1)**	**Upgradient Watershed**

Figure 9, extracted from USGS 7½- minute Quadrangle Map *Searchlight* illustrates the watershed adjacent to Highway 95 and outlines the boundary containing and directing the westerly flow of water towards Highway 95. The highway diverts the flow from the watershed away from the Area of Review by channeling it to the north and south along the highway alignment.

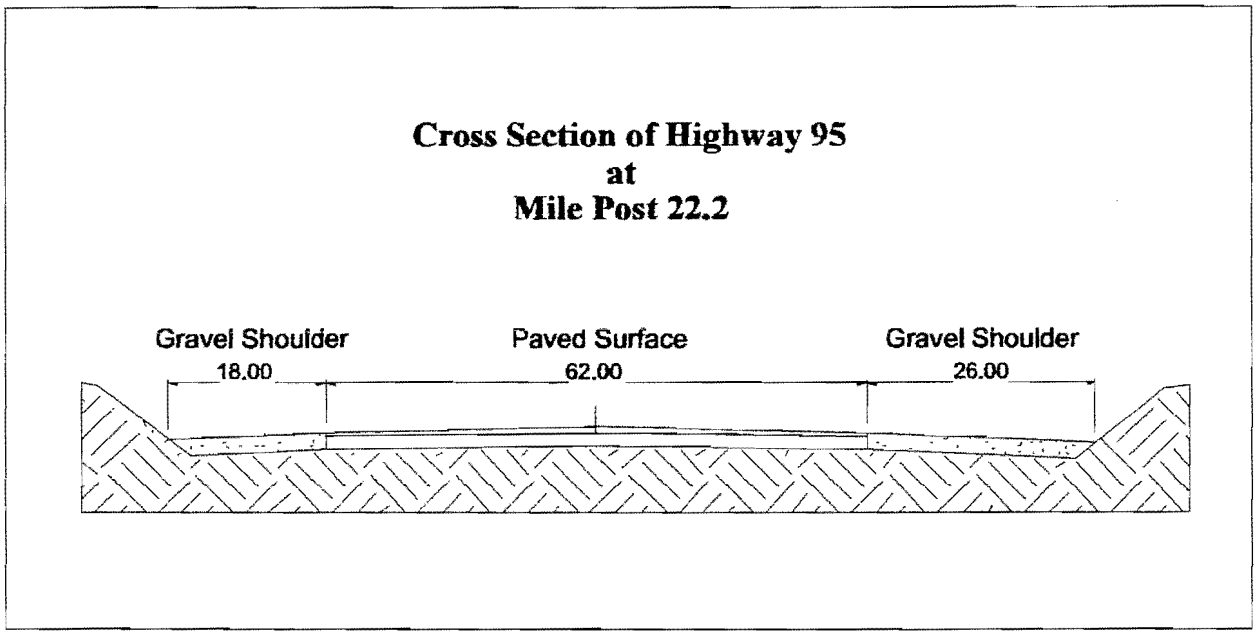
Figure 9
Upgradient Watershed and Process Components



In 1985-1986 the Nevada Department of Transportation upgraded Highway 95 to the new standards. The crest of the hill was excavated and widened to improve visibility and passing safety for automobiles. The resulting excavation created a trapezoidal channel approximately 106' wide with embankments ranging from 4' to 14'. The cross-section of Highway 95 at milepost 22.2 is detailed in Figure 10.

The area which collects rainfall and channels the water flow toward Highway 95 has a surface area of approximately 7,480,000 square feet. Water falling outside of this area is not upgradient of the Area of Review.

Figure 10
Highway 95 Cross Section



The process components are located on mill site claims abutting and due west of the crest of Highway 95. The mill site claims are contained within the triangular boundary in Figure 9. The land slopes at a negative gradient of approximately .5% to 1% over the extent of the millsite claims.

The United States Weather Service maintains statistics on weather data. Over the period from 1961 to 1990, the average annual rainfall in searchlight has been 7.86 inches. In August 1957 the most intense storm on record dumped 2.59" or nearly one-third the annual rainfall.

The precipitation expected during a normal year and during abnormal precipitation events are cited in Table 7. The information was derived from he U.S. Department of Commerce, NOAA Atlas #2, 1973 for the Newberry Mountains

Table 7
Precipitation Data

Description	**Precipitation** (inches)
Average Annual Precipitation	7.86
25-Year, 24-Hour Storm Event	3.00
100-Year, 24-Hour Storm Event	3.80
Greatest storm on record	2.59

The area outlined within the watershed boundary totals approximately 7,480,000 square feet. If one assumes that the precipitation from the 100-year, 24-hour storm event is deposited on the rains shed in a one-hour (1 hr.) period, the average hourly rate of flow derived from this event is:

$$Q = \frac{R_{100}A}{12t}$$

Where:

R_{100} = The rainfall in inches derived from the 100-year 24-hour precipitation event,
A = The area of the watershed in square feet, and
t = The duration of the event in seconds.

The total hourly rate of flow would be:

$$Q = \frac{3.80 \bullet 7{,}480{,}000}{12 \bullet 1} = 2{,}369{,}000 \frac{ft^3}{hr}$$

or

$$Q = 658 \frac{ft^3}{\sec}$$

This figure represents the total flow that will run onto Highway 95 from the upgradient watershed. Clearly, the flow will not pour onto the highway at a single point but over the entire length of the highway that intercepts the watershed. On average, the rate of flow of water onto the highway with respect to the length over which the highway crosses the watershed can be expressed as:

$$\frac{dQ}{dl} = \frac{Q}{l}$$

At the exact crest of the hill all of the runoff will be running down gradient and thus there will be no commutative flow. At any point down hill a distance "*d*" from the crest the rate of runoff will be expressed as:

$$Q_d = \int_0^d \frac{Q}{l} dx = \frac{Q}{l} d$$

It has been shown that the rate of runoff Q is 658 ft^3 per second and length "*l*" that the highway intercepts the water shed is approximately 3500 feet.

The calculations in Appendix 2 demonstrate that at a flow rate of 658 cubic feet per second, the depth of water on Highway 95 will be 0.90 feet, clearly contained within the embankments.

It has been shown that U.S Highway 95 effectively eliminates 7,480,000 square feet of up-gradient water shed. Therefore, process components are only subject to direct precipitation. Each process component is designed to handle the surface water flow derived form a 100-year, 24-hour storm event.

445A.395	**1.(c)(4)**	**Water Wells**

The first water well permit within a five mile radius of the Area of Review cited by the State was #6883, issued September 3, 1924. The records do not reveal what action was taken by the state. Since that time, 47 applications have been filed with the State but only 7 certificates have been issued. Of these 7 certificates only certificate (#11574) was for a down-gradient source of potable water. The town of searchlight holds this certificate but does not use this source since

developing a new source east of town. No other wells with issued permits are currently pumping potable water.

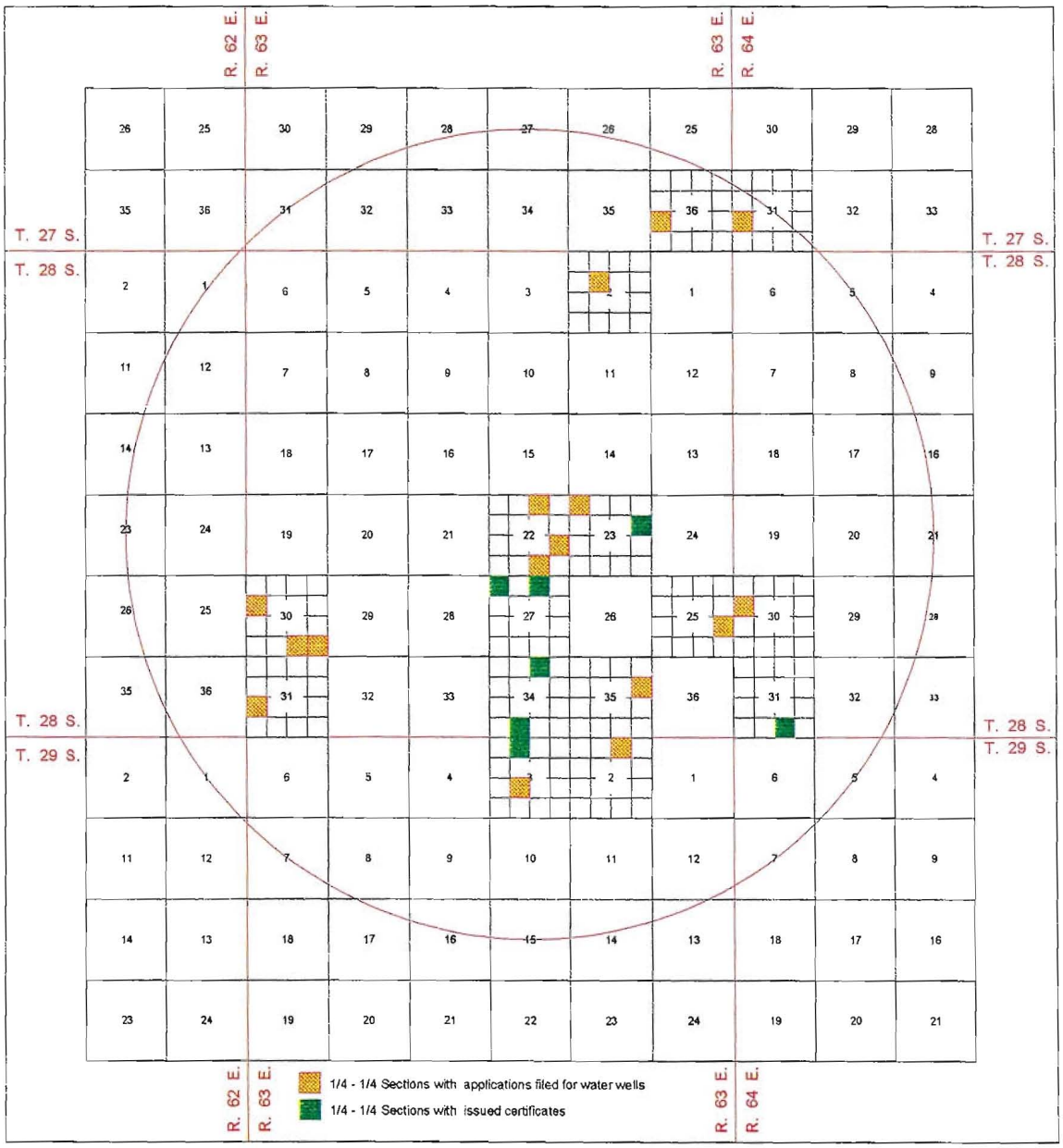
Figure 11 shows the locations by quarter-quarter sections of all permits and certificates issued for water wells within a five-mile radius of the Area of Review.

In August 1985 COYOTE MINES, INC. applied for a Quasi-Municipal Water Permit (#49299, amended #55279) for 4,360,000 gallons of water per annum. Nine years later, on February 7, 1994 the Nevada Division of Water Resources granted *CERTIFICATE OF APPROPRIATION OF WATER* #13842 permanently allocating 13.360 acre-feet or 4,360,000 gallons of water per annum to Coyote Mines, Inc.. The certificate is on file in Book 49, Pg. 13842

In August 1985 COYOTE MINES, INC. applied for a Mining and Milling Water Permit (#49300, amended by #55280). The Corporation was granted an annual allocation of 2,000,000 gallons per year. This allocation is in force as long as the water is used for mining and milling. .

In conclusion, there are no wells down-gradient of the Area of Review providing potable water.

Figure 11
Water Well Permits and Wells
Within Five Miles



445A.396	1.	Historic Rainfall

The United States Weather Service maintains weather data records for the Searchlight area. The station data is for an elevation of 3540 feet. The diurnal temperature each month, averaged over the thirty-year period from 1961 to 1990 appear in Table 8

Table 8
Precipitation in Searchlight, Nevada
United States Weather Service 30-Year History, 1961-1990

Month	Jan	Feb	Mar	Apr	May	Jun
Precipitation	0.94	0.81	0.91	0.41	0.24	0.11
Month	Jul	Aug	Sep	Oct	Nov	Dec
Precipitation	0.90	1.17	0.56	0.50	0.57	0.71

This data shows that the average annual rainfall in Searchlight is 7.83 inches

445A.396	2.	24-hour Storm Events

The precipitation expected during a normal year and during abnormal precipitation events are cited in Table 9 . The information was derived from he U.S. Department of Commerce, NOAA Atlas #2, 1973 for the Newberry Mountains

Table 9
Precipitation

Description	**Precipitation** (inches)
Average Annual Precipitation	4.56
25-Year, 24-Hour Storm Event	3.00
100-Year, 24-Hour Storm Event	3.80
Greatest storm on record	2.59

445A.396	3.	Diurnal Temperature Variation

The Searchlight mining district, which lies on the east side of Piute Valley in the southern part of Clark County, Nevada, is in the Mohave Desert region and has the climatic characteristics of the arid southwest. The average elevation is 3800 feet. Thus, the temperature is cooler than that experienced in Las Vegas or along the Colorado River. Moderately cool weather is experienced in the winter.

The United States Weather Service maintains weather data records for the Searchlight area. The station data is for an elevation of 3540 feet. The diurnal temperature each month, averaged over the thirty year period from 1961 to 1990 appear in Table 10

Table 10
Searchlight Diurnal Temperature Variations
United States Weather Service 30-Year History, 1961-1990

	Jan	Feb	Mar	Apr	May	Jun
Median Maximum Daily Temperature	53.8	59.2	64.6	73.2	82.7	93.0
Median Minimum Daily Temperature	35.1	38.2	40.8	47.1	55.4	65.0
	Jul	Aug	Sep	Oct	Nov	Dec
Median Maximum Daily Temperature	97.9	95.9	88.3	77.3	63.2	53.9
Median Minimum Daily Temperature	71.1	69.5	62.5	53.4	42.1	35.6

445A.396	4.	Sample Analyses

Analyses on water and rock samples have been performed by State and private laboratories.

445A.396	4.(a)	Multi-element Spectrographic Analyses

. A summary of the water analyses performed by the State is shown in Table 11

Table 11
Water Well Analyses
Tested by the Nevada State Health Laboratory
All values in Parts per Million (ppm)

Parameter					
Date	5/19/89	7/18/95	7/2/96	7/22/97	5/26/98
File Number	82926	122152	127539	133334	138111
T.D.S	716	774	716	785	831
Hardness	430	461	457	524	498
Calcium	121	130	130	147	140
Magnesium	31	33	32	38	36
Sodium	37	39	36	41	41
Potassium	2	2	2	2	2
Sulfate	94	77	79	85	85
Chloride	172	151	179	231	218
Nitrate-N	60.6	16.6	16.2	16.0	18.2
Alkalinity	142	140	15	136	136
Bicarbonate	173	171	183	166	166
Carbonate					
Flouride	.69	.7	.66	.71	.69
Arsenic	<0.003	.004	.004	.005	.004
Iron	.17	.19	.05	.08	.12
Manganese	.01	.01			.01
Copper	.00	.01		.01	.00
Zinc	.49	.10	.2	.11	.16
Barium	.12	.12	.11	.13	.10
Boron	2	1	.1	.1	.1
Silica	34	37	36	37	36
pH	7.98	8.02	7.86	7.73	7.75

Chemical elements may become mobile in aqueous systems under certain conditions. The data in Table 12 must be carefully reviewed. The chemical conditions that mobilize one element may not mobilize another. Many of the elements listed in Table 12 were mobilized by acid leaching at low pH and high oxidation potentials. Others were mobilized in alkaline systems.

Table 12
Meteoric Water Migration Analysis
Tested by Bondar Clegg
Report K90-13161.0

	Concentration				Concentration	
Element	Unit	Value		Element	Unit	Value
Ag	ppm	2.3		Mo	ppm	4
Al	pct	1.78		Na	pct	0.08
As	ppm	22		Ni	ppm	6
Au	ppb	>10000		Pb	ppm	380
Ba	ppm	324		Pd	ppb	<1
Bi	ppm	<5		Pt	ppb	46
Ca	pct	0.38		Sb	ppm	15
Cd	ppm	<1		Sn	ppm	<20
Co	ppm	2		Sr	ppm	116
Cr	ppm	163		Ta	ppm	<1
Cu	ppm	76		Te	ppm	<10
Fe	pct	0.9		Ti	pct	0.11
Ga	ppm	8		U	ppm	29
K	pct	0.66		W	ppm	<10
La	ppm	18		Y	ppm	3
Li	ppm	48		Zn	ppm	318
Mg	pct	0.18		Zr	ppm	8
Mn	pct	0.02				

445A.397	Engineering Design Report

Codified

Engineering Design Report

Prepared for

Coyote Mines, Inc.

By:
James A. Coates P.E.

General Information

445A.397		Overview

The existing COYOTE MINES, INC.'s mill is a gravity separation plant employing mechanical processes to extract free milling gold. Coyote Mines, Inc. desires to amend its existing permit to include heap leaching of low grade ore and stockpiles.

For purposes of completeness, the existing gravity concentration circuit will be discussed in the following paragraphs. However, in the future, mechanical processing will play a minor role in gold recovery. Subsequent to this discussion, the engineering details of the leaching operations will be presented in a sequence that follows the codified regulations found in NEP 445A.397

Existing Operation

The existing mill operates under BLM Mining Notice #54-90-052N (11/1994) per regulations adopted under 43 CFR 3809. Gravity separation is conducted using the process flow described in the following paragraphs.

Ore from the mine or stockpiles is loaded into a dump truck and transported to the primary feed hopper. A grizzly removes material greater than 7-inch from the ROM (**Run-of-Mine**) feed. Material passing the grizzly falls into the main feeder bin. Ore from the bin is metered onto the primary crusher feed belt by a variable speed reciprocating feeder. The ore is then conveyed to a 9"x 28" jaw crusher where it is reduced in size to a 1" minus. The discharge of the jaw crusher is carried to the secondary crusher feed bin. Ore from the secondary storage bin and water are metered into a Stutenroth rotary impact mill

The Stutenroth reduces the ore to about 20 mesh and passes the slurry to the head of a triple-start Reichert spiral for primary classification and concentration. Cons from the primary spiral flow by gravity to a Deister table for final concentration. Midlings and tails from the primary spiral concentrator are pumped to the secondary spiral classifier. Cons from the secondary spiral are fed to the Deister while the midlings and tails flow by gravity to the tailings pond.

Rejects from the table flow by gravity, and along with the spiral rejects, are transferred to the tailings pond. There is no discharge of process water from the tailing pond.

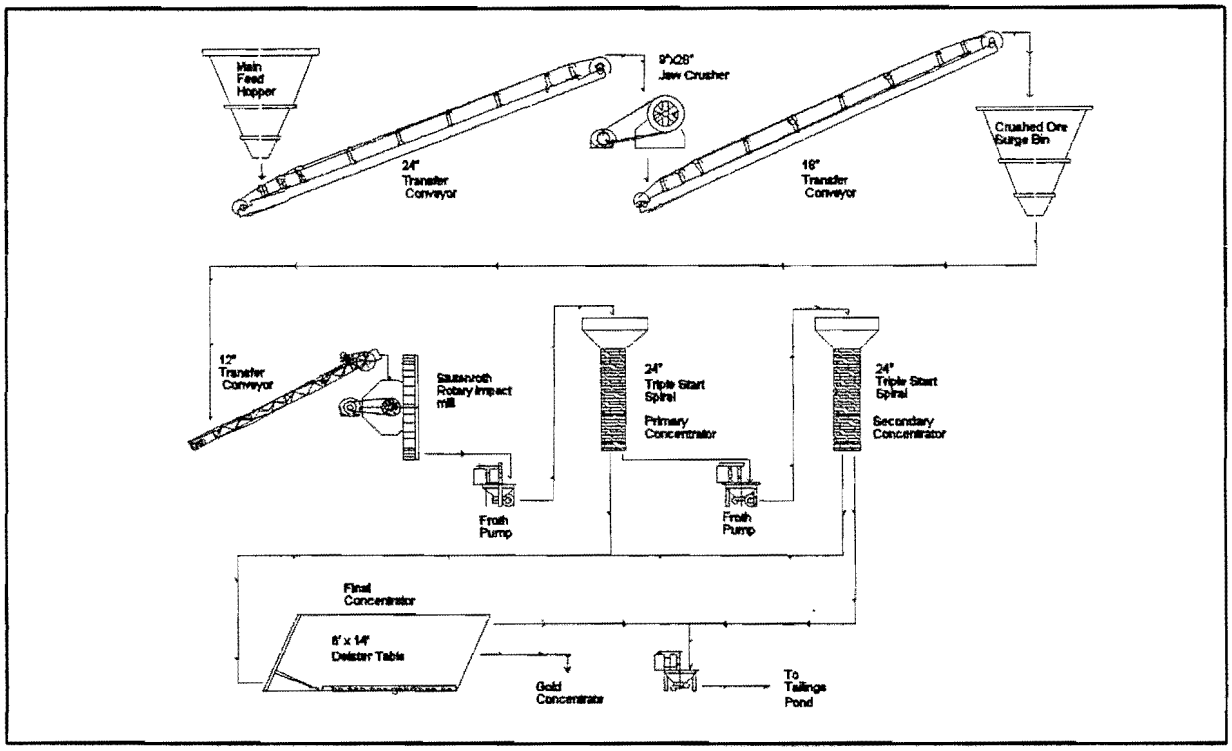
The process tailings are moist but contain no toxic chemicals. Water is the only agent used in processing the ore.

Table concentrates are collected for further refining.

The gravity milling flowsheet is illustrated to scale in Figure 1.

FIGURE 1

Gravity Concentration Milling Circuit



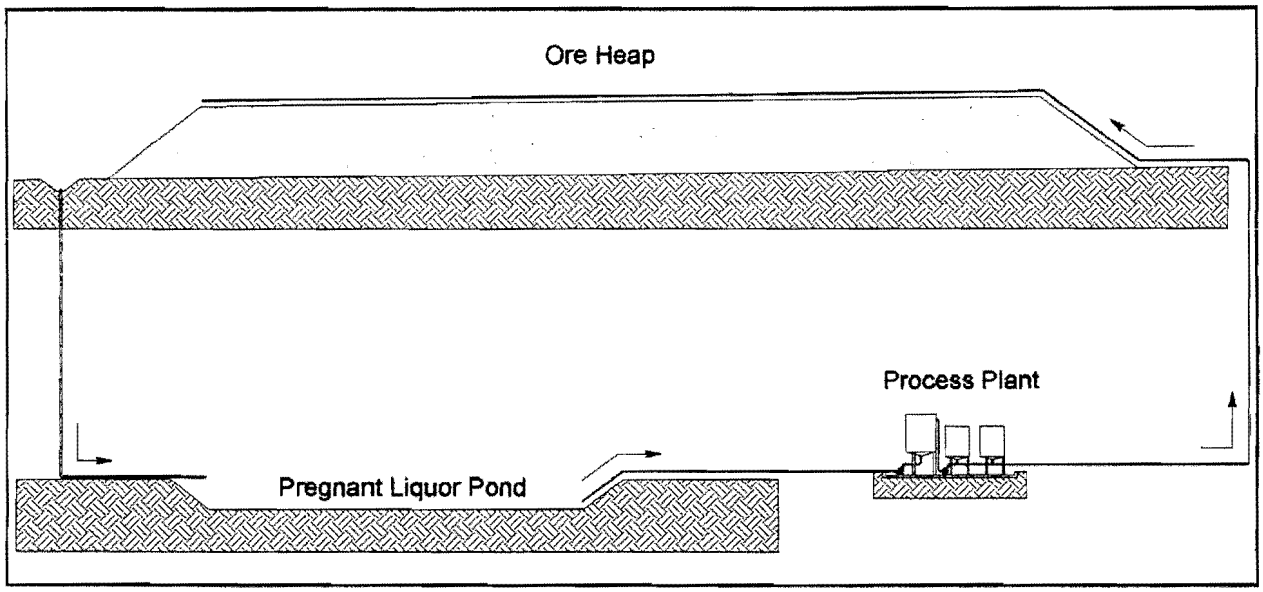
445A.397	1.(a)	Engineering Plans for Process Components

Virtually all of the remaining ore from the Coyote Mines, Inc claims will be treated using a cyanide heap leaching beneficiation process. Figure 2 is a simplified flowsheet depicting the heap leaching process.

Ore from existing stockpiles and from a shallow pit on the Coyote claim will be excavated, crushed, screened and placed loosely on a leach heap. The heap is constructed over a dual containment impermeable barrier consisting of two UV-stabilized PVC membranes placed on and separated by compacted layers of fill materials. An aerated solution of Sodium Cyanide (NaCN) and Sodium Hydroxide (NaOH) is pumped at sixty-gallons per minute from the process plant to the ore heap. At the heap, the solution is sprayed through plastic sprinklers to disperse the leach solution over the heap and entrain air. The solution permeates down through the heap and, over time, dissolves the gold, silver and base metals. The solution is drained from the heap

through a series of pipes lying in a herringbone pattern embedded in the gravel base. The solution then flows through a four-inch PVC pipe laying in the bottom of a lined ditch to the

Figure 2.
Simplified Process Diagram



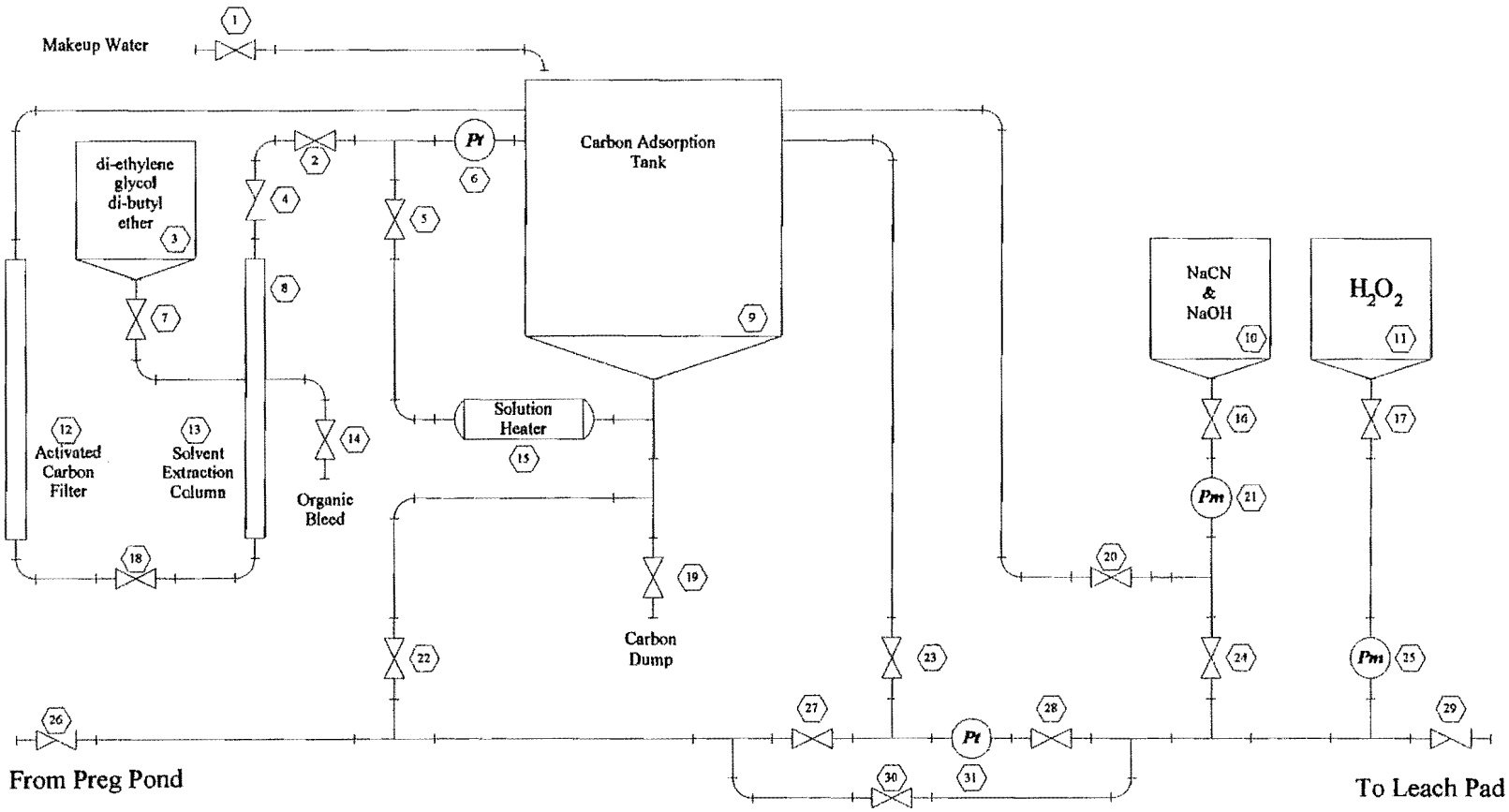
pregnant liquor pond. From the pregnant liquor pond the solution is pumped through a bed of activated carbon were the gold and silver cyanide complexes attach to bonding sites.

A more detailed diagram of the process plant is provided in Figure 3. The design of the process plant permits leaching, carbon adsorption and stripping to proceed independently. A description of plant operation follows:

Upon initial startup, water is pumped from the well into the carbon adsorption tank (9) at 60 g.p.m.. A concentrated solution of sodium hydroxide and sodium cyanide is pumped from a reagent storage tank (10) into the carbon adsorption tank (9) to maintain proper cyanide concentration and pH.

The concentration of cyanide will be maintained in a range from 0.1 to 0.3 grams per liter depending on the nature of the ore. For safety and process reasons it is necessary to maintain the pH of the leach solution in the range of 10.5 to 11. At the required concentrations, Sodium Cyanide is completely soluble in water. The CN^- radical hydrolyzes with water to form hydrocyanic acid. This is a weak acid with a dissociation constant of about 6.62×10^{-10}. Cyanide in hydrocyanic acid is not available for leaching and is very toxic. The concentration of HCN as a function of pH is presented in Appendix 3. The graph shows that if the pH is maintained at

Figure 3
Process Schematic



Engineer:	Process Diagram
Checked:	
Drawn by:	COYOTE MINES, INC.
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10.5 or greater, the amount of cyanide present as HCN is minimal. Since pH is a logarithmic measurement, the quantity of Sodium hydroxide required to maintain a pH of 11.0 is 3.16 times the quantity required to maintain a pH of 10.5. Thus, operating the leach system between 10.5 ensures safety and economic operation.

Once conditioned to the proper pH and cyanide concentration the mixed solution will be pumped by a transfer pump (31) to the leach pad where it will be sprayed over the ore. As indicated in Appendix 4, charging the leach system will require approximately 14 days. After this period of time solution in excess of that required to saturate the heap will begin to seep from the heap and collect in the French drain and process fluid collection ditches. The process fluid flows to the pregnant liquor pond for clarification. Under nominal conditions, the pond will allow a settling time of 24 hours. The clarified solution is pumped from the pond repeating the cycle.

445A.397	**1.(b)**	**General Specifications and Calculations**

The design specifications and calculations for the process components appear on the following pages. The most important design specifications are those which ensure proper control of surface runoff and prevent mixing and contamination of groundwater with process fluids.

At minimum, all process components are designed to handle a 100-year 24-hour storm event. In fact, it has been assumed that all of the runoff from such an event will occur over a one hour period. Thus the rate of runoff that must be handled by the system is far greater than the runoff predicted by usual hydrographic models.

All process components are designed as double containment systems.

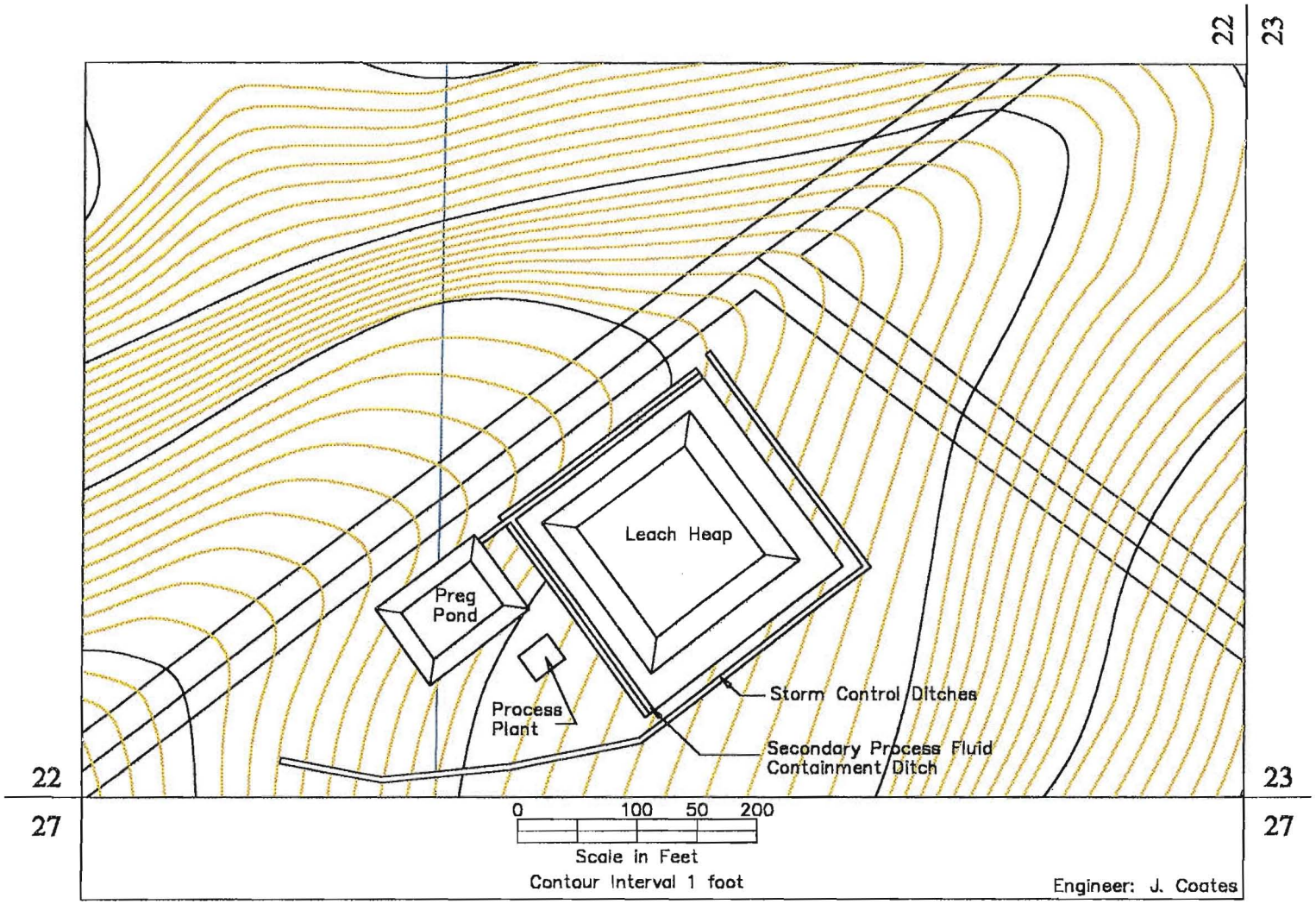
The leach pad and pregnant liquor pond are constructed over a compacted fill resting directly on top of bedrock. A synthetic liner is placed above the compacted fill. A gravel pack is placed immediately above the membrane. Embedded in this gravel pack is a leak detection system consisting of a french drain. A main header pipe is laid diagonally across the bottom. Smaller perforated pipes are laid at acute angles to the main header and are connected to it. The low end of the main header is connected to a standpipe which rises to the surface. The standpipe is used as a monitoring point in the leak detection system. Compacted fill material is placed above the gravel pack. This fill material serves as a second low permeability barrier and a base for the primary synthetic membrane.

The primary synthetic membrane is covered by a gravel pack sufficient in thickness to prevent damage from abrasions and punctures caused by construction equipment. A french drain lying directly on the membrane is embedded in the gravel pack. As in the leak detection system, a main header pipe is laid diagonally across the bottom with smaller perforated pipes laid at acute angles to the main header and connected to it.

All of the pipes in the main french drain and the leak detection system are sized to accommodate flows in excess of the nominal leach pumping rate. The main pipe transporting fluid from the pregnant liquor pond to the process plant will be contained in a pipe of larger diameter.

445A.397	**1.(c)(1) - 1.(c)(4)**	**Topographic Maps**

The maps on the following pages show the locations of the ore extraction sites, process components, and disposal sites for waste ore and spent ore.



T-28-S, R-63-E, Mount Diablo Meridian

Figure 4

Engineer:	Process Component Layout
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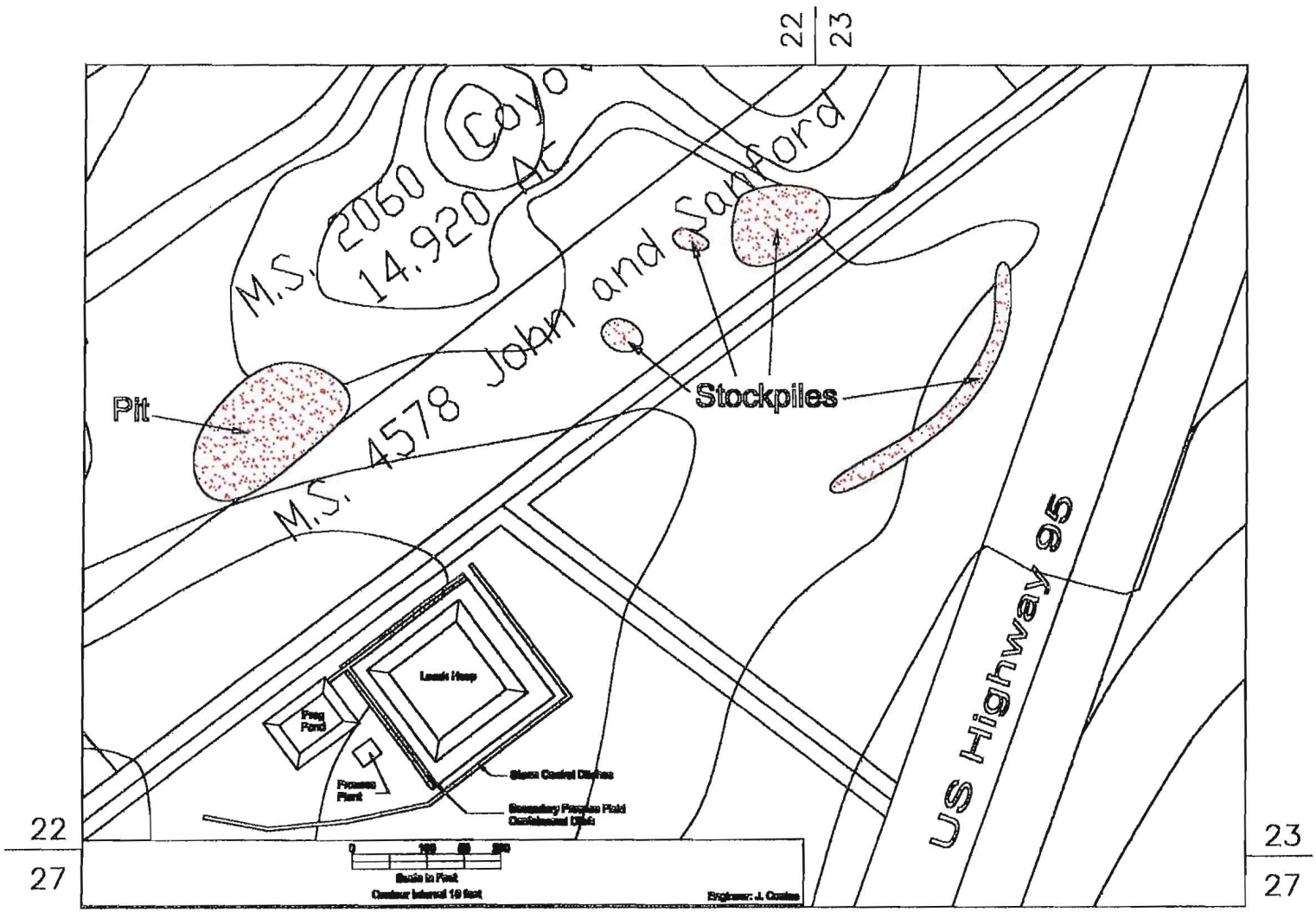
Drawn by:	COYOTE MINES, INC.
File: process component map.dwg / Sheet:	Coyote Mine Rd. P.O. Box 9 – Searchlight, NV. 89046



T–28–S, R–63–E, Mount Diablo Meridian

Ore Source

Figure 5

Engineer:	Extraction Sites 445A.397 – 1.(c)(1)
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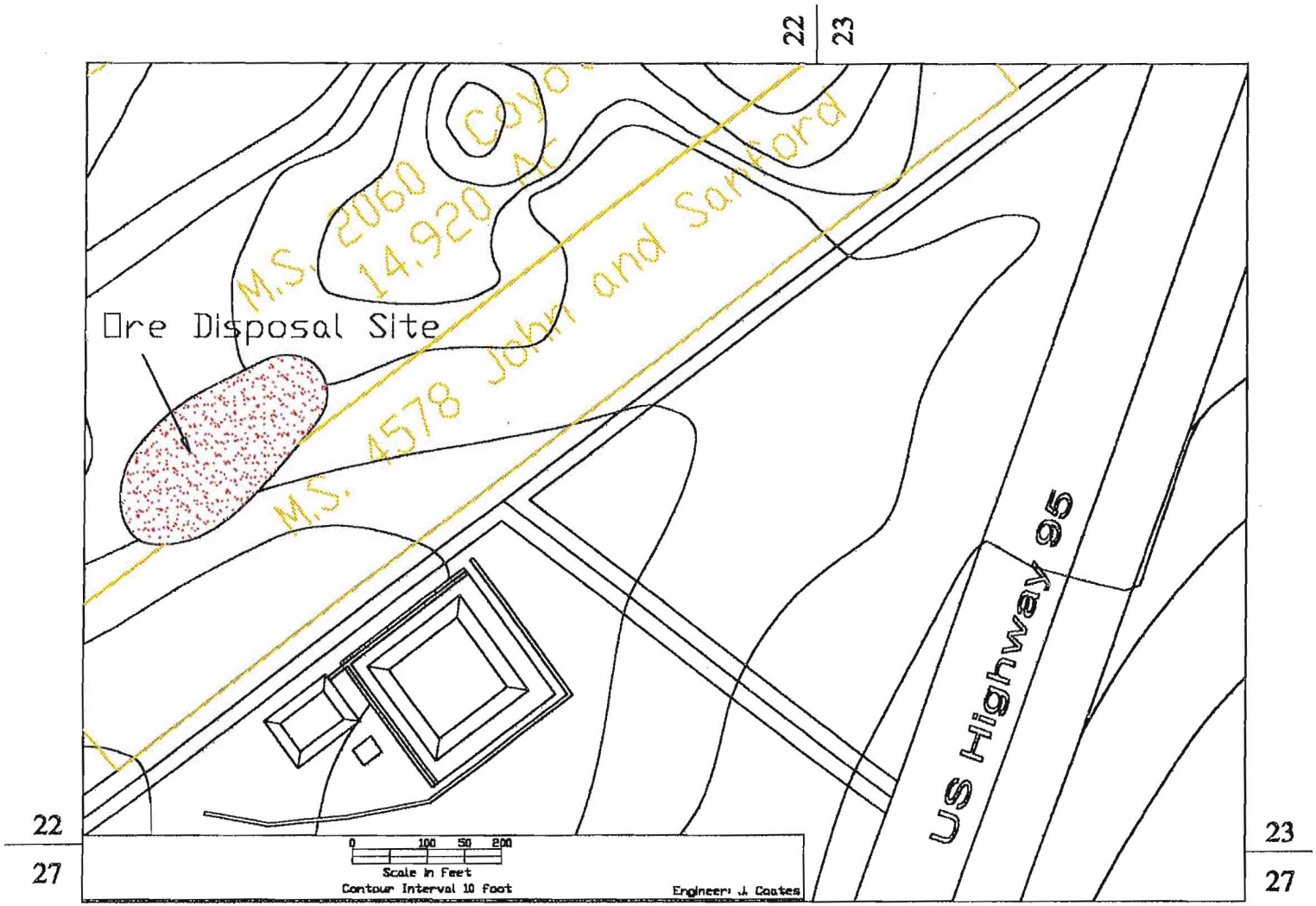

T-28-S, R-63-E, Mount Diablo Meridian

Waste Ore Disposal Site

Figure 6

Engineer:	Ore Disposal Sites 445A.397 - 1.(c)(3)&(4)
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445A.397	1.(d)	Fluid Control Structures and Devices

The process fluids are maintained within a dual containment system. The leach pad and the pregnant liquor pond are designed with two synthetic membranes placed on and separated by layers of compacted fill.

Process fluids are transported from the leach pad to the pregnant liquor pond through a 4-inch PVC pipe. The pipe lies in a lined ditch. The pipe is sized to accommodate the flow from nominal operations and normalized precipitation runoff. Calculations demonstrating the capacity of the pipe are presented in Appendix 5.

The designs of the process fluid control structures are presented on the following pages as Figures 7 through 12.

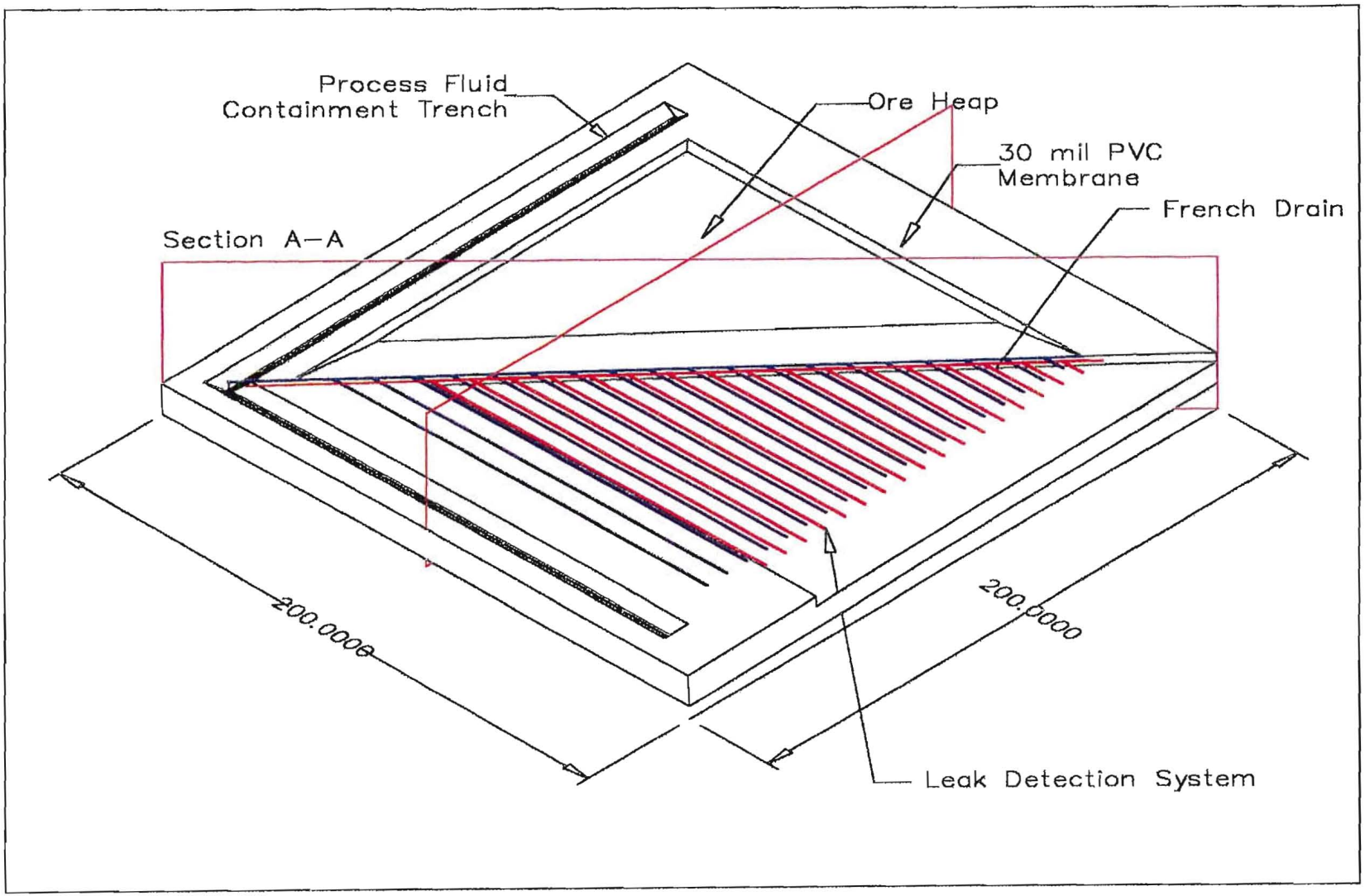

Figure 7

Engineer:	Leach Pad Cut-away View
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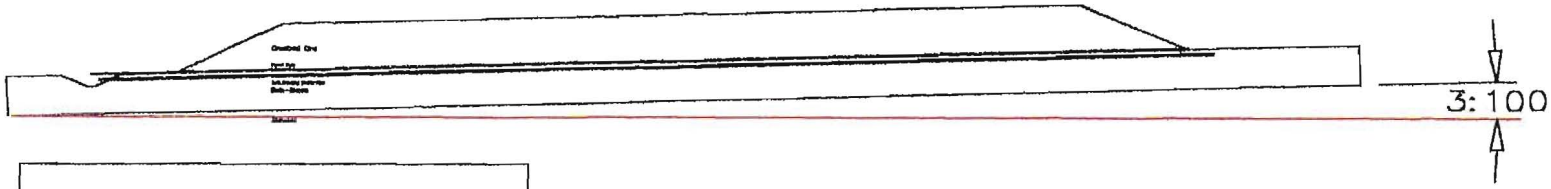

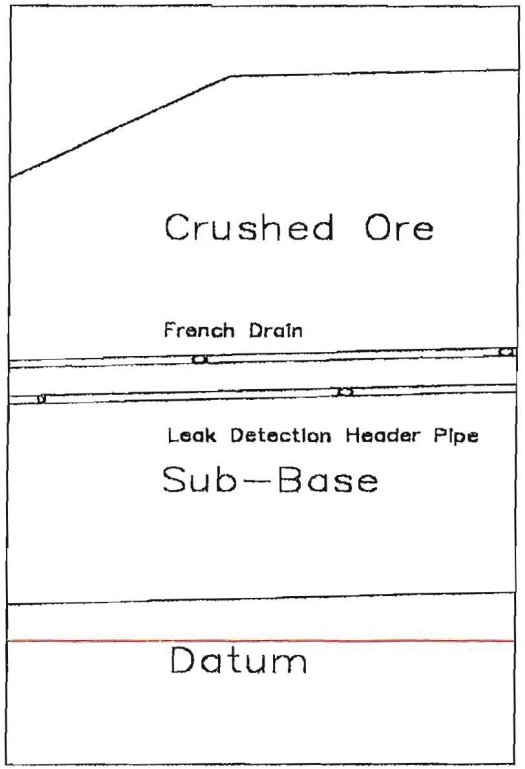

Leach Pad Specifications:

Lifts - The sub-base shall be constructed in lifts of compacted fill material no thicker than 6".

Compaction Lifts shall be compacted to 90% of ultimate density as measured with a gamma-ray densitometer.

Strength Lifts shall be tested using STP methods on a grid pattern not to exceed 20 foot on centers. Tests indicating a bearing strength of 4000 lbf per square foot shall be deemed acceptable.

Component	Size Range	Desired (% by weight)	Minimum (% by weight)	Maximum (% by weight)
Clay-Silt	>1/256 mm - 1/16mm	30	20	35
Sand	1/16mm-2mm	20	15	25
Gravel	2mm-64mm	30	25	40
Rock	>64mm	20	15	45

Figure 8

Engineer:	Leach Pad Cross Section A-A
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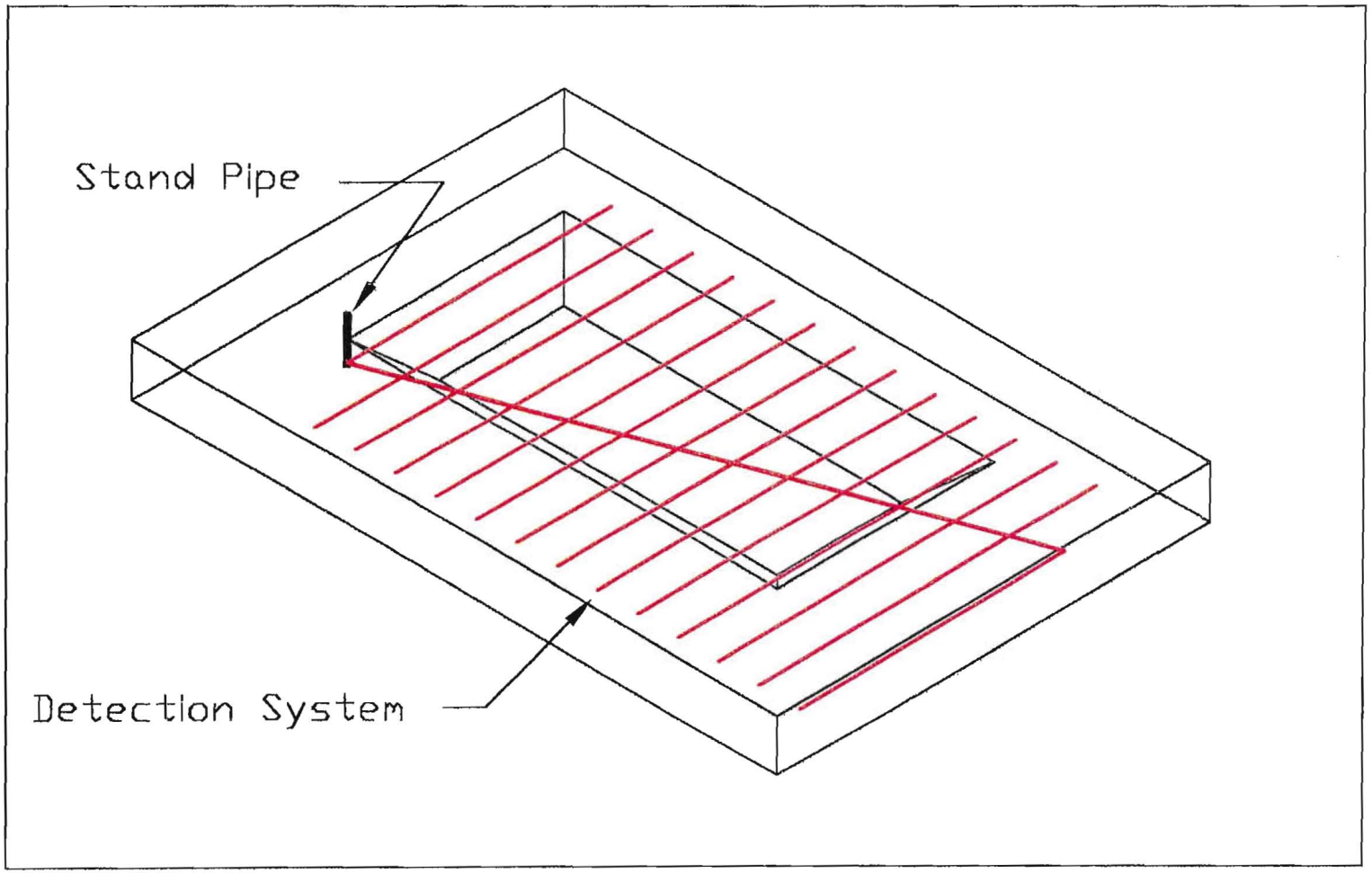

Figure 9

Engineer:	Preg Pond
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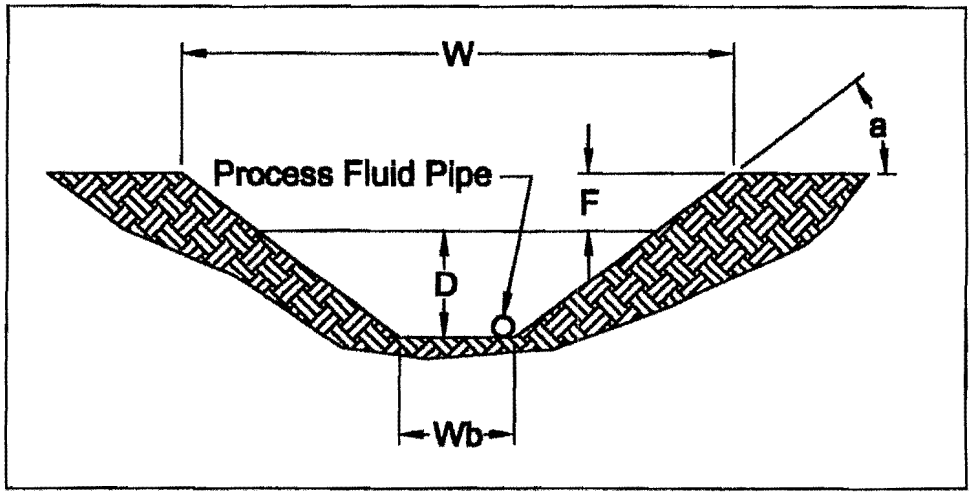
Trapezoidal Ditch Open Channel Flow			
Parameter	Unit	Value	Variable
Hydrographic Data			
Watershed Area	fT^2	60,000	
Storm Event	in	3.8	
Storm Duration	hrs	1	
Storm flowrate	ft^3/sec	5.28	
Process flowrate	gal/min	60	
	ft^3/sec	0.13	
Total Fluid Flow	ft^3/sec	5.41	
Design Data			
Side Slope	°	37	a
Channel Bottom Slope	ft/ft	0.03	
	°	1.72	
Manning's Number	sec/ft^1/3	0.02	
Freeboard at maximum flow	in	12	F
Width, Ditch Bottom	in	12	Wb
	ft	1	
Calculated Values			
Width, Ditch Top	in	60.54	W
Width, Water Surface	in	28.69	
Depth of Ditch	in	18.29	
	ft	1.52	
Depth at Required Flow	in	6.29	D
	ft	0.52	
Wetted Perimeter	in	32.90	
	ft	2.74	
Flow Area	in^2	127.98	
	ft^2	0.89	
Hydraulic Radius	in	3.89	
	ft	0.32	
Velocity	ft/sec	6.09	
	in/sec	73.07	
Calculated Flow	ft^3/sec	5.41	



Specifications:	
Base Material:	Clay 30%, Sand 20%, Gravel 30%, Rock (Quartz Monzonite) 1"- 6"
Compaction:	90% of Ultimate Density
Liner:	30-mil UV Stabilized PVC
Containment Pipe	4" Schedule 40 PVC
Surface Roughness	Nominal 1/4" (Absolute)
Centerline Grade	0.01 < grade <0.03

Figure 12

Engineer:	Process Fluid Transport Containment System
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445A.397	1.(e)	Control of Storm Runoff

The runoff from normal and anomalous precipitation events is diverted away from the process components by dewatering ditches.. The dimensions of the dewatering ditches was determined by assuming that the runoff from the 100-year 24-hour storm occurs in a one hour interval. Further, it is assumed that no water is absorbed by the soil units. These assumptions generate flow rates that are far greater than conventional hydrographic models. The methodology used in calculating the dimensions of the dewatering ditches follows.

The area outlined within the watershed boundary totals approximately 250,000 square feet. If one assumes that the precipitation from the 100-year, 24-hour storm event is deposited on the rains shed in a one-hour (1 hr.) period, the average hourly rate of flow derived from this event is:

$$Q = \frac{R_{100} A}{12t}$$

Where:

R_{100} = The rainfall in inches derived from the 100-year 24-hour precipitation event,
A = The area of the watershed in square feet, and
t = The duration of the event in seconds.

The total hourly rate of flow would be:

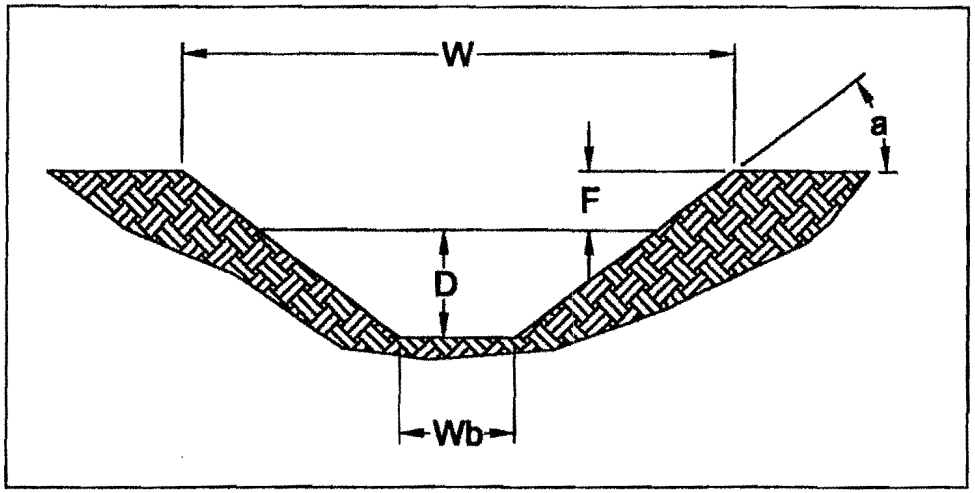
$$Q = \frac{3.80 \bullet 250{,}000}{12 \bullet 1} = 79{,}167 \frac{ft^3}{hr}$$

or

$$Q = 22 \frac{ft^3}{\sec}$$

The ditch design based on these calculations appears in Table 13. The theoretical background to this procedure is presented in Appendix 6.

Trapezoidal Ditch Open Channel Flow			
Parameter	Unit	Value	Variable
Hydrographic Data			
Watershed Area	fT^2	250,000	
Storm Event	in	3.8	
Storm Duration	hrs	1	
Storm flowrate	ft^3/sec	21.99	
Process flowrate	gal/min	60	
	ft^3/sec	0.13	
Total Fluid Flow	ft^3/sec	22.12	
Design Data			
Side Slope	°	37	a
Channel Bottom Slope	ft/ft	0.03	
	°	1.72	
Manning's Number	sec/ft^1/3	0.02	
Freeboard at maximum flow	in	12	F
Width, Ditch Bottom	in	12	Wb
	ft	1	
Calculated Values			
Width, Ditch Top	in	77.36	W
Width, Water Surface	in	45.51	
Depth of Ditch	in	24.63	
	ft	2.05	
Depth at Required Flow	in	12.63	D
	ft	1.05	
Wetted Perimeter	in	53.96	
	ft	4.50	
Flow Area	in^2	363.09	
	ft^2	2.52	
Hydraulic Radius	in	6.73	
	ft	0.56	
Velocity	ft/sec	8.77	
	in/sec	105.29	
Calculated Flow	ft^3/sec	22.12	



Specifications:

Base Material:	Clay 30%, Sand 20%, Gravel 30%, Rock (Quartz Monzonite) 1"- 6"
Compaction:	90% of Ultimate Density
Liner:	None
Surface Roughness	Nominal ½" (Absolute)
Centerline Grade	0.01 < grade <0.03

Figure 13

Engineer:	Storm Drainage Ditch
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445A.397	1.(f)	Geology and Hydrology

The geology is exposed in old excavations immediately to the west of the proposed process component site. The geology of the area immediately around and beneath the the process components is characterized by a two to five foot thick surface layer of colluvium material derived from the uplands immediately to the west of the property. The colluvium lies directly on a quartz monzonite bedrock. The composition of the colluvium material is about 30% clay, 20 % sand, 30% gravel with the remainder being cobbles and boulders of quartz monzonite and andesite. The material exhibits excellent compaction characteristics, capable of achieving 90% of ultimate density. The upper five to ten feet of the bedrock is highly fractured and friable.

The proposed site for the process components lies adjacent to the vertex of the the hydrologic boundaries separating three ground water basins, 167 (Eldorado Valley), 214(Piute Valley), and 218 (California Wash). All ground water present in the immediate area flows into the Piute Valley Basin.

Surface water does not exist anywhere in the Area of Review. Groundwater is present in the area though not at a uniform depth. In general, the major lithologic units are massive quartz monzonites and andesitic flows. The units are transected by steeply dipping joint sets and occasional faults. Fluid movement is along the joints, fractures and through the fault skarns rather than through any clearly identifiable permeable lithologic unit.

On June 16, 1983, Vegas Drilling and Pump Service of Las Vegas drilled and completed the well supplying potable and process water to the Coyote Mines, Inc. properties. The well is 350 feet in depth with the static water level at 175 feet. The installed 5 HP, pump delivers 55 of gallons of water per minute on demand. In over fifteen (15) years of continuous operation there has been no perceptible drop in the water level.

The Coyote Mine incline lies approximately 700 feet to the west of the well and is dry to a depth of approximately 300 feet. Water is encountered in an open, abandoned shaft north of the Coyote Mines Properties at a depth of 375 feet.

Based on the depths to water as measured in the existing well and the open shafts it may be concluded that there is no groundwater within 100) feet of the surface in Area of Review. In fact, the minimum depth to water occurs in the Coyote Mines, Inc. well at 175 below the surface.

The existence of the thick colluvium containing a high percentage of clay suggests that the migration of surface water or process fluids into the groundwater regime would be highly restricted.

445A.397	1.(g)	Liner Material

The liner materials used in the construction of the leach pad, pregnant liquor pond, fluid transport ditches and the process plant are both natural and synthetic. The natural materials are in-situ and will be used for the construction of the sub-base and intra-membrane layers.

The natural material is composed of approximately 30% clay, 20% sand, 30% gravel with the remainder consisting of cobbles and boulders. The high clay content provides excellent cohesion allowing the material to be compacted to approximately 90% of ultimate. SPT (Standard Penetration Testing) indicated that when compacted to 90% of ultimate, loads of 4,000 lbf per square foot can be supported without failure.

Preparation of the sub-base will begin with the removal of all surface vegetation. Once the vegetation is removed, the colluvial material will be excavated down to bedrock. In the area of the process components, the bedrock lies between two to five feet below the surface. The Colluvial material will be screened to remove boulders larger than 4-inch. The screened material will be placed over the exposed bedrock in lifts of six inches.. This process will be repeated until the total compacted sub-base has reached an average total thickness of three feet on grade.

The secondary containment membrane will be placed over the surface by the membrane manufacturer and tested according to ASTM procedures. After placing the leak detection drain system over the membrane, a 6-inch gravel pack will be placed over the detection system. The gravel pack will be covered with two 6-inch compacted lifts of fill material. Each lift will be compacted to approximately 90% of ultimate. Water will be sprayed as required to achieve the desired compaction. Before laying the primary synthetic membrane, the surface of the pad will be raked to a depth of two inches to remove rocks which might puncture the plastic. The raked surface will be rolled ensuring a smooth surface is presented to the membrane. Specifications for the Sub-base material are presented in Table 1
Plastic liner specifications are presented in Table 2.

Table 1
Fill Material Specifications

Component	Size Range	Desired (% by weight)	Minimum (% by weight)	Maximum (% by weight)
Clay-Silt	>1/256 mm - 1/16mm	30	20	35
Sand	1/16mm-2mm	20	15	25
Gravel	2mm-64mm	30	25	40
Rock	>64mm	20	15	45

Table 2
Polyvinyl Chloride Membrane Specifications

Parameter	Test Procedure	Values				
Thickness mils (Nominal ±5%)	ASTM D-1593	20	30	40	50	60
Specific Gravity, min.	ASTM D 792	1.23	1.23	1.23	1.23	1.23
Tensile Strength, psi, min. (Breaking Factor, lbs./in. width, min.)	ASTM D 882	2300 (46)	2300 (69)	2300 (92)	2300 (115)	2300 (138)
Elongation, @ Break, % min.	ASTM D 882	325	350	400	450	450
Modulus @ 100% Elongation, psi, min (lbs./in. width min.)	ASTM D 882	1000 (20)	1000 (30)	1000 (40)	1000 (50)	1000 (60)
Tear Resistance, lbs./in., min. (lbs., min.)	ASTM D 1004	300 (6.0)	300 (9.0)	300 (12.0)	300 (15.0)	250 (15.0)
Low Temperature, °F	ASTM D 1790	-15	-20	-25	-30	-30
Dimensional Stability, % change, max.	ASTM D 1204 (212°F,15min.)	3.5	3.5	3.5	3.5	3.5
Water Extraction % loss, max.	ASTM D 3083	0.25	0.25	0.35	0.35	0.35
Volatility % loss, max.	ASTM D 1203	0.90	0.70	0.50	0.50	0.50
Resistance to Soil Burial % change, max. Tensile Strength Elongation, @ Break Modulus @ 100% Elongation	ASTM D 3083	 -5 -20 +20	 -5 -20 +20	 -5 -20 +20	 -5 -20 +20	 -5 -20 +20
Hydrostatic Resistance, psi, min.	ASTM D 751	60	85	92	125	165
Factory Seam Requirements Bonded Seam Strength (factory seam, breaking factor, lbs./in. width)	ASTM D 3083, Modified	36.8	55.2	74.0	92.0	110.4

445A.397	1.(h)	Leak Detection System

Two leak detection systems will be installed each process component. The first type of leak detection system is passive and consists of a secondary drain. Under the leach pad, the secondary drain will be placed immediately above the secondary containment membrane and in appearance will be identical to the french drain used to collect process fluids. Process fluids permeating the primary fluid containment membrane will flow into the leak detection system. The rate of fluid leakage can be monitored by pumping from the inspection port which will be installed at the low end of the drain.

The leak detection beneath the primary containment membrane in the pregnant liquor pond will be identical in concept with the system beneath the leach pad. The size of the leak detection under the pregnant liquor pond will be smaller.

The leak detection system along the pipe transporting the process fluids from the heap to the pregnant liquor pond will consist of a double walled pipe laid in the bottom of a lined ditch. Process fluid leaking from the main pipe will be trapped in the annular space between the pipes measure, and drained into the pregnant liquor pond.

An active leak detection system will be installed beneath all process components. The active system will consist of arrays of bare electrical conductors separated by and embedded in the fill material beneath the secondary containment membrane of each process component. A small electrical potential will be placed across the the conductors. The current flow through the system will be continuously monitored. Any process fluid leak will result in a reduced impedance thus increasing the current flow. The system will permit 24-hour per day leak monitoring. Should a leak occur, the location and size of the plume can be determined. This is a benefit to operations since the location of the leak can also be determined.

445A.397	1.(I)	Process Schematics

A schematic diagram of the beneficiation process appears as Figure 3 in section 445A.397-1.(a)

445A.397	2.	Specifications for Construction

Removal of Vegetation

Prior to excavation of in-place fill materials all surface vegetation including but not limited to trees, bushes, shrubs and grasses shall be removed over the and the area on which the excavated filled material will be temporarily stored. Such vegetative mater will be hauled to a proper disposal area.

Removal and Storage of A-horizon Material

A-horizon soil shall be removed over the entire area on which the process components are to be constructed. The A-horizon material shall be transported to the area designated for the temporary storage of excavated fill material and placed uniformly over the cleared area prior to storing any excavated material in the area.

Excavation of Fill Material

The area on which the process components are to be constructed shall be excavated down to the level at which decomposed quartz monzonite or andesite is encountered. This level shall be defined as the top of bedrock. The material excavated from the process component sites shall be transported and temporarily stored at the site designated for the storage of the excavated fill material.

Construction of Sub-base

The sub-base for the leach pad and the bottom of the pregnant liquor storage pond shall be constructed in the following manner.

The sub-base shall be constructed in lifts. Each lift, when compacted to specification, shall be 6 ± ½ inches in thickness. Each lift shall be compacted to 90% of ultimate as measured by a gamma-ray densitometer or acceptable alternative.

STP tests and Cone Penetration Tests shall be used to confirm the load bearing capacity of the final lift of the fluid management sub-base surface. The final lift shall be tested to demonstrate theat a minimum load bearing capacity of 3,000 lbf per square foot has been achieved

Surface Grading

The surfaces of all fluid management surfaces shall not deviate from the calculated elevation at any point over the entire surface by more than ½ inch.

Codified

Proposed Operating Plan

Prepared for

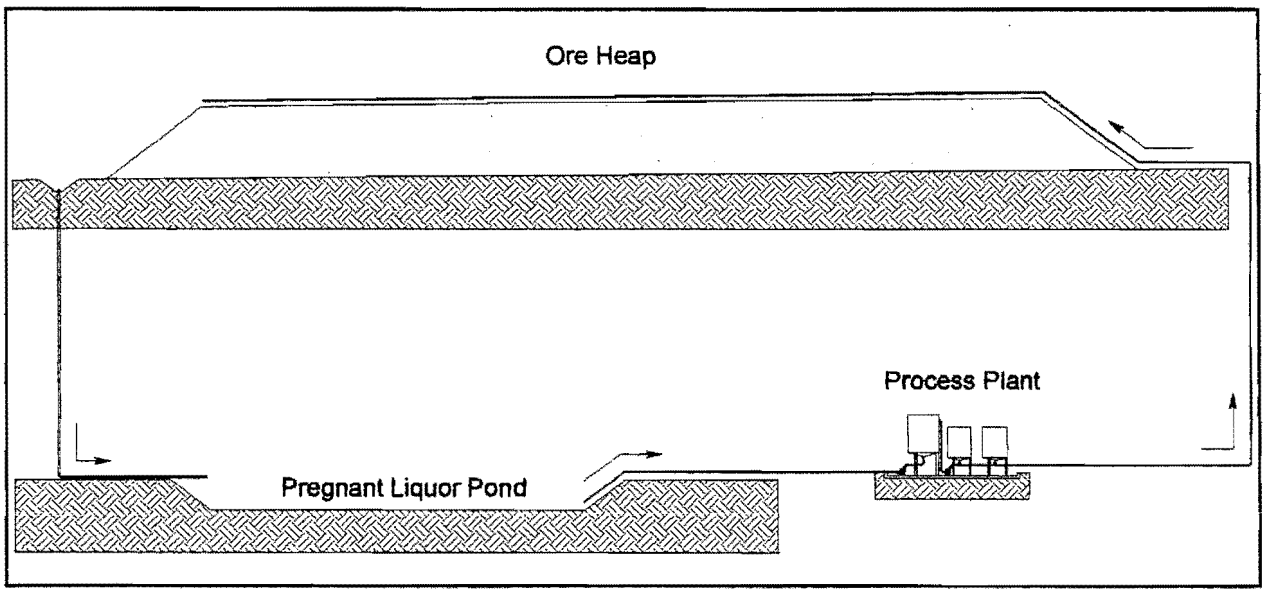
Coyote Mines, Inc.

By:
James A. Coates P.E.

445A.398	1.	Mineral Processing Circuit

Figure 1 is a simplified, relative scale drawing of the proposed beneficiation process. Ore from existing stockpiles and from a shallow pit on the Coyote claim will be excavated, crushed, screened and placed loosely on a leach heap. The heap is constructed over a dual containment impermeable barrier consisting of two UV-stabilized PVC membranes placed on and separated by compacted layers of fill materials. An aerated solution of Sodium Cyanide (NaCN) and Sodium Hydroxide (NaOH) is pumped at sixty-gallons per minute from the process plant to the ore heap. At the heap, the solution is sprayed through plastic sprinklers to disperse the leach solution over the heap and entrain air. The solution permeates down through the heap and, over time, dissolves the gold, silver and base metals. The solution is drained from the heap through a series of pipes lying in a herringbone pattern embedded in the gravel base. The solution then flows through a four-inch PVC pipe laying in the bottom of a lined ditch to the

Figure 1
Simplified Process Diagram



pregnant liquor pond. From the pregnant liquor pond the solution is pumped through a bed of

activated carbon were the gold and silver cyanide complexes attach to bonding sites.

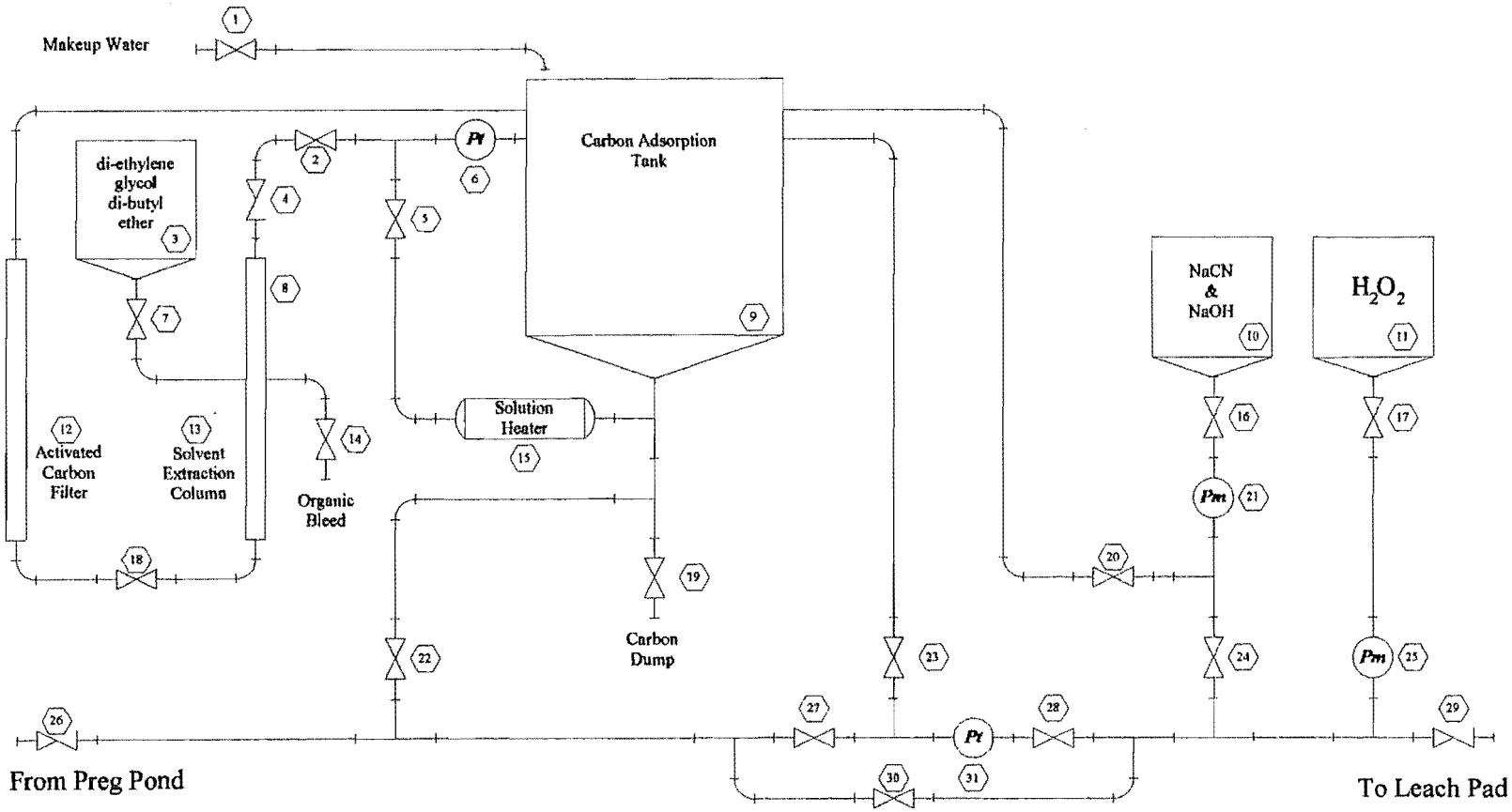
A detailed diagram of the process plant is provided in Figure 2. The design of the process plant permits leaching, carbon adsorption and stripping to proceed independently. A description of plant operation follows:

Upon initial startup, water is pumped from the well into the carbon adsorption tank (9) at 60 g.p.m. A concentrated solution of sodium hydroxide and sodium cyanide is pumped from a reagent storage tank (10) into the carbon adsorption tank (9) to maintain proper cyanide concentration and pH.

The concentration of cyanide will be maintained in a range from 0.1 to 0.3 grams per liter depending on the nature of the ore. For safety and process reasons it is necessary to maintain the pH of the leach solution in the range of 10.5 to 11. At the required concentrations, Sodium Cyanide is completely soluble in water. The CN^- radical hydrolyzes with water to form hydrocyanic acid. This is a weak acid with a dissociation constant of about 6.62×10^{-10}. Cyanide in hydrocyanic acid is not available for leaching and is very toxic. The concentration of HCN as a function of pH is presented in Appendix 3. The graph shows that if the pH is maintained at 10.5 or greater, the amount of cyanide present as HCN is minimal. Since pH is a logarithmic measurement, the quantity of Sodium hydroxide required to maintain a pH of 11.0 is 3.16 times the quantity required to maintain a pH of 10.5. Thus, operating the leach system between 10.5 ensures safety and economic operation.

Once conditioned to the proper pH and cyanide concentration the mixed solution will be pumped by a transfer pump (31) to the leach pad where it will be sprayed over the ore. As indicated in Appendix 4, charging the leach system will require approximately 14 days. After this period of time solution in excess of that required to saturate the heap will begin to seep from the heap and collect in the French drain and process fluid collection ditches. The process fluid flows to the pregnant liquor pond for clarification. Under nominal conditions, the pond will allow a settling time of 24 hours. The clarified solution is pumped from the pond repeating the cycle.

Figure 2
Process Schematic



Engineer:	Process Diagram
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445A.398	**2.**	**Management of Process Fluids**

Process fluids used in the proposed beneficiation process will be contained at all times within dual containment barriers that are impermeable.

The leach pad and pregnant liquor pond are constructed over a compacted fill resting directly on top of bedrock. A synthetic liner is placed above the compacted fill. A gravel pack is placed immediately above the membrane. Embedded in this gravel pack is a leak detection system consisting of a french drain. A main header pipe is laid diagonally across the bottom. Smaller perforated pipes are laid at acute angles to the main header and are connected to it. The low end of the main header is connected to a standpipe which rises to the surface. The standpipe is used as a monitoring point in the leak detection system. Compacted fill material is placed above the gravel pack. This fill material serves as a second low permeability barrier and a base for the primary synthetic membrane.

The primary synthetic membrane is covered by a gravel pack sufficient in thickness to prevent damage from abrasions and punctures caused by construction equipment. A french drain lying directly on the membrane is embedded in the gravel pack. As in the leak detection system, a main header pipe is laid diagonally across the bottom with smaller perforated pipes laid at acute angles to the main header and connected to it.

All of the pipes in the main french drain and the leak detection system are sized to accommodate flows in excess of the nominal leach pumping rate. The main pipe transporting fluid from the pregnant liquor pond to the process plant will be contained in a pipe of larger diameter.

The pregnant liquor pond is sized to contain the process fluids and the runoff generated by a 100-year, 24-hour storm event over the process components. It has been assumed that no meteoric waters will be absorbed into the ground and, therefore, all of the precipitation will flow to the pregnant liquor pond. The design specifications are presented in Appendix 4.

445A.398	**3.**	**Facility Monitoring**

445A.398	**3.(a)**	**Water Quality**

There is no surface water within one mile of the process components and therefore there are no surface water analyses. Water from the existing well is sampled and tested as required by the State. These analyses appear in Table 11, Section 445A.396-4.(a).

445A.398	3.(b)	Monitoring Locations

The process components are straddled by two ideal monitoring locations. The Coyote Mines' water well which is routinely sampled and tested lies approximately 200 feet north of the proposed leach pad. An abandoned mine shaft lies down-gradient approximately 300 feet from the proposed process components. Each of these locations will be sampled daily and tested for WAD cyanide. In addition, the water pumped from the existing well will be monitored continuously by a specific ion probe to determine the level of cyanide. The specific ion probe will not be used to quantitatively determine the amount of cyanide in the water but as a qualitative monitor.

445A.398	3.(c)	Profile of Surface and Ground Water

No surface water exists within one-mile of the process components. The analytical profile of the ground water is presented in Table 11, Section 445A.396-4.(a).

445A.398	3.(d)	Location of Leak Detection Systems

The leach pad and pregnant liquor pond are constructed over a compacted fill resting directly on top of bedrock. Two leak detection systems are installed beneath each process component. A synthetic liner is placed above the compacted fill. Immediately beneath the synthetic membrane, a grid of bare, isolated electrical conductors is installed.. A small electric potential is applied across the conductors. Any leakage of process fluids will lower the impedance resulting in an increase of current. The current will be monitored at all times, and should it exceed a nominal background level, an alarm will be initiated.

A gravel pack is placed immediately above the membrane. Embedded in this gravel pack is another leak detection system consisting of a french drain. A main header pipe is laid diagonally across the bottom. Smaller perforated pipes are laid at acute angles to the main header and are connected to it. The low end of the main header is connected to a standpipe which rises to the surface. The standpipe is used as a monitoring point in the leak detection system.

445A.398	**4.(a)**	**Emergency Response**

Upon detection of a leak, appropriate State and Federal agencies will be contacted by the site manager. The site manager will describe the size of the fluid excursion and the concentration of cyanide in the discharge. The site manager will immediately begin injection of hydrogen peroxide in sufficient quantity to neutralize the cyanide radical in the fluid excursion..

445A.398	**4.(b)**	**Minimization of Environmental Impact**

The chemical neutralization of the cyanide by reaction with hydrogen peroxide will ensure that the environmental impact will be minimized.

445A.398	**5.**	**Temporary Closure**

Should it be deemed necessary to shut down the process components for operational or regulatory reasons, sufficient hydrogen peroxide will be injected into the leach system to neutralize all cyanide.

During the period of temporary closure regular monitoring of the ground water from the existing well and the abandoned mine shaft will continue.

445A.398	**6.**	**Permanent Closure**

Once the economic life of the leaching operations has been reached, the spent ore will be neutralized with hydrogen peroxide until the level of cyanide is below required levels. The neutralized ore will then be hauled to the existing pit and graded to blend with the approximate original contours.

445A.398	**6.(a)**	**Characterization of Spent Ore**

Once the leaching operation has been completed, the remaining ore will be analyzed for species mobility. This test will consist of leaching a bulk sample of the spent ore in meteoric water for a period of thirty days at an elevated temperature. The resulting leachate will be analyzed for ionic species and total dissolved solids. If present, species in low oxidation states may be oxidized to more stable forms by the application of appropriate reagents.

445A.398	**6.(b)**	**Stabilization of all Process components**

At the completion of operations, all process components will be chemically neutralized and removed rom the site. The process component sites will be graded to approximate contours and seeded with BLM approved vegetation. The relatively flat terrain precludes the necessity to mechanically stabilize either the spent ore or the process component sites.

APPENDIX 10

Appendix 1

Existing Operating Permit

STATE OF NEVADA

Department of Conservation and Natural Resources

Division of Environmental Protection

Bureau of Mining Regulation and Reclamation

Water Pollution Control Permit

Permittee: Coyote Mines, Inc.
Highway 95
Searchlight, NV 89046

Permit Number: NEV94113

Pursuant to Nevada Revised Statutes (NRS) 445.131 through 445.354, inclusive, and regulations promulgated thereunder by the State Environmental Commission and implemented by the Division of Environmental Protection (the Division), this permit authorizes the Permittee to construct, operate, and close the physical separation facility, Coyote Mine, in accordance with the limitations, requirements and other conditions set forth in this permit.

This facility is located in Clark County, Township 28 South, Range 63 East, Section 22, SE 1/4 and approximately 1 1/2 miles north of the town of Searchlight.

The Permittee must comply with all terms and conditions of this permit and all applicable statutes and regulations.

This permit is based on the assumption that the information submitted in the application of December 6, 1994, as modified by subsequent approved amendments, is accurate and that the facility has been constructed and is being operated as specified in the application. The Permittee must inform the Division of any deviation from or changes in the information in the application which may effect the Permittee's ability to comply with applicable regulations or permit conditions.

This permit is effective as of 6/1/95, and shall remain in effect until 6/1/2000, unless modified, suspended, or revoked.

Signed this 23rd day of May, 1995.

Doug Zimmerman
Bureau Chief
Bureau of Mining Regulation and Reclamation

Appendix 2

Open Channel Flow Characteristics
of
Highway 95

Open Channel Flow

This procedure calculates the depth of flow at specific points along a Highway profile with a Trapezoidal cross-section. The discussion, taken from the text: **Applied Hydraulics in Engineering; ,** Henry M. Morris,1963, Ronald Press, uses the theories of Chezy and Manning

The definitions of the variables used in this discussion are:

Pw = The wetted perimeter
Wb = The width of the channel bottom
θ = The slope of the banks measured from the horizontal
D = The depth of flow
S = The slope of the channel bottom along the axis of flow
Rh = The hydraulic radius
Af = The cross-sectional area of the flow
V = The velocity of channel flow
n = The Manning coefficient
i = An index variable

First, it is necessary to define the hydraulic radius of the channel and the flow area in terms of depth. The hydraulic radius is defined as the flow area divided by the wetted perimeter. In this study the channels have trapezoidal cross sections.

Now the hydraulic radius is related to the depth of flow through the expressions:

$$P_w = W_b + \frac{2 \cdot D}{\sin(\theta)}$$

The wetted perimeter

$$A_f = D \cdot \left(\frac{W_b + W_b + 2 \cdot \frac{D}{\tan(\theta)}}{2} \right)$$

The cross sectional area of the flow as contained by the wetted perimeter and the fluid surface. Simplifying the expression yields:

$$A_f = D \cdot \left(W_b + \frac{D}{\tan(\theta)} \right)$$

$$R_h = \frac{A_f}{P_w}$$

The hydraulic radius is defined as the flow cross-sectional area divided by the wetted perimeter

Substituting the expressions for the cross-section flow area and the wetted perimeter yields:

$$R_h = \frac{D \cdot \left(W_b + \frac{D}{\tan(\theta)}\right)}{W_b + \frac{2 \cdot D}{\sin(\theta)}}$$

Simplifying this expression yields:

$$R_h = D \cdot \frac{\left(W_b \cdot \sin(\theta) + D \cdot \cos(\theta)\right)}{\left(W_b \cdot \sin(\theta) + 2 \cdot D\right)}$$

The velocity of the flow is determined from the Manning equation:

$$V = \frac{1.49}{n} \cdot R_h^{\frac{2}{3}} \cdot S^{\frac{1}{2}}$$

When the discharge and channel conditions are fixed this equation can be rewritten as:

$$A_f R_h^{\frac{2}{3}} = \frac{n \cdot Q}{1.49 \cdot S^{\frac{1}{2}}}$$

Since the Area and the Hydraulic Radius are functions of the depth of flow, the equation can be expressed as a function of depth.

$$D \cdot \left(W_b + \frac{D}{\tan(\theta)}\right) \cdot \left[D \cdot \frac{\left(W_b \cdot \sin(\theta) + D \cdot \cos(\theta)\right)}{\left(W_b \cdot \sin(\theta) + 2 \cdot D\right)}\right]^{\frac{2}{3}} = \frac{n \cdot Q}{1.49 \cdot S^{\frac{1}{2}}}$$

Applying numerical methods to find the roots of the expression:

It is necessary to define the values of the constants and given parameters in the equations. These are:

$W_b := 106 \cdot ft$ The width of the bottom of the flow channel. This is the width across the road, including pavement and shoulders.

$\theta := 30 \cdot deg$ The slope of the road embankments which form the channel. The slope is measured from the horizontal

$S := 0.01 \cdot \frac{ft}{ft}$ The slope of the channel bottom along the axis of flow. This is the slope of the highway profile.

$n := 0.02 \cdot \frac{sec}{ft^{\frac{1}{3}}}$ The Manning coefficient for the channel

Calculating the rate of flow from the up-gradient watershed.

$A_s := 7480000 \cdot ft^2$ The area of the watershed

$R_{100} := 3.8 \cdot in$ The precipitation derived from a 100-year 24-hour storm event.

$t := 1 \cdot hr$ The duration of the precipitation event.

$L := 3500 \cdot ft$ The length of Highway that intercepts the watershed.

$Q_s := \frac{A_s \cdot R_{100}}{t}$ $Q_s = 657.963 \cdot ft^3 \cdot sec^{-1}$ The total rate of flow from the watershed

$q_L = \left(\frac{d}{dL} Q_s = \frac{Q_s}{L}\right)$ $q_L := \frac{Q_s}{L}$ $q_L = 0.188 \cdot ft^2 \cdot sec^{-1}$

The depth of flow will now be calculated at specified intervals along the profile of the highway.

$s_i := 500 \cdot ft$ The interval spacing is used to determine the number of sections to be examined

$nint := floor\left(\frac{L}{s_i}\right)$ $nint = 7$

$i := 1 .. nint$ Establishing the number of iterations

$Pt_i := s_i \cdot i$ The distance to the point of investigation along the channel profile

$Q_i := i \cdot s_i \cdot q_L$ The rate of flow in the channel

$D := 1.0 \cdot ft$ The initial guess for the flow depth.

$$D_{s_i} := \mathrm{root}\left[D \cdot \left(W_b + \frac{D}{\tan(\theta)}\right) \cdot \left[D \cdot \frac{\left(W_b \cdot \sin(\theta) + D \cdot \cos(\theta)\right)}{\left(W_b \cdot \sin(\theta) + 2 \cdot D\right)}\right]^{\frac{2}{3}} - \frac{n \cdot Q_i}{1.49 \cdot S^{\frac{1}{2}}}, D\right]$$

$$R_{h_i} := D_{s_i} \cdot \frac{\left(W_b \cdot \sin(\theta) + D_{s_i} \cdot \cos(\theta)\right)}{\left(W_b \cdot \sin(\theta) + 2 \cdot D_{s_i}\right)}$$

To check the flow depth the flow velocity, cross-sectional area and the resulting flow rate are calculated.

$$V_i := \frac{1.49}{n} \cdot \left(R_{h_i}\right)^{\frac{2}{3}} \cdot S^{\frac{1}{2}}$$

Calculating the cross-sectional flow area

$$A_i := D_{s_i} \cdot \left(W_b + \frac{D_{s_i}}{\tan(\theta)}\right)$$

Cross checking the flow by multiplying the area times the velocity

$$Q_{f_i} := V_i \cdot A_i$$

Distance Along Profile	Rate of Flow	Depth of flow	Hydraulic Radius
0	0	0	0
500	93.995	0.279	0.277
1000	187.989	0.422	0.419
1500	281.984	0.539	0.533
2000	375.979	0.64	0.632
2500	469.974	0.732	0.721
3000	563.968	0.816	0.802
3500	657.963	0.895	0.879

$$Pt = \begin{bmatrix} 0 \\ 500 \\ 1000 \\ 1500 \\ 2000 \\ 2500 \\ 3000 \\ 3500 \end{bmatrix} \cdot ft \qquad Q = \begin{bmatrix} 0 \\ 93.995 \\ 187.989 \\ 281.984 \\ 375.979 \\ 469.974 \\ 563.968 \\ 657.963 \end{bmatrix} \cdot ft^3 \cdot sec^{-1} \qquad D_s = \begin{bmatrix} 0 \\ 0.279 \\ 0.422 \\ 0.539 \\ 0.64 \\ 0.732 \\ 0.816 \\ 0.895 \end{bmatrix} \cdot ft \qquad R_h = \begin{bmatrix} 0 \\ 0.277 \\ 0.419 \\ 0.533 \\ 0.632 \\ 0.721 \\ 0.802 \\ 0.879 \end{bmatrix} \cdot ft$$

Distance Along Profile	Velocity of Flow	Flow Cross-section	Check Flow Rate

$$Pt = \begin{bmatrix} 0 \\ 500 \\ 1000 \\ 1500 \\ 2000 \\ 2500 \\ 3000 \\ 3500 \end{bmatrix} \cdot ft \qquad V = \begin{bmatrix} 0 \\ 3.167 \\ 4.169 \\ 4.895 \\ 5.484 \\ 5.988 \\ 6.433 \\ 6.834 \end{bmatrix} \cdot ft \cdot sec^{-1} \qquad A = \begin{bmatrix} 0 \\ 29.684 \\ 45.088 \\ 57.606 \\ 68.56 \\ 78.488 \\ 87.67 \\ 96.277 \end{bmatrix} \cdot ft^2 \qquad Q_f = \begin{bmatrix} 0 \\ 94.001 \\ 187.99 \\ 281.99 \\ 375.979 \\ 469.974 \\ 563.973 \\ 657.963 \end{bmatrix} \cdot ft^3 \cdot sec^{-1}$$

Appendix 3

HCN Dissociation as a Function of pH

HCN Dissociation as a Function of pH

This procedure calculates the percentage of the CN radical that is present in the form of HCN as a function of pH.

The conditions that must be satisfied are the dissociation of the weak acid HCN and the material balance. The dissociation of water is not a consideration since the pH is the independant variable

$\frac{H \cdot CN}{HCN} = Ka$ The disassociation constant of HCN in water. Expressing the ratio of free cyanide to the concentration of Hydrocyanic acid

$pH = \log\left(\frac{1}{H}\right)$ The definition of pH

$CN + HCN = K$ The sum of the CN and HCN in the system are constant. Solving for the HCN concentration by rewriting this expression yields:

$HCN = K - HCN$

$Ka := 6.2 \cdot 10^{-10}$

$\frac{H \cdot CN}{HCN} = Ka$ Substituting the expression for the Hydrogen ion concentration from the definition of pH yields the expression:

$\frac{10^{-pH} \cdot CN}{HCN} = Ka$ Substituting the expression for the cyanide concentration derived from the material balance yields

$\frac{10^{-pH} \cdot (K - HCN)}{HCN} = Ka$ Again, rewriting the expression

$\frac{K - HCN}{HCN} = Ka \cdot 10^{pH}$ Simplifying yields $\frac{K}{HCN} - 1 = Ka \cdot 10^{pH}$

$\frac{K}{HCN} = Ka \cdot 10^{pH} + 1$

The percentage of CN in the system present as HCN is simply the reciprocal of the previous expression multiplied by 100

$$\frac{HCN}{K} = \frac{1}{Ka \cdot 10^{pH} + 1} \cdot 100$$

Letting a dummy variable "D" represent the left hand side of the expression

$$D = \frac{1}{Ka \cdot 10^{pH} + 1}$$

Now examining the function over a range of pH values we find:

$n := 100$ The number of points in the pH range to examine

$pH_{min} := 6 \quad pH_{max} := 13$ The minimum and maximum pH values of the range

$$inc := \frac{(pH_{max} - pH_{min})}{n}$$

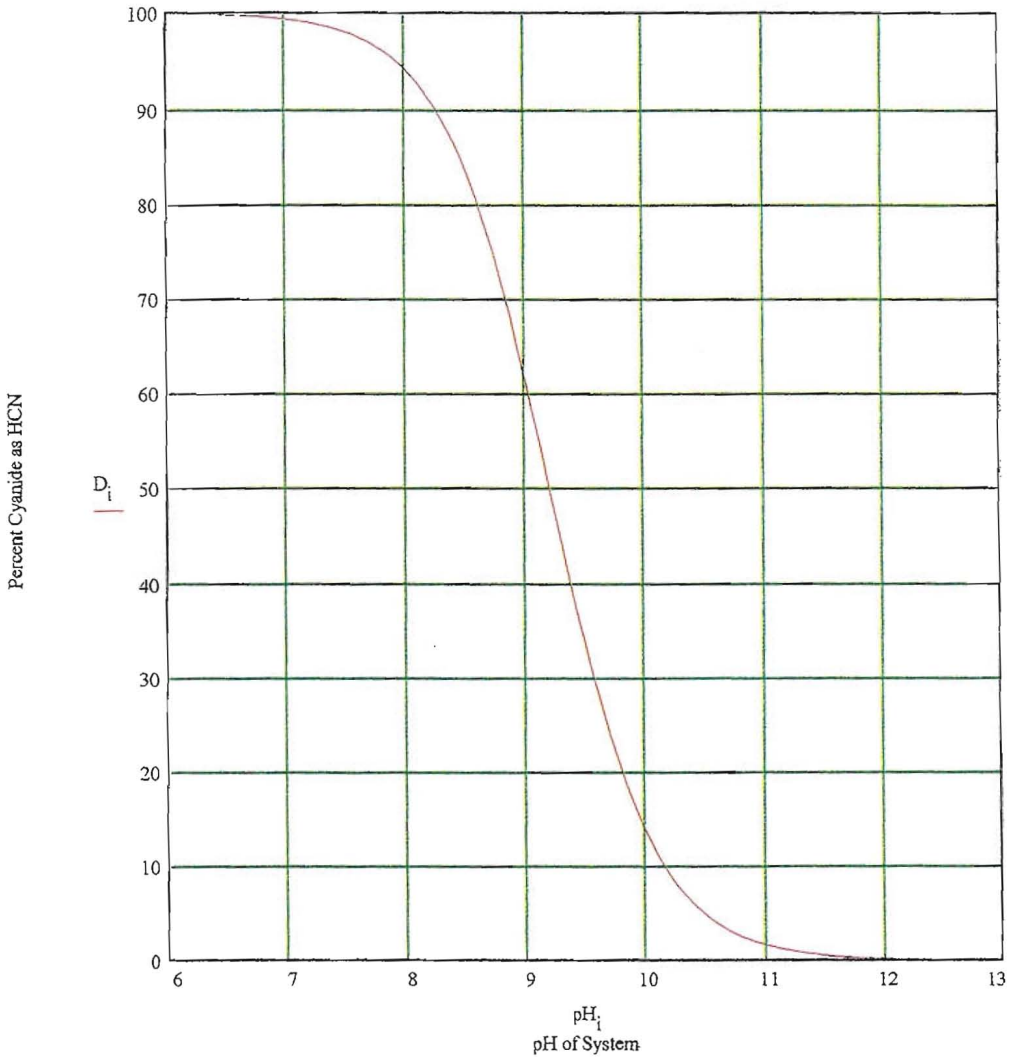
The size of the pH increment

$i := 1 .. n$ The index variable

$$pH_i := pH_{min} + i \cdot inc$$

$$D_i := \frac{1}{Ka \cdot 10^{pH_i} + 1} \cdot 100$$

The graph on the following page clearly shows why the pH of the leaching system must be kept high. In fact, the system should not be operated at a pH of less than 10.5.


100
90
80
70
60
50
40
30
20
10
0
D_i
Percent Cyanide as HCN
6
7
8
9
10
11
12
13
pH_i
pH of System

Appendix 4

Leach System Design

Leach System Design
General Parameters

Parameter	Units	Value
Solution Data		
NaCN Concentration	gr/liter	0.3
Solution pH		10.5
NaOH Concentration	gr/liter	0.74
Specific Weight of Solution	lbs/ft^3	62.41
Specific Gravity of Solution		1
Specific Weight of Water	lbs/ft^3	62.41
Molecular Weights		
NaCN	unitless	49.00765
NaOH	unitless	39.99717
Solubility		
NaCN	gr/100gr	50
NaOH	gr/100gr	50
Carbon Adsorption		
Carbon Density	gr/cm^3	0.52
	lb/ft^3	32.46
Loading Constant (K)	kg-Au/mt	26
	ozt-Au/ton	758.33
Rate Constant (R)	kg-Au/mt/min	0.045
	ozt-Au/ton/min	1.313

Parameter	Units	Value
Ore Data		
Ore Grade	Troy oz/ton	0.048
Specific Weight, Dry Ore	lbs/ft^3	90.0
Specific Volume, Dry Ore	ft^3/ton	22.2
Specific Weight, Wet Ore	lbs/ft^4	125.0
Hydrographic Data		
100-Year, 24-Hour storm	in	3.8
Duration of storm	hr	1
Duration of runoff	hr	1
Annual Precipitation	in	7.86
Evaporation Rate	in/year	48

Leach System Design
Heap Design

Parameter	Units	Value
Dimensions		
Base Width	ft	175.0
Base Length	ft	175.0
Base Area	ft^2	30,625
Ore Height	ft	12.0
Angle of Repose	°	37.0
Top Width	ft	143.2
Top Length	ft	143.2
Top Area	ft^2	20,492
Volumetrics		
Heap Volume	ft^3	304,674
	yd^3	11,284
Ore in Heap	lbs	27,420,696
	tons	13,710
Loads		
Maxiumum Dry Static	lbs/in^2	7.50
Maximum Wet Static	lbs/in^3	10.42
Membrane		
Membrane Apron	ft	12.5
Membrane Area	ft^2	40000
Leaching		
Leach Solution Application	gal/min	60
Heap displacement time	min	21,302
	hr	355.0
	days	14.8

Parameter	Units	Value
Solution Data		
Heap Porosity	ft^3/ft^3	0.561
Solution in Heap (saturated)	ft^3	170,864
	gallons	1,278,149
	acre-ft	3.92
	lbs	10,663,604
	tons	5,332
Reagents in Heap		
NaCN	lbs	3,199
NaOH	lbs	7,930
Hydrographic Data		
100-yr Storm Event Runoff	ft^3	12,667
	gallons	94,753
	ft^3/min	211.1
	ft^3/sec	3.52
	gal/min	1,579
Annual Precipitation	ft^3	26,200
	gallons	195,990
	ft^3/min	0.0498
	ft^3/sec	0.0008
	gal/min	0.3729
Fluid Loss		
Evaporative	ft^3/yr	122,500
	acre-ft	2.81
	gal/yr	916,364
	gal/min	1.74
Makeup Water	gal/min	1.37
	gal/yr	720,374

Leach System Design
Pregnant Liquor Pond

Parameter	Units	Value
Dimensions		
Embankment Slope	°	37
Top Length	ft	100
Top Width	ft	50
Top Area	ft^2	5000
Excavated Depth	ft	8
Bottom Length	ft	78.8
Bottom Width	ft	28.8
Area	ft^2	2,266
Volumetrics		
Volume	ft^3	28,352
	yd^3	1,050
Fluid Capacity	gal	212,085
	lbs	1,769,426
Liner		
Apron Width	ft	5
Liner Areas		
pond bottom	ft^2	2,266
pond sides, length	ft^2	1,430
pond sides, width	ft^2	630
Apron	ft^2	1600
Total Liner Area	ft^2	5,926
Reagents in Preg Pond		
NaCN	lbs	531
NaOH	lbs	1,316

Parameter	Units	Value
Fluid Containment		
Freeboard	ft	4
Freeboard Surface Area	ft^2	3,520
Nominal Capacity	ft^3	11,481
	gal	85,881
Freeboard Capacity	ft^3	16,954
	gal	126,826
Total Capacity	ft^3	28,435
	gal	212,707
	gal/min	0.20
Hydrographic Data		
100-yr Storm Event Capture	ft^3	1,877
	gallons	14,038
	ft^3/min	31.3
	ft^3/sec	0.52
	gal/min	234
Annual Precipitation	ft^3	3,882
	gallons	29,037
	ft^3/min	0.0074
	ft^3/sec	0.0001
	gal/min	0.06
Evaporative Fluid Loss		
At Nominal Freeboard	ft^3/yr	14,081
	acre-ft	0.323
	gal/yr	105,333
	gal/min	0.20
Makeup Water	gal/min	0.15
	gal/yr	76,296
	ft^3/yr	10,199
	ac-ft	0.23

Leach System Design Collection Ditches		
Parameter	**Unit**	**Value**
Given Data		
Side Slopes	°	37
Channel Bottom Slope	ft/ft	0.02
	°	1.15
Storm flowrate	ft^3/sec	3.52
Process flowrate	gal/min	60
	ft^3/sec	0.13
Total Fluid Flow	ft^3/sec	3.65
Manning's Number	sec/ft^1/3	0.02
Freeboard at maximum flow	in	12
Width, Ditch Bottom	in	12
	ft	1
Calculated Results		
Width, Ditch Top	in	58.96
Width, Water Surface	in	27.11
Depth of Ditch	in	17.69
	ft	1.47
Depth at Required Flow	in	5.69
	ft	0.47
Wetted Perimeter	in	13.58
	ft	2.58
Flow Area	in^2	111.36
	ft^2	0.77
Hydraulic Radius	in	3.60
	ft	0.30
Velocity	ft/sec	4.72
	in/sec	56.67
Calculated Flow	ft^3/sec	3.65

Leach System Design Chemistry		
Parameter	**Units**	**Value**
Precious Metal		
Gold in Heap	ozt	658.10
	oz	722.03
	lbs	45.13
	gr	20,469.10
	kg	20.47
Solution Data		
Solution in System	gal	1,364,030
	lbs	11,380,109
Concentrations		
Gold, maximum	ppm	3.965
NaOH	gr/ltr	0.744
	lb/ton	1.487
	ppm	743.7
NaCN	gr/ltr	0.300
	lb/ton	0.600
	ppm	300.0

Appendix 5

Flow Through
a
Partially Filled Pipe

Flow Through a Partially Full Pipe

This procedure calculates the depth of flow in a circular channel using the theories of Chezy and Manning. The discussion is taken from the text: **Applied Hydraulics in Engineering;** , Henry M. Morris, 1963, Ronald Press

In this study the channels have circular cross sections. Channels of this type are quite common; drain pipe being the most common.

To solve for the depth of flow, the wetted perimeter, flow area, and the hydraulic radius are expressed as a function of the depth of flow throiugh the expressions:

$$P_w = D_p \cdot \mathrm{acos}\left(\frac{2 \cdot D}{D_p} - 1\right)$$

The wetted perimeter

$$\theta = \mathrm{acos}\left(\frac{2 \cdot D}{D_p} - 1\right)$$

The wetted arc angle

$$A = \left(\frac{D_p}{2}\right)^2 \cdot \left(\mathrm{acos}\left(\frac{2 \cdot D}{D_p} - 1\right) - \cos(\theta) \cdot \sin(\theta)\right)$$

The cross sectional area of the flow as contained by the wetted perimeter and the fluid surface.

$$A = \left(\frac{D_p}{2}\right)^2 \cdot \left[\mathrm{acos}\left(\frac{2 \cdot D}{D_p} - 1\right) - \left(\frac{2 \cdot D}{D_p} - 1\right) \cdot \sin\left(\mathrm{acos}\left(\frac{2 \cdot D}{D_p} - 1\right)\right)\right]$$

$$R_h = \frac{A}{P_w}$$

The hydraulic radius is defined as the flow cross-sectional area divided by the wetted perimeter.

Substituting the expressions for the cross-section flow area and the wetted perimeter yields:

$$R_h = \frac{\left(\frac{D_p}{2}\right)^2 \cdot \left[\operatorname{acos}\left(\frac{2 \cdot D}{D_p} - 1\right) - \left(\frac{2 \cdot D}{D_p} - 1\right) \cdot \sin\left(\operatorname{acos}\left(\frac{2 \cdot D}{D_p} - 1\right)\right)\right]}{D_p \cdot \operatorname{acos}\left(\frac{2 \cdot D}{D_p} - 1\right)}$$

The velocity of the flow is determined from the Manning equation:

$$V = \frac{1.49}{n} \cdot R_h^{\frac{2}{3}} \cdot s^{\frac{1}{2}}$$

When the discharge and channel conditions are fixed this equation can be rewritten as:

$$A \cdot R_h^{\frac{2}{3}} = \frac{n \cdot Q}{1.49 \cdot s^{\frac{1}{2}}}$$

Since the Area and the Hydraulic Radius are functions of the depth of flow, the equation can be expressed as a function of depth. Substituting the expressions for the area and the hydraulic radius yields:

$$\left[\left(\frac{D_p}{2}\right)^2 \cdot \left[\operatorname{acos}\left(\frac{2 \cdot D}{D_p} - 1\right) - \left(\frac{2 \cdot D}{D_p} - 1\right) \cdot \sin\left(\operatorname{acos}\left(\frac{2 \cdot D}{D_p} - 1\right)\right)\right]\right] \cdot \left[\frac{\left(\frac{D_p}{2}\right)^2 \cdot \left[\operatorname{acos}\left(\frac{2 \cdot D}{D_p} - 1\right) - \left(\frac{2 \cdot D}{D_p} - 1\right) \cdot \sin\left(\operatorname{acos}\left(\frac{2 \cdot D}{D_p} - 1\right)\right)\right]}{D_p \cdot \operatorname{acos}\left(\frac{2 \cdot D}{D_p} - 1\right)}\right]^{\frac{2}{3}} = \frac{n \cdot Q}{1.49 \cdot s^{\frac{1}{2}}}$$

We desire to determine the depth of flow when the rate of flow is known. The only practical way to solve for D in this expression is to apply numerical methods to find the roots of the expression. To solve the expression numerically, the values of all constants and variables must be defined.

$D_p := 4 \cdot in$ The diameter of the pipe

$s := 0.015 \cdot \frac{ft}{ft}$ The slope of the channel bottom along the axis of flow

$n := 0.02 \cdot \frac{sec}{ft^{\frac{1}{3}}}$ The Manning coefficient for the channel

$Q := 60 \cdot \frac{gal}{min}$ $Q = 0.134 \cdot ft^3 \cdot sec^{-1}$ The rate of low in the channel

To perform the numerical evaluation of the roots, an initial guess for the depth of flow is needed.

$D := .1 \cdot ft$ The initial guess for the flow depth.

$$D := root\left[\left[\left(\frac{D_p}{2}\right)^2 \cdot \left[acos\left(\frac{2 \cdot D}{D_p} - 1\right) - \left(\frac{2 \cdot D}{D_p} - 1\right) \cdot sin\left(acos\left(\frac{2 \cdot D}{D_p} - 1\right)\right)\right]\right] \cdot \left[\frac{\left(\frac{D_p}{2}\right)^2 \cdot \left[acos\left(\frac{2 \cdot D}{D_p} - 1\right) - \left(\frac{2 \cdot D}{D_p} - 1\right) \cdot sin\left(acos\left(\frac{2 \cdot D}{D_p} - 1\right)\right)\right]}{D_p \cdot acos\left(\frac{2 \cdot D}{D_p} - 1\right)}\right]^{\frac{2}{3}} - \frac{n \cdot Q}{1.49 \cdot s^{\frac{1}{2}}}, D\right]$$

The system performs iterative calculations yielding the following results:

$D = 0.091 \cdot ft$ $D = 1.088 \cdot in$

Using this value the values of the hydraulic radius, flow velocity, and the flow area can be explicitly determined. From these values the rate of flow can be calculated to check the solution calculated by the procedure defined above.

$$R_h := \frac{\left(\frac{D_p}{2}\right)^2 \cdot \left[acos\left(\frac{2 \cdot D}{D_p} - 1\right) - \left(\frac{2 \cdot D}{D_p} - 1\right) \cdot sin\left(acos\left(\frac{2 \cdot D}{D_p} - 1\right)\right)\right]}{D_p \cdot acos\left(\frac{2 \cdot D}{D_p} - 1\right)}$$

$R_h = 0.1 \cdot ft$

$R_h = 1.199 \cdot in$

$\theta := \mathrm{acos}\left(\frac{2 \cdot D}{D_p} - 1\right)$ $\theta = 2.044$

Calculating the flow velocity

$V := \frac{1.49}{n} \cdot R_h^{\frac{2}{3}} \cdot S^{\frac{1}{2}}$ $V = 1.964 \cdot ft \cdot sec^{-1}$

Calculating the cross-sectional flow area

$A := \left(\frac{D_p}{2}\right)^2 \cdot \left[\mathrm{acos}\left(\frac{2 \cdot D}{D_p} - 1\right) - \left(\frac{2 \cdot D}{D_p} - 1\right) \cdot \sin\left(\mathrm{acos}\left(\frac{2 \cdot D}{D_p} - 1\right)\right)\right]$ $A = 0.068 \cdot ft^2$

Cross checking the flow by multiplying the area times the velocity

$Q_f := V \cdot A$ $Q_f = 0.134 \cdot ft^3 \cdot sec^{-1}$ $Q_f = 60 \cdot \frac{gal}{min}$

The second way of checking the calculations is to calculate the flow for a specified range of depths. This is easily done by setting the incremental depth and setting the number of desired increments based on the increment.

$inc := 0.25 \cdot in$

$ninc := \mathrm{floor}\left(\frac{D_p}{inc}\right)$ $ninc = 16$

$i := 0 .. ninc$

$D_i := i \cdot inc$

$$A_i := \left(\frac{D_p}{2}\right)^2 \cdot \left[\operatorname{acos}\left(\frac{2 \cdot D_i}{D_p} - 1\right) - \left(\frac{2 \cdot D_i}{D_p} - 1\right) \cdot \sin\left(\operatorname{acos}\left(\frac{2 \cdot D_i}{D_p} - 1\right)\right)\right]$$

$$P_{w_i} := D_p \cdot \operatorname{acos}\left(\frac{2 \cdot D_i}{D_p} - 1\right)$$

$$R_{h_i} := \frac{A_i}{P_{w_i}} \qquad V_i := \frac{1.49}{n} \cdot \left(R_{h_i}\right)^{\frac{2}{3}} \cdot S^{\frac{1}{2}}$$

$$Q_i := V_i \cdot A_i$$

D =

	0
0	0
1	0.25
2	0.5
3	0.75
4	1
5	1.25
6	1.5
7	1.75
8	2
9	2.25
10	2.5
11	2.75
12	3
13	3.25
14	3.5

•inA =

	0
0	12.566
1	12.239
2	11.660
3	10.935
4	10.110
5	9.211
6	8.262
7	7.281
8	6.283
9	5.286
10	4.304
11	3.355
12	2.457
13	1.631
14	0.907

•in² P_w =

	0
0	12.566
1	10.545
2	9.675
3	8.984
4	8.378
5	7.821
6	7.294
7	6.784
8	6.283
9	5.782
10	5.272
11	4.746
12	4.189
13	3.583
14	2.891

•in R_h =

	0
0	1
1	1.161
2	1.205
3	1.217
4	1.207
5	1.178
6	1.133
7	1.073
8	1
9	0.914
10	0.816
11	0.707
12	0.587
13	0.455
14	0.314

•in V =

	0
0	1.741
1	1.923
2	1.971
3	1.985
4	1.973
5	1.941
6	1.892
7	1.825
8	1.741
9	1.64
10	1.521
11	1.382
12	1.22
13	1.03
14	0.804

•$\frac{ft}{sec}$

D =

	0
0	0
1	0.25
2	0.5
3	0.75
4	1
5	1.25
6	1.5
7	1.75
8	2
9	2.25
10	2.5
11	2.75
12	3
13	3.25
14	3.5

$\cdot in$

Q =

	0
0	68.183
1	73.345
2	71.642
3	67.642
4	62.175
5	55.740
6	48.714
7	41.406
8	34.092
9	27.015
10	20.399
11	14.447
12	9.340
13	5.238
14	2.271

$\cdot \frac{gal}{min}$

Appendix 6

Flow Characteristics of a Trapezoidal Channel

Open Channel Flow

This procedure calculates the depth of flow in a Trapezoidal channel using the theories of Chezy and Manning. The discussion is taken from the text: **Applied Hydraulics in Engineering; ,** Henry M. Morris,1963, Ronald Press

In this study the channels have trapezoidal cross sections. Some channels are triangular in cross-section which is a special trapezoidal case.

To solve for the depth of flow, the wetted perimeter, flow area, and the hydraulic radius are expressed as a function of the depth of flow throiugh the expressions:

$$P_w = W_b + \frac{2 \cdot D}{\sin(\theta)}$$

The wetted perimeter

$$A = D \cdot \left(\frac{W_b + W_b + 2 \cdot \frac{D}{\tan(\theta)}}{2} \right)$$

The cross sectional area of the flow as contained by the wetted perimeter and the fluid surface. Simplifying the expression yields:

$$A = D \cdot \left(W_b + \frac{D}{\tan(\theta)} \right)$$

$$R_h = \frac{A}{P_w}$$

The hydraulic radius is defined as the flow cross-sectional area divided by the wetted perimeter.

Substituting the expressions for the cross-section flow area and the wetted perimeter yields:

$$R_h = \frac{D \cdot \left(W_b + \frac{D}{\tan(\theta)} \right)}{W_b + \frac{2 \cdot D}{\sin(\theta)}}$$

Simplifying this expression yields:

$$R_h = D \cdot \frac{\left(W_b \cdot \sin(\theta) + D \cdot \cos(\theta) \right)}{\left(W_b \cdot \sin(\theta) + 2 \cdot D \right)}$$

The velocity of the flow is determined from the Manning equation:

$$V = \frac{1.49}{n} \cdot R_h^{\frac{2}{3}} \cdot S^{\frac{1}{2}}$$

When the discharge and channel conditions are fixed this equation can be rewritten as:

$$A \cdot R_h^{\frac{2}{3}} = \frac{n \cdot Q}{1.49 \cdot S^{\frac{1}{2}}}$$

Since the Area and the Hydraulic Radius are functions of the depth of flow, the equation can be expressed as a function of depth.

$$D \cdot \left(W_b + \frac{D}{\tan(\theta)}\right) \cdot \left[D \cdot \frac{\left(W_b \cdot \sin(\theta) + D \cdot \cos(\theta)\right)}{\left(W_b \cdot \sin(\theta) + 2 \cdot D\right)}\right]^{\frac{2}{3}} = \frac{n \cdot Q}{1.49 \cdot S^{\frac{1}{2}}}$$

The only practical way to solve for D in this expression is to apply numerical methods to find the roots of the expression. To solve the expression numerically, the values of all constants and variables must be defined.

$W_b := 1.0 \cdot ft$ The width of the bottom of the flow channel

$\theta := 30 \cdot deg$ The slope of the channel banks as measured from the horizontal

$S := 0.02 \cdot \frac{ft}{ft}$ The slope of the channel bottom along the axis of flow

$n := 0.02 \cdot \frac{sec}{ft^{\frac{1}{3}}}$ The Manning coefficient for the channel

$Q := 20 \cdot \frac{ft^3}{sec}$ The rate of low in the channel

To perform the numerical evaluation of the roots, an initial guess for the depth of flow is needed.

$D := 1 \cdot ft$ The initial guess for the flow depth.

$$D := \mathrm{root}\left[D \cdot \left(W_b + \frac{D}{\tan(\theta)}\right) \cdot \left[D \cdot \frac{\left(W_b \cdot \sin(\theta) + D \cdot \cos(\theta)\right)}{\left(W_b \cdot \sin(\theta) + 2 \cdot D\right)}\right]^{\frac{2}{3}} - \frac{n \cdot Q}{1.49 \cdot S^{\frac{1}{2}}}, D\right]$$

$D = 1.018 \cdot ft$

Using this value the values of the hydraulic radius, flow velocity, and the flow area can be explicitly determined. From these values the rate of flow can be calculated to check the given flow.

$$R_h := D \cdot \frac{\left(W_b \cdot \sin(\theta) + D \cdot \cos(\theta)\right)}{\left(W_b \cdot \sin(\theta) + 2 \cdot D\right)} \qquad R_h = 0.555 \cdot ft$$

Calculating the flow velocity

$$V := \frac{1.49}{n} \cdot R_h^{\frac{2}{3}} \cdot S^{\frac{1}{2}} \qquad V = 7.112 \cdot ft \cdot sec^{-1}$$

Calculating the cross-sectional flow area

$$A := D \cdot \left(W_b + \frac{D}{\tan(\theta)}\right) \qquad A = 2.813 \cdot ft^2$$

Cross checking the flow by multiplying the area times the velocity

$$Q_f := V \cdot A \qquad Q_f = 20 \cdot ft^3 \cdot sec^{-1}$$

COYOTE MINES, INC.
Heap Leach Project
Summary Of Component Costs
J.A. Coates

Timestamp: 11:49:30 AM, 3/15/1999

Rec #	Dwg #	Ref #	Classification	Detailed Description	Quantity	Issue Units	Unit Price	Extended Price
1	CM-1	01	Valve,Ball	2",PVC, True Union, Threaded both ends, Main water supply shut-off	1.00	ea	$57.60	$57.60
2	CM-1	02	Valve, Ball	1", PVC, True union, Threaded both ends, Pregnant liquor stripping valve	1.00	ea	$26.10	$26.10
3	CM-1	03	Tank	10-gallon, Steel, 20-gauge	1.00	ea	$100.00	$100.00
4	CM-1	04	Valve, Check	1", PVC, True union, Threaded both ends, Organic backflow preventer	1.00	ea	$38.87	$38.87
5	CM-1	05	Valve, Ball	1", PVC, True Union, Threaded both ends. Carbon stripping recycle	1.00	ea	$26.10	$26.10
6	CM-1	06	Pump, Transfer	Magnetic drive, 1" inlet, 3/4" outlet, Polypropelene housing, Carbon bushings, 3-phase	1.00	ea	$560.00	$560.00
7	CM-1	07	Valve, Ball	3/8", Stainless steel,Full port, Female both ends	1.00	ea	$41.25	$41.25

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Rec #	Dwg #	Ref #	Classification	Detailed Description	Quantity	Issue Units	Unit Price	Extended Price
8	CM-1	08	Tank	500-gallon, Conical Bottom, HDLPE or HDPE, With stand, Carbon adsorption vessel	1.00	ea	$1,472.00	$1,472.00
9	CM-1	09	Tank	1250-gallon, Concial bottom, PVC or HDPE, With stand, Cyanide nakeup storage vessel.	1.00	ea	$1,796.00	$1,796.00
10	CM-1	10	Tank	1250-gallon, Conical bottom, PVC or HDPE, With stand, Hydrogen peroxide storage vessel	1.00	ea	$1,796.00	$1,796.00
11	CM-1	11	Tank	1250-gallon, Conical bottom, PVC or HDPE, With stand, Hydrogen peroxide storage vessel	1.00	ea	$1,796.00	$1,796.00
12	CM-1	14	Valve, Ball	3/8", Stainless steel, Full port, Female both ends, Organic bleed	1.00	ea	$41.25	$41.25
13	CM-1	15	Heater, Circulation	18 KW, Pacified stainless steel housing, Incoloy sheathed elements,480 VAC, 3-phase	1.00	ea	$3,342.00	$3,342.00
14	CM-1	16	Valve, Solenoid	1", PVC, True union, Threaded both ends,24 VAC, Cyanide makeup	1.00	ea	$231.00	$231.00
15	CM-1	17	Pump	1" inlet, 3/4" discharge, PP housing, Carbon bushings, Magnetic drive, 1/2 HP, 3-phase, Cyanide reagent pump	1.00	ea	$560.00	$560.00

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Rec #	Dwg #	Ref #	Classification	Detailed Description	Quantity	Issue Units	Unit Price	Extended Price
16	CM-1	18	Valve, Solenoid	1", PVC, True union, Threaded both ends,24 VAC, Sodium Hydroxide shutoff	1.00	ea	$231.00	$231.00
17	CM-1	19	Pump	1" inlet, 3/4" discharge, PP housing, Carbon bushings, Magnetic drive, 1/2 HP, 3-phase, Cyanide reagent pump	1.00	ea	$560.00	$560.00
18	CM-1	20	Valve, Solenoid	1", PVC, True union, Threaded both ends,24 VAC,Hydrogen peroxide shutoff	1.00	ea	$231.00	$231.00
19	CM-1	21	Valve, Ball	1", PVC, True union, Threaded both ends, Hydrogen peroxide washdown	1.00	ea	$26.10	$26.10
20	CM-1	22	Valve, Ball	1", PVC, True union, Threaded both ends, Hydrogen peroxide injection	1.00	ea	$26.10	$26.10
21	CM-1	23	Valve, Ball	1", PVC, True union, Threaded both ends, Solvent Extraction isolation	1.00	ea	$26.10	$26.10
22	CM-1	24	Valve, Ball	2", PVC, True union, Threaded both ends, Preg pump isolation	1.00	ea	$57.60	$57.60
23	CM-1	25	Pump	Centrifugal, Corrosion Resistant, 60 GPM @ 70' head, 3-HP, 220/440 VAC, 3-phase, Prwg pond transfer pump	1.00	ea	$934.50	$934.50

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Rec #	Dwg #	Ref #	Classification	Detailed Description	Quantity	Issue Units	Unit Price	Extended Price
24	CM-1	26	Valve, Ball	2", PVC, YTrue union, Threaded both ends, Preg pump isolation	1.00	ea	$57.60	$57.60
25	CM-1	27	Valve, Check	2", PVC, Full union, Threaded both ends, Process system backflow preventer	1.00	ea	$87.76	$87.76
26	CM-1	28	Valve, Ball	2", PVC, True union, Threaded both ends, Preg pump bypass	1.00	ea	$57.60	$57.60
27	CM-1	29	Valve, Ball	2", PVC, True union, Threaded both ends, Adsorption circuit shuttoff	1.00	ea	$57.60	$57.60
28	CM-1	30	Valve, Ball	4", PVC, Full union, Threaded both ends, Carbon dump	1.00	ea	$233.00	$233.00
29	CM-1	31	Valve, Ball	2", PVC, True union, Threaded both ends, Carbon adsorption bypass	1.00	ea	$57.60	$57.60
30	CM-1	32	Valve, Ball	2", PVC, True union, Threaded both ends, Stripped leach solution shutoff	1.00	ea	$57.60	$57.60
31	CM-1	33	Valve, Ball	1",PVC, True union, Threaded both ends, Cyanide stripping reagent	1.00	ea	$26.10	$26.10
32	CM-1	34	Valve, Ball	1",PVC, True union, Threaded	1.00	ea	$26.10	$26.10

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Rec #	Dwg #	Ref #	Classification	Detailed Description	Quantity	Issue Units	Unit Price	Extended Price
				both ends, Cyanide injection shutoff				
33	CM-1	35	Valve, Ball	1",PVC, True union, Threaded both ends, Cyanide injection shutoff	1.00	ea	$26.10	$26.10
34	CM-1	36	Valve, Ball	1",PVC, True union, Threaded both ends, Cyanide injection shutoff	1.00	ea	$26.10	$26.10
35	CM-1	38	Valve, Ball	2", PVC, True union, Threaded both ends, Leach pump isolation	1.00	ea	$57.60	$57.60
36	CM-1	39	Pump	Centrifugal, Corrosion Resistant, 60 GPM @ 70' head, PP body, 220/440 VAC, 3 ph, Main leach pump	1.00	ea	$934.50	$934.50
37	CM-1	40	Valve, Ball	2", PVC, True union, Threaded both ends, Leach pump isolation	1.00	ea	$57.60	$57.60
38	CM-1	41	Valve, Check	2", PVC, Full union, Threaded both ends,	1.00	ea	$87.76	$87.76
39	CM-1	42	Valve, Ball	2", PVC, True union, Threaded both ends, Leach pump bypass	1.00	ea	$57.60	$57.60
40	CM-2	01	Liner	30 mil, PVC, UV stabilized	60,000.00	sq.ft	$0.18	$10,800.00

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Rec #	Dwg #	Ref #	Classification	Detailed Description	Quantity	Issue Units	Unit Price	Extended Price
41	CM-2	02	Liner	20 mil, PVC UV stabilized	60,000.00	sq.ft	$0.13	$7,800.00
42	CM-3	01	Pipe, Plastic	4", Schedule 40, Drain collection header	240.00	ft	$1.70	$408.00
43	CM-3	02	Pipe, Plastic	2", PVC, Schedule 40, Perforated, Lateral collection pipes	2,850.00	ft	$0.58	$1,653.00
44	CM-3	03	Fitting, Pipe, Plast	Double "Y", 4", PVC, DWV, 4x4x2x2, NOTE! - These fittings must be ~~compatable~~ compatible with schedule 40 pipe	19.00	ea	$16.66	$316.54
45	CM-3	04	Fitting, Pipe	2", PVC, Schedule 40, Slip fit	247.00	ea	$1.00	$247.00
46	CM-3	05	Fittings, Pipe	Caps, 2", PVC, Schedule 40	38.00	ea	$0.68	$25.84
47	CM-4	01	Pipe, Plastic	4", PVC, Schedule 40, Leak Detection Header	240.00	ft	$1.70	$408.00
48	CM-4	02	Pipe, Plastic	2", PVC, Schedule 40, Perforated, Leak Detection Laterals	2,850.00	ft	$0.58	$1,653.00

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Rec #	Dwg #	Ref #	Classification	Detailed Description	Quantity	Issue Units	Unit Price	Extended Price
49	CM-4	03	Fittings, Pipe	Double "Y", 4", PVC, DWV, 4x4x2x2, Note! - These fittings must be ~~compatable~~ with schedule 40 PVC pipe. Compatible	19.00	ea	$16.66	$316.54
50	CM-4	05	Fittings, Pipe	Cap, 4", PVC, Schedule 40	1.00	ea	$5.38	$5.38
51	CM-4	06	Fittings, Pipe	Cap, 4", PVC, Schedule 40	1.00	ea	$5.38	$5.38
52	CM-5	01	Pipe, Plastic	2", PVC, Schedule 40, Perforated, Preg pond leak detection system	1,090.00	ft	$0.58	$632.20
53	CM-5	02	Pipe, Plastic	12", PVC, Schedule 40, Standpipe for leak detection system.	14.00	ft	$9.75	$136.50
54	CM-5	03	Pipe, Plastic	4", PVC, Schedule 40, Preg pond leak detection system header pipe	120.00	ft	$1.70	$204.00
55	CM-5	04	Fitting, Pipe	Coupling, 4", PVC, Schedule 40, Leak detection system header	11.00	ea	$3.95	$43.45
56	CM-5	05	Fitting, Pipe	Coupling, 2", PVC, Schedule 40, Leak detection system lateral pipes	95.00	ea	$1.00	$95.00

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Rec #	Dwg #	Ref #	Classification	Detailed Description	Quantity	Issue Units	Unit Price	Extended Price
57	CM-5	06	Membrane	30 mil, PVC, UV-stabilized, Preg pond liner	5,926.00	sq.ft	$0.20	$1,155.57
58	CM-5	07	Tool	Saw, Hole, 2-3/8 inch diameter, 3/8 inch shank	1.00	ea	$12.18	$12.18
59	CM-5	08	Membrane	20-mil, PVC, UV stabilized, Preg pond secondary liner.	6,600.00	sq.ft	$0.15	$990.00
60	EC-1	B1	Switch	Operator, Full guard, Main Leach Pump Start	1.00	ea	$15.05	$15.05
61	EC-1	B5	Switch	Operator, Full guard,, Preg Pond Pump Start	1.00	ea	$15.05	$15.05
62	EC-1	B9	Switch	Operator, Full guard,Cyanide Injection	1.00	ea	$15.05	$15.05
63	EC-1	C1	Relay, Control	115 VAC, 4-pole NO/NC, Main leach control relay	1.00	ea	$104.15	$104.15
64	EC-1	C2	Relay, Control	115 VAC, 4-pole NO/NC, Preg pond pump control relay	1.00	ea	$104.15	$104.15
65	EC-1	C3	Relay, Control	115 VAC, 4-pole NO/NC, Cyanide	1.00	ea	$104.15	$104.15

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Rec #	Dwg #	Ref #	Classification	Detailed Description	Quantity	Issue Units	Unit Price	Extended Price
				injection pump control relay				
66	EC-1	E1	Switch	Contact block,NO-NC, Main Leach Pump Stop	1.00	ea	$18.92	$18.92
67	EC-1	E5	Switch	Contact block,NO-NC, Preg Pump Stop	1.00	ea	$18.92	$18.92
68	EC-1	E9	Switch	Contact block,NO-NC, Cyanide Pump Stop	1.00	ea	$18.92	$18.92
69	EC-1	L1	Lamp, Indicator	Push to test, 115-120 VAC, 30mm, Oil tight	1.00	ea	$81.70	$81.70
70	EC-1	L2	Lamp, Indicator	Push to test, 115-120 VAC, 30mm, Oil tight	1.00	ea	$81.70	$81.70
71	EC-1	L3	Lamp, Indicator	Push to test, 115-120 VAC, 30mm, Oil tight	1.00	ea	$81.70	$81.70
72	EC-1	TB-1	Terminal Block	Flat Terminal Connector, 40A current rating, Square D GA6 or equivilent	50.00	ea	$1.24	$62.00
73	EC-1	TB-2	Channel, Mounting	35mm channel for mounting terminal connector blocks, 48"	1.00	pkg	$50.55	$50.55

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Rec #	Dwg #	Ref #	Classification	Detailed Description	Quantity	Issue Units	Unit Price	Extended Price
74	EC-1	TB-2	Terminal Block	Flat Terminal Connector, 40A current rating,	50.00	ea	$1.24	$62.00
75	EC-X	CB-1	Enclosure	NEMA 12, 36"h x 30"w x 12"d, Hinged cover, 14 guage steel, neoprene gasket.	1.00	ea	$392.50	$392.50
76	EC-X	CP-2	Panel	Interior panel, 33"h x 27"w,	1.00	ea	$78.45	$78.45
77	F-1	1	Fence	Line posts	135.00	ea	$5.40	$729.00
78	F-1	10	Fence	Clamps, tension bar	80.00	ea	$1.32	$105.60
79	F-1	2	Fence	Posts, Corner	7.00	ea	$7.60	$53.20
80	F-1	3	Fence	Chain link,	1,078.00	ft	$1.04	$1,121.12
81	F-1	4	Fence	Top Bars	1,078.00	ft	$0.59	$636.02

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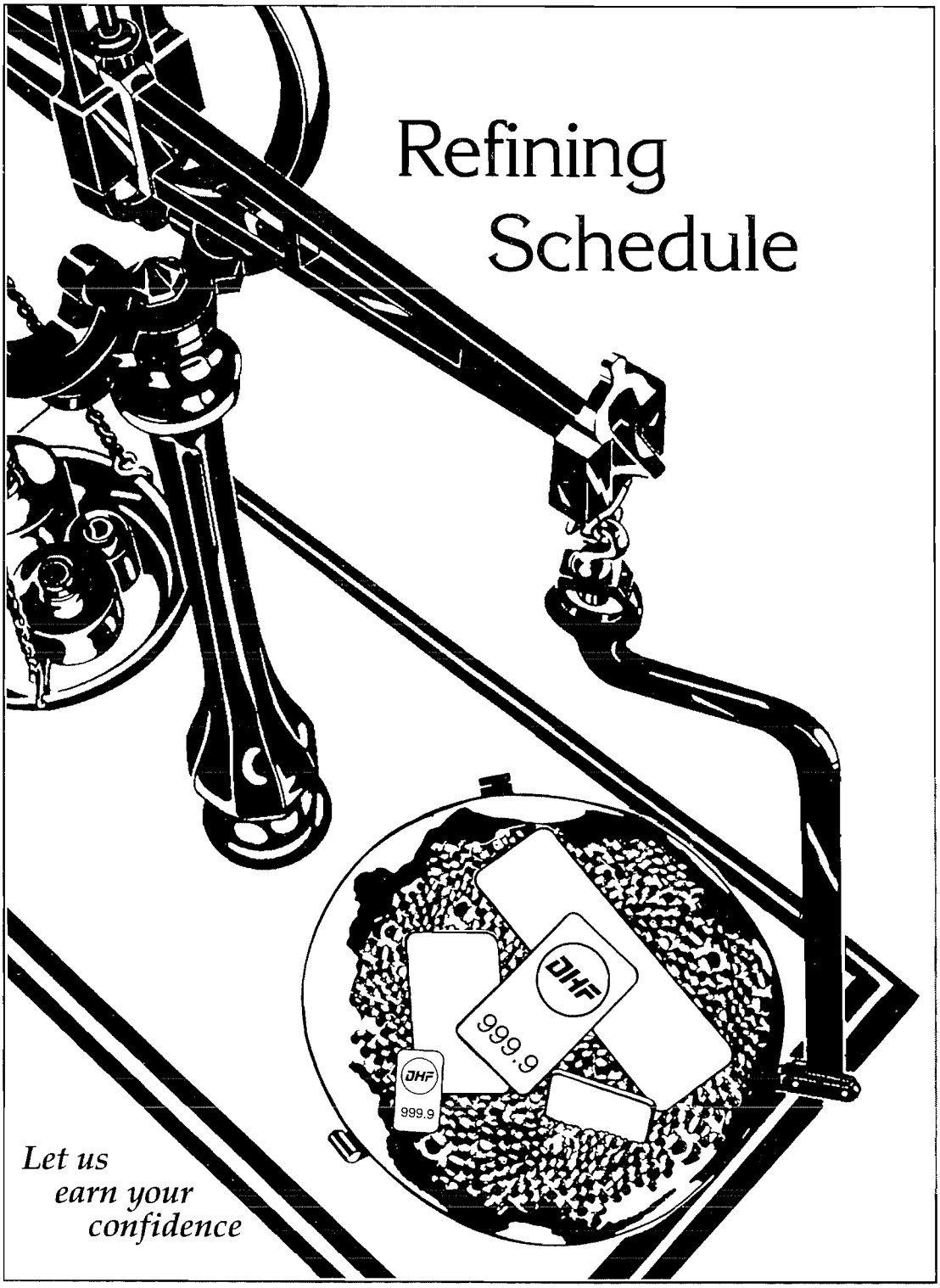
Rec #	Dwg #	Ref #	Classification	Detailed Description	Quantity	Issue Units	Unit Price	Extended Price
82	F-1	6	Fence	Gate panels, 10'w x 6'h. including hinges	2.00	ea	$147.00	$294.00
83	F-1	7	Fence	Wire, bottom	1,078.00	ft	$0.07	$75.46
84	F-1	8	Fence	Caps, "eye", to support top rail	135.00	ea	$1.10	$148.50
85	F-1	9	Fence	Bars, Tension,	20.00	ea	$2.20	$44.00
Total Component Cost								47,304.23

APPENDIX 11

DAVID H. FELL & CO., INC.

The Miners' Choice Since 1973



DAVID H. FELL & COMPANY, INC.
6009 Bandini Blvd.
City of Commerce, CA 90040
(213) 722-9991 · Fax (213) 722-6567
Call Toll Free: (800) 822-1996

DHF Refining Schedule

DHF GOLD EXPRESS

- Settlement Time: 2 business days from date received
- Pricing: based on the market of the first business day following receipt of your material
- Only the primary metal is payable
- No lot charge, assay or minimum charges
- Settlement Options: bullion, bullion coins, purchase or pool account

Metal	Market	Content	Source	Weight Received	Payable Metal
Gold	London PM	80% or greater fine gold	Placer & doré	Greater than 100 tr. oz..	Call For Quote
				Between 25 & 100 tr. oz.	98.5%
				Between 10 & 25 tr. oz.	98.0%
				Between 1 & 10 tr. oz.	96.5%
				Less than 1 tr. oz.	80.0%

Example: When you ship 30 tr. oz. of placer and/or doré for refining, your material will be processed and you will be paid for 98.5% of the fine gold contained in 2 days.

MULTI-METAL: GOLD & SILVER

- METALS FOR RECOVERY MUST BE SPECIFIED UPON RECEIPT
- Pricing: based on the market of the day of settlement
- Settlement Time: 7 days from date received
- Settlement Options: bullion, bullion coins, purchase or pool account
- Metals: gold and silver

A) Primary Metal: GOLD 25% OR GREATER

Source: placer and doré

Metal	Market	Processing Charge	Minimum Per Lot	Payable Metal
Gold	London PM	$1.20/tr. oz.	$75.00	98.5%
Silver	H&H Spot			93.0%

Example for gold and silver: When you ship 125 tr. oz. of placer and/or doré with a gold content over 25%, the material is processed and you are paid for 98.5% of the gold and 93% of the silver recovered. The processing charge will be $1.20/tr. oz. received X 125.0 tr. oz. received = $150.00. Total cost is $150.00 processing charge and 1.5% of the gold and 7.0% of the silver.

B) Primary Metal: GOLD LESS THAN 25%

Source: placer and doré

Metal	Market	Processing Charge	Minimum Per Lot	Payable Metal
Gold	London PM	$1.70/tr. oz.	$125.00	90.0%
Silver	H& H Spot			80.0%

Example for gold and silver: When you ship 125 tr. oz. of placer and/or doré with a gold content less than 25%, the material is processed and you are paid for 90% of the gold and 80% of the silver recovered. The processing charge will be $1.70/tr. oz. received X 125.0 tr. oz. received = $212.50. Total cost is $212.50 processing charge and 10% of the gold and 20% of the silver.

We do not process mercury amalgams or material that contains greater than 5% black sands.
Prices subject to change.
This price list supercedes all prior price lists. If this schedule does not apply to your material, please call for quote.

For Settlement Options Call (213) 722-9992 (800) 822-1996 FAX (213) 722-6567
Printed On Recycled Paper 3/94

APPENDIX 12

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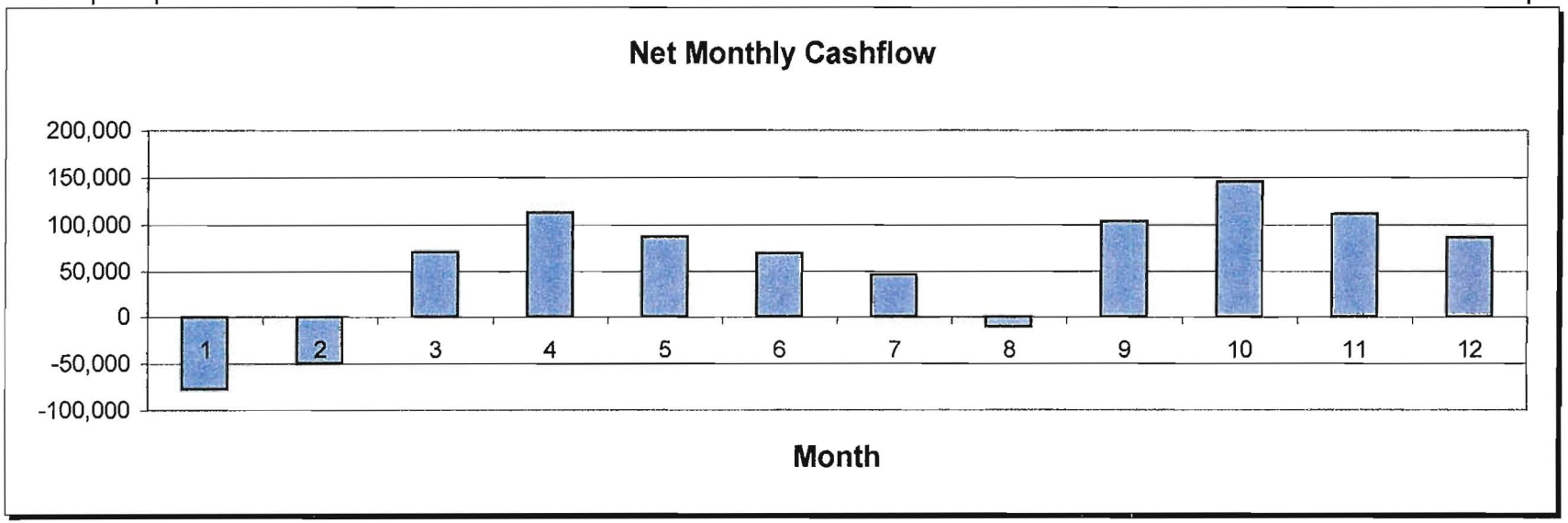
Coyote Mines, Inc
Economic Summary

Economic Parameter		Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Year 1 Totals
Ore Mined	Tons		18,250						18,250					36,500
Gold Produced	ozt		58	292	438	350	292	204	204	409	555	438	350	3,592
Silver Produced	ozt													
Gross Revenue	$		16,352	81,760	122,640	98,112	81,760	57,232	57,232	114,464	155,344	122,640	98,112	1,005,648
Less Operating Costs	$	16,298	66,496	10,739	9,564	10,764	12,514	10,764	67,671	10,764	9,264	10,764	11,864	247,469
Net Operating Income		-16,298	-50,144	71,021	113,076	87,348	69,246	46,468	-10,439	103,700	146,080	111,876	86,248	758,179
Less Capital	$	61,079												61,079
Less Development	$	0												0
Net Cashflow	$	-77,377	-50,144	71,021	113,076	87,348	69,246	46,468	-10,439	103,700	146,080	111,876	86,248	697,100
Cumulative Cashflow	$	-77,377	-127,522	-56,501	56,575	143,923	213,169	259,636	249,197	352,897	498,977	610,852	697,100	697,100



Summar

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Coyote Mines, Inc
Development Expenses

Development Expenses	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Year 1 Totals
Ground Control Survey													
Aerial Photography													
Paneling													
Mapping													
Concrete													
Pad Site Preparation													
Pad Construction													
Preg Pond Excavation													
Preg Pond Construction													
Fencing	4,000												4,000
Metallurgical Testing													
Working Stockpile													
Reclamation													
Total Development Expenses	4,000												4,000

Coyote Mines, Inc
Capital Expenditures

Capital Item	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Year 1 Totals
Laboratory													
Balance, Sample Prep	2,500												2,500
Balance, Reagent	2,500												2,500
Buckets, Plastic	100												100
Cords, Extension, 3#12, 100ft	60												60
Screens, Sizing	320												320
Bottles, Plastic, Sample 250ml	30												30
Meter, pH	600												600
Paper, Litmus	15												15
Glassware, Laboratory	500												500
Pump, Vacuum	600												600
Filter, Whatman	300												300
Papers, Filter	100												100
Hotplate / Stirrer	400												400
Sub-total, Laboratory	8,025												8,025
Engineering													
CD ROM Writer													
MathCad 7.0													
Punch, Report Binder													
Sub-total, Engineering													
Administration													

Coyote Mines, Inc
Capital Expenditures

Capital Item	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Year 1 Totals
Fascimille	250												250
Sub-total, Administration	250												250
Operations													
Plant (see data base for details)	47,304												47,304
Steel, Structural, Misc	2,000												2,000
Tools, Instumentation	2,000												2,000
Tools, Mechanic	1,500												1,500
Sub-total Operations	52,804												52,804
Total Capital Expenditures	61,079												61,079

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Coyote Mines, Inc
Leases

Lease Item	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Year 1 Totals
Laboratory													
Spectrophotometer		600	600	600	600	600	600	600	600	600	600	600	6,600
Sub-total, Laboratory		600	600	600	600	600	600	600	600	600	600	600	6,600
Engineering													
Total Station	1,500												1,500
Vehicle, Utility	350	350	350	350	350	350	350	350	350	350	350	350	4,200
Sub-total, Engineering	1,850	350	350	350	350	350	350	350	350	350	350	350	5,700
Administration													
Nothing Required													
Sub-total, Administration													
Operations													
Tanks, Welding	25	25	25	25	25	25	25	25	25	25	25	25	300
Sub-total Operations	25	25	25	25	25	25	25	25	25	25	25	25	300
Land													
Surface Leases								1,000					1,000
Sub-total, Land								1,000					1,000
Total Lease Expenditures	1,875	975	975	975	975	975	975	1,975	975	975	975	975	13,600

Coyote Mines, Inc
Operating Expenses

Department and Cost Item	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Year 1 Totals
Administration													
Consultants	2,500					2,500							5,000
Fuel and Maintenance	250	250	250	250	250	250	250	250	250	250	250	250	3,000
Coffee, Tea, Soft Drinks	50	50	50	50	50	50	50	50	50	50	50	50	600
Community Relations												500	500
Insurance, Corporate	2,250												2,250
Leases and Rents													
Office Supplies	200	100	100	100	100	100	100	100	100	100	100	100	1,300
Personal Property Tax						750							750
Postage & Express	50	50	50	50	50	50	50	50	50	50	50	50	600
Shipping	50	50	50	50	50	50	50	50	50	50	50	50	600
Relocation													
Salaries	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	25,600
Telephone	200	200	200	200	200	200	200	200	200	200	200	200	2,400
Travel and Expenses	1,500		1,500		1,500		1,500		1,500		1,500		9,000
Propane	300			300				300				300	1,200
Wages	5,960	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	57,999
Sub-total Administration	15,443	7,564	9,064	7,864	9,064	10,814	9,064	7,864	9,064	7,564	9,064	8,364	110,799
Geology & land													
Bond													
Claim Acquisition													
Leases and Rents													
Assaying								1,000					1,000
Claim Assessment													
Drilling													
Surface Acquisition													
Sub-total, Geology & Land								1,000					1,000
Operations													
Contract Mining		41,063						41,063					82,125
Mill Maintenance			250	250	250	250	250	250	250	250	250	250	2,500

Coyote Mines, Inc
Operating Expenses

Department and Cost Item	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Year 1 Totals
Diesel Fuel													
Clothing, Safety													
Electricity	100	150	450	450	450	450	450	450	450	450	450	450	4,750
Equipment Leases	25	25	25	25	25	25	25	25	25	25	25	25	300
Supplies, Welding	30	50	25	50	50	50	50	50	50	50	50	50	555
Supplies, Belt Repair		250											250
Supplies, Hardware	300	350	50	50	50	50	50	50	50	50	50	50	1,150
Gasoline	200	200	75	75	75	75	75	75	75	75	75	75	1,150
Milling Costs		16,045						16,045					32,089
Sub-total, Operations	655	58,132	875	900	900	900	900	58,007	900	900	900	900	124,869
Laboratory													
Laboratory Equipment Leases		600	600	600	600	600	600	600	600	600	600	600	6,600
Laboratory Supplies	200	200	200	200	200	200	200	200	200	200	200	2,000	4,200
Sub-total, Laboratory	200	800	800	800	800	800	800	800	800	800	800	2,600	10,800
Accounts Payable Carry Forward													
Interest Expense													
Total Operating Costs	16,298	66,496	10,739	9,564	10,764	12,514	10,764	67,671	10,764	9,264	10,764	11,864	247,469

Coyote Mines, Inc
Royalties and NSR Interests

Royalty or NSR Interest	Percent NSR	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Year 1 Total
None														
Total Royalties														

Coyote Mines, Inc
Exempt Employees - Manning Schedule

Department and Position	Annual Salary	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
Administration													
Project Manager	20,000	1	1	1	1	1	1	1	1	1	1	1	1
Safety Manager	50,000												
Purchasing Agent	45,000												
Director of Engineering	60,000												
Senior Mine Engineer													
Mine Engineer													
Engineering Technician	36,000												
Receptionist	24,000												
Secretary	24,000												
Total, Administration	259,000	1	1	1	1	1	1	1	1	1	1	1	1
Laboratory													
Chief Assayer	36,000												
Assayer	30,000												
Laboratory Technician	27,000												
Total, Laboratory	93,000												
Operations													
Senior Mine Engineer	60,000												
Mine Engineer	50,000												
Engineering technician	30,000												
Secretary	24,000												
Warehouse Clerk	36,000												
Purchasing Agent	36,000												
Safety Supervisor	36,000												
Personell Manager	50,000												
Mine Foreman	50,000												
Mine Superintendant	50,000												
Mill Superintendant	50,000												
Plant Foreman	50,000												

Coyote Mines, Inc
Exempt Employees - Manning Schedule

Department and Position	Annual Salary	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
Sub-Total Operations													
Total Exempt Employees		1	1	1	1	1	1	1	1	1	1	1	1

Coyote Mines, Inc
Exempt Employee Manning Salaries

Department and Position	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Year 1 Totals
Administration													
Mine Manager	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	25,600
Safety Manager													
Controller													
Director of Engineering													
Senior Mine Engineer													
Mine Engineer													
Engineering Technician													
Receptionist													
Secretary													
Sub-total Administration	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	25,600
Laboratory													
Chief Assayer													
Assayer													
Laboratory Technician													
Sub-total, Laboratory													
Operations													
Senior Mine Engineer													
Mine Engineer													
Engineering Technician													
Secretary													
Warehouse Clerk													
Purchasing Agent													
Safety Supervisor													
Personell Manager													
Mine Superintendant													
Mill Superintendant													
Plant Operators													
Sub-total, Operations													

Coyote Mines, Inc
Exempt Employee Manning Salaries

Department and Position	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Year 1 Totals
Discretionary Salaries													
Total Salaries	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	2,133	25,600

Coyote Mines, Inc
Non-Exempt Employee Manning Schedule

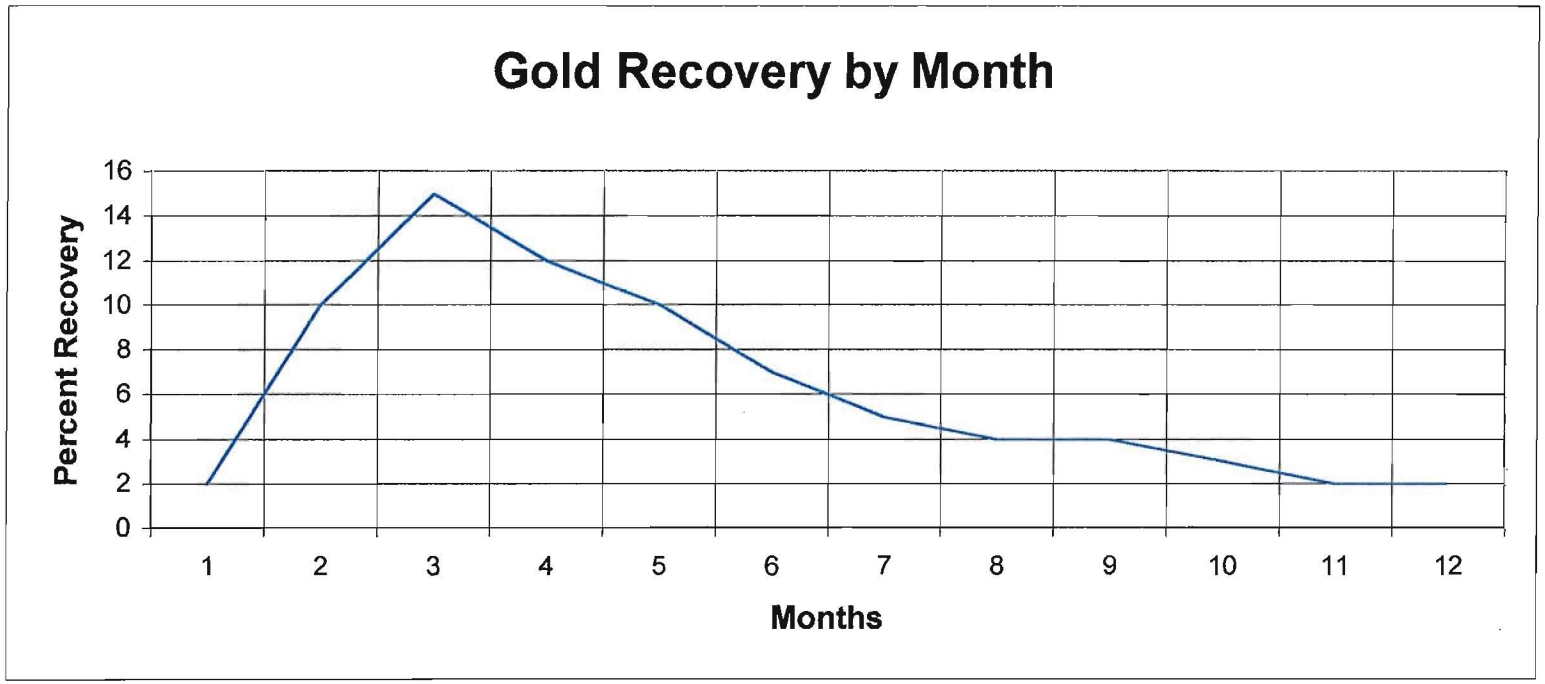
Department and Position	Wage Rate	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
Adminstration													
Watchman	A3	1	1	1	1	1	1	1	1	1	1	1	1
Sub-total, Administration		1	1	1	1	1	1	1	1	1	1	1	1
Operations													
Screen Operator	P1												
Plant Operator	P3												
Operator's Helper	P2												
General Laborer	P2	1	1	1	1	1	1	1	1	1	1	1	1
Sub-total, Operations		1	1	1	1	1	1	1	1	1	1	1	1
Laboratory													
Sample Preparer	A1												
Sub-total, Laboratory													
Total Non-Exempt		2	2	2	2	2	2	2	2	2	2	2	2

Coyote Mines, Inc
Non-Exempt Employee Manning Wages

Department and Position	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Year 1 Totals
Adminstration													
Watchman	1,352	1,352	1,352	1,352	1,352	1,352	1,352	1,352	1,352	1,352	1,352	1,352	16,220
Sub-total, Administration	1,352	1,352	1,352	1,352	1,352	1,352	1,352	1,352	1,352	1,352	1,352	1,352	16,220
Operations													
Screen Operator													
Plant Operator													
Operator's Helper													
General Laborer	4,608	3,379	3,379	3,379	3,379	3,379	3,379	3,379	3,379	3,379	3,379	3,379	41,779
Sub-total, Operations	4,608	3,379	3,379	3,379	3,379	3,379	3,379	3,379	3,379	3,379	3,379	3,379	41,779
Laboratory													
Sample Preparer													
Sub-total, Laboratory													
Total Non-Exempt	5,960	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	57,999

Coyote Mines, Inc
Gold Leach Response

	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Gold Recovered	2	10	15	12	10	7	5	4	4	3	2	2
Cumulative Gold Recovered	2	12	27	39	49	56	61	65	69	72	74	76



Coyote Mines, Inc
Production Schedule and Revenues

Parameter	Units	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Year 1 Total
Administrtive Time	days/Month	22	22	22	22	22	22	22	22	22	22	22	22	264
Processing Time	days/Month	30	22	22	22	22	22	22	22	22	22	22	22	272
Mining Time	days/Month		30						30					60
Mining Rate	tons/day		608						608					
Ore Mined	tons/Month		18,250						18,250					36,500
Ore Grades														
Au	oz./ton		0.160						0.160					
Ag	oz./ton		0.320						0.320					
Pt	oz./ton													
Pd	oz./ton													
Rh	oz./ton													
Recoveries														
Au	%	100	100	100	100	100	100	100	100	100	100	100	100	
Ag	%	100	100	100	100	100	100	100	100	100	100	100	100	
Pt	%													
Pd	%													
Rh	%													
Leach														
Metal Production														
Au	oz.		58	292	438	350	292	204	204	409	555	438	350	3,592
Ag	oz.													
Pt	oz.													
Pd	oz.													
Rh	oz.													
Cumulative Metal Production														
Au	oz.		58	350	788	1,139	1,431	1,635	1,840	2,248	2,803	3,241	3,592	

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Coyote Mines, Inc
Production Schedule and Revenues

Parameter	Units	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Year 1 Total
Ag	oz.													
Pt	oz.													
Pd	oz.													
Rh	oz.													
Metal Prices														
Au	$/oz.	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	
Ag	$/oz.	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	
Pt	$/oz.													
Pd	$/oz.													
Rh	$/oz.													
Revenue														
Au	$		16,352	81,760	122,640	98,112	81,760	57,232	57,232	114,464	155,344	122,640	98,112	1,005,648
Ag	$													
Pt	$													
Pd	$													
Rh	$													
Total Revenues	$		16,352	81,760	122,640	98,112	81,760	57,232	57,232	114,464	155,344	122,640	98,112	1,005,648
Cumulative	$		16,352	98,112	220,752	318,864	400,624	457,856	515,088	629,552	784,896	907,536	1,005,648	

Coyote Mines, Inc
General Support Data

Wage Rate Table			
Department	Pay Grade	Hourly Rate	Hours per Shift
Administration	A1	15.00	8
	A2	12.00	8
	A3	6.00	8
	A4	8.00	8
Mining	M1	15.00	10
	M2	12.00	10
	M3	10.00	10
	M4	8.00	10
Process	P1	15.00	10
	P2	12.00	10
	P3	10.00	10
	P4	8.00	10
Maintenance	MT1	15.00	10
	MT2	12.00	10
	MT3	10.00	10
	MT4	8.00	10

General Parameters		
Exempt Burden	%	28
Non-Exempt Burden	%	28
Contract Mining Cost	$/ton	2.25
System Type		Leach

Reagent or Component	Used	Units	Unit Cost	Units per ton	Total Cost
Reagents					
Hydrochloric Acid	X	liter	0.4500	0.135	0.061
Sodium Hypochlorite	X	liter	0.3600	0.135	0.049
Di-ethylene Glycol Di-butyl Ether	X	liter	13.2000	0.0006	0.008
Oxalic Acid	X	lbs	4.4500	0.0059	0.026
Sodium Hydroxide	X	lbs	0.1275	0.578	0.074
Sodium Cyanide	x	lbs	0.7000	0.272	0.190
Activated Charcoal	x	lbs	1.3500	0.1641	0.222
Hydrogen Peroxide	x	lbs		0.0000	
Sub-total Reagents					0.629

Process					
Crushing, Primary	x	$/ton			0.250
Crushing, Secondary		$/ton			
Grinding		$/ton			
Flotation		$/ton			
Sub-total Process					0.250
Total Milling Cost					0.879

APPENDIX 13

File w/ Coyote mine Notice

JUL 21 7 ... '99

Notice of Proposed Action

by the

State of Nevada

The Administrator of the Division of Environmental Protection gives notice that an application for a major modification of a Water Pollution Control Permit for a mining facility, the **Coyote Mine**, has been properly filed with the Division of Environmental Protection in Carson City. The applicant for this major modification to Permit NEV94113 is:

Coyote Mines, Inc.
1201 Sycamore Dr., S.E.
Issaquah, Washington 98027

The facility is located in Clark County, within Sections 14, 15, 22, and 23 of Township 28S, Range 63E, approximately 1.5 miles north of Searchlight, Nevada. The proposed modification includes construction of a heap leach cyanidation pad, pregnant solution pond, and process recovery facility.

The Administrator is constrained to issue a modified Water Pollution Control Permit or to deny the application. The Administrator has made the tentative determination to issue the modified permit.

Persons wishing to comment upon the proposed permit, to recommend terms and conditions for consideration of incorporation in a permit, or who request a public hearing pursuant to the Nevada Administrative Code, NAC Chapter 445A, must submit their comments, objections, or requests no later than 30 days from the date of publication of this notice to:

Division of Environmental Protection
Bureau of Mining Regulation and Reclamation
333 W. Nye Lane, Room 138
Carson City, NV 89706-0851

All comments or objections received during the public notice period will be considered in the final determination regarding this application. If the Division determines written comments or requests indicate a significant degree of public interest in this matter, the Administrator shall schedule a public hearing in accordance with the requirements of NAC 445A.405.

The application and all documents subsequent thereto are on file and are available for public inspection and copying pursuant to NRS 445A.665. For more information contact Tom Waters at (775) 687-4670 extension 3132 or toll free in Nevada (800) 992-0900 extension 4670.

STATE OF NEVADA

Department of Conservation and Natural Resources

Division of Environmental Protection

Bureau of Mining Regulation and Reclamation

Water Pollution Control Permit

Permittee: **Coyote Mines, Inc.**
1201 Sycamore Dr., S.E.
Issaquah, Washington 98027

Permit Number: **NEV94113**

Pursuant to Nevada Revised Statutes (NRS) 445A.300 through 445A.730, inclusive, and regulations promulgated thereunder by the State Environmental Commission and implemented by the Division of Environmental Protection (the Division), this permit authorizes the Permittee to construct, operate, and close the Coyote Mine, in accordance with the limitations, requirements and other conditions set forth in this permit. The Permittee is authorized to process up to **18,250** tons of ore per year.

This facility is located in Clark County, within Township 28 South, Range 63 East, Sections 14, 15, 22, and 23.

The Permittee must comply with all terms and conditions of this permit and all applicable statutes and regulations.

This permit is based on the assumption that the information submitted in the application of December 6, 1994, as modified by subsequent approved amendments, is accurate and that the facility has been constructed and is being operated as specified in the application. The Permittee must inform the Division of any deviation from or changes in the information in the application which may affect the Permittee's ability to comply with applicable regulations or permit conditions.

This permit is effective as of , and shall remain in effect until August xx,2004, unless modified, suspended, or revoked.

Signed this # day of month, 1999.

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Leo M. Drozdoff, P.E.
Bureau Chief
Bureau of Mining Regulation and Reclamation

I. Specific Facility Conditions and Limitations

A. In accordance with operating plans and facility design reviewed and approved by the Division the Permittee shall:

1. Construct, operate, and close the facility in accordance with those design plans;

2. Contain within the fluid management system all process fluids including all meteoric waters which enter the system as a result of the 25-year, 24-hour storm event; and

3. Not release or discharge any process or non-process contaminants from the fluid management system.

B. Schedule of Compliance-no items

C. The fluid management system covered by this permit consists of the following process components:

1. Lined heap leach pad and solution collection area;

2. Solution collection pipe and lined solution conveyance ditch;

3. Leak detection system for the pad, solution collection area, and collection ditch;

4. The pregnant solution pond and its leak detection and collection system;

5. Transfer pipes, valves, and pumps used in conveyance, control or detection of process fluids between process components; and

6. Process plant including, but not limited to, all tanks, basins, sumps, pumps, and piping within.

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D. Monitoring Requirements

Identification	Parameter	Frequency
1. Water Supply Well	Profile I[2]	Initially then annually
2. Constant Head Tank (CHT)	Profile I[2]	Quarterly
3. Leach Pad Leak Detection Standpipe	Average daily accumulation (gpd)	Weekly
4. Pregnant Solution Pond Leak Detection Standpipe	Average daily accumulation (gpd)	Weekly
5. Electronic Leak Detection System	Detected Leaks	Quarterly
6. Pregnant & barren leach solutions	Profile II[3]	Quarterly
7. Waste rock	MWMP w/ Profile I[2] and ANP/AGP accounting	Annually

The Permittee may request a reduction in the number of elements and frequency of analyses after one year of complete monitoring based on justification other than cost. Such reductions may be considered formal modifications to the permit.

(1) The sump must be inspected and evacuated on a more frequent basis than weekly if the fluid level is above the invert of any pipe which discharges into the standpipe. Records are required documenting the volume, date and time of extraction to show that sumps are maintained in this condition.

(2) Profile I

Alkalinity (as $CaCO_3$)	Boron	Lead	Selenium
Bicarbonate	Cadmium	Magnesium	Silver
Total	Calcium	Manganese	Sodium
Aluminum	Chloride	Mercury	Sulfate
Antimony	Chromium	Nickel	Thallium
Arsenic	Copper	Nitrate	Total Dissolved Solids
Barium	Fluoride	pH (± 0.1 units)	WAD Cyanide
Beryllium	Iron	Potassium	Zinc

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(3) Profile II includes Profile I plus the following:

Bismuth	Lithium	Scandium	Titanium
Cobalt	Molybdenum	Strontium	Vanadium
Gallium	Phosphorous	Tin	

E. Quarterly and annual monitoring reports and spill reporting shall be in accordance with Part II.B.

F. All sampling and analytical accuracy shall be in accordance with Part II.E.

G. Permit Limitations

1. The daily accumulation of flow exceeding 20 gallons per day averaged over the quarter in the leak detection collection point identified in Part I.D.3.

2. The daily accumulation of flow exceeding 10 gallons per day averaged over the year in the leak detection collection point identified in Part I.D.3.

3. The daily accumulation of flow exceeding 150 gallons per day averaged over the quarter in the leak detection standpipe identified in Part I.D.4.

4. The daily accumulation of flow exceeding 50 gallons per day averaged over the year in the leak detection standpipe identified in Part I.D.4.

Exceedance of these limitations may be permit violations and shall be reported as specified in Part II.B.

H. The facility shall install a calibrated rain gauge which shall be monitored daily. A record of all daily accumulations of precipitation shall be maintained in a bound log book on site.

I. The Permittee shall inspect all control devices, systems and facilities weekly. Drainage and containment systems shall also be inspected during, when possible, and after major storm events. These inspections are performed to detect evidence of:

1. Deterioration, malfunction, or improper operation of control systems;

2. Sudden changes in the level of the contents of any monitoring device;

3. The presence of liquids in leak detection systems; and

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4. Severe erosion or other signs of deterioration in dikes, diversions, or other containment devices.

J. Prior to initiating permanent closure activities at the facility or any process component within the facility, the permittee must have an approved final permanent closure plan.

K. The Permittee shall remit an annual review and services fee in accordance with NAC 445A.232 starting July 1 after the effective date of this permit and every year thereafter until the permit is terminated or the facility has received final closure certification from this Division.

L. The Permittee shall not dispose of or remediate hydrocarbon contaminated soil exceeding 100 mg/kg Total Petroleum Hydrocarbon on the mine site without first obtaining a General or Individual Mining Bioremediation Facility Permit from the Division.

II. General Facility Conditions and Limitations

A. General Requirements

1. The Permittee shall achieve compliance with the conditions, limitations, and requirements of the permit upon commencement of each relevant activity. The Administrator may, upon the request of the permittee and after public notice (if required), revise or modify a schedule of compliance in an issued permit if he determines good and valid cause (such as an act of God, a labor strike, materials shortage or other event over which the Permittee has little or no control) exists for such revision.

2. The Permittee shall at all times maintain in good working order and operate as efficiently as possible, all devices, facilities, or systems installed or used by the Permittee to achieve compliance with the terms and conditions of this permit.

3. Whenever the Permittee becomes aware that he failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Administrator, the Permittee shall promptly submit such facts or correct information. Any inaccuracies found in this information may be grounds for revocation or modification of this permit and appropriate enforcement action.

B. Reporting Requirements

1. The Permittee shall submit quarterly reports which are due to the Division on or before the 28th day of the month following the quarter and must contain the following:

a. Analytical results of the solution collected from the monitoring locations

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identified in Parts I.D.2 reported on NDEP Form 0190 or an equivalent;

b. Monitoring results from the leak detection standpipes identified in Parts I.D.3 and 4 reported on NDEP Form 0590;

c. Analytical results of the solution collected from the monitoring locations identified in Part I.D.6 reported on NDEP Form 0190 or an equivalent; and

d. A report of any leaks detected with the Electronic Leak Detection System identified in Part I.D.5.

e. A record of spills and releases, and the remedial actions taken in accordance with the approved Emergency Response Plan on NDEP Form 0390 or an equivalent.

Facilities which have not initiated mining or construction must submit a quarterly report identifying the status of mining or construction. Subsequent to any noncompliance or any facility expansion which provides increased capacity, the Division may require an accelerated monitoring frequency.

2. The Permittee shall submit an annual report by February 28th of each year which contains the following:

a. Analytical results of water quality samples collected from the water supply well identified in Part I.D.1 reported on NDEP Form 0190 or equivalent;

b. Analytical results of the water quality collected from the Meteoric Water Mobility Procedure for the waste rock identified in Part I.D.7 reported on NDEP Form 0190, and including an acid based accounting analysis of the waste rock;

c. A synopsis of spills and releases on NDEP Form 0390 or equivalent;

d. A brief summary of site operations, including the number of tons of ore milled or placed on heaps during the year, construction and expansion activities and major problems with the fluid management system; and

e. An updated evaluation of the closure plan using specific characterization data for each process component with respect to achieving stabilization.

3. Spill Reporting Requirements: The following applies to facilities with an approved Emergency Response Plan. If a site does not have an approved Emergency Response Plan, then all spills must be reported as per NAC 445A.347.

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a. A release directly into surface or groundwater of any quantity of pollutant, hazardous waste or contaminant must be reported to the Division as soon as possible, but no later than the end of the first working day after knowledge of the release. The report may be made by telephone to (775) 687-4670, extension 3023.

b. A release of a substance in a quantity equal to or greater than that covered by 40 C.F.R. Part 302.4 must be reported as required in NRS 445A.347.

c. A release of solutions containing a pollutant, hazardous waste or contaminant and the quantity is equal to or exceeds 500 gallons, report as per Part II.B.3.a. Report smaller spills quarterly on NDEP Form 0390 or equivalent.

d. Petroleum Products: If the quantity is equal to or greater than 100 gallons, report in the time frame specified in Part II.B.3.a. Smaller spills are reported quarterly on NDEP Form 0390 or equivalent.

4. The Permittee shall report to the Administrator any noncompliance with the permit.

a. Each such event shall be reported orally no later than 5 p.m. of the next regular work day from the time the Permittee has knowledge of the circumstances. This report shall include the following:

i. Name, address, and telephone number of the owner or operator;

ii. Name, address, and telephone number of the facility;

iii. Date, time, and type of incident, condition, or circumstance;

iv. Name and quantity of materials released, if process solution is released report total gallons and pounds of cyanide;

v. Human and animal mortality or injury;

vi. An assessment of actual or potential hazard to human health and the environment outside the facility; and

vii. The estimated quantity of material that will be disposed and the disposal location.

b. A written summary shall be provided within 10 days of the time the Permittee makes the oral report. The written summary shall contain a description of the release or discharge and its cause, the periods of the release or discharge (including exact dates and times), whether the cause and its consequences

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have been corrected, and if not, the anticipated time each is expected to continue, and the steps taken or planned to reduce, eliminate, and prevent recurrence of the event.

c. The Permittee shall take all available and reasonable actions, including more frequent and enhanced monitoring, to:

i. Determine the effect and extent of each release or discharge;

ii. Minimize any adverse impact to the waters of the State arising from each release or discharge;

iii. Minimize the effect of each release or discharge upon domestic animals and all wildlife; and

iv. Minimize the endangerment of the public health and safety which arises from each release or discharge.

C. Administrative Requirements

1. A valid permit must be maintained until permanent closure is complete. Therefore, unless permanent closure has been completed, the permittee shall apply for permit renewal not later than 120 days before this permit expires.

2. All reports and other information requested by the Administrator shall be signed and certified as required by NAC 445A.231.

3. When ordered consistent with Nevada Statutes, the Permittee shall furnish any relevant information in order to determine whether cause exists for modifying, revoking and reissuing, or permanently revoking this permit, or to determine compliance with this permit.

4. The Permittee shall maintain a copy of, and all modifications to, the current permit at the permitted facilities at all times.

5. The Permittee is required to retain during operation, closure and post-closure monitoring all records of monitoring activities and analytical results including all original strip chart recordings for continuous monitoring instrumentation, and all calibration and maintenance records. This period of retention must be extended during the course of any unresolved litigation.

6. The provisions of this permit are severable. If any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this

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permit, shall not thereby be affected.

7. The Permittee is authorized to manage fluids and solid wastes in accordance with the conditions of this permit. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of Federal, State or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any order issued or any action brought under the Water Pollution Control Statutes for releases or discharges from facilities or units not regulated by this permit. NRS 445A.675 provides that any person who violates a permit condition is subject to administrative or judicial action as provided in NRS 445A.690 through 445A.705.

D. Division's Authority

The Permittee shall allow authorized representatives of the Division, at reasonable times, and upon the presentation of credentials to:

1. Enter the Permittee's premises where a regulated activity is conducted or where records are kept per the conditions of this permit;

2. Have access to and copy any record that must be kept per the conditions of this permit;

3. Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required by this permit; and

4. Sample or monitor for any substance or parameter at any location for the purposes of assuring permit and regulatory compliance.

E. Sampling and Analysis Requirements

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

2. For each measurement or sample taken pursuant to the conditions of this permit, the Permittee shall record the following information:

   a. The exact place, date, and time of inspection, observation, measurement, or sampling; and

   b. The person(s) who inspected, observed, measured, or sampled.

3. Samples must be taken, preserved, and labeled according to Division approved

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methods.

4. Standard environmental monitoring chain of custody procedures must be followed.

5. Samples shall be analyzed by a laboratory certified by the State of Nevada. The Permittee must identify the certified laboratory used to perform the analyses, laboratory reference number, sample date and laboratory test date in quarterly reports.

F. Permit Modification Requirements

1. Any material modification must be reported by submission of a new application, or, if such changes will not violate the limitations specified in this permit, by notice to the permit issuing authority of such changes. Any change which materially modifies, as defined in NAC 445A.365, the permitted facility must comply with NAC 445A.392, NAC 445A.416 and NAC 445A.417.

2. Prior to the commencement of mining activities at any site within the State which is owned or operated by the permittee but not identified and characterized in the application, the permittee shall submit to the Division a report which identifies the locations of the proposed mine areas and waste disposal sites, and characterizes the potential of mined materials to release pollutants. Prior to development of these areas the Division shall determine if any of these new sources will be classified as process components and require engineered containment as well as permit modification.

3. The permittee must notify the Division in writing at least thirty days before the introduction of process solutions into a new process component or into an existing process component which has been materially modified or of the intent to commence active operation of that process component.

4. The Permittee must obtain a written determination from the Administrator of any planned material modification(s) as to whether it is considered a permit modification.

5. The Permittee must give advance notice to the Administrator of any planned changes or activities which are not material modifications in the permitted facility that may result in noncompliance with permit requirements.

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FACT SHEET
(pursuant to NAC 445A.401)

Permittee Name: **Coyote Mines, Inc.**

Facility Name: **Coyote Mine**

Permit Number: **NEV94113**

A. Description of Facility

Location: The Coyote Mine is located approximately 1.5 miles north of the town of Searchlight, Nevada, within Sections 14, 15, 22, and 23 of Township 28S, Range 63E, in Clark County.

Characteristics: The existing permitted facility uses physical separation methods to extract gold from the ore. The major modification proposed describes the plans to construct a 200-foot by 200-foot square pad for cyanide leaching of crushed gold ore. A pregnant solution pond will be constructed along with a process plant which employs a carbon adsorption tank to capture gold from the pregnant solution.

B. Synopsis

Water pollution control permit NEV94113 was first issued to Coyote Mines, Inc. on June 1, 1995 for the Coyote Mine, as a physical separation facility. Coyote Mines, Inc. is owned and operated by Sanford A. Shuler, Jr. and Marilyn B. Shuler, and is headquartered in Issaquah, Washington.

Coyote Mines, Inc. owns three patented properties totaling 38.06 acres. Also, Coyote Mines, Inc. owns six mill site claims totaling 24.35 which are under "Final Certificate of Patent" No. N50229. The process components, i.e. pad, pond, and processing facility described in this major modification proposal are located on these claims.

On February 24, 1999, an application for a major modification of the permit was received. The major modification proposed construction of a (1) leach pad for cyanide leaching of gold ore, (2)pregnant solution pond, and (3) process facility for the recovery of gold from solution.

The heap leach pad is planned to be constructed with a total lined surface area of about 40,000 square feet, or approximately 1 acre. The pad liner system consists of, from top down: a 30-mil PVC primary liner, compacted fill material consisting of old mill tailings, a layer of gravel containing 2" PVC perforated pipes to control and detect leakage from

the primary liner, a 20-mil PVC secondary liner, and last, a compacted subbase layer which overlies bedrock.

The 30-mil PVC primary liner will be overlain with gravel to prevent abrasion and puncture from construction equipement. The gravel layer which overlies the primary liner will house the solution collection system which consists of perforated 2" perforated PVC pipes connected to a 4" perforated header pipe which exits the pad on the west corner. After exiting the pad the 4" header continues to the pregnant solution pond in a 30-mil PVC-lined ditch.

The pad will be equipped with an active leak detection system as follows. Within the gravel layer overlying the 20-mil PVC secondary liner will be placed 2" perforated PVC pipes connected to a 4" perforated header. The design is the same as the solution collection system with the leak detection system directly underlying the solution collection pipe system. The 4" header leads to a standpipe at the west corner of the pad where collected leakage can be detected and quantified.

The heap leach pad and the pregnant solution pond will also be monitored for escaping solution by a grid of electrical wires placed on top the compacted fill and just under the 20-mil PVC liner.

The pregnant solution pond will be constructed with a liner system identical to the heap leach pad. This pond has a nominal capacity of 86,000 gallons and a total capacity of 213,000 gallons using the 4' of freeboard capacity.

The water supply will be monitored on an annual basis for a Profile I list of constituents.

C. Site Hydrology and Background Water Quality

The Coyote Mine is located in the Searchlight mining district which lies in a range of hills known as the Opal Mountains. No perennial surface waters exist within a one mile radius of the existing or proposed process components.

The well completed in 1983 which supplies potable and process water to the Coyote Mine is 350' in depth and exhibits a static water level of 175' bgs (below ground surface). Analyses of the water from this well show the water meets primary drinking water standards except for the concentration of nitrate. The hydrologic gradient at the Coyote Mines property is toward the southwest.

Water is encountered at a depth of 350' bgs in an open, abandoned shaft north of the Coyote Mine properties.

A Profile I analysis of the water supply well is required annually and will be used to

assess possible impacts from the mining operations. Additionally, water samples will be taken daily from the water supply well and tested for the presence of cyanide. If cyanide is detected, the water will be analyzed to determine quantatively for WAD cyanide.

D. Procedures for Public Comment

The Notice of the Division's intent to issue this major modification to the permit, authorizing the facility to construct, operate, and close subject to the conditions contained within the permit, is being sent to the Las Vegas Review-Journal for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed major modification to the permit can do so in writing within a period of 30 days following the date of public notice. The comment period can be extended at the discretion of the Administrator. All written comments received during the comment period will be retained and considered in the final determination.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected intrastate agency, the Regional Administrator of EPA Region IX or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed facility or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.403 through NAC 445A.406.

E. Proposed Determination

The Division has made the tentative determination to approve of the proposed major modification to this existing permit which includes construction of a heap leach pad for cyanide leaching of gold ore, and associated construction of a pregnant solution pond and processing facility for the recovery of gold from solution.

F. Proposed Effluent Limitations, Schedule of Compliance and Special Conditions

See Section I of the permit.

G. Rationale for Permit Requirements

The facility is located in an area where annual evaporation is greater than annual precipitation. Therefore, it must operate under a standard of performance which authorizes no discharge(s) except for excess accumulations which are a result of a storm event beyond that required by design for containment.

The primary emphasis for identification of escaping process fluids is placed in periodic inspection of leak detection systems, monitoring wells and routine visual inspections. Monitoring shall be in accordance with permit conditions.

H. Federal Migratory Bird Treaty Act

Under the Federal Migratory Bird Treaty Act, 16 U.S.C. 701-718, it is unlawful to kill migratory birds without license or permit, and no permits are issued to take migratory birds using toxic ponds. The Federal list of migratory birds (50CFR10, April 15, 1985) includes nearly every bird species found in the State of Nevada. The U.S. Fish and Wildlife Service is authorized to enforce the prevention of migratory bird mortalities at ponds and tailings impoundments. Compliance with state permits may not be adequate to ensure protection of migratory birds for compliance with provisions of Federal statutes to protect wildlife. Open waters attract migratory waterfowl and other avian species. High mortality rates of birds have resulted from contact with toxic ponds at operations utilizing toxic substances. The Service is aware of two approaches that are available to prevent migratory bird mortality: 1) physical isolation of toxic water bodies through barriers (covering with netting), and 2) chemical detoxification. These approaches may be facilitated by minimizing the extent of toxic water. Methods which attempt to make uncovered ponds unattractive to wildlife are not always effective. Contact the U.S. Fish and Wildlife Service at 1340 Financial Boulevard, Suite 234, Reno, Nevada, 89502, (775) 861-6300, for additional information.

Prepared by: Tom Waters

Date: July 15, 1999

APPENDIX 14

MINING & PRODUCTION SCHEDULE

FOR

COYOTE MINES, INC.

TIME PERIOD: Mid 1999 - Mid 2004 (Five Years)

COYOTE MINES, INC. will continue operations under the Corporation's "NOTICE OF INTENT TO OPERATE" #54-90-052N Searchlight, Nevada which allows for 36,500 tons of production per annum.

All mining and production will be conducted in the SE¼ Section 22, Township 28S, Range 63E, MDM, Searchlight Mining District in Clark County, Nevada.

ORE LOCATIONS

TIME PERIOD	COYOTE LODE SHEAR ZONE	DUMP PILES	WHIST LODE
7/99-1/2000	Level 1*, L1-H1, L1-H2	-	-
1/2000-1/2001	Level 1*, L1-H3, L1-H4	18,000 tons on J & S Lode	-
1/2001-1/2002	Level 1*, L1-H5, L1-H6, L1-H7, L1-H8	12,000 tons on Lot 16	-
1/2002-1/2003	Level 1*, L1-H3, L1-H10, L1-A, L1-B, L1-C	-	SW Section
1/2003-1/2004	Level 1*, L1-D, L1-E, L1-F, L1-G, Level 2* J1, L2-J2	-	Mid-West Section
1/2004-1/2005	Level 2*, L2-A, L2-B, L2-c, L2-D, L2-E, L2-F, L2-G, L2-H, L2-I	-	NW Section

* Refer to Map showing polygons used to estimate gold & silver reserves on Level 1 and 2 of the Coyote's Blossom Shear (Figure B-5) constructed by Geologist, William Bagby in his Report of July 1994.

COYOTE MINES, INC.

COYOTE's BLOSSOM SHEAR ZONE

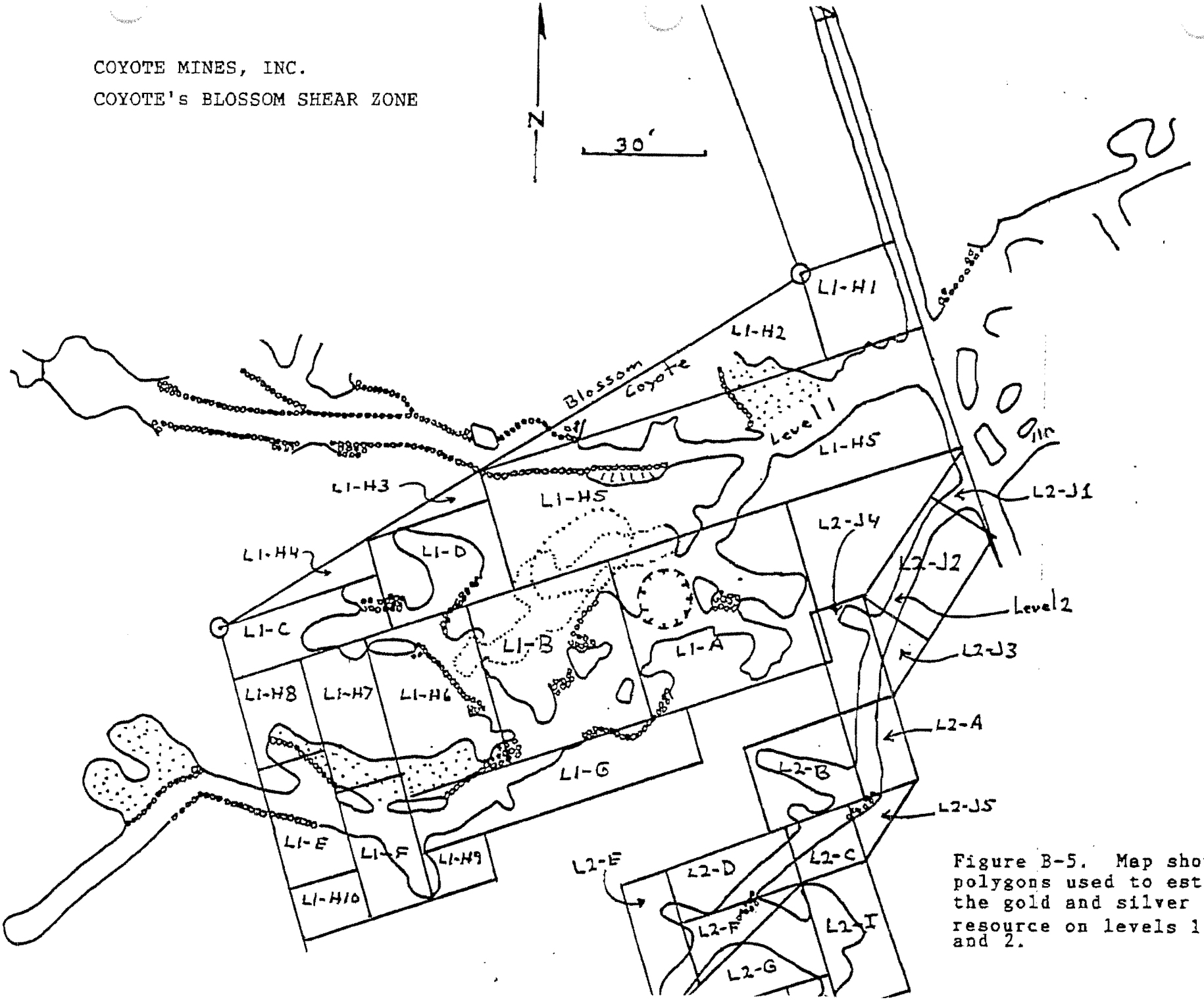


Figure B-5. Map showing polygons used to estimate the gold and silver resource on levels 1 and 2.

APPENDIX 15

rec'd 10/19/94 MRC

COYOTE MINES, INC.

ADMINISTRATIVE HEADQUARTERS
1201 SYCAMORE DR., S.E.
ISSAQUAH, WA 98027
TELEPHONE: (206) 392-7289

October 17, 1994

Mr. Mark Chatterton, Geologist
Ms. Rebecca Lange, Geologist
U.S. Department of the Interior
Bureau of Land Management
4765 W. Vegas Drive
Las Vegas, NV. 89126

Dear Mr. Chatterton and Ms. Lange:

As requested during COYOTE MINES, INC.'s presentation pertaining to the economic feasibility for patenting the six (6) Millsites on Wednesday, October 12, 1994, we are attaching our Economic Geologist's (Bill Bagby) report as requested pertaining to the "Absence of Gold Ore Beneath the Coyote Mill Site Claims".

If further data is required, please contact us.

Very truly yours,

Sanford A. Shuler, Jr.

Sanford A. Shuler, Jr.
President

Enc.

Absence of Gold Ore Beneath the Coyote Mill Site Claims
Searchlight District, Clark County, Nevada

by

William C. Bagby
Metallan International
19726 SE 17th Street,
Issaquah, Washington 98027-9672
17 October, 1994

The Coyote Mines, Inc. mill site claims adjoin the southeast and northeast boundary of the John & Sanford patented claim and the northeast boundary of the Coyote patented claim. The 6 mill site claims constitute a contiguous block of claims that are currently under patent application.

The gold deposit that will be mined to supply gold ore to the mill located on the mill site claims crops out on the Coyote claim. The strike of the gold zone is north-northeast such that the zone continues off the Coyote claim at the northern corner scribed "2060 #5&MOR" and between that corner and the next corner to the southeast scribed "2060 #4&MOR". The surface outcrops in this northern part of the Coyote claim are weakly altered indicating that the mineralizing system did extent at least that far from the main gold zone. However, there is no surface indication that the altered zone continues onto the Coyote mill site #6 which adjoins the northeast boundary of the Coyote claim.

The main epithermal gold zone occurs in the southwestern portion of the Coyote claim. There, a gold resource of about 13,000 ounces is identified and will serve as the primary feed to the mill. This resource was determined by continuous chip-panel sampling of ribs in the old underground workings on levels 1 and 2. Level 1 is about 85 feet and level 2 is about 120 feet beneath the surface of the Coyote claim. The mean grade estimated from 85 samples for the deposit on level 1 is 0.162 ounces of gold per ton. The mean grade estimated from 67 samples for the deposit on level 2 is only 0.033. Character samples from the surface above level 1 run as high as 1 ounce per ton.

The extensive sampling shows that the grade of the deposit is highest near the surface and decreases dramatically with depth. This is to be expected for an epithermal deposit. The dip of the gold zone can be projected beneath the John & Sanford patented claim and the unpatented mill site claims numbers 1 and 2. The estimated depth of the gold zone beneath the John & Sanford claim is between 150 to 230 feet at its northwestern boundary with the Coyote claim and 250 to 360 feet at its southeastern boundary with mill site claims numbers 2 and 3.

Based upon the decrease in grade with depth on the Coyote claim, the estimated grade beneath the mill site claims (if the gold zone is assumed to continue down dip) would be less than 0.001 ounces of gold per ton. This grade would occur at depths of greater that 250 feet. Epithermal precious-metal deposits not only decrease in grade with depth but

also decrease in tonnage. This is true of the gold zone on the Coyote claim as well. Therefore, without drill testing, the estimate for grade and tonnage for any mineralized rock beneath the mill site claims is simply too low to be economic.

This interpretation is based upon structural analysis of the gold zone together with empirical models developed for epithermal precious-metal deposits. The conclusion is corroborated by surface character samples taken from outcrops on the mill site claims. Geologist Ed Huskinson collected four character samples, one each from mill site claims numbered 1,3,4, and 6. The samples were analyzed by Chemex Labs, Inc. in Sparks, Nevada. None of the samples contained greater than 5 parts per billion gold. These results were summarized and discussed in a report by Mr. Huskinson for Coyote Mines, Inc. in the Spring of 1992.

This analysis indicates that no ore exists beneath the Coyote mill site claims.

COYOTE MINES, INC.
ADMINISTRATIVE HEADQUARTERS
1201 SYCAMORE DR., S.E.
ISSAQUAH, WA 98027
TELEPHONE: (206) 392-7289

RECEIVED
Bureau of Land Management

October 21, 1996

AMENDMENT TO MINING NOTICE
#54-90-052N
SEARCHLIGHT, NV.

Based upon a detailed review and evaluation of the current gravity concentration milling circuit performance data, it appears that approximately fifty percent (50%) of the head ore assay values were flowing to the tailings pond. An investigative program was initiated to determine the cause of this observation and to implement corrective action.

It was determined that the viscous resistance of the flattened particles produced by the Ball Mill was greater than the rounded particles produced by an Impact Mill. Consequently, the flattened particles would tend to ride "on the surface" of the moving slurry stream where as the rounded particles would tend to ride "on the surface" of the moving slurry stream where as the rounded particles having less viscous resistance would tend to sink to the surface of the "stream".

A Stuttenroth Impact Production mill has been installed to operate in conjunction or parellel with the Denver Ball Mill. A measurable improvement in free gold output has occurred.

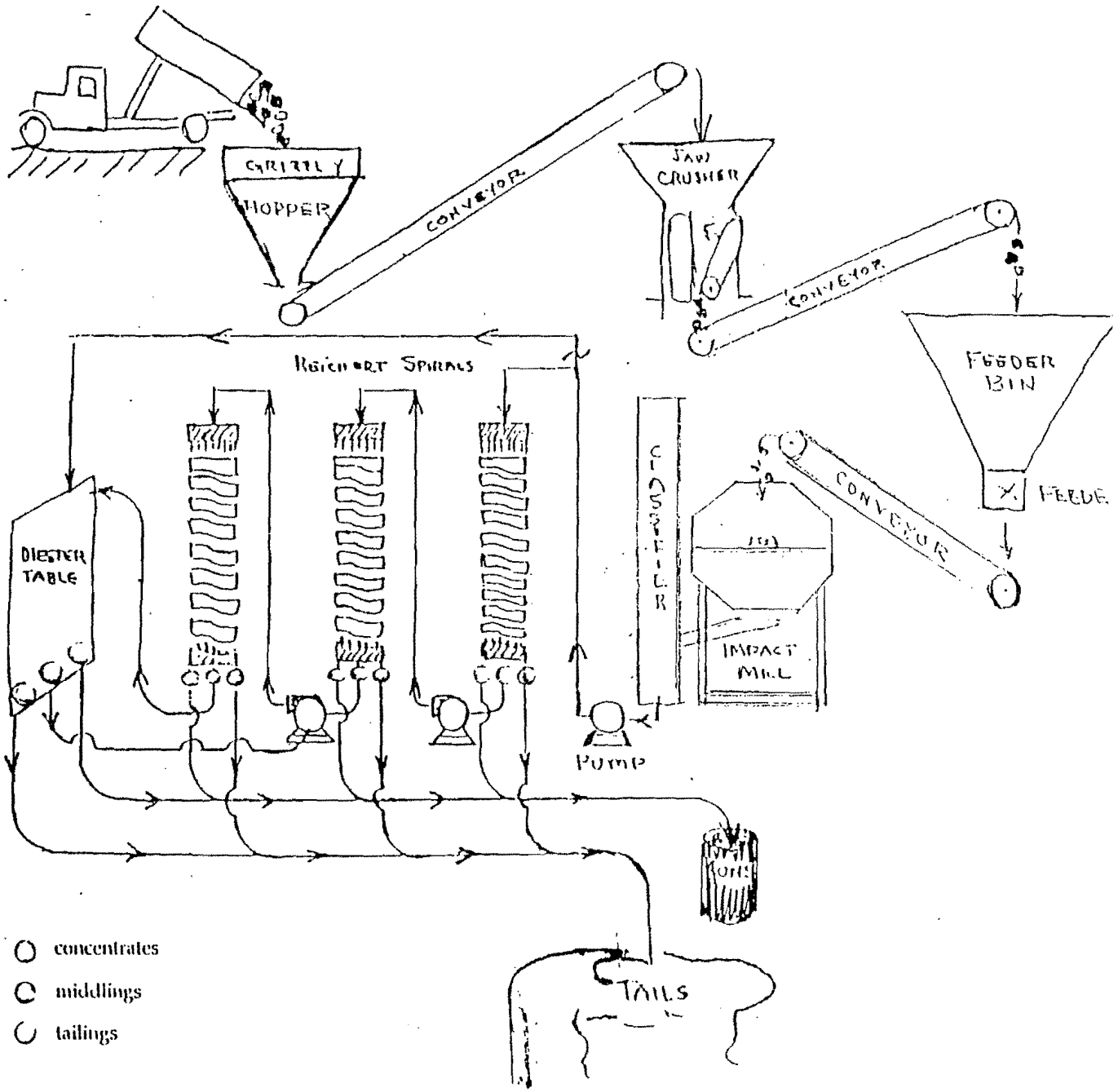
Respectfully submitted,

Sanford A. Shuler Jr.

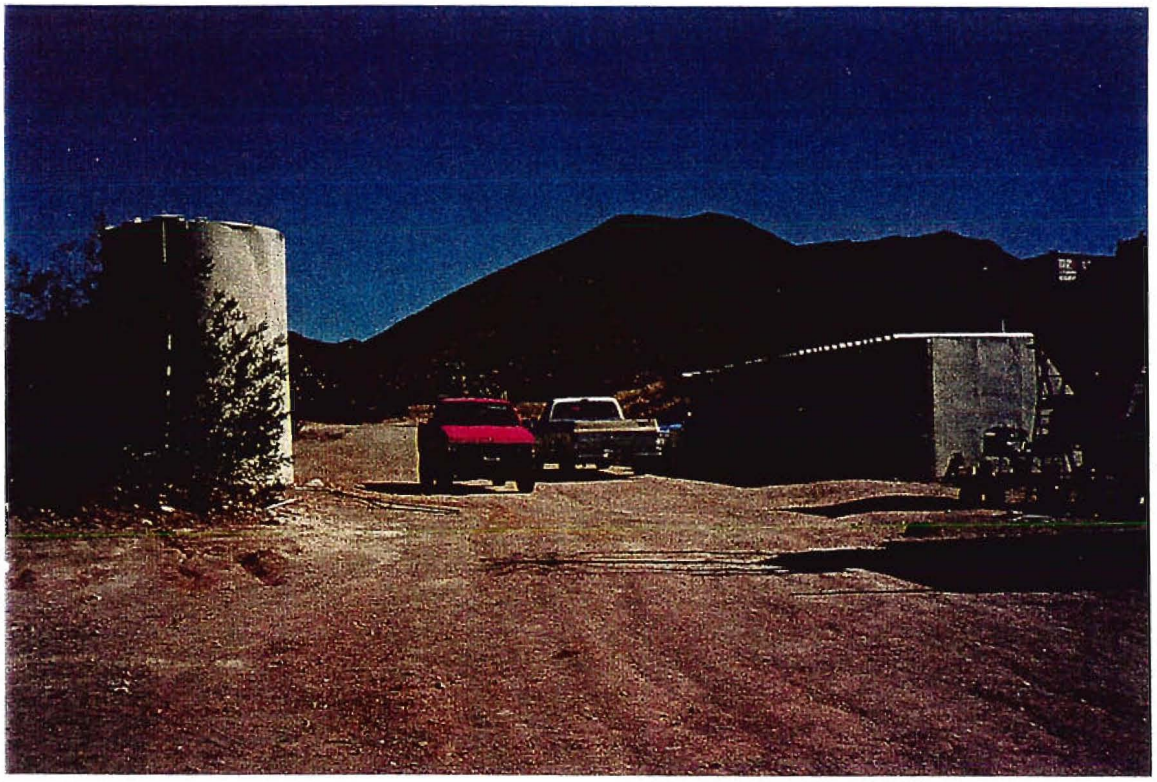
Sanford A. Shuler, Jr.

CC: Glen Miller, BLM Las Vegas Office
Connie Davis, NDEP, Carson City
Douglas Driesner, Dept. Minerals, Carson City

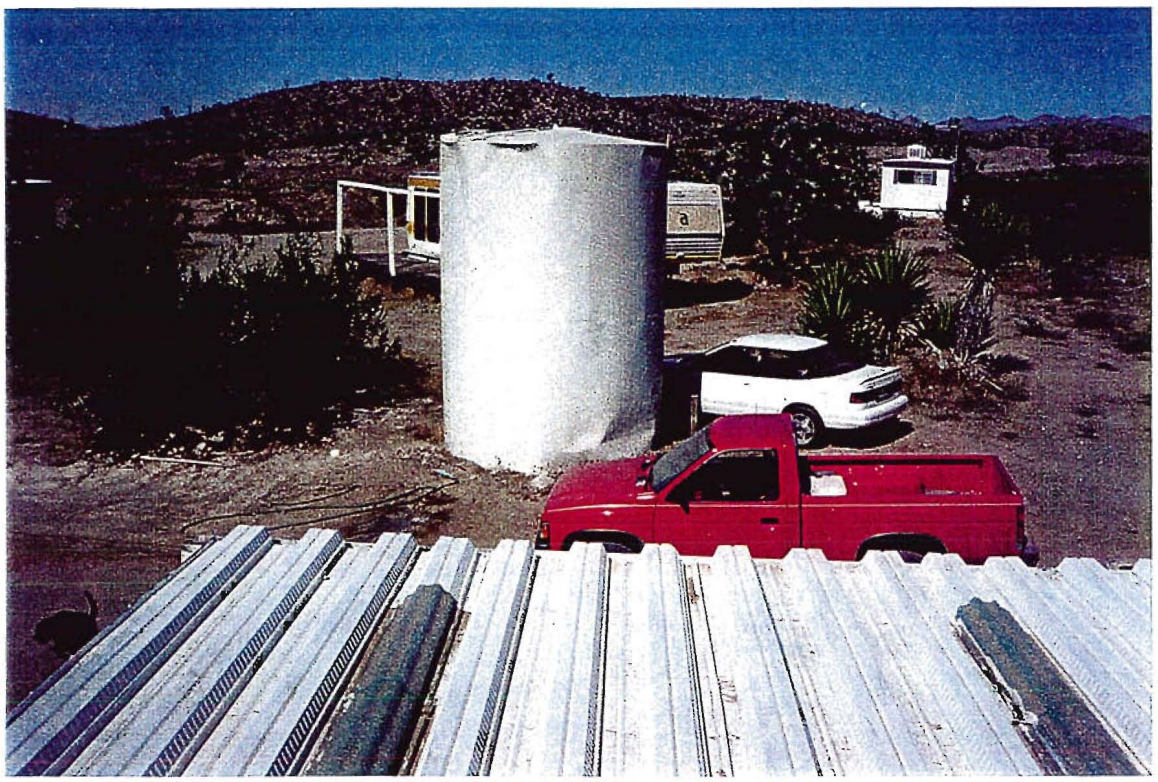
GRAVITY CONCENTRATION MILLING CIRCUIT
(ALTERNATE CIRCUIT) IMPACT MILL



COYOTE MINES, INC. (site)
SEARCHLIGHT, NV. 89046



MILL SHOP & ANNEX

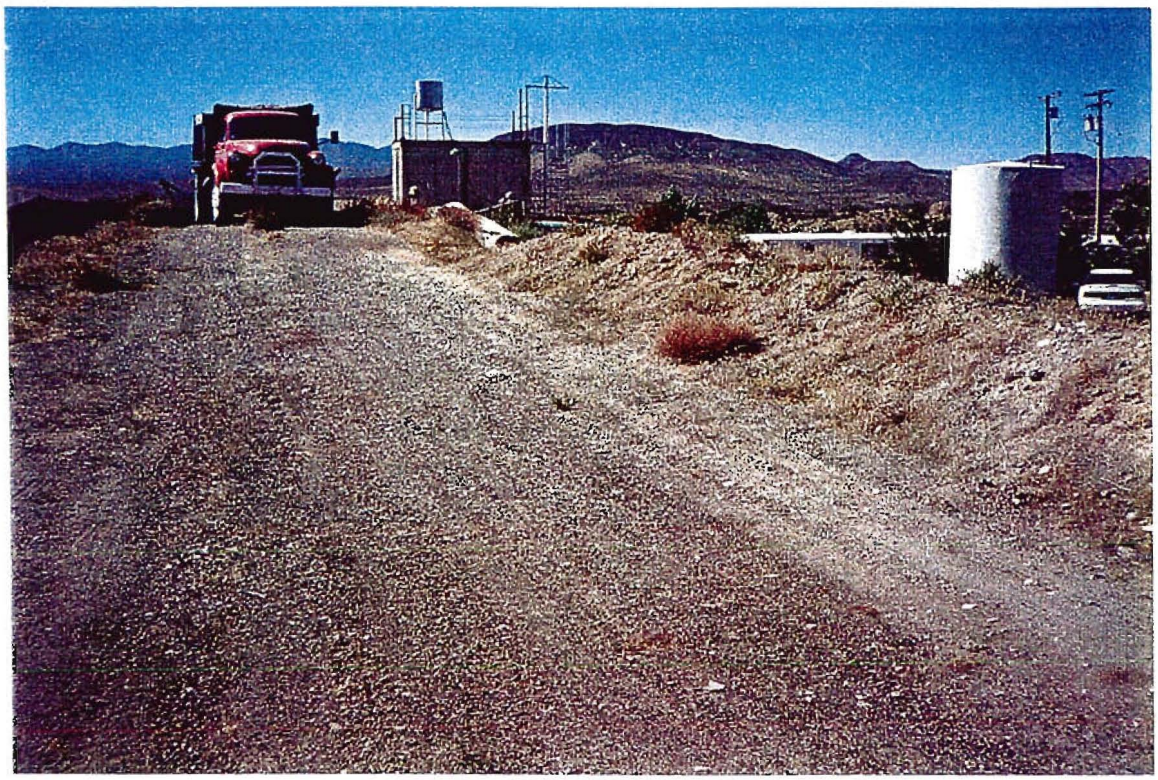


AUXILLIARY WATER TANK servicing
MILLING EQUIPMENT

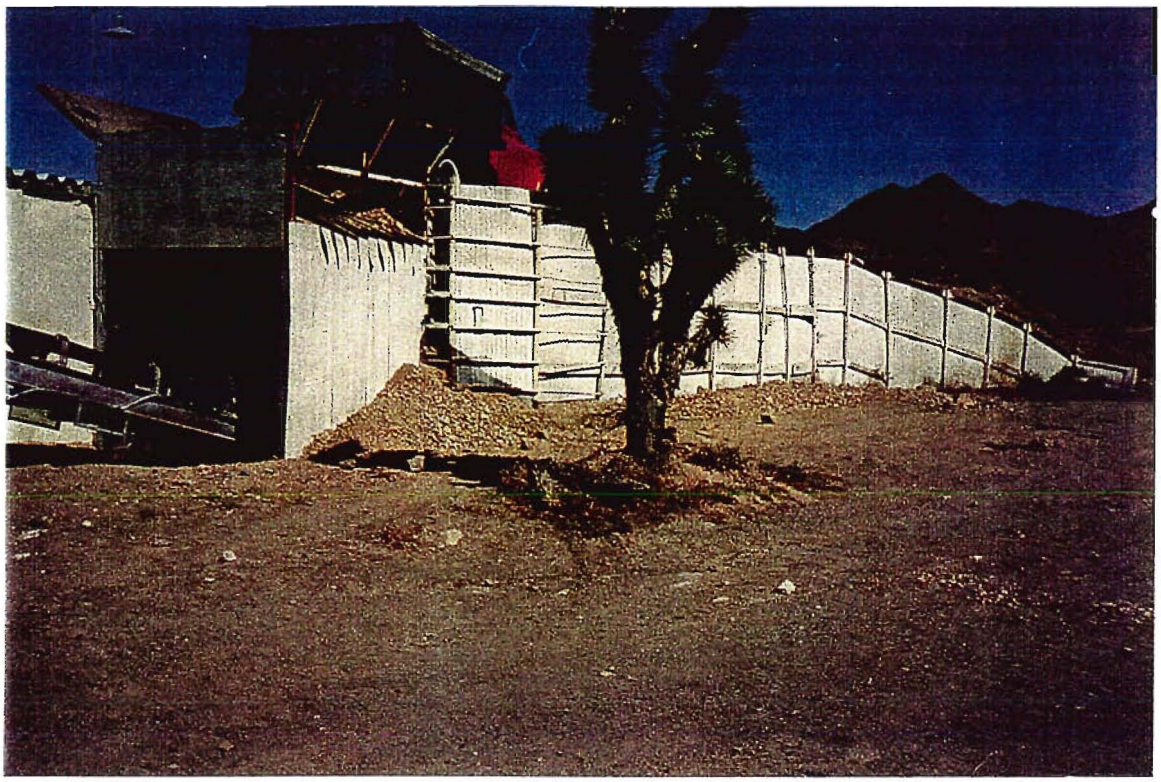
ENTRANCE TO MILL SHOP

INTERIOR OF MILL SHOP

INTERIOR OF MILL SHOP

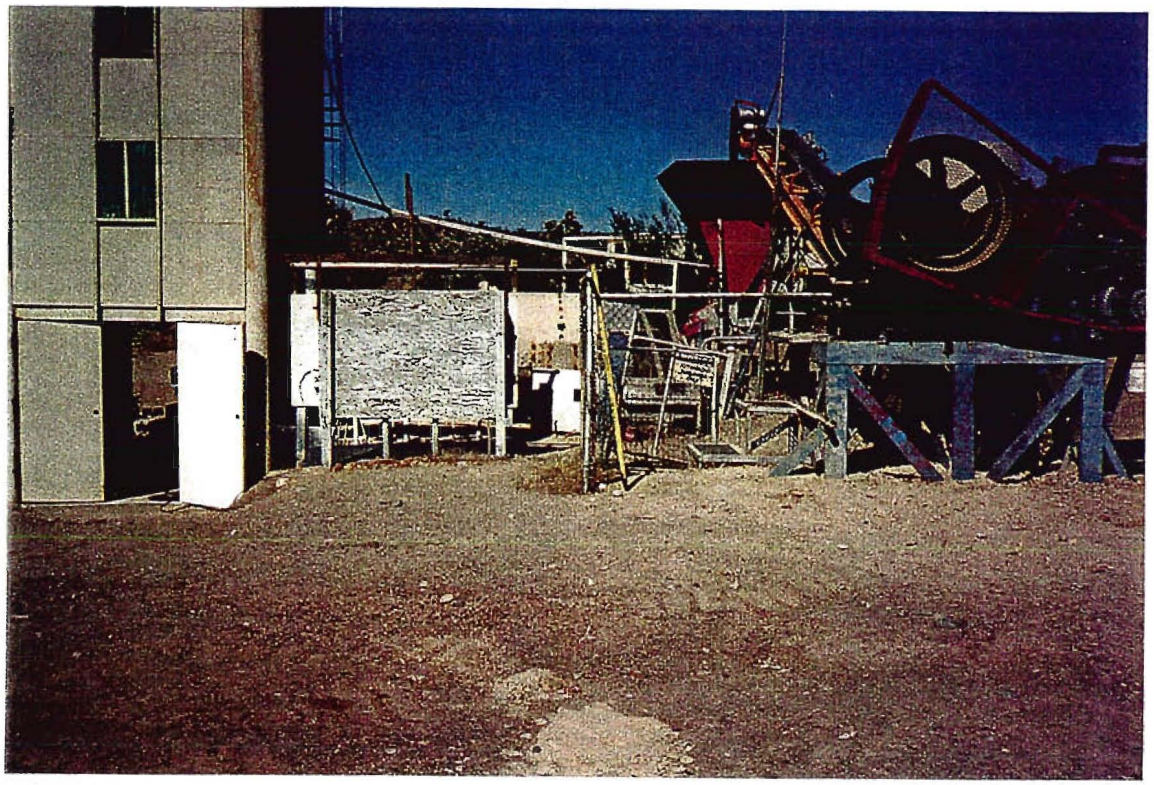


RAMP TO CRUSHER

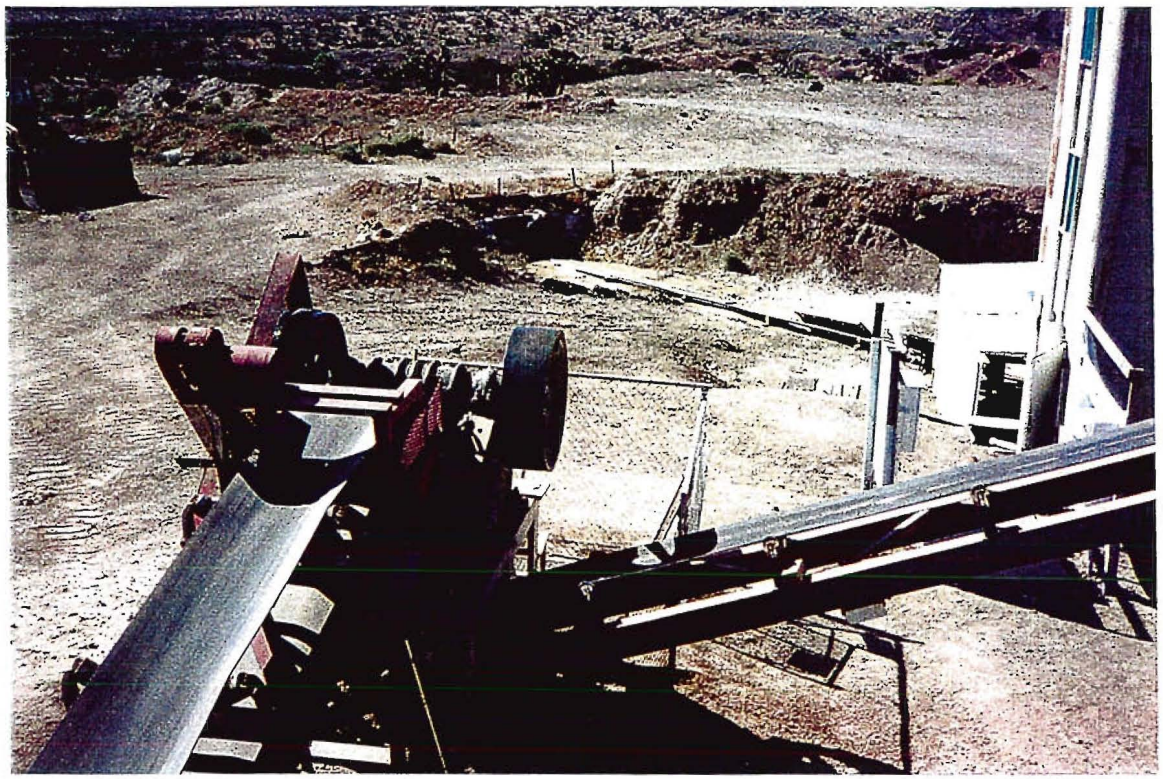


RAMP TO CRUSHER & OUTPUT OF CRUSHER TO CONVEYOR

CONVEYOR FROM CRUSHER

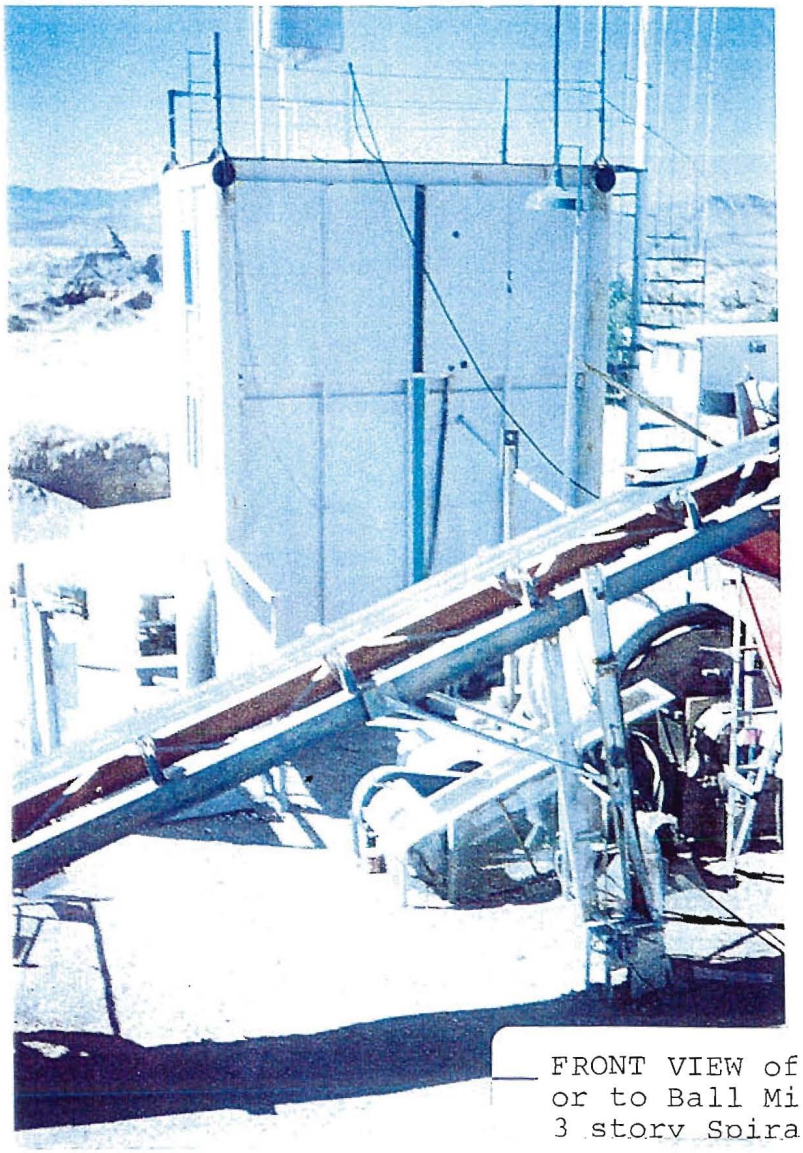


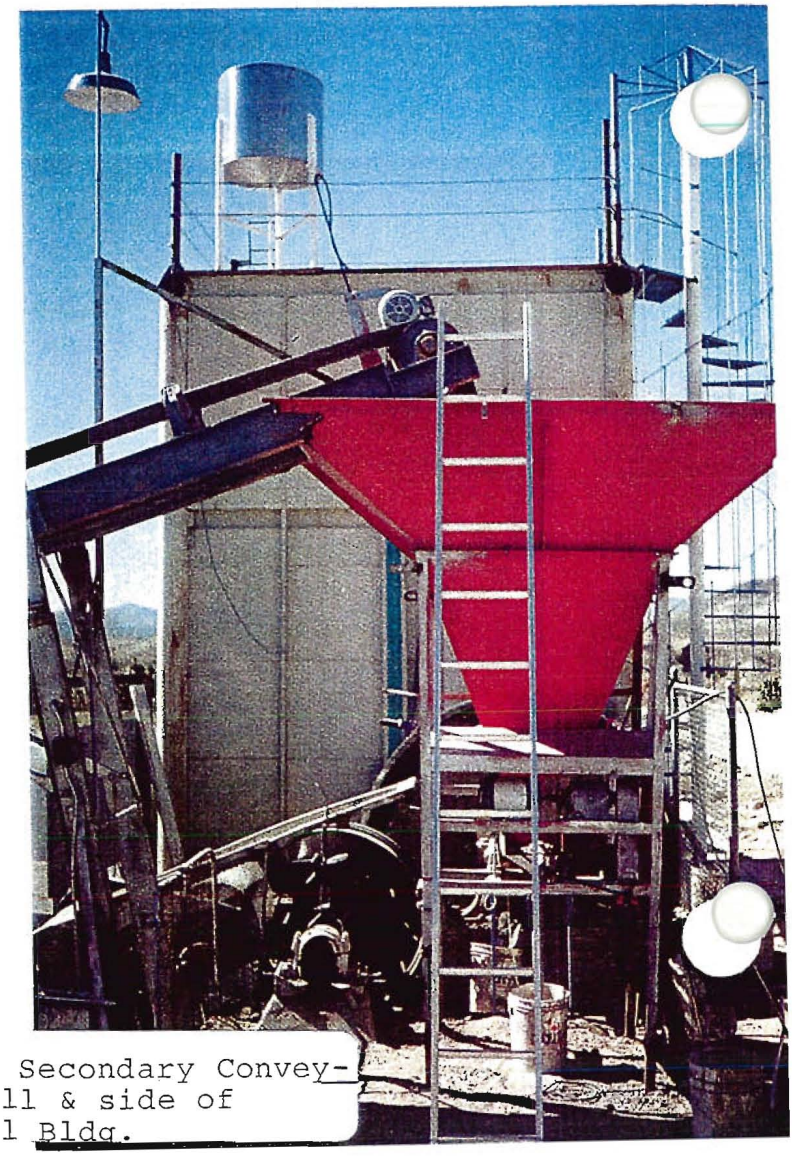
REAR VIEW PRIMARY CONVEYOR to
SECONDARY CONVEYOR TO BALL MILL
& REAR OF 3 Story SPIRAL BLDG.



PRIMARY CONVEYOR TO SECONDARY
CONVEYOR

SECONDARY CONVEYOR TO BALL MILL



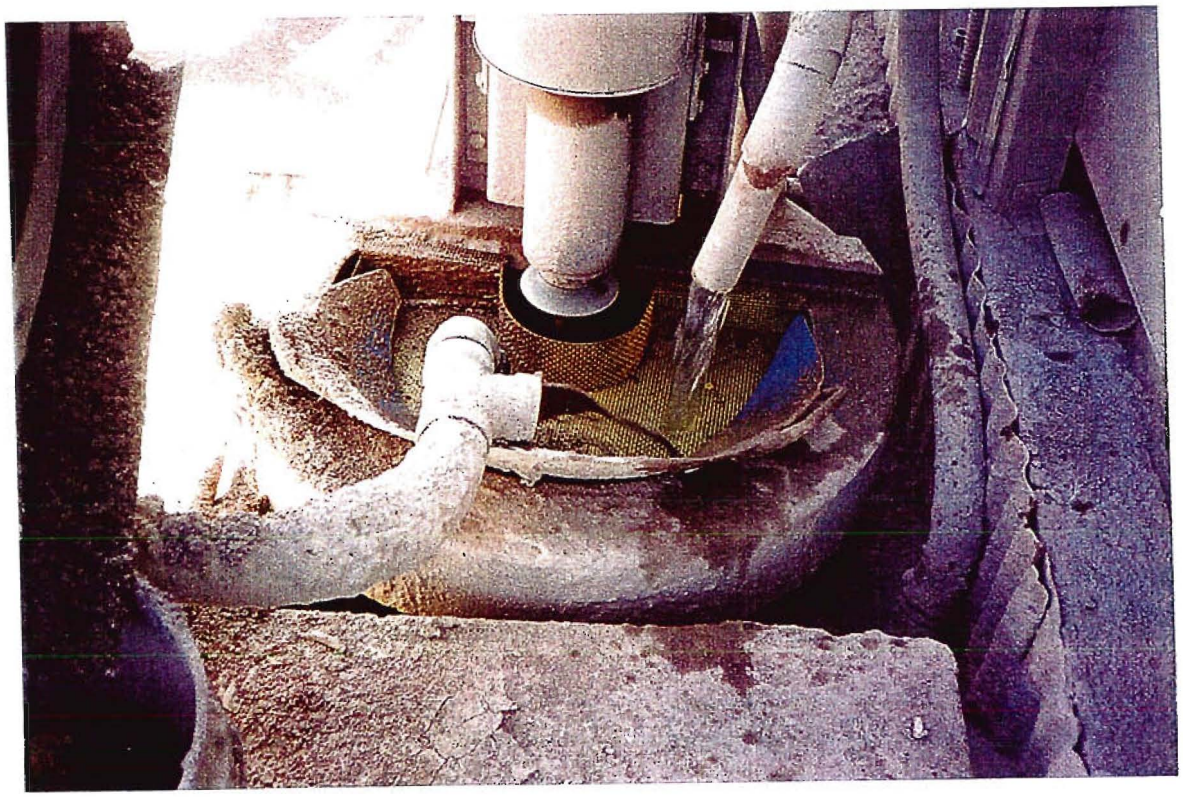


FRONT VIEW of Secondary Conveyor to Ball Mill & side of 3 story Spiral Bldg.

BALL MILL

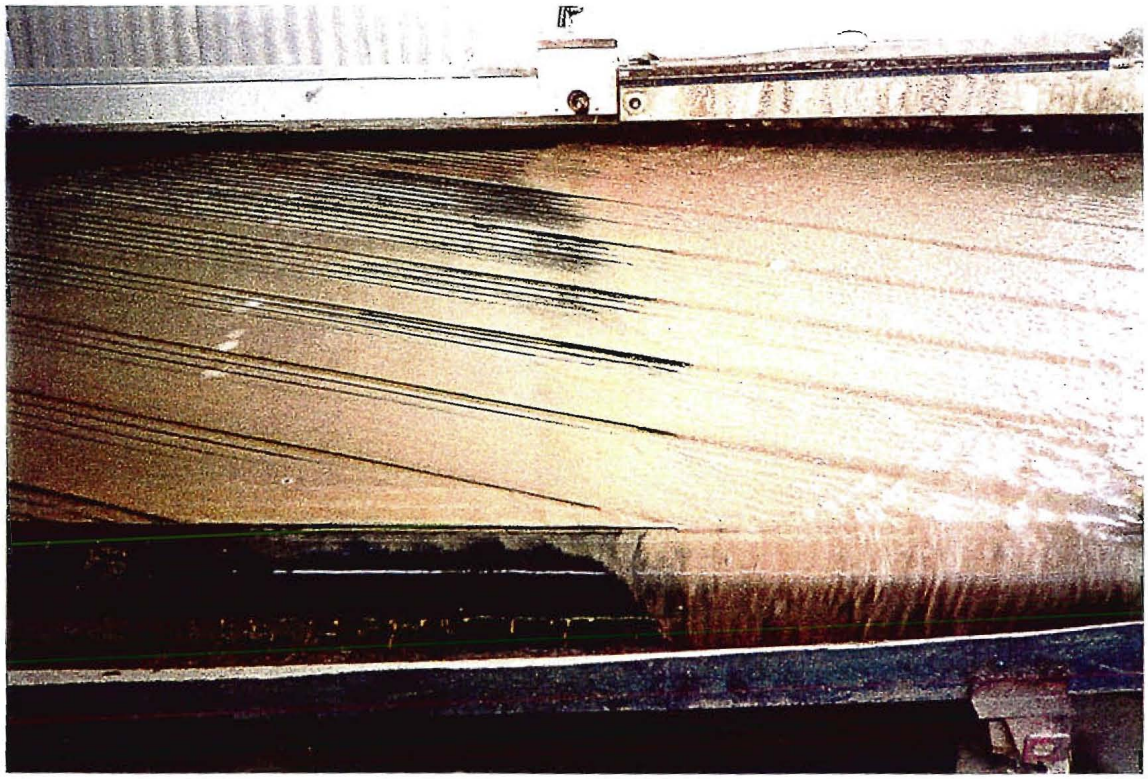
REAR SPIRAL BLDG. & HOUSING OVER TABLING AREA

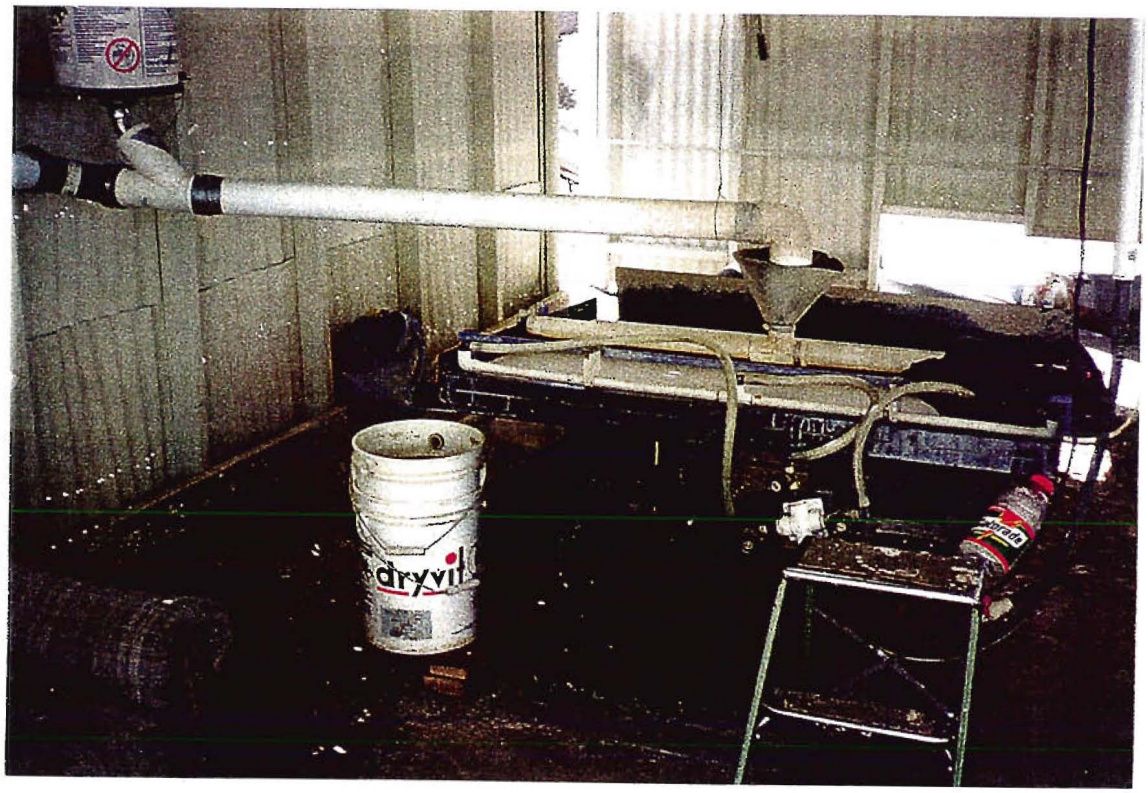
SCREEN at work on 3rd level of
SPIRAL BLDG.



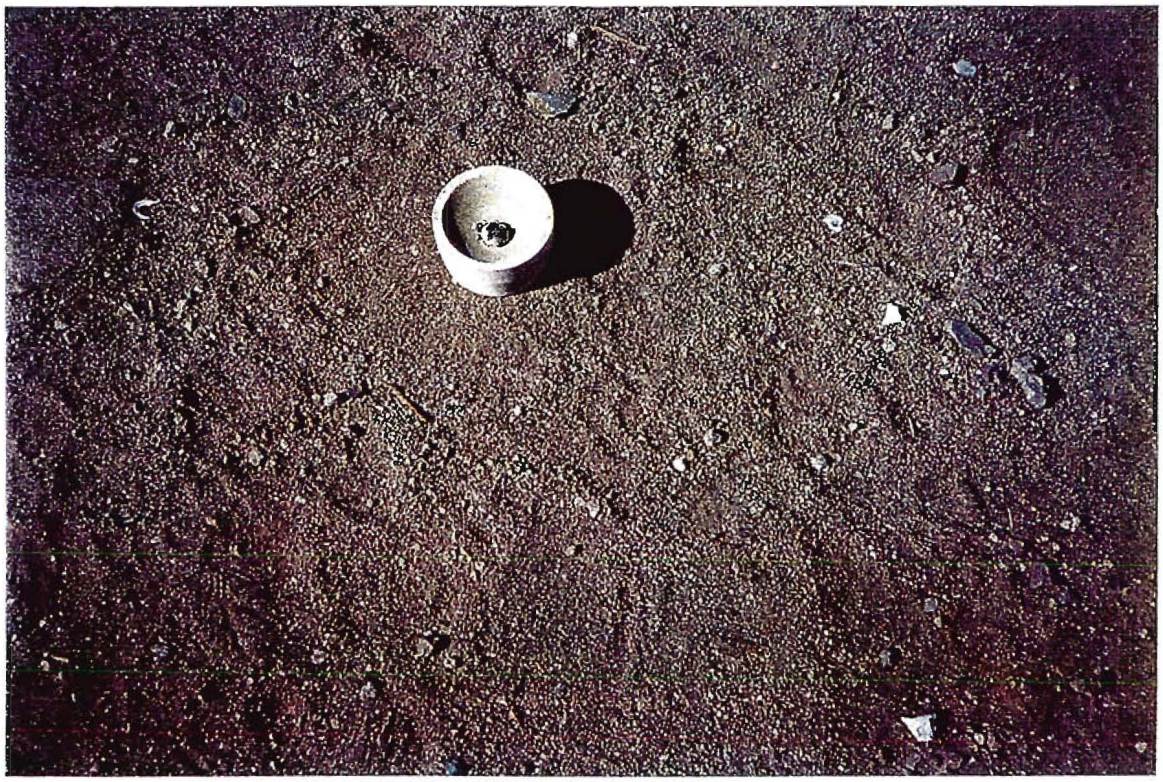
SPIRAL DISCHARGE INTO PUMP in
SPIRAL BLDG. (1st floor)

DIESTER TABLE at work

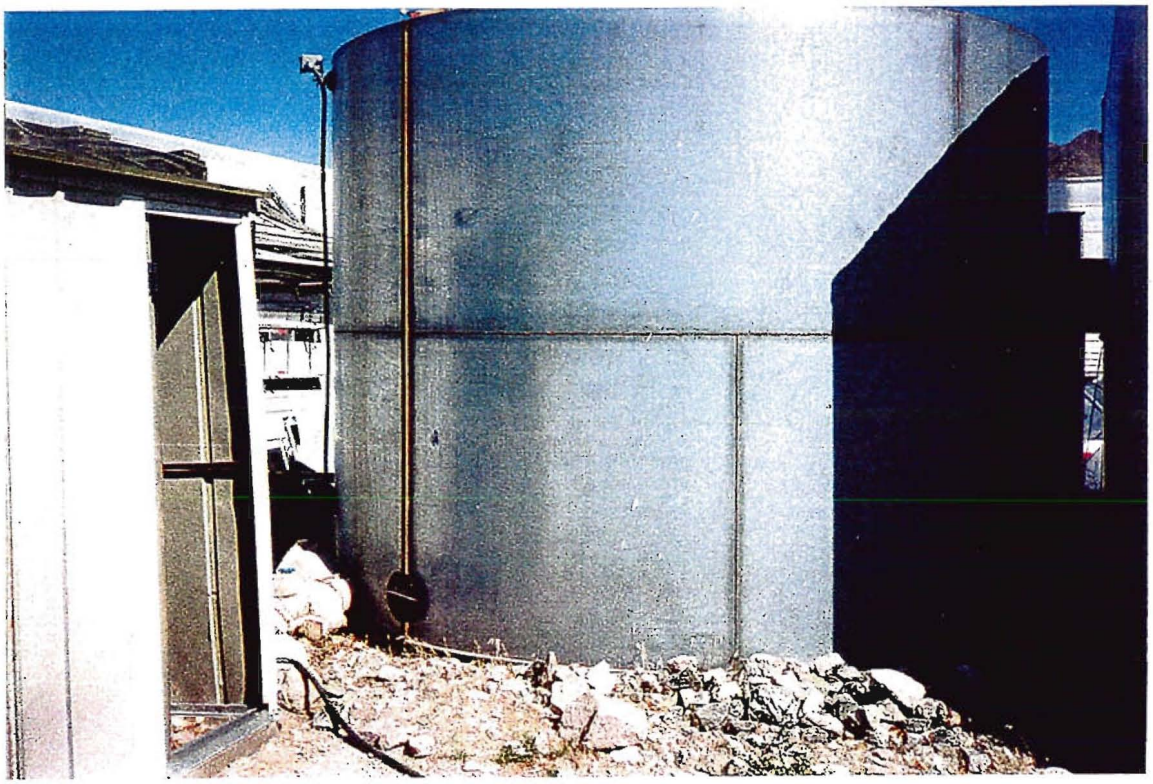




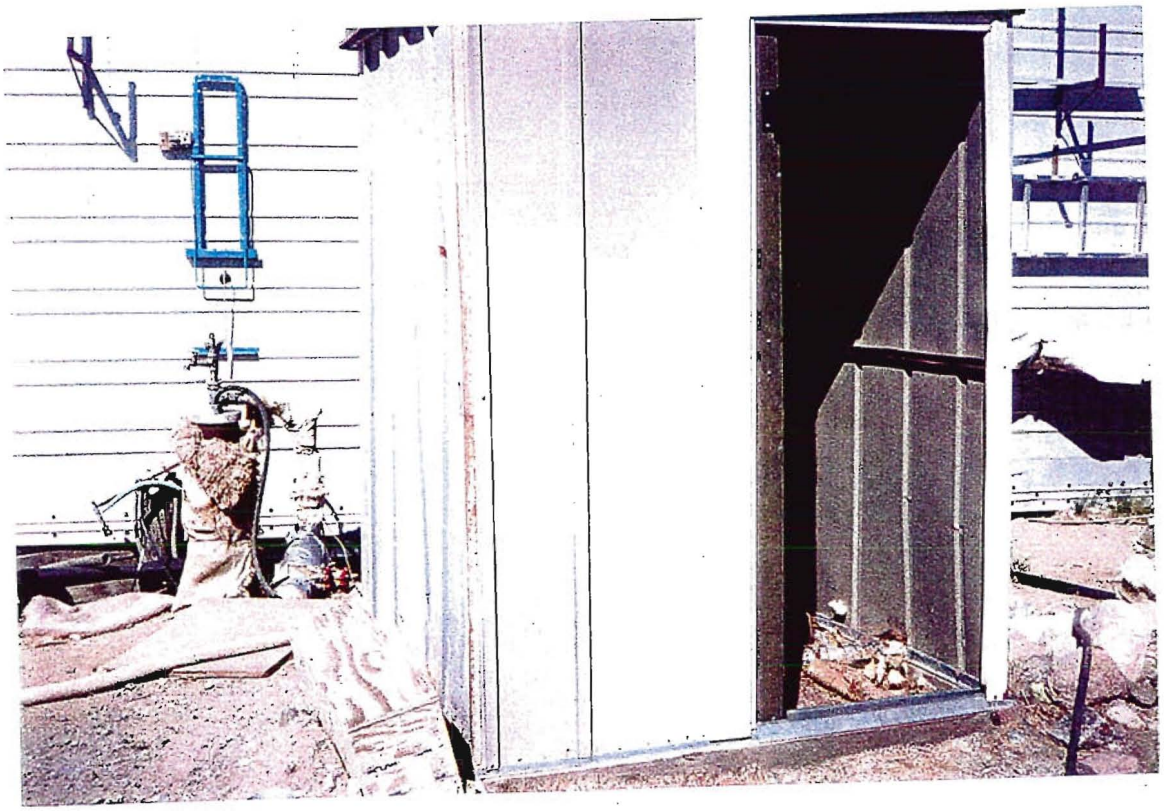
FINISHING TABLE



GOLD/SILVER BEAD from ASSAY

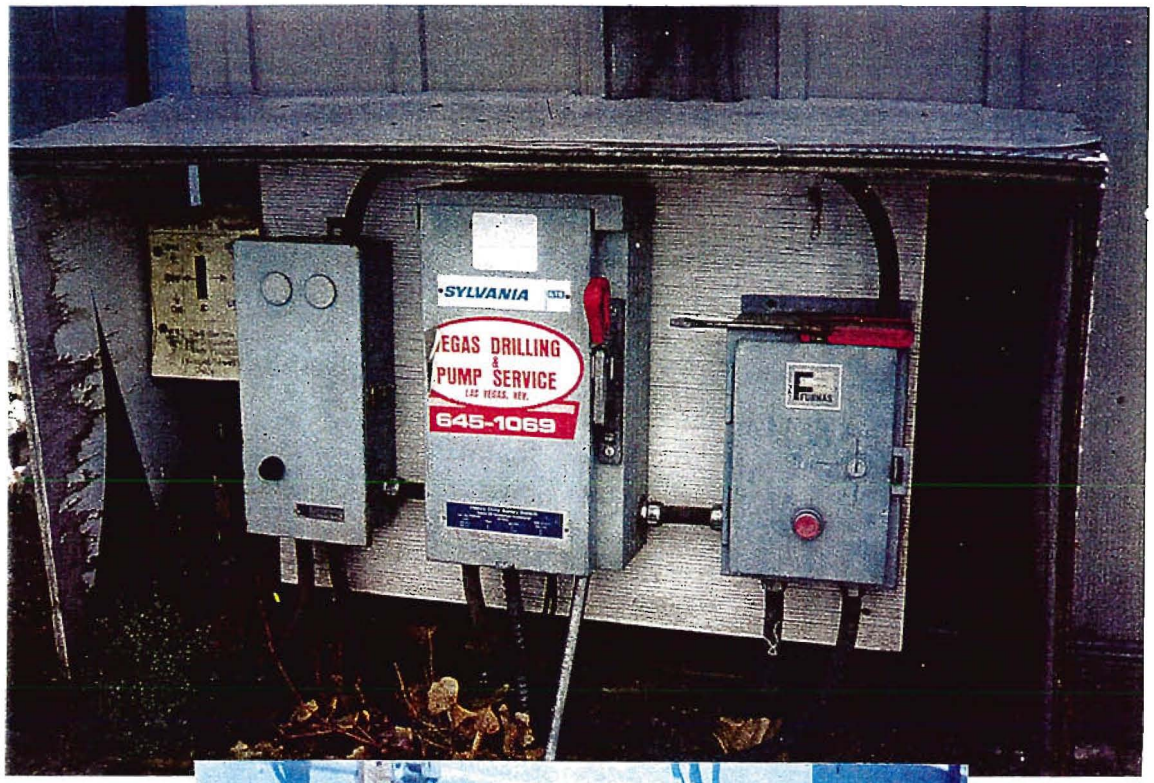


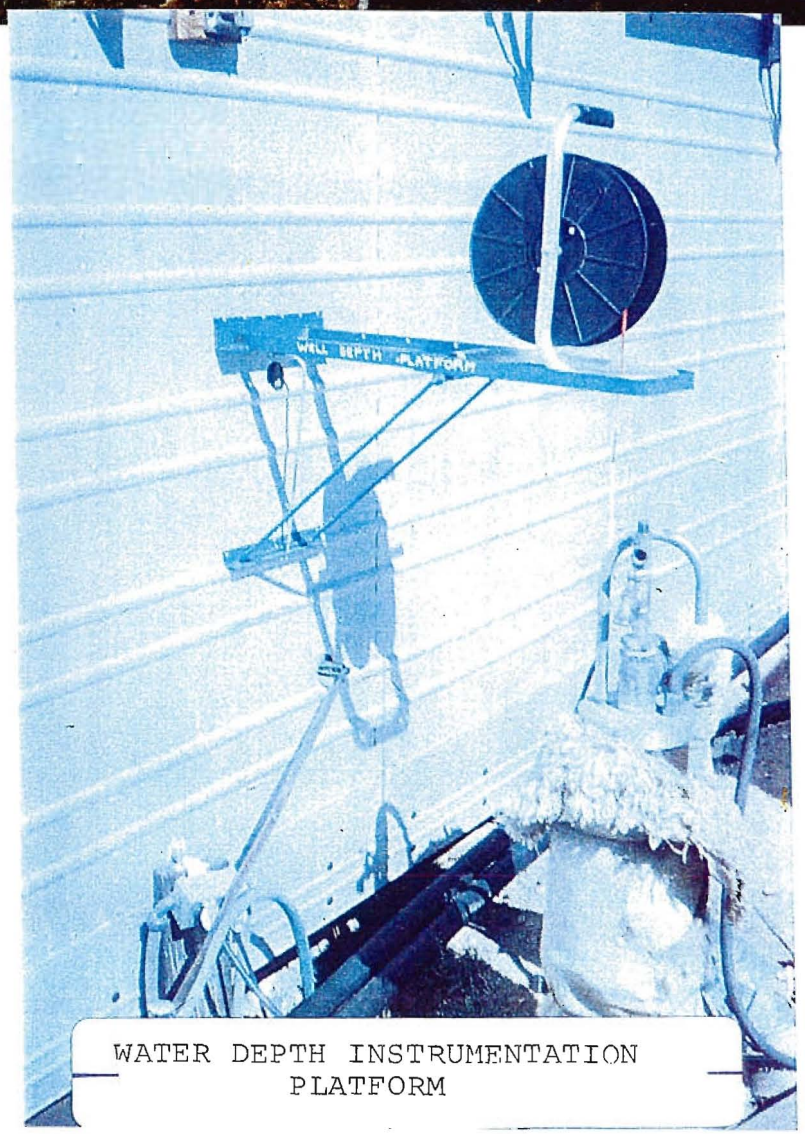
MAIN WATER TANK for Site



HOUSING FOR WATER PUMPS, etc.

ELECTRICAL BOARD for WATER





WATER DEPTH INSTRUMENTATION PLATFORM

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

PROPRIETARY/CONFIDENTIAL INFORMATION

RECORDS CONTAINED HEREIN ARE PROPRIETARY/CONFIDENTIAL INFORMATION AND MUST BE SAFEGUARDED FROM UNAUTHORIZED DISCLOSURE

PROPRIETARY/CONFIDENTIAL INFORMATION

COVER MUST BE ATTACHED TO THE RECORD AT ALL TIMES WHEN THE RECORD IS REMOVED FROM THE FILES.

SEE REVERSE FOR PENALTIES FOR UNAUTHORIZED DISCLOSURE
Form 1273-2 (October 1984)

DAVID H. FELL
& COMPANY, INC.
6009 Bandini Boulevard
City of Commerce, CA 90040
(213) 722-9992 • FAX (213) 722-6567

DATE: 07/19/96

INVOICE: 22704

NAME: COYOTE MINES INC
ADDRESS: SANDFORD A SHULER JR
PO BOX 9
SEARCHLIGHT , NV 89046

CODE: C36737

JOB#: 42771

DUE DATE: 07/19/96

MATERIAL	WEIGHT RECD	GOLD	SILVER	PLATINUM	PALLADIUM	OTHER
BAR STB DORE' W/SLAG	14.250 N/O	12.499	0.000	0.000	0.000	0.000
REFINED WEIGHT IN TOZ.-- TOTALS:		12.499	0.000	0.000	0.000	0.000

CHARGES

REFINING:	GOLD	$ 0.00	RETURNING:	GOLD	$ 0.00	ALLOYING	$ 0.00
	PLATINUM	$ 0.00		PLATINUM	$ 0.00		$ 0.00
	PALLADIUM	$ 0.00		PALLADIUM	$ 0.00		$ 0.00
	SILVER	$ 0.00		SILVER	$ 0.00		$ 0.00
		$ 0.00		SMELTING	$ 0.00	TOTAL	0.00

12.499	TOZ	GOLD RECOVERED		
- 0.250	TOZ	2.000% RECOVERY FEE		
- 0.000	TOZ		$	
- 0.000	TOZ		$	0.00
12.249	TOZ	FINE GOLD @ 384.00	$	4703.62
		TOTAL	$	4703.62

64926

DAVID H. FELL & CO., INC.
6009 BANDINI BLVD. 213-722-9992
CITY OF COMMERCE, CA 90040

90-3735/1222

DATE 7/19/96

PAY TO THE ORDER OF Coyote Mines Inc $ 4703.62

Four Thousand Seven Hundred Three and 62/100 DOLLARS

Security features included. Details on back.

WEST LOS ANGELES REGIONAL HEAD OFFICE
Metrobank
10900 Wilshire Blvd. • Los Angeles, CA 90024

FOR

⑈064926⑈ ⑆122237353⑆ 681⑈617639⑈

COYOTE MINES, INC.

ADMINISTRATIVE HEADQUARTERS
1201 SYCAMORE DR., S.E.
ISSAQUAH, WA 98027
TELEPHONE: (206) 392-7289

September 3, 1996

CONFIDENTIAL

Ms. Rebecca Lang
Geologist
Bureau of Land Management
Department of the Interior
4765 W. Vegas Drive
Las Vegas, NV. 89108

Dear Ms. Lang:

As indicated in my letter of July 31, 1996, Coyote Mines, Inc. planned to ship DORÉ to David H. Fell Refinery in California for the Month of August.

Enclosed are the following Reports of DORÉ forwarded to David H. Fell Refinery in August 1996.

Sent	Wt.Dore	Wt. Gold	Check Received	Amount	
7/29	12.695	11.398	8/6/96	$4314.41	
8/12	12.105	10.681	8/16/96	$4042.36	
				$8356.77	Total August Shipments

Today, another shipment of Dore was forwarded to David H. Fell Refinery in California. When the check and receipt are obtained from the Refinery, I shall forward you a copy.

Very truly yours,

Marilyn B. Shuler

Marilyn B. Shuler

Enc.

RECEIVED
Bureau of Land Management
07:30

SEP 05 1996

LAS VEGAS
DISTRICT OFFICE
Las Vegas, Nevada

DAVID H. FELL
& COMPANY, INC.
6009 Bandini Boulevard
City of Commerce, CA 90040
(213) 722-9992 • FAX (213) 722-6567

DATE: 08/02/96

INVOICE: 22954

NAME: COYOTE MINES INC
ADDRESS: SANDFORD A SHULER JR
PO BOX 9
SEARCHLIGHT . NV 89046

CODE: C36737

JOB#: 43010

DUE DATE: 08/02/96

MATERIAL	WEIGHT RECD	GOLD	SILVER	PLATINUM	PALLADIUM	OTHER
BAR STB DORE'	12.695 N/O	11.398	0.000	0.000	0.000	0.00
REFINED WEIGHT IN TOZ.-- TOTALS:		11.398	0.000	0.000	0.000	0.00

CHARGES

REFINING:	GOLD	$ 0.00	RETURNING:	GOLD	$ 0.00	ALLOYING	$ 0.0
	PLATINUM	$ 0.00		PLATINUM	$ 0.00		$ 0.0
	PALLADIUM	$ 0.00		PALLADIUM	$ 0.00		$ 0.0
	SILVER	$ 0.00		SILVER	$ 0.00		$ 0.0
		$ 0.00		SMELTING	$ 0.00	TOTAL	0.0

11.398	TOZ	GOLD RECOVERED	
- 0.228	TOZ	2.000% RECOVERY FEE	
- 0.000	TOZ		$
- 0.000	TOZ		$ 0.00
11.170	TOZ	FINE GOLD @ 386.25	$ 4314.41
		TOTAL	$ 4314.41

15212

DAVID H. FELL & CO., INC.
6009 BANDINI BLVD. 213-722-9992
CITY OF COMMERCE, CA 90040

65212

PAY TO THE ORDER OF Coyote Mines Inc

DATE 8/6/96

90-3735
1222

$4314.41

FOUR THOUSAND THREE HUNDRED FOURTEEN AND 41/100 DOLLARS

WEST LOS ANGELES REGIONAL HEAD OFFICE
Metrobank
10900 Wilshire Blvd. • Los Angeles, CA 90024

FOR

⑈065212⑈ ⑆122373531⑆

DAVID H. FELL
& COMPANY, INC.
6009 Bandini Boulevard
City of Commerce, CA 90040
(213) 722-9992 • FAX (213) 722-6567

DATE: 08/16/96

INVOICE: 23188

NAME: COYOTE MINES INC
ADDRESS: SANDFORD A SHULER JR
PO BOX 9
SEARCHLIGHT , NV 89046

CODE: C36737

JOB#: 43246

DUE DATE: 08/16/96

MATERIAL	WEIGHT RECD	GOLD	SILVER	PLATINUM	PALLADIUM	OTHER
BAR STB DORE'	12.105 N/O	10.681	0.000	0.000	0.000	0.000
REFINED WEIGHT IN TOZ.-- TOTALS:		10.681	0.000	0.000	0.000	0.000

C H A R G E S

REFINING:	GOLD	$ 0.00	RETURNING:	GOLD	$ 0.00	ALLOYING	$ 0.00
	PLATINUM	$ 0.00		PLATINUM	$ 0.00		$ 0.00
	PALLADIUM	$ 0.00		PALLADIUM	$ 0.00		$ 0.00
	SILVER	$ 0.00		SILVER	$ 0.00		$ 0.00
		$ 0.00		SMELTING	$ 0.00	TOTAL	0.00

10.681	TOZ	GOLD RECOVERED		
- 0.214	TOZ	2.000% RECOVERY FEE	$	
- 0.000	TOZ		$	
- 0.000	TOZ		$	0.00
10.467	TOZ	FINE GOLD @ 386.20	$	4042.36
		TOTAL	$	4042.36

check received

65415

COYOTE MINES, INC.

ADMINISTRATIVE HEADQUARTERS
1201 SYCAMORE DR., S.E.
ISSAQUAH, WA 98027
TELEPHONE: (206) 392-7289

CONFIDENTIAL

September 13, 1996

Ms. Rebecca Lang
Geologist
Bureau of Land Management
Department of the Interior
4765 W. Vegas Drive
Las VEgas, NV. 89108

Dear Ms. Lang:

Enclosed is a copy of the Sixth shipment of dore to David Fell & Company.

Sent	Wt. Dore	Wt. Gold	Check Received	Amount
9/5/96	10.420	9.265	9/9/96	$3,499.43

Regards,

Marilyn

Marilyn B. Shuler

Encs.

RECEIVED
Bureau of Land Management
07:30

SEP 1 6 1996

LAS VEGAS
DISTRICT OFFICE
Las Vegas, Nevada

SITE LOCATION: Coyote Rd., 1½ Miles North Rt. 95; Searchlight, NV. 89046 • (not a mailing address)
Tel. No. (702) 297-1034

DAVID H. FELL
& COMPANY, INC.
6009 Bandini Boulevard
City of Commerce, CA 90040
(213) 722-9992 • FAX (213) 722-6567

DATE: 09/09/96

INVOICE: 23571

NAME: COYOTE MINES INC
ADDRESS: SANDFORD A SHULER JR
PO BOX 9
SEARCHLIGHT . NV 89046

CODE: C36737

JOB#: 43632

DUE DATE: 09/09/96

MATERIAL	WEIGHT RECD	GOLD	SILVER	PLATINUM	PALLADIUM	OTHER
BAR STC GOLD	10.420 N/O	9.265	0.000	0.000	0.000	0.000
REFINED WEIGHT IN TOZ.-- TOTALS:		9.265	0.000	0.000	0.000	0.000

CHARGES

REFINING: GOLD	$ 0.00	RETURNING: GOLD	$ 0.00	ALLOYING	$ 0.00
PLATINUM	$ 0.00	PLATINUM	$ 0.00		$ 0.00
PALLADIUM	$ 0.00	PALLADIUM	$ 0.00		$ 0.00
SILVER	$ 0.00	SILVER	$ 0.00		$ 0.00
	$ 0.00	SMELTING	$ 0.00	TOTAL	0.00

9.265	TOZ	GOLD RECOVERED		
- 0.185	TOZ	2.000% RECOVERY FEE		
- 0.000	TOZ		$	
- 0.000	TOZ		$	0.00
9.080	TOZ	FINE GOLD @ 385.40	$	3499.43
		TOTAL	$	3499.43

A 65815

65815

DAVID H. FELL & CO., INC.
6009 BANDINI BLVD. 213-722-9992
CITY OF COMMERCE, CA 90040

90-3735
1222

DATE 9/9/96

PAY TO THE ORDER OF Coyote Mines Inc $ 3499.43

DOLLARS

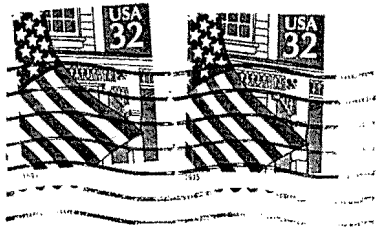
WEST LOS ANGELES REGIONAL HEAD OFFICE
Metrobank
10900 Wilshire Blvd. • Los Angeles, CA 90024

FOR

⑈065815⑈ ⑆122237353⑆ 681⑈617639⑈

COYOTE MINES, INC.
ADMINISTRATIVE HEADQUARTERS
1201 Sycamore Dr., S.E.
Issaquah, WA 98027

LAS VEGAS, NV 890
PM
14 SEP
1996



Ms. Rebecca Lang, Geologist
Bureau of Land Management
Department of the Interior
4765 W. Vegas Drive
Las Vegas, NV. 89108

CONFIDENTIAL

89108-2135 B4

-4-

1996
COYOTE MINES, INC.
GENERAL LEDGER

WILSON JONES COMPANY G7511 Column Write

	CODE #	LABORATORY/ REFINING	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
1	505	EMPLOY,CONTRACT	-	-	-	-	-	-	-	-	-	-	-	-	-
2	506	EMPLOYEE, WAGES	-	-	-	-	-	-	-	-	-	-	-	-	-
3		(employee)													
4	506a	EMPLOYEE, WAGES	-	-	-	-	-	-	-	-	-	-	-	-	-
5		(employer)													
6	506b	NV.UNEMPLOYMENT	-	-	-	-	-	-	-	-	-	-	-	-	-
7	506c	NV.ANNUAL UNEMPLOY	-	-	-	-	-	-	-	-	-	-	-	-	-
8	506d	NV.BUS.LICENSE	-	-	-	-	-	-	-	-	-	-	-	-	-
9	506e	NV.SIIS	-	-	-	-	-	-	-	-	-	-	-	-	-
10	506f	OTHER	-	-	-	-	-	-	-	-	-	-	-	-	-
11	507	EQUIP.LEASE (sm)	-	-	-	-	-	-	-	-	-	-	-	-	-
12	508	EQUIP.PURCH&REPL. (lg)	-	-	-	-	-	-	-	-	-	-	-	-	-
13	509	EQUIP.PURCH&REPL. (sm)	-	-	-	-	-	-	-	-	-	-	-	-	-
14	513	REPAIR&MAINT.EQUIP (lg)	-	-	-	8095	2087	-	-	-	-	-	-	-	10182
15	514	REPAIR&MAINT.EQUIP	-	-	-	1085	-	-	-	-	-	-	-	-	1085
16	515	SUPPLIES,NON-CHEM.	-	-	-	-	-	-	-	10550	-	-	-	-	10550
17	516	SUPPLIES,CHEMICAL	18878	31476	2435	-	20758	4558	15467	-	-	-	1733	-	117226
18	517	SUPPLIES,CRUCIBLES	-	16980	2482	3.2312	7170	5778	-	10399	-	-	-	-	75121
19	518	UTIL.ELECTRIC	-	-	-	-	-	-	-	-	-	-	-	-	
20	519	UTIL.PROPANE	4820	901	-	-	-	-	-	-	-	-	-	-	5924
21	560	MISCELLANEOUS	-	-	-	-	-	-	-	-	-	-	-	-	-
22			23698	49360	2682	4.1492	30015	10336	15467	20949	-0-	-0-	1732	-0-	219888
23															
			4,127.28	4,144.65	5,147.72	7,169.06	5,928.53	5,219.55	3,147.89	1,984.91	1,520.01	2,189.54	2,383.87	1,663.81	44,626.82

4,127·28 +
4,144·65 +
5,147·72 +
7,169·06 +
5,928·53 +
5,219·55 +
3,147·89 +
1,984·91 +
1,520·01 +
2,189·54 +
2,383·87 +
1,663·81 +
44,626·82 ‡

39,919·05 +
2,078·63 +
4,430·26 +
2,198·88 +
44,626·82 ‡

1996

COYOTE MINES, INC.

-3-

GENERAL LEDGER

WILSON JONES COMPANY G7513 ColumnWrite

CODE #	PRE-PRODUCTION/ PRODUCTION	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
406a	EMPLOYEE,WAGES (employer)	-	-	-	-	-	-	-	-	-	-	-	-	-
406b	NV.UNEMPLOYMENT	-	-	-	-	-	-	-	-	-	-	-	-	-
406c	NV.ANNUAL UNEMPLOY	-	-	-	-	-	-	-	-	-	-	-	-	-
406d	NV.BUS.LICENSE	-	-	-	-	-	-	-	-	-	-	-	-	-
406e	NV.SIIS	-	-	-	-	-	-	-	-	-	-	-	-	-
406f	OTHER	-	-	-	-	-	-	-	-	-	-	-	-	-
407	EQUIP.LEASE (sm)	-	-	-	-	-	-	-	-	-	-	-	-	-
408	EQUIP.PURC.&REPL. (lg)	-	-	-	-	-	-	-	1776	2032	-	-	-	3808
409	EQUIP.PURC.&REPL.	-	-	-	-	-	-	-	420 -	-	-	-	-	420 -
410	FUEL,DIESEL	-	-	-	6646	-	-	-	-	-	-	-	-	6646
411	FUEL,GAS (equip)	6650	6395	-	-	-	250	-	-	-	-	-	-	13295
412	LUBRICANTS,OIL (sm)	2091	-	-	1785	-	847	-	-	-	-	-	-	4723
413	REPAIR&MAINT.EQUIP	-	-	-	-	-	456	990	-	-	-	-	-	1446
414	REPAIR&MAINT.	-	-	-	-	121901	-	-	-	-	-	-	-	121901
414a=	Install, Repair - Impact mill													
415	REPAIR&MAINT. BALL MILL	-	-	-	-	-	-	-	-	368	-	-	-	368
416	REPAIR&MAINT. CRUSHER	-	-	7005	-	-	-	-	-	-	-	-	-	7005
417	REPAIR&MAINT. DIESTER TABLE	-	-	-	-	-	-	-	-	-	-	-	-	-
418	REPAIR&MAINT. LOADER	-	-	-	-	-	-	-	-	-	-	-	-	-
419	REPAIR&MAINT.EQUIP. SPIRALS (lg)	-	-	-	1845	-	-	19271	4552	-	-	-	-	25668
420	SUPPLIES,ELECTRICAL	5962	-	-	-	-	-	-	-	6764	-	-	888	13614
421	SUPPLIES,GENERAL	-	-	-	-	-	-	-	-	-	-	-	-	-
422	SUPPLIES,HARDWARE	2430	1862	-	-	-	-	-	2811	1521	-	-	-	8624
423	SUPPLIES,LUMBER	1205	459	-	-	-	-	-	-	4249	-	-	5017	10930
424	SUPPLIES,PLUMB'G	-	3029	1274	2478	-	-	-	-	2031	-	-	-	9812
425	SUPPLIES,WELD'G	-	4167	1214	-	5203	2111	2842	-	4982	11177	-	-	31696
428	UTIL.ELECTRIC	9831	13149	32644	-	25172	13255	10391	15419	5213	4740	8729	3947	142490
429	UTIL.PROPANE	-	-	-	-	-	-	-	-	-	-	-	-	-
430	UTIL.WATER (M&M)	-	-	-	-	-	-	-	-	-	-	-	-	-
460	MISCELLANEOUS	-	-	-	-	-	-	-	-	-	-	-	-	-
		28169	29101	42137	12754	152276	16919	33494	66558	27160	15917	8727	9852	443026
	LABORATORY/ REFINING													
501	ASSAYS	-	-	-	-	-	-	-	-	-	-	-	-	-
504	EMPLOY.,CONSULT	-	-	-	-	-	-	-	-	-	-	-	-	-

1990

COYOTE MINES, INC.

GENERAL LEDGER

Initials | D

Prepared By

Approved By

WILSON JONES COMPANY G7513 ColumnWrite

MADE IN

	CODE #	EXPLORATION & DEVELOPMENT	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
1	301	ASSAYS & SUPPLIES	-	-	-	-	-	-	-	-	-	-	-	-	
2	304	EMPLOY.,CONSULT'G	-	-	-	-	-	-	-	-	-	-	-	-	
3	305	EMPLOY,CONTRACT	-	-	-	-	-	-	-	-	-	-	-	-	
4	306	EMPLOYEE, WAGES	-	-	-	-	-	-	-	-	-	-	-	-	
5		(employee)	-	-	-	-	-	-	-	-	-	-	-	-	
6	306a	EMPLOYEE, WAGES	-	-	-	-	-	-	-	-	-	-	-	-	
7		(employer)	-	-	-	-	-	-	-	-	-	-	-	-	
8	306b	NV. UNEMPLOYMENT	-	-	-	-	-	-	-	-	-	-	-	-	
9	306c	NV.ANNUAL UNEMPLOY	-	-	-	-	-	-	-	-	-	-	-	-	
10	306d	NV.BUS.LICENSE	-	-	-	-	-	-	-	-	-	-	-	-	
11	306e	NV. SIIS	-	-	-	-	-	-	-	-	-	-	-	-	
12	306f	OTHER	-	-	-	-	-	-	-	-	-	-	-	-	
13	307	EQUIP.LEASE (sm)	-	-	-	-	-	-	-	-	-	-	-	-	
14	308	EQUIP.PURCH.&RELACE (lg)	-	-	-	-	-	-	-	-	-	10387	4705	3747	18839
15	309	EQUIP.PURCH.&REPLACE	-	-	-	-	-	-	-	-	-	-	-	-	
16	310	FUEL,DIESEL	-	-	-	-	-	-	9810	-	-	-	-	-	9810
17	311	FUEL,GAS(equip)	-	-	-	-	-	698	-	1193	3140	1571	3930	-	10340
18	312	LUBRICANTS,OIL (sm)	-	-	-	-	-	9103	-	-	-	-	-	4116	7219
19	313	REPAIR&MAINT.EQUIP (lg)	-	-	-	-	-	-	-	-	-	736	-	-	736
20	314	REPAIR&MAINT.EQUIP	-	-	-	-	-	-	-	-	-	-	-	7062	7062
21	315	REPAIR&MAINT,	-	-	-	-	-	-	-	-	-	-	-	-	
22		MAT'LS HANDLING	-	-	-	-	-	6246	-	3793	-	52291	35356		97686
23	319	SUPPLIES, DYNAMITE	-	-	-	-	-	-	-	-	-	-	-	-	
24	320	SUPPLIES,ELECTRICAL	-	-	-	-	-	-	-	-	-	-	12513	6354	18872
25	321	SUPPLIES,GENERAL	-	-	-	-	-	-	-	-	-	11582	4078	394	16054
26	322	SUPPLIES,HARDWARE	-	-	-	-	-	-	-	597	-	-	-	-	597
27	323	SUPPLIES,LUMBER	-	-	-	-	-	-	-	-	-	5131	-	8917	14048
28	324	SUPPLIES,PLUMB'G	-	-	-	-	-	-	-	2998	-	1101	-	-	4099
29	325	SUPPLIES,WELDING	-	-	-	-	-	-	-	-	-	-	651	1850	2501
30	328	UTIL.ELECTRIC	-	-	-	-	-	-	-	-	-	-	-	-	
31	329	UTIL.PROPANE	-	-	-	-	-	-	-	-	-	-	-	-	
32	330	UTIL.WATER(M&M)	-	-	-	-	-	-	-	-	-	-	-	-	
33	360	MISCELLANEOUS	-	-	-	-	-	-	-	-	-	-	-	-	
34			-0-	-0-	-0-	-0-	-0-	10047	9810	8581	3140	82807	61033	32445	207863
35															
36		PRE-PRODUCTION/ PRODUCTION													
37	401	ASSAYS & SUPPLIES	-	-	-	-	-	-	-	-	-	-	-	-	
38	404	EMPLOY,CONSULT'G	-	-	-	-	-	-	-	-	-	-	-	-	
39	405	EMPLOY,CONTRACT	-	-	-	-	-	-	-	-	-	-	-	-	
40	406	EMPLOYEE, WAGES	-	-	-	-	-	-	-	-	-	-	-	-	
		(employee)													

1996
TOTE MINES, INC.
GENERAL LEDGER

WILSON JONES COMPANY

		JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
	ADMINISTRATIVE/ MINING & MILLING													
201	ACCOUNTING	-	-	-	725 -	-	-	-	-	-	-	-	-	725 -
202	BANK CHARGES	1296	536	797	651	682	1102	28 -	864	169	844	753	542	110 36
204	EMPLOY,CONSULT	-	-	-	-	-	-	-	884 -	1092 -	1104 -	1293 -	840 -	5213 -
205	EMPLOY,CONTRACT	-	-	-	-	-	343 13	- -	-	-	-	-	-	1916 29
206	EMPLOYEE WAGES (employee)	282873	290770	370743	323819	305433	725 74	776 34	-	-	-	-	-	3941 94
206a	EMPLOYEE WAGES (employer)	36002	24236	27160	795 28	770 58	-	331 31	-	-	-	-	-	5 74 -
206b	NV.UNEMPLOYMENT	8854	-	-	1541 5	-	-	-	-	-	-	-	-	110 68
206c	NV.ANNUAL UNEMPLOY	-	-	-	-	-	-	50 -	-	-	-	-	-	1361 46
206d	NV.BUS.LICENSE	25 -	-	-	3568	-	183 17	208 71	5 -	5 -	5 -	5 -	5 -	
206e	NV. SIIS	21387	15788	16313	22142	18828	-	-	-	-	-	-	-	
206f	OTHER	-	-	-	-	-	-	-	-	-	-	-	-	
207	EQUIPMENT LEASE	-	-	-	-	-	-	-	-	-	-	-	-	
211	FIRST AID	-	-	-	-	-	-	-	-	-	-	-	-	
212	FREIGHT & HANDL	-	-	-	-	-	-	-	-	-	-	-	-	
214	INS.EQUIPMENT	-	-	-	-	-	-	-	-	-	-	-	-	1085 11
216	INS.MILLING	-	-	-	1085 11	-	-	-	-	-	-	27 55	-	27 55
214 Meals 220	MISHA TRAINING	-	-	-	-	-	-	-	-	-	-	-	-	
228	ROYALTY PAYM'TS	-	-	-	-	-	-	-	-	-	-	-	75 19	149 42
229	SAFETY	-	-	74 23	-	-	-	-	-	-	-	-	-	
230	SECURITY	-	-	-	-	-	-	57 86	-	22 45	-	-	47 80	147 67
231	SUPPLIES,GENERAL	-	-	-	-	14 56	-	-	-	-	-	-	-	
232	TAXES,FIN.PROD.	-	-	-	-	-	-	-	-	-	-	-	-	
233	TAXES,PERS.PROP.	-	-	-	-	-	-	-	-	-	-	230 10	-	230 10
234 Travel 236	UTIL.ELECTRIC	-	-	-	-	-	-	-	-	-	-	-	-	
240	UTIL.TEL/COMM	47 14	47 14	47 14	47 14	47 14	47 14	47 14	47 14	47 14	47 14	47 14	47 14	565 68
242	UTIL.WATER (M&M)	-	-	-	-	-	-	-	-	-	-	-	-	
260	MISCELLANEOUS	-	-	-	-	-	-	-	28 98	-	-	-	-	28 98
217	Licenses, Permits	25 -	-	-	296 -	-	400 -	1000 -	-	-	-	-	85 -	1806 -
218	Mat'ls Handlg Vehicles	-	-	108 09	-	-	-	-	-	-	-	-	-	108 09
221	Office Supplies, Postage	215	-	83 43	22 12	23 87	48 15	58 80	60 29	48 73	39 72	56 55	135 39	542 10
		360861	336044	177580	462660	410562	447653	2560 18	1024 03	1217 01	1222 30	1668 87	1240 84	3591 905