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ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: C.O.D.

ALTERNATE NAMES:  
RICO CONSOLIDATED

MOHAVE COUNTY MILS NUMBER: 114A

LOCATION: TOWNSHIP 23 N RANGE 17 W SECTION 33 QUARTER NW  
LATITUDE: N 35DEG 20MIN 41SEC LONGITUDE: W 114DEG 06MIN 16SEC  
TOPO MAP NAME: STOCKTON HILL - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:  
SILVER SULFIDE  
GOLD LODE  
LEAD SULFIDE  
COPPER SULFIDE  
ZINC SULFIDE

BIBLIOGRAPHY:

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ADMMR MOHAVE CUSTOM MILL PROJECT  
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SCHRADER, F.C. "MIN. DPSTS OF CRBT RNGE, BLCK  
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DINGS, M. "WALLAPAI MNG DIST, CRBT MTNS, AZ"  
USGS BULL 978-E, P 147, 1952  
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AZ. STATE MINE INSP ANL RPT, 1920, P. 6

See: Arizona Mining Journal Issues of  
Oct. 1917 p. 22, Sept. 1919 p. 20,  
April 1920 p. 18, 43. April 1, 1921 p. 15,  
May 1, 1921 p. 54, Dec. 1, 1921 p. 16,  
Dec. 15, 1921 p. 18

*Commonwealth Mine (File) Cochise*

ADMR Mohave card file (Tucson)

USGS Bull. 340, p. 69

USGS Bull. 397, p. 116-118

ABM Bull. 140, p. 95

USGS Bull. 978-E, p. 147

Mines Handbook Vol. XIII, P. 366.

Az. State Mine Inspectors Report, 1920, p. 6

Malach, R., Mohave County Mines, 1977, p. 17

MILS Sheet sequence number 0040150436

See: Booklets by Roman Malach, Mohave County Historian, "Cerberat Mountain Country"  
Pgs. 19, 22, 44, & 45. "Mohave Co. Place Names", Page 35.

ABSTRACTED FROM ADMMR ACTIVE MINES DIRECTORY, 1988

*C. O. D. Mine file  
Mohave County*

**ALANCO LTD.**

**Office**

7345 E. Acoma Drive, Scottsdale 85260 - Phone 991-8540.

Chairman of the Board ..... Richard Jones  
President ..... Kevin Jones  
Vice President ..... Larry Kersey

**ARMCO Custom Mill**

T20S R22E Sec. 21

Located 4 miles east of Tombstone on Charleston Road - Custom milling facility temporarily on stand by.

**COD**

T23N R17W Sec. 33

Located 15 miles northwest of Kingman - Employees 5 - Underground base/precious metal mine - Under development.

Manager ..... Chuck Porter

Arizona Department of Mines and Mineral Resources

INFORMATION FROM MINE CARDS IN MUSEUM

ARIZONA

Mohave Co.  
Cerbat Mountains  
Cerbat Dist.  
Kingman area  
C. O. D. Mine

500 ft. level

MILS # 114 A

1-ALA

C.O.D (HLL)

~~MM L 564~~ Vanadinite

L 638 Argentite

L 639 Argentite

L 640 Argentite

September 10, 1998

Attn: Exploration and Development Division

Dear Sirs:

Alanco Environmental Resources Corporation is offering its three mining properties for a joint venture or sale. The three properties are all located in Arizona. They are the C.O.D., Mineral Mountain, and Tombstone properties.

The C.O.D. Property is our most advanced mining property. It was most recently operated by Alanco from 1980-1985. Proven reserves are 89,900 tons of ore with a grade of 0.217 oz/ton gold and 13.85 oz./ton silver. Further exploration and development should dramatically increase these reserves.

The Mineral Mountain and Tombstone Properties can be classed as advanced prospects.

Enclosed are abstract reports and accompanying maps on each of the mining properties. If after reviewing this information your company has any further interest in the properties, please feel free to contact the Alanco Corporate Office in Scottsdale, AZ. should you have any questions. Alanco has more in-depth reports on each of the property for review if you should decide to pursue the properties.

Sincerely,

Larry Kersey  
Manager-Mining Properties



## PROPERTY ABSTRACT SUMMARY SHEET KEY INFORMATION

1. **PROPERTY NAME:** C.O.D. Mine Property.
2. **COMMODITIES:** Gold, Silver, Lead, Zinc, and Copper.
3. **INDEX and PROJECT NAME:** Alanco C.O.D. Mine.
4. **LOCATION:** STATE Arizona, COUNTY Mohave.

SECTION(s): 27, 28, 29, 33, and 34.

TOWNSHIP: 23 North RANGE: 17 West.

SECTIONS(S): 3 and 4.

TOWNSHIP: 22 North RANGE: 17 West.

BASE and MERIDIAN: Gila and Salt River Base and Meridian.

NEAREST TOWN: Kingman, Arizona located in the Northwest portion of the State of Interstate 40.

MINING DISTRICT: Cerbat-Wallapai Mining District.

5. **NUMBER OF FEDERAL CLAIMS (Bureau of Land Management Land)**

LODE: 135. PLACER: None. MILLSITES: 28.

TOTAL ACREAGE OF PROPERTY: Approximately 3,000 acres.

CLAIM GROUPS OWNED BY ALANCO ENVIRONMENTAL-refer to Claim Map

1. Main C.O.D. Claim Block
2. Cerbat Claim Block

3. Stockton Hill Claim Block
4. IXL Claim Group

6. **NUMBER OF STATE CLAIMS:**

PROSPECTING PERMITS: None Needed. MINERAL LEASES: None Needed.

7. **TYPE OF WORKINGS:**-----Underground Operations from 100' to 740' in depth with several hundred feet of lateral workings have explored and developed the property, predominantly in the oxide ore zones. The development work and sporadic production took place from the 1870's to the mid 1980's. The main production which occurred at the C.O.D. Mine was essentially from two shafts, located some 400 feet apart. The production was from the old C.O.D. Shaft prior to 1940 and the Newer 600-foot incline shaft after 1940, with the predominant work performed in the 1970's and as late as the mid 1980's. The property is developed from this 600-foot incline shaft along the strike length of the vein to the East and West. The current ore reserves are associated with the 600-foot incline shaft, predominantly below the 400-foot level (below the oxide ore zone) in the primary sulfide ore zones.

8. **RESERVES:**

PROVEN: 89,900 Tons.

PROBABLE: 180,000 Tons.

INFERRED: 2,500,000 Tons.

9. **GEOLOGY:**-----The predominate rock type is a coarse grain microcline granite associated with a dark fine grained chlorite schist. The Property is transected by several predominant West to Northwest striking fault systems (High Grade Fissure Vein Systems). Mineralization is associated with the Ithaca Peak quartz monzonite intrusive and subsequent zonal patterning of Laramide age. The Mineralization within these vein systems is hypogene with some supergene action resulting in high grade oxide zones above the 400-foot level. Below the 400-foot level, the primary sulfide zone contains lead and zinc sulfides with appreciable values in gold and silver which have been explored and identified by drifting on the vein system.

10. **DATE OF EXAMINATION:** Ongoing by Alanco Environmental Resources Corp.

11. **POTENTIAL:**-----Significant Gold, Silver, Zinc, Lead and Copper Mineralization observed on property. The Main C.O.D./Rico Vein system which has a strike length of more than 2.5 miles has been explored enough to warrant a detailed exploration and development program to prove the economic value of the mine and to define the ore zones at depth. Additional ore zones have been identified, but additional exploration and development work must be completed to further define ore grade and reserve. The C.O.D. vein complex is associated with the Mineral Park Copper Porphyry Deposit, (Ithaca Peak quartz monzonite intrusive).

A Phased program for the exploration and development of the C.O.D.-Rico vein system has been outlined and studied, which will explore and eventually develop the probable and inferred ore zones identified to date. This preliminary phased adit program was evaluated for the estimated cost of completing the program along with time line analysis on estimated completion of the program. This program should only be used as a guideline in the raising of the appropriate funds for the initiation of part or all of the Study Program. Initial evaluation of this program has indicated that it would be profitable to mine under current precious and base metal prices if inferred ore reserve can be developed and proven, maintaining current grades. The risk factor for the development of addition ore reserves is low. It is a good possibility that additional ore reserves of economical grades will be developed at the C.O.D. which will warrant a mining and milling operation to be developed on the property.

12. **OWNERS OF THE PROPERTY:** Alanco Environmental Resources Corporation, located at 15900 North 78th Street, Suite 100, Scottsdale, Arizona, 85260; Phone (602) 607-1010; Fax Number (602) 607-1515.

13. **NAMES OF PERSONNEL TO CONTACT FOR FURTHER INFORMATION REGARDING THE PROPERTY:** Larry Kersey (Manager, Mining Projects) of Alanco Environmental Resources Corporation to interested parties. Phone (602) 607-1010 ext 401.

14. **Exhibits attached.**

- Attachment: -- History and Production of District
- Exhibit: -- Claim and Structure Maps
- Exhibit: -- Longitudinal Section of C.O.D.-Rico Vein showing development.
- Exhibit: -- Plan View of 500' Level
- Exhibit: -- Map of the Wallapai Mining District, U.S.G.S Report 978-E by Dings.



## **C.O.D. MINE**

### **VEIN DEPOSITS OF THE DISTRICT History and Production**

The following information has been summarized from various publications dealing with the Cerbat Mining District.

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#### **Arizona Bureau of Mines**

**By Robert M. Hernon**

Most of the mines of the Cerbat Mountains were discovered between 1863 and 1900. The metals sought in the earlier days were gold, silver, and lead. Rich silver chloride, silver sulfide, and native gold ores were exploited first. With cheaper transportation, base-metal ores were mined for lead with low silver. Subsequent improvement in milling methods led to exploitation of complex lead-zinc ores. The later history of the area is essentially the history of the Golconda and Tennessee mines, as they were affected by metal prices and marketing conditions by milling methods.

The area reached its peak production in the years 1915-1917, when the annual yield averaged nearly \$3,000,000. This peak coincided with high metal prices. After the World War I, production was small until 1936 when the Tennessee-Schuylkill Corporation began operations.

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#### **Ore Deposits of the Wallapai District**

**by Blakemore E. Thomas**

The first ore discoveries were made in 1863. Desultory production followed through the 1890's on near-surface oxidized ores that were mined for their gold and silver content. The period from 1906 to 1912 had the greatest sustained activity in the history of the region. Much development work was done below water level, and production was principally from sulfide ores. Since that time the main production periods have coincided with base metal demand provided by the first World War and World War II.

Only two mines have large production records, the Golconda in the Cerbat district and the Tennessee-Schuylkill in the Chloride district. The Golconda is credited with a gross production of \$6,500,000 up to 1917. The mill was destroyed by fire in that year, and the property has not produced since. The mine was developed to a depth of 1,600 feet, and at one time it was the largest zinc producer in the state of Arizona.

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#### **Nelson Transportation Tunnel**

**by R. A. Thurston**

Most of the properties in the mining district have never been developed below the 300 foot level. The chief reasons being inaccessibility and high mining costs. Two mines are exception; the Golconda, with a production record of more than two million dollars has been developed to the 1400 level and had better values at that depth than nearer the surface. The Tennessee mine is developed to the 1600 level and has a production record of more than twenty million dollars. It operated at a daily production rate of 175 tons of ore per day. Many properties in the district have indicated ore shoots as large as or larger than the Golconda and of equal value. They may well be expected to produce a similar tonnage of equally valuable ore.

**In the entire district, no bottom has ever been found on any ore shoot, so it is very safe to say that ore will be encountered at depth below the known ore shoots in the district.**

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**Arizona Bureau of Mines  
Bulletin No. 137**

The Cerbat mountains consist largely of pre-Cambrian schist, gneiss, and granite, intruded by granite-porphyry and lamprophyric dikes, and overlain in places by Tertiary volcanic rocks.

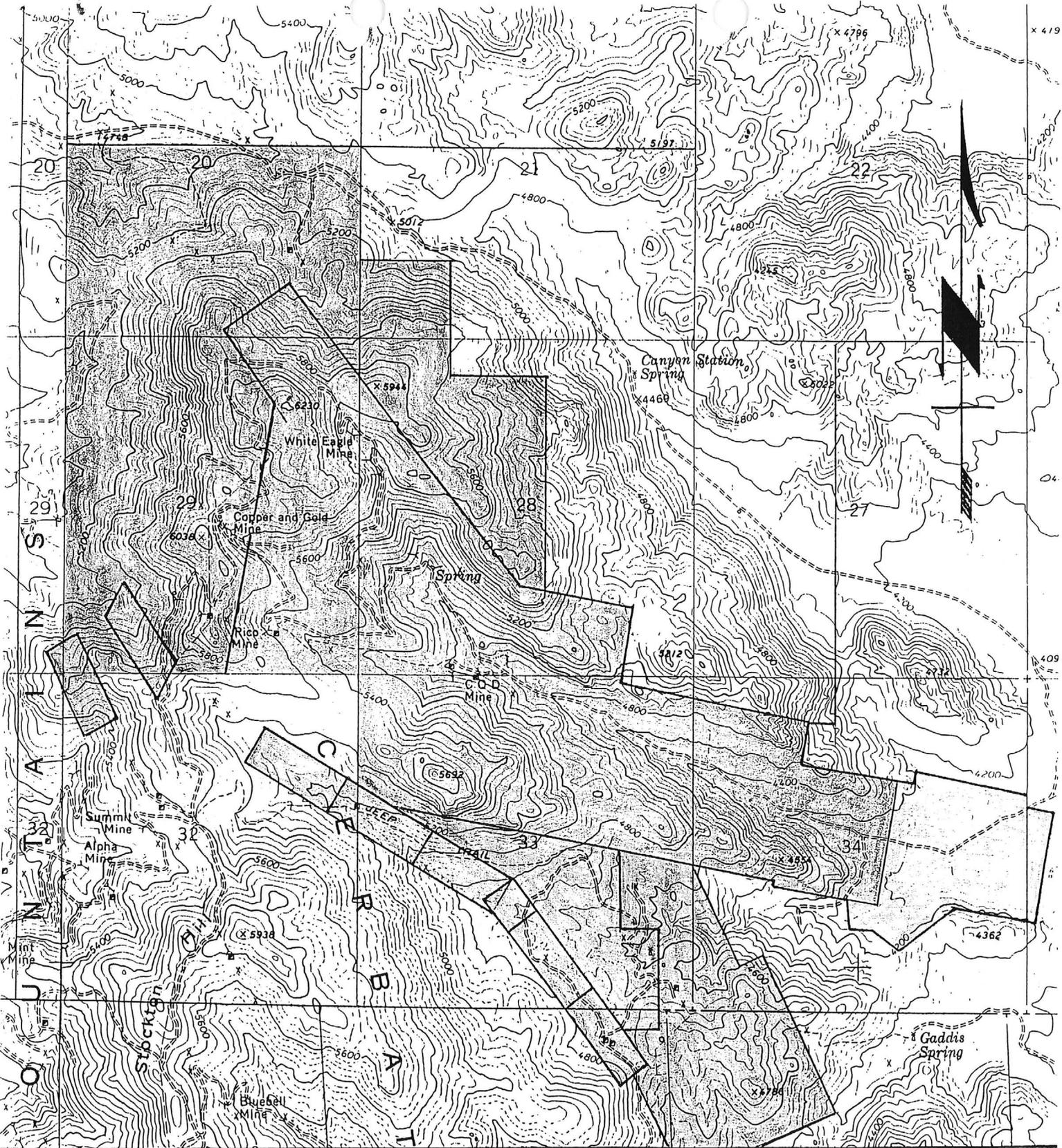
The principal mineral deposits are in the west-central portion of the Wallapai district. The deposits are mesothermal veins of prevailing northwestward strike and steep dip. Their gangue is quartz, in many places shattered and recemented by later calcite. The primary minerals include pyrite, chalcopyrite, arsenopyrite, galena, sphalerite, tennantite, proussite, and pearceite. Locally, gold occurs in the sulfide zone. In the oxidized zone are native silver, horn silver, ruby silver, oxidized lead minerals and locally, native gold. Rich bodies of silver ore with some gold were found in the oxidized zone, but sphalerite seems to be the principal constituent of the sulfide zone. The water level is generally above depths of 400 feet. Silver and lead predominate in the Chloride, Mineral Park, and Stockton Hill localities, and gold and silver in the vicinity of the Cerbat Camp. The Cerbat Mountains have made a large production in silver, lead, zinc, and gold.

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**Relationships between a Porphyry Cu-Mo Deposit  
Base and Precious Metal Veins and Laramide Intrusions  
Mineral Park, Arizona**

**by James R. Lang and Christopher J. Eastoe**

The principal deposit in the Wallapai district is the Mineral park porphyry-style copper-molybdenum orebody, which occurs at the center. Currently closed, Mineral Park has produced approximately 323,000 short tons of copper, 25,000 tons of molybdenum and 5,000,000 oz. of silver since the initiation of open-pit operations in 1964 (Wilkinson et al., 1982). Mineral Park contains mineable reserves of 50 million short tons grading 0.20 percent Cu and 0.051 percent Mo (Wilkinson et al., 1982). The polymetallic quartz veins, which surround Mineral Park, produced gold, silver, lead, zinc, and copper from 1863 through the 1940's. The Tennessee-Schuykill and the Golconda mines were the only significant vein producers. They yielded a total of 590 short tons of copper, 31,000 short tons of lead, 61,500 short tons of zinc, 2,024,367 oz. of silver and 63,135 oz. of gold (Dings, 1951).



**CLAIM LOCATION MAP**

SCALE 1"=2000'

**LEGEND**

- C.O.D. MILLSITES
- PATENT CLAIMS
- STATE LAND
- IXL CLAIM BLOCK
- STOCKTON HILL CLAIM BLOCK
- C.O.D. CLAIM BLOCK
- CERBAT CLAIM BLOCK
- CONTROLLED BY ALANCO

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

VERBAL INFORMATION SUMMARY (SHORT FORM)

May be Reproduced

May Be Inserted Into Mine File Or Added To "Rumor Page"

1. Information from: Larry Kersey, Alanco Ltd.

Address:

2. Phone: 991-8540

3. Mine: C.O.D.

4. ADMMR Mine File: C.O.D.

5. County: Mohave

6. MILS Number: 114A

7. Operational Status:

8. Summary of information received, comments, etc.:

Mr. Kersey discussed a problem involving their property and a locked gate they maintain. The BLM has demanded the gate be removed as it is on public land and blocks access to public land. Alanco feels they need to restrict vehicular access to protect their equipment and facilities without the cost of maintaining a guard. I suggested they meet with BLM at the property and perhaps an acceptable solution could thus be found. Mr. Kersey reported they had to spend over \$20,000 to rebuild the road after major washouts last year. They have not yet been successful in raising the money to begin new underground development.

Date: Oct 13, 1988

Ken Phillips  
(Signature) AzDMMR

C.O.D. MINE

MOHAVE COUNTY

NJN WR 6/7/85: Larry Kersey (c) reported that Alanco (f) had a break-even point of about \$8.00/oz at the C.O.D. Mine (f). When the price recovers in excess of that level they will reopen their operation.

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NJN WR 8/16/85: Larry Kersey (c) of Alanco Ltd (c) visited and donated three specimens from the C.O.D. Mine (f) to the mineral museum collection. They are MM numbers L638-L640.

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RRB WR 10/4/85: Larry Kersey of Alanco visited to find possible markets for zinc concentrates from the COD (f). They are now making a lead concentrate which is shipped to ASARCO and are investigating the feasibility of producing a zinc concentrate. The lead in the concentrate shipped to ASARCO just pays for shipping and smelter charges and the precious metals provide the cash return. He reports that at current price of silver it is not feasible to ship to their plant in Tombstone to recover gold and silver as they did previously.

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NJN WR 2/14/86: Joe Langlois, Mining Engineer for the State Department of Revenue reported Jerry Haynes has posted a copy of a writ of attachment at the COD Mine (f) Mohave County which was served on Alanco Ltd. (c).

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MG WR 9/12/86: Alanco reports that it is negotiating with a Japanese firm to re-open the COD mine (Mohave County).

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NJN WR 11/7/86: Larry Kersey (c) reported that Alanco is trying to arrange new financing to reopen the COD (file) Mohave County. Plans this time will include a flotation mill at the mine site. They have been able to negotiate a smelter contract with a Japanese firm which would subsidize transportation of the concentrate to the port of Long Beach, California.

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C.O.D. MINE

MOHAVE COUNTY

CJH WR 6/29/84: Received two property reports from Canuto Sena, Deputy State Mine Inspector (c). Copies will be sent to Phoenix office. Mr. Sena also reported that Alanco in Tombstone is now processing Ag concentrates brought down from the C.O.D. mine north of Kingman.

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NJN WR 7/13/84: Ed Huskinson (c) reported that Alanco (c) is driving a drift on the 5th level (500) at the COD Mine (f) Mohave Co. and have their mill in operation processing new ore.

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MG WR 11/16/84: Visited ARMCO CUSTOM MILL (Alanco Ltd) in Cochise County. The mill continues to agitate-leach, in closed tanks, the sulfide concentrates sent down from ALANCO-operated COD mine (Mohave County). Mr. Lloyd Tracey, general manager, reports that the cyanide leach/zinc precipitation treatment recovers about 70% Ag and 90% Au from the concentrates containing abundant galena, pyrite, and sphalerite. Tracey states the COD mine ships about 20 tons of concentrates per week to the mill. The custom facility has an extensive array of leach pads and ponds on the east side of the property (behind the mill building). Some gold-silver ore from Mexico is being treated by heap leaching.

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CJH WR 1/25/85: Vern Leeper, Deputy State Mine Inspector, Tucson Office, reported that the C.O.D. mine, Mohave County was closed January 7. The C.O.D. has been furnishing mill feed for Alanco in Tombstone.

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NJN WR 1/4/85: Don Lindsay reported Alanco closed the C.O.D. Mine (f) Mohave County on December 31, 1984 due to low silver prices. Production was coming from the 500' level at that time.

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MG WR 2/8/85: Have heard that the COD Mine, Mohave County, produced about 2200 tons of ore in 1984 (?) with an average grade of 0.10 oz Au and 10.0 oz Ag. This ore was concentrated and trucked to the ARMCO (Alanco Ltd) custom mill south of Tombstone. Apparently the operation lost about \$10/ton.

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C.O.D. MINE

MOHAVE CO.

RRB/WR 12/5/80 - Helen Ebey of Newberry Resources, 1430 W. Broadway, Suite A210, Tempe, Az. 85232, Ph: 966-6243, reports that they are starting work on the C.O.D. - Rico - White Eagle Mines, Cerbat Dist., Mohave Co.

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NJN WR 10/23/81: It was reported that the C.O.D. Mine is producing ore.

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MG WR 5/13/83: Mr. Tony Lane reports that ALANCO has produced some silver from the C.O.D. Mine in Mohave County.

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The Narrow-Gage Scout of Casper, Wyoming, June 1983 issue reports that Alanco is building a gravity mill and rehabilitating the old C.O.D. mine workings north of Kingman. Work in the C.O.D. mine, formerly owned by Kingman Silver, consists of timbering the de-watered workings. The gold, silver and lead mineralization is in the form of ore shoots with mineralization in-between. The strike of the structure is exposed on the surface for 6,000 feet.

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NJN WR 8/26/83: Bill Vanderwall reported that Alanco Ltd. has been stockpiling a zinc concentrate at the COD Mine, Mohave County, for nearly the last 2 years. The concentrate is made from dump material and contains 11% Zn and 7 oz Ag/ton.

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NJN WR 11/18/83: Robert Nakaoka reported that the dump at the C.O.D. Mine, Mohave County, is nearly gone which will probably force the shutdown of Alanco's milling operation there.

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NJN WR 11/25/83: Chuck Bentzen reported that the shaft collar at the COD mine is being rehabilitated.

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CJH Field Report: <sup>5/2/84</sup> The Alanco, Ltd. mill (Charleston Road Mill, file) is designed to treat custom ores and ores from Alanco's COD mine, Cerbat District, Mohave County. When production is started it is estimated that 20 men will be employed at the mine and 11 at the Tombstone mill.

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C.O.D. MINE

MOHAVE

The Taylor interests have done nothing more on Mrs. Clack's C.O.D. mine although they retain a watchman who pumps the water down daily. GW WR 4/5/72

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Mrs. Clack says three companies are now interested in her C.O.D. mine. GW WR 6/7/72

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Mrs. Clack is looking for a market for her 6-800 tons of development ore produced by Taylor's who have formally given up the lease. GW WR 9/6/72

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Mrs. Nellie Clack has had no luck in selling the development ore from her C.O.D. property. She said AS&R refused the ore, perhaps due to the small amount and low grade. It assayed 4% Pb and 5% Zn. Mrs. Clack also said a company she has an interest in, the Gold Road-Redtop, has leased their claims to the USSR&M Co. and that they (USSR&M) had staked 7 more claims and had built at least 3 drill locations. GW WR 11/1/72

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Mrs. Clack said two concerns had shown interest in her C.O.D. property. GW WR 2/7/73

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Mrs. Clack says she has leased her C.O.D. mine to Jerry Haynes, Kingman, and thinks Houston people are supplying the finances. GW WR 10/3/73

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Although Jerry Haynes wasn't available, Stanley Juntunen said he had shipped 150-200 tons of the COD development ore to the Tonto Basin Mill. GW WR 8/28/74

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Mr. Haynes owns the C.O.D. mine in the Stockton Hill area, and has recently shipped 3 or 4 carloads of minus 3" material from the dump of the C.O.D. shaft. One load went to the Tonto Creek mill and the remainder to a flotation mill at Valentine, California. The dump material netted about \$6-\$8 per ton. Transportation to the Tonto Creek mill was too costly. VBD WR 4/23/76

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Gerry Haynes of Kingman has made a shipment of dump ore to the Commonwealth mill from the C.O.D. Mine dump in the Stockton Hill area of Mohave County. According to Jim Cockrell, Alan Company, the dump contains only 3,000 tons. VBD WR 5/13/76

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Kingman Mining Project, 11 Claim maps, 37 p & s Underground maps, 9 section Assay maps, 4 Misc. maps, 11/5/76

C.O.D. MINE

DO NOT COPY

MOHAVE COUNTY

Visited Mrs. Clack who said 2 shifts working at the C.O.D. mine drifting on the 600' level - 17 men employed. J. M. Arkell is in charge. FTJ WR 5-8-70

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Active Mine List May 1970 - 17 men (Rico & C.O.D.) J. M. Arkell

Visited Mrs. Clack who said Kingman Silver Mining Co. were drifting on the 600' level in 6' of fair ore. FTJ WR 7-11-70

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Development of the C.O.D. and related claims continued throughout the year by Kingman Silver Mining Co. who also have an option on Blevins claims near Wikieup. FTJ Annual Report 6-30-70

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Visit Mrs. Clack - said Kingman Silver planning 200 tpd mill near IXL mine. FTJ WR 9-4-70

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Active Mine List Oct. 1970 - 17 men - Harry Weiss, Mgr. Kingman Silver Mining Co.

Visited Mrs. Clack - work at the C.O.D. continues. They plan to sink to the 800. Studies are made for mill installation. FTJ WR 11-6-70

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Kingman Silver Mining Co. continued development operations on the C.O.D. mine. Sinking to the 800 was completed and about 800 feet of drifting on the 600 was completed. Further development is going forward. FTJ QR 1-13-71

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Interview with Harry Weiss, mgr., Kingman Silver Mining Co., they have been drifting on the 700' level for 1000 feet and have 10 stopes developed. They are making an evaluation to determine if a 150 ton mill is feasible. FTJ WR 5-10-71

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Kingman Silver Mining Co. continued to develop the COD mine and were planning for a mill. FTJ QR 4-5-71

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Kingman Silver Mining Co. continued to explore and develop the C.O.D., Rico and related mines in the Gerbat Mountains. FTJ Annual Report 8-19-71

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Kingman Silver Mining Company C.O.D. project was stopped during this period. GW-QR-9/71

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Mrs. Clack says the Taylor interests are trying to sell their lease on her C.O.D. mine. GW ASMOA 2/2/72

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The C.O.D. development has been stopped by the Kingman Silver Mining Company. It was reported that they made an unsuccessful attempt to acquire a mill in the area and are now trying to dispose of their lease on the property. GW QR 2/72

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C.O.D. MINE

DO NOT COPY

MOHAVE COUNTY

W. E. Iseman and associates of Tucson are trying to get a lease on the C.O.D. Mrs. Clack, part owner is willing but her associates are holding out. EGW WR 11-6-64

---

Visited C.O.D. mine and Rico mine. Vernon Taylor, Sr. of Houston has these properties under option. Two drill holes were put down on the C.O.D. and the drill was being set up on the Rico. Weldon Fulghum is Consultant for Mr. Taylor, but was in Las Vegas for AIME. FTJ WR 9-8-67

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Visited the C.O.D. - owned by Mrs. Nellie Clack - Vernon Taylor, Sr. is financing rehabilitation of shaft. "Blue" Fulghum is consultant. FTJ WR 7-12-68

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Visited the C.O.D. mine. Fulghum not in town. Visit with Frank Metler Sr. who said they were drifting on the 400' level and timbering. 3 shifts, 6 men per shift. FTJ WR 9-10-68

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Active Mine List Oct. 1968 - Exploration

Interviewed Mrs. Nellie Clack. Work at the C.O.D. continues. They have rehabilitated the shaft to 500' level and cleaned out and timbered where necessary the 1000' NE drift and are doing the same on the 500' level. A steel headframe has been constructed and other improvements. The Taylor Group have the Rico mine as well as the C.O.D. and contemplate drilling. 2 shifts, 3/men shift at present at the C.O.D. FTJ WR 11-8-68

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North of Kingman in the Stockton Hill area, the C.O.D. mine was being actively explored by Kingman Silver Mining Company (Vernon Taylor, et al). FTJ QR 1-20-69

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Visited with Mrs. Clack re C.O.D. mine. Weldon Fulghum was examining Craig property. Mrs. Clack said 30 men employed, drifting on the 500' level and stockpiling ore. Also have started to sink to the 600' level. Ray Sanderson is supt. FTJ WR 3-7-69

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Active Mine List April 1969 - C.O.D. & Rico - 30 men - Weldon Fulghum, Mgr.

According to Mrs. Clack, they are sinking from the 500 to the 700 at the C.O.D., and the Rico will be cut at depth. Vernon Taylor reported to have 10% interest in McCracken. FPK Notes on Field Trips 5-15-69

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Visited Mrs. Clack who said they were drilling from the 600' level at the C.O.D., Whitlock Rich is Supt. of all operations. FTJ WR 7-11-69

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Exploration by the Kingman Silver Mining Co. of the C.O.D., Rico, and the White Eagle claims continued during the quarter. FTJ QR 7-15-69

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Active Mine List Oct. 1969 - Sec. 28, 23N, 17W - Whitlock Rich, Mgr.

Exploration and development of the C.O.D., Rico and Eagle groups continued through the quarter. FTJ QR 4-3-70

MOHAVE ENTERPRISES INC.  
DATE: 5.20.80  
T8N R3W

PROPERTY C.O.D. MINE

PROJECT NO. 318

LOCATION Cerbat-Wallapai Mining District, Mohave County, Arizona.  
Approximately 13 miles north of Kingman.

ACREAGE 1,198.28 Acres

LAND STATUS 58 Unpatented Claims

OWNERSHIP ALANCO LTD. - Joint venture - Rocinante Resources.

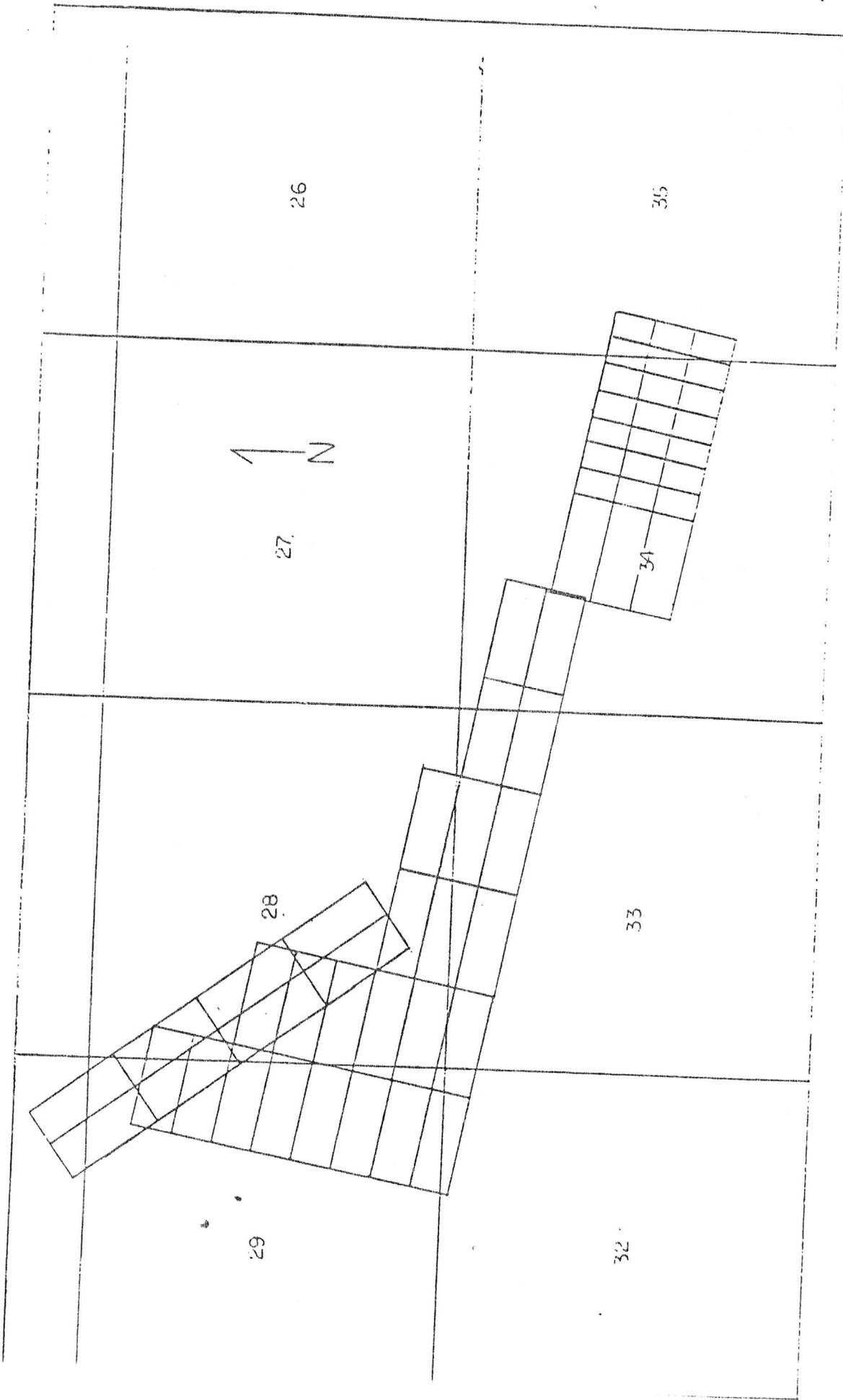
CURRENT ACTIVITIES Mine Production

COMMODITIES Gold, silver, lead, zinc and copper.

RESERVES Positive and Probable ore - 200,000 tons  
Inferred ore - 1,000,000 tons.

VALUE \$26,000,000.00 Positive and Probable ore  
\$100,000,000.00 Inferred ore.

COMMENTS



SCALE 1" = 2000'

CLAIM PLAT  
COD PROPERTIES

MELVIN H. JONES

Mining Geologist

October 26, 1976.

RECONNAISSANCE GEOLOGICAL EXAMINATION OF THE C.O.D. MINE, CERBAT MOUNTAINS, MOHAVE COUNTY, KINGMAN, ARIZONA.

In compliance with the directions of Mr. Howard S. Gable, Box 946, Kansas City, Mo. 64141, the undersigned, accompanied by Mr. G.R. Haynes, 1025 Lydia Dr., Kingman, Arizona (ph. 753-3821), examined the C.O.D. mine, Cerbat Mountain, about 12 miles Northeast of Kingman, Arizona. Also examined were the adjoining Rico and White Eagle mines. This was on October 7, 1976.

It is understood that Mrs. Wilma A. Brummett, Real Estate Broker, Kingman, Arizona has these mining claims listed for sale. Mr. Haynes informs the writer that he has a lease and option to buy on the outlined mining properties, and that the owners are the Estate of Mrs. Nellie Clack, one other un-named party who has a 25% interest. However, the purpose of this examination does not include investigation of ownership.

The C.O.D mine is on the east side of the Cerbat mountain from the Duval open pit copper mine (Mineral Park). The Rico and White Eagle mines are near (see map Exhibit A). The C.O.D. mine consists of six (6) unpatented lode mining claims (see map Exhibit B) and it has a shaft with a metal headframe, and 3,255 feet of underground drifts, crosscuts, winze and raises. It is now largely filled with water and an underground examination could not be made.

The Rico mine is about one-half ( $\frac{1}{2}$ ) mile West of the COD and consists of seven (7) claims, and has a shaft going down to the 350 foot level (filled with water to the 250 level, the writer was told). There are also two (2) exploratory adits (see map A). Mr. Haynes says the mine produced some gold in the past.

The White Eagle mine is about three-quarters ( $\frac{3}{4}$ ) mile NW of the COD and consists of fourteen (14) claims. It has a shaft and a depth of 4200 feet (the writer was informed). The ore is in a vein of 2 to 4 feet. In the past, it produced ore averaging .3077 Au and 19.0 Ag and shipped 1,971 tons of ore until it was shut down by government order L-208 in 1942. This closing was also applicable to the Rico, according to Mr. Haynes.

It might be well to mention that the COD mine was first located in 1878 and it has been worked intermittantly up to 1971. The Rico and White Eagle are much younger.

GEOLOGY.

The mining properties are located in the Mountain Region of the Basin and Range physiographic Province. The Cerbat mountain appears to be a continuation of the quartz Monsonites of Pre-Cambrian age, which are prevalent in this part of Arizona. Also in the area are some Ithaca Peak granites. Frequently, Tertiary basalts are on top of the granitics. The veins carrying metaliferous values are in a gangue of Shists and Gniesses and consist of quartose rock carrying lead, zinc, silver, and gold and copper (in some instances). Most of the metals are sulfides.

At the COD, the research of others, show that East of the

shaft are relatively good silver, lead, zinc, and copper values; while to the West, the gold values increase with little or no lead and zinc, and very little copper. Thusly, the Rico and White Eagle presumably had higher gold values.

The principal minerals are galena, sphalerite, chalcopyrite, cerussite, proustite, argentite and native gold. Some arsenides are also present as now indicated by a peculiar oxidizing action on parts of the dump.

It is to be again emphasized that this report is a reconnaissance geology study, this meaning that only a short time was spent on the mining properties. The surface formations, dumps, tailing pile, collars and portals could be examined, and this was done. However, the underground workings could not be investigated, nor sampled, as they are filled with water. Further, there are no ladders on the shafts, etc. But, other research was accomplished. Two (2) reports of extensive content written by mining Engineers in the past (who did underground studies) were reviewed. The one (1) report was written by L. Frank Male, Phoenix, Arizona, in 1963, subject: "Geologic Evaluation of the White Eagle, Clack-Kesler, and C.O.D. Claims". The other report was made by Keegel Engineering, Inc., Las Vegas, Nevada, subject: "C.O.D. mine" is dated 1974.

Mr. Male records past shipments, ore grades, paragenesis, and says that additional ore is blocked out, and recommends more exploration. The report, in general, has a favorable viewpoint.

The Keegel report concludes that the operation of the COB mine is feasible (and would be profitable, under then 1974, metal prices and costs. Positive probable ore can be mined out in about one (1) year with a 100 t/d mill. The indicated ore operation would be 2.4 years. They also state that with careful exploration work, and using ore from outside sources, the time can be well extended

The writer and Mr. Haynes spent some time on the dumps, and a grab sample was taken from the dump near the shaft. This sample can only be used as a rough guide, as the dump was not sampled at depth. About six (6) small snovels full were taken at 20 foot intervals and put together as a composite sample. On the COB property there are three (3) dumps and one (1) tailings pile.

According to the estimates of Mr. Haynes (who has been a mining operator, on other properties for more than 20 years), the main dump has 3000 tons of ore. The lower dump contains 3500 tons and the surface is quite oxidized. Down the road a bit is another pile with 400 additional tons. The tailings pile has about 4000 tons and carries .0125 Au, 3.74 Ag, 0.29 Pb, and 1.25 Zn, according to Mr. Haynes.

Mr. Haynes says that 200 tons of dump ore was shipped to the Tonto Basin mill (Arizona, during 1974. The gross assay value was \$82.00 per ton, but this did not leave an adequate profit after paying for the haulage and milling.

Other assays on the primary dump by Mr. Haynes are as follows:

<u>Description</u>	<u>Au</u>	<u>Ag</u>	<u>Pb</u>	<u>Zn</u>
Red rock	.056	8.51	.76	3.0
Dark rock	.063	6.20	.34	3.9
Foot of hill	.06	5.20	.30	3.9

During October-November 1975, Mr. Haynes hauled a large mill sample from the dumps to the Vanderbuilt mill at Nipton, California. The recovery there was not satisfactory as only 59% of the value of the heads were obtained. Their processing could not do the job properly, according to Mr. Haynes. (see Exhibit C, for returns).

The assay report on the composite dump sample taken by the writer, follows: (see Exhibit D)

<u>SAMPLE</u>	<u>Ag</u>	<u>Pb</u>	<u>Zn</u>
C.O.D.	15.61	.94	1.88

### CONCLUSIONS.

At today's prices, and using the sample in the preceding paragraph, (and assuming 90% recovery), the value of one (1) ton would be about \$82.00. (gold values are not included). Perhaps the silver is on the high side, compared to other past sampling.

The potential of gold production is not known by the writer. No samples were taken from the Rico and White Eagle claims, purported gold producers.

Using the Nipton mill assay (and assuming 90% recovery), the value of each ton (dump ore) would be about \$86.00. Using the estimate of 6900 tons in the dump, this would be a gross total of \$593,400.00. Not included in these figures is the tailings pile. Normally, tailings present a complex metallurgical problem in recovery of the chemically altered minerals. Even so, the pile could have considerable value.

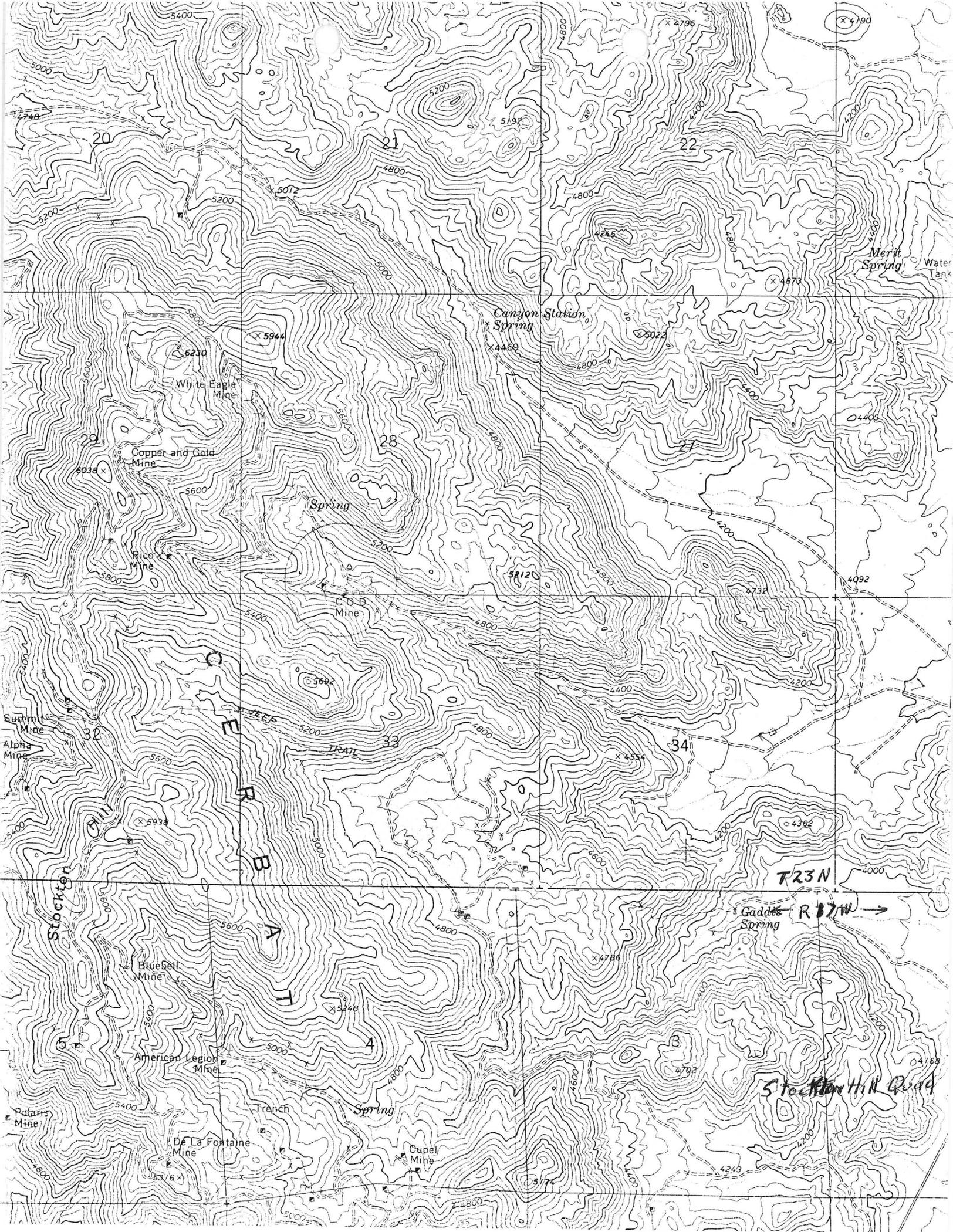
It is understood that Mohave County Supervisors, with assistance from the State of Arizona Department of Mineral Resources, (and some Federal funds) has been making a feasibility study for establishing a custom mill in the Cerbat Mountain area. If this materializes, it will greatly enhance the potential values of the C.O.D., Rico, and White Eagle mining properties.

These dormant mining properties are far better than most under similar circumstances and have a good potential of becoming producers again. More underground exploration needs to be accomplished; drilling is the usual way of doing this.

The dumps have very definite value.

MELVIN H JONES  
Mining Geologist.

1600 Sandhill Rd #7  
Las Vegas, Nevada.



NAME: C.O.D.

COUNTY: MOHAVE

Stackton Hill 7/2

T 23 N R 17 W SEC. 28 <sup>yes</sup> (33) E. 500'

DISTRICT: WALLAPAI

Mineralization:

Au, Ag, Pb, Zn, Cu

Geology: gold qtz vein & fault fissure

Type Operation: ① 400' ② 500'

Production: ① 1,300,000 ② 1,350,000

References: A.C. 8/14/20 ② H.C. 3/1/20

AEC microfilm, USGS Bull 340 p. 397

Mohave Cty. Card File



## IRON KING ASSAY OFFICE ASSAY CERTIFICATE

BOX 56 — PHONE 632-7410  
HUMBOLDT, ARIZONA 86329



ASSAY  
MADE  
FOR

Arizona Dept. of Mines & Mineral Resources  
Mineral Bldg Foregrounds  
Phoenix, AZ 85007

REF. NO.	DESCRIPTION	oz/ton Au	oz/ton Ag	% Fe	% Pb	% Zn	% Cu
12-21-7	COD stockpile	.098	6.81		12.20	2.30	1.00
8	Richmond #2	Nil	.67				
9	Clementine 40	Tr	Nil				
10	Clementine #2	.024	Nil				
11	Richinbar tails	Tr	Nil				
12	Moon Anchor Calcite Vein	Nil	Nil		1.98		
13	Joe Smith	Nil	Nil				Nil

CHARGES None

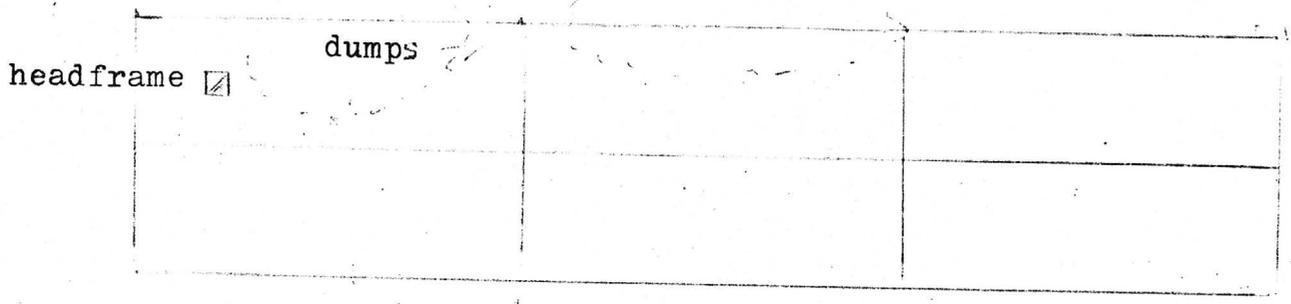
ASSAYER \_\_\_\_\_



Payroll  
Dec 1983



C. O. D. Mine



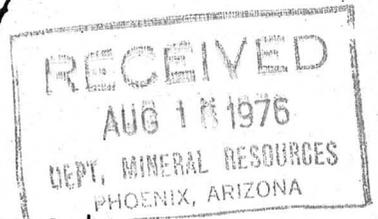
Claim names

- Eric
- O.J.B.
- Jayne
- Kim
- Marc
- Golden moon

C. O. D. M I N E

Kingman, Arizona

4-30-74



Scope and Purpose

The mine was inspected to bring data of previous reports current and to adjust for the change in status of the buildings and equipment. ✓

Location

The C. O. D mine is located approximately 12 miles north-easterly from Kingman, Arizona, Mohave County. Kingman is the nearest point of supply and railroad shipping point on the Santa Fe railroad.

The road is bladed and maintained to a point about 10 miles northerly from Kingman and it is about 2 miles westerly over dirt roads from that junction with maximum grades of about 8.0% over relatively short distances.

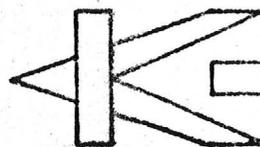
The mine is on the east slope of the Cerbat range and it is easterly from the Duval copper operation in the S $\frac{1}{2}$  of Section 28 and the N $\frac{1}{2}$  of section 33; Twp. 23 North; Range 17 West G & S.R Mer.

The general conditions of access are good. There is no radio or telephone communication.

The property may be operated continuously in so far as the condition of access is concerned.

Surface Equipment, Buildings, Machinery, and Improvements

The surface equipment comprises a pipe steel head frame, suitable for limited use, a concrete change house about 25' x 30' of block, and a small (2.0' dia. x 12' apx. re ciever. Track and pipe remain in the mine for the most part, and ventilation pipe. There is no other equipment known to the undersigned.



Status of Title and Ownership

A thorough check of the status of title and ownership is not in the province of this assignment.

It is presumed that the C. O. D. group of possessory, lode claims is owned by Mrs. Nellie Clack and family of Kingmen, Arizona, with a current lease and option to purchase to Mr. G. R. Haynes, 1025 Lydia Drive, Kingman, Arizona.

The group consists of the following claims:

Eric

Jayne

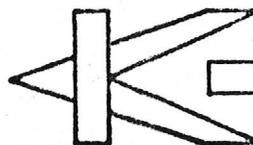
O. J. B

Kim

Marc

Golden Moon

All of the above claims are of record in Mohave County, Arizona, with required assessment work current; in Book 3 X, pages 499 to 510, the location data are available.



## History and Production

The C. O. D mine was located in 1878 and was subject to small scale mining until 1885; about 4,000 tons of ore were produced at that time.

In 1902 a mill was installed and operated for a period of about six months. It was shut down due to low silver prices and started intermittently. The production calimed was \$1.3 million dollars in the term 1875 to 1892.

The mine was acquired by Mr. M. B. Dudley and he operated it from 1919 to 1921. The main shaft was sunk to the 500' level.

In 1937, Mr. John Osterman operated the property and he processed some of the dumps, shipping direct. In 1940, he erected a mill plant which worked until the closing order "L-208" in 1942.

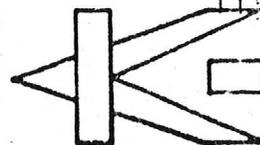
The property was acquired by Mr. Vernon Taylor who re-habilitated the main shaft to the 500' level. In 1969, Mr. James Taylor and Gen. D. Campbell operated the mine, doing explorational development, until May, 1971.

At that time, the shaft was continued to 640', the raises and drifts on the lower levels extended, and a winze made to the 700' level. The Taylor's operation was under the Kingman Silver Mines Co.

## Development

The C: O. D mine has the following developemnt:

Level	Direction from Shaft	Footage Drifts and Crosscuts
500	East	750
500	West	730
600	East	425
600	West	675
600-700	Winze from 600W	115



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Level	Direction from Shaft	Footage
400-600	Raise W	200
400-600	Raise East	200
500-640	Shaft	140

TOTAL 3,235'

This does not, of course, include work on the upper levels, or the shaft to 500'.

Mr. Vernon Taylor had I.P. surveys made and from this a number of drill holes were made (KSM-A 1) from the surface. I.P. in this area could not possibly be of any value and, of course, the drilling did not result in any mineral discovery. A number of underground holes were also negative.

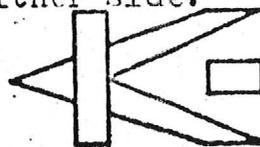
The raises are cribbed and drifts and cross cuts are timbered as necessary. There is a large pocket and sump below the 600 level in the main shaft.

#### Geology

The C. O. D. vein strikes about N 85 W, dipping about 60° northerly. The gangue is principally quartz and the "country rock" is a granite gneiss, pre Cambrian, which has been subject to a number of late granitic invasions.

There is a distinct change in the ore type east to west. On the 600 level the easterly side has a relatively good silver, lead, zinc, and copper values while to the west the gold values increase with no lead and zinc and very little copper. Generally the ore minerals comprise galena, sphalerite, pyrite, argentite, and limited amounts of chalcopyrite.

Ore shoots are relatively short in strike length (80' to about 200'). There does not appear to be any secondary enrichment and there is only about 30% of the ore minerals oxidized on the 500 and probably about 5-10% on the 600 level. Shoots appear to rake westerly. Ore control is at transverse faults where there is considerable bleaching and alteration with ore 5-6' on either side.



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Ore deposition within the 4-5' vein width favors either wall area unpredictably; values often die out in vertical section, resuming after a few feet, apparently venturi effects.

The hanging wall, upon exposure and oxidation often becomes very weak, posing serious support problems and the effect is quite variable..

The computed average width of the vein from sampling data is 5.0'.

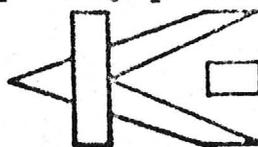
There are numerous oblique high angle faults cutting the vein. As described by Schrader, the country rock is mainly dark gray, coarsely porphyritic, gneissoid microcline granite. Locally there is a fine grained chloritic schist. The rocks are cut by dikes of altered basalt; schistosity and jointing strike N 20 W and are vertical to slight N.E dipping. The secondary jointing system ( the oblique faults mentioned) strike N 70 W and dip 80° S.

Paragenesis of hypogene minerals (Blakemore Thomas) shows chalcopyrite, tennantite, tetrahedrite, silver sulfa-arsenides, sulfaantomides, gold, manganocalcite, siderite, fluorite, and stibnite as late; sphalerite, arsenopyrite, pyrite and marcasite as early. The essential mineralization effecting the ore is late tertiary and associated with the Ithica Peak stock (Duval).

#### Ore Reserves

At the current prices and costs, ore is considered to be "break even" at \$ 30.00 per ton recoverable final value. Gold is taken at \$ 150.00 per ounce, average for March, 1974, and silver at \$ 4.50 per ounce. Lead at \$0.19 per lb., Zinc at \$0.31 per lb., and copper at \$0.65 per lb.

Generally speaking, with penalties, freight, smelter charges and other costs, the value paid by processors



is approximately 50% of the contained value of the concentrates on schedules effecting zinc. The economics will be considered in more detail later, however, no reserves should be considered where the final value of the recoverable metal product is less than \$50.00 per ton of input, or \$35.00 for dumps.

This is not easily determined under the situation today where there are virtually no smelters serving the small mining industry. In the west lead must be shipped to El Paso or Kellogg, or possibly St Louis. Zinc to El Paso, or St.Louis.

The detail of reserves are shown in the appendix, here summarized:

TOTAL POSITIVE AND PROBABLE BLOCKED ORE

Tons	Width	Gold Oz.	A s s a y Silver per ton	lead	zinc P e r c e n t	copper
33,755	4.5	0.15	15.39	2.42	4.33	0.14

TOTAL POSSIBLE ORE

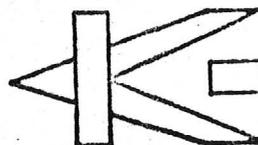
33,485	...	0.14	13.50	1.17	4.94	
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TOTAL POSITIVE, PROBABLE AND POSSIBLE ORE

67,240	...	0.14	14.45	1.80	4.46	
12,722*		0.26	4.96	0.19	1.64	
79,962	...	0.16	12.94	1.54	3.82	
<u>TOTAL DUMPS</u>						
15,000	...	0.06	7.37	1.38	2.16	
<u>MILL TAILINGS**</u>						
2,000		0.025	3.74	0.29	1.25	

\* Ore on the 600' level, westerly taken to the surface this is considered possible ore, though blocked 600 to 500' levels there is doubt above the 500'. On the other hand, the shoot may continue westerly, or added ore may be found there is the Rico is obtained.

\*\* Untested may be uneconomic



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On mined ore, the "break even" is about \$55.00 per ton. The economics are presented in Appendices 2,3,4, and 5. Maps pertaining to the sample data are attached, KSM A1, KSM A-2 and KSM 1. Winze data, 600-700 are also attached.

### Discussion

This mine has heavy backs and hanging wall, due to the alteration within the vein proper and other factors, such as slabbing.

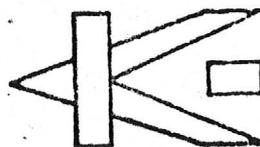
For the most part, the only applicable stoping method is cut and fill. This method is quite costly, but it is also limited in productive potential such that 75 t/d would be about the expected rate of production under good management.

We have shown here a rate of 100 t/d with the thought that there is a wide margin of projected profit and it is possible that added ore from dumps and other sources may be available.

The annual cash flow is estimated at 100 t/d of mined ore which at the contained value estimated, appendix 4, might be expected to show 1.35 million with pay out at some 7 months and life to finish positive and probable ore at about 2½ years.

Since the above shows a viable investment picture, there is no point in further analysis. Caution must be exercised in the costs estimated, about \$ 55.00 per ton of input which includes all of the mining and milling, appendix 1 and 2, at 28.18, royalty, and refining costs. There is no allowance for the cost of acquisition of the properties beyond royalty, the pre-production expenses other than mine rehabilitation, and such costs.

Thus, these estimates are not complete. To the normal capital requirements of about \$ 650,000.00, added capital of \$150,000.00 is suggested.



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a total of some \$800,000.00. The cost of labor and materials is subject to such variation that there is extreme uncertainty of any projected cost. The cost of equipment needed may vary on substantially small time intervals.

Less likely to effect planning are metal market prices which, it is hoped will more or less now range upward with prices of labor and materials, reflecting the deflation of the dollar.

It is doubtful that processing through normal smelters will be possible. The refineries tend to want to run at full capacity on the captive raw material sources. The ore is generally too low grade to ship direct and there is no fluxing, or chemical value, in the concentrates.

It is impossible to predict the condition of the mine and the time and cost to rehabilitate it and there are therefore numerous uncertainties at this time.

Some reduction in the costs here estimated may be effected by locating the mill plant below the mine in the valley area and transmitting power to the mine location rather than to operate two separate units.

The ore is predominantly a sulfide type and there is, therefore, very little choice in local process except flotation; possible wet chemical steps may be applied to these to produce more valuable metal products, but a roasting step will be required. Please refer to the appendices 3-4.

Recoveries show an over all ratio of concentration of about 6: 1, that is there will be required six tons of input to produce one ton of product. The concentrates are of two different types, a high zinc and a high lead with most of the value in the lead concentrate. With local further refining, this selective flotation could be eliminated.



and a single bulk concentrate made. The cost to research the process will involve about \$3,000.00 in added laboratory equipment and about 90 days of research.

It is important to note here that the recovery data appended, showing the following total recoveries:

Gold 76.5 %  
Silver 92.5 %  
lead 94.0%  
zinc 91.4%  
copper 85.5%

in a total weight of 16.7% of the input, is made on the basis of a flotation test for mined ore. The recoveries on the dumps are likely to be lower due to the higher percentage of oxidized material contained.

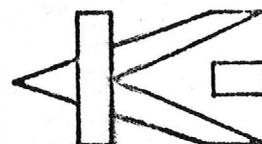
It should also be noted that there is a possibility that the mill tailings may be treated, the analysis for which appears on page 6, subject to mill recovery tests.

Except for the problem of handling the metal contents of the concentrates, there does not appear to be serious metallurgical problems. The almost total lack of refinery outlets for the concentrates makes it mandatory, or nearly so, that efforts be made to increase the grade of product by local refining.

The outlook for further ore discovery, once the property is in operation, is reasonably good, both laterally and vertically, except to the north.

A second opening, requiring a raise somewhere to the west preferably, with the surface is necessary and required by law.

In the direction of the Rico claim, westerly, it is possible that there is more ore to be found, there may also be some discovery possibility easterly in the vicinity of the shaft of the C. O. D.



some drifts and cross cuts should also be made on the 700' level from the winze.

In westerly drifting, because of the weak nature of the vein, it would probably be well to consider lateral advance with occasional cross cut exploration back in the vein.

### Conclusions and Recommendations

Taking only the Positive and Probable ore reserves, we have noted that there is an indicated annual cash flow on the order of \$1.1 million.

Due to metal marketing and refining problems, cost escalation, unknown underground conditions, and other factors, this may be an optimistic estimate.

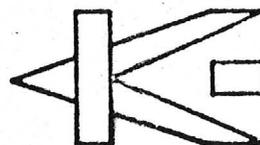
At the same time, it is evident that with pay out at 7 months (Appendix 4) that even if the income was very much reduced the project would still remain feasible from an investment standpoint with good management.

The matter, therefore, of further economic analysis of the dumps and other ore types is not essential.

It is concluded that the operation of the C.O.D mine is feasible under current metal prices and costs.

While the life to mine out the Positive-Probable ore is only about a year under the projected production rate, there appears to be reasonable possibility for a 2.4 year operation from presently indicated ore and with careful exploratory work and use of ore from other outside sources in the area, the operation may well be extended.

Depreciation schedules are over the long term(10 years) and only approximate such costs and so they do effect the cash flow.



Accordingly, it is recommended that:

1. Simple flotation tests be made to determine the amenability of the dumps to treatment.
2. The headframe and bin be studied for re-building, the mine equipped with the necessary hoist, ventilation fan, and other equipment, and be unwatered.
3. Mill plant design begin at once with selection of location and cost estimates.
4. That treatment of the dumps precede or be concurrent with mine rehabilitation.

It is estimated that the capital requirement will be about \$ 400,000.00 for mill plant (75-100 t/d), \$247,000.00 for mine plant and equipment, and \$ 150,000.00 for mine exploration and for such repair and equipment as may be found necessary upon opening the mine.

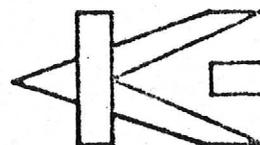
TOTAL ESTIMATED CAPITAL REQUIREMENT    \$ 800,000.00

The estimate of cost to mill plant is based upon the current prices quoted for used plants with dollar for dollar erection costs plus water and power development. These costs are subject to upward revision with undue delay in implementing the program.

The undersigned represents that he is a duly registered mining engineer with no present, or intended future interest in the described property or its operation.

  
C. P. Keegel, Mining Engineer  
Arizona 5481  
Nevada 232  
Calif. 1525 (Chem Eng)

April 30, 1974



Keegel Engineering Inc.

1721 SOUTH FOURTEENTH ST.  
LAS VEGAS, NEV. 89105  
(702) 738-8526

- C O P Y -

VANDERBUILT MILL (Ibanpaugh)  
Nipton, California

Oct-Nov 1975

Assay

Au	.14
Ag	7.90
Pb	1.25
Zn	3.89
Cu	.50

Pb concentrates

Au	1.84
Ag	102.4
Pb	16.
Zn	35.

Zn concentrates

Au	3.84
Ag	95.0
Pb	0.0
Zn	39.0

D. R. Curry, Assayer

ASSAY CERTIFICATE

10-30-76

14437 Rios Canyon Road  
El Cajon, Calif. 92021  
(714) 443-1754

El Cajon, Calif., 11-19-76 19

I hereby Certify that the samples described below, received from

assay as follows:

OWNER'S MARK AND SAMPLE	G O L D		S I L V E R		TOTAL VALUE PER TON	PERCENTAGE OF		
	Ozs. Per Ton	Value Per Ton	Ozs. Per Ton	Value Per Ton		Copper	Lead	Zinc
Ore Sample from Kingman  COD Mine	0.24	31.20	0.96	4.16	35.36		0.25	

GOLD at \$ 130.00 per oz.

SILVER at \$ 4.34 per oz.

LEAD at .....c

COPPER at .....c

Charges 3.00

*D. R. Curry*

Assayer



GEOLOGIC EVALUATION  
CERTAIN MINING PROPERTIES

Mohave County, Arizona

L. Frank Hale

THE  
WHITE EAGLE, CLACK-KESLER

AND  
C. O. D.  
CLAIMS

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## RECOMMENDATIONS AND CONCLUSIONS

### THE C.O.D. - RICO - WHITE EAGLE GROUP

This group includes two of the longest veins in the district, from which considerable high grade ore has been shipped. There is little doubt that a more intensive investigation on these properties should be done. An option on these properties should be acquired because of their past history and good geological indications that further exploration could possibly block out a considerable body of ore in these veins.

Drilling for the possible ore would entail an expenditure of approximately \$52,000 for eight holes to a datum plane of 4,450 feet. However, rather than drilling, it is recommended that the C.O.D. and RICO shafts be reactivated and a thorough geologic investigation and evaluation be undertaken. Further, a sufficient exploratory program should be undertaken on the WHITE EAGLE veins to determine if any more ore can be found. High grade ore has been mined from the WHITE EAGLE veins and there is no reason to believe that additional ore shoots are not present.

Comparison of the shipping records of these three mines with others of the area, show that higher grade ore was shipped from these three properties. However, because of the lack of exploration and deep mining, these properties are now only very good prospects. It is believe, though, that these mines could possibly become the largest producers of vein type deposits in the history of the district.

The ore, to be profitable, must be milled and concentrated. The concentration ratio should be 15 to 1 with a recovery factor of approximately 90%. The concentrate products would be : a gold- and silver-bearing lead concentrate, a gold gold- and silver-bearing zinc concentrate, and a silver-bearing copper concentrate.

## COSTS AND PROFIT EVALUATION

### COSTS

The costs estimates for the proposed mining operation are based on bids from two contract mining firms. The milling costs includes: insurance, millmen, workmen's compensation, employer liability, payroll, taxes, and the amortization of the mill and equipment. The transportation costs is based on trucking rates in the district at the present time.

OPERATING COSTS PER TON (Based on 200 tons per day)	per ton
Contract mining	8.00
Milling and Concentrating	3.50
Sampling and Assaying	.12
Transportation, Mine to Mill	.17
Transportation, Mill to Smelter	.95
Smelter Fee	.15
Development Cost (Future ore)	.40
Foreman and Supervision	.25
Office Expense	.12
*Royalty (5% to purchase)	.86
Total Costs	<u>\$14.92</u>

\*Based on \$17.21 net smelter price per ton.

These figures, which are based on a rate of production of 200 tons per day, would be proportionally lowered as the tonnage was increased. This can be done if it is determined that sufficient ore is available to sustain the operation.

## INTRODUCTION

### LOCATION AND ACCESSIBILITY

The mines described in this report are located in the Cerbat Mountains of the Hualapai Mining District. The area is in Mohave County ten miles north of Kingman, Arizona, (see index map, plate 1).

The properties are easily reached by county-maintained graded roads. The C.O.D. - White Eagle Group is approximately 18 miles north of Kingman and is a 35 minute drive.

### TOPOGRAPHY, CLIMATE, AND VEGETATION

The Cerbat Mountains are bordered by detritus-filled valleys on the east and west and have an average relief of about 3,500 feet.

The climate is arid with mild winters and hot summers. The annual precipitation (snow and rain) is low and mining operations can be carried on throughout the year. Vegetation is sparse and of desert types. It consists chiefly of cacti, sage, yuccas, greasewood, sagewood and some sparse grasses.

### METHOD OF INVESTIGATION

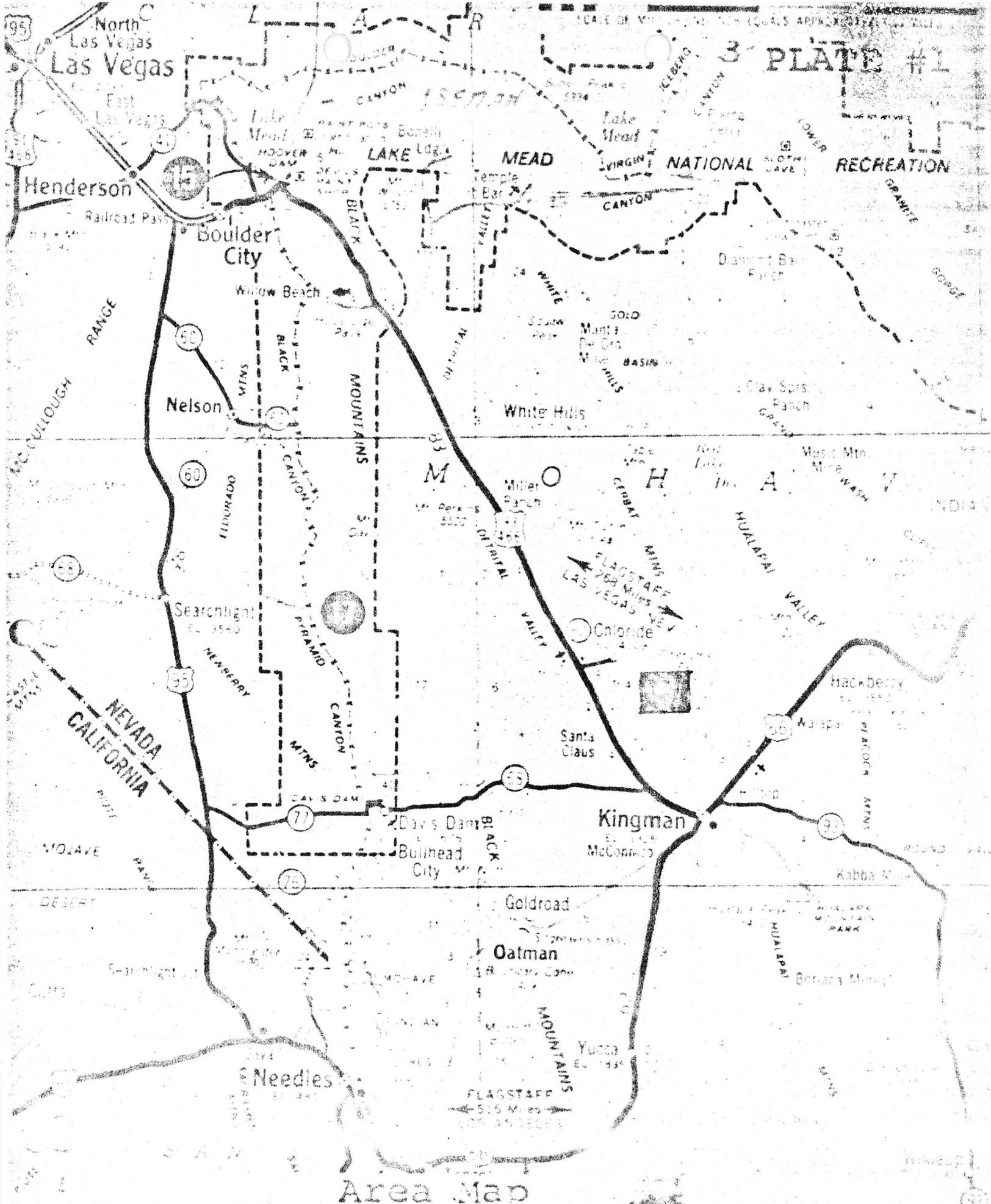
The field work was done between February 15, 1963 and March 8, 1963. A.U.S.G.S. 15 -minute topographic map was enlarged four times in the area of interest and was used as a base map. Mapping was done with a Brunton compass and chain. Channel samples were taken from the veins in accessible workings.

### AREA HISTORY AND PRODUCTION

Many of the mines of the area were discovered between 1863 and 1900 but due to their inaccessibility the area was mined only for the very high grade ore. The area began to develop in the late 1890's and early 1900's except for the panic of 1907.

The oxidized zones of fissure veins were mined for silver and gold, the silver commonly found in rich concentrations. Ceragyrite, argentite, pyrargyrite, proustite, galena and some gold were the principle ore minerals recovered in the early days.

The value of the metals produced during the years 1904 to 1948 totals about \$22,500,000 (Metal Economics Branch, U.S. Bureau of Mines). The value prior to 1904 is not known, but probably amounted to at least five million dollars.



Area Map

The Golconda and the Tennessee mines, which reached a depth of 1,400 and 1,600 feet respectively, are exceptional since the other mines in the area generally curtailed their activity when the oxidized zone was replaced by the sulphide zone, usually at about the 300 feet level.

## AREA GEOLOGY

### ROCK TYPES

The surface rocks are chiefly granitic pre-Cambrian crystalline rocks cut by intrusive granite at Mesozoic (?) age and younger dykes of various composition. The Volcanic rocks found around the margins of the Cerbat Mountains are probably Tertiary and Quaternary age.

McClelland G. Dings (U.S.G.S.) Bull. 978-E) grouped and mapped as separate units the following crystalline rocks. (1) Amphibolite and related gneiss and schists; (2) underdifferentiated granite; (3) Chloride granite; (4) Ithaca peak granite (intrusive); and (5) Gabbro. The dikes are intermediate to basic types, diabase, and thuyolite. All appear to be younger than the Mesozoic (?) intrusives.

In the area of investigation the following rocks were present. Fine to medium-grained, dark-green to black amphibolite which is composed essentially of hornblend and plagioclase and in places appears to grade into hornblend schist, chlorites schist, or diorite gneiss. It is locally epidotized and is commonly cut along its schistosity by granite intrusions. Also present in the area are undifferentiated gneisses, schists, and granite. The granite varies considerably in color, texture and mineral composition but is most commonly a light-gray, medium-grained, gneissoid granite, containing a small amount of mafic minerals, chiefly biotite, diabase dikes occur which are commonly a grayish-green color with phenocrysts of biotite in a porphyritic texture. Striking southeast through the area in a rhyolite dike which is light-green and has a porphyritic texture with phenocrysts of quartz and orthoclase or albite.

### ORE DEPOSITS

The area has two distinct types of mineral deposits. Representing the first type of deposit is the Ithaca Peak granite intrusive which is a stock disseminated by copper and molybdenum. This property is now being stripped of the overburden by Is abell Contractors for Duval Sulphur and Potash Mining Company. The property is reported to have 10 to 15 million tons of overburden, and the ores is blocked out to a

depth of 500 feet below the elevation of the surrounding terrain, which is approximately 4,450 feet (see plate 2A).

The second type of deposit are vein deposits. The veins in the district are classified as mesothermal deposits and range from a few inches to 33 feet in thickness but average 3 or 4 feet, some lodes have been found that are up to 100 feet in width. The length varies from 100 feet or less to almost 2 miles, but only twelve veins in the region exceed a mile in length. Of these twelve, two are in the area of investigation. They are the Rico, C.O.D. and White Eagle veins (see plate 3).

#### VEIN MINERALS

The veins fall into three general groups: oxidation products, products of sulfide supergene enrichment, and hypogene minerals.

The principal minerals of economic importance in the oxidized zone are cerargyrite, native silver, cerussite, and to a lesser extent, native gold. Locally anglasite, azurite, malachite, minnetite, and vanadinite are common. The most common gangue are limonite and limonitic quartz.

Supergene enrichment products (Bostin, E. S.: U.S.G.S. Bull. 750, 1924 are argentite, chalcocite, covellite, and proustite. However, supergene enrichment in the vein deposits appear not to have been important.

The hypogene minerals, of which only two mines in the district worked to any extent, are pyrite, sphalerite, galena, and chalcocopyrite. Other minerals include arsenopyrite, proustite, molybdenite, and argentite. The gangue minerals are quartz, calcite, manganese siderite, and rarely rhodochrosite.

The sphalerite, ranges in color from brown through reddish-brown to black. Analysis (J. W. Sharpe, Metallurgist, Tennessee-Schuykill Corp., June 1934) showed the presence of a considerable amount of gold and minor amounts of silver. However, analysis of the C.O.D. zinc concentrates showed 2.5% lead, 20.0% zinc, 13.7% iron, 2.08% silica, 27.4 ounces silver, and 0.45 ounces of gold. The sample for the above was taken from the C.O.D. dump.

The galena is fine- to coarse-grained and all the galena, regardless of type, is silver bearing, and much of it is high in grade. The galena was reported to have produced most of the gold values produced from the Tennessee mine (J. W. Sharpe, June 1943). An analyst of the lead concentrates produced from the C.O.D. dump showed 39.7% lead, 7.3% zinc, 17.2% iron, 2.4% silica, 6.45 ounces silver, and 1.40 ounces gold.

PLATE 2A

ITHACA PEAK INTRUSIVE  
Molydenum-Copper deposit  
being stripped of over-  
burden. Looking Northwest.

PLATE 2B-

C.)D. DUMPS  
Automobile for scale.  
Looking to the southwest.

THE C.O.D. - RICO MINES AND VEIN

THE C.O.D.

The mine was located 1878 and worked in a desultory manner until 1885 when active work was begun. In 1902 machinery and a mill was installed. After six months production was curtailed due to a decline of the silver market and, it is said mismanagement. The mine was reopened in 1904 and worked up to 1909.

The mine production was compiled from output records by Robert Jacobson, a consultant engineer for the Rico Exploration Company, in 1912. Mr. Jacobson reports, "from October 10, 1885 to March 1901 the records show: 3,687 tons of ore shipped, according to smelter return sheets, to have contained 402,000 ounces of silver, 1,180 ounces of gold, and 575,760 pounds of lead. Later, 1900 to 1902 17,550 ounces of silver, 180 ounces of gold and 114,360 pounds of lead were obtained from 330 tons of concentrates. The production is reported to be \$1,300,000; and several thousand tons of minimum-grade ore is on the dumps.

From 1901 through 1948 (Metal Economics Branch, U. S. Bureau of Mines) the C.O.D. produced 1,550 ounces of gold, 151,263 ounces of silver, 23,924 pounds of copper, 348,872 pounds of lead, and 23,188 pounds of zinc.

The mine has been developed from a central shaft to the 550 feet level with drifts and stopes on four levels, two main and two subordinate, for a distance of approximately 400 feet on either side of the shaft. There are about 2,500 feet of aggregate underground workings (see plate 7). It was reported that the drifts and stopes at the present time are badly caved. In the main shaft the top of the caving is 30 feet from the surface but it was assumed from reports that a short distance below this level the shaft is in good shape.

In the past the mine made sufficient water from drilling purposes and for operation of a mill. From all indications it still will. The dumps and tailings from the old mill comprise several thousand tons but were not measured or sampled at this time (see plate 2B). In 1937, 1938, 1939, and 1957 226.8 tons of ore were shipped from the C.O.D. dumps. According to smelter settlement sheets, gold averaged .0855 ounces per ton and silver averaged 11.97 ounces per ton.

SHIPMENTS FROM THE WHITE EAGLE MINE TO THE ASRCO EL PASO SMELTER  
BY MR. H. A. HELLER.

ORE SETTLEMENT SHEETS ARE AVAILABLE FOR EXAMINATION.

DATE	VALUE PER TON BY SMELTER
1/30/40	\$27.37
1/25/40	26.38
1/22/40	29.04
12/16/39	24.28
1/1/40	35.89
1/10/40	29.97
1/10/40	27.99
12/13/39	24.96
12/ 9/39	32.38
12/ 5/39	39.03
5/11/40	18.40
5/17/40	34.55
4/12/40	14.96
4/ 2/40	15.38
5/13/40	20.42
4/27/40	20.70
4/20/40	15.54
4/16/40	17.66
4/ 9/40	13.80
4/ 5/40	12.68
3/29/40	17.91
3/12/40	13.04
3/ 9/40	19.72
3/13/40	14.04
3/ 6/40	15.78
3/ 1/40	12.53
2/29/40	16.93
2/27/40	17.08
2/24/40	19.15
2/23/40	24.43
2/19/40	24.15
2/12/40	25.58
2/20/40	25.37
2/16/40	19.51
2/ 3/40	32.00
2/ 3/40	27.71
1/29/40	18.83

37 shipments by H. A. Heller

The C.O.D. - Rico vein is approximately  $2\frac{1}{2}$  miles long and averages 5 to 6 feet in width. It strikes N. 82 Deg, W and dips 80 Deg. to the north. The Gangue is mostly quartz with the ore occurring in shoots and lenses which vary from 1 to 7 feet in width and are of considerable extent. At the 250 feet level it was reported (Schrader, F.C. U.S.G.S. Bull. 397, 1909) that the ore shoot varies from 3 to 7 feet wide and its ore averaged about \$250. per ton.

#### THE FULL MOON (NOON)

Approximately 2,720 feet to the west, up the C.O.D. wash, in the old Full Moon shaft. This shaft is inclined about 60 degrees to the north and is sunk in a greenstone or altered basalt. It is reportedly on the C.O.D. - Rico vein but because of its location, north of the vein projection, and because of its character it is doubtful that it is the same vein. It is probably a smaller vein which parallels the C.O.D. - Rico vein or is the mineralized contact between the granite and schist. The shaft is caved but it is reportedly down 100 feet. Very little information is available on these old workings.

#### THE RICO

The Rico mine began to operate around 1918 and was principally developed by the Rico Exploration Company of Cleveland, Ohio. The mine appears to have been at the point where a prospect could become a mine when the work was discontinued, probably because of the drop in silver prices in 1921. In the late 1930's a group of three men working the mine and were reportedly in good ore when personal friction halted the operation. The mine has not been worked since the beginning of World War II.

The Rico shaft is approximately 3,440 feet to the west of the C.O.D. shaft (see plate 3). The shaft is about 320 feet deep; and is developed by drifts and stopes on five levels. The levels are: 50 feet, 100 feet, 150 feet, 200 feet, and 300 feet (see plate 7).

The ore and the vein material in the Rico is approximately the same type and character as the C.O.D.. At the 200 feet level, which is about 26 feet south of the Station, an ore shoot 150 feet in length and 3 to 4 feet wide was encountered. It was valued at \$23, per ton in the 1918 assays. Also on the 200 feet level a small ore shoot was found 30 feet west of the crosscut from the 200 feet station. This ore shoot was 18 inches wide and approximately 79 feet long. The assays of 1918 showed the value to be \$100. per ton.

The shaft of the Rico is caved at the surface due to the theft of the head frame and collar. However, access can be gained by rope to the 50 feet level through an old raise. It is reported that the rest of the shaft below the 50 feet level is in fair condition.

To the west, the Rico vein extends through the Armour claims and can be traced toward the Ithaca Peak intrusive. The vein, in general, is the same but does show an increase in copper content. However, from all reports, the properties on the vein to the west were not high-grade enough to be commercial in the 1890's or 1900's.

#### THE UNIT COPPER AND GOLD VEIN

This vein strikes N. 85 Deg. W and dips 71 Deg. to the southeast. The vein is from 4 to 6 feet wide where it is exposed on the Copper and Gold claim. On the dumps of the Copper and Gold and the Unit are some good specimens of Ruby Silver. The workings on the vein are either caved or full of water. Although a small dump is present on the Unit claim, the shaft cannot be located. According to local legend, "the water from the Unit ran blood red from the Ruby Silver stain". The color was probably due to a much less romantic iron stain.

#### THE WHITE EAGLE MINE AND VEINS

The mine was discovered in the 1910's by two prospectors who began a Glory Hole gambusino operation. The miners(?) trammed the ore from the hole, over the hill to the west, into a borrowed metal stock tank which served as the ore bin.

The property at the time of discovery was owned by the Clack brothers, who cancelled the lease of the prospectors when a depth of 40 feet had been reached. In 1939 the property was leased to H. A. Heller. He shipped 1,971.75 tons of ore with an average value of \$25.69 per ton in 1940. The average gold per ton was .3077 ounces and the average silver per ton was 18.99 ounces.

The White Eagle was closed during World War II and since 1946 the property has only shipped 403 tons of ore, which included the former dump. The average of the 403 tons was 15.02 ounces of silver and 1.01 ounces of gold.

The White Eagle group consists of 3 parallel veins, 2 veins 5 to 8 feet wide and a middle vein which is 2 to 3 feet wide. The 2 large veins are 30 to 35 feet apart.

30.00  
19  
19  
29  
77.00

132000

-12-

portal

TO RESCUE

WINZE

RAISE

Caved on main level

GLORY HOLE SHAFT

0 50 100 feet

Scale

Plate 9 - WHITE EAGLE MINE

Plan View

Accessible Mine workings



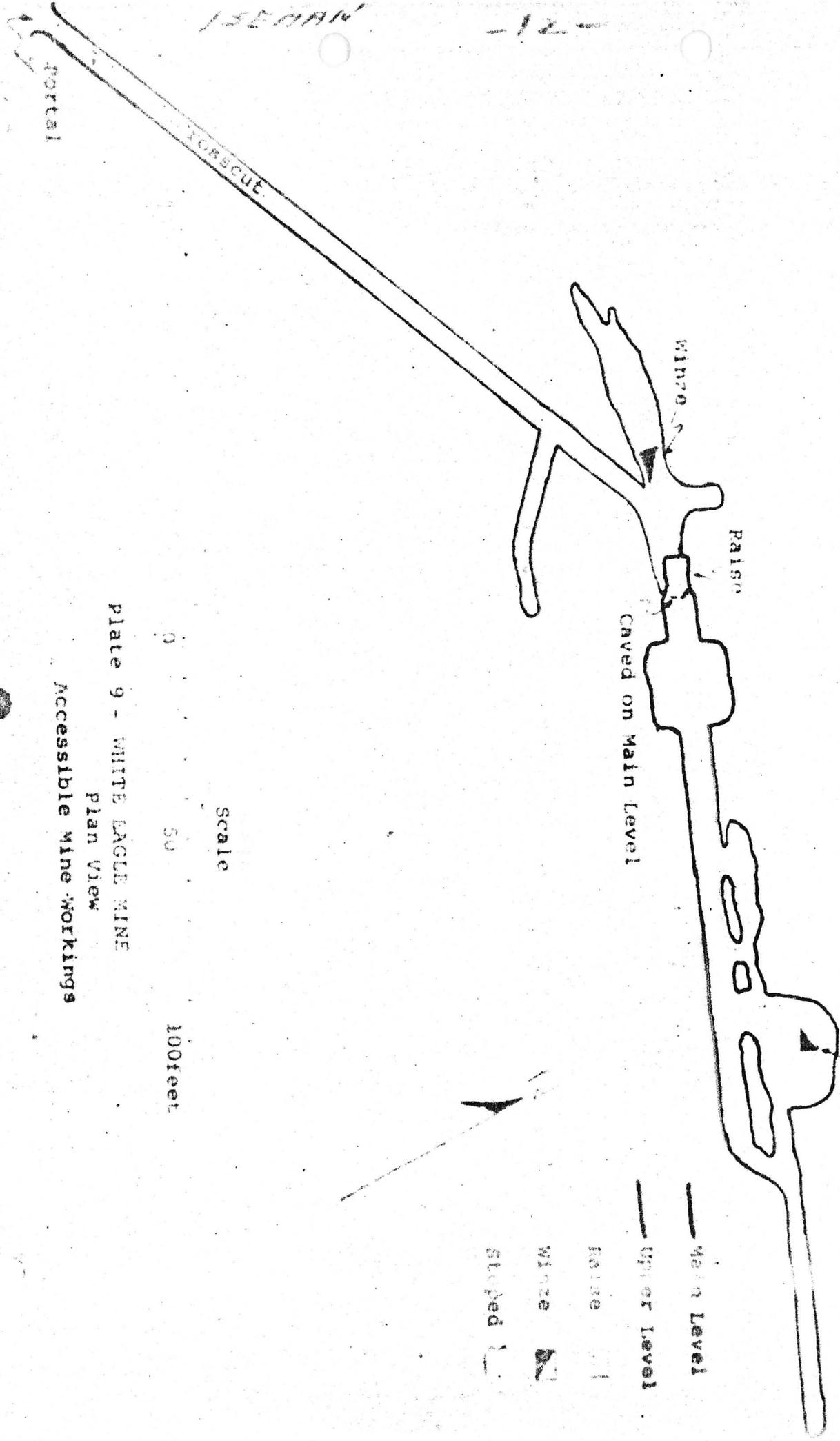
Main Level

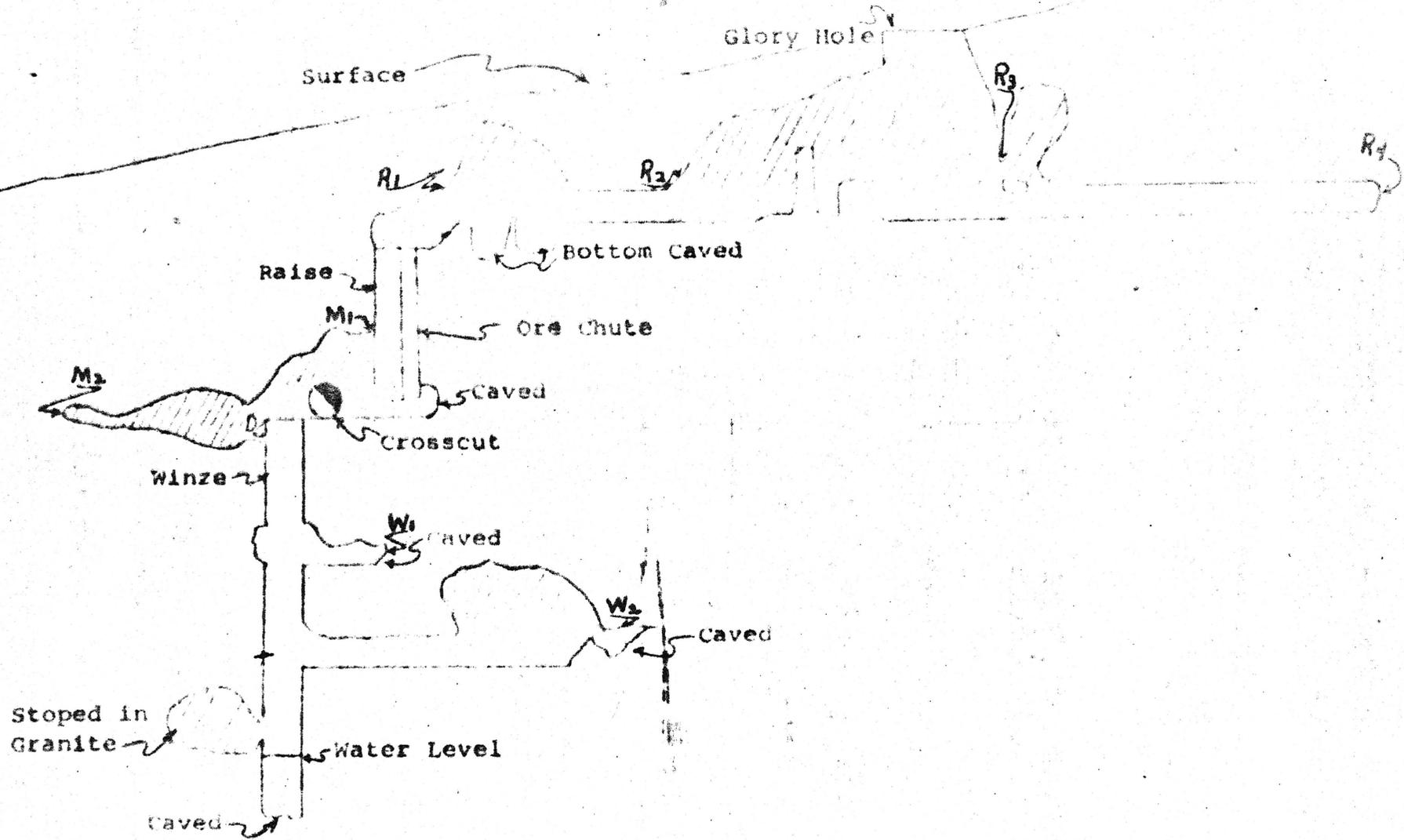
Upper Level

Raise

Winze

Sluiced





Scale

0 50 100 feet

Plate 10 - WHITE EAGLE MINE  
 Cross Section  
 Accessible Mine Workings

PLATE #LL

HAWLEY & HAWLEY  
1800 WEST GRANT ROAD  
TUCSON, ARIZONA

PHONE 622-4836

Gold Ozs.	Silver Ozs.	Sample number
0.030	1.07	d-1
Trace	0.10	d-2
0.030	2.47	d-3
0.020	0.08	d-4
0.005	1.40	m-1
0.005	0.70	m-2
0.005	Trace	r-1
0.040	2.66	r-2
0.003	1.20	r-3
Trace	Trace	r-4
0.360	14.84	w-1
0.005	0.40	w-2

Analys Car. by Can't make name out

Submitted by J. Frank Hale  
Received 3/12/63

Date completed 3/20/63

Preparation \$10.00  
Analysis 53.00

          
\$63.00 paid

Tucson 317339

measured from the foot wall of the first to the hanging wall of the second. The smaller middle vein is approximately 10 to 15 feet from the northernmost vein. For the purpose of this report, the northernmost vein will be referred to as vein #1, the small middle vein as vein #2, and the southernmost vein as vein #3.

The ore and character of the veins appear to be the same as the C.O.D.-Rico and other veins of this area. The strike, which doglegs slightly, is N 46 Deg. W to N 58 Deg. W and dips 87 Deg. to the south (see plate 3).

The Glory Hole, which discovered the White Eagle mine, was sunk on a small vein #2, probably in an ore shoot. When the crosscut was driven, it intersected vein #1 and the winze sunk on this vein. The dip of the vein changes with depth and the winze is off the vein on the 150 feet level. Here a drift of 217 feet was driven and considerable stoping was done. These workings are now caved approximately 32 feet from the winze. The winze was sunk to about 200 feet level. At this point the winze is off the vein into the granite and considerable work was done searching for the vein, which was not found (see plates 9 & 10).

The winze is now caved at approximately 168 feet. The mine has been high-graded and gobbled from the surface down to and including the 150 feet level. The average value was \$25.36 per ton (see plate 11).

To the southeast of the White Eagle portal are 4 short drifts. Two of the drifts cut all three veins and high grade on vein #3, which was not mined in the main White Eagle mine. The other 2 drifts cut only veins #2 and #3 and were worked primarily on vein #3.

#### THE JUNCTION

Southwest of the C.O.D. shaft three-quarters of a mile, on the strike of the C.O.D. vein is a large outcrop. This outcrop is also on the strike of the White Eagle veins and a vein which strikes S 43 Deg. W. This latter vein appears to enter the C.O.D. Wash from the X.X.L. Basin to the south. This outcrop covers a very large area and is composed of fine-grained sugar quartz with little surface indication of mineralization. It is believed by the writers that this is the junction of the White Eagle veins, the C.O.D.-Rico vein and a cross vein from the I.X.L. Basin.

This Report by

L. Frank Hale

Inactive

DEPARTMENT OF MINERAL RESOURCES

State of Arizona

MINE OWNER'S REPORT

Date 1-24-58

- 1. Mine: C O D
- 2. Location: Sec. <sup>SW 1/4</sup> 28 Twp. 23 N Range 17 W Nearest Town Kingman Distance 16  
 Direction NW Nearest R.R. Kingman Distance 16  
 Road Conditions Good
- 3. Mining District and County: Grant, Mohave
- 4. Former Name of Mine: E
- 5. Owner: Mrs. Nelle Clark & partners  
 Address: Box 907, Kingman
- 6. Operator:
- Address:
- 7. Principal Minerals: Ag, Pb, Zn, Au
- 8. Number of Claims: Lode 6 Patented Unpatented   
 Placer Patented Unpatented
- 9. Type of Surrounding Terrain: Mountainous

10. Geology and Mineralization: Ross Householder has reports. Upper levels hi grade silver (pockety) at 300' level large blocks of lead ore left, lead-silver at 500'. Adjoining Rico.

70-78% SiO<sub>2</sub>

11. Dimension and Value of Ore Body: About #30 ore-vein system. Large dump of mill ore, tailings #4.5-7.50 Au, Ag. Produced some \$4,000,000.

Please give as complete information as possible and attach copies of engineer's reports, shipment returns, maps, etc. if you wish to have them available in this Department's files for inspection by prospective lessors or buyers.

12. Ore "Blocked Out" or "In Sight":

Ore Probable:

13. Mine Workings—Amount and Condition:

No.	Feet	Condition
Shafts... 2	375,500	caved, possible bridged @ 30'
Raises...		
Tunnels...		
Crosscuts...		
Stopes... several		of interest

14. Water Supply: for 100 T mill

15. Brief History:

16. Remarks:

17. If Property for Sale, List Approximate Price and Terms: Lease & option to buy, possibly small down payment, 10% R.

18. Signature: Wille E. Clark

SUMMARY OF INFORMATION AVAILABLE ON THE  
C. O. D. MINE, STOCKTON MINING DISTRICT,  
MCNAVE COUNTY, ARIZONA

The C.O.D. Mine is located in the Stockton Hill District near Kingman, Arizona

Titles are clear and free from lien.

Terms are as follows: Purchase price \$175,000 which includes all commissions, with down payment of \$10,000 and \$5000 at the end of the first year. Price to be paid in 5 years on the basis of 15% royalty. The down payment of \$10,000 is to clear a leasor from the property. The leasor has built a small treatment plant for dump ore, and the mine owner has retained the right to purchase the leasor's contract at any time. The down payment is for this purpose. The balance of the payments will be amply provided for by royalties. All equipment placed on the property may be removed if the contract is returned.

Mine. The mine is developed by a shaft 507 feet deep. The bottom level is the 400 and exposes 3-4 feet of \$20.00 ore. There is reported to be 57,000 tons of ore blocked out in the underground workings. The shaft is caved and full of water, and it may be necessary to sink a new shaft. Provision for these expenditures can be made from profits on the dump operations.

Dumps. There are 3 dumps at the mine consisting of the following. The West Dump contains from 35,000 to 45,000 tons, value from \$7 to \$9 per ton. The East Dump contains 35,000 to 40,000 tons, value \$5 to \$7 per ton, and the tailings pond contains not less than 15,000 tons of \$5. ore. This ore is all positive ore on top of the ground. The metallurgy is simple, and both grade and metallurgy can be established by sending 100 tons of average rock from each dump to a custom mill at Chloride, Arizona. An analysis of the dump ore is as follows:

West Dump - 35,000 tons at \$7.00		\$245,000.00
East Dump - 35,000 tons at \$5.00		175,000.00
Tailings - 15,000 tons at \$5.00		<u>75,000.00</u>
Total Value		\$495,000.00
Recoveries - West Dump 85%	\$206,250.00	
East Dump 85%	148,750.00	
Tailings 60%	<u>45,000.00</u>	
Total		\$400,000.00

On the basis of the higher reported values of the dumps, this recoverable value increases to \$521,000.00

Plant Investment. The tonnage of dumps and tailings is sufficient to warrant a 100 ton plant. Total installation costs for a cyanide plant will be less than \$100,000. Treatment costs are estimated to be not over \$1.75 per ton. An analysis of costs follow:

Recoverable Values		\$400,000.00
Plant Installation	\$100,000.00	
Treatment Costs	149,000.00	
Marketing Costs	34,000.00	
Royalties	60,000.00	<u>343,000.00</u>
Net		\$ 57,000.00

The above analysis shows a net profit on the dump of \$57,000. If recoverable values fall closer to the higher estimated values, the net is likewise increased. This net will provide the necessary funds with which to open the mine and prove the existence of the reported ore. By the end of two years the mine will have been proved to be of value or not.

An added asset is the possible operation of a custom cyanide plant. There are no custom plants in the Stockton Hill District, and the contemplated plant should show a net of at least \$5,000.00 per month, handling 100 ton per day.

Conclusions. The above data regarding the C.O.D. Mine has been compiled by Mr. R. A. Elgin, a mining engineer who has operated in the Kingman district for the past eight years. The data must be checked, but the cost of so doing will be provided. The reported production from the C.O.D. is \$2,500,000.00 from 1885 to 1917. The time interval is the important consideration. After willingness to proceed is signified, the down payment of \$10,000.00 must be made within 30 days.

A review of the above data shows two tangible assets in the value of a custom cyanide plant in the district and the recoverable values of the ore in sight on the dumps. The moot point remains the value of the mine, and this can be determined by the profits of the milling operations. The proposition offers an excellent opportunity for establishing a profitable mining operation and at the same time returning sufficient funds to prevent any loss. The total investment of \$125,000.00 will provide the down payment, plant construction and all other expenses.

JACK M. EHRHORN, (signed)

May 31, 1942

To: J. S. Coupal

From: Elgin B. Holt

*imp*  
✓ *Silver*  
OPERATING MINES  
Mohave County

This mine & mill not operating.

✓  
C. O. D. MINE: Located 15 miles northeast of Kingman on east side of Cerbat Range, in Mohave County. Owned by M. B. ✓ Dudley, Kingman, Arizona.

This property was leased to R. P. M. ✓ Davis, Congress, Arizona, something over a year ago. Davis erected and operated around a 100-ton selective flotation plant on dump material for about a year.

Said mill was closed, dismantled and removed from property about April 20, 1942.

PRODUCTION: No records available.

C O P Y

C. F. TOLMAN  
Stanford University  
California

May 15, 1939

Mr. Robert M. Adams  
Robert M. Adams Company  
Duluth, Minnesota

My dear Mr. Adams:

I learned from your son that you have returned to Duluth, and in accordance with my promise to inform you regarding an Arizona property which we have had under observation, I am sending a summary of information in regard to the C. O. D. Mine, Stockton Hill District, Mohave County, Arizona, about ten miles northerly from Kingman.

This is one of the properties we have had under observation for some time, and we think that with a custom mill we can probably gain control of a number of promising old producers of the district. The mining conditions in Arizona are especially favorable because the "Small Miners' Association" is really running things politically in Arizona. The power line from the Boulder Dam runs close to the property. Miners' wages are about a dollar less per day than in California.

The information has been collected by Mr. R. A. Elgin, a mining engineer and mine operator at Kingman, Arizona, and a student of mine. The data received from Mr. Elgin has been summarized by my associate Mr. Jack M. Ehrhorn, who is available to go to the property, sample the dumps, ship the sample to a mill for determination of the average value of the dumps, and also to check all available data in the field.

The property was described in Bulletin No. 397 published by the United States Geological Survey, entitled "Mineral Deposits of the Cerbat Range, Black Mountains, and Grand Wash Cliffs, Mohave County, Arizona", on pages 116 to 118. This description was written prior to the last operations of the mine which was closed down shortly after the War.

The terms offered are net to you and include all remuneration to myself and associates. The \$10,000.00 payment is to buy back the lease on the dumps and tailings.

I would suggest that you let me know by airmail if you are interested in the property. Also if you would care to meet the \$10,000.00 payment thirty days after receipt of the report on our sampling or sampling by your own engineer.

Cordially yours,

C. F. TOLMAN (signed)

CFT:hpe

See: Arizona Mining Journal Issues of  
Oct. 1917 p. 22, Sept. 1919 p. 20,  
April 1920 p. 18, 43. April 1, 1921 p. 15,  
May 1, 1921 p. 54, Dec. 1, 1921 p. 16,  
Dec. 15, 1921 p. 18

*Commonwealth Mine (file) Cochise*

ADMR Mohave card file (Tucson)

USGS Bull. 340, p. 69

USGS Bull. 397, p. 116-118

ABM Bull. 140, p. 95

USGS Bull. 978-E, p. 147

Mines Handbook Vol. XIII, P. 366.

Az. State Mine Inspectors Report, 1920, p. 6

Malach, R., Mohave County Mines, 1977, p. 17

MILS Sheet sequence number 0040150436

See: Booklets by Roman Malach, Mohave County Historian, "Cerbat Mountain Country"  
Pgs. 19, 22, 44, & 45. "Mohave Co. Place Names", Page 35.

Inactive

DEPARTMENT OF MINERAL RESOURCES

State of Arizona

MINE OWNER'S REPORT

Date 1-24-58

- 1. Mine: COD
- 2. Location: Sec. 28 Twp. 23N Range 17W Nearest Town Kingman Distance 16  
 Direction NW Nearest R.R. Kingman Distance 16  
 Road Conditions Good
- 3. Mining District and County: Grant, Mohave
- 4. Former Name of Mine: E
- 5. Owner: Mrs. Nelle Clack + partners  
 Address: Box 907, Kingman
- 6. Operator:  
 Address:
- 7. Principal Minerals: Ag, Pb, Zn, Au
- 8. Number of Claims: Lode 6 Patented Unpatented   
 Placer Patented Unpatented
- 9. Type of Surrounding Terrain: Mountainous

10. Geology and Mineralization: Ross Householder has reports. Upper levels hi grade silver (pocket) at 300' level large blocks of lead ore left, lead-silver at 500'. Adjoins Rico.

70-78% SiO<sub>2</sub>

11. Dimension and Value of Ore Body: about \$30 ore-vein system. Large dump of mill <sup>#4-#60</sup> tailings \$4.5-7.50 Au, Ag. Produced some \$4,000, 0.00.

Please give as complete information as possible and attach copies of engineer's reports, shipment returns, maps, etc. if you wish to have them available in this Department's files for inspection by prospective lessors or buyers.



## PROPERTY ABSTRACT SUMMARY SHEET KEY INFORMATION

1. **PROPERTY NAME:** C.O.D. Mine Property.
2. **COMMODITIES:** Gold, Silver, Lead, Zinc, and Copper.
3. **INDEX and PROJECT NAME:** Alanco C.O.D. Mine.
4. **LOCATION:** STATE Arizona, COUNTY Mohave.

SECTION(s): 27, 28, 29, 33, and 34.  
TOWNSHIP: 23 North RANGE: 17 West.  
SECTIONS(S): 3 and 4.  
TOWNSHIP: 22 North RANGE: 17 West.  
BASE and MERIDIAN: Gila and Salt River Base and Meridian.  
NEAREST TOWN: Kingman, Arizona located in the Northwest portion of the State of Interstate 40.  
MINING DISTRICT: Cerbat-Wallapai Mining District.

5. **NUMBER OF FEDERAL CLAIMS (Bureau of Land Management Land)**

LODE: 135. PLACER: None. MILLSITES: 28.  
TOTAL ACREAGE OF PROPERTY: Approximately 3,000 acres.  
CLAIM GROUPS OWNED BY ALANCO ENVIRONMENTAL-refer to Claim Map

- |                            |                              |
|----------------------------|------------------------------|
| 1. Main C.O.D. Claim Block | 3. Stockton Hill Claim Block |
| 2. Cerbat Claim Block      | 4. IXL Claim Group           |

6. **NUMBER OF STATE CLAIMS:**

PROSPECTING PERMITS: None Needed. MINERAL LEASES: None Needed.

7. **TYPE OF WORKINGS:**-----Underground Operations from 100' to 740' in depth with several hundred feet of lateral workings have explored and developed the property, predominantly in the oxide ore zones. The development work and sporadic production took place from the 1870's to the mid 1980's. The main production which occurred at the C.O.D. Mine was essentially from two shafts, located some 400 feet apart. The production was from the old C.O.D. Shaft prior to 1940 and the Newer 600-foot incline shaft after 1940, with the predominant work performed in the 1970's and as late as the mid 1980's. The property is developed from this 600-foot incline shaft along the strike length of the vein to the East and West. The current ore reserves are associated with the 600-foot incline shaft, predominantly below the 400-foot level (below the oxide ore zone) in the primary sulfide ore zones.

8. **RESERVES:**

PROVEN: 89,900 Tons.  
PROBABLE: 180,000 Tons.  
INFERRED: 2,500,000 Tons.



## **C.O.D. MINE**

### **VEIN DEPOSITS OF THE DISTRICT History and Production**

The following information has been summarized from various publications dealing with the Cerbat Mining District.

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#### **Arizona Bureau of Mines By Robert M. Herson**

Most of the mines of the Cerbat Mountains were discovered between 1863 and 1900. The metals sought in the earlier days were gold, silver, and lead. Rich silver chloride, silver sulfide, and native gold ores were exploited first. With cheaper transportation, base-metal ores were mined for lead with low silver. Subsequent improvement in milling methods led to exploitation of complex lead-zinc ores. The later history of the area is essentially the history of the Golconda and Tennessee mines, as they were affected by metal prices and marketing conditions by milling methods.

The area reached its peak production in the years 1915-1917, when the annual yield averaged nearly \$3,000,000. This peak coincided with high metal prices. After the World War I, production was small until 1936 when the Tennessee-Schuylkill Corporation began operations.

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#### **Ore Deposits of the Wallapai District by Blakemore E. Thomas**

The first ore discoveries were made in 1863. Desultory production followed through the 1890's on near-surface oxidized ores that were mined for their gold and silver content. The period from 1906 to 1912 had the greatest sustained activity in the history of the region. Much development work was done below water level, and production was principally from sulfide ores. Since that time the main production periods have coincided with base metal demand provided by the first World War and World War II.

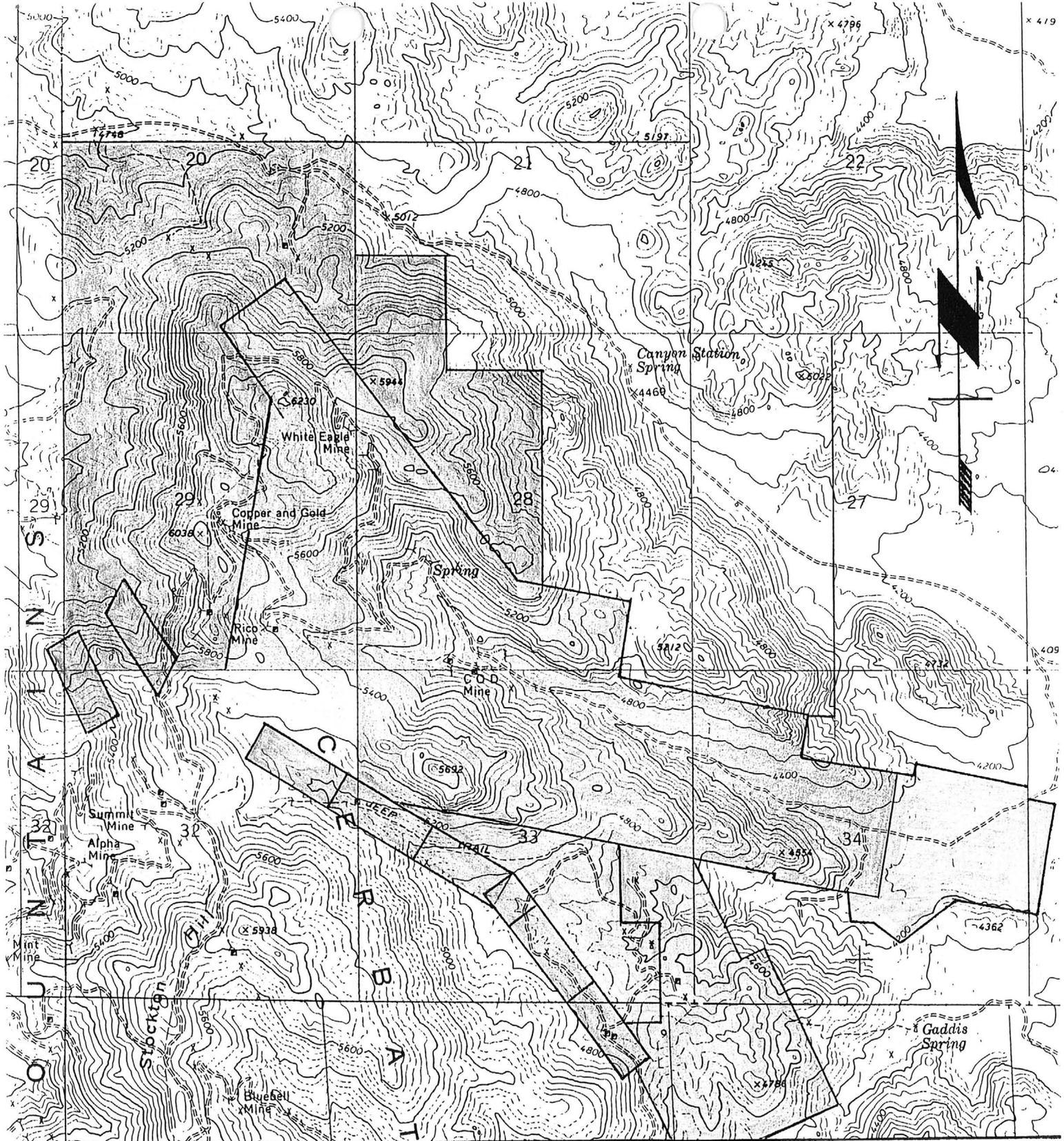
Only two mines have large production records, the Golconda in the Cerbat district and the Tennessee-Schuylkill in the Chloride district. The Golconda is credited with a gross production of \$6,500,000 up to 1917. The mill was destroyed by fire in that year, and the property has not produced since. The mine was developed to a depth of 1,600 feet, and at one time it was the largest zinc producer in the state of Arizona.

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#### **Nelson Transportation Tunnel by R. A. Thurston**

Most of the properties in the mining district have never been developed below the 300 foot level. The chief reasons being inaccessibility and high mining costs. Two mines are exception; the Golconda, with a production record of more than two million dollars has been developed to the 1400 level and had better values at that depth than nearer the surface. The Tennessee mine is developed to the 1600 level and has a production record of more than twenty million dollars. It operated at a daily production rate of 175 tons of ore per day. Many properties in the district have indicated ore shoots as large as or larger than the Golconda and of equal value. They may well be expected to produce a similar tonnage of equally valuable ore.

**In the entire district, no bottom has ever been found on any ore shoot, so it is very safe to say that ore will be encountered at depth below the known ore shoots in the district.**



**CLAIM LOCATION MAP**

SCALE 1"=2000'

**LEGEND**

- C.O.D. MILLSITES
- PATENT CLAIMS
- STATE LAND
- IXL CLAIM BLOCK
- STOCKTON HILL CLAIM BLOCK
- C.O.D. CLAIM BLOCK
- CERBAT CLAIM BLOCK
- CONTROLLED BY ALANCO

May 31, 1942

To: J. S. Coupal

From: Elgin B. Holt

*mp*  
*6/15*  
*Silver*  
OPERATING MINES  
Mohave County

This mine & mill not operating.

✓  
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MINING JOURNAL