CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
1520 West Adams St.
Phoenix, AZ 85007
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

The following file is part of the

Arizona Department of Mines and Mineral Resources Mining Collection

ACCESS STATEMENT

These digitized collections are accessible for purposes of education and research. We have indicated what we know about copyright and rights of privacy, publicity, or trademark. Due to the nature of archival collections, we are not always able to identify this information. We are eager to hear from any rights owners, so that we may obtain accurate information. Upon request, we will remove material from public view while we address a rights issue.

CONSTRAINTS STATEMENT

The Arizona Geological Survey does not claim to control all rights for all materials in its collection. These rights include, but are not limited to: copyright, privacy rights, and cultural protection rights. The User hereby assumes all responsibility for obtaining any rights to use the material in excess of "fair use."

The Survey makes no intellectual property claims to the products created by individual authors in the manuscript collections, except when the author deeded those rights to the Survey or when those authors were employed by the State of Arizona and created intellectual products as a function of their official duties. The Survey does maintain property rights to the physical and digital representations of the works.

QUALITY STATEMENT

The Arizona Geological Survey is not responsible for the accuracy of the records, information, or opinions that may be contained in the files. The Survey collects, catalogs, and archives data on mineral properties regardless of its views of the veracity or accuracy of those data.

PRINTED: 05/30/2002

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: ORIZABA

ALTERNATE NAMES:
- BELCHER PAT. CLAIM
- ORIZABA-SOUTHERN CROSS GROUP
- ALLIED MINING & SMELTING

MARICOPA COUNTY MILS NUMBER: 640A

LOCATION: TOWNSHIP 8 N RANGE 3 E SECTION 29 QUARTER W2
LATITUDE: N 34DEG 00MIN 30SEC LONGITUDE: W 112DEG 04MIN 51SEC
TOPO MAP NAME: SQUAW CREEK MESA - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
- COPPER SULFIDE
- COPPER OXIDE
- GOLD LODE
- SILVER

BIBLIOGRAPHY:
- USGS SQUAW CREEK MESA QUAD
- ADMMR ORIZABA FILE
- ADMMR "U" FILE CU-4
- ADMMR ORIZABA MINE COLVO FILE
- R.F.C. ORIZABA FILE

ORIZABA MINE

MARICOPA COUNTY
T8N R3E Sec 29 W½

MILS Maricopa Index #640A

ADMR "U" file- Cu 4

Colvo. file

R.F.C. Orizaba file

USGS Squaw Creek Mesa map

Cards made for all claims

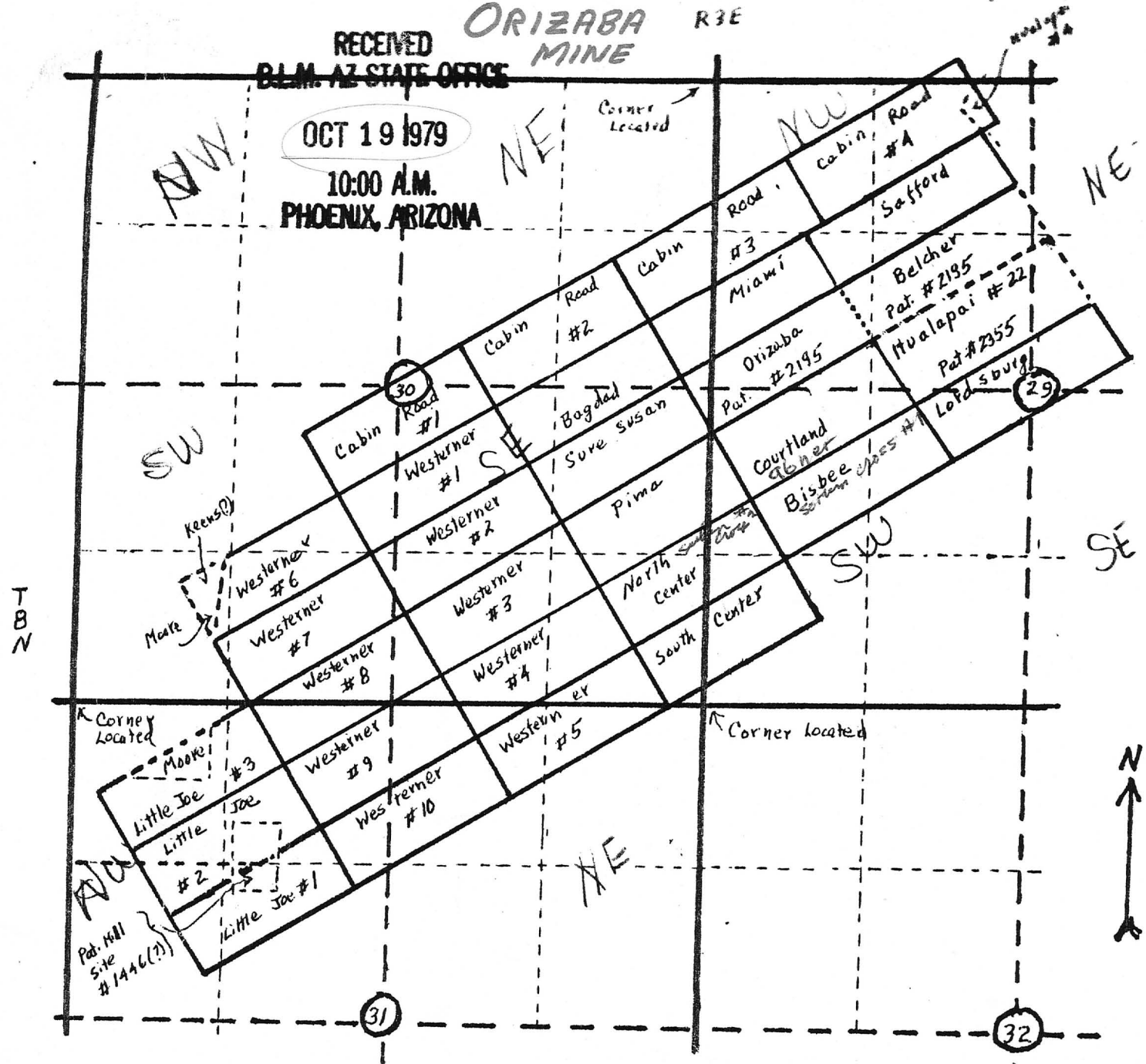
ORIZABA [illegible]

Maricopa County, Arizona (MOORE DIST.)

ORIZABA MINE

R3E

RECEIVED
B.L.M. AZ STATE OFFICE
OCT 19 1979
10:00 A.M.
PHOENIX, ARIZONA



ORIZABA MINE MARICOPA COUNTY

NJN WR 5/25/84: A potential lessee of the Orizaba Mine, Maricopa County called seeking file data. He reported the property is currently half owned by Valley National Bank and half by John and Bill Voita.

HM WR 1/9/88: Roger Seay, owner of the Boots Claims (file) Moore District, Maricopa Co was in to check the files on mines of that district. He reported a rumor that Sante Fe mining has leased the Orizaba Mine (file) Maricopa County.

ORIZABA MINE MARICOPA COUNTY

Interviewed Jay Cox at New River. He said drilling is expected to start soon at the Orizaba. EGW WR 5-26-64

Called Boyles Bros. and found out they have finished drilling at the Orizaba for Mountain Copper. Was just a short job. Note EGW 7-16-64

No activity. FTJ WR 9-24-67

J. E. Meacham, 3443 N. 35th Ave., Phoenix and Fred Elliston, 3443 N. 35th Ave., Phoenix are owners of the Orizaba. FTJ 2-13-68

According to Dan Jacobs an outfit from Texas is buying Fred Elliston's Phoenix placer lode claims. REL WR 11/9/73

KAP WR 10/17/80: According to the records of the Maricopa County Assayer's Office, Louis Cooper, Box 99, Bangor, Maine, is the owner of the Orizaba and Belcher patented mines in Section 29, T8N, R3E, Moore District, Maricopa County.

KAP WR 5/28/82: Mark Jordon, geologist, State Land Department, was in to research mineral potential of lands around the Orizaba, Scenia Reay and Hualapai patented mines in Maricopa County near the Table Mesa I-17 offramp. The rancher and grazing leasor there wants to own the land and give the state some lands near the Luke Air Force Base. The state is required to accept the lands in the Luke flight path in trade providing the state lands to be transferred are non minerals according to Mr. Jordon. He felt he had enough data to show the State lands had significant mineral.

NJN WR 2/11/83: It was reported by Paul Gilmer that Conoco did some drilling the the Orizaba Mine, Maricopa County, about a year and a half ago when their Prescott office was active.

NJN WR 2/17/84: A brief visit was made to the Orizaba Mine, Maricopa County. Evidence of Conoco's past activity there included improving the road and drilling four holes at the area of the main headframe.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Orizaba & Belcher Date March16, 1961

District Moores Mining District, Maricopa County Engineer Axel L. Johnson

Subject: Information from E. M. Cavallo, and RFC files.

References: Letter to E.M. Cavallo under date of March 23, 1961.

Location: Sec. 29, T. 8 N., R. 3 E. about 35 miles north of Phoenix and 4 miles east of the Black Canyon highway.

Number of Claims: 2 patented claims, patented May 21, 1907, Mineral Survey No. 2195 (Orizaba 16.972 acres & Belcher 19.576 acres).

Owner: E.M. Cavallo, Box 1119, Douglas, Ariz. Mr. Cavallo purchased the claims on a foreclosure by the U. S. Government on a government loan, the loan being in an amount of $45,000.

Principal Minerals: Copper, gold and silver.

Present Activity: None

Geology: It appears that the ore body is a replacement in schist and occurs as an irregular mass in a broad shear zone. While there are no definite wall limits the general trend of the ore body is NE-SW and the dip is steeply north. The ore body is very irregular and varies in width from stringers too narrow to mine to ore lenses of 14 ft. or more in width (ore mined varied from 6 to 14 ft.).

Ore Values: Production under the RFC loan up to Feb. 1, 1944 was 6,125 tons averaging 4.36% copper. Production in Jan. 1944 was 825 dry tons averaging 3.68% copper. Production in Feb. 1944 was 523 dry tons averaging 3.99% copper.

Ore in Sight & Probable: It was impossible to estimate the amount of ore reserves because of the irregular shape of the ore body and lack of development beyond proven ore faces. On Feb. 8, 1944, three stopes were reported to be in operation - the main or No. 1 stope, No. 2 & No. 3 stopes. The engineer estimated 2,000 tons of ore available in the main or No. 1 stope, but no estimate was made on the No. 2 and No. 3 stopes.

Past History & Production: (1) Mr. Cavallo reports that there was a 200 ton smelter on the property in 1939, and that the mine was operating with 55 men employed.
(2) The property was operated under an RFC loan in 1943 and 1944, and about 7,000 tons of ore was produced. The mine operated at a considerable loss in Jan. and Feb. 1944 and was later forced to shut down on account of lack of finances.

Old Mine Workings: Mr. Cavallo reports a 200 ft. shaft with extensive underground workings.

Additional: Mr. Cavallo asked for any information we had on the Orizaba & Belcher Mine. A letter supplying such additional information was sent to him under date of March 23, 1961.

W.P.B. - Project.
Quijata Mine.

July 16, 1942

Mr. W. C. Broadgate,
Harrington Hotel
11th and E Streets
Washington, D. C.

Dear Bill:

Enclosed please find copy of an application being made to the Copper Branch of the War Production Board for financial assistance.

This is an application that is somewhat different than a mine loan. The large part of the money needed is not for development nor for plants, nor for capital investment, but for operating funds and Bill Gohring says that it is the type of an application that should be routed through the W.P.B. for their approval to R. F. C. rather than the Mine Loan route, inasmuch as it primarily is for operating capital.

The principal reason for requiring operating capital in a substantial amount is that the only way the property can be worked economically is by shrinkage stoping and therefore there is a considerable amount of money tied up in the ore that is broken in the shrinkage stopes and it is that which requires this financial assistance.

Incidentally, Bill Gohring is president of this company, but he is not appearing in the application picture, this being done by Jack McIver as Vice-President and Jerry Elliott as secretary. Inasmuch as Bill Gohring knows what an application should carry, it should make an especially good one to go to work upon. It is an immediate producer of about 30 tons a day with a potential production of about 75 tons a day when the shrinkage stopes are once filled up. The values of their ore have been substantiated by a considerable number of smelter settlement sheets which show better than five per cent copper content. It requires virtually no equipment. The indebtedness is largely that which they still owe on the equipment which they bought on a lease.

It looks like an especially good bet to go to work upon as it is clean, under capable management, will get prompt production, requires no equipment, and the loan is very well secured by the ore in sight and would be even better secured in a short time by the broken ore in the shrinkage stopes.

Also, let us know if this is going through by the proper route and if not, what the route should be. It is Bill Gohring's idea and mine that when a loan involves primarily operating capital, that is, neither development nor plants, it should be initiated to R. F. C. by W. P. B.

July 17, 1942

Dear Bill:

On the application of the Orizaba mine sent you yesterday McIver's name was signed as president, it should have been vice-president.

They caught it on their copy before they sent it in.

With kindest personal regards, I am

Yours very truly,

CHARLES F. WILLIS, Chairman
Board of Governors

CFW:MH

July 9, 1942

Sam:

Will you list among your Department projects that the Orizaba Mining Company is going to make application through the W.P.B for an operating capital loan to bring out production of a known orebody of 75 tons a day of 4 per cent copper ore.

The principals in this are Jack McIver, Jerry Elliott, W. B. Gohring and Ross Barclay.

They will want our help as soon as the project is set up

C.F.W.

Washington, D.C.
July 18, 1942

SUBJECT: Mine Loan
Operating Capital
Orizaba Mining Company

On receiving Charlie's letter and copy of the Orizaba application I went over to the WPB but could not see Ayer to whom the application was directed.

However, I talked to Morris Elsing, and he said they had never handled anything but straight Class A or B mine loans and the idea of a capital loan was new to him. He did not seem to know how it should be handled.

Of course, I did not mention Gohring, as you indicated he is out of the picture. However, I imagine he will have to appear when the Federal Loan Agency starts inquiring about the company.

I am afraid you are over-optomistic when you indicate that this should be easy to handle, as it is a little unusual and that always means trouble.

I am going to have to discuss the matter with one of the Federal Loan agencies and get a better idea of how to route this type of application as the WPB Copper Branch knows so little about it.

Furthermore, Elsing informs me that generally they do not make recommendations on loans under $40,000.

I realize that this does not seem to fit into the regular mine loan picture.

The section of the RFC act I referred to in previous correspondence has been further revised. A copy is attached. This certainly would cover the subject, and I am trying to get a ruling.

You may be sure I will do the best I can about this loan as I can understand the circumstances, but it doesn't look easy from here.

I shall have more information during the coming week.

Bill

Bill Broadgate

Washington, D.C.
July 20, 1942

SUBJECT: Mine Loan
Operating Capital
Orizaba Mining Company

I talked to Frank Ayer about this this morning. The application and data have not yet reached him.

I am getting to be more and more of the impression that this should have gone to Metals Reserve.

However, Ayer promised me to study the case carefully and call metals reserve and discuss it with them and come to some sort of dicision at least as to proceedure, quickly.

I told him that if they could decide, I should, in case it was not a WPB problem, go over and pick up the application and take it personally to the right place.

Ayer promised to call me the moment it had been dealt with.

Bill

Bill Broadgate

Washington, D.C.
July 25, 1942

SUBJECT: Mine Loan,
Operating Capital,
Orizaba Mining Company

I talked to Frank Ayer this morning and he informed me that he had been able to pass this matter on to the Metals Reserve with a favorable recommendation.

He also told me that Bill Gohring had been over yesterday to see him and that Bill had spoken favorably about the Orizaba matter..... naturally! It is well they don't know Gohring's interest.

I think it a little odd that Gohring did not check in with me before going over to Ayer, to make sure he didn't [redacted] cross any wires.

It was the first intimation I had that Bill had finally gotten to town.

However, I found a phone call slip when I got back to the Hotel this afternoon stating that Bill will call on me tomorrow afternoon.

I will push this in Metals Reserve unless Gohrning intends to take this over personally, which I will discover tomorrow.

Bill Broadgate

Washington, D.C.
July 27, 1942

Subject: Mine Loan,
Operating Capital
Orizaba Mining Company

I discussed the Orizaba deal yesterday afternoon with Bill Gorhing and he thanked me for getting the matter so far along that he could give it the necessary last push. The boys over in the Copper Branch are all old Buddies of his, it seems, and he either worked with them or they worked for him. Bill told them privately of his interest in the property, I gather.

Gohring stated that as the project now is before the Metals Reserve with a favorable recommendation he feels it will go ahead with no further work on my part and says he does not wish me to do anything more with it, which is OK with me.

So I am closing the file and it will not be necessary to get any agents authorization from Orizaba for me.

Bill Broadgate

December 15, 1943

War Price and Rationing Board
No. 81.7.1
137 North Second Avenue
Phoenix, Arizona

Gentlemen:

Mr. Fred J. Elliott, as secretary and treasurer for the Orizaba Mining Company operating a copper property about 50 miles north of Phoenix on the Black Canyon Road, is entitled to supplemental gasoline in order that he may make occasional trips to the mine.

The Orizaba is operating under an R.F.C. loan and is in production of copper. The property is located on an isolated road with no phone or regular transportation so that in order to keep supplies moving and ore coming out many trips otherwise uncalled for have to be made to this property.

Having operated in the particular district myself, I am aware of the difficulties and can certify as to the need of this gasoline.

Yours very truly,

J. S. Coupal, Director

JSC:LP

March 1, 1944

MEMORANDUM

ORIZABA MINE

TO: B. W. Brown

FROM: J. S. Coupal

I have noted your correction and the Orizaba Mine is in your territory and in Yavapai County.

I believe the one report on the Orizaba is sufficient.

JSC:LP

304 xx

March 20, 1944

File: AAD

War Price and Rationing Board
No. 81.7.1
137 North Second Avenue
Phoenix, Arizona

Gentlemen:

The Orizaba Mining Company, 506 Security Building, Phoenix, Arizona, is making application for supplemental gasoline. Their property is located on the Black Canyon road about 50 miles north of Phoenix and they are producing and shipping copper ore.

This gasoline is for the company car operated by the superintendent and calls for his making frequent trips from the mine to the Rock Springs post office and to Phoenix and other shipping points.

I can certify as to the need of this gasoline, as the product is a critical war minaral.

Yours very truly,

J. S. Coupal, Director

JSC:LP

Feb. 27, 1944

MEMORANDUM

To: J. S. Coupal

From: B. W. Brown

Subject: ORIZABA mine

The attached report may be of interest to the Dept. for its files. I note on the January issue of active mines list that the Orizaba is listed in my territory and under Maricopa county. Correction should be made on this.

I have in my possession another report on the Orizaba mine by Ira B. Wagnon, Miami, Dec. 7, 1937----- If you wish I will transmit a copy to you. These are plunder from Grace Sparkes. Please advise if it will be worth while to copy the Wagnon report.....

B. W. Brown - Field

Orizaba

September 27, 1948

Mr. C. D. Brock
Orizaba Mining Company
Phoenix, Arizona

Dear Mr. Brock:

In reply to your request for our opinion regarding the geologic conditions at the Orizaba Mine, it is not possible to give any very detailed or positive statements following my very brief visit.

However it appears that the orebodies are a replacement in schist similar to other mines in that schist belt such as the Kay, Blue Bell, De Sota, Binghampton and United Verde. There is no reason to believe that these conditions could not make a big mine, and at the same time ore deposits under those conditions are often irregular and "tricky".

Underground conditions looked good and I would expect that further development, which is greatly needed, has an excellent chance of opening up more ore.

Yours very truly,

Chas. H. Dunning
Director

CHD:mb

Present Operations

NEW HEADFRAME - 5 TON SKIP.

80 ft. I.R. DUPLEX.

BINS & ROADS ALL IN.

SMELTER 75% COMPLETE.

New Work Planned

HAVE AL-SILICEOUS VEIN &

LIME - FOR FLUX.

Operating Co.

Address

Miscl. Notes 50 MEN WHEN GOING.

NEED ROAD REPAIRS.

Pres.

Genl. Mgr.

Mine Supt.

Mill Supt.

Principal Metals

Men Employed

Production Rate

Mill Type & Capacity

Power, Amt. & Type

Signed

(Over)

Present Operations

REVAMPING STACK -

METHOD OF HANDLING

SLAG & MATTE!

New Work Planned

COKE, 7%

COKEVILLE, CALO.

9/1/1900 - 71 tons

9 14 per ton GLENDALE

Operating Co.

Address

Miscl. Notes

Pres.

Genl. Mgr.

Mine Supt.

Mill Supt.

Principal Metals

Men Employed

Production Rate

Mill Type & Capacity

Power, Amt. & Type

Signed

(Over)

DEPARTMENT OF MINERAL RESOURCES

News Items

Mine ORIZABA MINES.

Date 5/10/40

Location [redacted] -

Owner BLACK CANYON MINES

Address 42 MI. N OF PHOENIX.

Operating Co.

Address DIAMOND DRILLING

Pres. T. MOORE U/D

Genl. Mgr. NEW OPS.

Mine Supt.

Mill Supt. JACK HILDRED O/S

Principal Metals PRATT GILBERT CO.

Men Employed TRUSTEE.

Production Rate FOX MACK - IN CHARGE.

Mill Type & Capacity

Power, Amt. & Type

Signed J.C.

(Over)

DEPARTMENT OF MINERAL RESOURCES

News Items

Date 10/1/39

Mine ORIZABA

Location BLACK CANYON - RD. 42 MI. N

Owner ALLIED MINING & SMELTING Co. OF PHOENIX

Address BLACK CANYON ROUTE

PHOENIX - ARIZ.

Operating Co. (?) of OWNER SHIT.

Address

Pres.

Genl. Mgr. — MOLLOHAN

~~Mine~~ Supt. JOHN J. SCHROEDER.

Mill Supt. BLEW IN SMELTER

Principal Metals RAN FOR 10 HOURS.

Men Employed MANY CHANGES NEEDED

Production Rate & BINGS MADE —

Mill, Type & Capacity TO RESUME ON OCT. 7

Power, Amt. & Type ELEC. BOUGHT.

Signed JJC.

(Over)

DEPARTMENT OF MINERAL RESOURCES

News Items

Date 7/5-39

Mine Ouzila Mine.

Location

Owner Allied Mining & Smelting Corp.

Address Black Canyon RT. Phoenix

Operating Co.

Address

Pres. David FEHER - 253 E. 1st St LONG BEACH.

Genl. Mgr. H.D. MOLLOHAN — BLACK CANYON.

Mine Supt.

Mill Supt.

Principal Metals Cu.

Men Employed 10 MEN.

Production Rate OPENING UP MINE - ERECTING SMELTER

Mill, Type & Capacity 200 - 42"x120" BLAST FURNACE

Power, Amt. & Type 11000 VOLT. LINE - TO 440 & 220 V. AT PLANT.

Signed JJC

(Over)

DEPARTMENT OF MINERAL RESOURCES

News Items

Date 5/10/40.

Mine ORIZABA.

Location 43 MI. N OF PHOENIX -

Owner BLACK CANYON RD. - YAVAPAI

Address JACK & HILDRED - TRUSTEES

OF PRATT-GILBERT CO. - PHOENIX

Operating Co.

Address - MATSON & BAKER - LONG BEACH CAL.

CARR STARTED DIAMOND DRILLING TO PROVE UP

Pres. ORE -

Genl. Mgr. MORE

Mine Supt. ROY MACK - SUPT.

Mill Supt. ORIZABA MINE

Principal Metals BLACK CANYON RD. PHOENIX.

Men Employed

Production Rate

Mill, Type & Capacity

Power, Amt. & Type

Signed JJC

(Over)

OPERATING
ORIZABI MINE
BLACK CANYON ROAD

Orizaba Mine

GENERAL OFFICE
233 INDUSTRIAL BLDG.
140 SO. CENTRAL AVE.

ALLIED MINING & SMELTING CORP.

JOHN W. HILDRED, RECEIVER
PHOENIX, ARIZONA

September 30, 1940.

IN THE SUPERIOR COURT OF THE STATE OF ARIZONA

IN AND FOR THE COUNTY OF MARICOPA

C. A. TAYLOR, et al., Plaintiffs,	No. 48140-Div. 5
v.	
ALLIED MINING AND SMELTING CORPORATION, a corporation Defendant	NOTICE OF SALE AND INVITATION FOR BIDS

NOTICE IS HEREBY GIVEN, that pursuant to an order of the above entitled Court duly made and entered on the 30th day of September, 1940, in the above entitled and captioned cause, the undersigned John W. Hildred, Receiver of the Allied Mining and Smelting Corporation, a corporation, will sell at private sale to the highest bidder, upon the terms and conditions hereinafter mentioned and set out, subject to confirmation by this Court, on the 19th day of October, 1940, at 10:00 o'clock A. M. of said day, all or any part of the property and assets of the said defendant corporation as described and set out in Exhibit "A" attached hereto and made a part hereof.

Bids and offers will be received either separately on Sections I, II and III, or on all Sections combined, the amount for each Section, however, to be set out, or on any part or subdivision of any Section. All bids must be sealed and be accompanied

by cash or a certified check for 10% of the proposed bid, payable to John W. Hildred, Receiver, as a pledge that the bidder will make good his bid in case of acceptance. The balance of the purchase price to be paid in cash upon confirmation of the sale by this Court.

All bids or offers must be in writing and placed in a sealed envelope marked "Bid to be opened 10:00 A. M. October 19, 1940", addressed to John W. Hildred, Receiver, 233 Industrial Building, Phoenix, Arizona. The bids and offers so received will be opened at the time and date aforesaid at the front door of the Maricopa County Courthouse, in the City of Phoenix, Arizona. The Receiver reserves the right to reject any and all bids.

The property is to be sold free and clear of all liens and encumbrances. The said property may be inspected and examined at any time upon appointment with the Receiver.

DATED AT PHOENIX, ARIZONA, this 30th day of September, 1940.

JOHN W. HILDRED
Receiver as aforesaid
233 Industrial Building
Phoenix, Arizona.

NAME OF MINE: ORIZABA

COUNTY: ~~YAVAPAI~~ Maricopa

DISTRICT:

METALS: CU

OPERATOR AND ADDRESS: DATE:		MINE STATUS DATE:	
5/1/44	Orizaba Mining Co., 506 Security Building, Phoenix, Arizona	5/1/44	Developing
		5/10/44	Closed per Mr. Coupal

ORIZABA

Cu

~~Yavapai~~ 13 - 6 T 8 N, R 3 E

Orizaba Mining Co. '44

[redacted]

ENGIN. & MINING JNL - 9-47 - Vol. 148 - No. 9

Engineering and Mining Journal—Vol.148, No.10

[redacted]

[redacted]

ENGIN. & MINING JNL - 9-47 - Vol. 148 - No. 10

EXHIBIT "A"

INVENTORY

ALLIED MINING AND SMELTING CORPORATION
233 Industrial Bldg.
Phoenix Arizona
JOHN W. HILDRED, RECEIVER

SECTION I

"A" The following described patented and unpatented mining claims of which the Allied Mining and Smelting Corporation is the owner, located and situated in Maricopa County, State of Arizona, said unpatented lode mining claims being situated in Moore's Mining District in said Maricopa County, the names of which, together with location notices, are recorded in the office of the County Recorder of Maricopa County, Arizona, in the books of mines and at the pages set opposite their respective names as follows:

Name of Claim	Book of Mines No.	Page
Lutes	40	326
Abner	40	327
Elmira	40	325
Illinois	40	447
Logan	40	443
Hilltop	40	446
Atlanta	40	328
Cicero Fraction	40	442
Columbia	40	444
Lillian	40	329
Edna	40	386
Southern Cross	40	288
Southern Cross No. 1	40	289
Southern Cross No. 2	40	290
Southern Cross No. 3	40	291
Southern Cross No. 4	40	292
Southern Cross No. 5	40	293
Southern Cross No. 6	40	493
Southern Cross No. 7	40	492
Southern Cross No. 8	40	385
Southern Cross No. 9	40	324
Southern Cross No. 10	40	445
Southern Cross No. 11	40	497
Southern Cross No. 12	40	498

"B" A certain lease and option agreement, dated March 5, 1940, wherein Orizaba Mining Company is the lessor and Allied Mining and Smelting Corporation is the lessee, covering the following described property:

> The Orizaba and Belcher patented lode mining claims, bearing U. S. Mineral Survey No. 2195, situated in Moore's Gulch Mining District, Maricopa County, Arizona.

This agreement carries a ten per cent (10%) royalty on all ore shipped from the property, to apply against a $175,000.00 purchase price.

That the names of the patented mining claims are the ORIZABA and the BELCHER, also situated in the Moore's Mining District, according to the Mineral Survey No. 2195, patented on June 6, 1906, plat of same being in the office of the Surveyor General of the United States, at Phoenix, Arizona.

The foregoing patented and unpatented mining claims are also known and described as:

> "The Orizaba Mine in Moore's Mining District in Maricopa County, State of Arizona, located in Township 8 North, Range 3 East, of the G. and S. R. B. and M."

II

LOCATED AT 233 INDUSTRIAL BLDG., PHOENIX

1 - 4-drawer legal size Steel Filing Cabinet

2 - 34" x 60" steel flat top Office Desks

2 - Swivel Chairs

2 - Office Arm Chairs

2 - Waste Baskets

1 - Hall Tree Rack

1 - Remington Typewriter

III

LOCATED AT ORIZABA MINE
(Except as noted)

ONE-DRILL AIR COMPRESSOR OUTFIT, consisting of:

1 - 25 H.P. Fairbanks-Morse Type Y Diesel Oil Engine with clutch pulley 40" x 9". 325 RPM. Serial No. 53749.

1 - Schramm 2 cyl. Horizontal Compressor, size 6" x 6", 20 H.P. 510 RPM. No. CC-D-1282

25 - Feet 5" Rubber Belt

1 - 36" x 60" Vertical Air Receiver with air gauge & air relief valve

1 - 48" x 42" high Open Top Galvanized Water Tank

1 - 14" x 60" Fuel Tank

200 - Feet (approx.) 1" Black Pipe

1 - 1-1/4" Centrifugal Water Pump

8 - Pcs. 7/8" Drill Steel

20 - Feet 3/4" Air Hose & Connections

1 - 8 H.P. Jaeger #7-H Horizontal sgl. cylinder hopper cooled Engine, Model C-35-H, 375 RPM. Serial No. 309162

1 - 42" x 7' Air Receiver with gauge

BUILDINGS, ETC.

STARTING AT UPPER END OF PROPERTY

NO. 1 - Upper Bunk House (uncompleted)

10' x 36' x 8' high
Rough lumber floor and framing
(No roof, no canvas, no doors or windows)

NO. 2 - Second Bunk House

10' x 30' x 8' high - Complete
Cement floor and wood framing with galv. iron roof, 2 doors

NO. 3 - Boarding House and Dining Room

14' x 40' x 8' - 3 Rooms
Wood floor - wood and composition sides and roof
3 doors - 13 windows
3 Camp tables and 6 benches
1 Kitchen range 42" x 84"
1 2-compartment wash tub
Dishes, pots, pans, silverware, etc.
1 - 18" x 60" hot water tank
2 - Oil drums

NO. 4 - Cabin - (uncompleted)

12' x 14' x 8' high
Rough lumber floor and framing, galv. iron roof

NO. 5 - Cabin - Complete

12' x 14' x 8' high
1 Toilet - not installed

NO. 6 - Office

24' x 36' x 8'
Cement floor and frame construction, including:

1 - Safety First Cabinet
1 - Swivel Office Chair
4 - Plain Office Chairs
1 - Toilet
1 - Wash Basin
1 - Sink
1 - Electric driven gasoline visible pump
2 - 550 gal. underground gasoline tanks

NO. 7 - Watchman's Cabin

14' x 16' -

Watchman's House

NO. 8 - Cabin

12' x 14'
Rough lumber, floor and framing

NO. 9 - Cabin - (uncompleted)

Rough lumber, floor and framing

NO. 10 - Cabin -

16' x 20'
Cement floor, wood framing, screen sides

No. 11 - Bunk House

10' x 30'
Cement floor, wood framing, iron roof

NO. 12 - Cabin

12' x 14'
Wood framing and iron roof

NO. 13 - TENT HOUSE

12' x 12'
Wood - cement floor

NO. 14 - TENT HOUSE

12' x 14'
Wood floor - new canvas - screens

NO. 15 - SCHOOL HOUSE

18' x 24'
Living Quarters 8' x 10'
Good construction with new material
(new - cost reported $400.00)

NO. 16 - CABIN

12' x 14'
Wood framing and iron roof

NO. 17 - ASSAYER'S CABIN

10' x 16'
Wood floor - frame, and iron roof

MISCELLANEOUS

1 - Lot #4 Bare Copper Wire (estimated 283#)

1 - Lot Warehouse Trucks

1 - Lot used 16# Mine Rail - approx. 3 tons

1 - 42" x 42" Mine Cage

1 - Lot miscellaneous Pipe in yard, including:
Approx. 200' - 1" Black
" 60' - 2" "
" 120' - 4" "
" 60' - 2-1/2"
8 - 10' lengths 7" Galvanized Air Pipe
9 - Fittings - Tees and Ells

1 - Lot heavy Insulators

1 - Lot Scrap Iron (approx. 1 ton)

1 - Lot 1-1/4" Hollow Round Drill Steel, shanked and bitted, average length 4' approx. (Approx. 4 tons)

BLACKSMITH SHOP

1 - #8 Gardner-Denver Drill Steel Sharpener with Dies and Dollies

1 - Oil Burning Furnace for drill steel

1 - 3' x 3' Water Tank

1 - Hand Forge

1 - Emery Wheel Grinder and Stand
T&L pulleys 12" x 1"
Wheels 13" x 2"

1 - Cannedy-Otto Post Drill, and Jacobs Chuck

1 - 5-1/2" Machinist Bench Vise, stationary jaw

1 - Steel Tool Cabinet

1 - 2 H.P. Stover Gasoline Engine with Wico Magneto

1 - 1/2 H.P. Fairbanks-Morse Motor, sgl. phase, 110/220 volt, 50 cycle, 1440 RPM. Serial No. 163932

STORED IN BLACKSMITH SHOP

1 - MRV-1-1/2 Ingersoll-Rand Motorpump, 2-stage, with 15 H.P. 3 phase, 60 cycle, 220/440 volt General Electric Motor, No. F.M. 2831, Frame No. 324

1 - 2" Byron Jackson Horizontal Belted Centrifugal Pump

1 - Light Plant - 2 H.P. Air Cooled Engine and 110 volt D.C. Generator - old

1 - Fig. 2172 - 1-1/2" Roper Rotary Pump Head only

1 - 1" Dunham Type Y Centrifugal Pump

1 - 4" Chain Pipe Vise

1 - 6" 3-wheel Pipe Cutter

1 - 2-1/2 x 4 Toledo Geared Pipe Threading Device

Parts for Drifters & Jackhamers & old machines used for parts.

100 ft. - 3/4" Air Hose and Connections

2 - 2-sheave Manila Rope Blocks 1-1/2", and misc. rope blocks

6 - Sacks Lime

Miscellaneous Fittings, and miscellaneous belting

25 old Grinding Wheels, etc.

STORE ROOM

2 - BCR-430 Ingersoll-Rand Wet Jackhamers

1 - Old Sullivan Drifter) Partially complete - used for parts
1 - Old Ingersoll-Rand Drifter)

1 - 3" Drill Column and Arm

1 - Drill Column Cross Bar

1 - Home-made Wood Frame Saw Table with 23" Saw

1 - 2 H.P. General Electric 3 phase, 60 cycle, 220/440 volt, 1740 RPM Electric Motor, Model SK-225-A2 with pulley. Serial 5,405,221 with:
Square D Starter Cat. No. 46341 - 30 amp.

4 - 50-ft. lengths 3/4" Air Hose & Connections

4 - 50-ft. lengths 1/2" Air Hose & Connections

3 - Gals. Cable Lubricating Oil - 21#

2 - Gals. Turbine Light Oil

4 - Gals. Gear Grease - 28#

1 - Gal. Jackhamer Oil

50 - Lbs. Chassis Lubricant

4 - Gals. Dynamo Oil

20 - Gals. Dynamo Oil

2 - 5-gal. Cans Transformer Oil

15 - Gals. Keystone KV Heavy Jackhamer Oil

(Lubrication quantities estimated approx.)

1 - General Electric Motor Starter CR-1034-K-1-B, 3 phase, 60 cycle, Cat. #2019014G12 (for crusher motor)

1 - 3-pole 60 amp. Safety Switch

Miscellaneous electric supplies in cabinet, insulators, line material, miscellaneous wire, etc.

2-1/2 Boxes #6 Blasting Caps

1 - 10 HP 220 volt, 3 ph., Westinghouse Auto Starter Fr. L #290669-A

1 - 20 HP General Electric Starting Compensator, Type 10 - 60 amp, Form K, 440 volt, CR-158 - Form B1, Serial #278760

1 - Smith Acetylene Cutting & Welding Outfit, Regulators, and Hose complete

1 - 50 HP General Electric Starter, Form K-20, Cat. #371027

1 - Sullivan Jackhamer

1 - Cochise Jackhamer

1 - Drifter

2 - CP-43 Stopers - (at Mine)

1 - Air Drill

1-1/2 Boxes (75#) 1-1/8" 40% Dynamite (outdated) for destruction only.

1 - 1-2" Toledo Stock & Dies

1 - #7 Little Giant Bolt Die Set

1 - 3-1/2 Ft. 1-man Cross-cut Saw

6 - 10-ft. lengths 3/4" Conduit

20 - Lbs. #12 Weatherproof Copper Wire

1 - Thor 1-1/8 x 2" Riveting Hammer Serial #349806

Miscellaneous Hand Tools, Wrenches, Hammers, etc.

150 - Ft. 3/4" Guy Strand Messenger Wire

1 - General Electric 1/4 H.P. single phase Motor

1 - 1/4 H.P. Westinghouse D.C. Type CDH Motor. 1725 RPM.
Serial #7790435, Style 675526

17 - Steel Cots with Springs

12 - Single Iron Bedsteads

12 - Coil Springs for same

3 - Inner Spring Mattresses

12 - Single Mattresses

1 - Ford Dump Truck, Model 81-T - 1938 - #4300861, with 6 pneumatic tires, with hydraulic dump body. (Purchased 7/22/38 @ $1372.00 Dump Body by Allison Steel Mfg. Co.)

TIMBER - New - unused

17 - Pcs. 8" x 8" - 12'

33 - Pcs. 2" x 12" - 12'

15 - Pcs. 3" x 12" x 12'

1 - Complete Belt Conveyor Mechanism, 44' centers. Head and tail pulleys, reduction gears, conveyor and return rolls and 16" conveyor belt

1 - 50 H.P. Allis Chalmers Electric Motor, 3 ph., 60 cycle, 440 volt, 900 RPM. With base and pulley. Serial #260-118-312-21

1 - #4 Wheeling 14" x 18" Jaw Crusher

1 - 5-ton Round Differential Chain Hoist

1 - 3" Double Screw Mine Column & Arm

CHANGE ROOM

10' x 14' - concrete floor - galvanized iron sides and roof

1 - Oil Stove

2 - Benches

1 - Byron-Jackson Mine Pump, 5-stage, 3" suction, 2" discharge, direct connected to:
30 H.P. Fairbanks Morse Electric Motor, 3 phase, 50 cycle, 440 volt, 1000 RPM, Serial #18780. On steel base.

1 - American 2-stage Centrifugal Mine Pump, 3" suction, 2" discharge, direct connected to;
25 H.P. General Electric 3 phase, 60 cycle, 440 volt, 1760 RPM motor. Serial #1052170. On steel base.

1 - #5 Cameron Sinker Pump, air operated

1 - #3 Buffalo Cast Iron Volume Mine Blower belted to:
2 H.P. Westinghouse 3 phase, 50 cycle, 220/440 volt, 1500 RPM Type KT Motor, Serial #729234

4 - 30 amp. Square D Safety Switches

250 - Feet 3-conductor #2 Mine Cable (1½" dia. Approx.)

2 - 23" x 36" 100# Ore Buckets

1 - 250 gal. Mine Bailer Bucket

3 - Mine Cars - 46" x 24" x 24" - plus cars left in mine

COMPRESSOR ROOM

1 - Ingersoll-Rand Imperial Type Ten Air Compressor, 888 cu. ft. Size 19" & 12" x 16" - 170 RPM. Serial #30513-14. Belt wheel 96" x 20-1/2". (Formerly at Rawley Copper Co.)

1 - Swinging Belt Tightener with 16" x 16" pulley

1 - 16" Endless Double Leather Belt 37 ft. long, belted to:
1 - 150 HP Allis Chalmers 3 phase, 60 cycle, 440 volt, 850 RPM Motor with 20" x 20" pulley. Serial No. 36717, with:
1 - CR7051K3 Automatic Compensator, 200 HP, 440 volt, 3 phase, 60 cycle, in steel case. #DL-3656280 G 5

1 - 48" x 14-ft. Air Receiver with fittings, air relief valve, whistle and piping

1 - 1" Dunham Type Y Belted Centrifugal Pump

1 - 1/2 H.P. Type SCR 60 cycle, 110 volt, 1750 RPM Motor, Frame 65A, Model 55CR65A21

1 - 1-1/2 x 12" Screw Jack

2 - Lengths 3" Suction Hose 18' long

1 - Length 4" Suction Hose 18' long

1 - 15 KVA 440-110/220 volt single phase Transformer

1 - 5 KVA 440-110/220 volt single phase Transformer

1 - Electric Mine Hoist (No name) Approx. 20" x 24" drum. Double gear reduction,
direct connected to:
50 HP/20 HP 1150/560 RPM General Electric Type MT variable speed slip ring motor, 3 phase, 60 cycle, 440 volt, 1200 RPM, Serial #4397726,
with:
General Electric Drum Controller #540210 and Resistance K2-20-7906
with:
100 amp. Type Trumbull Safety Switch
with:
General Electric CR-7107-D1 Controller #DL-1776027-07

1 - Mine Gong

Galvanized Iron Roof Shelter over Compressor

1 - 12' dia. x 16' high Bolted Water Tank, open top, 1/4" steel 13,500 gal. capacity

1 - Coil (estimated 500 lbs.) #00 Stranded Bare Copper Wire, 7-strand

ASSAY HOUSE & EQUIPMENT

1 - Sample Splitter

1 - Calkins Assay Crusher

1 - 2 HP 3 phase, 60 cycle, 1800 RPM Form C General Electric Motor

1 - Desk

1 - Table

NO. 18 - Assay House

12' x 24'
Wood siding, steel roof, cement floor

Equipment

1 - Denver Fire Clay Muffle Furnace

1 - Bucking Board and Muller

1 - Plumbers Torch

Assay chemicals, reagents, glassware, assay instruments, etc. complete equipment.

1 - 2 HP U.S. Gear Motor, 3 phase, 60 cycle, 220/440 volt, 232/900 RPM Ratio 3.81. Type CH. Serial #166842

1 - Ainsworth Button Balance & Weights

1 - Analytical Balance

1 - Calkins Pulp Scale

MISCELLANEOUS

1 - 30" x 8' Trommel Screen, punched plate, with 1-1/2" holes

2 - 5 KVA 440-110/220 volt, single phase Transformers

2 - c cu. ft. Steel Wheelbarrows

4 - #T-11 Steel Wheelbarrows

6 - Smelter Charging Cars

1 - 4000 gal. Galvanized Iron Water Tank with Cover

Miscellaneous lot pipe and fittings around smelter

1 - 1000# Platform Scale

SMELTER

1 - 250 ton Allis Chalmers Smelter complete with
2 - 22" Smoke flue and stacks - 516 ft. total length
1 - 5' x 10' Dust Collector,
Valves, connections, steel supports, etc.

1 - Cooling Tower for smelter - wood construction

1 - 1400 ton Ore Bin - timber frame, 2" plank lined
salvage lumber - 10000'

8 - Steel Chutes, and some parts

1 - 100 ton Ore Bin - 2 compartment

1 - #8 Greene Rotary Blower - 30" outlet. Mfg. by Wilbraham Baker Blower Co., Philadelphia, Penna.

1 - 150 HP General Electric Type I Induction Motor. 3 phase, 60 cycle, 440 volt, 600 RPM, Serial #71154. With pulley, coupling, and outboard bearing.
With:
Type 00 #2795 Drum Controller

1 - Belt Tightener

29 - Feet of 16" Double Leather Belt - endless

1 - 2" Rotary Gear Pump, direct connected to:
7-1/2 HP 3 phase, 60 cycle, 220 volt, 1800 RPM motor.
Serial #4142345

1 - 2" Kinney Rotary Gear Pump, Serial C-62039
belted to:
15 HP Westinghouse Type CS, 3 phase, 60 cycle, 220/440 volt, 1750 RPM motor. Serial No. C-8034240

12 - 22" Matt Cars

2 - 36" Matt Cars

2 - Slag Pots on 4 wheels

1 - Ford Model B-'32 Locomotive to operate on railroad rails

1 - 5 HP 3 phase, 50 cycle, 440 volt Fairbanks Morse 1500 RPM Motor
Serial No. 36887

1 - Small Hand Forge

5-1/2 Miles (approx.) 28,000' #4 3-strand Bare Copper Wire, Poles, Insulators, Crossarms, and Hardware

Rails and Pipe in mine - cannot be removed

1 - Bench Grinder with 6-1/2" x 1", and 4" x 1/2" Grinding Wheels

2 - Wire Wheels for above Grinder

1 - Blacksmith Shop Building - 10' x 28' - galvanized iron sides & roof

1 - 50 H.P. Westinghouse Type C CL Motor, 3 phase, 50 cycle, 1500 RPM.
(At Western Machinery Co., Phoenix, Arizona)

MINED ORE AT SMELTER

(Estimated Quantities)

50 tons Dirty Matt

10 tons Slag containing Copper

105 tons Lime

37 tons Coke

Several hundred tons of mined ore above smelter, intended for smelting

ORIGINAL REPORT

Orizaba (f)
Maricopa County

ORIZABA COPPER PROPERTY

OF THE

PARADOX PRODUCTION CORPORATION

G. T. BATOR & ASSOCIATES

2011 WASHINGTON AVENUE

GOLDEN, COLORADO

SEPTEMBER 1970

ORIGINAL REPORT

ORIZABA COPPER PROPERTY

OF THE

PARADOX PRODUCTION CORPORATION

G. T. BATOR & ASSOCIATES

2011 WASHINGTON AVENUE

GOLDEN, COLORADO

SEPTEMBER 1970

G. T. BATOR & ASSOCIATES
2011 WASHINGTON
GOLDEN, COLORADO

September 1970

EXPLORATION PROGRAM
ORIZABA COPPER PROPERTY
OF THE
PARADOX PRODUCTION CORPORATION

INTRODUCTION

During August 1970, an exploration program was undertaken at the ORIZABA MINE property, Maricopa County, Arizona. The primary goals of the project were:

(1) to identify the geologic controls on the deposition of the ore zone(s),
(2) to determine, through the evaluation of information already available and that additional geologic information gathered during the project, where best to explore for extensions of the orebody already mined, and for possible new orebodies in the vicinity of the present workings,
(3) to determine, if possible, the tonnage and grade of any ore yet unmined in the underground workings.

WORK COMPLETED

The underground workings were dewatered down too, and including the 200-ft Level. A base map of all the workings was made using brunton-compass and tape survey methods. Geologic mapping and sampling were then completed of all the accessible mine workings.

Additional surface geology and sampling were completed. In consideration of the new data obtained from the underground and surface work, an evaluation of the information gathered

TABLE OF CONTENTS

by previous investigators was made. The major portion of this information was represented by the geophysical work completed by Heinrichs in 1963, and the geologic report by W. Manning Cox Associates in 1964, and the limited drilling completed under Cox's guidance later the same year. The purpose of this evaluation was to determine the most promising points at which to further explore the geophysical anomaly by drilling methods. The ultimate goal of course being to find additional orebodies similar to the one worked in the past.

Supplementary work was completed in the nature of (1) petrographic and x-ray analysis of the drill-core from the previously drilled holes, and (2) splitting, logging and sampling of mineralized sections of the drill-core.

Efforts were also made to substantiate or disprove the rumors that, first, the Orizaba Shaft was in fact deeper than the known depth of 200-ft, and second, that mine production of highgrade copper ore had been realized from workings below the 200-ft Level.

Two geologists working independently of each other, were involved in the assembling of new data, the evaluation of both the new and old data, and the conclusions reached. The following results, conclusions and recommendations represent the outcome of this exploration program:

1. Statements that the I.P. anomaly obtained during Heinrich's work was due to the presence of large amounts of graphite have been discredited. Petrographic and x-ray analyses of numerous samples of material logged and indentified as graphite in the reports of W. Manning Cox, show no graphite.
2. Splitting and analysis of the mineralized sections of the drill core show it to consist largely of

iron-sulfide (pyrite) with varying and lesser amounts of copper-sulfide (chalcopyrite). The copper content in the 106-ft of drill core sampled, varied from 0.10% to 1.70%, with a weighted average of 0.26%. The weighted average of the silver-content in the same footage was 0.41-ounces per ton.

3. The geophysical anomaly now appears valid and reflects the presence of substantial amounts of iron-sulfide and an unknown amount of associated copper-sulfide. The conclusive evidence that the anomaly is <u>not</u> caused by graphite is significant, in that it is now felt that a large portion of the anomalous zone, extending a distance in excess of 3000-ft, has not been adequately explored.
4. Geologic mapping, both underground and on the surface, and the cross-sections made therefrom, show that the ore deposition is very erratic in nature. Widths of massive sulfides change from 3- to 4-ft in width, to little or nothing over a horizonatal distance of 10-ft. Consequently, it is impossible to project the continuity of the massive sulfide veins any appreciable distance beyond their exposures in the mine workings. In some instances though, the orebody widened to approximately 60-ft. The average width of the narrower sections would approximate 6- to 8-ft.

   The erratic nature of the ore deposition is exhibited in both the vertical and horizontal planes.
5. Ore reserves remaining in the old workings from the 200-ft Level to the surface approximate 8,000-tons of 4.37% copper. Because of the nature of the past mining operations, it is extremely doubtful whether this tonnage could be mined at a profit except perhaps by a very small operation.

6. It was found that a wooden bulkhead seals off the main shaft at a point approximately 12-ft below the station at the 200-ft Level.
   A small hole was blasted through the bulkhead and the 12-ft of muck covering the bulkhead. It was not possible to determine the ultimate depth of the shaft but it is undoubtedly greater than 200-ft.
7. Two individuals were found who stated that they had worked in 1941, in a stope on the 300-ft Level. Their recollections of the direction and distance of this stope from the shaft, agreed with the anticipated position of the orebody as projected from the upper workings.
   The grade and the tonnage of the ore produced from this stope are unknown but both individuals agreed that it was in the neighborhood of 6- to 8% copper. One individual stated that there were no workings below the 300-ft Level at that time with the exception of an unusually large shaft station at the 500-ft Level.
8. Both geologists agree that the property has not been investigated sufficiently and in consideration of the geologic conditions and the associated geophysical anomaly, that further exploration of the property is warranted.
   The present workings are limited to only one of a number of parallel shear zones. It is felt that at least one shear zone situated immediately to the south of the one exploited in the past, has potential for the discovery of similar orebodies.
9. It is felt that the most promising area is to the west of the mine workings and in the vicinity of the old smelter. This opinion is based on an evaluation of the surface geology at that point, plus the substantial anomaly present.

It is recommended by both geologists that a diamond drill hole be placed immediately south of the smelter site. One recommends a 1000-ft hole drilled at right angles to the shear zones and at an inclination of -55 degrees to the horizontal. The second recommends a hole in the same approximate location but drilled vertically to a depth of 800-ft.

The major difference between the two recommendations is that one (the 800-ft hole) would test the north shear zone at a depth of 500-ft. The inclined hole would test both the north and south shear zones but but at lesser depths of 250-ft and 500-ft, respectively.

10. Of almost equal priority is the determination of the continuity in depth of the mineralization in the underground workings. Underground geology has established the apparent plunge of the quartzitic zone associated with the ore deposition of the upper levels of the mine. It is therefore possible to project the plunge of this ore zone in depth and to spot a drill hole at the surface which would test this projected plunge.

    It is recommended that at least one hole 600-ft in length be drilled at right angles to the shear zone and in the vicinity of the old shaft. This would be drilled at an inclination of -15 degrees and would explore the south shear zone. At the surface there are copper showings similar to those on the north shear zone. It is also within the geophysical anomaly and so it is felt that there is a possibility of the south shear zone containing similar orebodies.

11. It is further recommended, depending on the results of the two foregoing recommendations, that one vertical hole be drilled to a depth of 800-ft. This hole would be immediately north of the underground workings. If there is any continuity to the presently known ore-shoot, this hole would intersect the zone along its plunge at a depth of approximately 600-ft.

12. It is felt by both geologists that the eastern extremity of the geophysical anomaly has not been explored adequately, and that at least one hole in the extremely high anomalous area should be drilled. It is recommended that a 500-ft hole be drilled at -15 degrees and at right angles to the shear zone. The reason for the shallow angles of the -15 degree holes is that advantage can be taken of the steep topography in those locations.
13. Sampling and assaying indicates that a large percentage of the intervening rock between the highgrade massive sulfide veins, contains copper mineralization running about 0.5% copper. It is possible that additional exploration will show sufficient quantities of such mineralization so that a lower cost mining method such as sublevel stoping might be applied to the orebody instead of the more selective methods required for the highgrade veins.

    The mineralized shear zone as outlined by the geophysical anomaly approximates 500-ft in width by over 3000-ft in length. Consequently, there is still sufficient unexplored ground that might contain an orebody that could be mined by sublevel stoping methods.

ANTICIPATED COSTS

It is anticipated that the total cost of drilling the minimum four holes recommended (approximately 2700-ft) would be $12 per foot, that figure including the costs of mobilization, drilling, core-logging, sampling, assaying and all engineering services. Total cost then to be about $32,400.

SUMMARY

In summary, it is felt that on the basis of the factual data obtained by previous investigators and that obtained by this recent program, the potential of the Orizaba property is still inadequately appraised and that it warrants further expenditures for exploration, mainly in the form of diamond drilling.

It is felt that sufficient information in the form of geology and geophysical data has been obtained and evaluated to pinpoint definite drill targets. The only form of exploration recommended for the next step is that of diamond drilling.

Completion of the four recommended drill holes would provide conclusive evidence as to whether or not the Orizaba property holds any promise of substantial ore reserves. Conversely, if the results of such drilling are negative, it would be recommended that no further expenditures for exploration be made.

Respectfully submitted,

George T. Bator
Registered Professional Engineer
State of Colorado No. 2491

Samuel Shaw, III
Registered Professional Engineer
State of Colorado No. 3087

Notes on the ORIZABA MINE PROPERTY, Maricopa Cty., Arizona

Owner: Louis Cooper, Bangor, Maine

Claims: Two patented; 27 unpatented

Title: Clear on patented claims. Unpatented claims located in mid-50's and assessment work and proofs of labor maintained to date.

Location: Approximately 38-miles north of Phoenix, Ariz. Secs. 29, 30, 31, and 32, T-8-N, R-3-E, Gila & Salt River Base Meridian.

Accessibility: Approximately 3-miles east of US Interstate-17. Approximately 4-miles by gravel surfaced road from interchange on Interstate-17. Last two-miles unmaintained but adequate for pickup truck.

Electric and gas transmission lines parallel the Interstate Highway.

History: First worked in 1916. Workings consist of vertical shaft +200-ft in depth and limited amounts of drifting at 70-ft, 100-ft, 130-ft and 200-ft levels. Limited amount of stoping above 100-ft level. Smelter returns of shipments made during early 1940's total 40,000-tons of 4% copper with small amounts of silver and gold. Old reports indicate approximately 90,000-tons of 6% copper mined above 130-ft level.

Last recorded production was during period of 1942-46 when 14,580-tons of 4.03% copper ore were shipped.

Production during 1940's was completed under an R.F.C. loan. Noted as Docket # ND-5186, Orizaba Mining Co., 3-18-44, with Travis Pl Lane as Supervising Engineer for the R.F.C.

Heinrichs of Tucson completed geophysical work for DEMCO Corporation in 1963. Work delineated a zone of strong sulfide mineralization with a variable width of 200- to 600-ft and a length along the strike of +4500-ft. A 500-ft dipole separation showed sulfide still present at maximu depth of penetration of about 800-ft. Self-potential survey supports results of IP survey.

Geological report by Manning W. Cox Associates for Mountain Copper Co. in 1964, with recommendations for drilling. Three holes drilled later that year with substantial amount of mineralization logged as "graphite." Total drilling was neighborhood of 1803-ft. Very little core split and logging was done in superficial manner. Interest in property dropped on assumption that IP-anomaly was due to graphite.

Property acquired by Cooper in 1969. Workings were dewatered down to 180-ft level and limited amount of sampling done that year. Ore is principally chalcopyrite with large amounts of iron pyrite. Small amounts of bornite above 130-ft level; no observable chalcocite,

One channel sample taken during brief visit by G.T. Bator & Associates in 1969, was 9-ft in length across face of drift on 130-ft level and showed 2.98% copper. Material in chutes from earlier operations assayed +4.3% copper. Other samples showed up to 7.3% copper. Stoping up to 60-ft width has been completed at one time.

Information Available

1. "Geology and Exploration Possibilities, Orizaba Copper District, Maricopa County, Arizona," January 13, 1964, Manning W. Cox Associates, San Francisco.
2. "Geophysical Investigations, Orizaba Mine Vicinity," July, 1963, Heinrichs Geoexploration Co., Tucson, Arizona.

Maps:

1. DEMCO Inc. original draft on mylar and 1 print Claim Survey and Plat, Scale 1" = 200', by R.F. Dannelley, 1963.
2. DEMCO Inc. original draft on mylar, Geologic Map, Scale 1" = 50', by R.F. Dannelley, 1963.
3. Original draft on mylar and prints, Topographic Map of Orizaba Mt. Copper Co., completed January 1964 by Kenney Aerial Mapping, Phoenix, Arizona, W.O. 1187, Scale 1" = 100'
4. Topographic Map, Scale 1" = 50', by R.F. Dannelley, with geophysical data penciled in.
5. Mineral Survey No. 1446 Plat of the Koons and Moore Lode.
6. Mineral Survey No. 2195 Plat of Moore's Mining District, of Belcher and Orizaba claims.

Photographs:

1. Prints from Dean Aerial Photo Co., Roll No. 122, Prints No. 8987 - 8993 and 8997 - 9003, Scale 1" = 1000' and No. 9004, Scale 1" = 700', dated 8/20/63.
2. Blown up print, Dean Aerial Photo Co., approximate scale of 1" = 300', Print No. 8986 of Roll No. 122.
3. Miscellaneous 35-mm aerial photographs and slides of mine and vicinity.

Other:

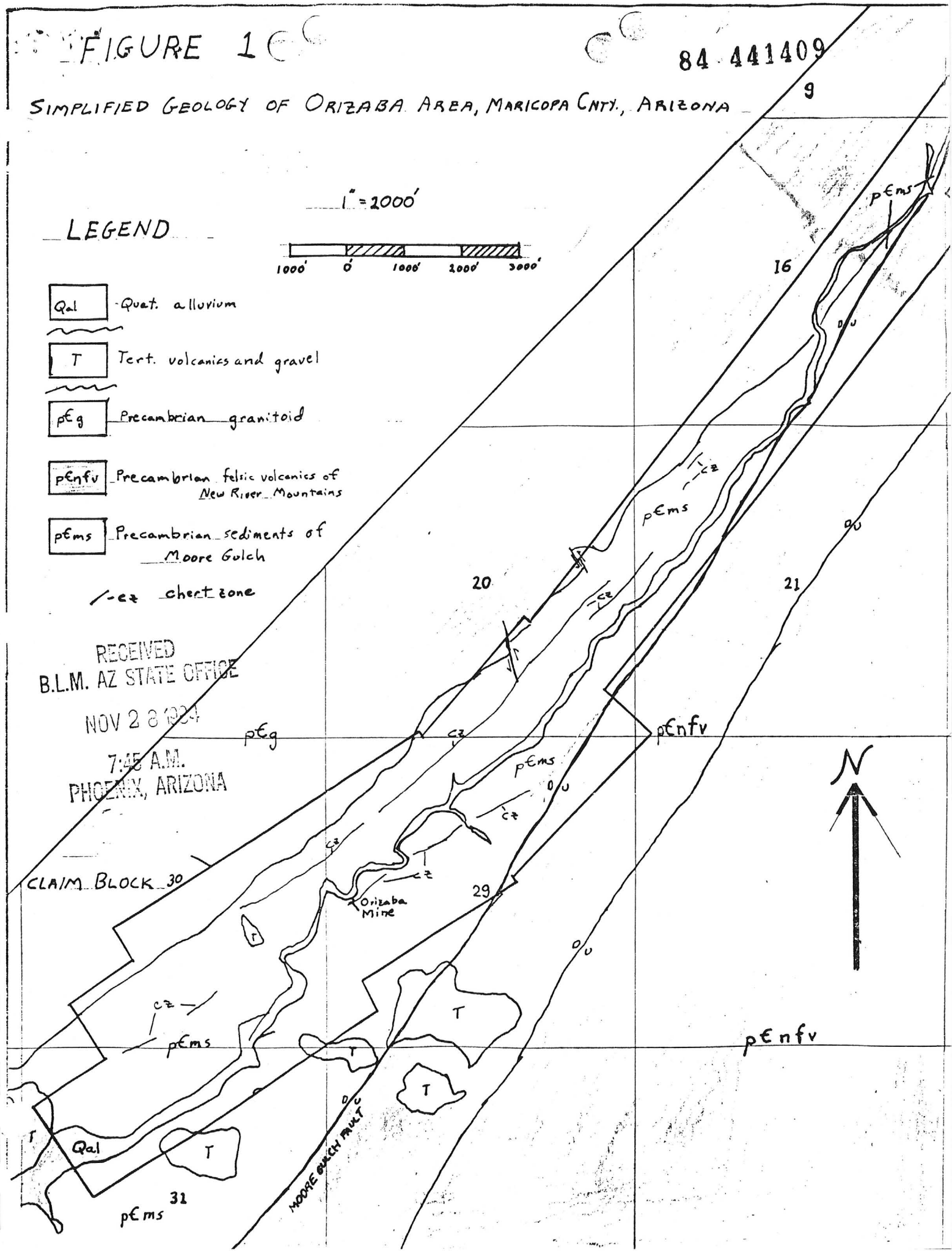
1. Thin sections and polished sections by G. W. Huttrer, Geologist, of selected drill core samples, surface and underground samples from Orizaba Mine.

FIGURE 1

84 441409

9

SIMPLIFIED GEOLOGY OF ORIZABA AREA, MARICOPA CNTY., ARIZONA



GEOLOGY AND ORE DEPOSITS
OF THE ORIZABA MINE AREA
Maricopa County, Arizona

To:

G. T. Bator & Associates

by

Dr. Robert J. Lickus

Lakewood, Colorado

August - September, 1970

TABLE OF CONTENTS

CONCLUSIONS

1. The ore deposits at the Orizaba mine are massive sulfides and occur in Precambrian rocks.

2. The ore deposits are Precambrian in age and associated with quartz beds.

3. Graphite does not exist in significant quantities in the Orizaba mine area.

4. Faulting is not significant in the area, and is not a controlling factor in the search for new deposits.

5. Folding does occur, but is concentrated in the less competent schist beds.

6. The ore bodies of the Orizaba mine have been folded. The thickest portion of the ore occurs at the crest of the fold which has a plunge of 60° in a N 35 W direction.

7. The ore bodies are lenticular and pinch and swell in short distances along strike. Projection of reserves is tenuous. The largest lens was about 100 x 60 x 10 ft.

8. Only very limited reserves are likely to exist in the vicinity of the mine. New ore bodies must be found to make mining of the ore economically attractive.

9. Two types of exploration targets exist on the property. The first is massive sulfide ore bodies similar to those that have been mined. The second type is a disseminated copper-bearing sulfide ore body.

10. About 100,000 tons of reserves of massive sulfides will be required to justify mining and milling operations.

11. About 10 million tons of disseminated sulfides will be required to justify low-grade, high tonnage mining and milling operations.

RECOMMENDATIONS

1. Conduct a Ronka EM-16 geophysical survey in the vicinity of proposed drill targets and intermediate lines to check for the presence of massive sulfides.

Estimated cost: $3000.00

2. Drill Holes C-1 and C-2 to test for new massive sulfide ore zones (Plate 15). Total footage is 1400 ft.

Estimated cost @ $15/ft (total overhead, analytical costs, etc.): $21,000

3. Drill Holes C-3 and C-4 if results from C-1 and C-2 are encouraging. However, serious consideration should be given to drilling C-3 in any event because this hole will test the best geophysical anomaly.

Estimated cost:
C-3 only - 500': $ 7,500
C-4 only - 800': $12,000

4. If encouragement is received in any of the drilling, detailed geological mapping of surface exposures should be undertaken. A minimum of one month's work is anticipated.

Estimated cost:
Services: $3,000.00
Expenses: $1,200.00

INTRODUCTION

On August 22, 1970, I was contacted by Mr. George Bator who asked me to do a geologic study of the Orizaba Mine, located about 37 miles north of Phoenix, Arizona. The mine was being de-watered in late August, 1970 and would be accessible to the 200 level. Mr. Bator requested that all accessible workings be mapped and sampled. He also requested a geological study of surface exposures and available core. The purpose of the study was to determine the geological potential for additional reserves and to recommend, if warranted, a program to test the potential.

The study was begun by reviewing the existing information. Geophysical work had been done in July, 1963 by Heinrichs Geoexploration Company of Tucson, Arizona by J. W. Marlatt and C. S. Ludwig and geological studies had been completed in January, 1964 by E. H. Lindsey of Manning W. Cox Associates of San Francisco, California. Heinrich's and Cox's (Lindsey's) reports were studied. Their data were reviewed and all existing correspondence and logs pertaining to the project were read. A thesis by S. E. Jerome from the University of Utah was also reviewed. Jerome's work did not cover the Orizaba Mine, but was adjacent to the mine to the West and covered a similar geological environment. In addition to the written record, Mr. Bator and Samuel Shaw, III, Mr. Bator's associate, told of stories obtained from people who had worked in the mine or

been associated with it that provided additional information about the geology and the occurrence of ore. Mr. Shaw lent invaluable assistance both on surface and underground. A total of ten days was spent on the property of which four days were spent mapping on surface, examining mine dumps and outcroppings. The underground mapping is thorough and complete. The surface mapping was done in detail only in specific areas around the mine and is of a reconnaissance nature. A detailed accurate geological mapping job would take many weeks and did not seem to be warranted at this stage of the investigation. The surface mapping was done on Air Photos and the data was transferred to a topographic base map that was prepared by Kenny Aerial Mapping. Underground maps were made by brunton and tape survey by Sam Shaw and me. The geology of the underground workings was placed on these newly prepared underground maps.

This report presents the results of the above study. Also included in the appendix are reports by outside consultants on specific aspects of the study. Abundant graphite had been reported from the cores that were taken from drill holes completed after the geophysical work had been completed. The intense geophysical anomalies were then attributed to the presence of graphite and pyrite. Several scientists who had looked at the cores expressed skepticism that the material reported as graphite, was truly graphite. Attempts were made to identify the material by use of thin-section petrographic analysis of selected pieces of core.

This report by G. W. Huttrer is included in the appendix. Even though Mr. Huttrer did not see definite evidence of graphite, he could not rule out the possibility that graphite was present in some samples. In order to obtain a definitive determination about the absence or presence of graphite, six samples were submitted to Dr. J. J. Finney of the Colorado School of Mines for x-ray analysis. No graphite was found and a copy of Dr. Finney's report is included in the appendix.

Location and Access

The mine is located in the New River Mountains which are in turn located at the southeastern end of the Bradshaw range (Plate 1). The shaft is located near the creek bottom, and its elevation is not known. The mine is located about 6 miles along unmaintained dirt and gravel road from the New River exit on Interstate Highway 17. The New River exit is about 35 miles north of Phoenix, Arizona. There is no commercial power available at the mine site and the nearest large town is Phoenix. The gravel and dirt road leading to the mine is rough and portions of the road will wash out during flash floods. The region is arid and very hot in the summer months commonly reaching temperatures in excess of 100 degrees Farenheit.

The shaft has a small steel head frame which is about 20 ft high. The shaft is concreted to a depth of about 90 ft and is in good condition down to the 200 ft level (Plate 11). The ladders are also in good condition.

Abundant water enters the mine workings and drains into the shaft. It was estimated by Mr. Shaw that water was entering the shaft at the rate of about 90 gals/min. About 500 ft to the west, a new shaft was begun which is on the hillside near the creek bottom. The new shaft reportedly bottoms at 30 ft below the collar. About 100 ft west of the new shaft lies the site of the old smelter. Only the foundation of the smelter remains. The wooden head frame on the new shaft has collapsed.

REGIONAL GEOLOGICAL SETTING

The Orizaba mine is located in a group of Older Precambrian rocks classed by Anderson and Creasey (1958) as the Yavapai series (Plate 1). Gilmour and Still (1968) define the regional setting as follows:

> "...The Yavapai Series (is divided) into two groups, the Ash Creek group which occurs in the massif of the Black Hills and the Older Group which forms most of the western foothills of the Black Hills and the eastern foothills of the Bradshaw Mountains farther to the southwest. The Ash Creek Group consists of thick units representing two cycles of basaltic to rhyolitic volcanism overlain by pyroclastic deposits containing interbeds of chert and magnetic jasperoidal chert. The Alder Group is made up of thinly-bedded sediments of both detrital and volcanic derivation with some recognizable flows and tuffs..."

The schists in the vicinity of the Orizaba mine undoubtedly belong to the Alder Group of the Yavapai Series.

The regional strike of the foliation in the Orizaba mine vicinity is about N 60 E, and the foliation, which probably parallels original bedding, dips steeply to the northwest. There are no accurate regional geologic maps of the area. Jerome's thesis work to the west is the nearest geological mapping, and is of little value in the mine area.

Several significant mines are located within the same series of rocks about 40 miles to the northwest near the town of Prescott, Arizona. The most famous are the United Verde, the United Verde Extension, and the Iron King mines.

According to Jerome (1962) no significant deposits have been located between the Orizaba and the Iron King mines, although many shows of sulfides have been located.

GEOLOGY OF THE ORIZABA MINE AREA

It was my objective to determine the general geological framework of the ore deposits at the Orizaba Mine. The surface geologic map (Plate 2) is grossly correct. It is recognized that the area is much more complex than is depicted on Plate 2. Any attempt at refinements would take a great deal of time and was not considered warranted. The trend and distribution of the ore-bearing and potential ore-bearing units was defined, particularly in the favorable geophysically located areas.

Surface Geology

It is evident from Huttrer's petrographic work that a variety of rock types occur; amphibolite schist, meta-diorite, quartz tremolite schist, quartz amphibote schist, and vein quartz, among others. The schists were classified in this study for mapping purposes as one rock type. On surface the rocks are usually light to medium greenish-gray, well foliated, locally highly contorted chlorite-sericite schists. In places, associated often with quartz beds or veins, the schist becomes gneissic with the rock more properly described as a quartz, plagioclase, chlorite gneissic schist. Zones exist where amphiboles are abundant, but their distribution was not mapped.

Two varieties of quartz were recognized on surface. There are large, 1 to 5 ft, quartz veins. These veins are

composed almost exclusively of white bull quartz. The veins generally parallel foliation and are easily seen as a result of the white milky quartz. Within the schist, there are many small lenses of white milky quartz. These veins and lenses were formed during metamorphism. The second type of quartz occurs as lenticular beds which also are parallel or sub-parallel to foliation. The bedded quartz is fine-grained and thinly banded and is considered sedimentary or volcanic in origin. Finney's report on a thin-section strongly suggests a sedimentary origin. These beds thicken and thin along strike and are remarkably continuous over long distances. A quartz bed may pinch out from a zone 35 to 50 ft wide to a few inches in a strike length of less than 50 feet. Some of the thickening and thinning may be caused by folding. The schist unit that contains the ore is estimated to be a minimum of 2000 ft thick.

Local folding is evident in many exposures of the schist, particularly in the stream cuts. The schist is often highly contorted but regionally the beds strike N 60 E and dip about 60 degrees to the northwest. The dip of the quartz beds varies from 53 to 75 degrees. These variations in attitude have been caused by folding.

No major cross-faults were recognized. The one cross-fault mapped near the old smelter is postulated on the basis of the shattered nature of the outcrops in the stream bed. The displacement is small. Most faulting and

movement probably took place along bedding or foliation planes. Since the quartz beds are competent units, movement would have been concentrated along these planes. Evidence for bedding plane faults is present in underground exposures; with highly divergent attitudes of foliation in the schist beds adjacent to a quartz bed.

Iron-staining along fractures is abundant. The color of the staining, with few exceptions is dark brown. Some reddish brown staining was evident in areas where copper oxides were noted at surface. All rock types contain iron-staining, but the distribution of iron-staining is related to the quartz beds (Plate 3). Pyrite cubes have been observed in schist and in quartz at surface.

The area was flown over in a light aircraft (Cessna 182) and the regional continuity of the various rock units was seen. Three photographs are shown in the appendix that suggest this continuity but not nearly as clearly as can be seen when flying over the area.

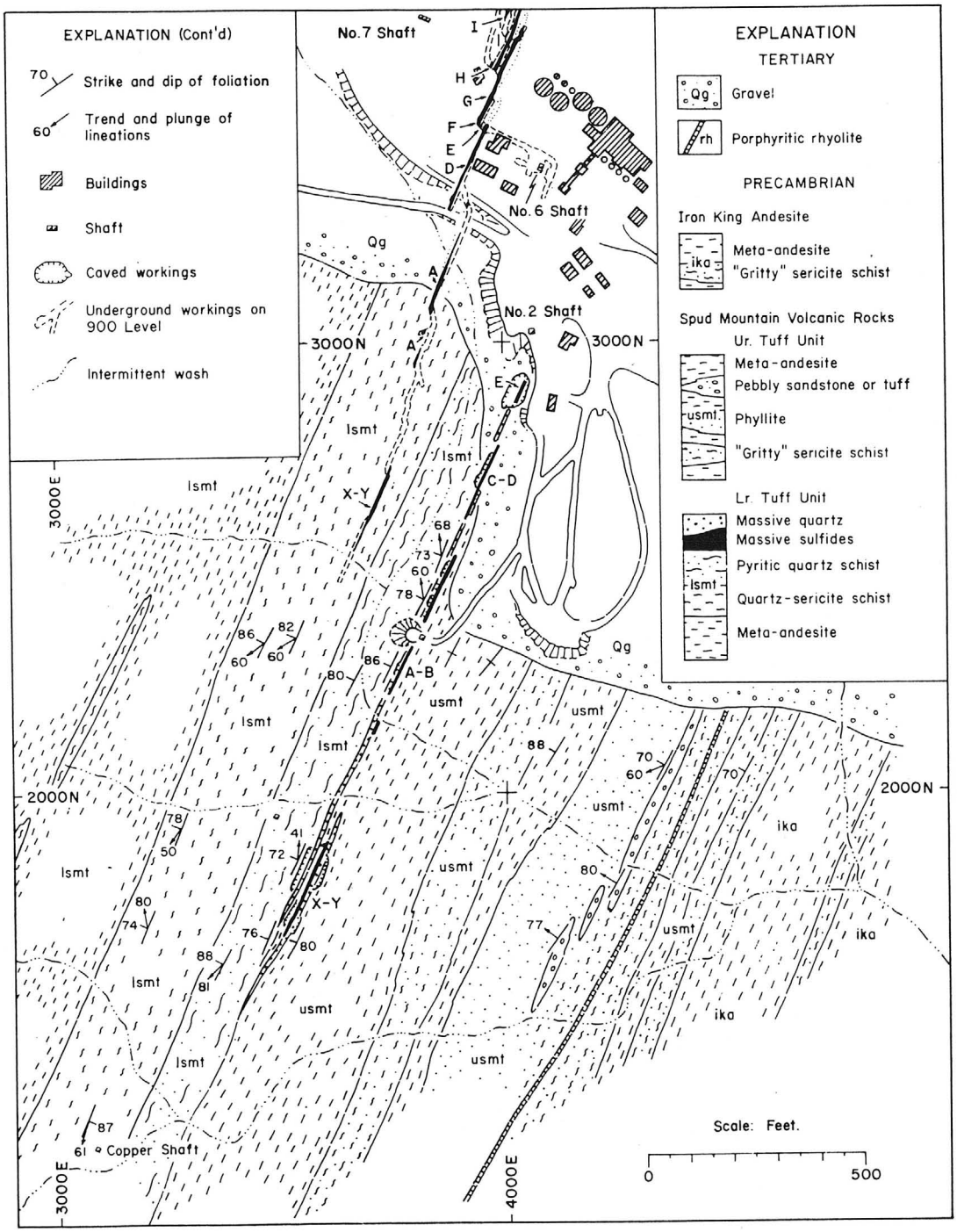
Geology of the Orizaba Mine

The Orizaba mine was mapped on a scale of 1" = 20' in all workings that were accessible. S. Shaw and I mapped and sampled the 100-, 120- (130-), 120½- (120-sublevel), and the 200-levels. The levels were mapped with brunton and tape. At the 200-level a 4-ft muck pile was found at the base of the shaft. Subsequently, S. Shaw reported that a pipe was driven 12-ft down into the muck pile at which point

a wooden bulkhead was encountered. An unsuccessful attempt was made to remove the bulkhead. S. Shaw also reported that he had talked to a miner who had mined ore from the 300-level. This section of the report, however, covers only the factual data that was obtained from the exposed and accessible opening.

One major stope was observed and it occurs above the 100-level. It is about 110 ft along strike, averages about 10 ft in thickness and is an average of about 40 to 50 ft high. The stope is up to 40 ft wide and is open to surface. In several places, the stope is about 70 ft high. It's dimensions and shape are very irregular. Much smaller stopes exist in several places on several levels.

In the early stages of mapping the underground workings, a strong similarity seemed to exist between the rock types and ore deposits of the Iron King mine. Figure 1 is taken from Gilmore and Still's paper in volume 2 of "The Ore Deposits of the United States," that presented "The Geology of the Iron King Mine." From Figure 1, it was noted that the principal rock types encompassing the deposits are quartz-sericite schist and phyllite. Even though mapped as several units about 2000 ft of phyllite and schist are exposed on surface. The massive sulfides are directly in contact and associated with two principal rock types; (1) a chlorite schist interpreted to be a metamorphosed andesitic tuff, and (2) massive quartz, interpreted to be metamorphosed chert beds.



Geological Map of the Iron King Mine.

FIGURE 1

Gilmore, P., And Still, A.R, 1968

Gilmore and Still describe the ore horizon as follows:

> "...the ore horizon is fairly complex in detail... the horizons which contain the massive sulfides are recognizable to the south of the mine as bands of gray-green quartz sericite schist which are interbedded with metaandesite. As the ore horizons are traced to the north,..., the proportion of quartz and pyrite increases as the sericite decreases... the massive sulfides are fine-grained and commonly banded. Pyrite is the dominant metallic mineral, accompanied by lesser amounts of sphalerite, galena, chalcopyrite, and arsenopyrite....If followed northward, the massive sulfides either gradually narrow down to a thin selvage or give way abruptly, and with fairly sharp contacts, to bodies of greenish gray, massive quartz which have a waxy or chalcedonic luster.... Locally, such quartz is banded and contains irregularly-distributed, coarsely-crystalline sphalerite and galena as well as erratic values in gold and silver. In the development of a "quartz-nose," as the massive sulfides diminish in width, the quartz is found to increase in width on the eastern or footwall side. In some localities, the massive quartz gradually narrows and becomes difficult to trace farther north with reliability. In other places, the quartz swells rapidly to form a bulbous lens, wider than the original zone, and then pinches abruptly..."

The significant differences between the Iron King and Orizaba deposits are the size of the deposits and ore-zone mineralogy. Orizaba has no or little sphalerite and galena. But Gilmore and Still discuss a second zone of mineralization that was found on the structural hanging-wall of the main ore horizon called the "Copper Zone" which assayed between 3 and 4 percent copper "with minor gold, silver, lead, and zinc over a width of 5.1 feet." The maps indicate the zone is about 200 ft wide and is formed by chalcopyrite-chlorite mineralization. The shoot has a plunge length of 2500 feet.

Rock Types in the Ore Zone - The massive sulfides at the Orizaba mine are formed by fine-grained, massive to finely banded sulfides composed primarily of pyrite and chalcopyrite with a matrix which forms less than 20% of the volume and is composed of quartz and chlorite. Traces of a brownish very fine-grained mineral were seen which may be sphalerite, but it is not common. As can be seen on Plates 7, 8, 9, and 10, the massive sulfides pinch and swell very rapidly. The thickest zone occurs at the crest of a fold that plunges 60° to the N 35 W and is well displayed on the 120 level map (Plate 8). The major bifurcation of the ore zone is believed to be caused by folding.

Disseminated sulfides are found in most adjacent rock types. The disseminated sulfides are primarily pyrite with trace amounts of chalcopyrite. The most abundant disseminated sulfides occur within the quartz units associated with the massive sulfides. In places, the quartz units contain coarse-grained pyrite and chalcopyrite.

Three types of quartz were recognized. The first type is fine-grained clear quartz that is banded. The second type which is probably a variation of the first type, is fine-grained, clear quartz that is massive in appearance. The second type if quartz usually has the most abundant disseminated sulfides. Pods of this type of quartz are found within massive sulfides. The third type of quartz is a coarse-grained milky quartz that is vein quartz. Only sporadic minor amounts of disseminated sulfides were

found in this type of quartz. No clear distribution pattern was observed for the various types of quartz.

A very dark green chlorite schist commonly is found on the hangingwall of the ore zone where the country rock is in contact with either quartz beds or massive sulfides. Pods of dark green chlorite schist are common within massive sulfides. The dark green chlorite schist unit is thin, rarely exceeding a thickness of one foot. The unit thickens and thins along strike and is sometimes absent. Beds of dark green chlorite schist also have been found on the hangingwall of the ore zone, but are much less common in this stratigraphic position.

The beds, in which the ore zone is contained, are composed of two dominant rock types. The distribution of the two rock types is not known. In the vicinity of the ore zone one type does not seem to be predominant. Both rock types are well foliated and fine-grained and no distinct contact was observed between them. One type is characterized by being more gneissic than the other and contains quartz and plagioclase in thin (< few millimeters) bands interbedded with medium green chlorite sericite schist. Thin section studies indicate amphiboles may be significant. The second rock type is characterized by the absence of quartz and is more schistose. The rock could be called a medium to light green chlorite-sericite phyllite or phyllitic schist. Disseminated sulfides are common within both rock types but form only about 5% of the rock volume or less.

Structure in the Ore Zone - Folding in the ore zone has been mentioned earlier. Minor folds were noted in the schist adjacent to the competent units of the ore zone. The axes of lineations that were exposed mainly on the hanging wall in schist generally plunge a shallow amount, usually less than 25 degrees, to the west.

Definite faults with observable displacement are not common. Only two were mapped. On the 100-level (Plate 7) and on vertical sections (Plates 11, 12, 13, and 14), a low angle thrust fault was observed. The dip separation along the thrust plane is only 1.5 to 2 ft. In places, the fault plane is well defined, being a gouge zone about 1-2 inches thick. In several zones, the movement took place across a zone several feet thick that is highly fractured and a well-defined thrust plane is not apparent. The hangingwall block was thrust over the foot wall. The second fault was a small normal fault that had about 1.5 ft of dip separation along a plane that dipped at about 75 degrees northerly. The fault was normal. It's strike length was undeterminable because the fault was observed in a small pillar between the main stope and the surprise stope at the east end of the 100-level.

The attitude of foliation on either side of rigid or competent units of the ore zone was diverse enough in a few places that bedding plane faulting was suspected. The best example occurs in the pillar between the two northern-most drifts to the west of the shaft on the 100-level. It

is likely movement has taken place along the rigid quartz beds and massive sulfides, particularly since there is evidence of tight folding.

Form of the Ore Zone - The plan maps and vertical sections of the ore zone depict clearly the extreme variability of the ore bodies. The ore zones pinch and swell rapidly from a zero thickness to 15 feet thick in distances of 20 to 30 feet. Because of this variability average dimensions are not reliable and reserve calculations without drill hole information is almost impossible. In the areas stoped out by early mining, average dimensions are estimated as follows: strike length - 100 ft, dip length - 50 ft, and thickness - 5 to 10 ft.

Origin - Because of the striking similarity to the Iron King ore deposits, the origin postulated by Gilmore and Still is proposed for the Orizaba deposits. The deposits are Precambrian in age and were deposited in a volcanic sequence at the end of a rhyolitic phase. The deposits were later metamorphosed and folded.

REVIEW OF GEOPHYSICAL DATA

The interpretation of the geophysical data contained in the report by Marlatt and Ludwig, 1963, was reviewed and accepted. The data was plotted on the geologic map and is shown in condensed form on Plates 2 and 3. There is an obvious close correspondence between the geophysical and geological anomalies. Since graphite is not present, the geophysical data takes on renewed significance. Mr. Ludwig of Heinrichs Geoexploration Company has stated that the IP anomalies are very significant, the strongest being observed in the easternmost line. The SP data also suggests a strong anomaly to the east. The data from drill holes D-4-50 and D-2-45 suggest that pyrite is responsible for the strong anomaly. Only small segments of the original core were split and assayed. S. Shaw obtained additional samples that were split and assayed and the results are shown in the appendix. In hole D-4-45, the sample from 669 to 671 ft ran 1.70% copper and 0.62 oz silver per ton. In hole D-2-45, the sample from 25 to 35 ft ran 0.25% copper and 1.46 oz silver per ton. Even though none of these values are ore grade, evidence of ore potential exists in an area where significant geophysical anomalies are present. Further testing is definitely warranted.

During an examination of the property by King Resources, a preliminary survey was run in the vicinity of line 6 (near drill hole D-1-45) using a Ronka EM-16 unit. A

significant phase shift was obtained in the area overlying the massive sulfide ore zone of the Orizaba mine. A detailed survey using EM equipment could be important in determining location of massive sulfide ore bodies.

SOME ECONOMIC CONSIDERATIONS

Sam Shaw, III, of G. T. Bator and Associates is calculating ore reserves for the Orizaba mine. Since evidence is clear that the massive sulfide lenses change dimensions rapidly, any attempt to calculate reserves will be difficult. Nevertheless, certain factors in any program at the Orizaba mine must be considered seriously. Two types of targets capable of producing ore are possible. The first is ore similar to that which has been mined - massive sulfide ore bodies. The second is disseminated ore - low grade, high tonnage ore bodies. In both cases milling of the raw ore will be necessary. Transportation of concentrates over long distances will be necessary; and construction of a plant, mine site, and good roads will be required. In short, if additional ore is found, a substantial capital investment will be required to put the mine into production. Using very general rules of thumb, the question that must be asked is this; what size deposit has to be discovered before an operation becomes feasible in order to return the capital investment at a favorable rate of return?

In viewing the economic case for massive sulfides, the mapping program has established certain parameters such as size and grade. The maximum size massive sulfide body that is present is 110 x 50 x 10 or roughly 10,000 tons of ore averaging about 4% copper. The net smelter return using $.50 per pound copper is about 20 dollars per ton. Mining,

milling, transportation and overhead will consume about 15 dollars per ton leaving 5 dollars per ton for amortization of capital. This type of mine would require an initial investment of about $500,000. Just to get the initial capital investment returned to the investor, about 100,000 tons of ore reserves will be required. An ore body of massive sulfides will have to be 10 ft thick, 100 ft wide and 1000 ft long. The numbers used in this example are very conservative, but at least an order of magnitude can be established for an ore deposit target.

If the economics of a large tonnage, low-grade operation are considered, the search for guidelines becomes even more nebulous. Indications from geophysical and geological data shown on Plate 3 suggest the possible dimensions of an ore zone of this type. The plan area could be 1000 ft by 200 ft. Using a tonnage factor of 10 cubic ft per ton, this deposit would contain 20,000 tons per vertical foot. 500 vertical ft of ore will supply a 10 million ton ore body. At a production rate of 5000 tons per day, the ore body would be mined out in less than six years. If the ore averages 0.8% copper and 0.5 oz silver per ton, at $.50 per pound copper and $2.00 per oz silver the net smelter returns would be about $6.50 per ton. Total cost of operation would be about $5.00 per ton. The net to the owners will be $1.50 per ton or about $2.6 million per year. The capital investment necessary to put this type of mine into operation would be about 15 million dollars.

Again, conservatively, a 1000 x 200 x 500 ft orebody that could be mined by mass, low-cost, mining methods would just be sufficient to return the capital investment.

EXPLORATION TARGETS

A number of geological factors exist in the Orizaba mine area that suggest new ore possibilities exist. First of all, ore has been produced from the property. Even though the tonnage produced may have been small (probably less than 50,000 tons), massive sulfides have been mined and the grade is excellent. Next, copper shows are evident in several localities. The best copper show at surface is over the Orizaba mine. But other zones that have not been tested, exist where copper does show at surface. The zone on the hillside above the Orizaba mine that is stratigraphically lower than the zone mined has never been tested. The new shaft was started in an area where copper shows at surface. S. Shaw discovered evidence of drilling from surface in this vicinity. Why did the people who started the shaft select the site they used? It is logical to assume they had some indication of ore in the vicinity. Mr. Ludwig of Heinrichs Geoexploration Company states that even though the geophysical anomaly in the new shaft area is not as strong as the anomalies to the east, it is, nevertheless, a significant geophysical anomaly and cannot be dismissed. Geologically, the area is favorable not only because of the copper shows at surface, but also because iron-staining is present, a quartz bed thickens in the area and is the one that is stratigraphically equivalent to the quartz bed at the Orizaba mine.

The very strong geophysical anomalies at the eastern end of the area cannot be ignored. Surface expression of mineralization is extensive. Iron-staining is abundant but copper shows are absent. Quartz beds are present and even thicken in the area. And, lastly, there is a suggestion of folding in the area which may be necessary to create ore zones.

To test these zones, a surface drilling program is proposed and the proposed locations and attitudes of the drill holes are shown on Plate 15.

Dr. Robert J. Lickus CPG 1458

REFERENCES

Anderson, C. A., and Creasey, S. C., 1958, Geology and ore deposits of the Jerome area, Yavapai County, Arizona: U.S. Geol. Surv. Prof. Paper 308, 185 p.

Gilmore, D., and Still, A. R., 1968, The geology of the Iron King mine; in Ore Deposits of the United States, 1933-1967; vol. 11, AIME, New York, pp. 1239-1257.

Marlatt, J. W., and Ludwig, C. S., 1963, Geophysical investigations, Orizaba mine vicinity Maricopa County, Arizona: Heinrichs Geoexploration Co., Tucson, Arizona.

Lindsey, E. H., 1964, Geology and exploration possibilities, Orizaba copper district, Maricopa County, Arizona: Manning W. Cox Associates, San Francisco.

APPENDICES

APPENDIX A - Petrographic Report
by G. W. Huttrer

G.T. Bator & Assoc.
2011 Washington
Golden, Colorado 80401

July 15, 1970

Dear Mr. Bator,

Presented below are the results of petrographic examinations of the rock samples submitted on July 10, 1970 and not covered in my report dated July 14, 1970.

Sample 1-a

Rock Type: Amphibolite schist

Mineralogy:

Actinolite	25%
tremolite	70%
clinozoisite	2%
quartz	3%

This is a multisheared amphibolite displaying bent and twisted tremolite and rare clinozoisite crystals. It probably represents a metamorphosed volcanic rock, and contains no visible graphite.

Sample 1-c

Rock Type: Meta-diorite

Mineralogy:

plagioclase	30%	olivine	5%
Augite	30%	calcite	5%
hornblende	20%	chlorite	3%
zoisite	5%	orthoclase	2%
		sericite	trace

This is a metamorphosed intrusive igneous rock of medium to basic composition. Many of its original component minerals have been incipiently altered chemically. i.e. Feldspar altering to calcite, and ferromagnesians to zoisite and chlorite.

Sample 2-b

Rock Type: Quartz tremolite schist

Mineralogy:

quartz	60%	chlorite	3%
tremolite	15%	sericite	2%
malachite	15%	manganese	trace
limonite	5%		

Sample 2-b (con't.)

This is a metamorphic rock similiar to sample 1-a only more silicious and containing significant copper mineralization. It has been highly sheared and cataclastized as evidenced by the strained and bent amphibole crystals and sutured, recrystallized quartz grains. No graphite was seen.

Sample 2-c

Rock Type: Gossanized quartz amphibole schist

Mineralogy:

quartz	25%	tourmaline	5%
calcite	15%	tremolite	3%
limonite	15%	talc	2%
pyrite	5%		

This is a relative of samples 1-a and 2-b, however, it has been almost totally altered (gossanized) and deformed. The amphibole has altered to talc which has in turn altered to calcite. The occurrence of tourmaline blebs suggests a high temperature history, possibly near an intrusive contact. The ample presence of pyrite confirms the latter possibility. No graphite was seen in this sample.

Sample 2-d

Rock Type: Sheared, hydrothermally altered quartz amphibole schist

Mineralogy:

limonite	40%
tremolite	30%
talc	20%
quartz	3%
pyrite	7%

This is a sheared, mineralized and oxidized quartz amphibole schist. Alteration in this sample has not proceeded as far as in sample 2-c, and no carbonate, derived from talc, is seen. Though no graphite was positively identified, small opaque grains of low reflectivity were observed in trace quantities.

Sample 3-a

Rock Type: Vein quartz, pyritized

Mineralogy:

quartz	95%
calcite	2%
limonite	2%
pyrite and chalcopyrite	1%

Both thin and polished sections were examined to study this sample from the main mineralized zone. The examination revealed only a bull quartz vein containing small amounts of oxidized impurities and chalcopyrite replacing pyrite.

Sample DH-1-45 132

Rock Type: Sandy marble

Mineralogy:

quartz	35%
calcite	35%
carbonaceous matter	25% ?
pyrite	3%
limonite	2%
sericite	< 1%

Though graphite can not be positively identified OR ruled out as being included within the carbonaceous matter that causes the dark color of this rock, its existance is considered doubtfull due to the tenacity of the rock and its lack of friability. Hydrothermally emplaced limonite and pyrite augment this originally simple rock.

Sample DH-4 766

Rock Type: Hydrothermally altered amphibolite schist

Mineralogy:

calcite	55%
actinolite	35%
quartz	5%
talc	5%

This sample appears to be an amphibolite schist that has altered preferentially to talc and calcite along shear planes. Alternatively, the rock could be a thoroughly silicated limestone in the vicinity of an igneous intrusion. Reguardless of its origin, the rock has been strongly metamorphosed dynamically.

APPENDIX B

To: Robert J. Lickus, 9501 West Tennessee Ave. Lakewood, Colorado

From: J. J. Finney, P. O. Box 144, Golden, Colorado 80401

Subject: Mineral analysis

Samples # 2-45-584; 2-45-55; 2-45-57; 2-45-143; 2-45-344 were investigated by means of x-ray analysis. No graphite was evident from these analyses as was expected by visual observation of hand specimens. The major mineral appears to be instead an Fe- bearing silicate (layer) such as stilpnomelane of very fine grain and mixed partly and locally with siderite, mica and clay.

In addition 31 element spectrographic analyses were run on samples # 1-45-60 and 2-45-344. The results are enclosed.

Petrographic analysis of sample # 1-45-60 shows the rock to be a quartzite in which almost complete masking of the original grains has been accomplished. Quartz grains account for approxiamtely 99% of the rock with pyrite and carbonate accounting for the remainder. Individual quartz grains are small and grain boundaries are obscure except for the lack of optical continuity.

Dated: August 28, 1970

Submitted:

J. J. Finney

SKYLINE LABS, INC.
SPECIALISTS IN GEOCHEMICAL EXPLORATION
12090 WEST 50TH PLACE, WHEAT RIDGE, COLORADO 80033 TEL.: (303) 424-7718

REPORT OF SPECTROGRAPHIC ANALYSIS

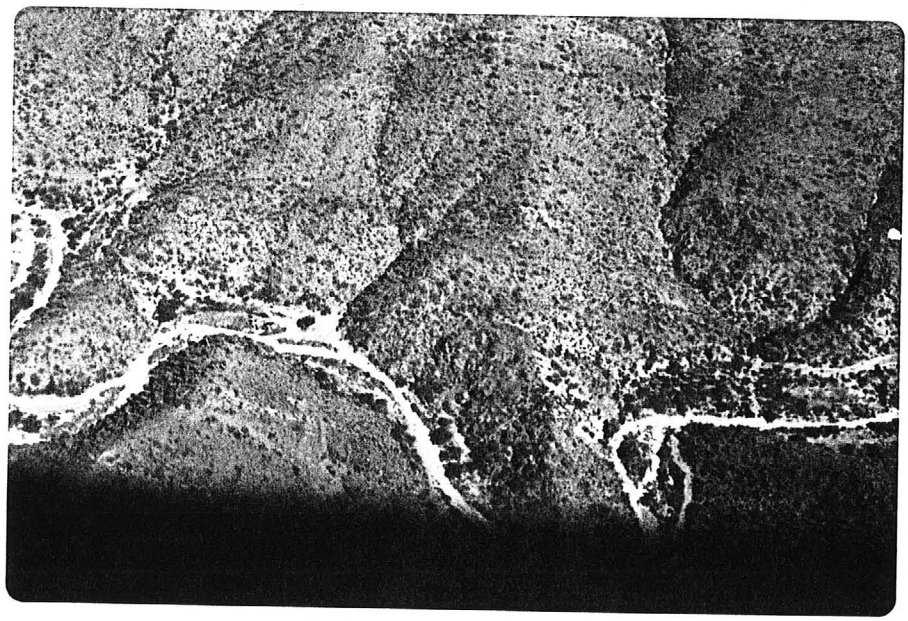
Job No. M-644
August 20, 1970

Dr. J. J. Finney
Geology Department
Colorado School of Mines
Golden, Colorado 80401

Values reported in parts per million, except where noted otherwise, to the nearest number in the series 1, 1.5, 2, 3, 5, 7 etc.

Element	Sample Numbers 1-45-60	2-45-344
Fe	10%	15%
Ca	.2%	5%
Mg	.15%	1.5%
Ag	<1	<1
As	<500	<500
B	10	20
Ba	10	150
Be	<2	<2
Bi	<10	<10
Cd	<50	<50
Co	7	50
Cr	<5	150
Cu	200	300
Ga	10	<10
Ge	<20	<20
La	<20	<20
Mn	300	5000
Mo	2	3
Nb	<20	<20
Ni	10	300
Pb	<10	150
Sb	<100	200
Sc	<10	10
Sn	<10	<10
Sr	<50	50
Ti	<20	1500
V	<10	50
W	<50	<50
Y	<10	<10
Zn	<200	200
Zr	<20	<20

Charles E. Thompson
Chief Chemist



N

Photograph # 1

Vertical View. Orizaba Mine is located to the left of center at the center of the picture. Several light brown and light gray zones can be traced across the entire photograph.

Photograph # 2

Oblique view looking eastwardly toward the mountains. The view is along strike of the beds. The Orizaba mine area is circled in black.

Photograph # 3

Oblique view looking westward, downstream. The view is along the strike of the beds. The Orizaba mine area is circled in black.

REPORT ON ORIZABA CLAIMS, ARIZONA

by
M. A. Klugman

1. Introduction

A period of two days was spent in the field examining the ORIZABA claims, drawing a sketch map of the mineralized shear zones on the surface, and check mapping the underground markings where necessary. Additional sampling of the underground was also undertaken. The purpose of the examination was to determine the following:

1.1 The nature of the mineralization observed on the claims.

1.2 The control of the mineralization.

1.3 The status of the work undertaken to date, and what further steps should be taken in evaluating the property, if any.

2. Conclusions

2.1 The best mineralization occurs in brecciated quartzite and deformed and fracture chlorite schist where these rocks occur within a shear zone or shear zones.

2.2 The mineralization is controlled by a complex system of shear zones which bifurcate and merge. These zones have an overall steep dip which is locally influenced by the bedding of the metasedimentary rocks, and transgresses the bedding. Because of this control:

2.2.1 No high tonnage - high grade bodies should be considered on this property.

2.2.2 There is the potential of a low tonnage - high grade body or bodies, but their occurance would be erratic.

2.2.3 The intensity of the mineralization within the shear zones is erratic.

2.2.4 The mineralization between the high grade sections within the shear zones is of great importance, in that it may be possible to delintate an ore body of significant tonnage and low to medium

4. Observations

4.1 Nature of Mineralization

The area is highly faulted (see Sketch Map) and the mineralization occurs within the shear zones (discussed under 4.2 - Control of Mineralization) and is comprised principally of the minerals chalcopyrite and pyrite and, where oxidized, the alteration products malachite and limonite. Mineralization is of three different types:

4.1.1 Massive Sulphides. The sulphides pyrite and chalcopyrite occur as a massive sulfide, comprising in places as much as 100% of the rock. In most places however, the sulfides make up the majority of the mineralized rock with the remainder quartz. The original country rock in this type of mineralization was quartzite.

4.1.1.1. Disseminated Sulfides in Quartzite. Finely disseminated sulfides, principally pyrite, occurs in a finely brecciated quartzite. This type of mineralization is a continual gradation from massive sulfides to finally disseminated mineralization and is found around the margins of the massive sulfides.

4.1.2. Coarse Sulfide Mineralization in Chlorite Schist. The country rock in this type of mineralization is chlorite schist and the sulfide mineralization occurs as coarse aggregates of chalcopyrite and pyrite in the schist. The deposition of the mineralization is apparently controlled by the schistosity in the transgressive fractures at partings. The sulfide mineralization is closely associated with quartz which also follows the schistosity and fracturing and has caused a fine "augen like" structure in the schist. The bulk of the sulfide mineralization in this type of mineralization is apparently chalcopyrite.

4.1.2.1 Disseminated Sulfides in Chlorite Schist and Amphibolitic Gneiss. Finely disseminated sulfides in chlorite schist and amphiboltic gneiss lie adjacent to the highly mineralized chlorite schist, and are also a decreasing gradation away from mineralization as in A.1.1.1.

4.1.3 Pyrite Cubes in Quartz Veins. Lenses of very fine grained quartz occurs as veins and stringers within the quartzite, chlorite schist, and amphibolitic gneiss. These lenses can easily be confused with the quartzite that occurs in this section, however close examination both on the surface and underground shows the secondary quartz to occur from hairline stringers to thick lenses within the shear zones. The thickest lens observed during this visit was two meters. Within this secondary quartz, crystals of pyrite up to one cm. in cross section are found. Most of these crystals show no relationship to fractures or fracturing, and are probably syngenetic with the secondary quartz.

All of the sulfide mineralization is intimately related to the quartz mineralization. The fine grained crystalline nature of the silicification can initially be confusing because of the presence of several quartzite units in the section. Further research paragenesis, if it is warranted, will show that there are definitely two varieties and ages of quartz mineralization. The white "bull quartz" has no genetic relationship to the sulfide mineralization.

4.2. Control of Mineralization

The mineralization on the Orizaba Property is controlled by a number of shear zones which merge and bifurcate along strike, and probably down dip. In places the shear zones are conformable with the bedding but most commonly they transgress the strike of the bedding at a very acute angle. They also transgress the bed's down dip, most commonly having a steeper dip than the bedding. The overall dip of the shear zones is from 75^{o} to 85^{o}, but locally, where influenced by the bedding, will have dips as low as 40^{o}. For these reasons the margins of the shear zones are extremely irregular.

The merging and bifurcating of the shear zones can be seen on a gross scale on the surface, and on a small scale within the zones themselves. All

gradations of the structure have been observed. For this reason the continuity of the mineralization is erratic and the mineralization occurs as "lens like" structures within the shear zones, an echelon, bifurcating and merging, thus reflecting the gross shear zone structures. The variation in the intensity of the mineralization is also the result of these structures. As stated in Section 4.1, the mineralization occurs in quartzite, chlorite schist, and to a much lesser extent in amphibolitic gneiss. Very minor to no mineralization was observed in the talc schist. The probable reason for this localization of mineralization is:

A.2.1. Mineralization in the quartzite is due to the competant nature of the quartzite, and therefore its greater ease of brecciation under stress, thus providing channelways for mineralizing solutions.

4.2.2. Mineralization in the chlorite schist is due to the crossed grained nature of the chlorite schist rather than the talc schist which is very easily folded and deformed, and apparently remained "tight" during the period of shearing. The chlorite schist, being crossed grained had stringer planes of schistocity thus allowing the injection of quartz and sulfides, and also being more susceptible to minor fracturing. The chemical environment of the chlorite schist probably also contributed to the deposition of sulfides within itself.

4.2.3. The minor mineralization in the amphibolitic gneiss, was probably also due to slightly greater competance.

4.3 Status of Work to Date

From examination of the accessable underground workings and the surface it is apparent that the accessable underground workings are restricted to only one of the complex of mineralized shear zones on the property (North Shear). From available data the most promising shear system has not yet been explored. Evidence, in the form of the location of the "new" shaft collar and the "tales" of old unavoidable diamond drill hole caves or legs, indicates that previous workers did explore the western extension of the shear system and got positive results.

Where mineralization was observed underground, the underground geology was check mapped, and areas of additional mineralization found in the check mapping are shown on the attached underground geology sheets. These areas were also sampled. The three diamond drill holes for which cores are available show that the mineralization occurs in the same manner at a greater depth as the mineralization observed underground and on the surface. The exact location and attitude of these holes should be obtained, if possible, to better utilize this information.

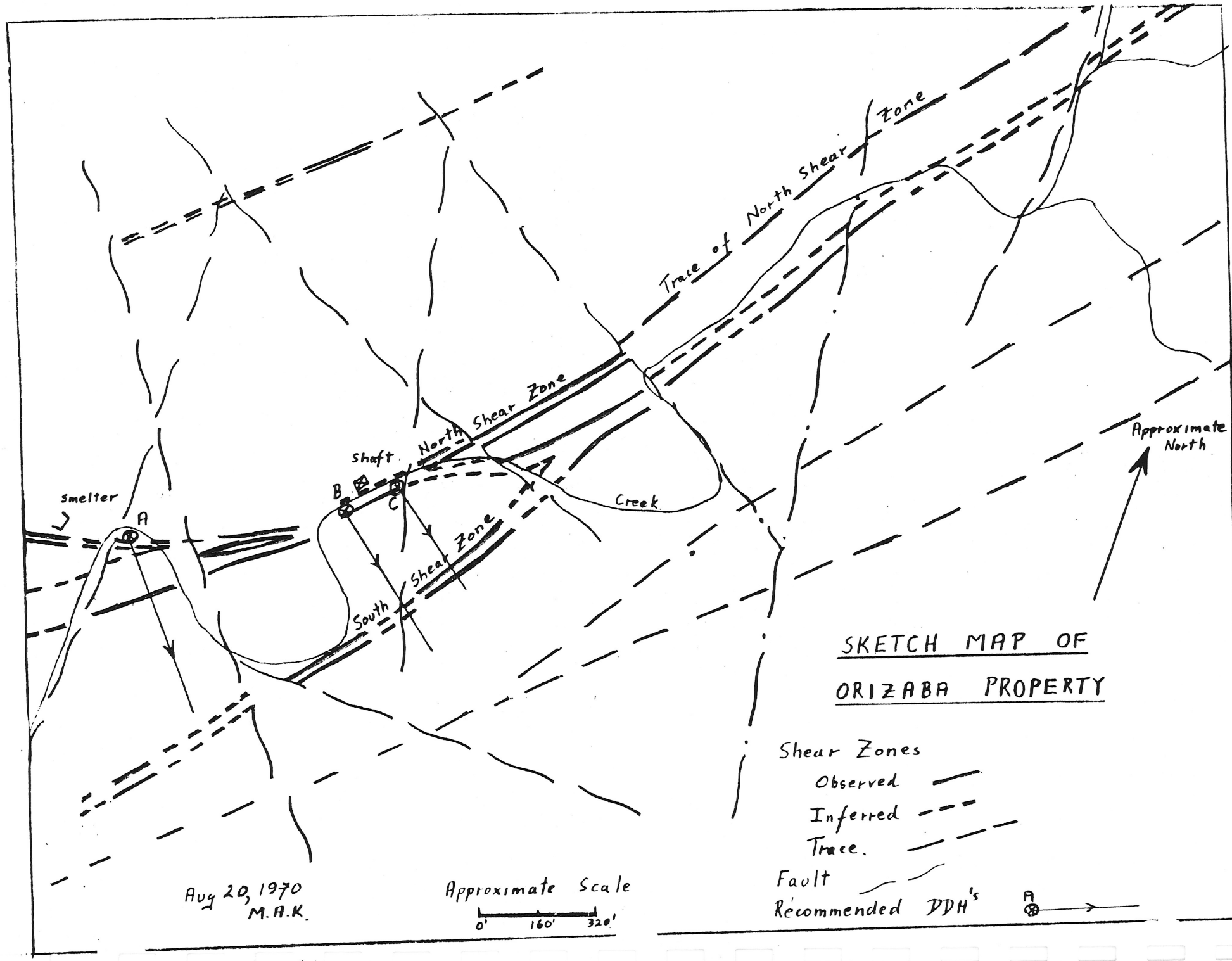
The I.P.-Resistivity survey carried out on the property confirms the location of the shears observed on the surface and the indicated sulfide mineralization within the shears.

Respectfully submitted,

M.A. Klugman, Ph.D.

August 20, 1970

Phoenix, Arizona, U.S.A.


Trace of North Shear Zone
North Shear Zone
Shaft
B
C
Creek
Smelter
A
South Shear Zone
Approximate North
SKETCH MAP OF
ORIZABA PROPERTY
Shear Zones
Observed
Inferred
Trace.
Fault
Recommended DDH's
A
Aug 20, 1970
M.A.K.
Approximate Scale
0'
160'
320'

APPENDIX

2114 CURTIS STREET

TELEPHONE 623-1852

CHEMISTS • ASSAYERS • ENGINEERS

DENVER, COLORADO 80205

Folio 9776

Date August 20, 1970.

George Eaton & Associates,
2011 Washington Circle,
Golden, Colorado.
80401

We hereby Certify, that the samples assayed for you gave the following results:

DESCRIPTION	GOLD OUNCES PER TON	SILVER OUNCES PER TON	COPPER PER CENT (WET)	LEAD PER CENT (WET)	ZINC PER CENT	IRON PER CENT	INSOLUBLE PER CENT	VALUE PER TON
#1-	0.02	0.62	5.95					
#2-	0.02	0.52	0.45					
#3-	0.02	0.44	0.13					
#4-	0.04	0.28	0.50					
#5-	0.02	0.02	0.045					
#6-	0.03	0.57	0.23					
#7-	0.04	1.46	0.25					
#8-	0.03	0.10	0.20					
#9-	0.02	0.28	0.20					
#10-	0.02	0.22	0.25					
#11-	0.02	0.40	0.30					
#12-	0.015	0.20	0.15					
#13-	0.03	0.18	0.10					
#14-	0.04	0.32	0.16					
OU-1-	0.05	0.80	6.08					
OU-2-	0.04	0.60	5.58					
OU-3-	0.05	0.55	4.70					
OU-4-	0.04	0.54	4.68					
OU-5-	0.03	0.36	3.30					
OU-6-	0.02	0.26	4.30					
OU-7-	0.03	0.50	3.95					
OU-8-	0.02	0.62	0.90					
OU-9-	0.03	0.68	5.95					
OU-10-	0.02	0.18	1.90*	(*Copper: N 1.90%)				
OU-11-	0.03	0.52	5.28					
OU-12-	0.03	0.46	3.72					
OU-13-	0.04	0.82	6.12					
OU-14-	0.02	0.36	3.48					
OU-15-	0.01	0.60	1.35					
OU-16-	0.02	0.36	3.45					
OU-17-	0.03	0.22	4.40					
OU-18-	0.03	0.38	8.80					
OU-19-	0.02	0.18	2.45					

DESCRIPTION	GOLD	SILVER	COPPER
	Oz./ton		
OU-20-	0.03	0.14	3.10%
OU-21-	0.03	0.28	4.45%
OU-22-	0.02	0.06	1.45%
OU-23-	0.03	0.34	4.90%
OU-24-	0.03	0.18	4.80%
OU-25-	0.02	0.54	0.10%
OU-26-	0.03	0.10	3.00%
OU-28-	0.02	0.24	3.55%
OU-27-	0.02	0.06	4.65%
OU-29-	0.02	0.10	0.45%

G at _____ per ounce Copper at _____ per unit

Silver at _____ per ounce Zinc at _____ per unit

L d at _____ per unit _____

Charge $ 172.00

CHARLES O. PARKER & CO.
CHEMISTS, ASSAYERS and ENGINEERS

2114 CURTIS STREET

TELEPHONE 623-1852

CHARLES

CHEMISTS • ASSAYERS • ENGINEERS

DENVER, COLORADO 80205

Folio 9780

Date August 22, 1970.

George Baker & ASSOCIATES,
2011 Washington Circle,
Golden, Colorado. 80401

We hereby Certify, that the samples assayed for you gave the following results:

DESCRIPTION	GOLD OUNCES PER TON	SILVER OUNCES PER TON	COPPER PER CENT (WET)	LEAD PER CENT (WET)	ZINC PER CENT	IRON PER CENT	INSOLUBLE PER CENT	VALUE PER TON
OS-30	0.01	0.02	0.55					
31	0.01	0.32	0.30					
32	0.02	0.64	0.105					
33	0.01	0.10	0.40					
34	0.01	0.06	0.425					
35	0.01	0.10	0.10					
36	0.01	TRACE	0.56					
37	0.02	TRACE	1.80					
38	0.02	TRACE	0.95					
39	0.05	TRACE	0.55					
40	0.03	0.30	0.20					
41	0.05	0.44	1.35					
42	0.01	0.06	0.70					
43	0.01	TRACE	0.52					
OS-1	0.01	0.10	0.35					

(at _____ per ounce Copper at _____ per unit

Silver at _____ per ounce Zinc at _____ per unit

Lead at _____ per unit _____

Charge $ 60.00

CHARLES O. PARKER & CO.
CHEMISTS, ASSAYERS and ENGINEERS

UNDERGROUND SAMPLES - ORIZABA MINE

SAMPLE NO.	WIDTH (FT)	Au (oz/T)	Ag (oz/T)	Cu (%)	LOCATION OF SAMPLE
OU-1	6.0	0.05	0.80	6.08	130-ft Level; face of east trending drift
OU-2	8.0	0.04	0.60	5.58	130-ft Level; back of drift 15-ft west of face of east trending drift
OU-3	8.0	0.05	0.55	4.70	130-ft Level; across back of drift, east side of No. 5 raise
OU-4	5.0	0.04	0.54	4.68	130-ft Level; extreme west wall foot of No. 1 Raise. Black schist and some massive sulfides.
OU-5	5.0	0.03	0.36	3.50	130-ft Level; brow of drift going to No. 1 Raise
OU-6	5.0	0.02	0.26	4.30	130-ft Level; east face of pillar immediately south of Sample No. OU-5. Massive sulfides & black schist
OU-7	2.0	0.03	0.50	3.96	130-ft Level; extreme west end of small sublevel extending to the west.
OU-8	1.0	0.02	0.62	0.90	130-ft Level; west wall of drift from shaft, approximately 4-ft south of shaft
OU-9	9.0	0.03	0.68	5.95	130-ft Level; east face of small stope above No. 5 Raise and approx. 15-ft above track level. Can be considered extension of Sample No. OU-3, i.e., width of vein = 17.0-ft.
OU-10	4.0	0.02	0.18	1.90	130-ft Level; sides of No. 4 Raise. Qtz & sulfides
OU-11	---	0.03	0.52	5.28	130-ft Level; grab sample of material in muck piles at bottom of No.'s 3,4, & 5 Raises.
OU-12	2.5	0.03	0.46	3.72	100-ft Level; face of northernmost drift directly west of shaft station
OU-13	2.0	0.04	0.82	6.12	100-ft Level; approx. 10-ft east of face of south split, west of shaft station. Taken at point where massive sulfides terminate abruptly.
OU-14	3.0	0.02	0.36	3.48	100-ft Level; near chute on south split of vein. Taken from F.W. contact to south side of drift.

UNDERGROUND SAMPLES - ORIZABA MINE (Cont.)

SAMPLE NO.	WIDTH (FT)	Au (oz/T)	Ag (oz/T)	Cu (%)	LOCATION OF SAMPLE
OU-15	3.0	0.01	0.60	1.33	100-ft Level; black chlorite schist over back of drift at chute in south split west of station.
OU-16	2.5	0.02	0.36	5.45	100-ft Level; from nose of pillar between north and south splits west of shaft station. Massive sulfides and some mineralized clay gouge
OU-17	5.0	0.03	0.22	4.40	100-ft Level; west wall of south drift from shaft and across from old powder magazine. Taken below low-angle thrust fault. Approx. 6- to 7-ft similar material was stoped above. (Vein approx. 12-ft wide)
OU-18	1.5	0.03	0.38	8.80	100-ft Level; taken at end of massive sulfide mineralization in drift extending west from old powder magazine. Approx. 30-ft from end of drift.
OU-19	14.0	0.02	0.18	2.45	100-ft Level; across width of Surprise Stope at extreme east end. Qtz, some sulfides
OU-20	3.5	0.03	0.14	3.10	100-ft Level; entrance to Surprise Stope, west side. Massive sulfides
OU-21	13.0	0.03	0.28	4.45	120-ft Sublevel; from south wall opposite Chute No. 4 to west of Chute No. 3. All massive sulfides
OU-22	8.0	0.03	0.24	4.90	120-ft Sublevel; southwall of sublevel from east of Chute No. 1 back into caved area west of chute.
OU-23	---	0.02	0.06	1.45	100-ft Level; random sample of material from big stope. Taken approx. 40- 45-ft from back.
OU-24	13.0	0.03	0.18	4.80	100-ft Level; east side of big pillar at west end of big stope. Qtz & sulfides
OU-25	4.0	0.02	0.54	0.10	200-ft Level; face of heading, southeast drift
OU-26	1.5	0.03	0.10	3.00	200-ft Level; intersection of short north-trending stub drift off southeast drift.
OU-27	4.5	0.02	0.06	4.65	200-ft Level; face of short raise, north side of southeast drift

UNDERGROUND SAMPLES - ORIZABA MINE (Cont.)

SAMPLE NO.	WIDTH (FT)	Au (oz/T)	Ag (oz/T)	Cu (%)	LOCATION OF SAMPLES
OU-28	5.0	0.02	0.24	3.55	200-ft Level; face of short stub drift to west at intersection of south drift and southeast drift
OU-29	5.0	0.02	0.10	0.45	200-ft Level; northeast drift in vein of quartzite and disseminated sulfides
OU-30	24.0	0.01	0.02	0.55	100-ft Level; west rib of south drift from shaft commencing at corner of pillar next to shaft
OU-31	43.0	0.01	0.32	0.30	100-ft Level; west wall of south drift from near shaft station to vicinity of powder magazine.
OU-32	14.0	0.02	0.64	0.125	100-ft Level; both west and east walls of powder magazine. Chlorite schist, qtz, disseminated sulfides
OU-33	9.0	0.01	0.10	0.40	100-ft Level; southwall of big stope. Heavy Cu oxides
OU-34	9.0	0.01	0.06	0.425	100-ft Level; southwall of big stope. Heavy Cu oxides
OU-35	17.0	0.01	0.10	0.10	100-Level; south wall of big stope
OU-36	18.0	0.01	Trace	0.56	100-ft Level; south wall of big stope. Taken along top of slide material. Qtz, disseminated and massive sulfides
OU-37	25.0	0.02	Trace	1.80	100-ft Level; same as Sample OU-36 but further to the east.
OU-38	18.0	0.02	Trace	0.95	100-ft Level; continuation of Sample OU-37 along south wall. End of sample vicinity of entrance to Surprise Stope
OU-39	14.0	0.03	Trace	0.55	100-ft Level; east side of large pillar and immediately north of Sample No. OU-24
OU-40	8.0	0.03	0.30	0.20	200-ft Level; west wall of south drift immediately north of sump.
OU-41	10.0	0.03	0.44	1.35	100-ft Level; east side of pillar. Continuation of sample No. OU-39. Qtz, Chlorite schist, sulfides

UNDERGROUND SAMPLES - ORIZABA MINE (Cont.)

SAMPLE NO.	WIDTH (FT)	Au (oz/T)	Ag (oz/T)	Cu (%)	LOCATION OF SAMPLES
OU-42	14.0	0.01	0.06	0.70	130-ft Level; south side of drift vicinity of Raise No. 2 and Raise No. 3. Qtz, disseminated sulfides, some massive sulfides
OU-43	---	0.01	Trace	0.52	130-ft Level; sample of black chlorite schist containing disseminated sulfides. Sample taken along north wall of drift and at random intervals from vicinity of Raise No. 1 to end of drift. Represents mineralization of material approximately 2-ft in thickness along hanging wall of massive sulfide vein.
OS-1	25.0	0.01	0.01	0.25	Surface. Quartzite zone on west side of creek directly south of old smelter site.

DRILL CORE ASSAYS

SAMPLE NO.	D.H. NO.	FOOTAGE INTERVAL	Au (oz/T)	Ag (oz/T)	Cu (Percent)
1	4-45	669-671	0.02	0.62	1.70
2	4-45	43-51	0.02	0.52	0.45
3	4-45	36-43	0.02	0.44	0.13
4	4-45	51-58	0.04	0.28	0.50
5	4-45	564-569	0.02	0.02	0.045
6	4-45	33-36	0.03	0.53	0.23
7	2-45	25-35	0.04	1.46	0.25
8	2-45	54-62½	0.03	0.10	0.20
9	2-45	80-87	0.02	0.28	0.20
10	2-45	561-569	0.02	0.22	0.25
11	2-45	133-147½	0.02	0.40	0.30
12	4-45	166-173	0.015	0.20	0.15
13	4-45	311-323	0.03	0.18	0.10
14	4-45	231-238	0.04	0.32	0.16

Cores were those from holes drilled under the supervision of Manning W. Cox Associates, in 1965. Samples were taken from sections of core logged mainly as containing only "graphite and pyrite."

Orizaba Copper Mine
Maricopa County, Arizona

Claims: Two patented, Twenty seven unpatented.

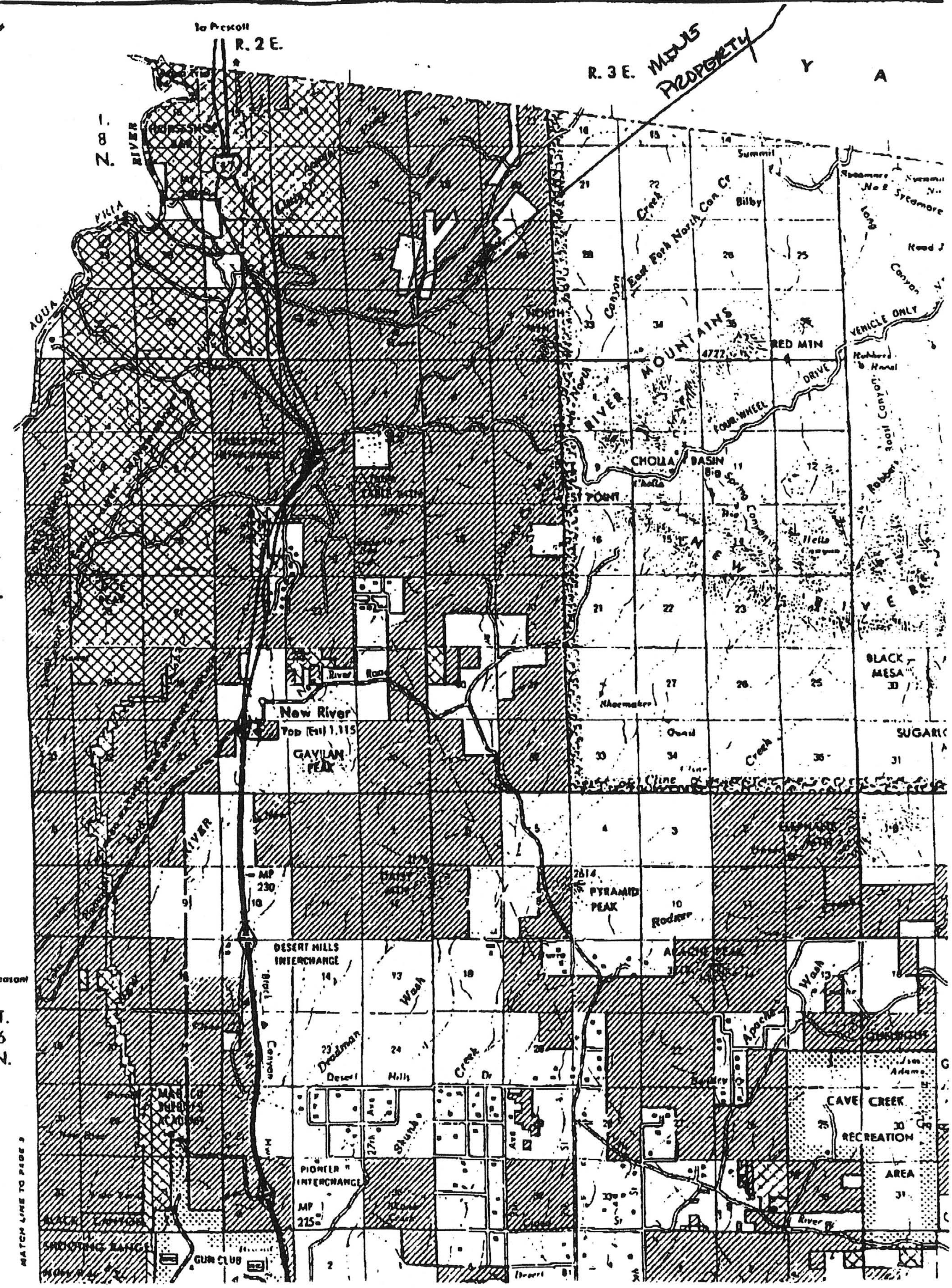
Title: Clear on patented claims. Unpatented claims located in mid-50's and assessment work and proofs of labor maintained to date.

Location: The mine is located approximately 38 miles North of Phoenix in the foothills of the New River Mountains in Maricopa County, Arizona, Sections 29, 30, 31, and 32, Township 8 North, Range 3 East of the Gila and Salt River Base and Meridian

Accessibility: Approximately ~~six~~ Five miles east of US Interstate 17, ~~New River~~ Table Mesa Interchange.

Geography: The area runs from fairly flat alluvial fans to steep and rugged hillsides. Average elevation is 2,700 feet. The annual precipitation is about 6 inches, mainly from winter and summer showers. Temperatures range from a 30 degree low to 75 degree high in the winter months, and from 50 degree to 100 degree plus, in the summer. The area is basically uninhabited with the closet ranch being about five miles from the mine. Water is plentiful as the Moore Gulch runs water most of the year.

History: The mine was first worked in 1916. Workings consist of a vertical shaft in excess of 300 feet depth (the Orizaba shaft), drifting on the 70, 100, 130 and 200 foot levels. Old reports suggest a total of 90,000 tons were mined above the 130 foot level, grading 6% copper. A smelter of 200 tons per day capacity was operated during the years 1939 and 1940. A partial record of subsequent shipments of ore to American Smelting and Refining Corp. for the years 1942 through 1948 show a total of 14,508 tons of 4.03% copper from the Orizaba shaft. The main production was from a single stope in the upper workings and the information available seems to indicate that stopeing was up to 60 feet wide in places.


To Prescott
R. 2 E.
R. 3 E.
Y
A
T. 8 N.
RIVER
AGUA
Summit
Bilby
Creek
East Fork North Con Cr
Canyon
MOUNTAINS
RED MTN
4722
VEHICLE ONLY
FOUR WHEEL
DRIVE
CHOLLA
BASIN
T. 7 N.
BLACK MESA
New River
Pop (Est) 1,315
GAVILAN PEAK
SUGARL
MP 230
PYRAMID PEAK
DESERT HILLS INTERCHANGE
To Lake Pleasant
T. 6 N.
Deadman
Wash
CAVE CREEK
RECREATION
AREA
PIONEER INTERCHANGE
MP 225
BLACK CANYON
SHOOTING RANGE
GUN CLUB

Mine file

NOTES RE ORIZABA from talk with Rickard, 10/12/30/

The mine is now unwatered to the 200' level and Rickard noted the decreased size of the ore body.

Some mining is in progress and much waste has been broken with the ore which goes to the blast furnace along with ore from the dump, thus making the charge low grade and silicious.

The Allied Management claim, 90,000 tons of 6% ore blocked out in the mine and 10,000 tons of 6% ore on the dump (Hooey)

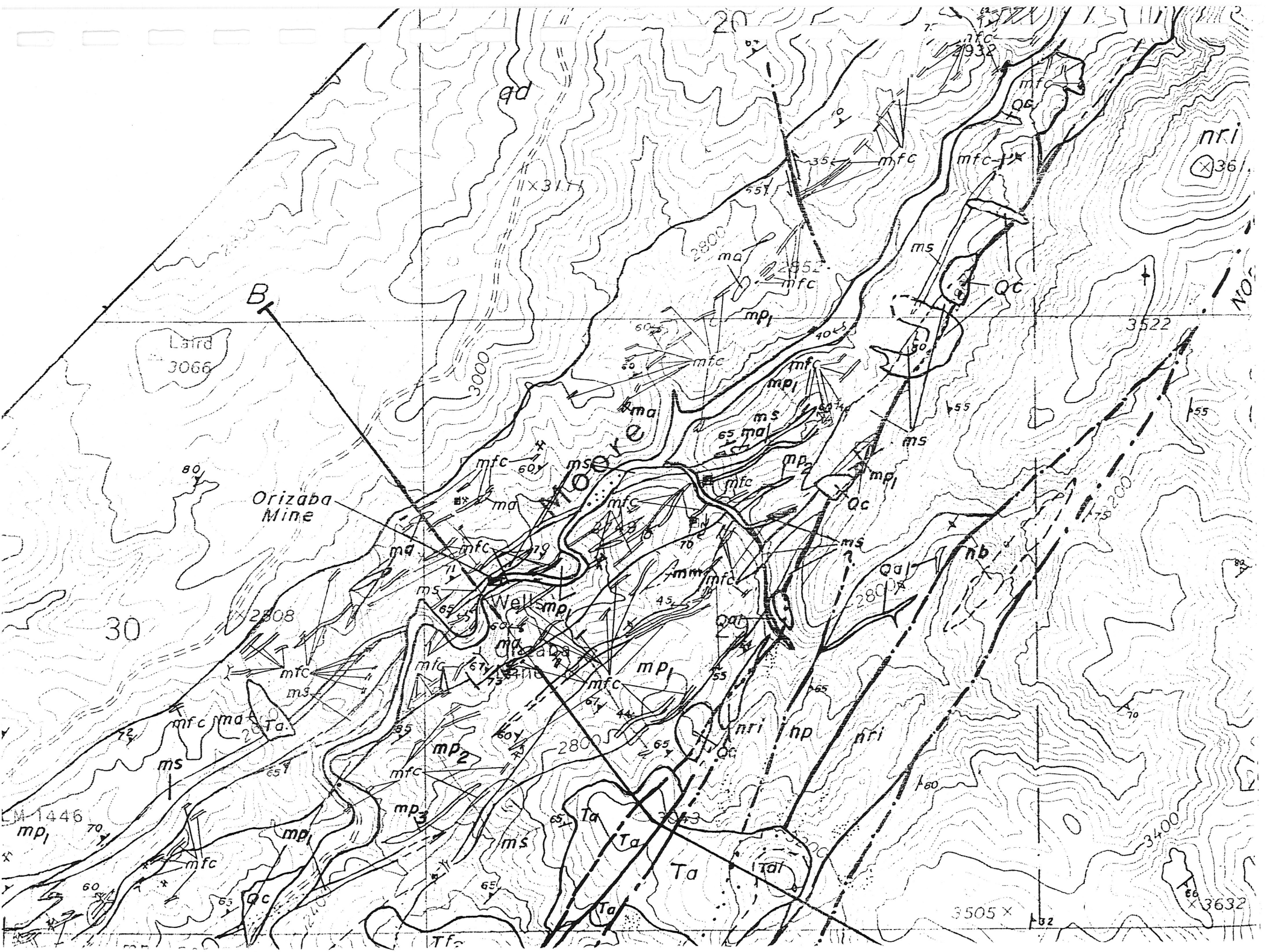
Furnace started a few days ago and burned out settling hearth two days later.

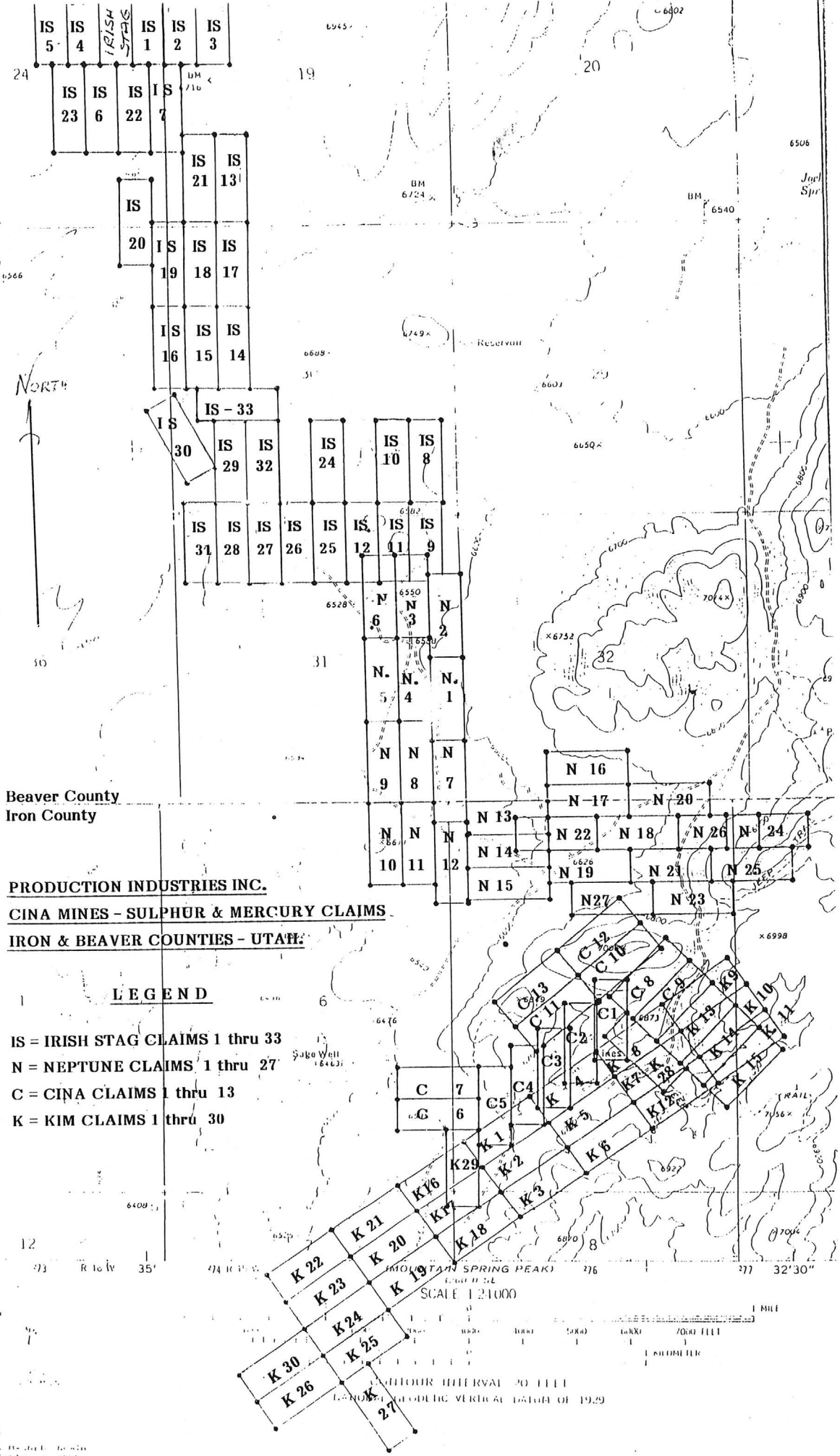
Supposed to put thru 400 tons of ore per day but now admit that tonnage is nearer 150/

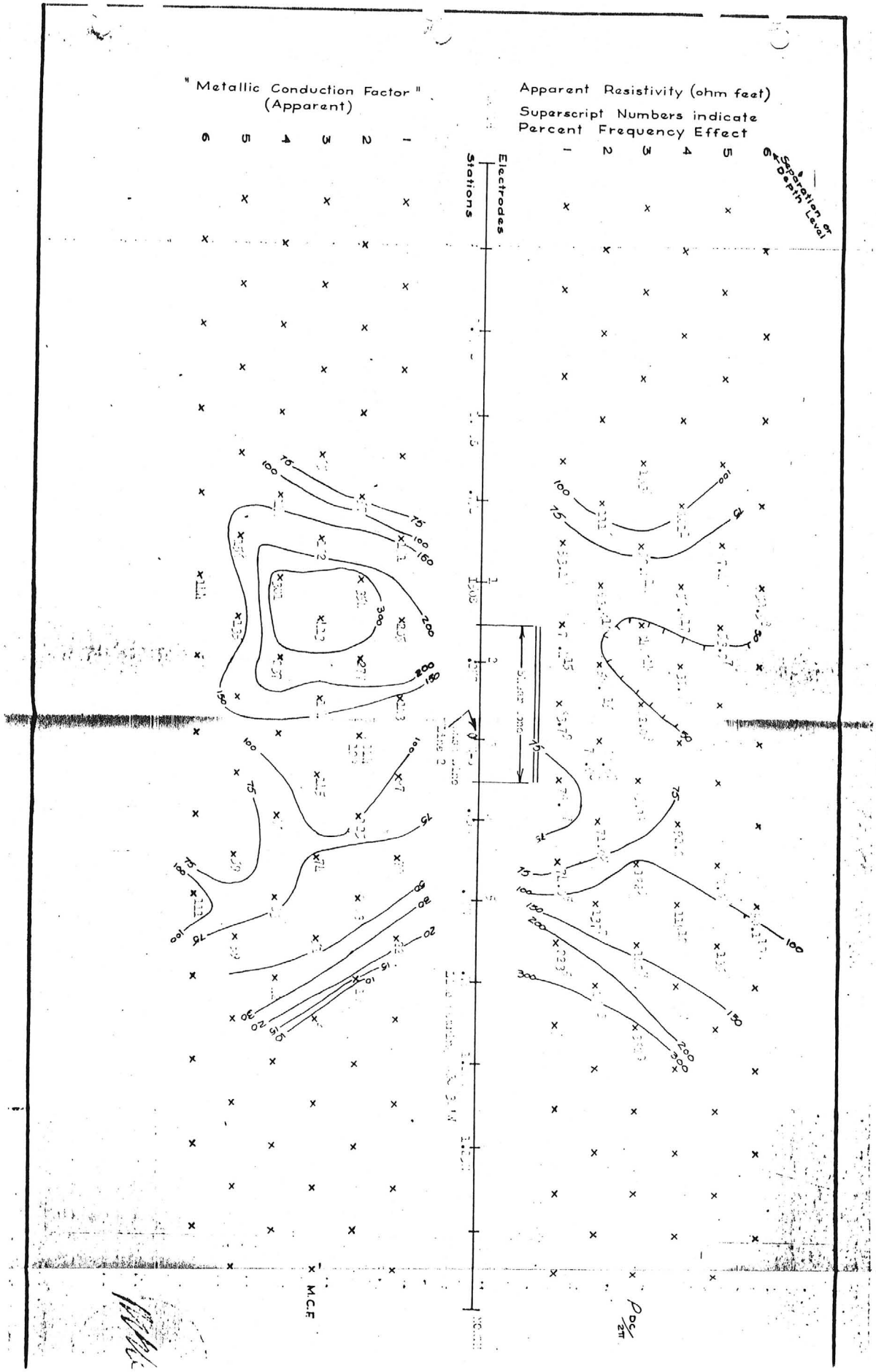
Matte so far made about 13% copper and have closed contract to ship it to the International Smelter at Miami.

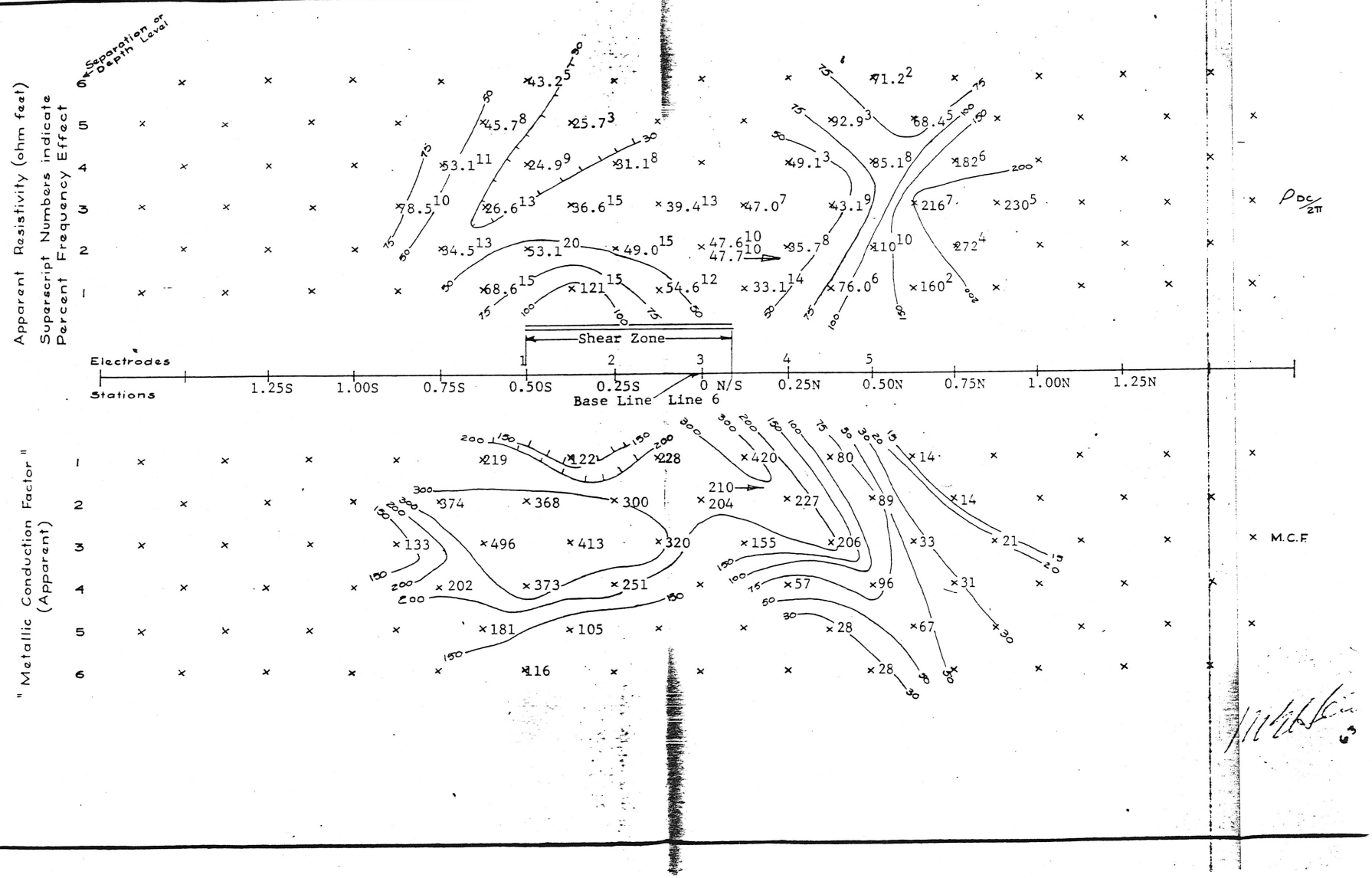
Company finance by Feurer who was cleaned out and got help from Berg (L. A. junk dealer) and his son-in-law Simon, who now seems to be directing affairs. Very short of funds and must be losing money every day. Tried to borrow $10,000 from A. S. & R which Rickard refused, International also refused.

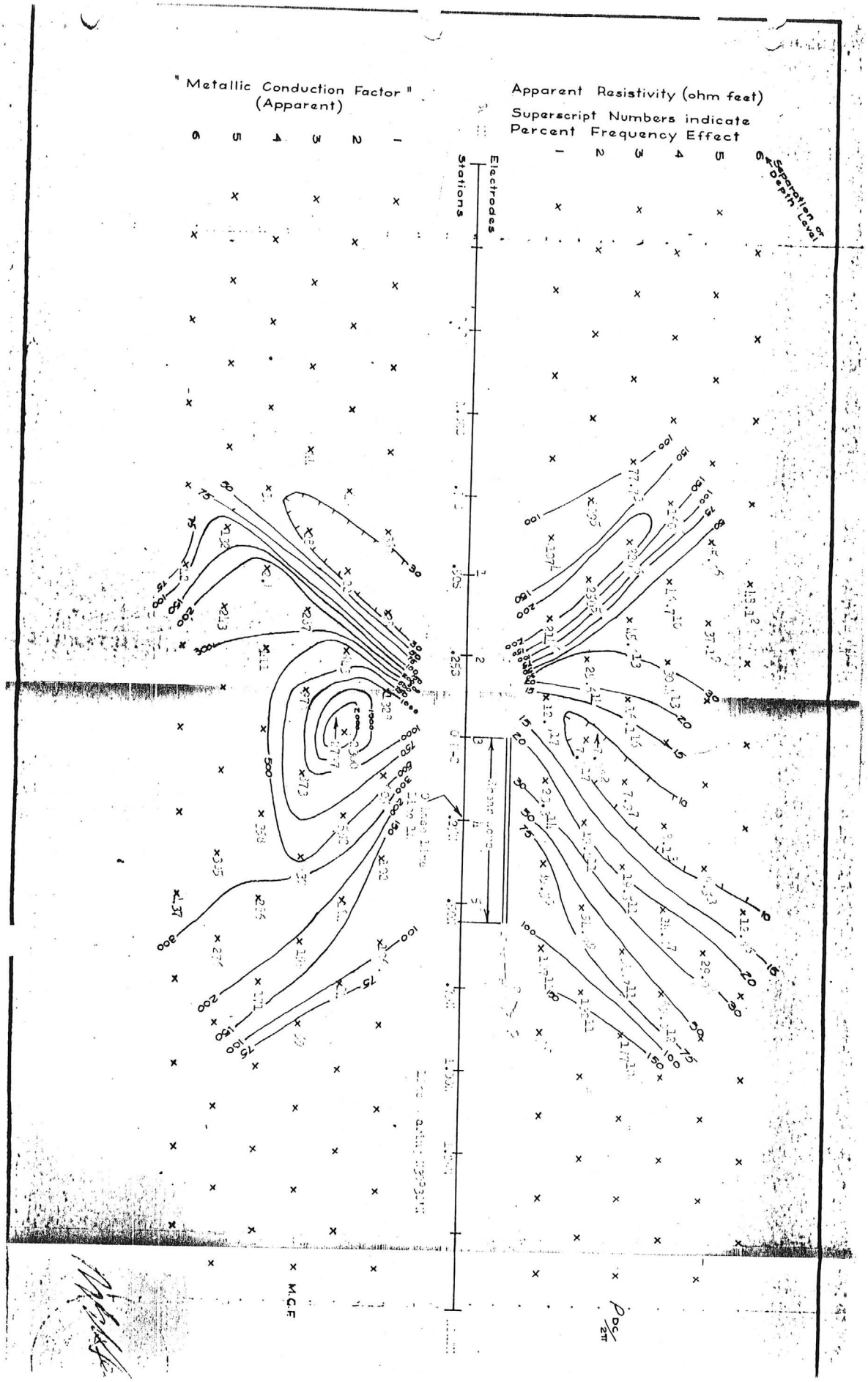
Believe they will be washed up by end of this month.

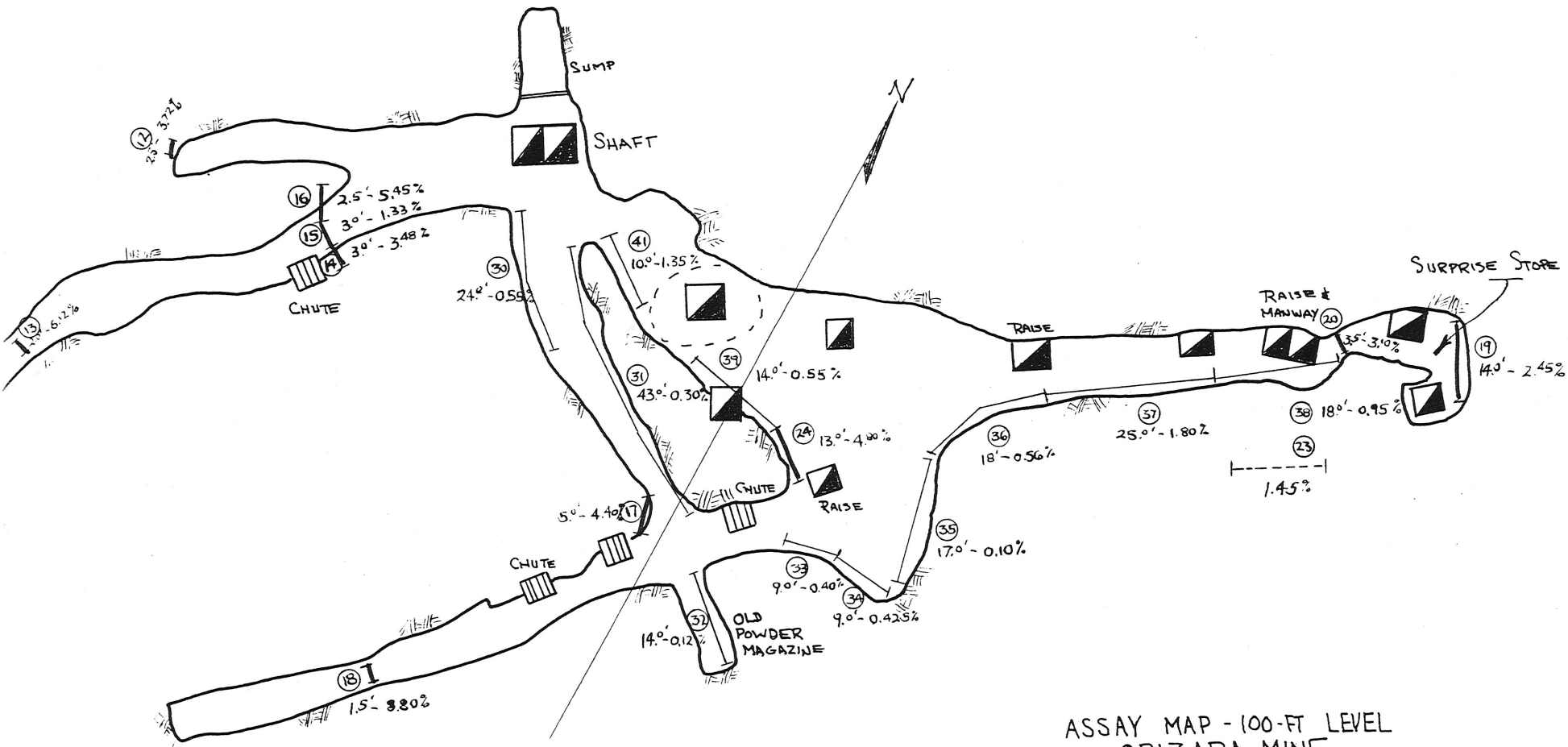

Laird
3066
Orizaba
Mine
Well
30
20
B
qd
mfc
ma
ms
mp1
mp2
mp3
Qc
Qal
nb
nri
np
Ta
Tal
Tfc
3522
3400
3632
3505
2808
2800
3000
LM 1446


IS 5
IS 4
IRISH STAG
IS 1
IS 2
IS 3
IS 23
IS 6
IS 22
IS 7
IS 21
IS 13
IS 20
IS 19
IS 18
IS 17
IS 16
IS 15
IS 14
IS – 33
IS 30
IS 29
IS 32
IS 24
IS 10
IS 8
IS 31
IS 28
IS 27
IS 26
IS 25
IS 12
IS 11
IS 9
N 6
N 3
N 2
N 5
N 4
N 1
N 9
N 8
N 7
N 10
N 11
N 12
N 16
N 17
N 20
N 13
N 22
N 18
N 26
N 24
N 14
N 19
N 21
N 25
N 15
N27
N 23
C 12
C 10
C 13
C 11
C 8
C 9
C1
C2
C3
C4
C 7
C 6
C5
K 9
K 10
K 11
K 12
K 13
K 14
K 15
K 8
K 7
K 4
K 5
K 6
K 1
K29
K 2
K 3
KY6
K17
K18
K 21
K 22
K 20
K 23
K 19
K 24
K 25
K 30
K 26
K 27
NORTH
Reservoir
Beaver County
Iron County
PRODUCTION INDUSTRIES INC.
CINA MINES – SULPHUR & MERCURY CLAIMS
IRON & BEAVER COUNTIES – UTAH.
LEGEND
IS = IRISH STAG CLAIMS 1 thru 33
N = NEPTUNE CLAIMS 1 thru 27
C = CINA CLAIMS 1 thru 13
K = KIM CLAIMS 1 thru 30
(MOUNTAIN SPRING PEAK)
SCALE 1:24000
CONTOUR INTERVAL 20 FEET
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS


"Metallic Conduction Factor"
(Apparent)
Apparent Resistivity (ohm feet)
Superscript Numbers indicate
Percent Frequency Effect
Separation or Depth Level
Electrodes
Stations
M.C.E


Separation or Depth Level
Apparent Resistivity (ohm feet)
Superscript Numbers indicate Percent Frequency Effect
ρDC/2π
Shear Zone
Electrodes
Stations
1.25S
1.00S
0.75S
0.50S
0.25S
0 N/S
0.25N
0.50N
0.75N
1.00N
1.25N
Base Line Line 6
"Metallic Conduction Factor" (Apparent)
M.C.F.


"Metallic Conduction Factor"
(Apparent)
Apparent Resistivity (ohm feet)
Superscript Numbers indicate
Percent Frequency Effect
Separation or Depth Level
Electrodes
Stations
M.G.F.

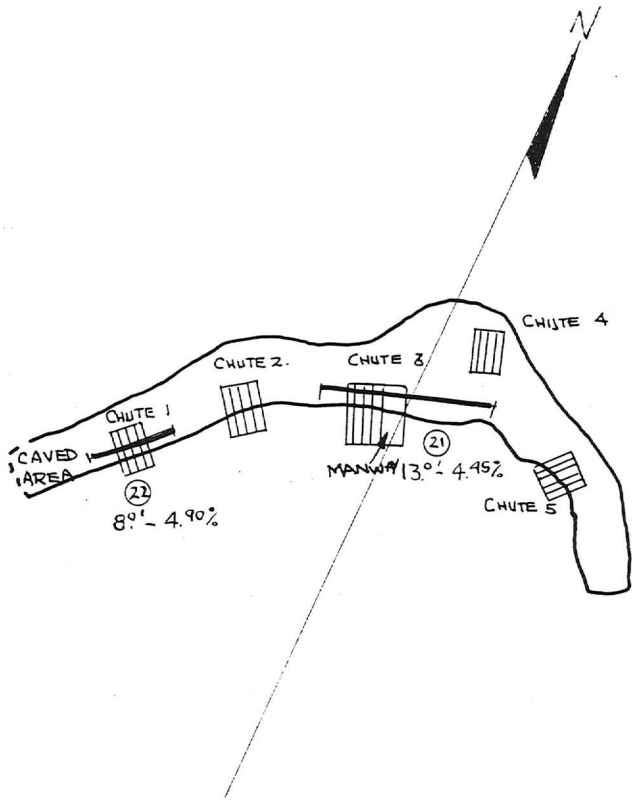


ASSAY MAP - 100-FT LEVEL
ORIZABA MINE

SCALE: 1" = 20'

⑯ - SAMPLE NO.
2.5' - 5.45%
WIDTH - % Cu

G T BATOR & ASSOCIATES
AUG. 1970

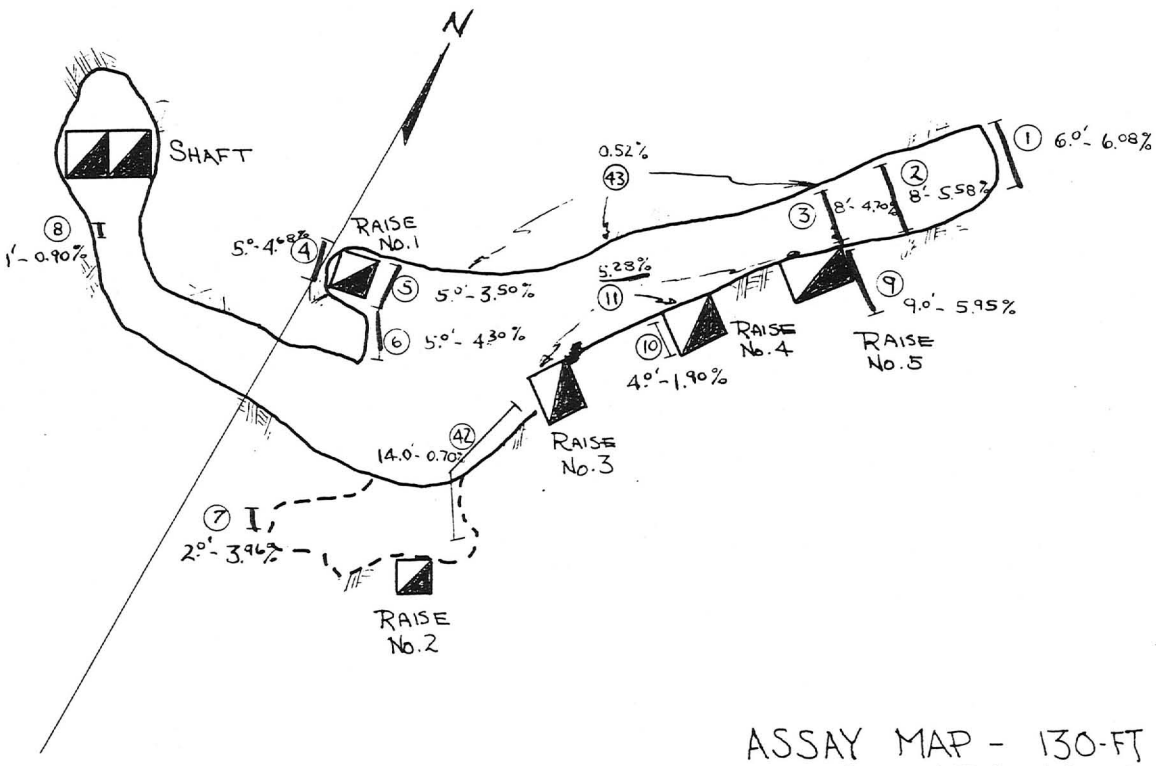


ASSAY MAP - 120-FT SUBLEVEL ORIZABA MINE

SCALE: 1" = 20'

O - SAMPLE NO.
13.0 - 4.45%
WIDTH - % Cu

G.T. BATOR & ASSOCIATES
AUG. 1970

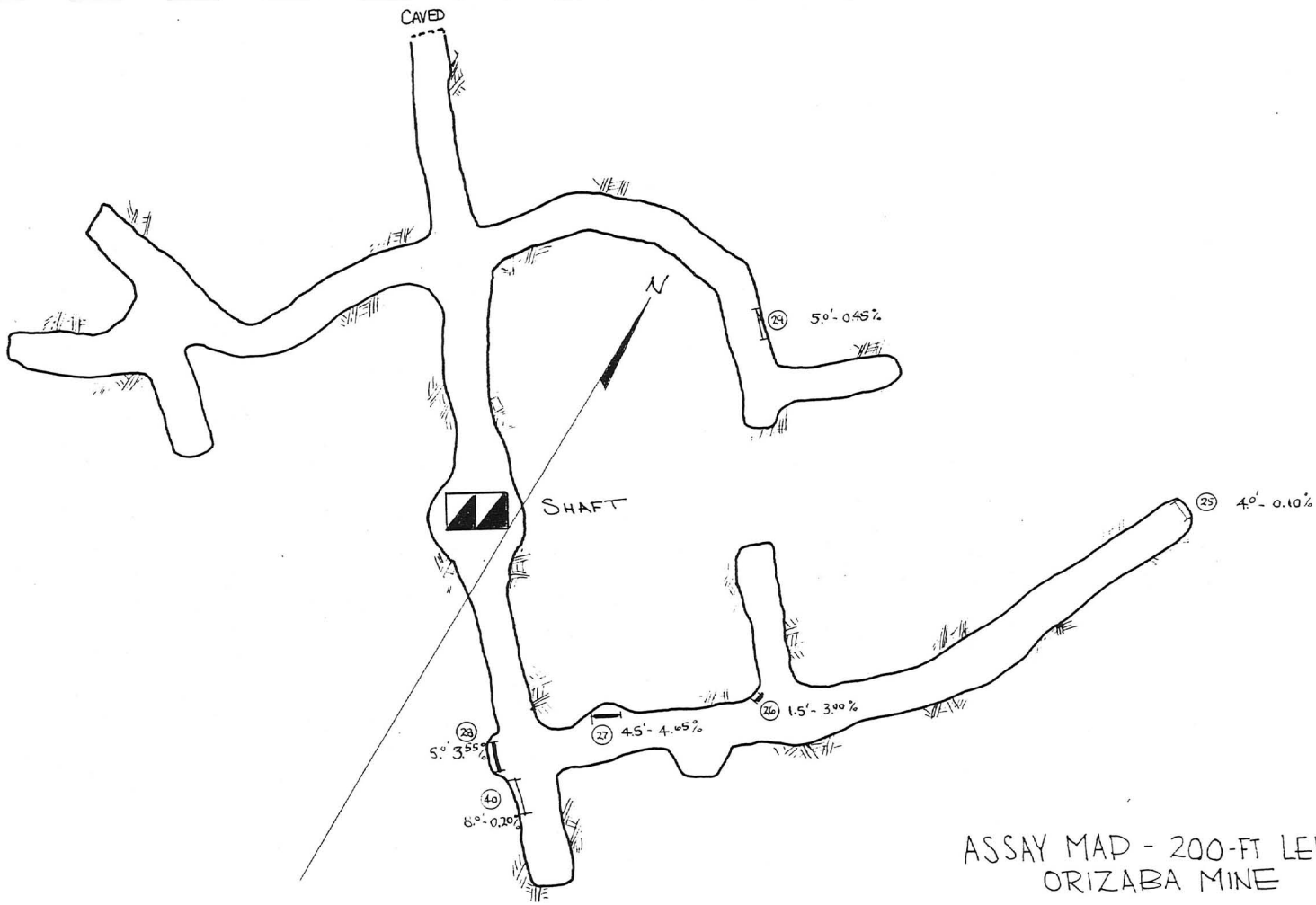


ASSAY MAP - 130-FT LEVEL
ORIZABA MINE

SCALE: 1" = 20'

⑨ - SAMPLE NO.
9.0' - 5.95%
WIDTH - % Cu

G.T. BATOR & ASSOCIATES
AUG. 1970

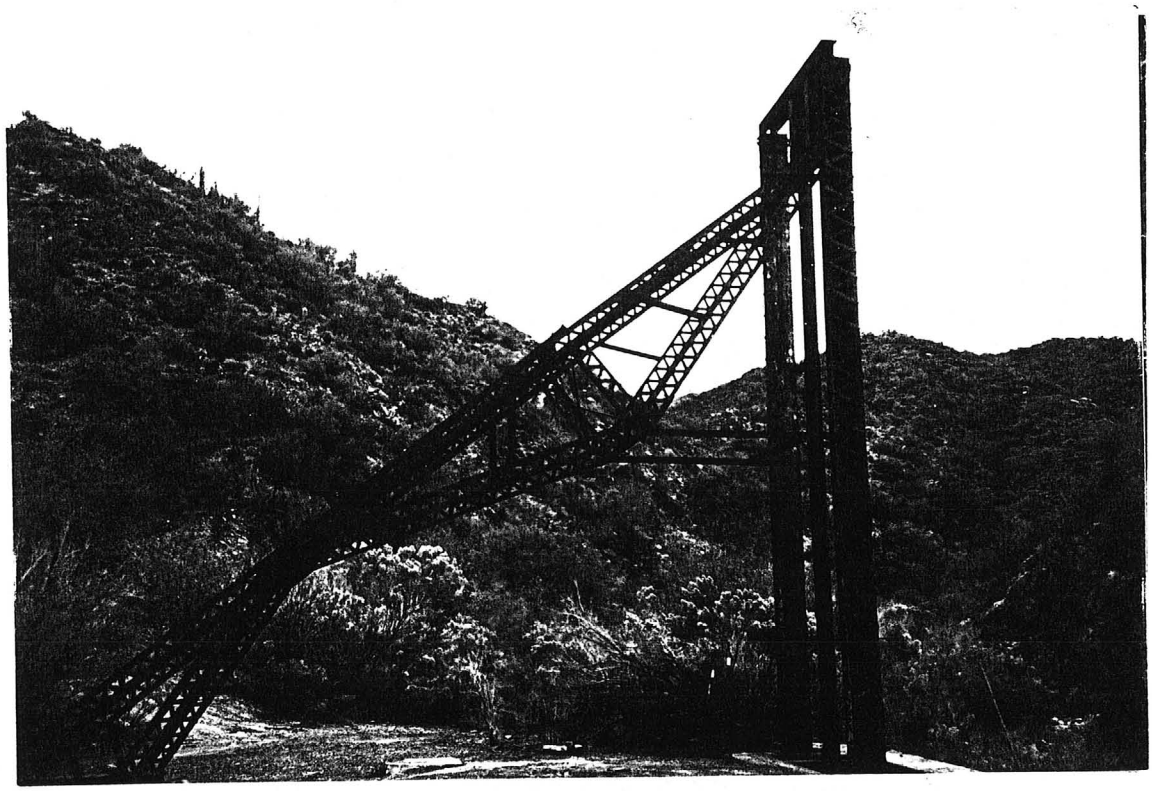


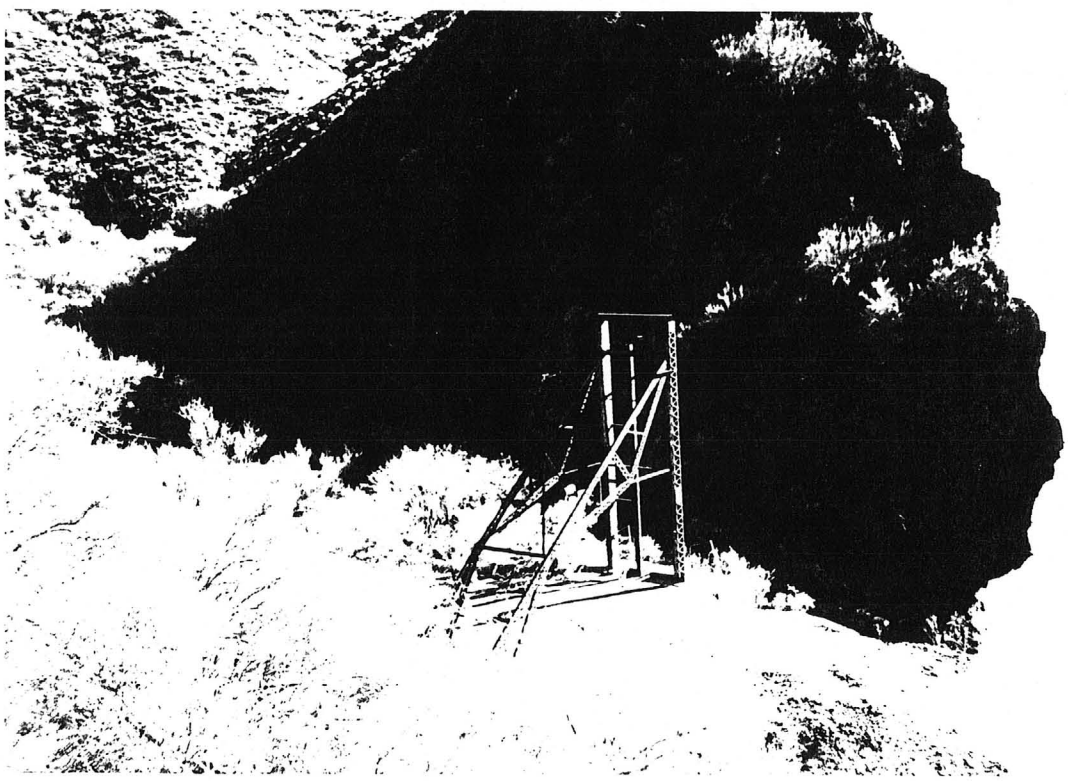
ASSAY MAP - 200-FT LEVEL
ORIZABA MINE

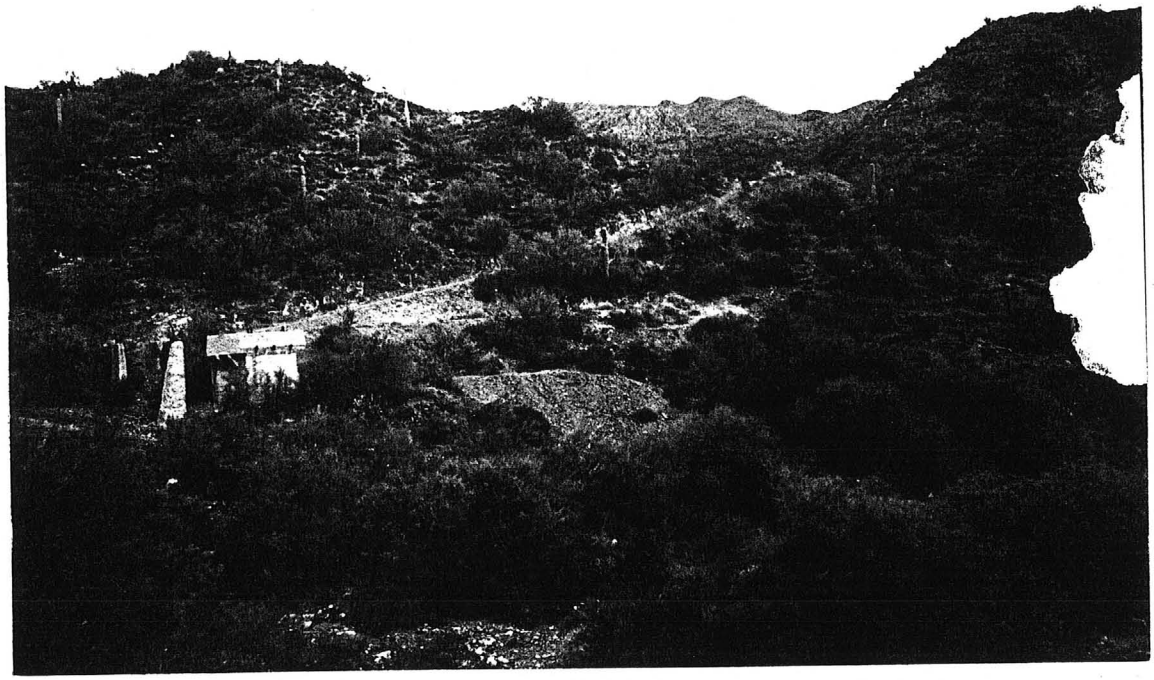
SCALE: 1" = 20'

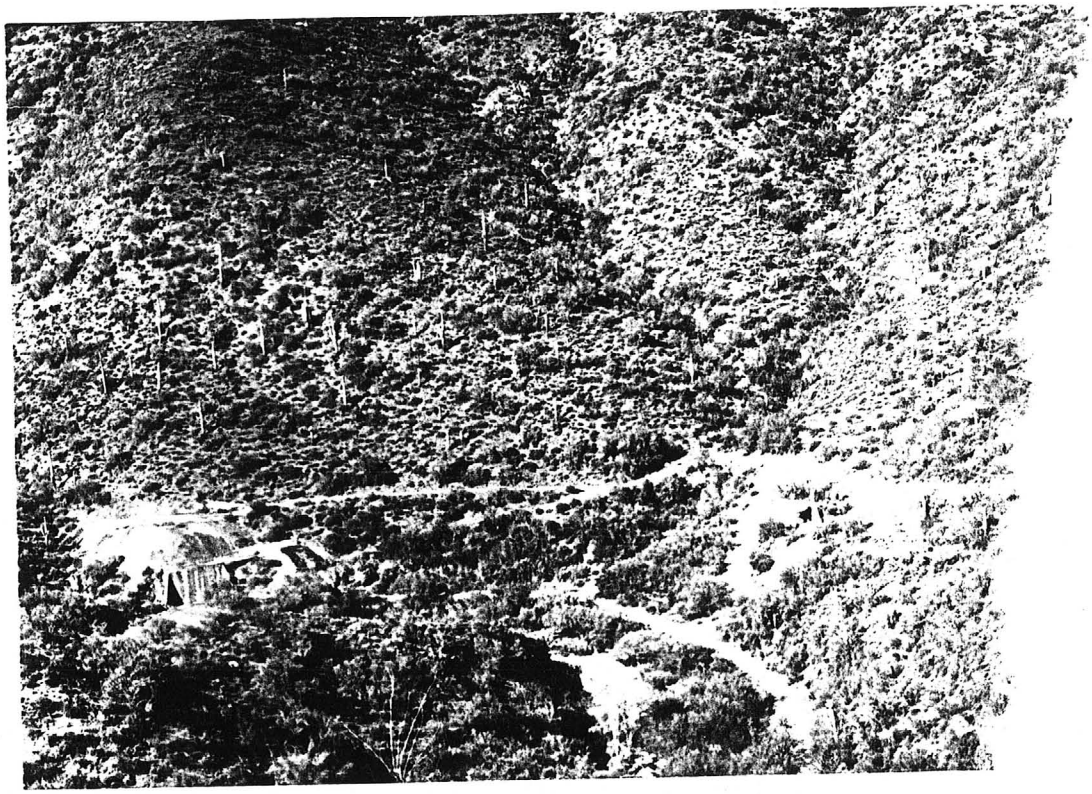
O - SAMPLE No.
4.5' - 4.65%
WIDTH - % Cu

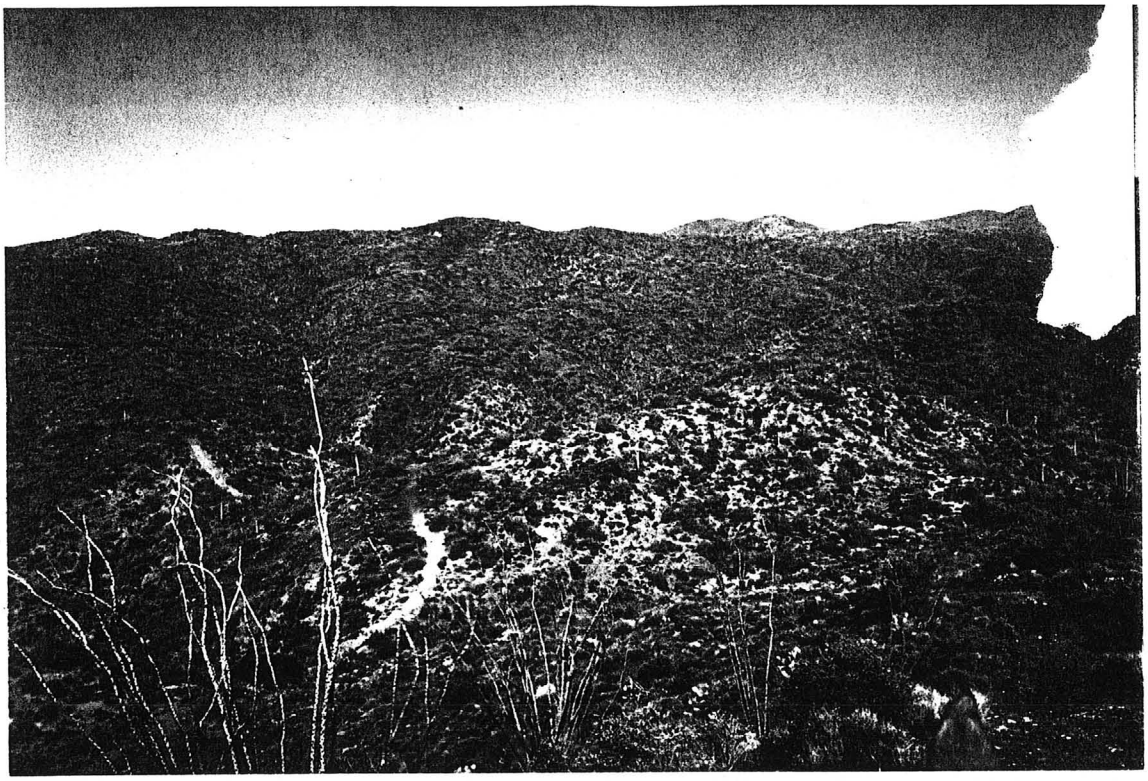
G.T. BATOR & ASSOCIATES
AUG. 1970

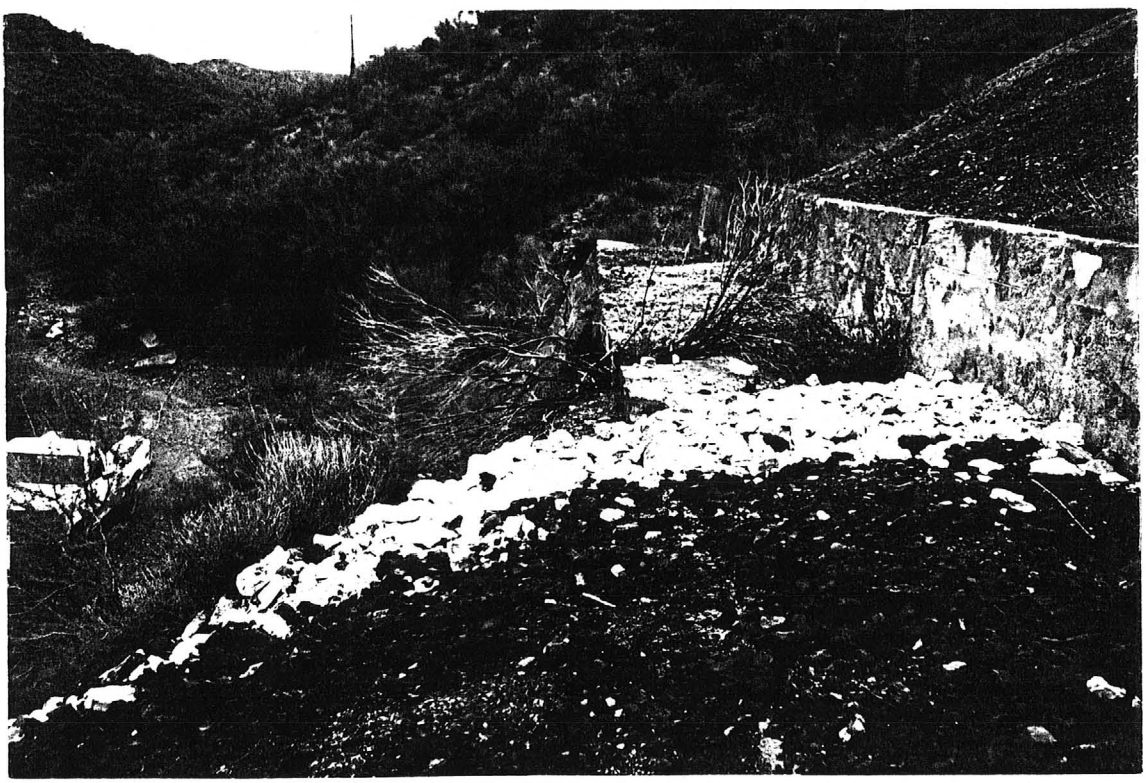


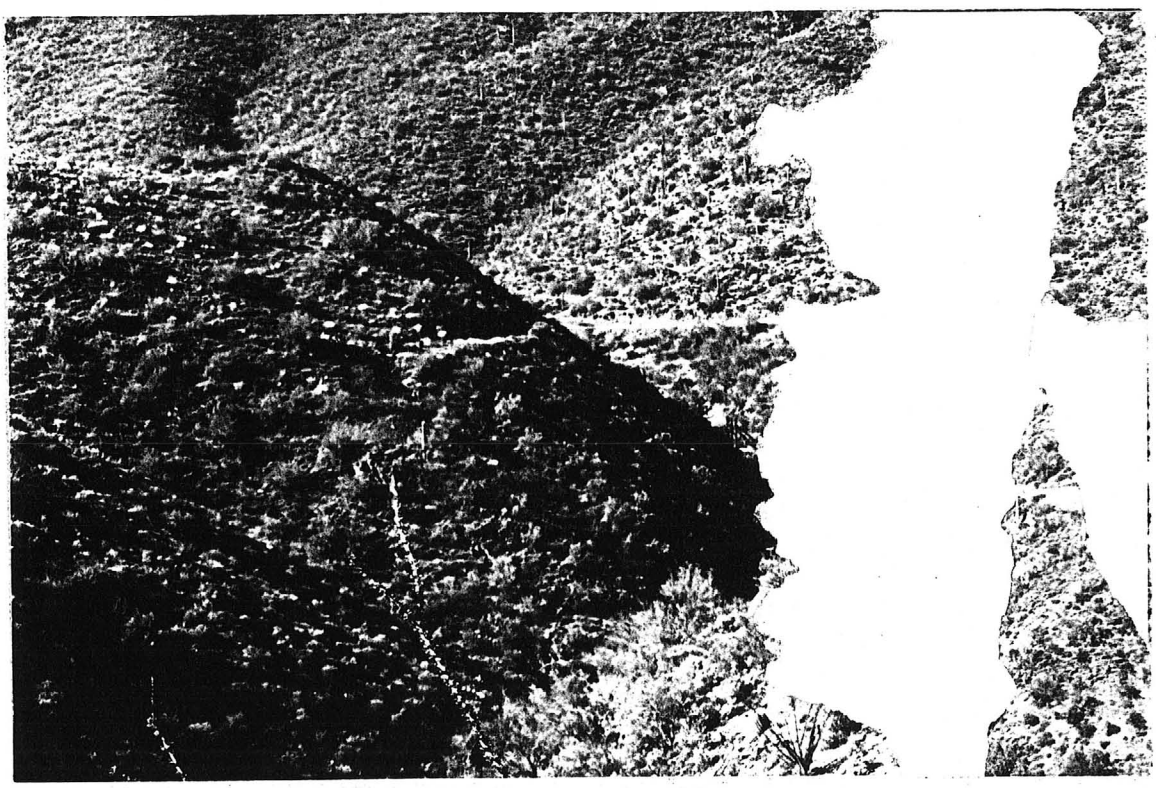


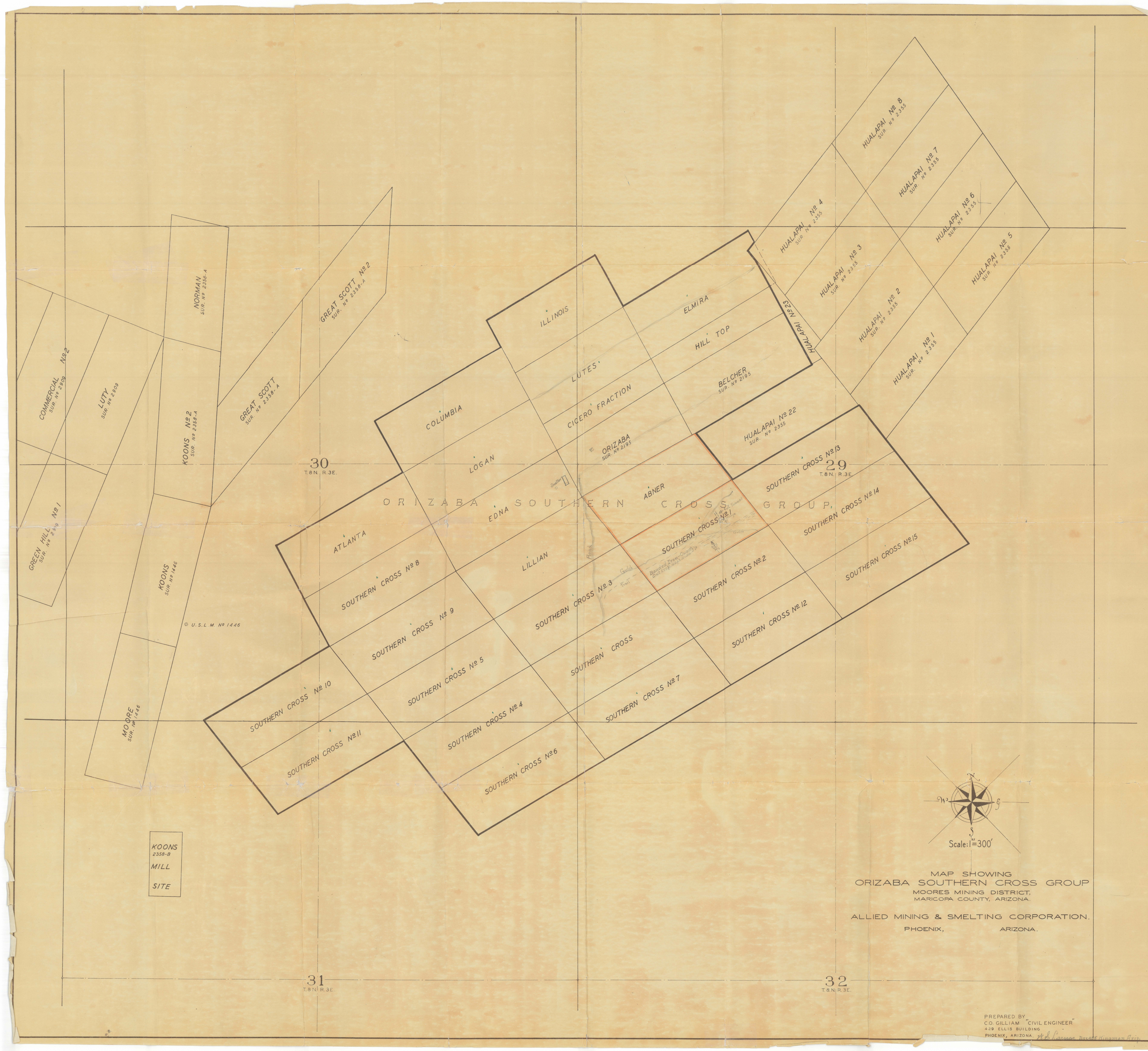












MAP SHOWING
ORIZABA SOUTHERN CROSS GROUP
MOORES MINING DISTRICT,
MARICOPA COUNTY, ARIZONA.
ALLIED MINING & SMELTING CORPORATION.
PHOENIX, ARIZONA.
Scale: 1" = 300'
ORIZABA SOUTHERN CROSS GROUP.
30
T.8N. R.3E.
29
T.8N. R.3E.
31
T.8N. R.3E.
32
T.8N. R.3E.
ILLINOIS
ELMIRA
LUTES
HILL TOP
CICERO FRACTION
BELCHER
SUR. Nº 2195
COLUMBIA
ORIZABA
SUR. Nº 2195
HUALAPAI Nº 22
SUR. Nº 2355
HUALAPAI Nº 23
LOGAN
ABNER
SOUTHERN CROSS Nº 13
SOUTHERN CROSS Nº 14
SOUTHERN CROSS Nº 15
EDNA
ATLANTA
SOUTHERN CROSS Nº 1
LILLIAN
SOUTHERN CROSS Nº 8
SOUTHERN CROSS Nº 2
SOUTHERN CROSS Nº 3
SOUTHERN CROSS Nº 9
SOUTHERN CROSS Nº 12
SOUTHERN CROSS
SOUTHERN CROSS Nº 5
SOUTHERN CROSS Nº 10
SOUTHERN CROSS Nº 7
SOUTHERN CROSS Nº 4
SOUTHERN CROSS Nº 11
SOUTHERN CROSS Nº 6
HUALAPAI Nº 8
SUR. Nº 2355
HUALAPAI Nº 7
SUR. Nº 2355
HUALAPAI Nº 6
SUR. Nº 2355
HUALAPAI Nº 5
SUR. Nº 2355
HUALAPAI Nº 4
SUR. Nº 2355
HUALAPAI Nº 3
SUR. Nº 2355
HUALAPAI Nº 2
SUR. Nº 2355
HUALAPAI Nº 1
SUR. Nº 2355
GREAT SCOTT Nº 2
SUR. Nº 2358-A
GREAT SCOTT
SUR. Nº 2358-A
NORMAN
SUR. Nº 2358-A
KOONS Nº 2
SUR. Nº 2358-A
COMMERCIAL Nº 2
SUR. Nº 2909
LUTY
SUR. Nº 2909
GREEN HILL Nº 1
SUR. Nº 2909
KOONS
SUR. Nº 1446
MOORE
SUR. Nº 1446
U.S.L.M. Nº 1446
KOONS
2358-B
MILL
SITE
PREPARED BY
C.O. GILLIAM "CIVIL ENGINEER"
429 ELLIS BUILDING
PHOENIX, ARIZONA.
H. S. Larssen Box 455 Kingman Ariz.