



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: 03-01-2013

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: HELVETIA

ALTERNATE NAMES:

PEACH MINE
PEACH ELGIN
HELVETIA WEST

PIMA COUNTY MILS NUMBER: 450

LOCATION: TOWNSHIP 18 S RANGE 15 E SECTION 15 QUARTER NE
LATITUDE: N 31DEG 52MIN 15SEC LONGITUDE: W 110DEG 47MIN 42SEC
TOPO MAP NAME: SAHUARITA - 15 MIN

CURRENT STATUS: EXP PROSPECT

COMMODITY:

COPPER OXIDE
COPPER SULFIDE

BIBLIOGRAPHY:

USGS BULL. 582, MIN. DEPOSITS SANTA RITA
MOUNTAIN, ARIZONA, (HIST, GEOL)
DMEA REPORT 4221 (COPPER) PEACH-ELGIN PROP.,
PIMA COUNTY, ARIZ.
PEIRCE, PARKER (AMAX) PER COMM WITH
R. SALISBURY (ORE RESERVE)
PAY DIRT, AUG. 24, 1970 (HISTORY)
ARCO-ANACONDA MERGER FILING, USBM FILES
WORLD MNG., FEB., 1977
ARTHUR HEYMAN, 1958, MS THESIS, GEOLOGY
PEACH-ELGIN CU DIST.
ADMMR HELVETIA FILE
SEE ADMMR PEACH FILE
SEE ADMMR ELGIN MINE GROUP FILE

HELVETIA MINING & MILLING CO.

PIMA COUNTY

USGS Bull. 1027 p. 315

HELVETIA DIST.
T18S, R16E, Sec 19

RI 5650 p. 109

T18S R16E Sec 15

Gunsight Project (file)

SEE: ABM # 148 p. 36

Anamax (file) ACTIVE FILE

MAPS - Upstairs in the ABM rolled file boxes - Under Helvetia Copper co. -
shows underground plans for Isle Royal, Copper World, Old Dick and Leader
plus several smaller workings on individual claims.

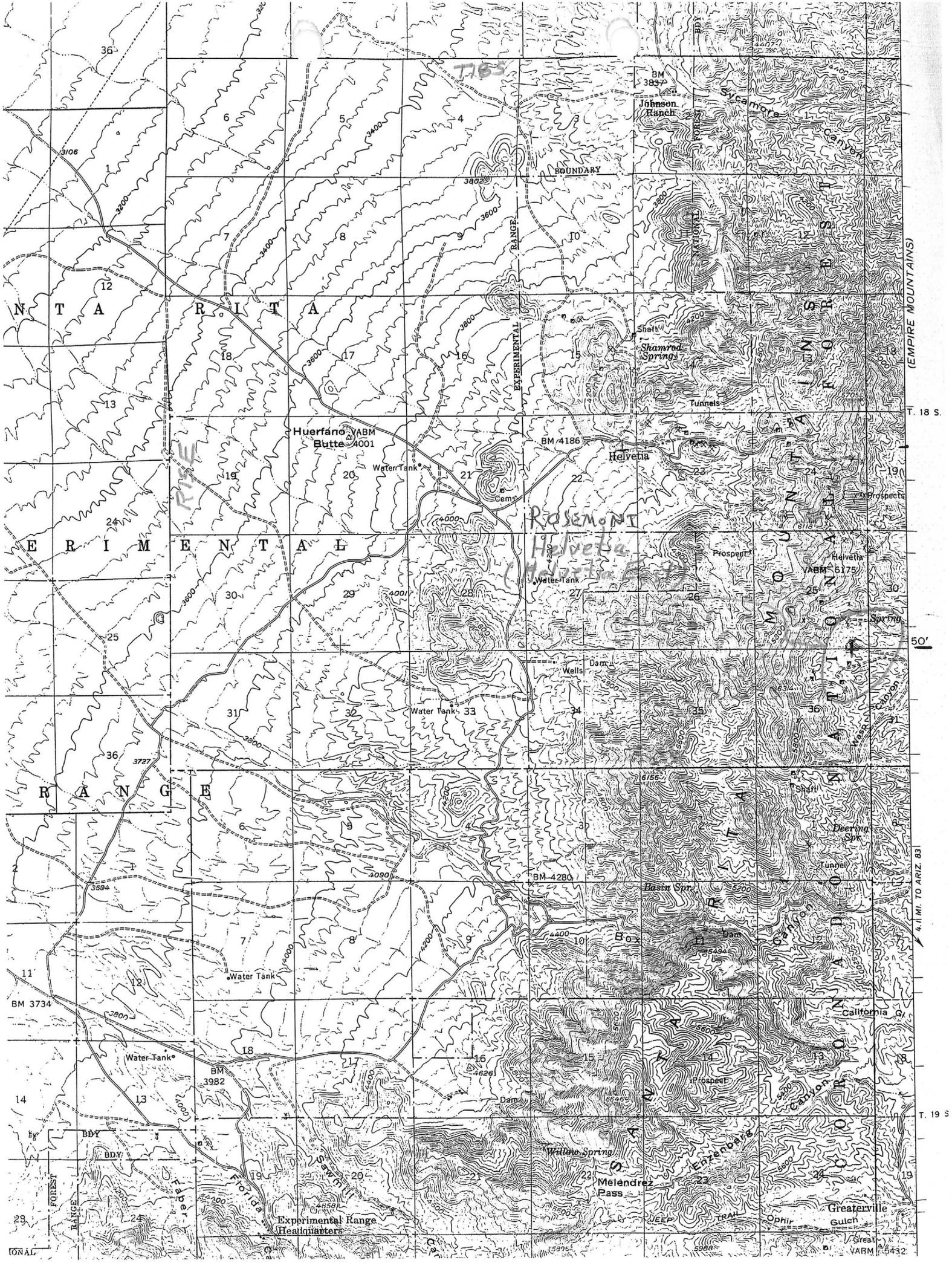
USGS Bul. 582 - several places in bulletin - p. 25, 98, 99, 110, 115, 116

USGS Bul. 430 - p1 154

Arizona Mining Journal 12/1/22, p. 16-18

Economic Geology, Volume 78, June-July 1983, Number 4, "Remote Sensing for Porphyry
Copper Deposits in Southern Arizona", by Michael J. Abrams, David Brown, Larry Lepley,
and Ray Sadowski; Pg. 591

SEE ROSEMONT FILE, AKA HELVETIA EAST



EMPIRE MOUNTAINS

T. 18 S.

50'

4.1 MI. TO ARIZ. 83

T. 19 S.

TOTAL

VABM 5432

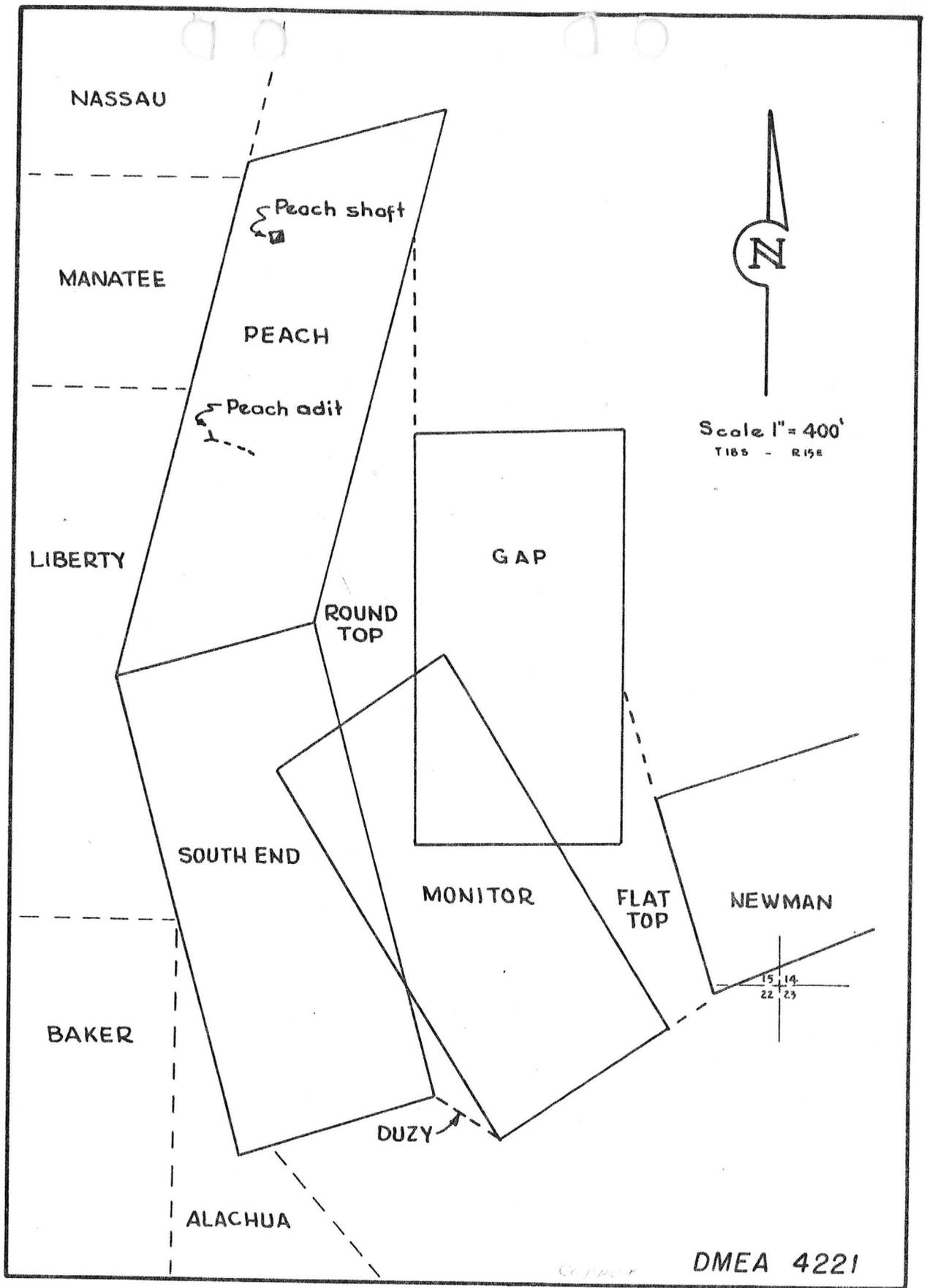


FIG. 2 CLAIM MAP, LEWISOHN COPPER CORP.
PIMA COUNTY, ARIZONA

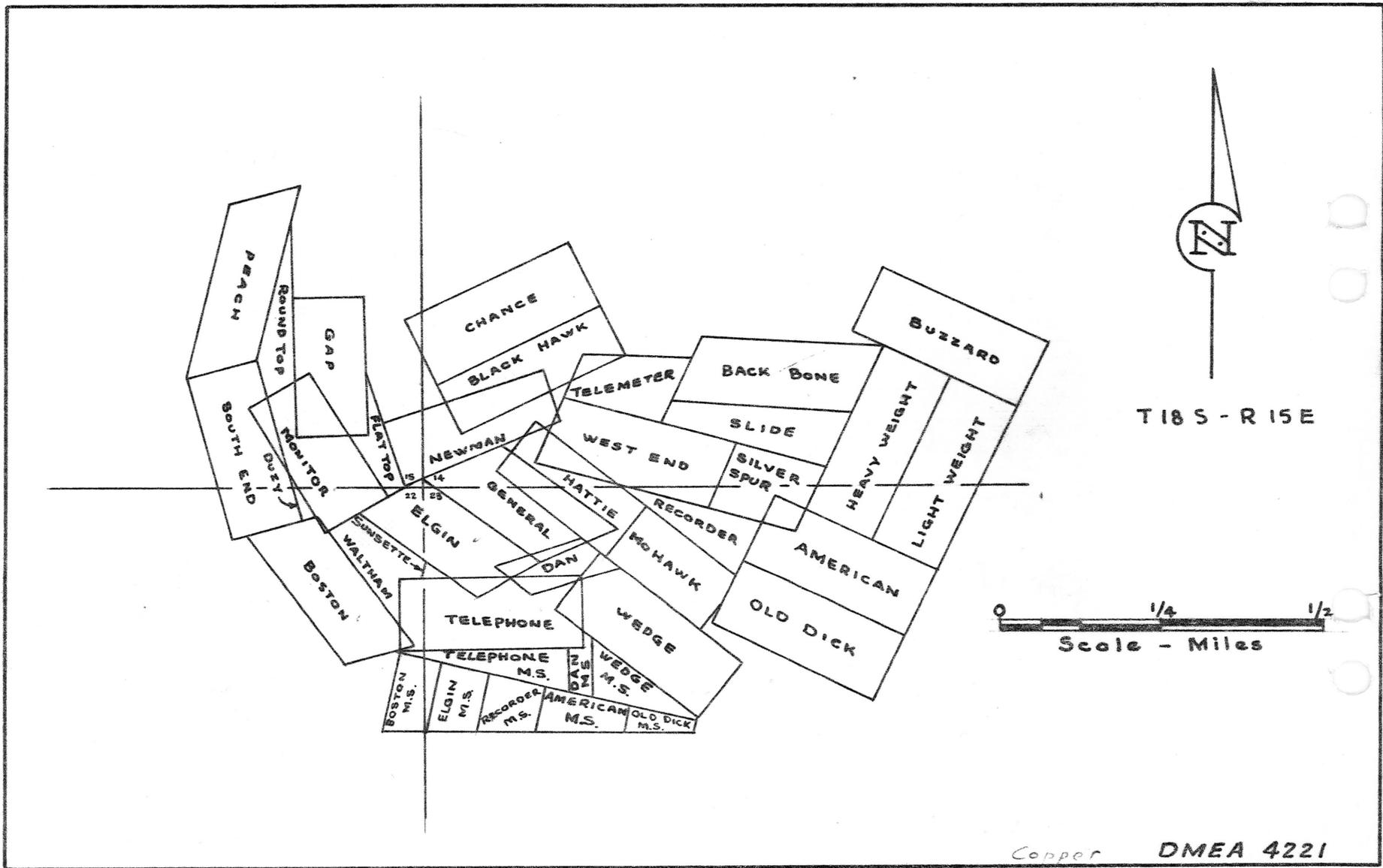


FIG. -2A-REVISED CLAIM MAP, LEWISOHN COPPER CORP.
PIMA COUNTY, ARIZONA

HELVETIA

PIMA COUNTY

HEM WR 12/4/87: Mr. Harold Metz of Genesis Real Estate & Development Co., Tucson, was contacted by phone regarding his company's listing for sale of the Helvetia (file) copper deposit. Mr. Metz stated that not only was the Helvetia (Rosemont) deposit for sale, but also the Peach-Elgin and the Broadtop Butte deposits. The asking price for the package is \$6 million without a royalty agreement. Data on the deposits may be available for the department's files-subject to approval by the owner. Further discussions are planned.

MG WR 3/4/88: The Helvetia copper deposit (file) Pima County, including the Peach Elgin, is owned by Lauderback & Pioneer Trust No. 11778, Tucson, Arizona. Genesis Real Estate Co has an exclusive sales contract for the property; contact Mr. Harold Metz, 325-5932. At present a potential buyer (ASARCO?) has a 45 day option.

MG WR 6/24/88: It has been reported that ASARCO (file) is purchasing the Helvetia copper deposit (file) Pima County. Thus purchase would include the Peach Elgin deposit.

NJN WR 7/22/88: Susan Howell, Bur of M, reported that Palo Seco owns the area to the west that was to be the millsite for the Helvetia Mine (file) Pima Co. This area is currently being sold as ranchettes in parcels of 40 acres. The Cienga and Empire Ranches which were to have been the water surces for the mine now belong to the BLM through land exchanges eith private parties.

D. G. Chilson Copper

Visited sometime in 1946 by Truman H. Kuhn
Copper, some molybdenum, tungsten is known to exist but no production reported.
For this report only the tunnel level could be examined and it was not possible
to estimate probable ore. However, several promising areas are suggested for
exploration and development.

Banner Mining Company, Box 5605, Tucson, Arizona, has option to purchase this property.
9-6-61

Banner's Helvetia copper molybdenum deposits 20 miles east of Twin Buttes appears to be
quite extensive though deeper and of lower grade than Twin Buttes, says Allan Bowman,
general manager of Banner Mining Co. Denver Record 6-19-69

NJN WR 12/12/86: Hilton Cass (c) Forest Service Zone Office, provided copies of claim
maps of the claims that Anamax tried to patent at Helvetia (file) Pima County and
a brief description of the geology on them. These will be added to the files.

NJN WR 12/19/87: Provided general information on the Helvetia deposit (file)
Pima County to Mr. Dan Aiken of Cyprus Sierrita. Cyprus Minerals (card) is
reviewing data on the property because it is considering purchase.

Arizona Copper Reserves and Resources
Compiled by the Arizona Dept. Mines and Mineral Resources

Printed: 1/28/2005
Last Updated: 1/1/1994

PEACH ELGIN

Alternate name(s):
Helvetia West

Company:
Asarco Inc.
2575 E. Camelback Road, Suite 500
Phoenix, AZ 85016-4240
602-977-6500
www.asarco.com

Location:
Township 18 S Range 15 E Sec. 15
Latitude/Longitude: 31.86 110.78
Twenty miles SE of Tucson in Santa Rita Mtns.

Mineralization type and reserve/resource:

Type	Tons (millions)	Grade (%)		
Mixed	23	0.76	TCu	(a)
Mixed	46	0.58	TCu	(b)
Mixed				

Reserve information and sources:

(a) 0.4% cutoff. (b) 0.3% cutoff. Mineralization is 60% sulfides.
Waste to ore ratio generally less than 3:1.
Geology of the Helvetia Copper Deposit - AZ, SME Preprint 92-61, 1992, Anzalone, S.A.
and Brown, R.L.

Comments:
Included in sale to Asarco of Helvetia in 1988.

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Date: 6/11/45
Name of Mine:
Owner or Operator:
Address:
Mine Location:

Filing Information

File System:
File No.:
This chart to be used for gallons of gasoline required per month.

PRESENT OPERATIONS: (check X)

Production: [checked]; Development: ; Financing: ; Sale of mine: ;
Experimental (sampling): ; Owner's occasional trip: ;
Other (specify):

PRODUCTION: Past and Future.

Tons

Approx. tons last 3 months:
Approx. present rate per 3 months:
Anticipated rate next 3 months:
If in distant future check (X) here:

EQUIPMENT OPERATED:

Table with 4 columns: Type, Quantity or Horse Power, Miles or Hours Per Month, Gallons Required Per Month. Includes handwritten entry '3900' for Ore Hauling Trucks and a note 'Additional gas for hauling'.

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

Copper

REMARKS:

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By:

Handwritten signature

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Date: 1/27/45

Name of Mine: ✓ Helvetia

Owner or Operator: Mrs R B Blankenship

Address: 298 Granada St Tucson

Mine Location: Helvetia Mining Dist - 35 mi S Tucson

Filing Information

File System:

File No:

This chart to be used for gallons of gasoline required per month.

PRESENT OPERATIONS: (check X)

Production ; Development:

Financing:

Sale of mine:

Experimental (sampling):

Owner's occasional trip:

Other (specify):

PRODUCTION: Past and Future.

Tons

Approx. tons last 3 months:

Approx. present rate per 3 months:

Anticipated rate next 3 months: 400 tons per mo.

If in distant future check (X) here:

EQUIPMENT OPERATED:

Type	Quantity or Horse Power	Miles or Hours Per Month	Gallons Required Per Month
Personal Cars	<u>41 Stude</u>	<u>2000</u>
Light or Service Trucks
Ore Hauling Trucks
Compressors
Other Mine or Mill Eqpt.

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

✓ Copper

REMARKS:

This mine which has been a good producer is resuming operations under owners management

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By: [Signature]

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Date..... 1/27/45

Name of Mine..... Helvetia

Owner or Operator..... Mrs R B Blankenship

Address..... 798 Granada St

Mine Location..... Helvetia Mng Dist

Filing Information

File System.....

File No.....

This chart to be used for gallons of gasoline required per month.

PRESENT OPERATIONS: (check X)

Production ; Development.....; Financing.....; Sale of mine.....;

Experimental (sampling).....; Owner's occasional trip.....;

Other (specify).....

PRODUCTION: Past and Future.

Tons

Approx. tons last 3 months

Approx. present rate per 3 months

Anticipated rate next 3 months

If in distant future check (X) here

EQUIPMENT OPERATED:

Type	Quantity or Horse Power	Miles or Hours Per Month	Gallons Required Per Month
Personal Cars
Light or Service Trucks
Ore Hauling Trucks
Compressors
<u>Hoist</u> Other Mine or Mill Eqpt.	<u>800</u>

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

Copper

REMARKS:

Operation being resumed under
owner's management.

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By George A. Callan

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Date: 1/27/44
Name of Mine: Helvetia
Owner or Operator: B.H. Martin
Address: 646 E 5th St Tucson
Mine Location: Helvetia Mng Dist

Filing Information
File System
File No.
This chart to be used for gallons of gasoline required per month.
35 mi South of Tucson

PRESENT OPERATIONS: (check X)

Production [checked]; Development; Financing; Sale of mine;
Experimental (sampling); Owner's occasional trip;
Other (specify)

PRODUCTION: Past and Future.

Tons

Approx. tons last 3 months
Approx. present rate per 3 months: 400 per mo
Anticipated rate next 3 months
If in distant future check (X) here

EQUIPMENT OPERATED:

Table with 4 columns: Type, Quantity or Horse Power, Miles or Hours Per Month, Gallons Required Per Month. Includes entries for Personal Cars (40 Ford, 7000 miles) and other equipment.

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

Copper

REMARKS:

Supt of operations resumed at this property

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By: George A. Ballan

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Date: 2/17/45
Name of Mine: Helocetra
Owner or Operator: Fernando Fdez
Address: 1702 D 9th Ave Tucson
Mine Location: 15 mi east Sahaurita

Filing Information

File System:
File No:
This chart to be used for gallons of gasoline required per month.

PRESENT OPERATIONS: (check X)

Production: [checked]; Development; Financing; Sale of mine;
Experimental (sampling); Owner's occasional trip;
Other (specify):

PRODUCTION: Past and Future.

Tons

Approx. tons last 3 months
Approx. present rate per 3 months
Anticipated rate next 3 months
If in distant future check (X) here

EQUIPMENT OPERATED:

Table with 4 columns: Type, Quantity or Horse Power, Miles or Hours Per Month, Gallons Required Per Month. Includes entries for Personal Cars, Light or Service Trucks, Ore Hauling Trucks, Compressors, and Other Mine or Mill Eqpt.

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

Copper

REMARKS:

This man is working at Helocetra mines and is hauling other employees to work

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By:

[Signature]

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Date: 1/30/45
Name of Mine:
Owner or Operator: Mrs. B. Blankenship
Address: 298 N. Guadalupe Street
Mine Location: Selochita

Filing Information

File System:
File No.:
This chart to be used for gallons of gasoline required per month.

PRESENT OPERATIONS: (check X)

Production; Development; Financing; Sale of mine;
Experimental (sampling); Owner's occasional trip;
Other (specify)

PRODUCTION: Past and Future.

Tons

Approx. tons last 3 months
Approx. present rate per 3 months
Anticipated rate next 3 months: 3000
If in distant future check (X) here

EQUIPMENT OPERATED:

Table with 4 columns: Type, Quantity or Horse Power, Miles or Hours Per Month, Gallons Required Per Month. Includes handwritten entries for Compressors (2) and Other Mine or Mill Eqpt. (2400 gtr).

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

Copper

REMARKS:

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By:

Handwritten signature of Joseph P. ...

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Date..... 4/20/45
 Name of Mine..... Helena
 Owner or Operator..... Robert Romer
 Address..... 505 W. 10th St. Tucson
 Mine Location..... Helena, Mont.

Filing Information

File System.....
 File No.....
 This chart to be used for gallons of gasoline required per month.

PRESENT OPERATIONS: (check X)

Production..........; Development.....; Financing.....; Sale of mine.....;
 Experimental (sampling).....; Owner's occasional trip.....;
 Other (specify).....

PRODUCTION: Past and Future.

Tons

Approx. tons last 3 months.....
 Approx. present rate per 3 months.....
 Anticipated rate next 3 months.....
 If in distant future check (X) here.....

EQUIPMENT OPERATED:

Type	Quantity or Horse Power	Miles or Hours Per Month	Gallons Required Per Month
Personal Cars	<u>1936 Ford</u>	<u>1870</u>
Light or Service Trucks
Ore Hauling Trucks
Compressors
Other Mine or Mill Eqpt.

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

Copper

REMARKS:

This mine is a heavy producer. Romer employs hauls other employees to work. No quarters available in district.

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By..... [Signature]

October 21, 1942

Mr. R. A. Burney
Helvetia Mining & Milling Co.
Tucson, Arizona

Dear Mr. Burney:

We note in recent correspondence, relative to your operation, that there is some possibility of your shutting down. If this is the case, have you considered possibility of turning the property over to others who might be willing to operate it?

We have inquiries from several established mining companies relative to their acquisition of new properties, particularly operators previously mining and milling gold ores, who would like to find a base metal property on which to move their equipment and personnel.

If you have any ideas along this line we would be pleased to hear from you and will present your proposal to one or two interested organizations whose operating reputation is beyond question.

Very truly yours,

Earl F. Hastings
Assistant Director
Projects Engineer

EFH:BA

Tucson, Arizona

October 20, 1942

Major General A. M. Tuthill
State Director of Selective Service
3018 Professional Building
Phoenix, Arizona

Dear General Tuthill:

I am enclosing copies of two memorandum reports from George A. Ballam who is field engineer for the Department of Mineral Resources in the southern district.

The action of the Local Board on Selective Service has resulted in the shutting down of the mill operations of the Helvetia Mining & Milling Company and means the cutting off of a monthly production of 100,000 pounds of copper. We sent notices to all mining companies of a bulletin from your office which instructed the Local Boards to reconsider the classification of all key men in the mining industry. From the action indicated in the two memorandum reports it would seem as though proper consideration is not being given to the mining industry. At least not in this particular case.

We are doing our utmost to step up production and this action and the action of the Local Florence board does not appear to be in line with the general war efforts.

Mr. Burney, the manager of the Helvetia Mining & Milling Company has on advise from our Department been considering the application for an RFC General Mine Loan to more than double the production of copper from his property. In view of the action and conditions at this property it looks as though we are about to lose the present 100,000 pounds of copper production per month and also an additional potential tonnage of the same amount.

I would appreciate knowing just what action or what assistance we can be in trying to get this situation in line. With best wishes and kindest regards.

Very truly yours,

J. S. Coupal, Director

October 21, 1942

MEMORANDUM

✓
HELVETIA MINING & MILLING CO.
R. A. BURNEY, MANAGER.

TO:: George Ballam

FROM: J. S. Coupal

I received your two memorandums, one on the Mine Freezing Order and the other on deferment for miners regarding Mr. Burney of the Helvetia Mining Company.

On the deferment question for Mr. Burney I immediately contacted Colonel Laird and submitted copies of your report. Today I discussed the question with Colonel Duffy who had personally investigated Mr. Burney's case. He consulted with the manager of the local board at Florence and was informed that Mr. Burney had been advised that he was in Class 3-A, and that reconsideration of his case would not come before the local board for another 90 days and at that time he would undoubtedly be reclassified as 2-B, which means that he would be definitely deferred from draft.

Colonel Duffy criticized us severely for having reported as we had on the transfer from 3-A to 1-A. I am afraid Mr. Burney misunderstood the instructions from Mr. Fulbright, the local board member of the Selective Service at Florence. The local board are paying strict attention to the orders from headquarters on deferment of miners. It is going to be quite necessary that we check carefully all statements made in such instances as Mr. Burney's and see to it that we get authentic reports on such cases. If we are to do any work toward helping in such instances it may be necessary to 'phone the local board and see that the statements made are correct; otherwise, when we make a kick and we can not substantiate the statements made we are putting ourselves in a position where our complaints will not be heeded.

Regarding the Mine Freezing Order--we know that the freezing directive has backfired in a number of instances. It is a problem to keep labor on the job right now and it is up to the individual manager to do their utmost to keep up production. If the men are soldiering or are not putting in regular hours, it is up to men like Mr. Burney to go to the U. S. Employment Service and try to get men who will stay on the job. I will say that the draft boards are not ignoring the mine deferment requests.

I hope that Mr. Burney can see his way clear to get labor to continue operations and I do feel that he can be assured that his deferment will hold as long as he is producing copper.

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Date: 6/11/45
Name of Mine: Helvetia
Owner or Operator: Ramsay Bros
Address: 298 E. Wackerly, Tucson
Mine Location: Healdsra

Filing Information

File System:
File No.:
This chart to be used for gallons of gasoline required per month.

PRESENT OPERATIONS: (check X)

Production [checked]; Development; Financing; Sale of mine;
Experimental (sampling); Owner's occasional trip;
Other (specify)

PRODUCTION: Past and Future.

Tons

Approx. tons last 3 months
Approx. present rate per 3 months
Anticipated rate next 3 months
If in distant future check (X) here

EQUIPMENT OPERATED:

Additional gas for hauling

Table with 4 columns: Type, Quantity or Horse Power, Miles or Hours Per Month, Gallons Required Per Month. Includes rows for Personal Cars, Light or Service Trucks, Ore Hauling Trucks, Compressors, and Other Mine or Mill Eqpt. Handwritten '3900' in the Gallons Required column for Ore Hauling Trucks.

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

Copper

REMARKS:

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By:

George W. Callan

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Date..... <u>1/27/45</u> Name of Mine..... <u>✓ Helvetia</u> Owner or Operator..... <u>Mrs R B Blankenship</u> Address..... <u>298 Granada St, Tucson</u> Mine Location..... <u>Helvetia Mining Dist - 35 mi S Tucson</u>	<p style="text-align: center; margin-top: 0;">Filing Information</p> File System..... File No..... This chart to be used for gallons of gasoline required per month.
---	--

PRESENT OPERATIONS: (check X)

Production.....; Development.....; Financing.....; Sale of mine.....;
 Experimental (sampling).....; Owner's occasional trip.....;
 Other (specify).....

PRODUCTION: Past and Future.

Tons

Approx. tons last 3 months
 Approx. present rate per 3 months
 Anticipated rate next 3 months 400 tons per mo.
 If in distant future check (X) here

EQUIPMENT OPERATED:

Type	Quantity or Horse Power	Miles or Hours Per Month	Gallons Required Per Month
Personal Cars	<u>41 Stude</u>	<u>2000</u>
Light or Service Trucks
Ore Hauling Trucks
Compressors
Other Mine or Mill Eqpt.

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

✓ Copper

REMARKS:

This mine which has been a good
producer is resuming operations under
owner's management

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By..... George Bellan

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Date..... 1/27/45
 Name of Mine..... Helvetia
 Owner or Operator..... Mrs R B Blankenship
 Address..... 798 Granada St
 Mine Location..... Helvetia Mng Dist

Filing Information

File System.....
 File No.....
 This chart to be used for gallons of gasoline required per month.

PRESENT OPERATIONS: (check X)

Production ; Development.....; Financing.....; Sale of mine.....;
 Experimental (sampling).....; Owner's occasional trip.....;
 Other (specify).....

PRODUCTION: Past and Future.

Tons

Approx. tons last 3 months
 Approx. present rate per 3 months
 Anticipated rate next 3 months
 If in distant future check (X) here

EQUIPMENT OPERATED:

Type	Quantity or Horse Power	Miles or Hours Per Month	Gallons Required Per Month
Personal Cars
Light or Service Trucks
Ore Hauling Trucks
Compressors
<u>Hoist</u> Other Mine or Mill Eqpt.	<u>800</u>

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

Copper

REMARKS:

Operation being resumed under
outsider's management.

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By.....

George A. Ballen

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Date..... 1/27/48
 Name of Mine..... Helvetia
 Owner or Operator..... B H Martin
 Address..... 646 E 5th St Tucson
 Mine Location..... Helvetia Mng Dist 35 mi South of Tucson

Filing Information

File System.....
 File No.....
 This chart to be used for gallons of gasoline required per month.

PRESENT OPERATIONS: (check X)

Production.....; Development.....; Financing.....; Sale of mine.....;
 Experimental (sampling).....; Owner's occasional trip.....;
 Other (specify).....

PRODUCTION: Past and Future.

Tons

Approx. tons last 3 months
 Approx. present rate per 3 months
 Anticipated rate next 3 months 400 per mo
 If in distant future check (X) here

EQUIPMENT OPERATED:

Type	Quantity or Horse Power	Miles or Hours Per Month	Gallons Required Per Month
Personal Cars	<u>40 Ford</u>	<u>7000</u>
Light or Service Trucks
Ore Hauling Trucks
Compressors
Other Mine or Mill Eqpt.

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

..... ✓ Copper

REMARKS:

..... Supt of operations resumed at this property

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By.....

George A Ballan

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Date..... 2/17/45

Name of Mine..... Helvetra

Owner or Operator..... Fernando Fierco

Address..... 1702 S 9th Ave Tucson

Mine Location..... 15 mi east Sahaurita

Filing Information

File System.....

File No.....

This chart to be used for gallons of gasoline required per month.

PRESENT OPERATIONS: (check X)

Production.....; Development.....; Financing.....; Sale of mine.....;

Experimental (sampling).....; Owner's occasional trip.....;

Other (specify).....

PRODUCTION: Past and Future.

Tons

Approx. tons last 3 months

Approx. present rate per 3 months

Anticipated rate next 3 months

If in distant future check (X) here

EQUIPMENT OPERATED:

Type	Quantity or Horse Power	Miles or Hours Per Month	Gallons Required Per Month
Personal Cars	<u>4</u>	<u>1800</u>
Light or Service Trucks
Ore Hauling Trucks
Compressors
Other Mine or Mill Eqpt.

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

Copper

REMARKS:

This man is working at Helvetra mines and is hauling other employees to work

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By.....

George H. Bellan

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Date..... *1/30/45*
 Name of Mine..... *Helopha*
 Owner or Operator..... *Wm B Blankenship*
 Address..... *298 N. Guadalupe Street*
 Mine Location..... *Bellevue*

Filing Information

File System.....
 File No.....
 This chart to be used for gallons of gasoline required per month.

PRESENT OPERATIONS: (check X)

Production.....; Development.....; Financing.....; Sale of mine.....;
 Experimental (sampling).....; Owner's occasional trip.....;
 Other (specify).....

PRODUCTION: Past and Future.

Tons

Approx. tons last 3 months
 Approx. present rate per 3 months
 Anticipated rate next 3 months *3000*
 If in distant future check (X) here

EQUIPMENT OPERATED:

Type	Quantity or Horse Power	Miles or Hours Per Month	Gallons Required Per Month <i>gtr</i>
Personal Cars
Light or Service Trucks
Ore Hauling Trucks
<i>2</i> Compressors
<i>Hoist</i> Other Mine or Mill Eqpt. <i>2400 gtr</i>

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

✓ Copper

REMARKS:

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By..... *[Signature]*

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Filing Information

Date..... 4/30/45
 Name of Mine..... Helvetic
 Owner or Operator..... Robert Romero
 Address..... 509 W. D. St Tucson
 Mine Location..... Helvetic Dist

File System.....
 File No.....
 This chart to be used for gallons of gasoline required per month.

PRESENT OPERATIONS: (check X)

Production..........; Development.....; Financing.....; Sale of mine.....;
 Experimental (sampling).....; Owner's occasional trip.....;
 Other (specify).....

PRODUCTION: Past and Future.

Tons

Approx. tons last 3 months
 Approx. present rate per 3 months
 Anticipated rate next 3 months
 If in distant future check (X) here

EQUIPMENT OPERATED:

Type	Quantity or Horse Power	Miles or Hours Per Month	Gallons Required Per Month
Personal Cars	<u>1936 Ford</u>	<u>1820</u>
Light or Service Trucks
Ore Hauling Trucks
Compressors
Other Mine or Mill Eqpt.

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

..... Copper

REMARKS:

This mine is a heavy producer. Romero
employee has other employees to work
at gold sites available. See District

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By..... [Signature]

May 6, 1943

Mr. Charles Taylor
County Assessor
Tucson, Arizona

Dear Mr. Taylor:

Thank you for your telegram which was received in Los Angeles. Please accept my humble apologies for not having replying to it immediately.

I did contact the people I had in mind and who were interested in the Helvetia. They did say that they would not be interested in the low grade milling zinc-lead-silver property you mentioned.

I would like very much to be kept posted on the progress of the Helvetia property and if and when a firm option on reasonable terms can be obtained, I will gladly take it up with these people again.

With best wishes and kindest regards, I am

Very truly yours,

J. S. Coupal, Director

JSC:kk

PIMA COUNTY
STATE OF ARIZONA
TUCSON

OFFICE OF

April 7, 1943

PERSONAL

Mr. J. S. Coupal
413 Home Builders Building
Phoenix, Arizona

Dear Mr. Coupal:

I have been trying to deal with Mrs. Blankenship on the Helvetia property for the past two days. I first wanted a sixty day option, then I finally asked her for a thirty day option. She is willing to entertain the offer as outlined by you, but will give no one an option on the property. I tried to explain to her very fully that your people would not consider a deal unless they had sufficient time to make a thorough examination, but she said there were so many people who are interested and wanted to go out there and make an examination. You know, as well as I, that 95% of the people have neither the money nor the connections to tackle a mine of that size and being a woman it is impossible to argue with her or to get her to listen to anything that is within reason.

Maybe later on she might be willing to give us a thirty day option. If I hear any more, I will be glad to drop you a note, and I further believe that I might run across another mine which will have better chances of making a success.

With regards and best wishes, I am

Yours very truly,

C. M. Taylor

C. M. TAYLOR
County Assessor

CMT:wg

April 19, 1943

Mr. C. M. Taylor
County Assessor
Pima County
Tucson, Arizona

Dear Mr. Taylor:

While in Los Angeles last week I talked with the party who asked me to make inquiries on the Helvetia property.

I expect to be in Tucson Tuesday afternoon and Wednesday and plan to call and discuss this question with you. I hope that we can get a definite commitment from Mrs. Blankenship even though we do not get a thirty-day option. I believe that after a discussion with you and possibly Mrs. Blankenship, we may be able to advise my parties in Los Angeles by wire and have them on the property within a few days.

With best wishes and kindest personal regards, I am

Very truly yours,

J. S. Coupal, Director

JSC:kk

March 25, 1943

Mr. Charles Taylor
County Assessor
Tucson, Arizona

Dear Mr. Taylor:

While in Tucson yesterday I talked with George Ballam regarding your interest in the Helvetia property owned by Mrs. Blankenship and Messrs. Gregory and Burnie. My understanding is that you have been able to make a reasonable deal with the parties owning this property for taking it over. I do not know whether or not you intend to operate the property personally. I have mentioned the Helvetia and one other property in Arizona to parties whom I consider very responsible and who are anxious to enter into a deal to take over what looks like a promising copper scheelite producing mine.

I have been asked to get all information regarding the property to them and an outline of a deal to take over. If you care to consider this matter, I would be very much pleased to go into further details with you and put you in direct contact with the people I have in mind. It would seem to me as though a contract could be made with them for an overriding clause covering the interest or compensation you expect from turning your contract over to them.

In order to make an equitable deal I do feel as though under the present conditions some people always like to know just what they are paying and to whom the payments go. You may or may not agree with this policy, but it is one that I believe has merit and one that avoids future difficulty in any operations of this nature.

I expect to be in Tucson April 3 to April 5 to prepare for and attend the Scrugham hearing on Monday, April 5. Within a week or ten days after the hearing I expect to make a short visit to the Coast and would like very much to know beforehand whether or not you care to make a tentative deal on the Helvetia so that I may advise my people and go into further detail with you.

Mr. Charles Taylor

-2-

March 25, 1943

I do hope that you can make arrangements to attend the Tucson hearing and be able to present some of the problems which the small mine operators in the State are confronted with and which, if corrected, will lead to a much increased production from the mines.

With best wishes and kindest regards, I am

Very truly yours,

J. S. Cougal, Director

JSC:kk

January 20, 1943

Mr. R. A. Berney
Sahaurita, Arizona

Dear Mr. Berney:

I am making plans to be in Tucson early Saturday afternoon and stay over Sunday and would, if possible, like to meet with you, Mrs. Blankenship, and Mr. Gregory to work out some equitable arrangement for a deal on the Helvetia Mine for you folks and for the Arizona-Eastern Gold Mines Company, the owner of the Octavo Mine.

I had hoped that Miss Haskell, the Secretary-Treasurer of the Company, will also be in Tucson at that time.

Can you advise me by phone or otherwise whether or not such a meeting could be arranged, and if so, sometime either late Saturday afternoon or Sunday forenoon would be agreeable and also say just where we could meet.

I would appreciate hearing from you.

I am sending a copy of this letter to Mr. Gregory so that he may try to contact you and get something definite about the possibilities of such a meeting.

With best wishes and kindest regards, I am

Very truly yours,

J. S. Coupal, Director

JSC:kk

cc - Mr. John Gregory
Tucson, Arizona

NAME OF MINE: HELVETIA
OWNER: Mrs. R.B. Blankenship,
298 Granada St., Tucson

COUNTY: Pima
DISTRICT: Helvetia
METALS: Cu

OPERATOR AND ADDRESS		MINE STATUS	
Date:	L.M. Vreeland, Gen. Mgr., Box	Date:	
5/1/44	2771, Tucson	5/1/44	Shipping
1/45	✓ B.H. Martin, Box 514, Tucson	9/44	Closed
		1/45	Shipping
		5/46	Idle

total

9/22/43 16 men employed.

10/1/43 4 cars per week shipped. Access
road Sahuarita-Helvetia completed. Want
siding & ramp at Sahuarita--SWPC application
mailed.

1/3/44 Shipping 50 tons per day--Hayden

2/15/45 Reopened by owner & expect to ship
to El Paso smelter. Fully equipped
with hoist, compressor, etc.

December 30, 1942

MEMORANDUM

SUBJECT: Helvetia Mine

TO: George A. Ballam

FROM: J. S. Coupal

I have just talked with Mr. Neil Clark, who is attorney for the Octave Company, and have arranged for him to go to Tucson and look over the Helvetia possibly on Tuesday of next week, that is January 5. Mr. Clark will probably leave Phoenix Monday evening and stay in Tucson. He will phone you on arrival.

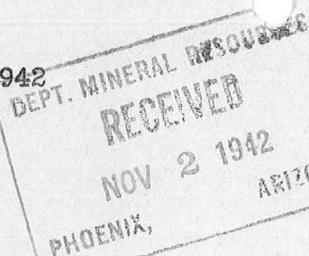
I believe it will pay for you to go to the mine with Neil Clark. He will probably have Lamont West with him. Mr. West is the superintendent and operator of the Octave Mine.

I believe a deal can be worked out.

I am sending a copy of this to Mr. R. A. Bernie.

cc - Mr. R. A. Bernie
Sahaurita, Arizona

Oct. 31, 1942



H C

MEMORANDUM

To: Director, Dept. Mineral Resources
From: George A. Ballam

Helvetia Mng. & Mill.
(Leader shaft)

The Leader shaft is located on the millsite of the Helvetia Mining and Milling Co. It is 150 feet deep with water standing at the 1st level, 60 ft. It is not known when the shaft was sunk, although fragments of old records indicate that the property was worked from this shaft as early as 1900. At that time there was a smelter on the property, and sulfide ores were smelted, much of the ore coming from the two levels in this shaft, according to a couple of old Mexicans who are at present working in the vicinity, and who worked in the Leader shaft. Considerable amounts of ore were shipped from time to time, and during the World War I period, several cars of molybdenite were shipped in addition to the copper. Much of this came from the 60 ft. level which is open at present, and which is being worked now by Burney, both for mill ore and shipping grade.

The workings on the 140 level, under water, consisted of a drift to the northeast, two hundred feet or so, with several hundred feet of other workings and considerable stoping, according to report. The condition of the timber under water is unknown, as also the state of the workings, but the latter are not believed to be caved since the ground is generally good.

The operators are desirous of unwatering this shaft and opening it up. Not only will considerable ore be exposed, according to all the evidence, both copper and molybdenite, but by extending the longer drift 300 feet, it will be under the ore which the operators are at present underhand stoping in the Leader tunnel. They are working in a winze at 125 ft. ^(incline) below the tunnel level on an incline of about 35°, and this entire bedded plane could be stoped from the proposed drift at 140 ft. ^(vertical) depth below the tunnel level, which is the collar level. Most of this stope has been shipped, some 1200 tons, but the work is slow under the present manner of operation. In addition, much of the mill ore, about the same tonnage, has been taken out in the same manner.

Burney and Gregory are making application for a preliminary development loan of \$5000 to have readier access to this ore body, and under the circumstances, it is very obvious that the proposed work is warranted, and will greatly facilitate production, not only of copper but also molybdenite, which they propose to separate. They have shipped nearly 300,000# copper in the form of high-grade ore and concentrates during the past few months, and would like to step up ore shipments to a car a day in addition to increasing mill output. Since the road program has been approved and will be commenced at any time, this program is readily possible.

George A. Ballam

October 21, 1942

Mr. R. A. Burney
Helvetia Mining & Milling Co.
Tucson, Arizona

Dear Mr. Burney:

We note in recent correspondence, relative to your operation, that there is some possibility of your shutting down. If this is the case, have you considered possibility of turning the property over to others who might be willing to operate it?

We have inquiries from several established mining companies relative to their acquisition of new properties, particularly operators previously mining and milling gold ores, who would like to find a base metal property on which to move their equipment and personnel.

If you have any ideas along this line we would be pleased to hear from you and will present your proposal to one or two interested organizations whose operating reputation is beyond question.

Very truly yours,

Earl F. Hastings
Assistant Director
Projects Engineer

EFH:BA

Tucson, Arizona

October 20, 1942

Major General A. M. Tuthill
State Director of Selective Service
3018 Professional Building
Phoenix, Arizona

Dear General Tuthill:

I am enclosing copies of two memorandum reports from George A. Ballam who is field engineer for the Department of Mineral Resources in the southern district.

The action of the Local Board on Selective Service has resulted in the shutting down of the mill operations of the Helvetia Mining & Milling Company and means the cutting off of a MONTHLY production of 100,000 pounds of copper. We sent notices to all mining companies of a bulletin from your office which instructed the Local Boards to reconsider the classification of all key men in the mining industry. From the action indicated in the two memorandum reports it would seem as though proper consideration is not being given to the mining industry. At least not in this particular case.

We are doing our utmost to step up production and this action and the action of the local Florence board does not appear to be in line with the general war efforts.

Mr. Burney, the manager of the Helvetia Mining & Milling Company has on advise from our Department been considering the application for an RFC General Mine Loan to more than double the production of copper from his property. In view of the action and conditions at this property it looks as though we are about to lose the present 100,000 pounds of copper production per month and also an additional potential tonnage of the same amount.

I would appreciate knowing just what action or what assistance we can be in trying to get this situation in line. With best wishes and kindest regards.

Very truly yours,

J. S. Coupal, Director

October 21, 1942

MEMORANDUM

✓ HELVETIA MINING & MILLING CO.
R. A. BURNEY, MANAGER.

TO:: George Ballam

FROM: J. S. Coupal

I received your two memorandums, one on the Mine Freezing Order and the other on deferment for miners regarding Mr. Burney of the Helvetia Mining Company.

On the deferment question for Mr. Burney I immediately contacted Colonel Laird and submitted copies of your report. Today I discussed the question with Colonel Duffy who had personally investigated Mr. Burney's case. He consulted with the manager of the local board at Florence and was informed that Mr. Burney had been advised that he was in Class 3-A, and that reconsideration of his case would not come before the local board for another 90 days and at that time he would undoubtedly be reclassified as 2-B, which means that he would be definitely deferred from draft.

Colonel Duffy criticized us severely for having reported as we had on the transfer from 3-A to 1-A. I am afraid Mr. Burney misunderstood the instructions from Mr. Fulbright, the local board member of the Selective Service at Florence. The local board are paying strict attention to the orders from headquarters on deferment of miners. It is going to be quite necessary that we check carefully all statements made in such instances as Mr. Burney's and see to it that we get authentic reports on such cases. If we are to do any work toward helping in such instances it may be necessary to 'phone the local board and see that the statements made are correct; otherwise, when we make a kick and we can not substantiate the statements made we are putting ourselves in a position where our complaints will not be heeded.

Regarding the Mine Freezing Order--we know that the freezing directive has backfired in a number of instances. It is a problem to keep labor on the job right now and it is up to the individual manager to do their utmost to keep up production. If the men are soldiering or are not putting in regular hours, it is up to men like Mr. Burney to go to the U. S. Employment Service and try to get men who will stay on the job. I will say that the draft boards are not ignoring the mine deferment requests.

I hope that Mr. Burney can see his way clear to get labor to continue operations and I do feel that he can be assured that his deferment will hold as long as he is producing copper.

October 19, 1942

MEMORANDUM

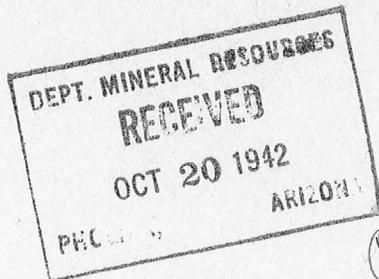
Deferments for Miners *W*

To: Director, Dept. Mineral Resources
From: George A. Ballam

Robert Arthur Burney, No. 2571, Order 2981, Florence, Pinal County, Board, was recently transferred from III A to IA. Last week he was directed to report for induction. He appeared before the board, requested deferment asking to file form DSS 42 A. Fulbright, board member, said he could file it, but it wouldn't do much good as he couldn't get more than a 90-day deferment anyway. He was advised to take his physical examination at once.

Burney, Mgr. Helvetia Min. & Milling Co., has been a miner all his life, and recently has been producing up to 100,000 lbs. copper monthly. I talked with him Sunday for a couple of hours. He is about ready to pull the switch and shut down. He feels that if he has to go within a few months, he might as well save a lot of mine and mill headaches which are in the offing by going now. He has shut his mill down, partly on account of labor difficulties cited elsewhere, and also on account of having been gone for some time on the above mission. I read him the new "guides and suggestions" for "utmost consideration" for deferments etc., but he says the board isn't paying much attention to that sort of stuff. I asked him to write Col. A. A. Laird as directed.

Kindly advise how far the boards can go in ignoring mine deferments requests.



George A. Ballam

Oct. 19, 1942

MEMORANDUM

Mine Freezing Order H

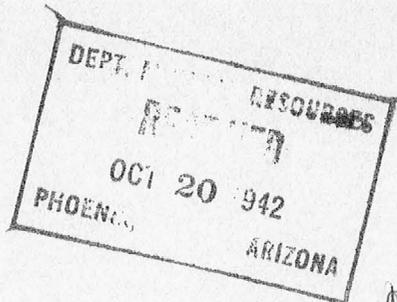
To: Director, Dept. Mineral Resources
From: George A. Ballam

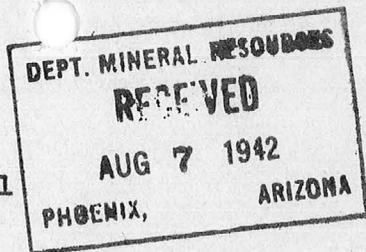
I have been requested to transmit the following information:

R. A. Burney, Mgr. Helvetia Mng. and Milling Co., informed me that since the passage of the 'freezing' directive, there has been a decided slow-down among his employees. They have been advised by agitators that he cannot fire them for any reason whatever. They get drunk and don't report for work, even sending out messengers for their pay checks. He informed them that if fired for cause they will be subject to reclassification in selective service to 1A. He fired several, but finally had to shut the mill down.

He believes some publicity in the press might have a beneficial effect, IF there really is a remedy as has been reported.

George A. Ballam





Aug. 5, 1942

Memo. to J. S. Coupal

Sam:

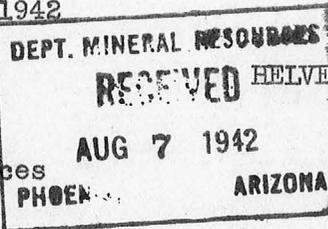
Am working on the Mineral Hill-Twin Buttes-San Xavier - Olive Camp survey. Have been messed up by high water in Santa Cruz, wet weather, threatening cloudbursts, some of which materialized, and in general, rain. Hope to have the survey finished this week. Had some car trouble caused by water and sand but all fixed up now.

Off the record, I believe this Helvetia operation is a natural for stepping up production. Burney is a good experienced miner and millman. His partner is an ex automobile man. Burney was raised in the Helvetia district and knows the ore. He also had considerable mill experience with Chino. However, he is practically alone, and aside from the help Brent Rickard has given him, he hasn't had much. They have been so busy that they have lost touch completely, hence I believe the department can work on some virgin ground. Suggest you take a look-see if you can get away. The boys are amenable to all suggestions, and they have ore.

J. S. Coupal

August 5, 1942

SURVEY OF OPERATING MINES



HELVETIA MIN. & MILLING CO.

To: Director, Dept. Mineral Resources
From: George A. Ballam

This property, consisting of 52 patented claims, is located about 14 mi. southeast of Suaharita. It has recently been taken over by Robt. Burney, John Gregory and Mrs. Blankenship of Tucson. The new owners have built a 75 ton flotation mill on the Leader Mine, and at present are milling near capacity, and in addition shipping about a car of high grade copper ore per week. Both concentrates and ore are shipped to the Hayden smelter.

The Leader ore is mined by tunnel and winze, or rather underhand stope which is in about eight feet of ore running 12 to 15% copper, recently discovered. The ore is in beds in the limestone-granite contact, the lower and more recently worked bed being the one described. An upper bed, separated by a garnetized zone of a few feet thick, is mill ore and constitutes the zone worked in past years and in the earlier activity of the present company. ~~The~~ Five cars of ore have been shipped during the past month, ore left on the hanging wall being used to sweeten the lower grade mill-heads (~~3~~to ~~4~~%)

The mill consists of Marcy ball mill, double rake classifier, 6 cells and Oliver filter. Grind -65mesh, reagents pine oil and Z-4 (Na Xanthate) iron depressed by lime. Concentrate 24% Cu - 8 to 1 ratio of concentration. Power, hot head and belt drive. The mill was assembled under difficulties and is unsatisfactory and far below capacity ~~as~~ warranted by possible production of mine. The owners are developing an adjacent property which has sufficient ore blocked to produce 100 tons per day of 3% Cu. On this account they are anxious to step up capacity of present mill. They have another 50 ton Marcy ready to install but are faced with the following problems:

- (1) They will install either a 200 HP Diesel plant or connect up with REA line 4 miles distant if,
 - (a) Transmission line is available on Allison property. This is in receivership and owned by Valley Bank. They are investigating possibility of securing this to make connection with power line
 - (b) A suitable Diesel plant is available. They are investigating availability of DC equipment. The electrical equipment, generators, motors, etc. will be required in either event.
 - (c) They are toying with the idea of applying for an RFC loan to increase capacity of mill to approximately 200 tons to mill ^{ore} available. About 10,000 tons broken above 200 on new property and immediately available. Large amount of good mill ore blocked out between 200 and 300, but shaft and workings at that level in bad condition, and about \$5000 required to open it up. Suggested preliminary development loan for this purpose, and with the greatly increased tonnage thus available, there should be no question of need for larger mill.

At present 36 men are employed. They would step up production of shipping ore but have a road problem. The road between Suaharita and the mine crosses flats which are flooded in wet weather. Today was my third attempt to get in to the mine, and on the way out this PM I ran into another cloudburst and bad road. About 7 miles of Santa Range Reserve is crossed, and here the road has at one time been graded, and is not so bad, but on either end there are three or four miles of road crossing public domain which constitute a bottle neck. Burney said he would be shipping two or three times as much ore if he could

haul it. He is loading at the dock in Suaharita. They had heard nothing about the access road program, and will make application at once for aid in improving the road. Several families are now living at the camp, and it is expected all employees will be there by winter. They believe the demand for school transportation will be effective in getting the county to fix the lower end of the road.

This operation was made possible by private capital, and the owners do not want to wait until obligations are liquidated to make the proposed expansion. It would seem that with the increased production immediately possible, they could qualify for both the prel. loan to open up the Helvetia Mine (Copper World) and a loan to expand the mill. The operators have only recently started the mill, and just a few weeks ago discovered a considerable body of high-grade shipping ore. Moreover, they started without any aid or advice, and seem to be completely ignorant of existing facilities for assistance. It would appear that the potential production of 100,000# of copper per week will be a good project to work on, especially since they are actually producing about one third of this amount at present.

George A. Ballan

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Helvetia Min. & Milling Co.

Date August 5, 1942

District Suaharita

Engineer George A. Ballam

Subject:

This property, consisting of 52 patented claims, is located about 14 mi. south-east of Suaharita. It has recently been taken over by Robt. Burney, John Gregory and Mrs. Blankenship of Tucson. The new owners have built a 75 ton flotation mill on the Leader Mine, and at present are milling near capacity, and in addition shipping about a car of high grade copper ore per week. Both concentrates and ore are shipped to the Hayden smelter.

The Leader ore is mined by tunnel and winze, or rather underhand stope which is in about eight feet of ore running 12 to 15% copper, recently discovered. The ore is in beds in the limestone-granite contact. The lower and more recently worked bed being the one described. An upper bed, separated by a garnetized zone of a few feet thick, is mill ore and constitutes the zone worked in past years and in the earlier activity of the present company. Five cars of ore have been shipped during the past month, ore left on the hanging wall being used to sweeten the lower grade mill-heads (3 to 4%).

The mill consists of Marcy ball mill, double rake classifier, 6 cells and Oliver filter. Grind-65 mesh, reagents pine oil and Z-4 (Na Xanthate) iron depressed by lime. Concentrate 25% Cu - 8 to 1 ratio of concentration. Power, hothead and belt drive. The mill was assembled under difficulties and is unsatisfactory and far below capacity warranted by possible production of mine. The owners are developing an adjacent property which has sufficient ore blocked to produce 100 tons per day of 3% Cu. On this account they are anxious to sept up capacity of present mill. They have another 50 ton Marcy ready to install but are faced with the following problems:

(1) They will install either a 200 HP Diesel plant or connect up with REA line 4 miles distant if,

(a) Transmission line is available on Allison property. This is in receivership and owned by Valley Bank. They are investigating possibility of securing this to make connection with power line.

(b) A suitable Diesel plant is available. They are investigating availability of DC equipment. The electrical equipment, generators, motors, etc. will be required in either event.

(c) They are toying with the idea of applying for an RFC loan to increase capacity of mill to approximately 200 tons to mill the ore available. About 10,000 tons broken above 200 on new property and immediately available. Large amount of good mill ore blocked out between 200 and 300, but shaft and workings at that level in bad condition, and about \$5000 required to open it up. Suggested preliminary development loan for this purpose, and with the greatly increased tonnage thus available, there should be no question of need for larger mill.

At present 36 men are employed. They would step up production of shipping ore but have a road problem. The road between Suaharita and the mine crosses flats which are flooded in wet weather. Today was my third attempt to get in to the mine, and on the way out this PM I ran into another cloudburst and had road. About 7 miles of Santa Rita Range Reserve is crossed, and here the road has at one time been graded, and is not so bad, but on either end there are

three or four miles of road crossing public domain which constitute a bottle neck. Burney said he would be shipping two or three times as much or if he could haul it. He is loading at the dock in Suaharita. They had heard nothing about the access road program, and will make application at once for aid in improving the road. Several families are now living at the camp, and it is expected all employees will be there by winter. They believe the demand for school transportation will be effective in getting the county to fix the lower end of the road.

This operation was made possible by private capital, and the owners do not want to wait until obligations are liquidated to make the proposed expansion. It would seem that with the increased production immediately possible they could qualify for both the prel. loan to open up the Helvetia Mine (Copper World) and a loan to expand the mill. The operators have only recently started the mill, and just a few weeks ago discovered a considerable body of high-grade shipping ore. Moreover, they started without any aid or advice, and seem to be completely ignorant of existing facilities for assistance. It would appear that the potential production of 100,000# of copper per week will be a good project to work on, especially since they are actually producing about one third of this amount at present.

Signed: George A. Ballam

MINERALS AVAILABILITY SYSTEM
DEPOSIT SUMMARY REPORT

Helvetia West
Anamax Mining Co.

Peach Elgin

by
Barbara J. West
Geologist
Intermountain Field Operations Center
January 1980

NOTICE

The views and conclusions contained in this document are the author's and should not be interpreted as necessarily representing the official policies or recommendations of the Interior Department's Bureau of Mines or the U.S. Government. The purpose of this report is to provide information for further review within the Bureau of Mines.

CONTENTS

	<u>Page</u>
Abstract.....	iii
Introduction.....	1
Operation data.....	1
Location and ownership.....	1
History.....	2
Environmental impact.....	2
Geology.....	3
Reserves.....	4
Proposed Mining System.....	4
Beneficiation.....	5
Crushing section.....	5
Grinding section.....	6
Flotation section.....	6
Copper filter section.....	6
Lime preparation section.....	7
Tailings disposal.....	7
Economic evaluation.....	8
Estimated mine capital cost.....	8
Estimated mine operating cost.....	8
Estimated beneficiation capital cost.....	9
Estimated beneficiation operating cost.....	9
Economic analysis.....	10
References.....	11
Appendix A. MAS Helvetia West printout.....	12
Appendix B. MINSIM4 financial analysis printout.....	25

ILLUSTRATIONS

<u>Figure</u>	<u>Follows page</u>
1. Helvetia West location map.....	1
2. Geologic map of the Helvetia area.....	3
3. Geologic cross sections through the Helvetia area.....	3
4. Proposed generalized beneficiation flowsheet for Helvetia West.....	6

TABLES

	<u>Page</u>
1. Estimated mine capital cost.....	8
2. Estimated mine operating cost.....	9
3. Estimated beneficiation capital cost.....	9
4. Estimated beneficiation operating cost.....	10
5. Economic analysis.....	10

STATE/CNTRY: Arizona DISTRICT: Helvetia
 COUNTY/PSD: Pima COORD: N 31° 51' 50" W 110° 47' 50"
 QUAD-SCALE: Sahuarita, 15 min NAME: Helvetia West
 COMMODITIES: Cu SEQ. NO.: 004 019 0086
 OWNER/OPERATOR: Anamax Mining Co.

TYPE: Open pit STATUS: Prospect
 OPERATION SUMMARY: Open pit 2,645 short tons (2,400 mt) ore per day plus 6,060 short tons
 (5,500 mt) of waste per day using 3 cubic yard loaders and 20 ton trucks, conventional sulfide
 flotation processing 2,645 short tons (2,400 mt) per day.

RESOURCES: 23,500,000 short tons (21,315,000 mt) of sulfide and oxide ore averaging 0.75% Cu

GEOLOGY: Pyrometasomatic deposit in Paleozoic limestones, ore mineralization-chalcopryrite,
 chalcocite, chrysocolla, bornite.

LAND HOLDING: unknown STATUS: patented, fee ownership
 DOMAIN: private AREA POTEN. DISTURB: est. 1,441 acres (583 ha)

ENVIRONMENTAL FACTORS:	Short term:	Long term:
LAND:	moderate	moderate
WATER:	significant	significant
AIR:	nil	nil
FLORA:	insignificant	insignificant
FAUNA:	nil	nil
SOUND:	nil	nil
AESTHETICS:	significant	significant
OVERALL:	significant	significant

OPERATIONAL/ECONOMIC DATA: Estimated costs: Mine capital cost = \$5,770,200, mine operating
 cost - \$7.149/short ton (\$7.883/mt) of ore, sulfide-flotation mill capital cost - \$11,679,000,
 mill operating cost - \$3.878 per short ton (\$4.276 per mt) of ore.

Financial Analysis Summary

0% ROR

OFFICE LOCATION |DC |CS |IA |E |I |W |A | \$1.27/1b (\$2.80/kg)

FILES: DATA SHEETS | | | | |X | | | 15% ROR

BACKUP FILES | | | | |X | | | \$1.49/1b (\$3.29/kg)

EVALUATOR: B. West

INTRODUCTION

Anamax Mining Company is considering development of the Helvetia West copper property in the Santa Rita Mountains, southeast of Tucson, Arizona. The company expects to develop the property sometime in the future as an open pit mine and conventional sulfide flotation mill. The decision to go ahead with the project will be affected by national and international economics, supply and demand for copper, company needs for new sources of supply and numerous other factors involving such things as taxation, pollution laws, processing techniques, environmental matters and availability of reduction facilities.

This report describes the proposed mining and milling methods, details capital and operating costs ^{1/} for both the mine and mill, and determines a price per pound of copper for zero and 15-percent rates of return based on discounted cash flow analyses. All costs presented in the text are in January 1978 dollars.

OPERATION DATA

This section describes the location and ownership, history and environmental impact of the Helvetia West property.

Location and Ownership

The Helvetia West property is 25 miles [40 kilometers (km)] ^{2/} south of Tucson, Arizona, in the Santa Rita mountains. The deposit occurs in section 15 of T. 18 S., R. 15 E., Gila and Salt River Meridian, figure 1.

^{1/} Preliminary costing was done by Rick A. Salisbury and Paul Olmstead
^{2/} Numbers are presented in English units followed by the approximate metric equivalent in parentheses. Values are rounded; therefore, neither is precisely convertible to the other.

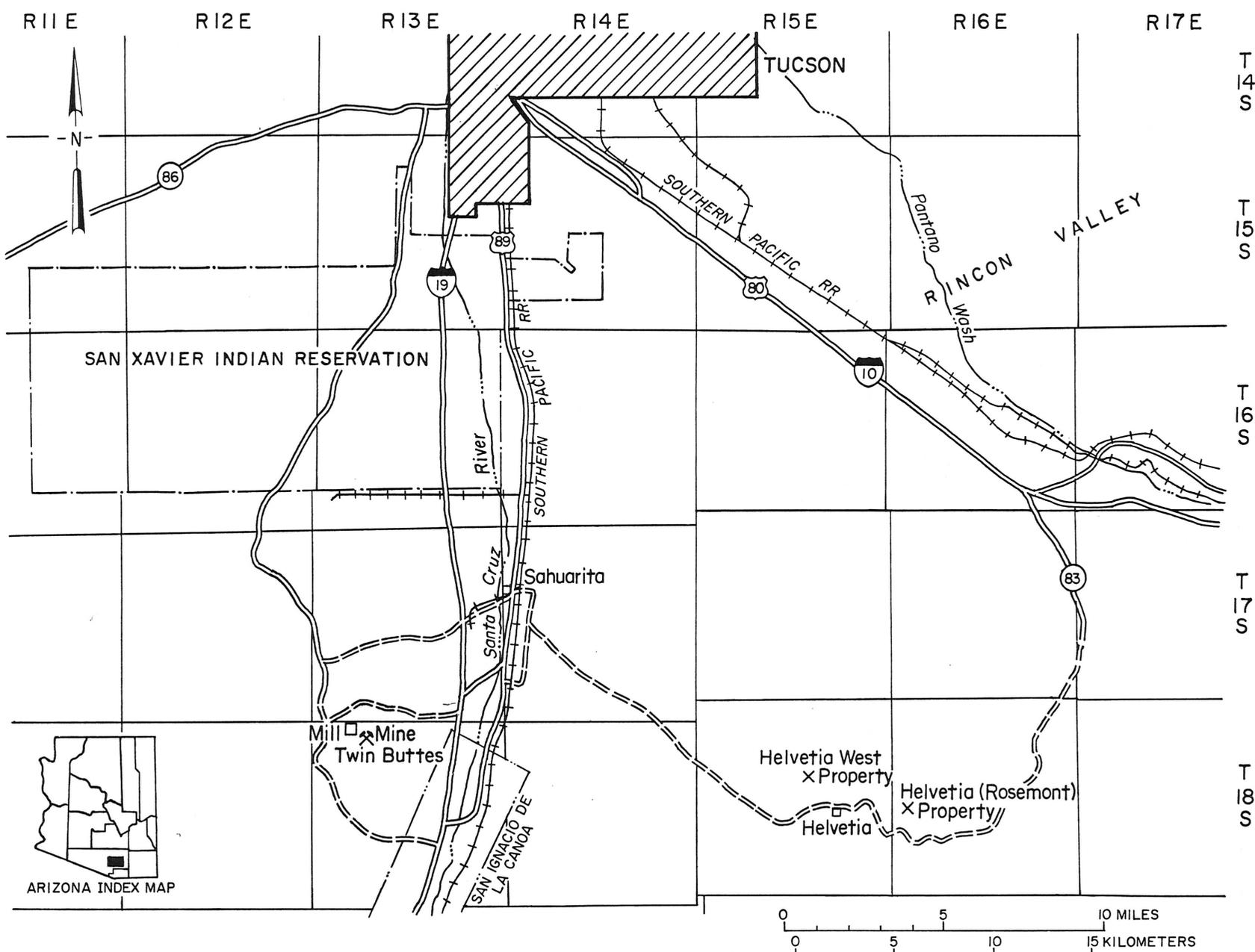


FIGURE 1. - Helvetia West location map.

The Helvetia property was originally leased by Anaconda from the Banner Mining Company of Tucson in 1964 (5). Today the Helvetia West property is owned by Anamax Mining Company, a new company formed from the union of Anaconda and Amax. In January 1977, Anaconda Co. ceased to exist as a separate and independent company when it was purchased by ARCO (11).

History

Mineralization in the Helvetia district was discovered as early as the 1870's. Small operations produced in the 1880's and 1890's. The Rosemont Copper Company and the Helvetia Copper Company produced from the 1890's to 1901. Except for a few years in the early 1930's, the district showed continuous but irregular production up through 1960 with the major output occurring during 1916-1919, 1944-1947 and 1957-1959. Since then there has been very little production (4).

Allan Bowman of Banner Mining Company in 1948 began acquiring as much property as possible in the area. Banner's exploration drilling on these properties partially delineated the Helvetia West orebody and discovered a major new orebody--Helvetia East over the mountains on the east slope (5). Helvetia East, another Anamax property, is presently progressing toward development.

Environmental Impact

The overall environmental impact of the Helvetia West project is expected to be moderate. The major impact to the land will occur during the mining and milling operations. The largest single visible impact will be the open-pit mine. The resulting excavation will be about 3,700 feet [1,128 meters (m)]

long, 2,200 feet (671 m) wide, and about 1,200 feet (366 m) deep. Most of the rock that is mined will be discarded in waste dumps or in mill tailings. The tailings and dumps will cover about 1,300 to 1,400 acres [526 to 567 hectares (ha)] of land. Forty-one acres (17 ha) of land will be significantly impacted by onsite road construction and site preparation.

The principal sources of atmospheric pollution will consist of dust and noise generated by vehicular traffic, blasting, loading of overburden and ore, and crushing operations.

GEOLOGY

The Helvetia mining district lies at the northern end of the Santa Rita Mountains to the southeast of Tucson. Precambrian schist and granodiorite are unconformably overlain by a thick sequence of Paleozoic marine deposits including quartzite, limestone, shale and sandstone. Mesozoic volcanics and sediments unconformably overlie the Paleozoic sequence. Strong deformations by folding and faulting took place during the middle to late Mesozoic and were accompanied by igneous intrusions. Normal faulting continued almost up to recent times.

The majority of the orebodies are of the pyrometasomatic or contact metamorphic type in lime-silicated Paleozoic limestones along or close to the contact with late Laramide quartz latite porphyry intrusions or along fault zones. The orebodies that have been mined were generally small and highly irregular in outline. Copper is the dominant metal in the district but some lead and zinc is usually present. Molybdenum and tungsten have more erratic values. Silver values are often high but gold values are uniformly low. Most of the deposits have been oxidized to various depths (8).

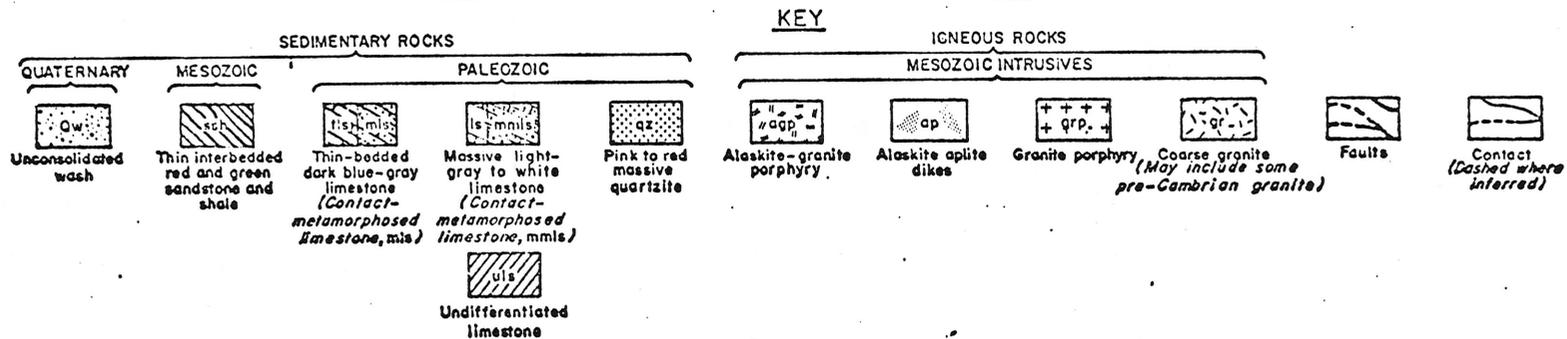
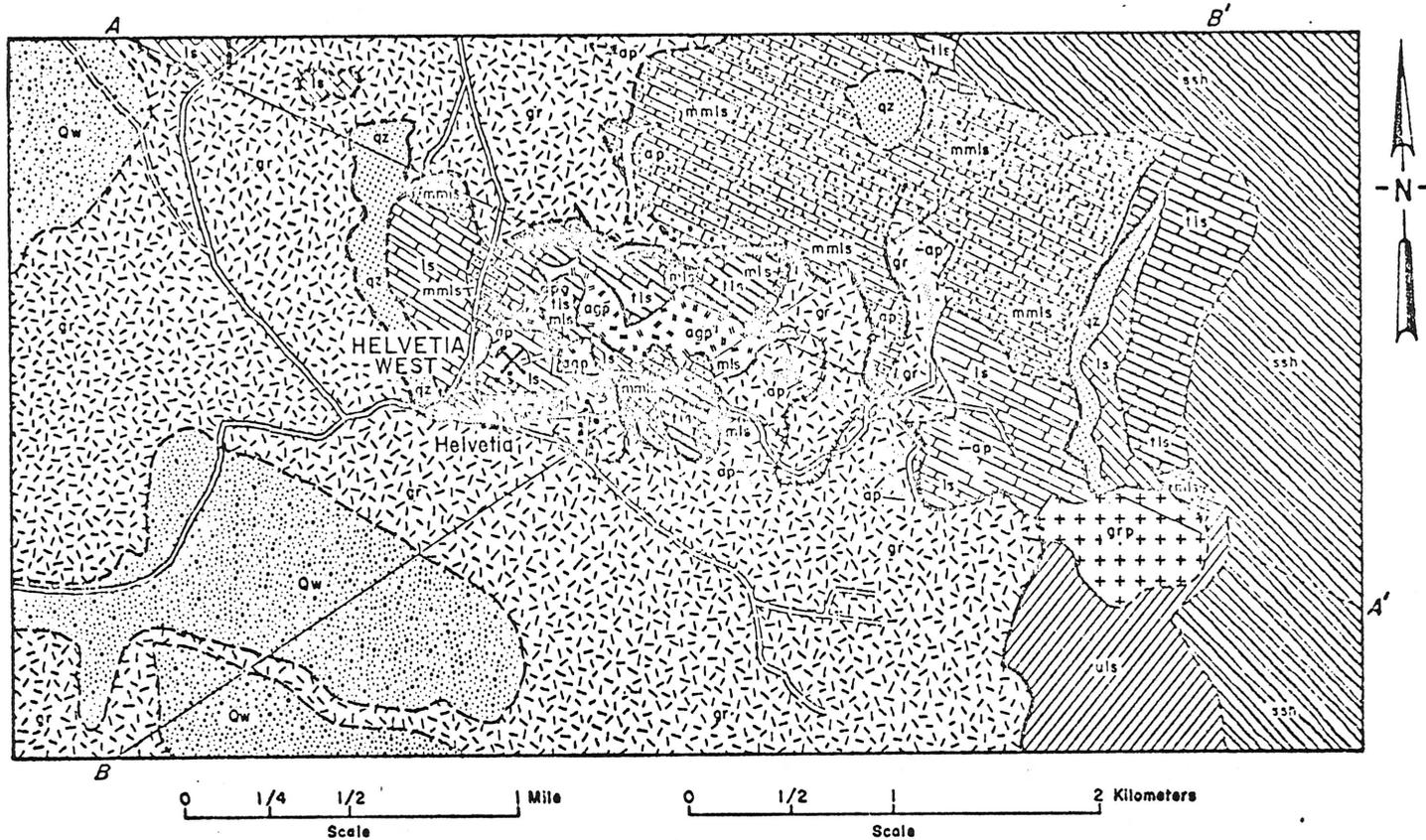
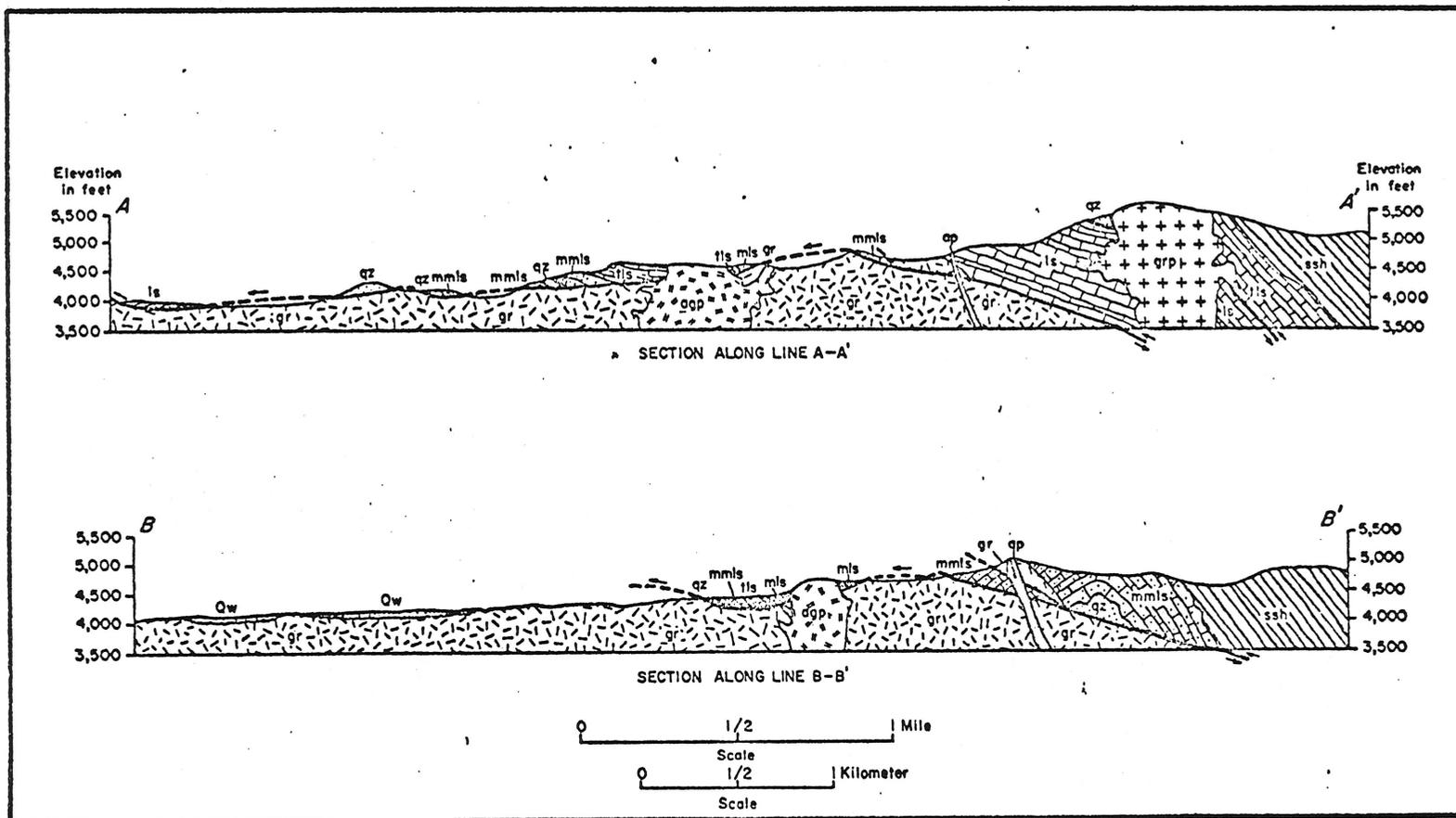


FIGURE 2. - Geologic map of the Helvetia area.



KEY

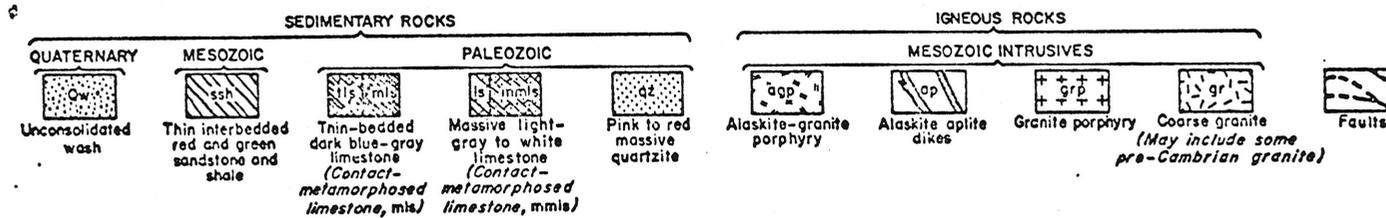


FIGURE 3. - Geologic cross sections through the Helvetia area.

Three-cubic-yard (2.3-cu-m) loaders and 20-short-ton (18-mt) end-dump trucks will be used for loading and hauling rock. The proposed stripping ratio is slightly less than 2.3:1, waste to ore. Rotary drills will be used for drilling; ANFO will be used for blasting. The powder factor will be approximately 0.35 pounds per short ton [0.14 kilograms (kg) per mt]. The proposed bench height is 50 feet (15 m). Average haul distances will be about 2,461 feet (750 m) with an 8-percent average grade.

Because of variations in the distribution of oxide and sulfide ore, a detailed assaying and metallurgical testing program is planned. The program will consist of sampling each blast hole's cuttings except in overburden areas. Each sample will be analyzed. If the ore can be effectively treated by flotation it would be sent to the mill for processing. However, if the ore contains primarily oxide mineralization it will be stockpiled on a dump area for possible future processing; if the copper content is below that which can be economically processed, the material will be dumped in a waste area.

BENEFICIATION

The ore will be processed by conventional flotation methods at a rate of 2,645 short tons (2,400 mt) per day. The mill will operate 350 days per year and three shifts per day.

Crushing Section

All ore will be transported to the primary jaw crusher for reduction to 2-inch [5-centimeter (cm)] size. The ore will then be fed to a secondary cone crusher for further reduction to 0.38- to 0.63-inch (0.97- to

Copper mineralization in the Helvetia area consists of chalcopyrite, chalcocite, chrysocolla, "copper pitch" and bornite with associated pyrite, magnetite and iron oxides (3).

RESERVES

Reserves entered on the Minerals Availability System resource matrix for the Helvetia West deposit are 1978 data, Appendix A. Proven ore reserves (90 percent probability) amount to 10,000,000 short tons [9,070,000 metric tons (mt)] of oxide ore at 0.72 percent copper and 13,500,000 short tons (12,245,000 mt) of sulfide ore at 0.78 percent copper for a total of 23,500,000 short tons (21,315,000 mt) of oxide-sulfide ore averaging 0.75 percent copper (7). No grades for molybdenum, silver or gold are available; however, it is believed that they occur in at least trace amounts.

At present there are no plans to process the oxide ore; instead, it will be stockpiled. In the future they might consider sending it to Twin Buttes, Arizona.

PROPOSED MINING SYSTEM

Because this property is nonoperating, detailed data are lacking. Therefore, an estimate of the proposed mining methods is presented. This estimate is based on company data, published information and the U.S. Bureau of Mines "Capital and Operating Cost Estimating Handbook" (10). Also, much of the data presented may be changed by the time operations begin at the property.

At whatever future point Anamax begins operations, the company plans to mine 2,645 short tons (2,400 mt) per day of ore and approximately 6,060 short tons (5,500 mt) of waste. The mine will be operated 350 days per year, three shifts per day.

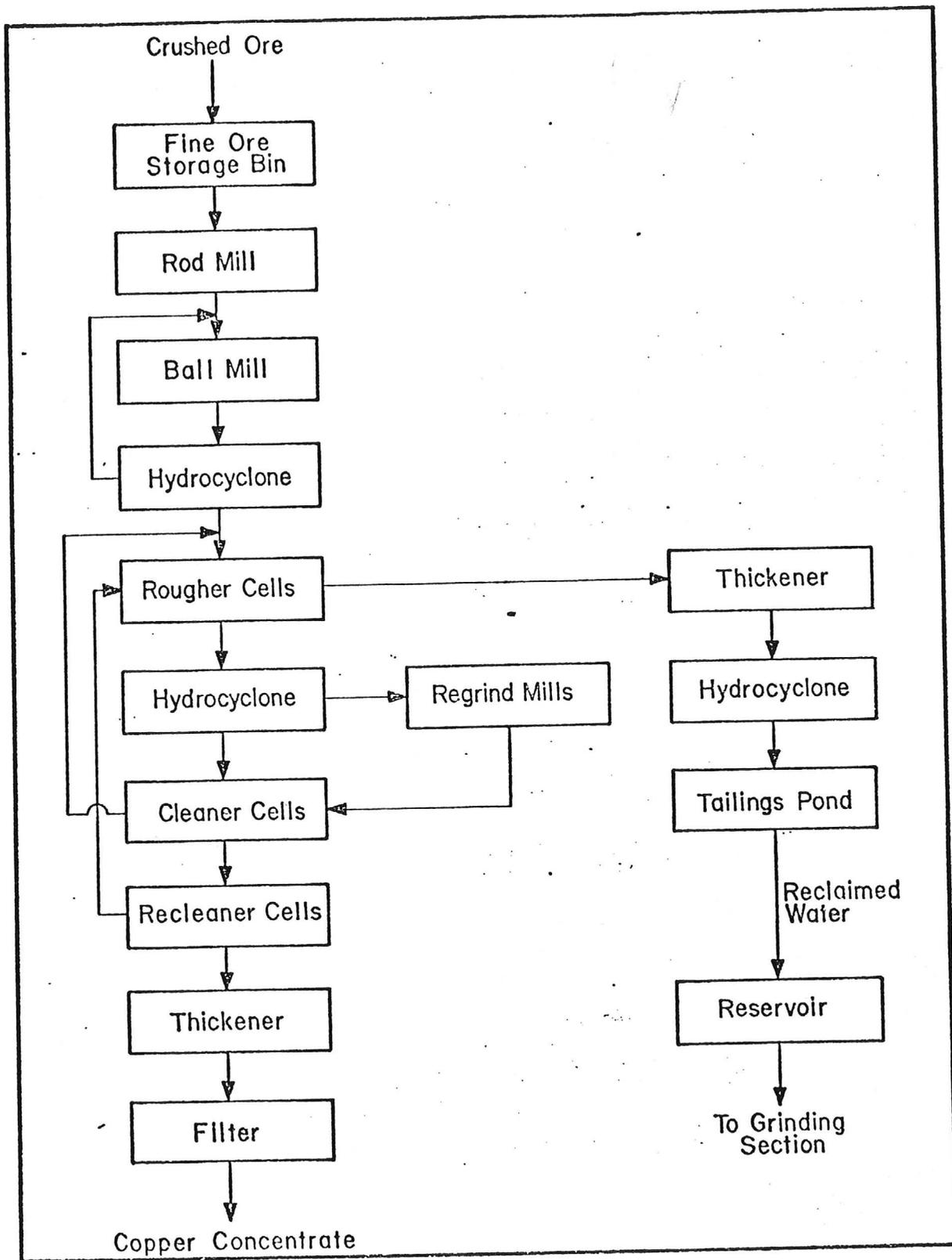


FIGURE 4. - Proposed generalized beneficiation flowsheet for Helvetia West.

1.60-cm) size. The crushed ore will then be sampled and sent to the sulfide-ore bins, figure 4.

Grinding Section

Crushed ore will be transported from the sulfide ore bin to the grinding section. The ore will then be wet ground in rod mills operating in open circuit and in ball mills grinding in closed circuit with hydrocyclones. Overflow from the hydrocyclones will go to flotation.

Flotation Section

The flotation section will be composed of rougher, cleaner, and recleaner units in which the slurry will be upgraded to a copper concentrate. Slurry from the grinding section will flow to the roughers where flotation will begin. The tailings from the roughers will flow by gravity to the tailings thickener, and rougher concentrate will be pumped to hydrocyclones. The underflow will be fed to regrind mills, and the overflow will be pumped to the cleaning flotation cells. Concentrate will be produced in the first few cells. Concentrate from the last cells will be fed to the recleaner cells for further cleaning with the cleaner rejects being returned to the grinding section.

The concentrate will then be further upgraded in the recleaner section. Recleaner rejects will be returned to the cleaner feed, and the final copper concentrate will flow to the thickener. The underflow will be pumped to the filters, then the filtered concentrate cake will be conveyed to a storage area.

Copper Filter Section

The copper concentrate will be transferred to the copper-filter section for dewatering and preparation for shipment to a smelter.

Lime Preparation Section

Lime will be slaked in a ball mill operating in closed circuit with a hydrocyclone to produce a slurry which will be pumped to storage tanks and then circulated to rougher flotation.

Tailings Disposal

The final plant tailings will be pumped to the tailings thickener; the thickener overflow will be returned to the mill for use as process water. The pulp will then be pumped to hydrocyclones where the overflow goes to the tailings pond, and the underflow goes to the tailings dam. The reclaimed water from the tails will be pumped to a reservoir for storage and then to the mill for use as process water.

ECONOMIC EVALUATION

The economic evaluation made for the Helvetia West project consists of estimated capital and operating costs for mining and beneficiation. The costs were derived by compiling data from curves, cost factors, and equations in the U.S. Bureau of Mines' Capital and Operating Cost Estimating System Handbook (10). All costs are January 1978 dollars.

Estimated Mine Capital Cost

The estimated mine capital cost, based on a daily ore tonnage of 2,645 short tons (2,400 mt), is \$5,770,200, table 1.

TABLE 1. - Estimated mine capital cost

<u>Cost items</u>	<u>Total cost.</u>
Exploration	\$265,700
Access roads	55,600
Preproduction development	364,700
Mine plant and buildings	914,400
Restoration during construction	29,500
Mine equipment	2,618,000
Engineering and construction management fees	387,100
Working capital	1,135,200
	<u>\$5,770,200</u>

Estimated Mine Operating Cost

The mine operating cost, based on a daily production of 2,645 short tons (2,400 mt) of ore, is estimated to be \$7.149 per short ton (\$7.883 per mt), table 2.

TABLE 2. - Estimated mine operating cost

Cost items	Cost/short ton	Cost/metric ton
Production development	\$3.361	\$3.706
Mining of ore	1.829	2.017
Restoration during production	0.112	0.123
General operations	1.510	1.665
Administrative costs	.337	.372
TOTAL ANNUAL OPERATING COSTS	\$7.149	\$7.883

Estimated Beneficiation Capital Cost

The estimated beneficiation capital cost, based on a single-product flotation section and a daily ore tonnage of 2,645 short tons (2,400 mt), is \$11,679,000, table 3.

TABLE 3. - Estimated beneficiation capital cost

Cost items	Total cost
Crushing	\$1,205,900
Grinding	3,346,800
Concentrating	1,079,600
Waste and tailings disposal	635,400
Clearing	18,800
Utilities and facilities	3,719,200
Restoration during construction	17,700
Engineering and construction management fees	1,039,900
Working capital	615,700
TOTAL CAPITAL REQUIRED	\$11,679,000

Estimated Beneficiation Operating Cost

The estimated beneficiation operating cost, based on a single-product flotation section and a daily feed tonnage of 2,645 short tons (2,400 mt), is \$3.878 per short ton (\$4.276 per mt), table 4.

TABLE 4. - Estimated beneficiation operating cost

Cost items	Cost/short ton	Cost/metric ton
Crushing	\$0.302	\$0.333
Grinding	1.442	1.590
Concentrating	.818	.902
Waste and tailings disposal	.116	.128
Restoration during production	.023	.025
General operations	.893	.985
Administrative	.284	.313
TOTAL BENEFICIATION OPERATING COST	<u>\$3.878</u>	<u>\$4.276</u>

ECONOMIC ANALYSIS

The economic analysis was made by using the MAS MINSIM4 computer program. Results of the economic analysis show a breakeven operation at a copper price of \$1.27 per pound (\$2.80 per kg) copper. The prices of copper necessary to obtain a 0- and 15-percent rate of return were determined, table 5.

TABLE 5. - Economic analysis

Rate of return	Price/lb	Price/kg
0%	\$1.27	\$2.80
15%	1.49	3.29

REFERENCES

1. Arco-Anaconda Merger Filing.
2. DMEA Report 4221. Peach-Elgin Property, Pima County Arizona, Contract No. Idm-E1027.
3. Heyman, Arthur M. Geology of the Peach-Elgin Copper Deposit. Helvetia District, Arizona. Arizona Geol. Soc. Digest, Oct. 1958.
4. Keith, S. B. Index of Mining Properties in Pima County, Arizona, Bull. 189, 1974, p. 31.
5. Pay Dirt. Helvetia Has Long History of Mining. August 24, 1970, pp. 3-4.
6. Personal communication between Richard Salisbury, U.S. BuMines, and Michael Greeley, Arizona Dept. of Mineral Resources, Tucson, Arizona, 1978.
7. Personal communication between Richard Salisbury, U.S. BuMines, and Pierce Parker, Amax, 1978.
8. Schrader, F. C. Mineral Deposits of the Santa Rita and Patagonia Mountains, Arizona. U.S. Geol. Sur. Bull. 582, 1915, 373 pp.
9. Skillings Mining Review. Banner Stockholders Convene April 13 to Ratify Amax Merger. March 31, 1973, v. 62, No. 13, pp. 10, 11.
10. U.S. Bureau of Mines. Capital and Operating Cost Estimating System Handbook. Contract No. JO 255026, July 1978, 374 pp.
11. World Mining. Oil Company, Arco, Purchases Copper Company, Anaconda. February 1977, pp. 66-67.

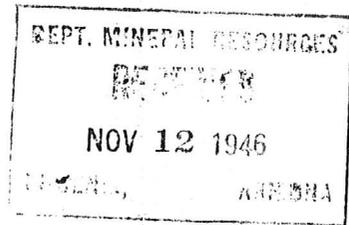
APPENDIX A

Appendix A is a computer printout of the Helvetia West file from the MAS data base. Information in the data base is in metric units. Further details and explanation of entries are in the MAS data base manual.

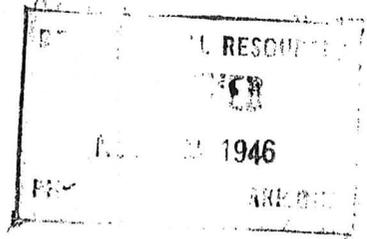
CHILSON MINES

P. O. BOX 2729
TUCSON, ARIZONA

November 10, 1946



Department of Mineral Resources
304 Home Builder's Building
Phoenix, Arizona



Dear Mr. Dunning:

In answer to your circular letter of Nov. 7th re the Premium Price Plan, I am returning your form herewith and will discuss Item 5 more at length.

But first I would like to emphasize that from a producer's point of view it would be difficult to exaggerate the magnitude of the damage the uncertain tenure of the premium plan has caused to metal production.

I believe that it would be a sound statement to say that we would have produced 400% more metal in the past four years and at considerably lower cost had the program been originally certified for five years.

Item 5 -- Five year Price Plan

- (a) Minimum 60,000 tons from Helvetia properties alone.
- (b) Expand exploration-development 400%
- (c) Such a plan would enable us to explore by deep drilling for years ahead instead of being limited to months, this would increase our reserves tenfold.
- (d) With five years for amortization, mining plant and mining programs could be designed for and governed by the ore deposit instead of planning for only a few months work at best.

It has occurred to me with amusement that the theme song of the Premium Price Plan should have been "Giv em five minutes more"

Very truly yours,

A handwritten signature in cursive script that reads "Richard L. Chilson".

Richard L. Chilson

NAME OF COMPANY CHILSON MINES

NAME OF MINE HELVETIA

DEPT. MINERAL RESOURCES
 REVENUE
 NOV 12 1946
 PHOENIX, ARIZONA

(1) Production - January 1st to June 30, 1946, inclusive.

Producers shipping ore direct to smelters or to custom mills use Column No. 1; producers operating their own mill use Column No. 2.

COLUMN NO. 1				COLUMN NO. 2			
Tons	% Cu	% Pb	% Zn	Tons	% Cu	% Pb	% Zn
Crude Ore 15,000	2%	--	--	Copper Conc.			
				Lead Conc.			
				Zinc Conc.			

(2) Average Price Received for Metals in Above Production

This to be the total of the ceiling price plus premiums.

Copper 27 ¢/lb. Conn. Valley as base
 Lead ¢/lb. N.Y. as base
 Zinc ¢/lb. East St. Louis as base

(3) What do you estimate your production would have been, January 1st to June 30, 1946, if the metal price had been:

Cu 14 3/8¢/lb. Conn. Valley; Lead 8.25¢/lb. N.Y.; Zinc 8.25¢/lb East St. Louis (with no premiums)

COLUMN NO. 1		COLUMN NO. 2	
Crude Ore	Tons	Copper Conc.	Tons
None		Lead Conc.	Tons
		Zinc Conc.	Tons

(4) What do you estimate your production would have been, January 1st to June 30, 1946, if the metal prices had been:

Cu 16¢/lb. Conn. Valley; Lead 11¢/lb. N.Y.; Zinc 9.50¢/lb. East St. Louis (with no premiums)

COLUMN NO. 1		COLUMN NO. 2	
Crude Ore	Tons	Copper Conc.	Tons
None		Lead Conc.	Tons
		Zinc Conc.	Tons

(5) If a metal Conservation Price Plan, similar to the present Premium Price Plan, were made permanent for at least five years,

- What would your yearly production of ore or concentrates be?
- Would such a plan cause you to expand your exploration-development program? If so, how much?
- What effect would such a plan have in increasing your ore reserves?
- In view of low tariffs, how would such a plan promote a healthy mining industry?

HELVETIA MINING & MILLING CO., Pima County, Arizona. Robt. Burney,
Operator, Tucson, Arizona.

This mine has recently been financed in a limited way by private capital and is productive at the rate of approximately 30,000 pounds of copper per week. Shipments consist of 12-15% shipping ore, and 25% concentrates from a 50 ton flotation mill which treats 3-4% mill heads.

Shipment of the high grade is limited by their ability to haul to Sahuarita, the rail point, over extremely poor roads which cross public domain and are not maintained. Three times present tonnage of raw ore could be shipped with the present equipment if the roads were improved.

A second 50 ton Marcy ball mill is ready to be installed but power is lacking. An REA line is 4 miles distant and could be utilized if power transmission line is made available. An alternative would be the installation of a diesel plant, for which government funds would be needed.

This group likewise is developing the Copper World, which adjoins. Between the two properties it is believed that a 200 ton mill could be operated at capacity with 3% plus mill heads. Concentrates would yield approximately 350,000 pounds of copper per month and shipments of raw ore another 75,000 pounds per month.

While building up to this peak production the relatively simple problem of roads could be corrected to obtain an immediate and appreciable increase to about 200,000 pounds per month.

Report by Earl F. Hastings, October 9, 1942, to Copper Branch,
War Production Board.