



## **CONTACT INFORMATION**

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Arizona Department of Mines and Mineral Resources Mining Collection

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08/14/86

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: BULLDOZER MINE

ALTERNATE NAMES:

DEL RIO

PIMA COUNTY MILS NUMBER: 160

LOCATION: TOWNSHIP 18 S RANGE 15 E SECTION 15 QUARTER N2  
LATITUDE: N 31DEG 52MIN 23SEC LONGITUDE: W 110DEG 47MIN 53SEC  
TOPO MAP NAME: SAHUARITA - 15 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:

COPPER OXIDE  
SILVER  
GOLD LODE

BIBLIOGRAPHY:

S.B. KEITH, AZBM BULL. 189, P. 124, 1974  
ADMMR BULLDOZER LODE MINE FILE

ARIZONA DEPARTMENT OF MINERAL RESOURCES  
 MINERAL BUILDING, FAIRGROUNDS  
 PHOENIX, ARIZONA

~~December 10, 1957~~

February 6, 1958

To the Owner or Operator of the Arizona Mining Property named                       
 (ore)

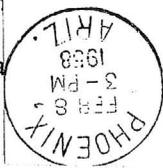
BULLDOZER MINE  
 (Property)



We have an old listing of the  
 brought up to date.

Please fill out the enclosed M  
 as possible and attach copies  
 or other data which you have n  
 prospective buyer in looking a

*put at 403d*  
 MR. & MRS P. J. RAINEY  
 834 W. THOMAS ROAD  
 PHOENIX, ARIZONA



<u>COPPER</u>	BULLDOZER MINE
Sherwood Owens Box 769 Tucson, Arizona	9-44
Report by G.A. Ballam	7-14-44

Enc: Mine Owner's Report

*Mr + Mrs P. J. Rainey  
 834 W. Thomas Road  
 Phoenix Arizona* } owners  
 11-1-57

✓ BULLDOZER MINE  
 Cu, Pb  
 Pima 10 - 6 T 18 S, R 15 E  
 H. L. Berkey, 524 W. Campbell, Tucson

ARIZONA DEPARTMENT OF MINERAL RESOURCES  
MINERAL BUILDING, FAIRGROUNDS  
PHOENIX, ARIZONA

~~December 10, 1957~~

February 6, 1958

To the Owner or Operator of the Arizona Mining Property named below:

BULLDOZER MINE  
(Property)

COPPER

We have an old listing of the above property which we would like to have brought up to date.

Please fill out the enclosed Mine Owner's Report form with as complete detail as possible and attach copies of reports, maps, assay returns, shipment returns or other data which you have not sent us before and which might interest a prospective buyer in looking at the property.

FRANK P. KNIGHT,  
Director.

Enc: Mine Owner's Report

*Buller to you*

*(9/15)*

DEPT. MINERAL RESOURCES  
RECEIVED  
OCT 23 1944  
PHOENIX

Oct. 22, 1944

Senator Carl Hayden

Mr. Sherwood B. Owens,  
2409 East First Street,  
Tucson, Ariz.

Dear Mr. Owens,

I am pleased with the fact that you are satisfied with your premium, which was made retroactive to the first of the month in which the application was filed for its revival.

It may interest you to know that it was necessary to obtain the reversal of a long standing WPB policy in order to make it possible for the Quota Committee to issue the premium and that this policy change probably will help many others who were in the same fix.

Sincerely,

W. C. Broadgate

*20000*  
*20000*

copy

2409 First Street  
Tucson, Arizona  
Oct. 19, 1944

Mr. W. C. Broadgate  
% Senator Carl Hayden,  
Senate Office Building,  
Washington, D.C.

Dear Bill,

I have today received official notification from the Quota Committee that the Bulldozer special premium has been granted, effective May 1, 1944, in the amount of \$.085 per pound. This is even a little better than you had anticipated, as by going back to May 1, this will make the premium effective on a few lots that would not otherwise have been covered.

I can not begin to tell you how grateful I am for the magnificent help rendered by you in this matter. I know that I could not have received these special benefits without your help, and if there is anything I can do or in any way return this favor I want you to feel more than free to call on me at any time.

Again thanking you as well as with the kindest personal regards, I am

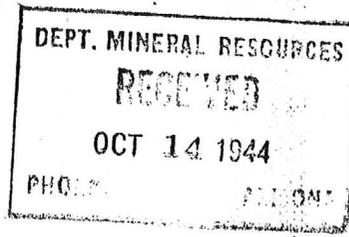
Yours very truly,

(signed)

Sherwood B. Owens

SBO:cv

Bulldozer



Oct. 12, 1944

% Senator Carl Hayden,  
Senate Office Bldg.,  
Washington, D.C.

Mr. Sherwood B. Owens,  
P. O. Box 769,  
Tucson, Ariz.

Dear Mr. Owens,

Thanks for your kind letter of the 9th inst.

The reason why this case has hung around unsettled for so long since you spoke to me about it in Tucson is that I had to get a complete reversal of a basic WPB policy before I could get it moving, also in the Chilson case.

However, I hope to have final approval, all being well, by tomorrow, as there only is MRC to satisfy now, it having cleared the other departments.

Sincerely,

W. C. Broadgate

Box 769  
Tucson, Ariz.

Oct. 9, 1944

Mr W. C. Broadgate  
C/o Senator Carl Hayden  
Washington, D. C.

Dear Mr Broadgate:

Am in receipt of your favor of the 4th re action of the Quota Committee regarding Bulldozer application. Believe me, I think I know now how those boys floating around on rafts in the South Pacific must feel when they finally see a smudge of smoke on the horizon.

I have continued work on development out there as per your suggestion and have this mine under way constantly as an active operation. If the application is granted right at this time, it will be particularly advantageous as two of the shippers at Helvetia are about out of ore and I can absorb their quota with A. S. & R. Co. at Hayden as well as the contemplated tonnage with International at Miami.

I want you and Senator Hayden to know how deeply appreciative I am of the fine work you have done in getting action on this matter for me. If you can keep it up just a little longer and steer the matter on through the other agencies you mention to final approval, it will be a tremendous help both to me and to this general area. As you know, the copper out there is definitely present in quantity but the quality is such that this help is absolutely necessary if I am to produce it.

If I can furnish any additional information or do anything whatsoever to assist you, please call on me. Thanks again for all these efforts you are making in my behalf.

With best regards, I am

Yours very truly,

SHERWOOD B. OWENS

---

Bulldozer

October 3, 1944

MEMORANDUM

TO: W. C. Broadgate

FROM: Chas. H. Dunning

The Sherwood Owens extra premium has come up here again with a call for help, but Ballam says they got off a full story to you last week so presume you are working on it.

The strange thing seems to be that although his ore and mine are exactly like others in the district, he is the only one not enjoying a premium. Due to a past ball-up somewhere.

CHD:LP

9/24/44

Dear Mac:

Kuhry finally got the first car out as per enclosed bill of lading but it is very light, probably about 48 tons. Said he would see you over week-end so suppose he gave you all the dope.

Recd. letter today from Quota Committee advising they are rehearing Bulldozer application again. Maybe they are finally going to give it to me. If Phoenix office could help by writing letter to Strobel or anything like that, for gosh sakes have Dunning do it. With that premium I could probably make a couple of bucks over there.

Best regds -

Hereward B. Dunning

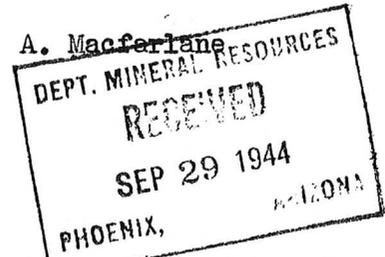
DEPARTMENT OF MINERAL RESOURCES  
STATE OF ARIZONA  
FIELD ENGINEERS REPORT

Mine

Date Sept. 28th, 1944

District

Engineer



Subject: To Chas. Dunning  
Director.

The enclosed short note from Sherwood Owens is self explanatory; Owens has had a lease on a low grade copper called the Bull Dozer situated in the Helvitia district since just before the end of last year, and states he did apply for a special copper premium then but he has so far been unsuccessful in getting the special.

His ore showings are liberal, but probably will not mine out to a grade of 2.5% Cu. and without the special premium he cannot work and ship his ore without a serious financial loss.

Will you please instruct Broadgate again to do all he can before the Quota Committee in Washington, to help this man get a Special Copper premium.

Due to his previous contacts with me, he writes me re the above and no doubt he has taken the matter up with Mr Ballam also.

*Bill Broadgate*

*CHD*

October 3, 1944

DEPT. MINERAL RESOURCES  
RECEIVED  
OCT 13 1944

MEMORANDUM

TO: W. C. Broadgate  
FROM: Chas. H. Dunning

The Sherwood Owens extra premium has come up here again with a call for help, but Ballam says they got off a full story to you last week so presume you are working on it.

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*Chas H Dunning*

CHD:LP

*Oct 6 / 1944*

Dear Chuck:

I have written Owens in detail on this matter and it looks as though we might straighten him out. This is one of the cases (Chick's was another) I picked up in Tucson.

Why don't you put on a campaign through the field engineers to see how many operators are ~~going~~ going to lose their wartime investments, or part thereof, and might file claims under the Contract Termination Act? Regards Bill Broadgate

September 10, 1942

Mr. Edgar L. Rossin  
Miami Copper Company  
61 Broadway  
New York

Dear Mr. Rossin:

Mr. H. L. Berkey, 829 Alexander Hotel, Los Angeles, California, is the owner of the Bulldozer claim which adjoins property owned by your company in the Helvetia District. He is considering opening his property and would like to consider a lease on the adjoining property and I have referred him directly to you on this matter.

Through this office and through Mr. Willis we have followed Mr. Berkey's work in mining and can highly recommend him for serious consideration.

With best wishes, I am

Yours very truly,

J. S. Coupal, Director

JSC:LP

CC: Mr. H. L. Berkey

DEPT. MINERAL RESOURCES  
RECEIVED  
OCT 23 1944  
PHOENIX

*CH*

*Bulldozer*

Oct. 221, 1944

Senator Carl Hayden

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*20000*

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FC  
150

I can not begin to tell you how grateful I am for the magnificent help rendered by you in this matter. I know that I could not have received these special benefits without your help, and if there is anything I can do or in any way return this favor I want you to feel more than free to call on me at any time.

Again thanking you as well as with the kindest personal regards, I am

Yours very truly,

(signed)

Sherwood B. Owens

SBO:cv

*Bulldozer*

*OW*

DEPT. MINERAL RESOURCES  
RECEIVED  
OCT 14 1944  
PHOTO. SECTION

Oct. 13, 1944

§ Senator Carl Hayden,  
Senate Office Bldg.,  
Washington, D.C.

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I have continued work on development out there as per your suggestion and have this mine under way constantly as an active operation. If the application is granted right at this time, it will be particularly advantageous as two of the shippers at Helvetia are about out of ore and I can absorb their quota with A. S. & R. Co. at Hayden as well as the contemplated tonnage with International at Miami.

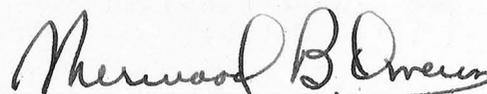
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*Bulldozer*

October 3, 1944

MEMORANDUM

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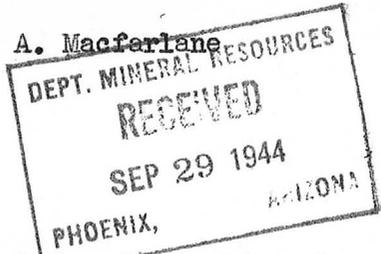
DEPARTMENT OF MINERAL RESOURCES  
STATE OF ARIZONA  
FIELD ENGINEERS REPORT

Mine

Date Sept. 28th, 1944

District

Engineer



Subject: To Chas. Dunning  
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Will you please instruct Broadgate again to do all he can before the Quota Committee in Washington, to help this man get a Special Copper premium.

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*Bulldozer*

*CHD*

October 3, 1944

DEPT. MINERAL RESOURCES  
RECEIVED  
OCT 13 1944  
PHOENIX

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Miami Copper Company  
61 Broadway  
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Dear Mr. Rossin:

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With best wishes, I am

Yours very truly,

J. S. Coupal, Director

JSC:LP

CC: Mr. H. L. Berkey

BULLDOZER LODE MINE

PIMA COUNTY

Mine closed down. ALJ WR 5-11-63

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DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA  
FIELD ENGINEERS REPORT

Mine Del Rio Mine - Bulldozer Lode Date Sept. 6, 1961  
District Helvetia District - Pima County Engineer Axel L. Johnson  
Subject: Present Status. Information from Ernest Mueller & personal visit.

References: Reports of Nov. 29, 1960 & Sept. 23, 1960.

Present Status: Mr. Mueller reported that the mine closed down on July 28, 1961. Reason for closing, according to Mr. Mueller, was insufficient quantities of ore available for leaching and also decision by the owners not to expend any more money for exploration and development to prove up additional ore.

Mr. Mueller does not believe that his company will reopen the mine and resume leaching operations. He states, however, that they may mine and truck some of the blue oxidized copper ore for use in the building industry.

Additional: Mr. Mueller reports that his company is now doing annual assessment work on the Santa Lucia Group, near Arivaca, which they also own.

DEPARTMENT OF MINERAL RESOURCES  
STATE OF ARIZONA  
FIELD ENGINEERS REPORT

Mine Del Rio Mine - Bulldozer

Date Nov. 29, 1960

District Helvetia District, Pima County

Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from Ernest Mueller and personal visit.

References: Report of Sept. 23, 1960.

Principal Minerals: Copper carbonates and oxides.

Present Activity: Construction of a new crushing and screening plant. 4 men working -  $5\frac{1}{2}$  days per week. No ore leaching at present. Operators expect to start leaching ore in about 10 days.

Mill Equipment:

- (1) A new crushing and screening plant just being finished. This consists of a 25 ton ore bin, a 9" x 24" jaw crusher, a conveyor belt, 16" x 18" rolls, a bucket elevator, a chain conveyor and a set of vibrating screens. The vibrating screens separate the material into 2 sizes, the +10 mesh going to the leaching vat and the -10 mesh being transported to a stockpile by means of the chain conveyor. This will later be leached in a leaching drum.
- (2) Two leaching vats - one 88 ft. long (including 30' ramp) x 12 ft. wide x 4' 8" deep and one 70 ft. long (including 30' ramp) x 12' wide x 4' 8" deep.
- (3) Two precipitation tanks - one 10' x 38' x 24" with 5 sections and one 10' x 38' x 29" with 5 sections.
- (4) 1 storage tank - 6' x 10' x 4' and a drying platform.

Mine Equipment:

- (1) Tractair Mobile Drill (air compressor and drill mounted on a truck).
- (2) Bulldozer and car loader.
- (3) 5 yard dump truck.

Proposed Plans:

- (1) To construct 2 additional leaching vats of same size later.
- (2) To install 3 conveyor belts for conveying the ore from the crushing & screen plant to the 2nd, 3d & 4th leaching vats.
- (3) To leach the -10 mesh product in a leaching drum.

This property active Feb. 1961

DEL RIO MINE

PIMA COUNTY  
HELVETIA DIST.

Active 9-1960 - Oper: E. A. Mueller,  
Arivaca Land & Development Co.  
Box 83  
Sahuarita, Ariz.

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**DEPARTMENT OF MINERAL RESOURCES**  
**STATE OF ARIZONA**  
**FIELD ENGINEERS REPORT**

Mine Del Rio Mine - Bulldozer

Date September 23, 1960

District Helvetia District, Pima County

Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from Ernest Mueller and personal visit.

Location: About  $1\frac{1}{2}$  mile NW of Helvetia. Take the Ruelas Ranch road and drive about 1 mile N to the mine.

No. of Claims: 1 unpatented claim.

Owners: P.R. Ruelas & Alice Ruelas (husband & wife)  
Felix Ruelas & Julia Ruelas (husband & wife)

Lessees & Operators: Arivaca Land and Development Co., Box 83, Sahuarita, Ariz.  
Lynn V. Shirk, 919 Wells St., Fort Wayne, Indiana - Pres.  
Ernest A. Mueller, Box 83, Sahuarita, Ariz. - Sec'y-Treas.

The new company is a consolidation of the Del Rio Minerals Co. operations and the Santa Lucia Group of claims, 7 miles NW of Arivaca.

Principal Minerals: Low grade copper carbonates and oxides.

Present Activity: Construction of an additional leaching vat. 4 men working -  $5\frac{1}{2}$  days per week. No ore leaching at present. Operators expect to start leaching ore in about 30 days.

Milling & Marketing: Ore will be treated in the leaching plant. The cement copper will be trucked to the International smelter at Inspiration, Arizona.

Review of Recent Operations: Operations at the Del Rio Mine were suspended in February, 1960 on account of lack of finances.

Operations were resumed yesterday (Sept. 22).

The construction of the second leaching vat, which was started in January, 1960, is now being continued. Mr. Mueller states that the size of this leaching vat will be 12' x 40' with a 30' ramp. It is being built of Douglas Fir, to be covered with pitch tar.

Additional: There is no work being done at the Santa Lucia Mine at the present time, and none is planned for the next few months. Geophysical work and diamond drilling is being considered at some future date. ( See Santa Lucia Group. )

DEPARTMENT OF MINERAL RESOURCES  
STATE OF ARIZONA  
FIELD ENGINEERS REPORT

Mine Del Rio Mine

Date April 12, 1960

District Helvetia District, Pima County

Engineer Axel L. Johnson

Subject: Present Status - Information from Elmer Torstenson

References: Reports of January 27, 1960 and September 25, 1959.

Present Status: The mining and leaching operations are reported as temporarily shut down due to lack of finances.

This information was reported by Elmer Torstenson, 2641 N. Bahana Drive, Tucson, (AX 8-4742) who has a financial interest in the operation.

DEPARTMENT OF MINERAL RESOURCES  
STATE OF ARIZONA  
FIELD ENGINEERS REPORT

Mine Del Rio Mine

Date Jan. 27, 1960

District Helvetia District, Pima County

Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from Ernest Arthur Mueller & personal visit.

Location, Number of Claims & Owners ---- see report of April 7, 1959.

Lessees Del Rio Minerals Co., Ernest Arthur Mueller, Manager,  
Box 83, Sahuarita, Arizona.  
Date of lease --- Jan. 21, 1959.

Principal Minerals Low grade copper carbonates & oxides.

Present Mining Activity Construction of precipitation tank, leaching vat & drying platform to increase leaching capacity. 3 men working.

Geology Copper replacements in limestone. Copper is low grade, and consists principally of malachite and azurite in a limestone gangue.

Mining Operations & Leaching Operations ----see report of Sept. 25, 1959.

Present Operations

(1) 1 additional precipitation tank has been constructed since my report of Sept. 25, 1959. This tank is 10' x 38' x 29" high (same size, but 5" higher than the first tank). It was constructed of Douglas fir, and covered with pitch tar.

(2) 1 storage tank, 6' x 10' x 4' high, has also been constructed to be used for the storing of the cement copper.

(3) 1 drying platform for the drying of the cement copper has also been constructed.

(4) 1 additional leaching vat, 88' long x 12' wide x 4' - 8" in height, is now under construction. It is constructed of Douglas fir, to be covered with pitch tar.

No ore has been leached since Dec. 5, when leaching operations were suspended for the duration of the construction work described above.

About 7 tons of cement copper is now stored in the storage tank, and ready for shipment. It is expected that this will be shipped to the International smelter at Inspiration, Ariz. Mr. Mueller estimates that the cement copper will run from 58% to 62% in copper.

Proposed Plans

It is planned to construct one additional leaching vat later.

Additional conveyor belts will also be installed to serve the two new leaching vats.

# DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

## FIELD ENGINEERS REPORT

Mine Del Rio Mine

Date Sept. 25, 1959

District Helvetia District, Pima County

Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from Ernest Arthur Mueller & Personal Visit.

References Report of April 7, 1959

Principal Minerals Low grade copper oxides, in a limestone gangue.

Present Mining Activity Leaching copper ores. 3 men working. 3 to 4 tons of cement copper produced from 4 experimental runs.

Ore Values Mr. Mueller reports a 20 ft. trench sample of 300 lbs. assayed Copper - 2.84 %; Gold - 0.01 oz.; Silver - 0.6 oz. Mr. Mueller also reports that the ore assays 18 to 22 % in lime, but that only 3 % is acid soluble lime.

Mining Operations The ore is mined with bulldozer and loader, and dumped into an 25 ton ore bin. From this ore bin, the ore first goes to a 9" x 24" jaw crusher, and then, by belt conveyor, to 16" x 18" rolls. From the rolls, the crushed ore is carried by conveyor belt to the leaching vat.

Leaching Operations The operations are carried on in a leaching vat and a precipitation tank. The leaching vat is 88 ft. long x 12 ft. wide x 4'-8" deep, constructed of douglas fir, treated with pitch tar. The precipitation tank is 10' x 38' x 24", and has 5 sections. It is constructed of redwood, covered with pitch.

The leaching operations are conducted as follows:

(1) Crushed ore is run into the leaching vat to a depth of 3 ft., which requires about 100 tons.

(2) Water is now run into the leaching vat.

(3) Acid is now added in the amount of 100 lbs. to each ton of ore, or about 5 tons to the 100 ton batch. Mr. Mueller estimates that it takes about 60 lbs. of acid per ton of ore to neutralize the soluble lime, leaving the remaining 40 lbs. available for leaching. The cost of the acid, according to Mr. Mueller, is \$ 33.00 per ton delivered at the mine, or \$ 20 to \$ 24 per ton delivered in car load lots at Sahuarita.

(4) The leaching operation requires a period of 5 days for each batch. First, the acid solution is circulated, in a closed circuit within the leaching vat, for 24 hrs. Then the solution is circulated continuously between the leaching vat and the precipitation tank for an additional 4 days. The total time for the leaching of the 100 ton batch is therefor 5 days.

(5) At the end of the 5 day period, all of the solution is first drawn into the precipitation tank, and, from there, run into a waste dump; the leached ore is cleaned out of the leaching vat and stockpiled for heap leaching later on; and the cement copper is cleaned out of the precipitation tank and shipped to the smelter.

Proposed Plans (1) To construct 2 additional leaching vats of the same size, with pressure circulating pumps for each vat. Then 2 of the leaching vats will be used for leaching, while the 3rd vat is being refilled with ore.

(2) To build one additional precipitation tank of the same size as the one now in use.

Capacity The present capacity is 100 tons of ore in 5 days, or 20 tons of ore per day. After the 2 additional leaching vats and the additional precipitation tank ~~xxx~~ are installed, the capacity will be increased to about 75 tons of ore per day.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine Del Rio Mine - Bulldozer Lode Date April 7, 1959  
District Helvetia District - Pima County Engineer Axel L. Johnson  
Subject: Field Engineers Report. Information from Ernest Arthur Mueller.

Location: About  $1\frac{1}{2}$  mile NW of Helvetia. Take the Ruelas Ranch road and drive about 1 mile N to the mine.

Number of Claims: 1 unpatented mining claim called the "Bull Dozer Lode."

Owners: P. R. Ruelas & Alice Ruelas, husband & wife  
& Felix Ruelas & Julia Ruelas, " "

Lessees: Del Rio Minerals Co.  
Ernest Arthur Mueller  
1002 S. 35th Ave., Phoenix, Arizona

Date of lease -- Jan. 21, 1959

Principal Minerals: Low grade copper ores, principally malachite and azurite in a limestone gangue.

Present Mining Activity: Construction of 2-100 ton leaching vats. 3 men working.

Geology: Replacements in limestone.

Milling & Marketing Facilities: Operators have just started the construction of a leaching plant. Lumber and other materials have been hauled in, a 25 ton ore bin has been constructed and a bulldozer is now at work leveling off for the plant site and the foundations.

According to Mr. Mueller, the plant will consist of crusher and rolls (crushing to  $\frac{3}{8}$  inch), 2 - 100 ton leaching vats (each about 16' x 89' and 4' deep) and precipitation tanks. The leaching vats will be constructed of Douglas fir, treated with pitch tar. Precipitation will be accomplished by means of bailing wire, scrap iron, and tin cans. Mr. Mueller estimates that the plant will be completed in about 30 days.

Water Supply: Water will be furnished from a 145 ft. well on the property. The water will be re-circulated for re-use.

Additional: Mr. Mueller states that each batch of copper ore will be leached for 30 hours. He estimates that this will leach out about 70% of the copper in the ore. A large part of the remaining 30% will later be recovered by running the leaching solutions over the waste dump.

Mr. Mueller states that, according to tests made, the acid consumption on account of the high lime content of the ore, will not be too excessive.

DEPARTMENT OF MINERAL RESOURCES  
STATE OF ARIZONA  
FIELD ENGINEERS REPORT

Mine Bulldozer Mine

Date Nov. 1, 1951.

District Helvetia Mining Dist., Pima County

Engineer Axel L. Johnson

Subject: Reconnaissance Report

Location The property is located 2 miles north of the Sahuarita-Helvetia Road, and 14 miles south-east of ~~the~~ Sahuarita, being 3 miles west of Helvetia. It has a good road into the property.

Ownership The property is owned by Mr. and Mrs. P. J. Rainey, 834 W. Thomas Road, Phoenix, Arizona. It was formerly owned by H. L. Burkey, Gates Hotel, Los Angeles, Calif. (Note:- The ownership information may not be quite correct, as it was not obtained from the owners direct)

Metals mined Copper ore in form of carbonates and oxides.

Men Employed 4 men on day shift only.

Production Rate 2 1/2 feet per day in shaft sinking on incline shaft--5' x 8'. Approximately 60 % of the rock removed is waste, and the balance 40% is ore. This would mean about 3 tons per day of copper ore, which will run about 3%.

Marketing Facilities The operators hire trucks for the hauling of the ore to Sahuarita, from where it is shipped by rail to the A. S. R. Co, smelter at Hayden.

Ore Values The ore is hand sorted, and it is expected to run about 3% copper. The operators shipped 4 carloads of ore previously this year, which ran about 3 % copper, 3 of these carloads being obtained from open cut operations near the top of the hill, and another carload from old dumps on the property. The A. S. R. Co, accepts this low copper content, as the high lime content in the ore makes it a good fluxing ore.

Geology and Mineralization The copper ore is in the form of carbonates and oxides found in the veins in the limestone rock. These veins are from a few inches to 4 feet in thickness and seem to have a general East and West strike, but there are several cross veins and individual pockets which do not follow this trend. The dips vary from vertical to 45 deg., and the dip may change abruptly in the same vein. Many of the veins are too narrow or of too low a grade to yield commercial ore without resorting to a great deal of hand sorting.

Old Workings and Past Production

(1) Old Bulldozer Mine a cross the wash west of the present operations shows evidence of having produced a fairly large amount of copper ore many years ago. It has a partly caved and inaccessible vertical shaft, a large waste dump, and a slag dump from old smelting operations.

(2) Old open cut operations on the hill near where the present operations are conducted, evidently made a number of years ago.

(3) An incline shaft, inclined 50 deg. North, and 25 feet deep, which was sunk in an ore vein (the same ore vein in which the operators now are sinking a new incline shaft about 100 feet further east), This old shaft was presumably abandoned on account of the ore being too low grade to work.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Page 2.

Mine Bulldozer Mine

Date Nov. 1, 1951.

District Helvetia Mining Dist., Pima Co.

Engineer Axel L. Johnson

Subject: Reconnaissance Report

(4) Two open cuts made by the present operators of the property this spring near the top of the hill. One carload was taken out of the first open cut, which was abandoned when they ran out of good ore. Two carloads were taken out of the second open cut, which was abandoned when it was decided that it was too hazardous to continue further open cut operations. This open cut shows a nice face of ore exposed on the west side of the cut.

(5) One vertical shaft 55 feet deep with a drift 20 feet long running north from the bottom of the shaft. This work was done this summer, and was abandoned on account of one or all of the following reasons:

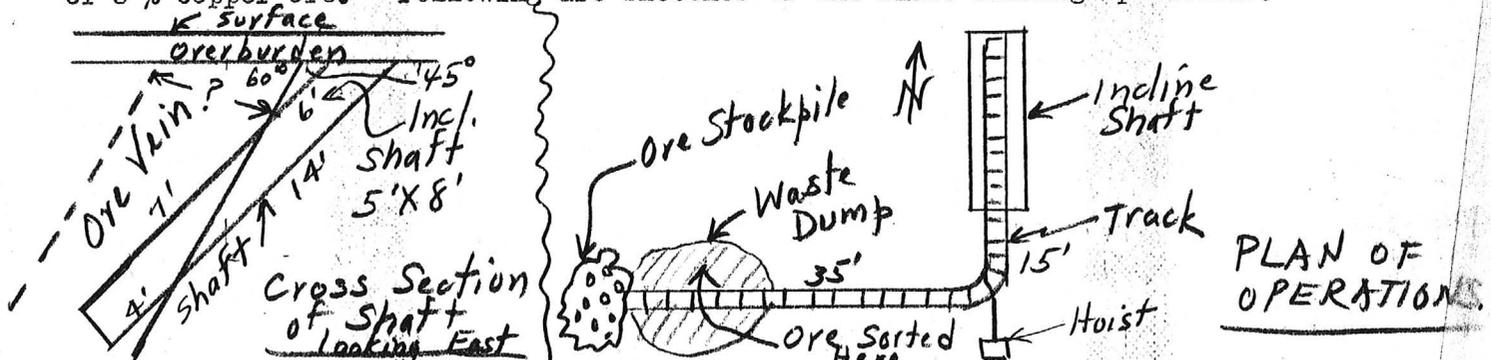
(a) The ground around the shaft was broken, causing the shaft to cave. The shaft apparently is in a fault zone.

(b) No ore was encountered in the shaft or drift.

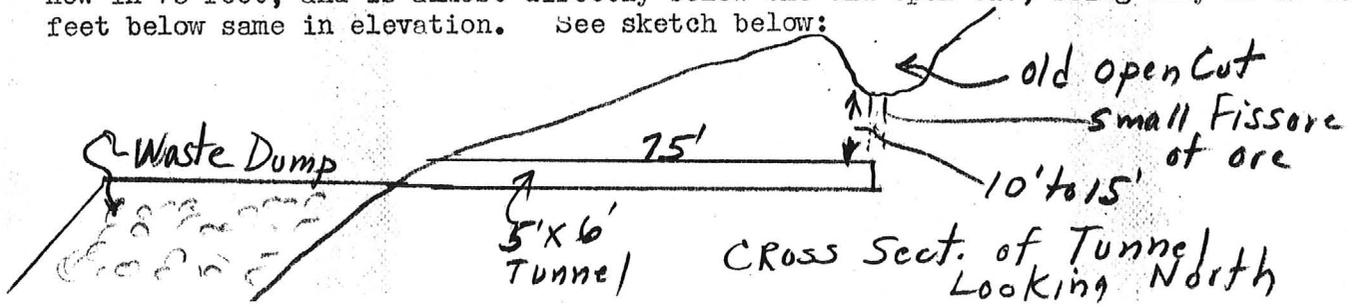
(c) The bottom of the shaft and the drift was in granite rock and not in the limestone formation.

Present Operations

(1) Inclined Shaft The operators are now sinking an incline shaft, 5 x 8, and inclined 45 deg. to the north. It apparently is in the same ore vein in which the old incline shaft 100 feet to the west was sunk. The new incline shaft is now down 15 feet, and is in the ore vein, which dips approximately 60 deg to the north. They are taking the ore out in an ore car, which is pulled up the incline with a gasoline hoist, then trammed by hand out another 35 feet, where it is dumped on the ~~ground~~ ground, and the chunks of ore sorted out by hand, and thrown on an ore stockpile nearby. I should judge that the ore taken out would be approximately 60% waste and 40 % ore. The ore stockpile, I should estimate, would contain about 15 to 20 tons of 3 % copper ore. Following are sketches of the shaft sinking operations:



(2) Tunnel The operators are also driving a tunnel into the hill on the west side of same. They are working this tunnel intermittently, and wheeling out the rock from the tunnel in a wheelbarrow. This tunnel was started half ways up the hill in order to get under one of the old open cuts, which shows a few fissures of ore in the bottom and sides of the cut. The tunnel they are driving now shows a few stringers of ore, but not enough to sort any of it out for shipping. Tunnel is now in 75 feet, and is almost directly below the old open cut, being only 10 or 15 feet below same in elevation. See sketch below:



DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Page 3

Mine Bulldozer Mine

Date Nov. 1, 1951.

District Helvetia Mining Dist., Pima Co.

Engineer Axel L. Johnson

Subject: Reconnaissance Report

Proposed Plans The operators intend to continue the above operations of shaft sinking. They intend to follow the ore vein down, which means that they will have to change the incline of the shaft to make it coincide the pitch of the vein. They intend to procure an ore skip, and build an ore pocket. They will sort the ore before it is hoisted up the shaft, dumping the waste on the east side of the shaft and the ore in the pocket. The ore pocket is to hold 8 tons, or enough for one truckload.

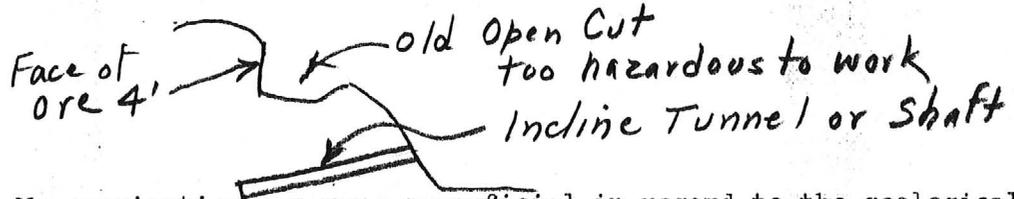
General Remarks

(1) Owing to the fact that granite was encountered in the first 55 feet ~~vert~~ vertical shaft, I would say that it is doubtful that the limestone formation, which ~~com~~ contains the ore values, extends to any great depth.

(2) It is problematical that enough ore of shipping grade will be found in and around the shaft now being sunk to make this operation profitable.

(3) It does not appear that the tunnel being driven into the hill on the west side will develop any great quantity of ore.

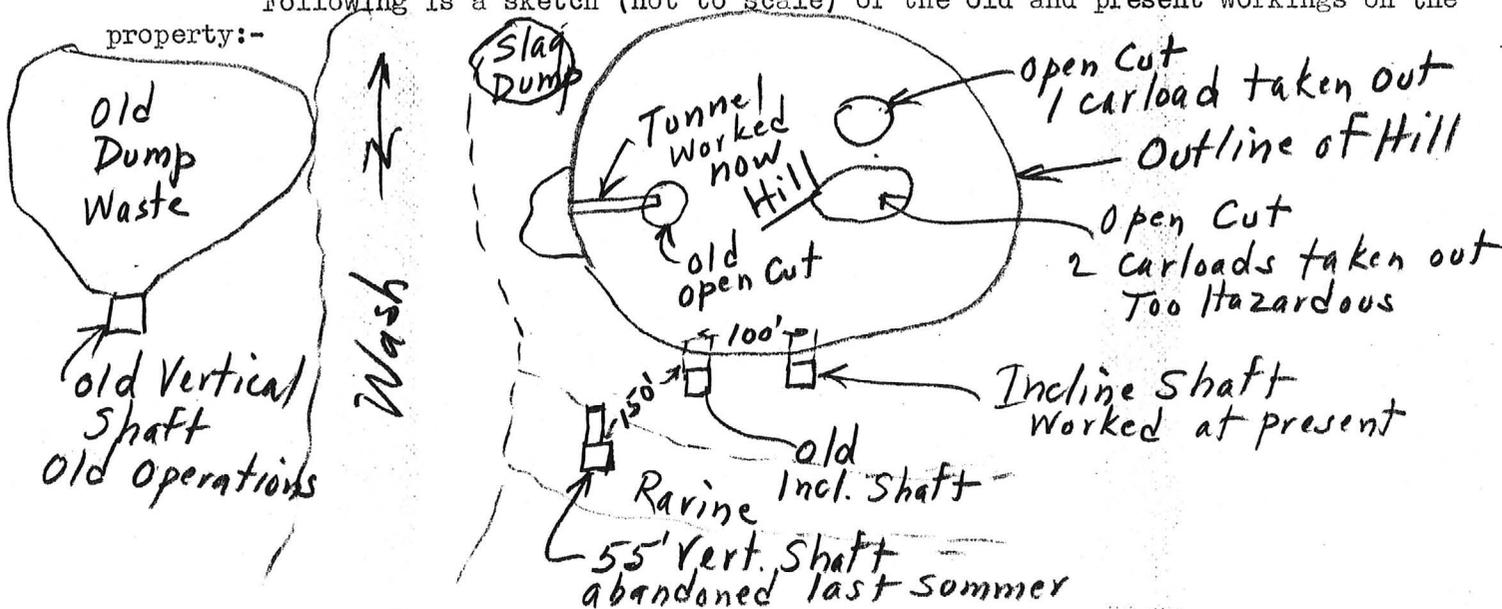
(4) It would seem to the writer that it would have been a better policy to get under the old open cut, where operations were suspended previously on account of the open cut being too hazardous. This could have been done by driving an incline tunnel or shaft from the lower east side of the hill, viz.



(5) My examination was very superficial in regard to the geological features of the property. A complete examination by a consulting engineer and geologist would seem to be advisable.

(6) Some diamond drill holes at strategic places, which the consulting engineer would designate, might be of a great deal of value in determining the extent and grade of ore, and the best method of operating the property.

Following is a sketch (not to scale) of the old and present workings on the property:-



July 14, 1944

0110

MEMORANDUM

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

DEPT. MINERAL RESOURCES  
RECEIVED  
JUL 17 1944  
PHOENIX ARIZONA  
Mildred mine  
Helvetia dist.

Sherwood Owens, Box 769, Tucson, has leased this property and shipped 7 cars of ore to International. Ore is desirable at this smelter, and although somewhat less than 3% copper is high in lime and Smith of International is urging Owens to continue shipments. He cannot profitably do so on 17¢ price and has asked for 25<sup>1</sup>/<sub>2</sub>¢ which is standard for similar properties in immediate vicinity which are heavy shippers of lime ore. This application, made in February, was refused. Lengthy correspondence with Hayes, Strobel and others followed and case was thoroughly set forth. Grounds for refusal vague, but since this was a reopening of application made on same property in December following shipment of car of this ore by C.M. d'Autremont of Tucson, it could not be logically argued that application was not received prior to deadline.

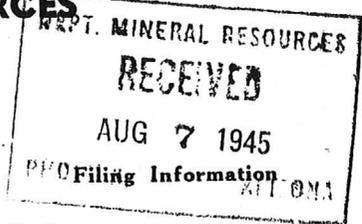
RFC has examined property and reported favorably on \$15,000 loan for shovel and other equipment to take out 15,000 tons positive and 20,000 tons probable ore. This application is apparently being held up pending final decision on advance premium price.

Owens requests follow-up by this dept. to determine whether there is any chance to get this property going. Harry Hayes has complete case.

*George A. Ballam*

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT



Chas. R. S.  
582  
Page 124  
info re mine

Date: 8/7/45  
Name of Mine: Silver Hill & Bulldozer  
Owner or Operator: H L Berkeley  
Address: 574 W Campbell, Tucson  
Mine Location: Melochin & Silver

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	1941 Olds	5760	
Light or Service Trucks			
Ore Hauling Trucks			
Compressors			
Other Mine or Mill Eqpt.			

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

Copper Lead

REMARKS:

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By: [Signature]

# DEPARTMENT OF MINERAL RESOURCES

## REPORT TO OPA ON ACTIVE MINING PROJECT

Date..... 5/20/75  
 Name of Mine..... Bull Canyon  
 Owner or Operator..... Shirley B. Adams  
 Address..... 2409 E 101st Tucson  
 Mine Location..... Helena

**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 <i>gtr</i>
Personal Cars	.....	.....	.....
Light or Service Trucks	.....	.....	.....
Ore Hauling Trucks	.....	.....	.....
Compressors	<u>IR 50</u>	.....	<u>1500</u>
Other Mine or Mill Eqpt.	<u>FM 6</u>	.....	<u>500</u>
			<u>2000 per month</u>

**PRODUCT PRODUCED OR CONTEMPLATED:** Name metals or minerals.

Copper

**REMARKS:**

.....  
 .....  
 .....

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By..... Shirley B. Adams

# DEPARTMENT OF MINERAL RESOURCES

## REPORT TO OPA ON ACTIVE MINING PROJECT

Date..... 3/26/45  
 Name of Mine..... Bulldozer  
 Owner or Operator..... H L Berkeley  
 Address..... 7 Paseo Roberto Tucson  
 Mine Location..... Arizona

**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	.....	.....	.....
Other Mine or Mill Eqpt.	.....	.....	.....

**PRODUCT PRODUCED OR CONTEMPLATED:** Name metals or minerals.

Copper

**REMARKS:**

Mr Berkeley is owner of this mine and must make periodic trips to it for supervision. 560 mi per month for this purpose is recommended but cannot assume responsibility for additional 300 mi occupational driving.

**ARIZONA DEPARTMENT OF MINERAL RESOURCES**

By..... George J. Ballou

# DEPARTMENT OF MINERAL RESOURCES

## REPORT TO OPA ON ACTIVE MINING PROJECT

Date..... 3/10/45  
 Name of Mine..... Bullseye  
 Owner or Operator..... Shepherd Bowles  
 Address..... 2409 E 12th St, Tucson  
 Mine Location..... 40 mi SE Tucson, Pinal Co 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 ..... 100  
 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>1939 Buick</u>	<u>7100</u>	.....
Light or Service Trucks	.....	.....	.....
Ore Hauling Trucks	.....	.....	.....
Compressors	.....	.....	.....
Other Mine or Mill Eqpt.	.....	.....	.....

**PRODUCT PRODUCED OR CONTEMPLATED:** Name metals or minerals.

Copper

**REMARKS:**

The Owens is producing copper ore from his mine as indicated and hauling from a number of other mines application recommended for approval

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By..... George A. Ballan

NAME OF MINE: BULLDOZER

COUNTY: PIMA

DISTRICT:

METALS: CU

OPERATOR AND ADDRESS:

MINING STATUS

DATE:

DATE:

5/1/44

Sherwood Owens, Box 7689  
Tucson, Arizona

5/1/44

Shipping

6/44

Suspended operations

10-44

Shipping

4/1/47

Developing

OPERATOR AND ADDRESS

MINING STATUS

Date:

Date:

5/45

R.E. Chilson, Ruby Star Rt.,  
Tucson

5/45

Shipping

March 29, 1944

MEMORANDUM

Bulldozer Mine  
(Helvetia Dist.)

DEPT. MINERAL RESOURCES

RECEIVED

MAR 30 1944

PHOENIX

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

Just talked to Owens regarding this property. He had discussed with Brent Rickard the procedure I outlined last week when I went over the workings with him. Rickard will take the ore which will be shipped on zero quota transferred from d'Autremont for which request has already been made. It is one of those things where a large tonnage of ore is in sight but conventional mining methods are too costly to ship without advance premium. Owens, however, is a dirt mover and has the equipment. He can go in with a dozer and by fixing a loading pit with grizzly, can push a lot of stuff out and with some selection can get the cost down to about \$1.50. There are several cars of 3% and better ready to load. It has been well sampled and he can easily keep grade above 3%. I advised him to get a couple of cars out at once. Brent was amused at the idea of doing this and then possibly trying to get an advance on a going operation which may not show a suitable profit, but seemed to think it was the way to do it. At any rate he is going ahead.

The east end of the property, some 600 feet away, is a lime-capped dome which has been pushed up in the monzonite. There are several thousand tons of similar ore here and if the smaller operation can be made to go, Owens is planning on putting in a shovel with additional equipment. For this a loan might be necessary. The hill has been honey-combed with earlier operations. There is a lot of 6% to 8% ore which it was impossible to take and big bodies of 3% which couldn't be mined and shipped profitably. With a shovel he can pull it all down and throw the lime out keeping the ore above 3%. I believe it will be a large operation which can be handled in this manner. Will submit a report as soon as he gets going.

This is an old operation and at one time a smelter was maintained on sulfides mined about 100 feet below the lowest workings in the hill, where sulfides are just beginning to come in. The old shaft, between the two ore bodies, is now inaccessible, but the area of the hill is sufficient to bench to a considerable depth.



# DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

## FIELD ENGINEERS REPORT

Mine Bulldozer Mine

Date Nov. 1, 1951.

District Helvetia Mining Dist., Pima County

Engineer Axel L. Johnson

Subject: Reconnaissance Report

Location The property is located 2 miles north of the Sahuarita-Helvetia Road, and 14 miles south-east of ~~the~~ Sahuarita, being 3 miles west of Helvetia. It has a good road into the property.

Ownership The property is owned by Mr. and Mrs. P. J. Rainey, 834 W. Thomas Road, Phoenix, Arizona. It was formerly owned by H. L. Burkey, Gates Hotel, Los Angeles, Calif. (Note:- The ownership information may not be quite correct, as it was not obtained from the owners direct)

Metals mined Copper ore in form of carbonates and oxides.

Men Employed 4 men on day shift only.

Production Rate 2 1/2 feet per day in shaft sinking on incline shaft--5' x 8'. Approximately 60 % of the rock removed is waste, and the balance 40% is ore. This would mean about 3 tons per day of copper ore, which will run about 3%.

Marketing Facilities The operators hire trucks for the hauling of the ore to Sahuarita, from where it is shipped by rail to the A. S. R. Co, smelter at Hayden.

Ore Values The ore is hand sorted, and it is expected to run about 3% copper. The operators shipped 4 carloads of ore previously this year, which ran about 3 % copper, 3 of these carloads being obtained from open cut operations near the top of ~~the~~ the hill, and another carload from old dumps on the property. The A. S. R. Co, accepts this low copper content, as the high lime content in the ore makes it a good fluxing ore.

Geology and Mineralization The copper ore is in the form of carbonates and oxides found in the veins in the limestone rock. These veins are from a few inches to 4 feet in thickness and seem to have a general East and West strike, but there are several cross veins and individual pockets which do not follow this trend. The dips vary from vertical to 45 deg., and the dip may change abruptly in the same vein. Many of the veins are too narrow or of too low a grade to yield commercial ore without resorting to a great deal of hand sorting.

### Old Workings and Past Production

(1) Old Bulldozer Mine a cross the wash west of the present operations shows evidence of having produced a fairly large amount of copper ore many years ago. It has a partly caved and inaccessible vertical shaft, a large waste dump, and a slag dump from old smelting operations.

(2) Old open cut operations on the hill near where the present operations are conducted, evidently made a number of years ago.

(3) An incline shaft, inclined 50 deg. North, and 25 feet deep, which was sunk in an ore vein (the same ore vein in which the operators now are sinking a new incline shaft about 100 feet further east), This old shaft was presumably abandoned on account of the ore being too low grade to work.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Page 2.

Mine Bulldozer Mine

Date Nov. 1, 1951.

District Helvetia Mining Dist., Pima Co.

Engineer Axel L. Johnson

Subject: Reconnaissance Report

(4) Two open cuts made by the present operators of the property this spring near the top of the hill. One carload was taken out of the first open cut, which was abandoned when they ran out of good ore. Two carloads were taken out of the second open cut, which was abandoned when it was decided that it was too hazardous to continue further open cut operations. This open cut shows a nice face of ore exposed on the west side of the cut.

(5) One vertical shaft 55 feet deep with a drift 20 feet long running north from the bottom of the shaft. This work was done this summer, and was abandoned on account of one or all of the following reasons:

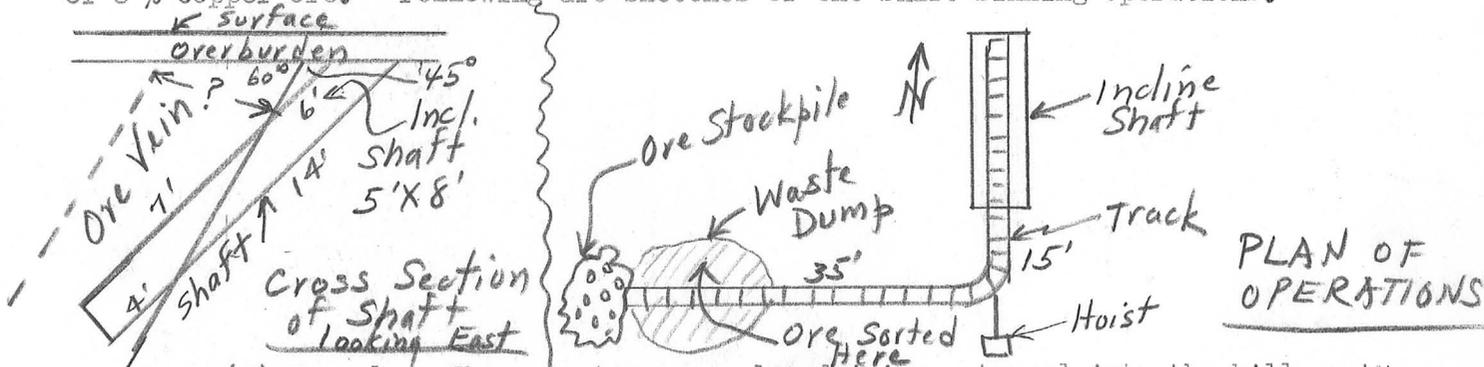
(a) The ground around the shaft was broken, causing the shaft to cave. The shaft apparently is in a fault zone.

(b) No ore was encountered in the shaft or drift.

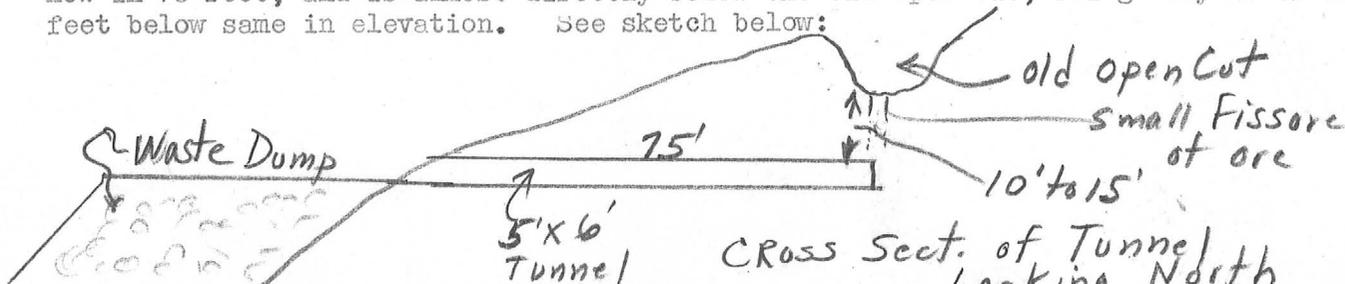
(c) The bottom of the shaft and the drift was in granite rock and not in the limestone formation.

Present Operations

(1) Inclined Shaft The operators are now sinking an incline shaft, 5 x 8, and inclined 45 deg. to the north. It apparently is in the same ore vein in which the old incline shaft 100 feet to the west was sunk. The new incline shaft is now down 15 feet, and is in the ore vein, which dips approximately 60 deg to the north. They are taking the ore out in an ore car, which is pulled up the incline with a gasolene hoist, then trammed by hand out another 35 feet, where it is dumped on the ground, and the chunks of ore sorted out by hand, and thrown on an ore stockpile nearby. I should judge that the ore taken out would be approximately 60% waste and 40 % ore. The ore stockpile, I should estimate, would contain about 15 to 20 tons of 3 % copper ore. Following are sketches of the shaft sinking operations:



(2) Tunnel The operators are also driving a tunnel into the hill on the west side of same. They are working this tunnel intermittently, and wheeling out the rock from the tunnel in a wheelbarrow. This tunnel was started half ways up the hill in order to get under one of the old open cuts, which shows a few fissures of ore in the bottom and sides of the cut. The tunnel they are driving now shows a few stringers of ore, but not enough to sort any of it out for shipping. Tunnel is now in 75 feet, and is almost directly below the old open cut, being only 10 or 15 feet below same in elevation. See sketch below:



DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Page 3

Mine Bulldozer Mine

Date Nov. 1, 1951.

District Helvetia Mining Dist., Pima Co.

Engineer Axel L. Johnson

Subject: Reconnaissance Report

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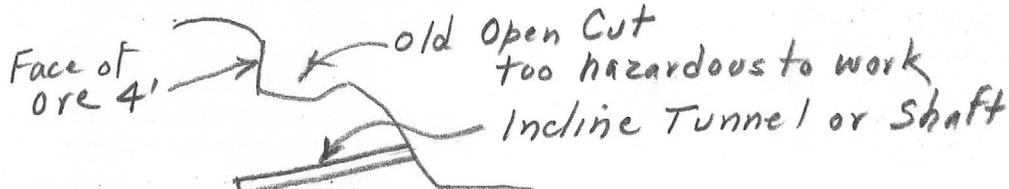
General Remarks

(1) Owing to the fact that granite was encountered in the first 55 feet ~~vert~~ vertical shaft, I would say that it is doubtful that the limestone formation, which ~~can~~ contains the ore values, extends to any great depth.

(2) It is problematical that enough ore of shipping grade will be found in and around the shaft now being sunk to make this operation profitable.

(3) It does not appear that the tunnel being driven into the hill on the west side will develop any great quantity of ore.

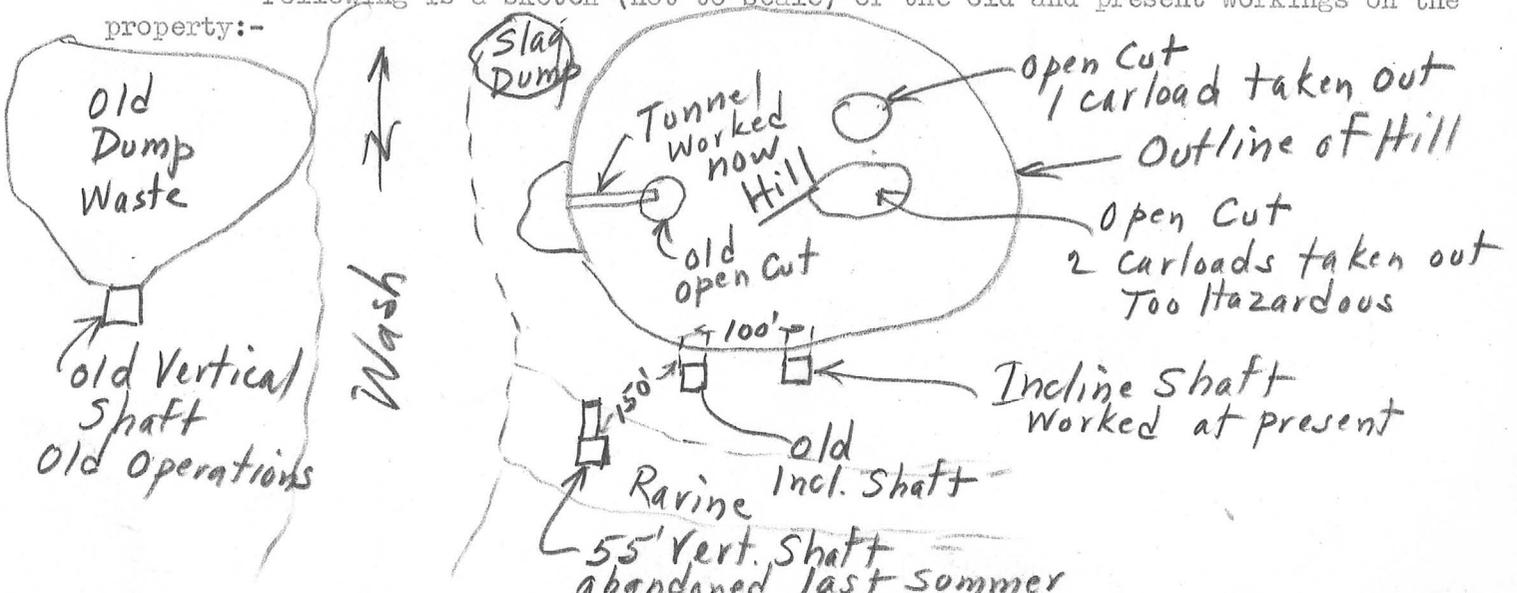
(4) It would seem to the writer that it would have been a better policy to get under the old open cut, where operations were suspended previously on account of the open cut being too hazardous. This could have been done by driving ~~an~~ incline tunnel or shaft from the lower east side of the hill, viz.



(5) My examination was very superficial in regard to the geological features of the property. A complete examination by a consulting engineer and geologist would seem to be advisable.

(6) Some diamond drill holes at strategic places, which the consulting engineer would designate, might be of a great deal of value in determining the extent and grade of ore, and the best method of operating the property.

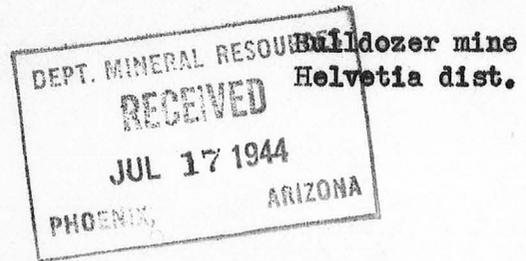
Following is a sketch (not to scale) of the old and present workings on the property:-



July 14, 1944

MEMORANDUM

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



Sherwood Owens, Box 769, Tucson, has leased this property and shipped 7 cars of ore to International. Ore is desirable at this smelter, and although somewhat less than 3% copper is high in lime and Smith of International is urging Owens to continue shipments. He cannot profitably do so on 17¢ price and has asked for 25½¢ which is standard for similar properties in immediate vicinity which are heavy shippers of lime ore. This application, made in February, was refused. Lengthy correspondence with Hayes, Strobel and others followed and case was thoroughly set forth. Grounds for refusal vague, but since this was a reopening of application made on same property in December following shipment of car of this ore by C.M. d'Autremont of Tucson, it could not be logically argued that application was not received prior to deadline.

RFC has examined property and reported favorably on \$15,000 loan for shovel and other equipment to take out 15,000 tons positive and 20,000 tons probable ore. This application is apparently being held up pending final decision on advance premium price.

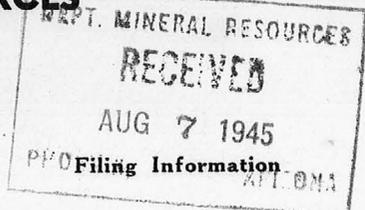
Owens requests follow-up by this dept. to determine whether there is any chance to get this property going. Harry Hayes has complete case.

George A. Ballam

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Page 124  
info re mine

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON  
ACTIVE MINING PROJECT



Date: 8/7/45  
Name of Mine: Silver Hill & Bulldogs  
Owner or Operator: H R Berkley  
Address: 574 W Campbell, Tucson  
Mine Location: Helvetic & Silver

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	1941 Olds	560	
Light or Service Trucks			
Ore Hauling Trucks			
Compressors			
Other Mine or Mill Eqpt.			

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

Rooppa Lead

REMARKS:

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By: [Signature]

# DEPARTMENT OF MINERAL RESOURCES

## REPORT TO OPA ON ACTIVE MINING PROJECT

Date..... *1/20/45*  
 Name of Mine..... *Bulldog*  
 Owner or Operator..... *Shirley B. Lewis*  
 Address..... *2409 E 101st Tucson*  
 Mine Location..... *Helvetic*

**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	<i>IR 50</i>	.....	<i>1500</i>
Other Mine or Mill Eqpt.	<i>750 6</i>	.....	<i>500</i>
			<i>2000 per month</i>

**PRODUCT PRODUCED OR CONTEMPLATED:** Name metals or minerals.

*Copper*

**REMARKS:**

.....

.....

.....

**ARIZONA DEPARTMENT OF MINERAL RESOURCES**

By..... *Gene A. Dallen*

# DEPARTMENT OF MINERAL RESOURCES

## REPORT TO OPA ON ACTIVE MINING PROJECT

Date..... 3/26/45  
 Name of Mine..... Bulldozer  
 Owner or Operator..... H L Berkeley  
 Address..... 7 Paseo Reforma, Tucson  
 Mine Location..... Arizona

**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	.....	.....	.....
Other Mine or Mill Eqpt.	.....	.....	.....

**PRODUCT PRODUCED OR CONTEMPLATED:** Name metals or minerals.

Copper

**REMARKS:**

Mr Berkeley is owner of this mine and must make periodic trips to it for supervision. 500 mi per month for this purpose is recommended but cannot assume responsibility for additional 300 mi occupational driving.

**ARIZONA DEPARTMENT OF MINERAL RESOURCES**

By..... George A. Ballou

# DEPARTMENT OF MINERAL RESOURCES

## REPORT TO OPA ON ACTIVE MINING PROJECT

Date..... 3/10/45

Name of Mine..... Bulldog

Owner or Operator..... Sherwood Owens

Address..... 3409 E 12th St, Tucson

Mine Location..... 40 mi SE Tucson, Heber area 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 ..... 100

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>1939 Buick</u>	<u>7100</u>	.....
Light or Service Trucks	.....	.....	.....
Ore Hauling Trucks	.....	.....	.....
Compressors	.....	.....	.....
Other Mine or Mill Eqpt.	.....	.....	.....

**PRODUCT PRODUCED OR CONTEMPLATED:** Name metals or minerals.

..... Copper .....

**REMARKS:**

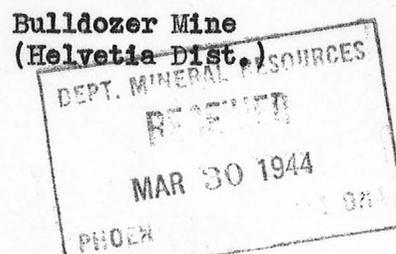
Mr Owens is producing copper ore from his mine as indicated and hauling from a number of other mines application recommended for approval

**ARIZONA DEPARTMENT OF MINERAL RESOURCES**

By..... George A. Ballou

March 29, 1944

MEMORANDUM



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

Just talked to Owens regarding this property. He had discussed with Brent Rickard the procedure I outlined last week when I went over the workings with him. Rickard will take the ore which will be shipped on zero quota transferred from d'Autremont for which request has already been made. It is one of those things where a large tonnage of ore is in sight but conventional mining methods are too costly to ship without advance premium. Owens, however, is a dirt mover and has the equipment. He can go in with a dozer and by fixing a loading pit with grizzly, can push a lot of stuff out and with some selection can get the cost down to about \$1.50. There are several cars of 3% and better ready to load. It has been well sampled and he can easily keep grade above 3%. I advised him to get a couple of cars out at once. Brent was amused at the idea of doing this and then possibly trying to get an advance on a going operation which may not show a suitable profit, but seemed to think it was the way to do it. At any rate he is going ahead.

The east end of the property, some 600 feet away, is a lime-capped dome which has been pushed up in the monzonite. There are several thousand tons of similar ore here and if the smaller operation can be made to go, Owens is planning on putting in a shovel with additional equipment. For this a loan might be necessary. The hill has been honey-combed with earlier operations. There is a lot of 6% to 8% ore which it was impossible to take and big bodies of 3% which couldn't be mined and shipped profitably. With a shovel he can pull it all down and throw the lime out keeping the ore above 3%. I believe it will be a large operation which can be handled in this manner. Will submit a report as soon as he gets going.

This is an old operation and at one time a smelter was maintained on sulfides mined about 100 feet below the lowest workings in the hill, where sulfides are just beginning to come in. The old shaft, between the two ore bodies, is now inaccessible, but the area of the hill is sufficient to bench to a considerable depth.

