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PRINTED: 12/17/2002

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: BURRO BARITE GROUP

ALTERNATE NAMES:  
BOUSE BARITE CLAIMS

LA PAZ COUNTY MILS NUMBER: 174

LOCATION: TOWNSHIP 6 N RANGE 17 W SECTION 29 QUARTER SW  
LATITUDE: N 33DEG 50MIN 05SEC LONGITUDE: W 114DEG 03MIN 27SEC  
TOPO MAP NAME: BOUSE - 15 MIN

CURRENT STATUS: RAW PROSPECT

COMMODITY:  
FLUORINE FLUORSPAR  
BARIUM BARITE

BIBLIOGRAPHY:

USBM RI 5651, BARITE DEPOSITS OF ARIZONA p 72  
ADMMR BURRO BARITE GROUP FILE  
ADMMR CENTURY MINING CO. FILE - GEN. INFO  
ADMMR RED CHIEF FILE - RPT ON PRELIM. EXAM OF  
BARITE PROP. NEAR BOUSE  
ADMMR "U" FILE BA 24  
ADMMR AZ FLUORSPAR RPT, P. 44  
MERITZ REPORTS (BOUSE BARITE CLAIMS)

BURRO BARITE GROUP

LA PAZ COUNTY  
Plomosa District  
T6N R17W Sec 29, 30  
31, 32

MILS Index #174

USBM RI 5651, p. 72

See: Century Mining Co (file) General information

Red Chief (file) La Paz County, see report on the preliminary  
examination of Barite Properties near Bouse (Excerps in this file)

U file

ADMMR - Fluorspar, p. 44p.

BURRO BARITE

YUMA COUNTY

KAP WR 12/11/81: Laurence Mining & Exploration, 7975 N. Hayden Road, Suite A-105, Scottsdale, Arizona 85295, Phone: 998-0976, is reported by the Bureau of Land Management engineer to have filed a plan of operations to mine barite from four lode claims in the Plomosa District, Yuma County. The claims are the Barium #21, (AMC #24294); Red Chief #5 (AMC 24295); Mary Jane #1 (AMC 142333); and Dale Christian #1 (AMC # 142334). The claims are located in portions of Secs. 29, 30, 31, and 32, T6N, R17W. Laurence proposes to opencut the barite along the vein. Copies of the plans of operation were provided for the files by the BLM. A sample of the barite vein material exhibited by the BLM Engineer contained considerable quartz.

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NJN WR 3/1/85: Bill C. Waldeck (c) visited and discussed the Burro Barite Property (f) La Paz County. The barite structure apparently becomes flatter at depth (related to a listric normal fault?). A couple of years ago Lawrence Mining leased the property and had some geology and processing reports prepared on the property. Dick Mieritz (c) consulting geologist prepared a report and maps on it, but since he didn't get paid, no one else has copies of the report. Mountain States prepared a metallurgical report detailing a processing method to produce A.P.I. specification barite from the property. Mr. Waldeck has a copy of this report. He also explained that J.J. Cavanaugh still owns 2 claims surrounding those 2. At another time he will bring in a claim map to show his claims and distinguish the 2 properties. Mr. Waldeck is interested in leasing or selling his claims as a barite property or as a precious metal target.

ARIZONA DEPARTMENT OF MINERAL RESOURCES

Mineral Building, Fairgrounds

Phoenix, Arizona

1. Information from: Richard Park - BLM Geologist - Phoenix District

Address: MILS 0040270037

2. Mine: Burro Barite Group (Yuma map #174). No. of Claims - Patented

New Names: Red Chief #5 & Barium #21 Unpatented 2

4. Location:

5. Sec 27, 30, 31, & 32 6N Range 17W 6. Mining District Plomosa, Yuma County

7. Owner: J. J. Cavanaugh

8. Address: 6649 Barz Ranch Road, Paradise Valley, AZ 85253

9. Operating Co.: Laurence Mining and Exploration

10. Address: 7975 N. Hayden Road, Suite A-105, Scottsdale 85295

11. President: Laurence Bobella 12. Gen. Mgr.: James G. Jones

13. Principal Metals: Barite 14. No. Employed:

15. Mill, Type & Capacity: None

16. Present Operations: (a) Down (b) Assessment work (c) Exploration (d) Production (e) Rate 800 TPM -tpd.

17. New Work Planned: See Attached BIM plan of operations

18. Misc. Notes: May be operated in conjunction with Mary Jane #1 and Dale Christian #1 (Red Chief - file)

Date: December 10, 1981

Ken A. Phillips (Signature) (Field Engineer)

**RECEIVED**  
 DEC 11 1981  
 DEPT. MINERAL RESOURCES  
 PHOENIX, ARIZONA

PLAN OF OPERATIONS

NOV 4 '81

Bureau of Land Management

MP-81-I-43  
 012

Phoenix, Arizona District  
Yuma County  
Plomosa Mining District

	ACTED	INITIAL
DISTRICT		
COUNTY		
MINING DISTRICT		
DATE		
BY		
REMARKS		

This Plan Of Operations is submitted pursuant to 43-CFR-3809 by the below-listed operator, for review and approval by the authorized officer of the Bureau of Land Management.

**A. OPERATOR**

Name of Operator Laurence Mining & Exploration (602) 998-0976  
 Telephone No.  
 Address of Operator 7975 North Hayden Road, Suite A-105  
Scottsdale, Arizona 85295

Name of Field Representative James G. Jones  
 (if other than Operator)  
 Address and phone of Field Representative same as above

**B. CLAIM IDENTIFICATION**

The name(s) of the claim(s) on which the operation will be conducted are:

NAME & TYPE OF CLAIM (X) Lode ( ) Placer ( ) Tunnel Site ( ) Millsite	Location Date	Recorded	
		Book (or Docket)	Page
Red Chief #5 <i>AMC 24295</i>	June 5, 1928	27	202
Barium #21 <i>AMC 24294</i>	Feb. 15, 1930	29	230

C. CLAIM OWNER

81  
MPO-80-I-42  
012

The owner(s) of the above claim(s) are as follows:

J. J. Cavanaugh                      6649 Barz Ranch Rd.                      \_\_\_\_\_  
\_\_\_\_\_  
Paradise Valley, AZ 85253                      \_\_\_\_\_  
\_\_\_\_\_  
(Name)    (Address)    (Phone)

The above owner has authorized this operation through (check one): ( ) lease, ( ) contract, ( ) direct employment, ( ) Other (explain)

D. MAPS

Attached as Exhibit A to this Operating Plan is a map of all claims listed under item B. (a 2" = 1 mile quad map or a U.S.G.S. topographic map). An optional attachment is a sketch map showing the claim grouping, and details of the operation.

E. ACCESS

The proposed route of access is: Via Quartzite Road approximately 8 miles south of Bouse, Arizona.

which consists of existing roads shown as solid lines and proposed roads shown as dashed lines in Exhibit A. (Note: Construction, reconstruction, or restoration of a road is a means of access to mining claims will be authorized separately by a special use permit.)

F. VEHICLES AND EQUIPMENT

The following vehicles and equipment listed by type and size, will be used in connection with this operation:

Type & Size of Vehicle	License or Serial No.	Location
D-8 Cat Dozer 4½ yd. Michigan Loader Two 20-ton haul trucks Air Track Drill 900 CFM Compressor 100 kw. Generator F-600 Service Truck 8' x 32' Office Trailer 1 Pick-up Truck 2 Powder Magazines 1,000-Gal. Diesel Tank One 600 TPD Gravity Mill		TGN, R 17 W, Secs. 29,30,31,32

C. TYPE OF OPERATION

Page 3 of —  
81  
MPC-80-8-43  
012

Describe the type and magnitude of the operation to be performed. Detailed information is required for any earth moving and site clearance operations. A separate surface disturbance map will be submitted as Exhibit B if such operations are extensive. Tie all operations to claim maps.

Laurence Mining and Exploration (LME) proposes to mine a steeply dipping vein of Barite. The Barite vein is approximately 5 feet wide and 4,000 feet along the strike length (Exhibit "B").

The proposed mining method is similar to pipe line trenching (Exhibit "C"). A D-8 dozer will expose and level the surface of the vein. An air track drill with a compressor will drill blast holes in the vein. The holes will be loaded with a blasting agent and shot. A 1½-yard excavator (backhoe) will set on top of the vein, scoop the broken muck into a dump truck. The truck will haul the material to the stockpile.

The second phase of mining will be to widen the initial trench. This will be accomplished by drilling, shooting the walls, excavating, and stacking the muck along side of the trench.

The third phase will be to make a second mining pass down the vein of Barite with the excavator.

The fourth phase of mining will be to push the stacked muck back into the trench.

H. ENVIRONMENTAL PROTECTION MEASURES

MPD-80-8-012

Describe actions taken to minimize adverse environmental impacts. State plans for reclamation of disturbed areas and for erosion control, including provisions for filling excavations, grading of soil banks, blocking of access roads, reseeding, etc.

All surface disturbance will be kept to a minimum. Topsoil will be dozed to one side of the trench and segregated from blasted rock. The excavated blasted rock will be stacked along side of the trench and dozed back into the trench as mining progresses. The maximum length of phase I, II, and III will be kept to 1,500'. In other words the maximum length of open trench will be 1,500 feet.

When the blasted muck is dozed back into the trench, any excess or deficit will be contoured into the topography.

I. PERIOD OF OPERATION

This operation will begin on November 6, 1981 (a date not prior to date of approval. This operation will be completed on November 6, 1982 (a date not to exceed 12 months from approval date). If operations are proposed to exceed one year, an addendum to this plan should be filed. A substantially changed operation will be covered by a new Operating Plan.

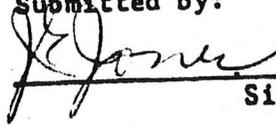
J. ANTIQUITIES

The operator agrees to notify the authorizing officer of any discovery of cultural or natural history resources within the area covered by the plan. This authorization to proceed does not constitute permission so as to relieve the operator from criminal prosecution under the Antiquities Act (P.L. 59-209).

K. ENCLOSURES (list as appropriate)

1. Exhibit A - map
- 2.

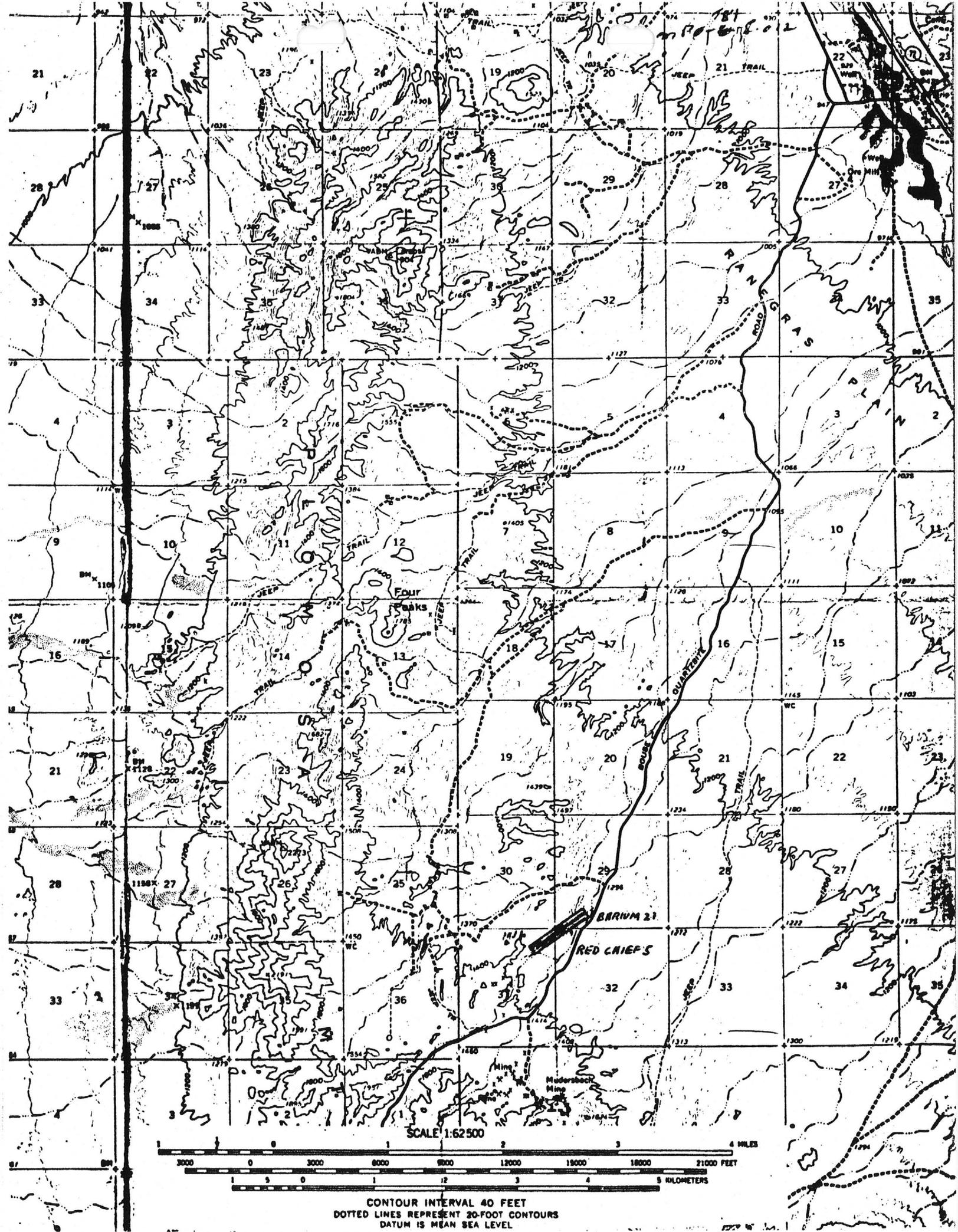
Submitted by:



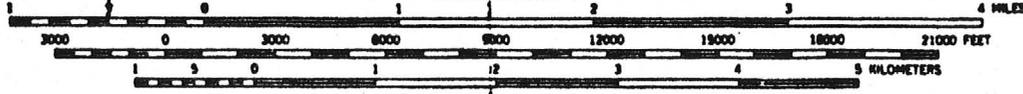
Signature

NOV. 2, 1981

Date



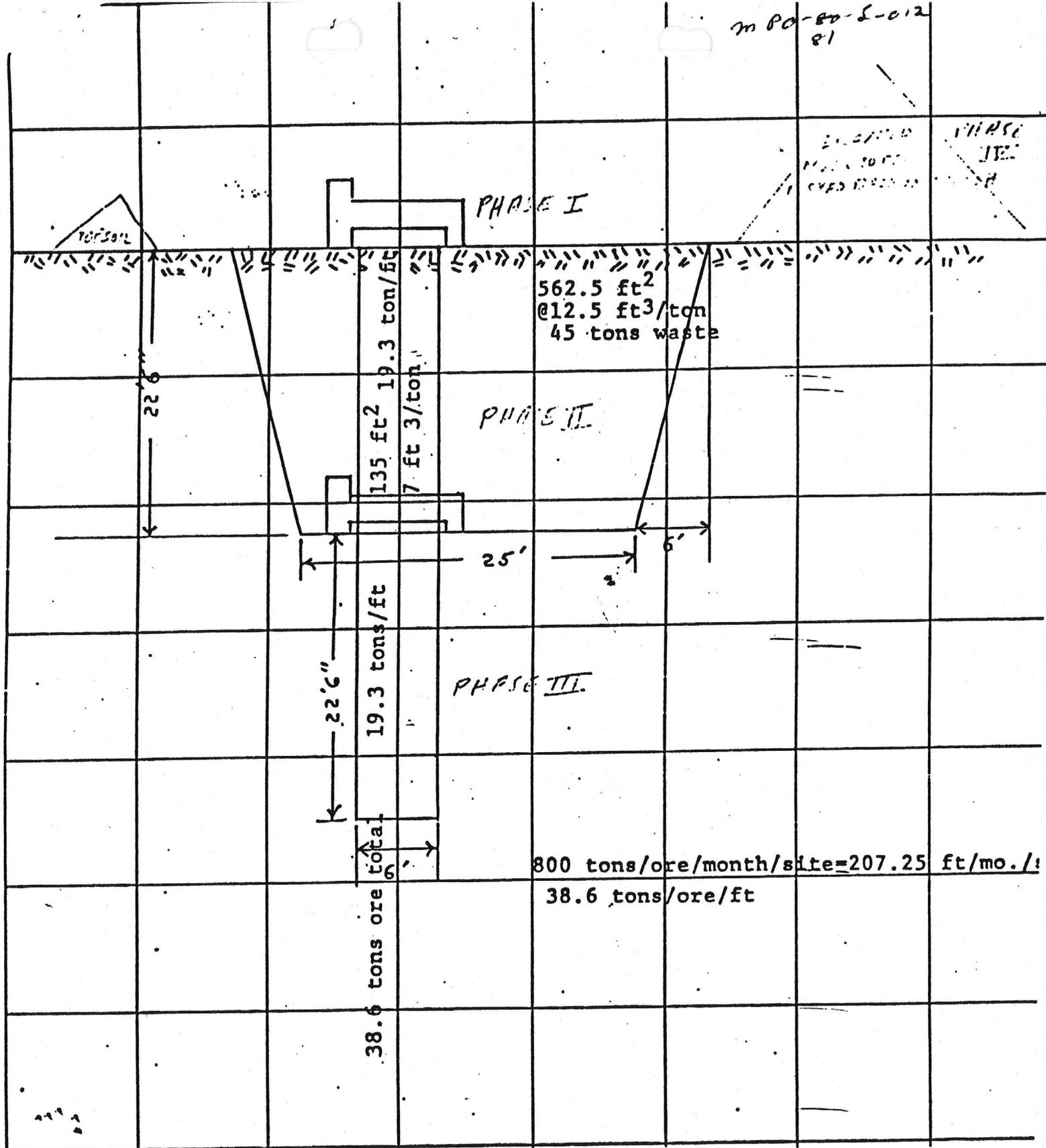
SCALE 1:62 500



CONTOUR INTERVAL 40 FEET  
DOTTED LINES REPRESENT 20-FOOT CONTOURS  
DATUM IS MEAN SEA LEVEL

m 80-80-1-012  
81

PHASE I  
PHASE II  
PHASE III



PROPOSED MINE METHOD  
RED CHIEF MINE  
BOUSE, ARIZONA

Laurence Mining & Exploration, Inc.  
7975 N. Hayden Road, Suite A-105  
Scottsdale, Arizona 85258

Scale 1" = 100'  
November 2, 1981

UNITED STATES GOVERNMENT

## memorandum

DATE: November 10, 1981

REPLY TO  
ATTN OF: Richard R. Park, GeologistSUBJECT: Telephone Calls from (1) Laurence Bobella, Laurence Mining and Exploration;  
(2) Call from Joe Cavanaugh, Claimant, November 9, 1981

TO: MPO-81-L-012 File

1. Inquired about status of his MPO. I told him I had received it this morning and that his phase 1 of exploration and assay was disturbance under 5 acres and would be treated as a Notice of Intent and that he could proceed with this phase. The rest of the plan required an environmental assessment, and that I had initiated this action about 1 o'clock and would notify him when the action is completed. He asked that forms be sent for notices and MPO's.

2. Joe Cavanaugh called to explain he as owner of the claim, was concerned as to what was happening to the mining of his claim by Laurence Mining and Exploration, to whom he leased his claim. I told him what was intended by the Plan of Operations. He asked who was responsible for reclamation. I told him if the lease did not have a bonding requirement, that he, as owner, was responsible. I explained the environmental assessment process, and that bonding may be required of the operator. I told him I would keep him posted about the activity on his claim.

Park:fd

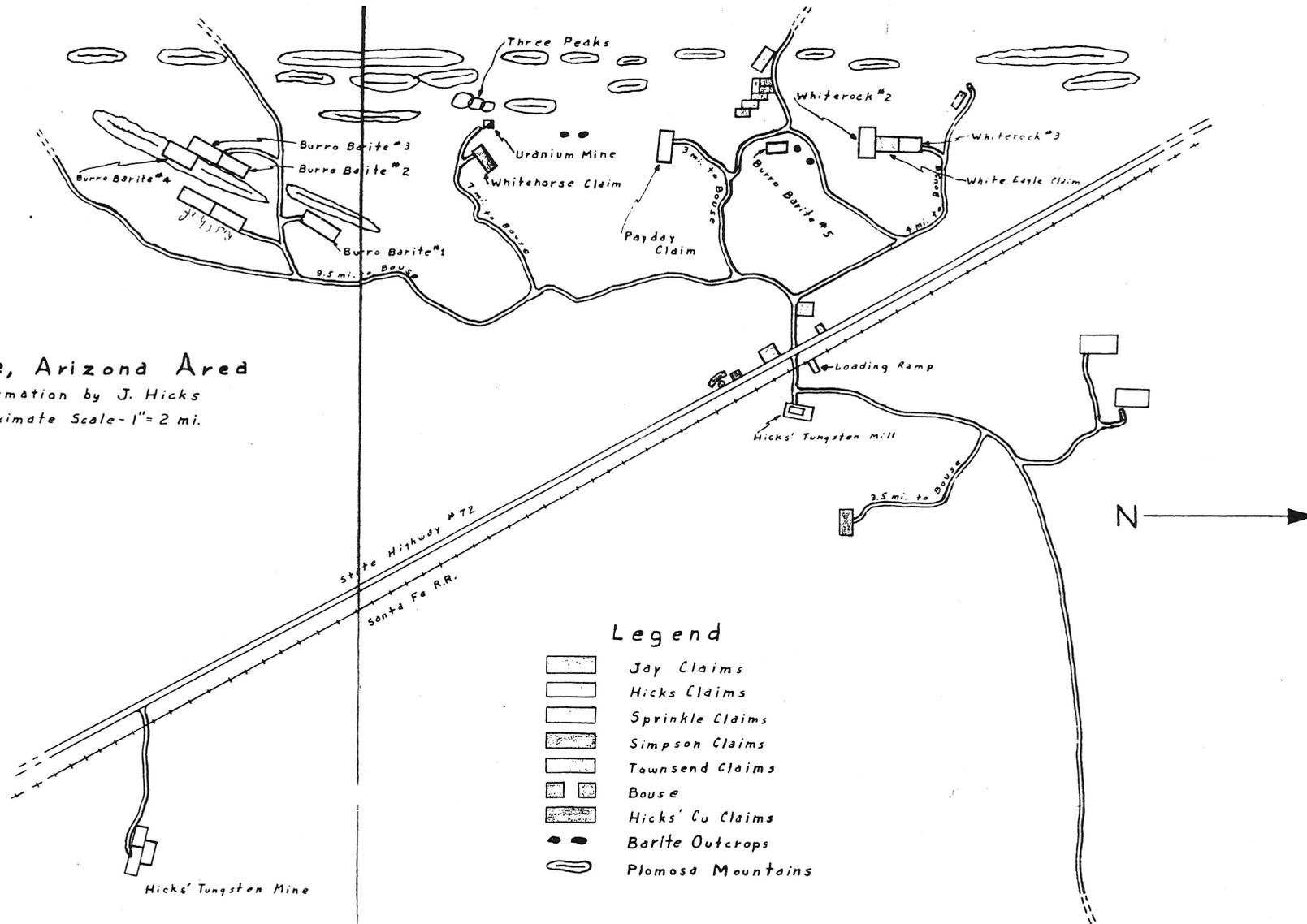


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# Bouse, Arizona Area

Information by J. Hicks

Approximate Scale - 1" = 2 mi.



"REPORT ON THE PRELIMINARY EXAMINATION OF  
BARITE PROPERTIES NEAR BOUSE, ARIZONA"

March, 1957

William E. Arndt

The Eagle-Picher Company

Illinois-Wisconsin Operations

GALENA, ILLINOIS

Galena, Illinois

**C O P Y**

March 29, 1957

Mr. J. P. Lyden - Cardin Office

W. E. Arndt

- Preliminary Examination of Barite Properties near Bouse, Arizona.

Dear Mr. Lyden:

At your request, I contacted Mr. Jim Hicks and made arrangements to examine the barite claims of Mr. Olen N. Jay and Mr. Hicks near Bouse, Arizona.

I arrived in Bouse January 24, 1957 after spending the previous day in Phoenix looking for information pertaining to the Bouse Area. Mr. Hicks spent three days, January 24, 25, and 26, with me while I examined the properties. He also introduced me to Mr. J. Simpson who accompanied us on Friday and Mr. J. Sprinkle who accompanied us on Saturday. Both these gentlemen have barite claims which I examined and their claims are indicated on the accompanying map.

All three of these gentlemen were very helpful and gave a considerable amount of their time to me.

Yours very truly,



W. E. Arndt

WEA:les

cc: C. O. Dale  
O.A. Rockwell  
G. J. Duff

## INTRODUCTION

The Olen N. Jay claims lie approximately 9 miles southwesterly from Bouse, Arizona. In addition to Mr. Jay's claims, there are a number of additional claims in the area which I spent some time on. However, none of these latter claims were as interesting as Mr. Jay's.

Bouse is located in the Plomosa Mining District which in the past has been a very active gold mining area. At the present time, there is no activity other than a few small operations. One of these is a uranium mine and another is a small tungsten operation. Both of these are shown on an accompanying map which was supplied by Mr. Jim Hicks.

The National Lead Company is reported to have actively mined barite in the general area of Bouse in the 1920's. Reportedly they were not too active in examinations outside their property. Mr. Hicks stated that as far as he knew, they had not examined any of the properties that I looked at until a recent examination which was made within the past six months.

## LOCATION AND ACCESSIBILITY

Bouse is located in Yuma County approximately 120 miles northwesterly from Phoenix on state highway 72. A branch line of the Santa Fe Railroad passes through the town but at present only two trains a day traverse this line. The relation of the barite claims to Bouse are shown on the accompanying map which Mr. Hicks sketched.

Bouse is at an elevation of approximately 1000'. Barite claims extend, although not continuously, for about 10 miles north and south along the base of the mountains and vary in elevation from approximately 1,100 feet at the north end to approximately 1,800 feet at the south end.

Roads have been built to most of the claims and in most cases are maintained in rather good condition. In the case of the Cavanaugh claims, a county maintained gravel road passes within a mile of the northeast end of the claims.

Communication with Bouse is limited to mail as there are no telephones or telegraph connections to the town.

## GEOLOGY

Little information concerning the geology of this area has been published. Three papers apparently comprise the total list and of these only one is readily available. It is "Geology and Ground Water Resources of the Northern Part of the Ranegras Plain Area, Yuma County, Arizona", published by D. G. Metzger of the Ground Water Division of the United States Geological Survey in February, 1951. The other two papers were published in technical magazines in the early 1900's.

The following information concerning the general geology of the area is for the most part taken from the paper by Mr. Metzger.

The topographic features of the area are believed to be the result of horst and graben type faulting which was subsequently made quite complex by later movements. Faulting, which trends primarily northwesterly, began during Pre-Cambrian times and continued at intervals into the Cretaceous and Tertiary. A

major portion of the recognizable faults are apparently of the later ages.

A considerable amount of volcanic activity has also occurred in the area. Four Peaks, noted by Mr. Hicks on the accompanying map as Three Peaks, is probably a volcanic neck. It is composed of quartz phenocrysts in a light red ground mass.

An abbreviated stratigraphic column from Mr. Metzger's paper follows:

Cretaceous and Tertiary Volcanics	- -	fine grained basalts are predominant lavas-associated are diabase dikes, ash deposits, tuffs, and a volcanic agglomerate
Cretaceous (?)	- -	Limestone-reddish brown to yellow shale - red basal conglomerate - arkosic and sandy-grayish white to reddish brown-coarse grained matrix of orthoclase, quartz, and mica (mainly orthoclase) - rounded conglomeritic aggregate is granite, gneiss, quartzite, and fine grained basic igneous rocks-no stratification.
Mesozoic (?)	- -	granite intrusive-pink coarse grained and weathers greenish
Paleozoic (?)	- -	quartzite-fine grained limestone-massive, gray, and crystalline
Pre-Cambrian	- -	intrusives (of probably Pre-Cambrian age)-syenites composed of orthoclase and biotite-coarse grained and locally gneissoid-cut by both acid and basic dikes,- gneiss-locally schistose.

The barite veins in this area generally parallel the trend of the mountains and occur for the most part in the flat areas near the base of the mountains. Apparently they have resulted from the action of hydrothermal solutions filling fractures which were the means by which pressure was relieved during the horst and graben faulting. Wall rock on either side of the veins shows only a thin zone of alteration which seemingly indicates that the solutions were not at an extremely high temperature.

Outcropping rocks in the area are apparently all of the Cretaceous and Tertiary Volcanics group. At least all the veins which I examined were in a basaltic type rock that contained a large percentage of iron. The one notable exception was the Cavanaugh Claims. Here the outcropping rock is apparently the volcanic agglomerate which is noted by Mr. Metzger to be of the same age as the basalts.

The veins occur as massive barite with iron oxide banding. Although the assays show a considerable amount of fluorite, I did not, by hand lens inspection, note any fluorite in the specimens which I examined.

Manganese dioxide staining is common in all the areas examined.

OLEN N. JAY (CAVANAUGH) CLAIMS

The two claims of Mr. Jay are in my opinion the best prospects in the area. They are staked along the strike of a vein which outcrops for their entire 2,800 foot length. The southwesterly 2000 feet of this vein will average approximately 2½ feet wide. One of the accompanying maps illustrates this although the width of the vein has been slightly exaggerated because of the scale used.

Only a little development work has been done on this property and almost all of that on the northeasterly claim. The work consists of two bulldozer cuts along the northwest side of the vein, three small pits, and a shallow trench.

Sampling was done primarily on the northeasterly claim as that was where the development work was confined. The sample locations are indicated on the map. All are representative samples of the vein structure and give the following results.

	<u>Vein Width</u>	<u>% Ba SO4</u>	<u>% CaF2</u>	<u>% Mn</u>	<u>% Fe</u>
G-876	15"	22.8	48.9	Tr	1.80
G-877	10"	51.2	10.5	0.11	4.20
G-878	27"	69.4	14.8	Tr	1.70
G-879	16"	60.8	11.0	Tr	2.00
G-880	2.5'	42.6	27.7	Tr	2.20
G-881	22"	58.2	8.3	0.11	4.90
G-882	3.5'	32.8	39.5	Tr	3.00
G-883	4.4'	6.1	37.9	Tr	2.60
G-884	2.5'	15.6	39.9	Tr	2.20
G-885	3.0'	63.0	14.5	Tr	2.20

Considering the length and width of the vein, it may be assumed that it will continue to some depth. For the purpose of arriving at a tonnage estimate, I will use a depth of 500 feet. This figure is equal to ¼ of the portion of the vein that will average 2½ feet wide.

It should be stated here that at depth the vein should extend over a greater length than that which outcrops. This seems apparent as the vein is abruptly terminated in the bank of the arroyo on the southwest end of the claims. This termination is due to stream erosion. As indicated on the map, stream deposited debris covers the area southwesterly from the vein termination and makes it impossible to trace the vein further.

Using the 2,000 foot length, 2½ foot width, 500 feet depth, and 12½ rock ton factor, a figure of 200,000 tons is arrived at.

I believe, however, that my tonnage estimate is rather conservative and that the vein will probably continue a greater distance southwesterly. It may also continue deeper than the 500 feet which I have used in the calculations.

The samples from G-878 southwesterly to G-885 (G-878 is the most northeasterly sample to be of sufficient width to be important) average 32 inches in width. The weighted assay averages of these samples are 38.4% BaSO4, 27.2% CaF2, Tr Mn, and 2.58% Fe.

### OTHER CLAIMS

While in Bouse, I examined rather quickly ten other claims. These examinations were short because the properties do not exhibit possibilities which would make them interesting without the presence of the Cavanaugh Claims.

All these other claims have barite veins which are similar in occurrence as as the ones on the Cavanaugh Claims. However, they do not have the same continuity of sufficient width to indicate a tonnage of much size.

These claims are all indicated on the accompanying map supplied by Mr. Hicks.

Of Mr. Simpson's claims, only the White Eagle Claim in which he is in partnership with Mr. Sprinkle, indicated interesting possibilities. Two samples were taken of a vein that is exposed by a bulldozer cut and trends N 30° W. Sample G-888 assays show 7.1% Ba SO<sub>4</sub>, 5.5% CaF<sub>2</sub>, 0.10% Mn, and 2.60% Fe. The vein at this point is 23 inches wide. One hundred feet approximately N 30° W another sample, G-889, assays 39.4% BaSO<sub>4</sub>, 7.7% CaF<sub>2</sub>, 0.89% Mn, and 13.50% Fe. At this point the vein is 4.3 feet wide.

Outward from the locations of these two samples the vein pinches rapidly. The total length of vein material of sufficient width to be interesting does not exceed 300 feet.

Another vein occurs on the White Eagle Claim. It begins about 100 feet northeasterly from the northwest end of the aforementioned vein and trends N 30° W also. The length of this vein is about 400 feet but it will not average 2 feet in width.

Mr. Simpson's Whitehorse Claim does not appear to be of interest. It has two barite veins but they are both small. One which is about 85 feet long and has about 2 feet of average width trends N 60° W and dips 70° N. The other vein trends about N 65° W for about 200 feet. It dips about 70° N and averages about 15 inches wide.

I did not visit Mr. Simpson's claim that lies east of Bouse.

The Fayday Claim of Mr. Sprinkle is of no interest. In fact, some of the barite seen on the claim was, in my opinion, not derived from any of the small workings on the claim.

Although both the Whiterock #2 and Whiterock #3 Claims have showings of barite, none of them are large enough or continuous enough to be of interest. However, I did cut one sample, G-890, from a 21 inch vein which occurs in an arroyo bank about 50 feet S 30° W from the center monument. This vein trends N 30° W and is about 150 feet long and averages about 2½ feet wide. The assays show 59.2% BaSO<sub>4</sub>, 8.4% CaF<sub>2</sub>, 0.42% Mn, and 4.50% Fe.

None of Mr. Hick's Burro Barite numbers 1, 2, 3, 4, or 5 Claims seem to be of interest. On the Burro Barite numbers 1, 2, 3, and 4, Claims are a number of veins which trend from N 55° E to N 12° W. For the most part they appear to be vertical but a few individual veins dip about 85° northeasterly. Although there are a number of veins on these claims, none of them are of sufficient width for enough length to give a large enough tonnage to prove economical. However, a sample was

taken on each the Burro Barite #1 and #2 Claims. Sample G-886 was taken at a point 4 feet wide in a vein which trends about N 55° E. It averages about 3 feet wide for 70 feet and then pinches to small stringers. This sample assayed 56.0% BaSO<sub>4</sub>, 20.8% CaF<sub>2</sub>, Tr Mn, and 1.70% Fe.

Sample G-887 is from the Burro Barite #2 Claim. It was taken from a vein which trends N 40° E and averages about 1 1/2 inches wide for 100 feet. The sample was taken from a 6 foot deep pit and assays 52.0% BaSO<sub>4</sub>, 14.5% CaF<sub>2</sub>, Tr Mn, and 3.30% Fe.

A shaft, which is now inaccessible, was sunk on the Burro Barite #2. The shaft appears to be about 50 feet deep but the dump does not show any signs of interesting mineralization. There is a very small amount of copper staining in some of the scarce barite material on the dump.

The Burro Barite #5 Claim presents a different type of occurrence in that it shows two zones of stringers—horse tail like occurrence—rather than veins. One of these zones trends N 15° E and is about 175 feet long. It is about 15 feet wide.

The other zone trends N 10° W for 100 feet and apparently terminates against a large quartz body. This zone is about 6 feet wide.

Neither of these zones, from surface indications, appears to contain a sufficient number of stringers to be economical.

#### CONCLUSIONS

According to Taggart's "Handbook of Mineral Dressing", fluorite, iron, and manganese are undesirable in barite which is to be used for the production of lithopone. The assays of all the samples that I took show considerable amounts of fluorite and iron and traces of manganese. Therefore, I feel that in this area the economic development of barite to be used for lithopone is directly dependent upon the feasibility of separating the barite from these undesirable constituents so that it will meet the required standards. However, the economics of barite which is to be used for drilling muds is not dependent upon impurities but upon the specific gravity of the product. Although it may not be feasible to meet the standards for lithopone, these deposits may be economically important for use in drilling muds.

If the veins prove to be of economic use after considering the previously mentioned standards, it would be necessary to test drill the Cavanaugh Claims as, in my opinion, they present the only independently promising property. For the purpose of determining the existence of the 500 foot depth of the vein which I have assumed, it seems that one drill hole near the center of the Claims would be sufficient. Upon the results of this drill hole would depend the need for any further test drilling.

It should be stated here that although I will assume that a vein depth of 500 feet is necessary to provide a sufficient tonnage to make the project economical, further study may show that some other depth is required. In such case, cost estimates for this preliminary drilling would be dependent upon this newly determined depth.

As the vein is apparently vertical, it would be necessary to use a diamond drill for the test hole and it would seem wise to drill the hole at a 60° angle so that the vein would be cut at a desirable angle. This would necessitate 600 feet of hole. Assuming a cost of \$10.00 per foot, the estimate for drilling our Tucson property in July, 1956, the hole would cost \$6,000. As stated before, further test drilling would depend upon the results of this hole.

If the Cavanaugh Claims proved to contain a sufficient tonnage to be economically important, it would be wise to reconsider some of the other claims mentioned in this report-especially the White Eagle Claim. These other claims are easily accessible and may offer an additional tonnage which would then be of interest.

If these deposits can meet the necessary standards for barite uses, then I feel that the Cavanaugh Claims offer sufficient possibilities to warrant the drilling previously outlined.

Respectfully submitted,



W. E. Arndt

WEA:les

"REPORT ON THE PRELIMINARY EXAMINATION OF  
BARITE PROPERTIES NEAR BOUSE, ARIZONA"

March, 1957

William E. Arndt

The Eagle-Picher Company

Illinois-Wisconsin Operations

GALENA, ILLINOIS

Galena, Illinois

**C O P Y**

March 29, 1957

Mr. J. P. Lyden - Cardin Office

W. E. Arndt

- Preliminary Examination of Barite Properties near Bouse, Arizona.

Dear Mr. Lyden:

At your request, I contacted Mr. Jim Hicks and made arrangements to examine the barite claims of Mr. Olen N. Jay and Mr. Hicks near Bouse, Arizona.

I arrived in Bouse January 24, 1957 after spending the previous day in Phoenix looking for information pertaining to the Bouse Area. Mr. Hicks spent three days, January 24, 25, and 26, with me while I examined the properties. He also introduced me to Mr. J. Simpson who accompanied us on Friday and Mr. J. Sprinkle who accompanied us on Saturday. Both these gentlemen have barite claims which I examined and their claims are indicated on the accompanying map.

All three of these gentlemen were very helpful and gave a considerable amount of their time to me.

Yours very truly,



W. E. Arndt

WEA:les

cc: C. O. Dale  
O.A. Rockwell  
C. J. Duff

## INTRODUCTION

The Olen N. Jay claims lie approximately 9 miles southwesterly from Bouse, Arizona. In addition to Mr. Jay's claims, there are a number of additional claims in the area which I spent some time on. However, none of these latter claims were as interesting as Mr. Jay's.

Bouse is located in the Plomosa Mining District which in the past has been a very active gold mining area. At the present time, there is no activity other than a few small operations. One of these is a uranium mine and another is a small tungsten operation. Both of these are shown on an accompanying map which was supplied by Mr. Jim Hicks.

The National Lead Company is reported to have actively mined barite in the general area of Bouse in the 1920's. Reportedly they were not too active in examinations outside their property. Mr. Hicks stated that as far as he knew, they had not examined any of the properties that I looked at until a recent examination which was made within the past six months.

## LOCATION AND ACCESSIBILITY

Bouse is located in Yuma County approximately 120 miles northwesterly from Phoenix on state highway 72. A branch line of the Santa Fe Railroad passes through the town but at present only two trains a day traverse this line. The relation of the barite claims to Bouse are shown on the accompanying map which Mr. Hicks sketched.

Bouse is at an elevation of approximately 1000'. Barite claims extend, although not continuously, for about 10 miles north and south along the base of the mountains and vary in elevation from approximately 1,100 feet at the north end to approximately 1,800 feet at the south end.

Roads have been built to most of the claims and in most cases are maintained in rather good condition. In the case of the Cavanaugh claims, a county maintained gravel road passes within a mile of the northeast end of the claims.

Communication with Bouse is limited to mail as there are no telephones or telegraph connections to the town.

## GEOLOGY

Little information concerning the geology of this area has been published. Three papers apparently comprise the total list and of these only one is readily available. It is "Geology and Ground Water Resources of the Northern Part of the Ranegras Plain Area, Yuma County, Arizona", published by D. G. Metzger of the Ground Water Division of the United States Geological Survey in February, 1951. The other two papers were published in technical magazines in the early 1900's.

The following information concerning the general geology of the area is for the most part taken from the paper by Mr. Metzger.

The topographic features of the area are believed to be the result of horst and graben type faulting which was subsequently made quite complex by later movements. Faulting, which trends primarily northwesterly, began during Pre-Cambrian times and continued at intervals into the Cretaceous and Tertiary. A

major portion of the recognizable faults are apparently of the later ages.

A considerable amount of volcanic activity has also occurred in the area. Four Peaks, noted by Mr. Hicks on the accompanying map as Three Peaks, is probably a volcanic neck. It is composed of quartz phenocrysts in a light red ground mass.

An abbreviated stratigraphic column from Mr. Metzger's paper follows:

Cretaceous and Tertiary Volcanics	--	fine grained basalts are predominant lavas-associated are diabase dikes, ash deposits, tuffs, and a volcanic agglomerate
Cretaceous (?)	--	Limestone-reddish brown to yellow shale - red basal conglomerate - arkosic and sandy-grayish white to reddish brown-coarse grained matrix of orthoclase, quartz, and mica (mainly orthoclase) - rounded conglomeritic aggregate is granite, gneiss, quartzite, and fine grained basic igneous rocks-no stratification.
Mesozoic (?)	--	granite intrusive-pink coarse grained and weathers greenish
Paleozoic (?)	--	quartzite-fine grained limestone-massive, gray, and crystalline
Pre-Cambrian	--	intrusives (of probably Pre-Cambrian age)-syenites composed of orthoclase and biotite-coarse grained and locally gneissoid-cut by both acid and basic dikes,- gneiss-locally schistose.

The barite veins in this area generally parallel the trend of the mountains and occur for the most part in the flat areas near the base of the mountains. Apparently they have resulted from the action of hydrothermal solutions filling fractures which were the means by which pressure was relieved during the horst and graben faulting. Wall rock on either side of the veins shows only a thin zone of alteration which seemingly indicates that the solutions were not at an extremely high temperature.

Outcropping rocks in the area are apparently all of the Cretaceous and Tertiary Volcanics group. At least all the veins which I examined were in a basaltic type rock that contained a large percentage of iron. The one notable exception was the Cavanaugh Claims. Here the outcropping rock is apparently the volcanic agglomerate which is noted by Mr. Metzger to be of the same age as the basalts.

The veins occur as massive barite with iron oxide banding. Although the assays show a considerable amount of fluorite, I did not, by hand lens inspection, note any fluorite in the specimens which I examined.

Manganese dioxide staining is common in all the areas examined.

OLEN N. JAY (GAVANAUGH) CLAIMS

The two claims of Mr. Jay are in my opinion the best prospects in the area. They are staked along the strike of a vein which outcrops for their entire 2,800 foot length. The southwesterly 2000 feet of this vein will average approximately 2½ feet wide. One of the accompanying maps illustrates this although the width of the vein has been slightly exaggerated because of the scale used.

Only a little development work has been done on this property and almost all of that on the northeasterly claim. The work consists of two bulldozer cuts along the northwest side of the vein, three small pits, and a shallow trench.

Sampling was done primarily on the northeasterly claim as that was where the development work was confined. The sample locations are indicated on the map. All are representative samples of the vein structure and give the following results.

	<u>Vein Width</u>	<u>% Ba SO4</u>	<u>% CaF2</u>	<u>% Mn</u>	<u>% Fe</u>
G-876	15"	22.8	48.9	Tr	1.80
G-877	10"	51.2	10.5	0.11	4.20
G-878	27"	69.4	14.8	Tr	1.70
G-879	16"	60.8	11.0	Tr	2.00
G-880	2.5'	42.6	27.7	Tr	2.20
G-881	22"	58.2	8.3	0.11	4.90
G-882	3.5'	32.8	39.5	Tr	3.00
G-883	4.4'	6.1	37.9	Tr	2.60
G-884	2.5'	15.6	39.9	Tr	2.20
G-885	3.0'	63.0	14.5	Tr	2.20

Considering the length and width of the vein, it may be assumed that it will continue to some depth. For the purpose of arriving at a tonnage estimate, I will use a depth of 500 feet. This figure is equal to ¼ of the portion of the vein that will average 2½ feet wide.

It should be stated here that at depth the vein should extend over a greater length than that which outcrops. This seems apparent as the vein is abruptly terminated in the bank of the arroyo on the southwest end of the claims. This termination is due to stream erosion. As indicated on the map, stream deposited debris covers the area southwesterly from the vein termination and makes it impossible to trace the vein further.

Using the 2,000 foot length, 2½ foot width, 500 foot depth, and 12½ rock ton factor, a figure of 200,000 tons is arrived at.

I believe, however, that my tonnage estimate is rather conservative and that the vein will probably continue a greater distance southwesterly. It may also continue deeper than the 500 feet which I have used in the calculations.

The samples from G-878 southwesterly to G-885 (G-878 is the most northeasterly sample to be of sufficient width to be important) average 32 inches in width. The weighted assay averages of these samples are 38.4% BaSO4, 27.2% CaF2, Tr Mn, and 2.58% Fe.

### OTHER CLAIMS

While in Bouse, I examined rather quickly ten other claims. These examinations were short because the properties do not exhibit possibilities which would make them interesting without the presence of the Cavanaugh Claims.

All these other claims have barite veins which are similar in occurrence as as the one on the Cavanaugh Claims. However, they do not have the same continuity of sufficient width to indicate a tonnage of much size.

These claims are all indicated on the accompanying map supplied by Mr. Hicks.

Of Mr. Simpson's claims, only the White Eagle Claim in which he is in partnership with Mr. Sprinkle, indicated interesting possibilities. Two samples were taken of a vein that is exposed by a bulldozer cut and trends N 30° W. Sample G-888 assays show 7.1% Ba SO<sub>4</sub>, 5.5% CaF<sub>2</sub>, 0.10% Mn, and 2.60% Fe. The vein at this point is 23 inches wide. One hundred feet approximately N 30° W another sample, G-889, assays 39.4% BaSO<sub>4</sub>, 7.7% CaF<sub>2</sub>, 0.89% Mn, and 13.50% Fe. At this point the vein is 4.3 feet wide.

Outward from the locations of these two samples the vein pinches rapidly. The total length of vein material of sufficient width to be interesting does not exceed 300 feet.

Another vein occurs on the White Eagle Claim. It begins about 100 feet northeasterly from the northwest end of the aforementioned vein and trends N 30° W also. The length of this vein is about 400 feet but it will not average 2 feet in width.

Mr. Simpson's Whitehorse Claim does not appear to be of interest. It has two barite veins but they are both small. One which is about 85 feet long and has about 2 feet of average width trends N 60° W and dips 70° N. The other vein trends about N 65° W for about 200 feet. It dips about 70° N and averages about 15 inches wide.

I did not visit Mr. Simpson's claim that lies east of Bouse.

The Payday Claim of Mr. Sprinkle is of no interest. In fact, some of the barite seen on the claim was, in my opinion, not derived from any of the small workings on the claim.

Although both the Whiterock #2 and Whiterock #3 Claims have showings of barite, none of them are large enough or continuous enough to be of interest. However, I did cut one sample, G-890, from a 21 inch vein which occurs in an arroyo bank about 50 feet S30° W from the center monument. This vein trends N 30° W and is about 150 feet long and averages about 2½ feet wide. The assays show 59.2% BaSO<sub>4</sub>, 8.4% CaF<sub>2</sub>, 0.42% Mn, and 4.50% Fe.

None of Mr. Hick's Burro Barite numbers 1, 2, 3, 4, or 5 Claims seem to be of interest. On the Burro Barite numbers 1, 2, 3, and 4, Claims are a number of veins which trend from N 55° E to N 12° W. For the most part they appear to be vertical but a few individual veins dip about 85° northeasterly. Although there are a number of veins on these claims, none of them are of sufficient width for enough length to give a large enough tonnage to prove economical. However, a sample was

taken on each the Burro Barite #1 and #2 Claims. Sample G-886 was taken at a point 4 feet wide in a vein which trends about N 55° E. It averages about 3 feet wide for 70 feet and then pinches to small stringers. This sample assayed 56.0% BaSO<sub>4</sub>, 20.8% CaF<sub>2</sub>, Tr Mn, and 1.70% Fe.

Sample G-887 is from the Burro Barite #2 Claim. It was taken from a vein which trends N 40° E and averages about 18 inches wide for 100 feet. The sample was taken from a 6 foot deep pit and assays 52.0% BaSO<sub>4</sub>, 14.5% CaF<sub>2</sub>, Tr Mn, and 3.30% Fe.

A shaft, which is now inaccessible, was sunk on the Burro Barite #2. The shaft appears to be about 50 feet deep but the dump does not show any signs of interesting mineralization. There is a very small amount of copper staining in some of the scarce barite material on the dump.

The Burro Barite #5 Claim presents a different type of occurrence in that it shows two zones of stringers--horse tail like occurrence--rather than veins. One of these zones trends N 15° E and is about 175 feet long. It is about 15 feet wide.

The other zone trends N 10° W for 100 feet and apparently terminates against a large quartz body. This zone is about 6 feet wide.

Neither of these zones, from surface indications, appears to contain a sufficient number of stringers to be economical.

#### CONCLUSIONS

According to Taggart's "Handbook of Mineral Dressing", fluorite, iron, and manganese are undesirable in barite which is to be used for the production of lithopone. The assays of all the samples that I took show considerable amounts of fluorite and iron and traces of manganese. Therefore, I feel that in this area the economic development of barite to be used for lithopone is directly dependent upon the feasibility of separating the barite from these undesirable constituents so that it will meet the required standards. However, the economics of barite which is to be used for drilling muds is not dependent upon impurities but upon the specific gravity of the product. Although it may not be feasible to meet the standards for lithopone, these deposits may be economically important for use in drilling muds.

If the veins prove to be of economic use after considering the previously mentioned standards, it would be necessary to test drill the Cavanaugh Claims as, in my opinion, they present the only independently promising property. For the purpose of determining the existence of the 500 foot depth of the vein which I have assumed, it seems that one drill hole near the center of the Claims would be sufficient. Upon the results of this drill hole would depend the need for any further test drilling.

It should be stated here that although I will assume that a vein depth of 500 feet is necessary to provide a sufficient tonnage to make the project economical, further study may show that some other depth is required. In such case, cost estimates for this preliminary drilling would be dependent upon this newly determined depth.

As the vein is apparently vertical, it would be necessary to use a diamond drill for the test hole and it would seem wise to drill the hole at a 60° angle so that the vein would be cut at a desirable angle. This would necessitate 600 feet of hole. Assuming a cost of \$10.00 per foot, the estimate for drilling our Tucson property in July, 1956, the hole would cost \$6,000. As stated before, further test drilling would depend upon the results of this hole.

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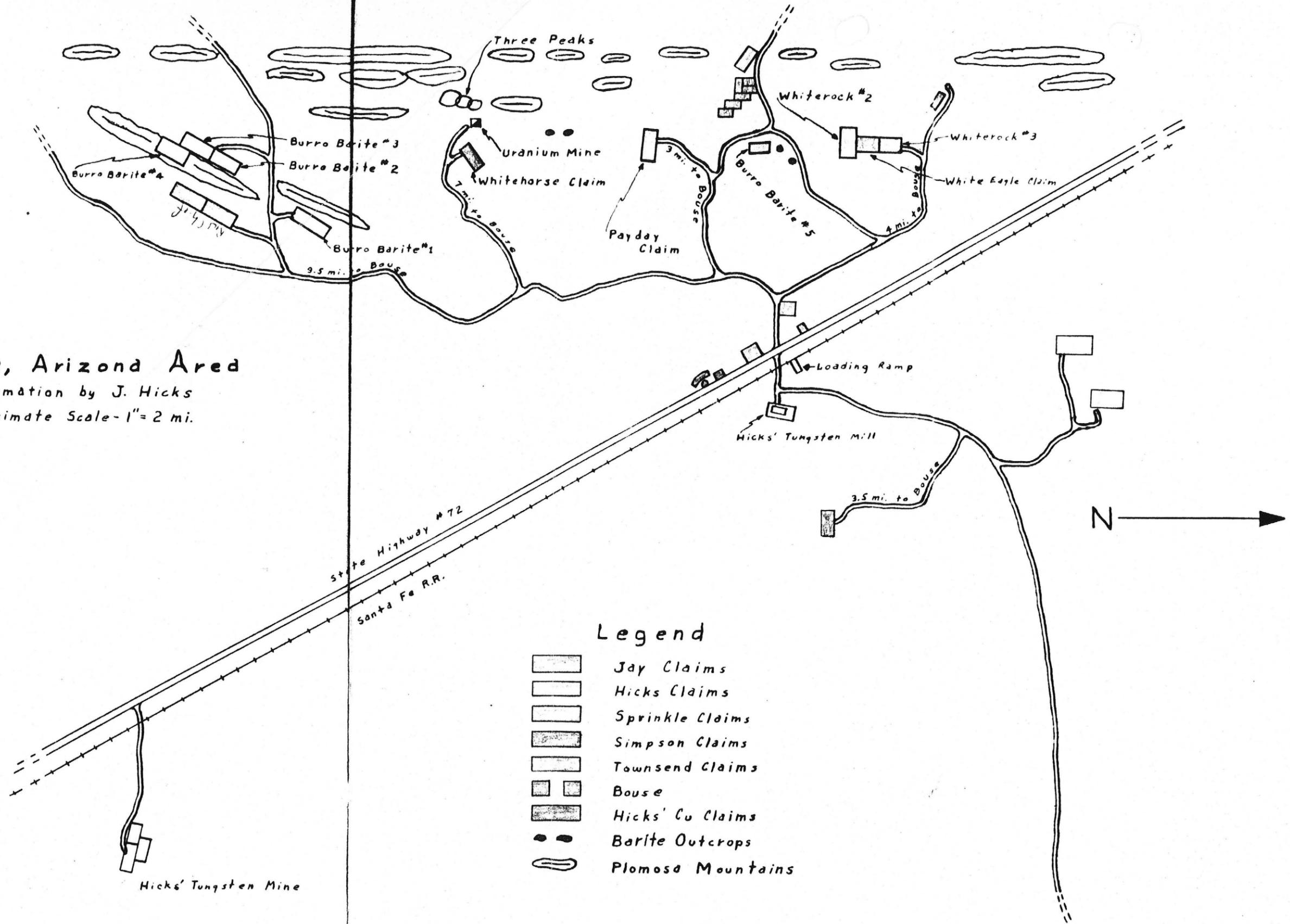


W. E. Arndt

WEA:les

# Bouse, Arizona Area

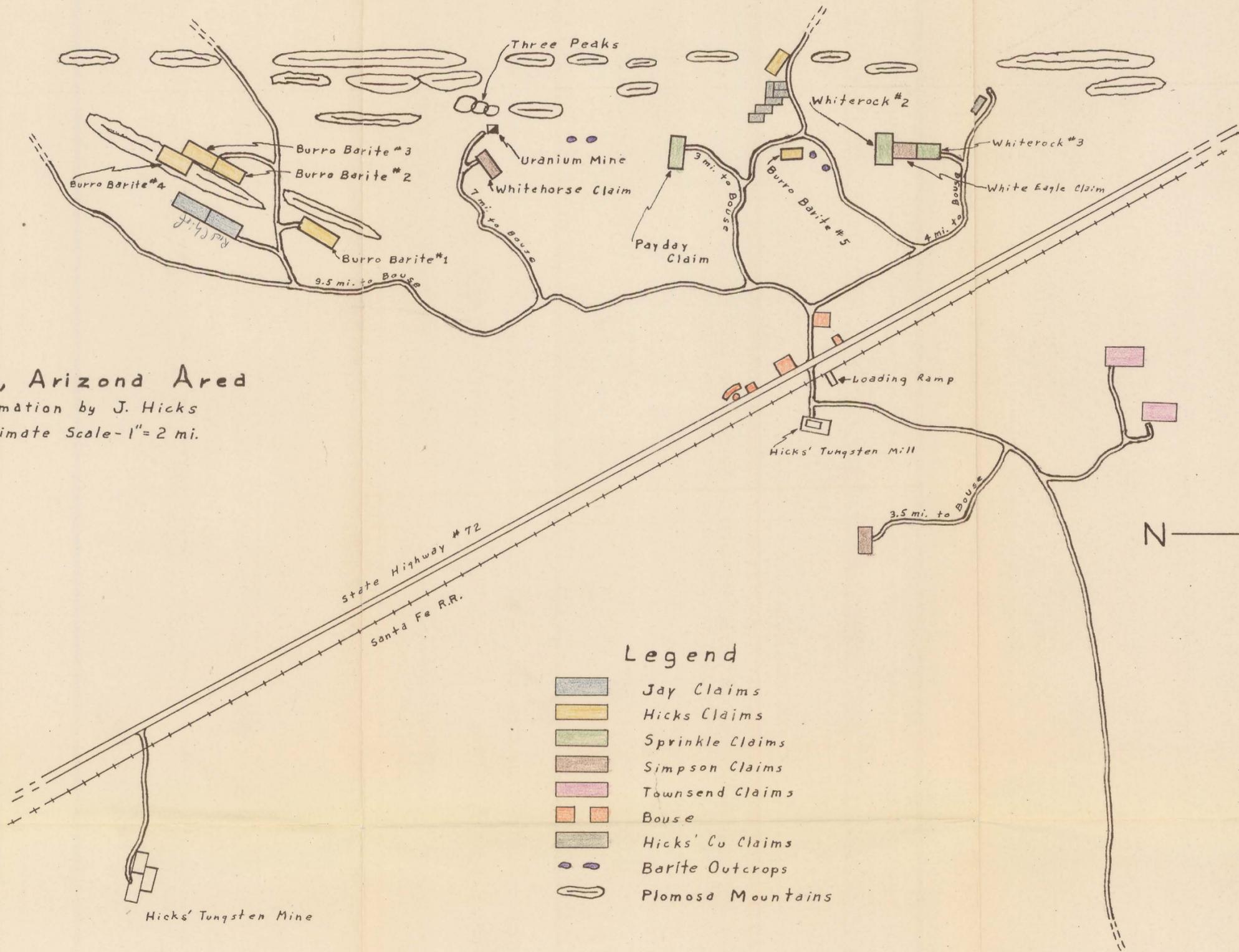
Information by J. Hicks  
 Approximate Scale - 1" = 2 mi.



## Legend

-  Jay Claims
-  Hicks Claims
-  Sprinkle Claims
-  Simpson Claims
-  Townsend Claims
-  Bouse
-  Hicks' Cu Claims
-  Barite Outcrops
-  Plomosa Mountains

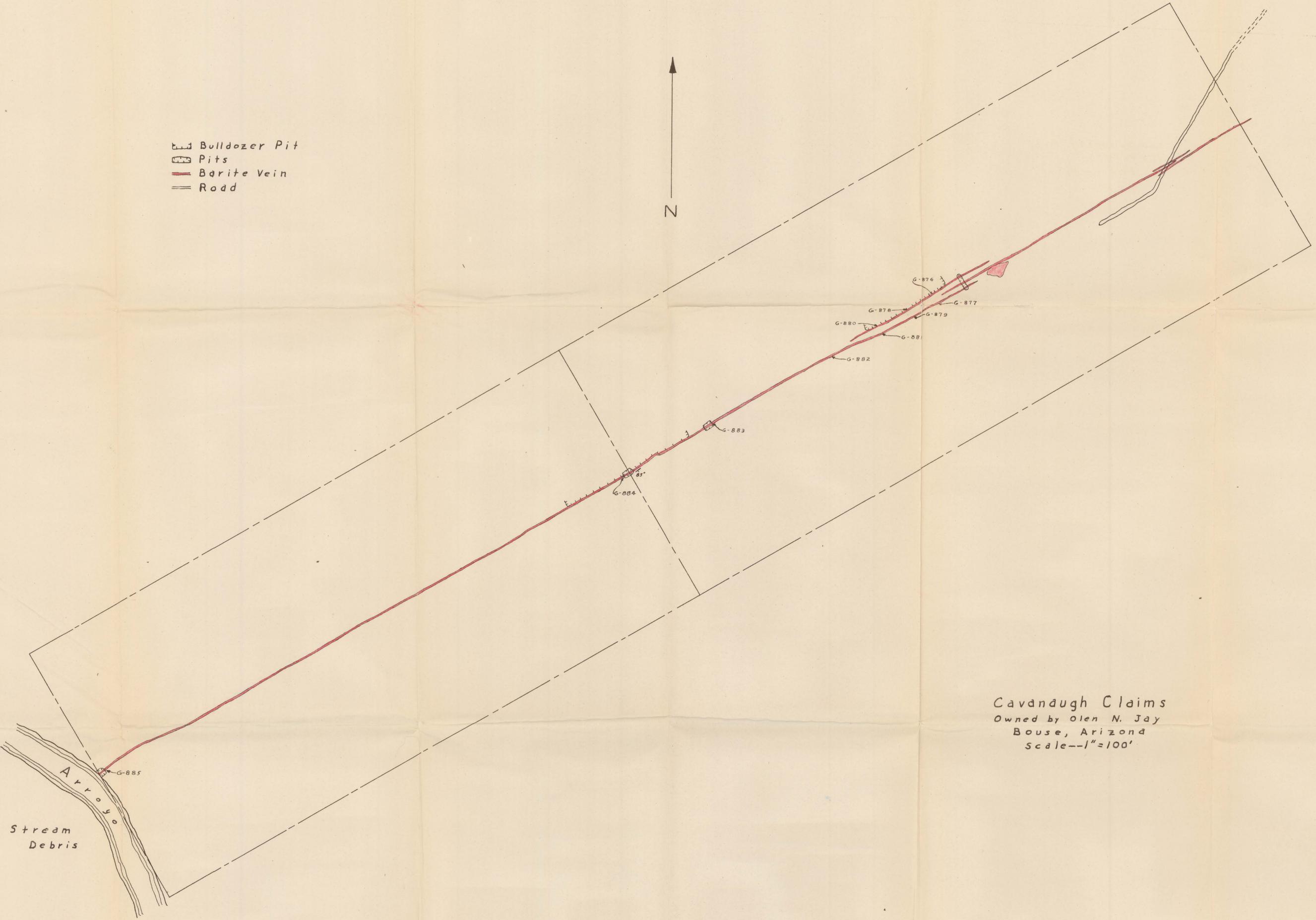
Hicks' Tungsten Mine



**Bouse, Arizona Area**  
 Information by J. Hicks  
 Approximate Scale - 1" = 2 mi.

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  - Simpson Claims
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  - Barite Outcrops
  - Plomosa Mountains

-  Bulldozer Pit
-  Pits
-  Barite Vein
-  Road



Cavanaugh Claims  
 Owned by Olen N. Jay  
 Bouse, Arizona  
 Scale--1"=100'