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PRINTED: 11/14/2002

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: WOOLEY MINE

ALTERNATE NAMES:

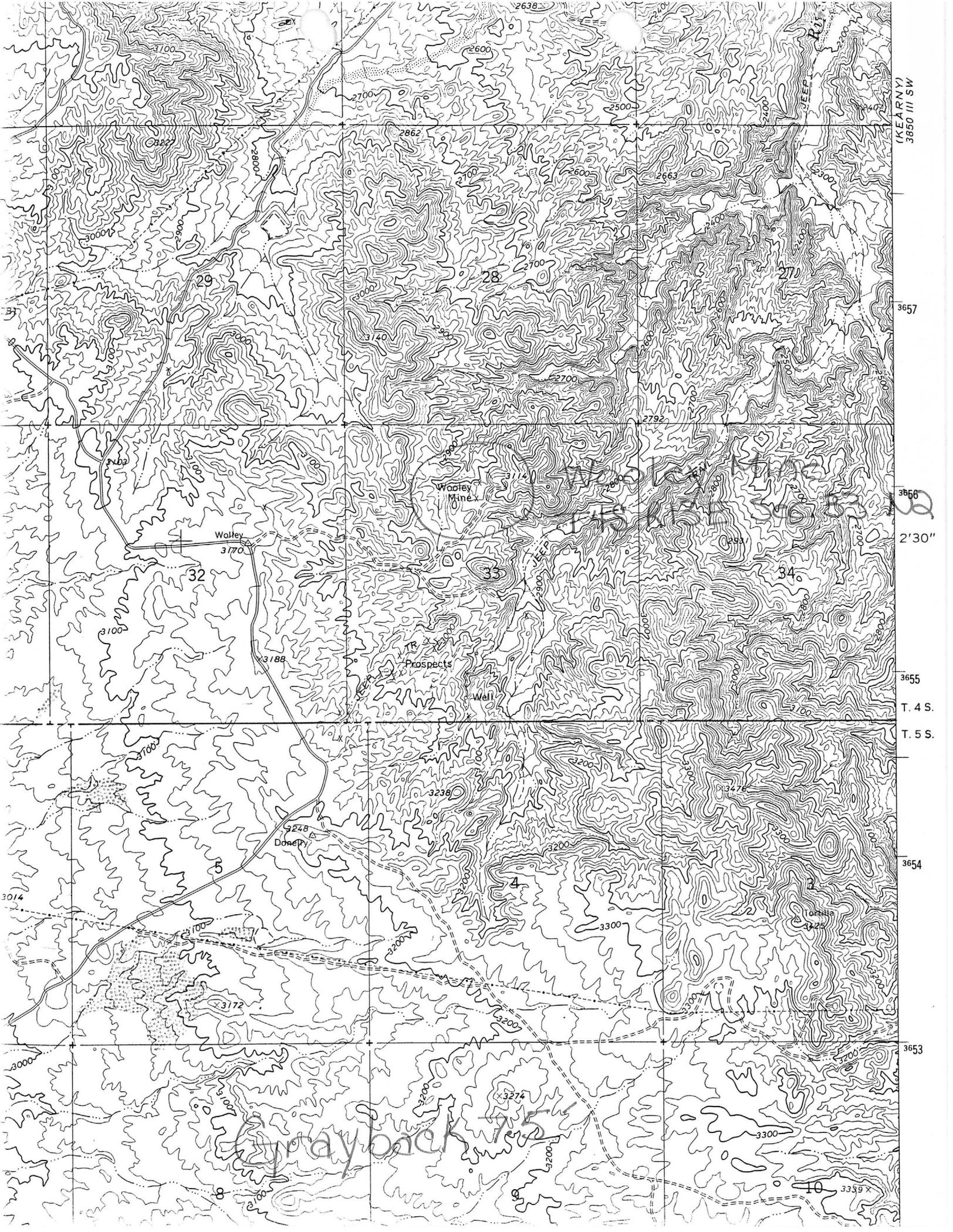
PINAL COUNTY MILS NUMBER: 337

LOCATION: TOWNSHIP 4 S RANGE 13 E SECTION 33 QUARTER N2
LATITUDE: N 33DEG 02MIN 39SEC LONGITUDE: W 111DEG 01MIN 26SEC
TOPO MAP NAME: GRAYBACK - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
COPPER OXIDE
URANIUM

BIBLIOGRAPHY:
ADMMR WOOLEY MINE FILE
USAEC PRELIM. RECONN. REPORT 1772-488,
1951, P. 4
SEE ADMMR ABC GROUP FILE



(KEARNY)
3850 III SW

3657

3656

2'30"

3655

T. 4 S.

T. 5 S.

3654

3653

Woolley Mine

Prospects Well

Dooney

Graylock 75

29

28

27

32

33

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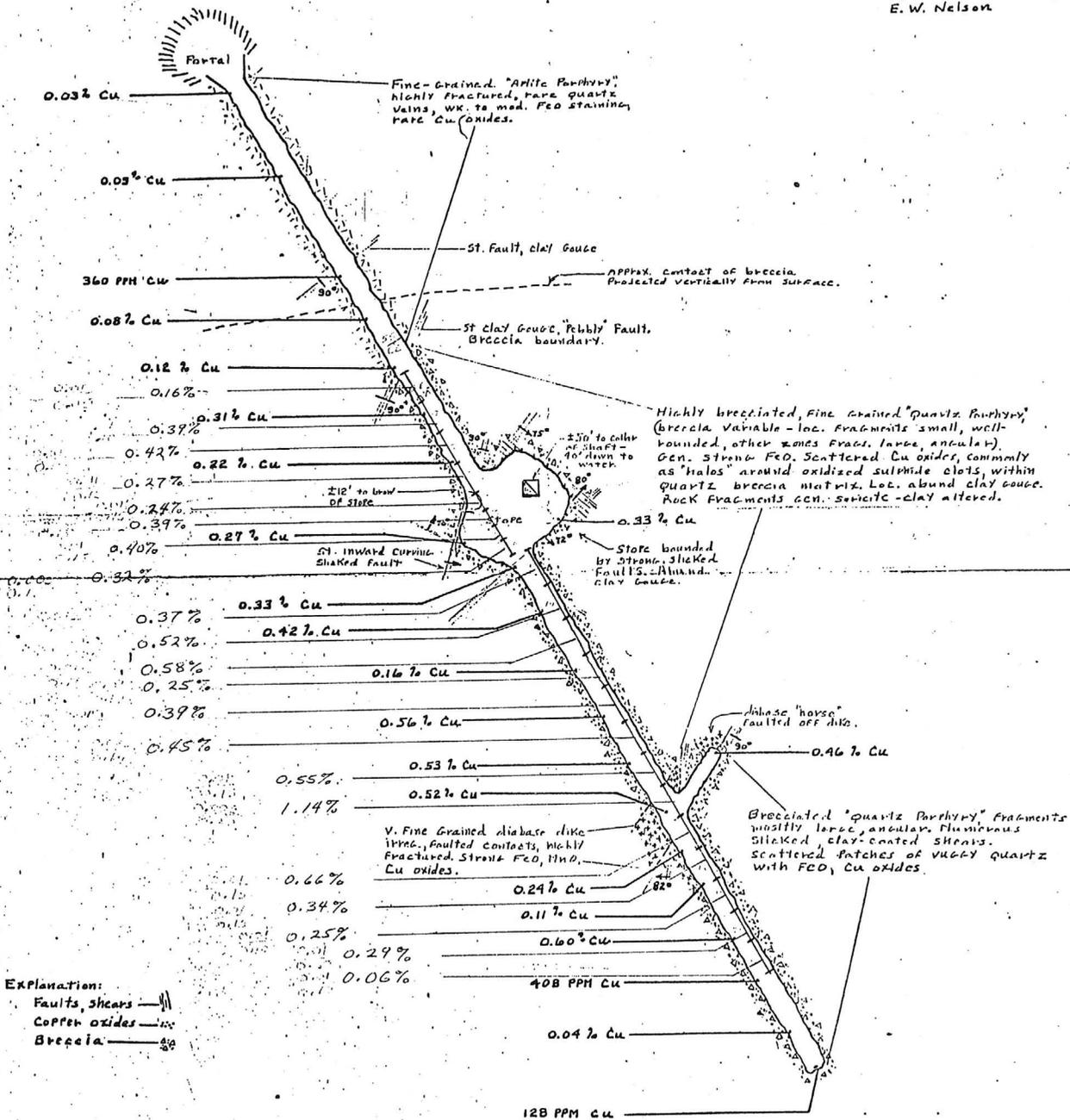
Main Workings, Woolley Mine, Pinal Co., Arizona



Scale: 1" = 30'

June, 1968

F. J. Nelson
N. C. Davidson
E. W. Nelson



Explanation:

- Faults, shears ———
- Copper oxides ———
- Breccia ———

Note:

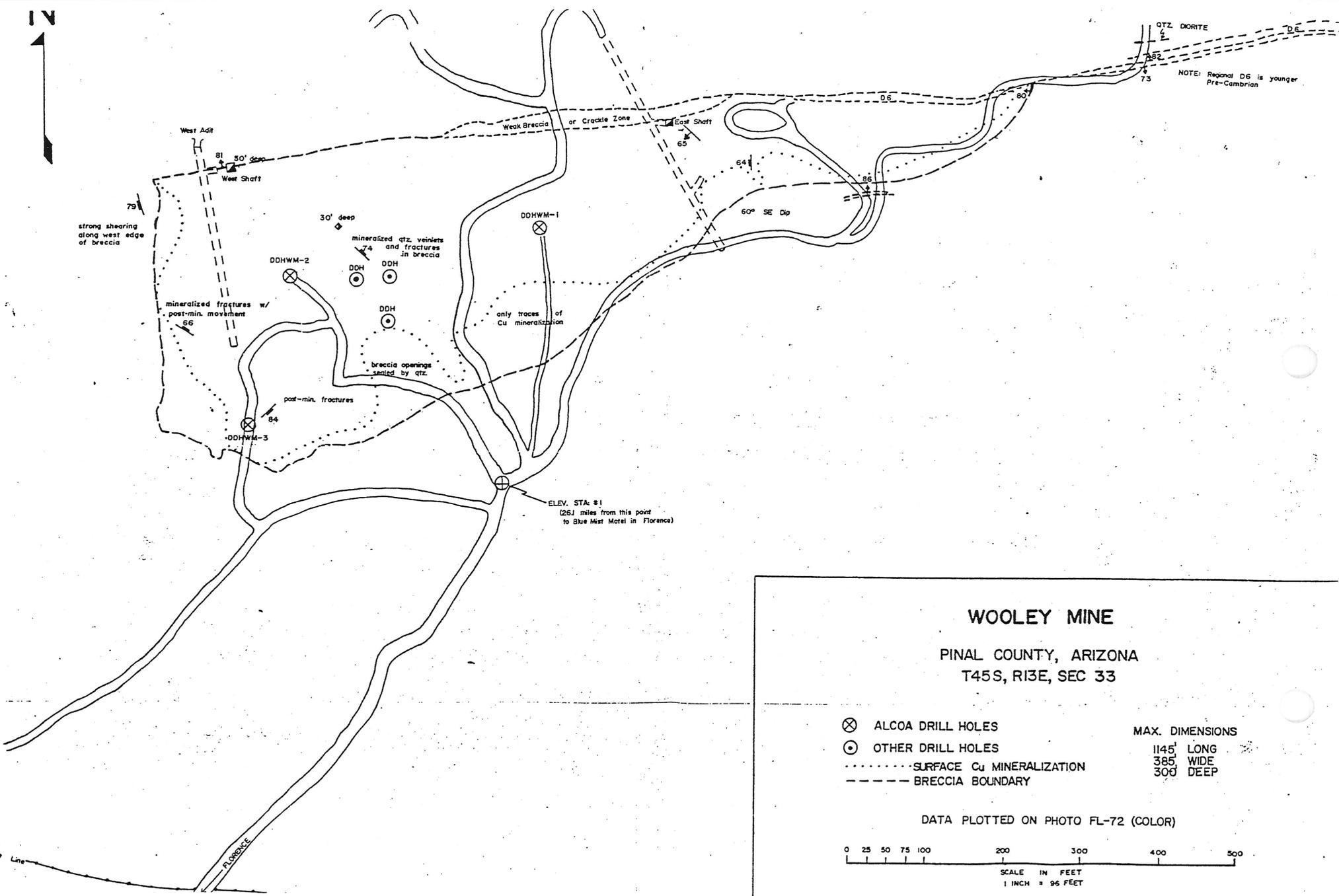
All samples cut from floor to back, (approx. 6 feet), samples approx. 10 lbs each.
Visible copper occurs as "halos" of chrysocolla around clots of FeO - probably after CuFeS₂.

Explanation

AICOA SAMPLES (Cu) 0.16%

Note:

All samples cut horizontally. Ten and five foot lengths.

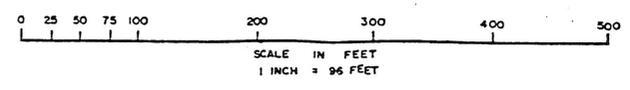


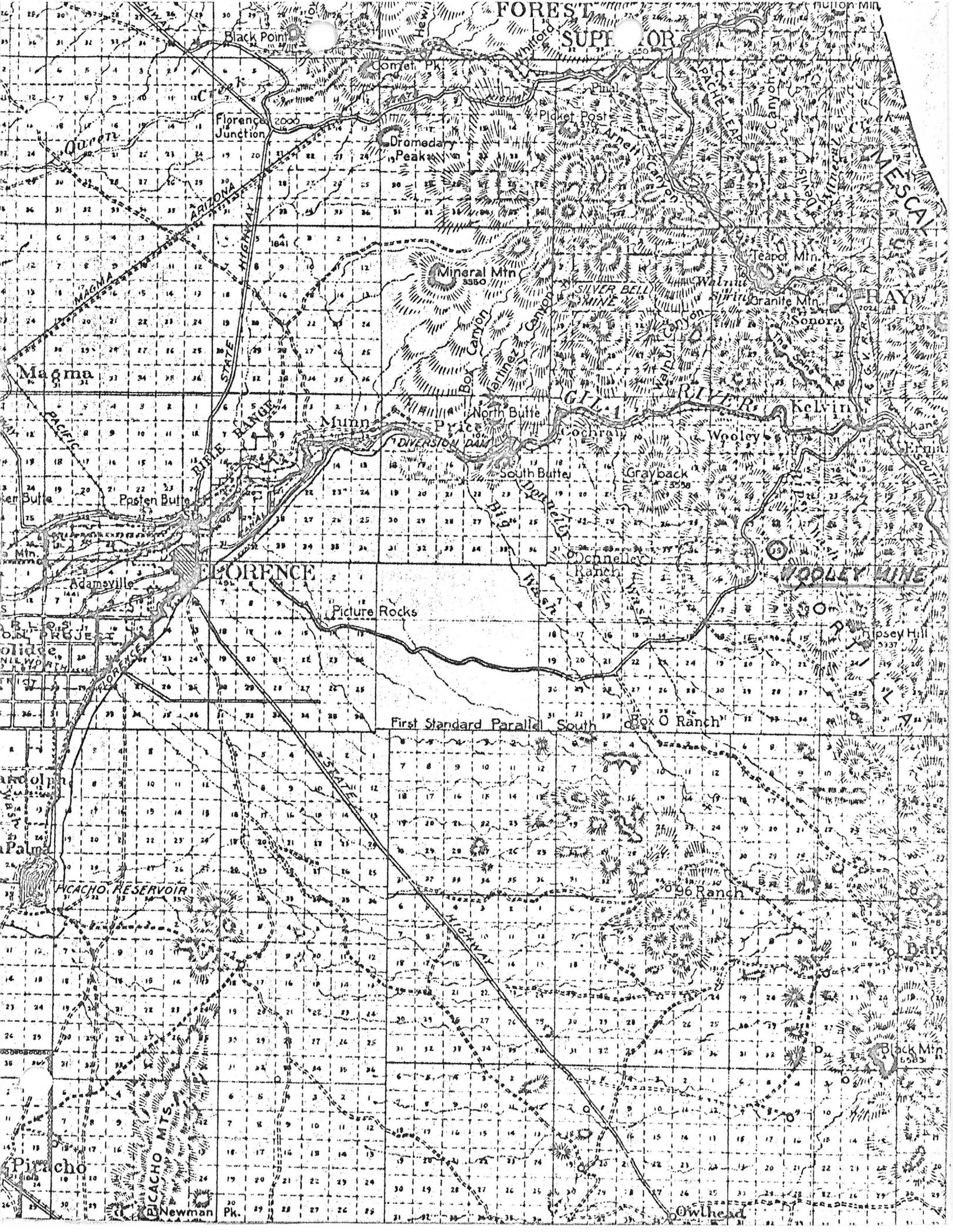
WOOLEY MINE

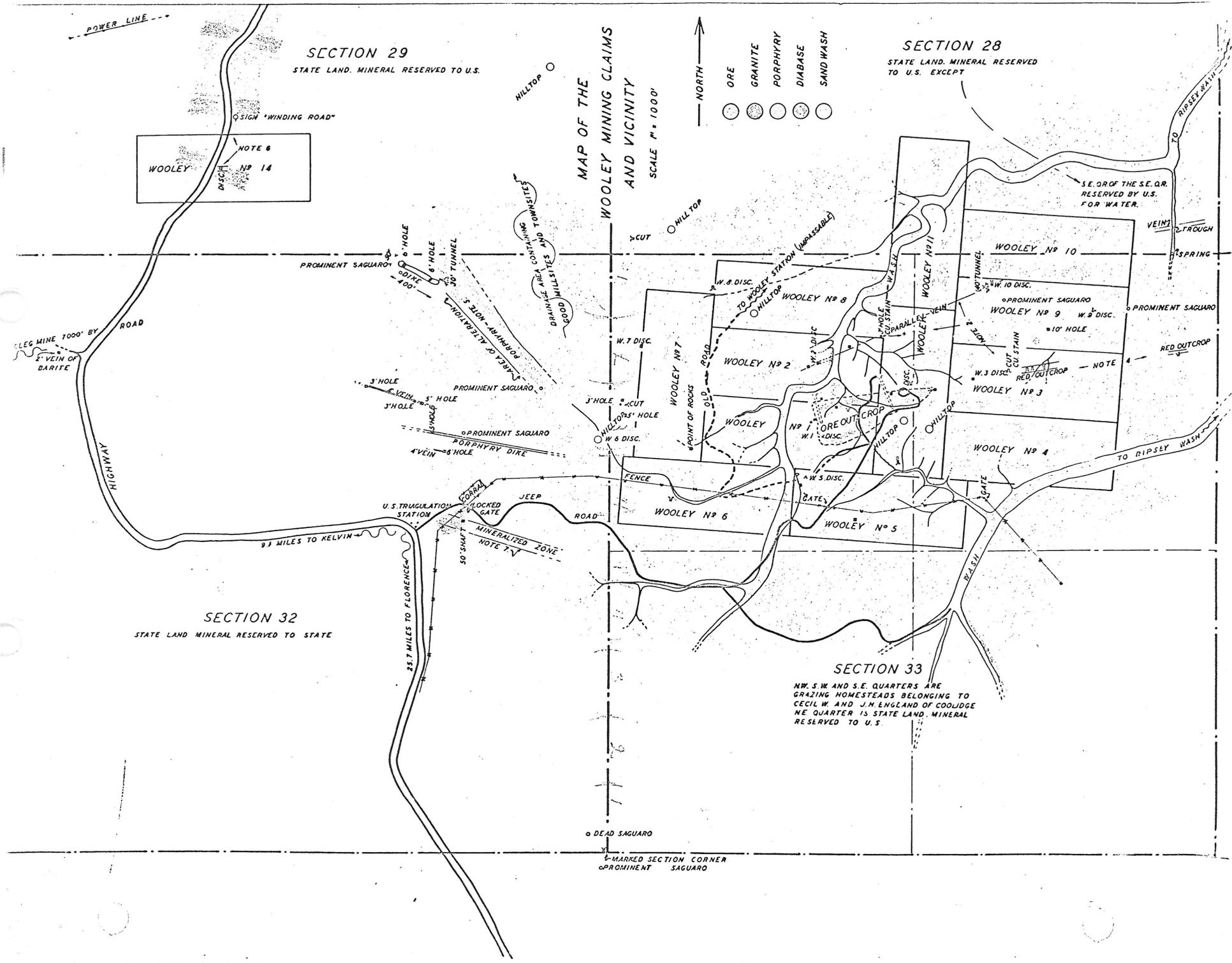
PINAL COUNTY, ARIZONA
T45S, R13E, SEC 33

- | | | |
|-------|---------------------------|-----------------|
| ⊗ | ALCOA DRILL HOLES | |
| ⊙ | OTHER DRILL HOLES | |
| | SURFACE Cu MINERALIZATION | MAX. DIMENSIONS |
| ----- | BRECCIA BOUNDARY | 1145' LONG |
| | | 385' WIDE |
| | | 300' DEEP |

DATA PLOTTED ON PHOTO FL-72 (COLOR)







SECTION 29
STATE LAND, MINERAL RESERVED TO U.S.

SECTION 28
STATE LAND, MINERAL RESERVED TO U.S. EXCEPT

MAP OF THE
WOOLEY MINING CLAIMS
AND VICINITY
SCALE 1" = 1000'

- NORTH ↑
- ORE
 - GRANITE
 - PORPHYRY
 - DIABASE
 - SAND WASH

WOOLEY
DISC. NO. 14
NOTE 6

SECTION 33
NW. 1/4 AND S.E. QUARTERS ARE
GRAZING HOMESTEADS BELONGING TO
CECIL W. AND J.M. ENGLAND OF COOLIDGE
NE QUARTER IS STATE LAND, MINERAL
RESERVED TO U.S.

SECTION 32
STATE LAND MINERAL RESERVED TO STATE

○ DEAD SAGUARO

▽ MARKED SECTION CORNER
○ PROMINENT SAGUARO

SE. Q.R. OF THE SE. Q.R.
RESERVED BY U.S.
FOR WATER.

LEG MINE 1000' BY
5' VEIN OF
BARITE

HIGHWAY

9.1 MILES TO KELVIN

25.7 MILES TO FLORENCE

U.S. TRIGULATION
STATION

MINERALIZED ZONE
NOTE 7

LOCKED GATE

JEEP ROAD

WOOLEY NO. 6

WOOLEY NO. 5

WOOLEY NO. 4

WOOLEY NO. 3

WOOLEY NO. 9

WOOLEY NO. 10

WOOLEY NO. 2

WOOLEY NO. 8

WOOLEY NO. 11

WOOLEY NO. 7

WOOLEY NO. 1

WOOLEY NO. 8

WOOLEY NO. 11

WOOLEY NO. 14

HILLTOP

DRAINAGE AREA CONTAINING
GOOD MILLSTONES AND TORNASTES

W. 7 DISC.

W. 6 DISC.

W. 5 DISC.

W. 4 DISC.

W. 3 DISC.

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W. 98 DISC.

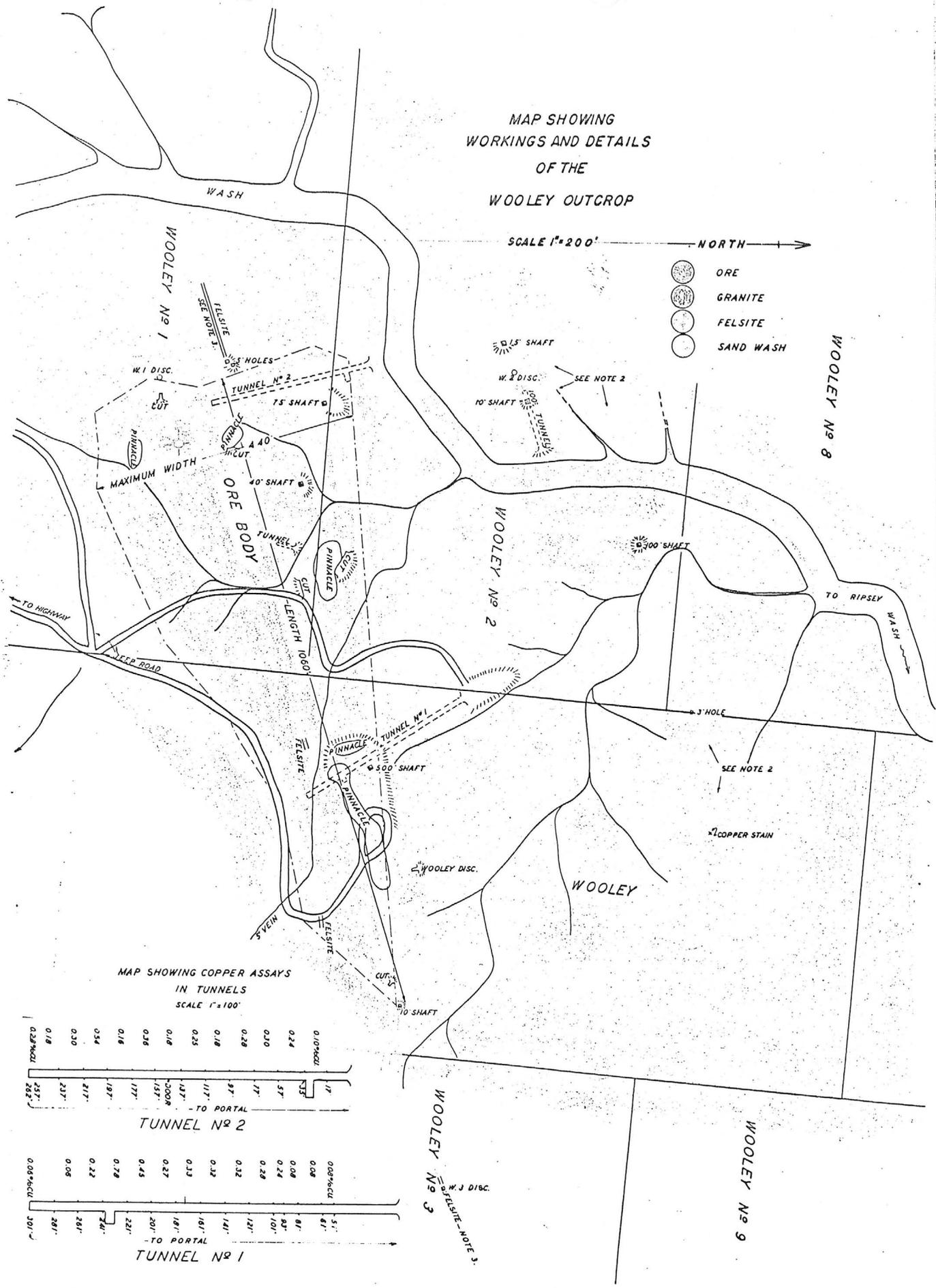
W. 99 DISC.

W. 100 DISC.

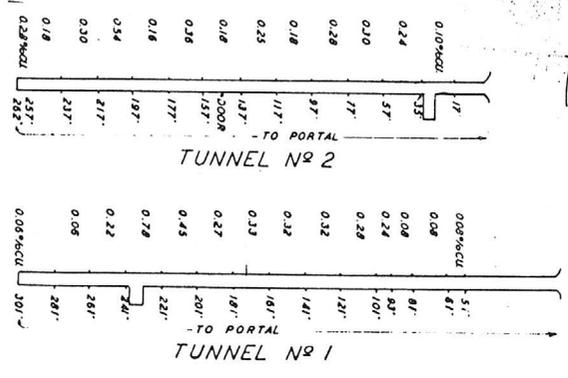
MAP SHOWING
WORKINGS AND DETAILS
OF THE
WOOLEY OUTCROP

SCALE 1"=200'

- NORTH →
-  ORE
 -  GRANITE
 -  FELSITE
 -  SAND WASH

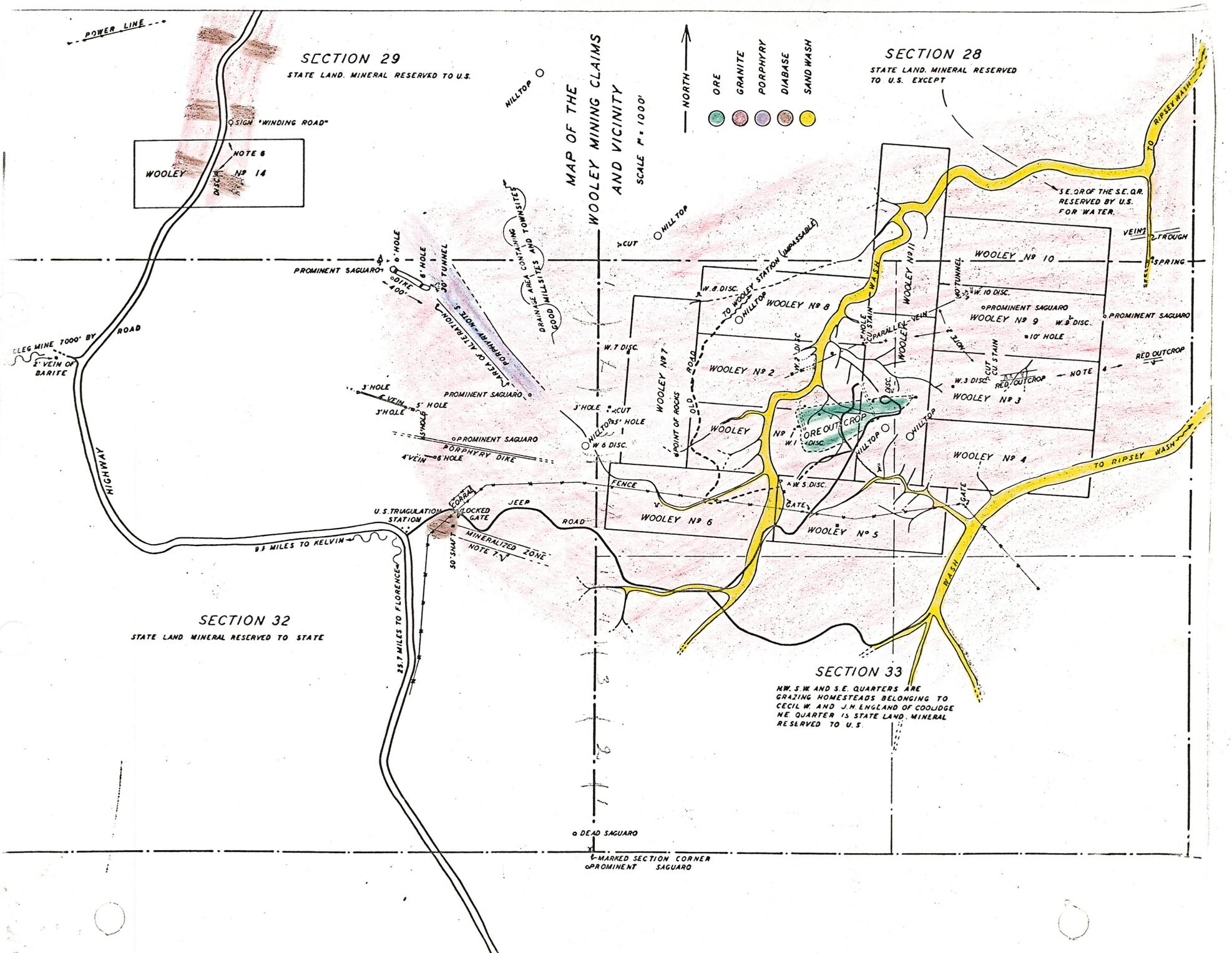


MAP SHOWING COPPER ASSAYS
IN TUNNELS
SCALE 1"=100'



WOOLEY NO. 3
SEE NOTE 3

WOOLEY NO. 9



SECTION 29

STATE LAND MINERAL RESERVED TO U.S.

SECTION 28

STATE LAND MINERAL RESERVED TO U.S. EXCEPT

**MAP OF THE
WOOLEY MINING CLAIMS
AND VICINITY**

SCALE 1" = 1000'



- ORE
- GRANITE
- PORPHYRY
- DIABASE
- SAND WASH

NOTE 6
WOOLEY
DISC. NO. 14

SECTION 33

NW. 1/4 AND SE. 1/4 QUARTERS ARE
GRAZING HOMESTEADS BELONGING TO
CECIL W. AND J.M. ENGLAND OF COOLIDGE
NE QUARTER IS STATE LAND MINERAL
RESERVED TO U.S.

SECTION 32
STATE LAND MINERAL RESERVED TO STATE

MARKED SECTION CORNER
PROMINENT SAGUARO

LEG MINE 7000' BY
ROAD
2' VEIN OF
BARITE

PROMINENT SAGUARO
6' HOLE
30' HOLE
50' TUNNEL
3' HOLE
4' HOLE
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49' HOLE
50' HOLE

U.S. TRIANGULATION
STATION
LOCKED GATE
MINERALIZED ZONE
NOTE 7
30 SHAF

DEAD SAGUARO

SE. 1/4 OF THE SE. 1/4 Q.R.
RESERVED BY U.S.
FOR WATER

VEIN
D TROUGH
SPRING

PROMINENT SAGUARO

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

VERBAL INFORMATION SUMMARY

1. Information from: Don Jenkins

Company: Gold River Resources Inc. (c)

Address: P.O. Box 4106

Prescott, AZ 86302

2. Phone: 778-6160

3. Mine: WOOLEY PROPERTY

4. ADMMR Mine File: Same

5. County: Pinal

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

Mr. Jenkins reports he has acquired (by lease?) the Wooley Property and plans to evaluate its potential for copper oxide production.

Date: September 22, 1988

Nyal J. Niemuth, Mining Engineer

Date Printed: 10/26/93

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

VERBAL INFORMATION SUMMARY

Information from: Gary Snyder

Company:

Address: 8736 Morning View Drive
City, State ZIP: Tucson, Arizona 85704
Phone: 602-742-5093

MINE: Wooley Mine

ADMMR Mine File: Wooley Mine
County: Pinal
AzMILS Number: 337

SUMMARY

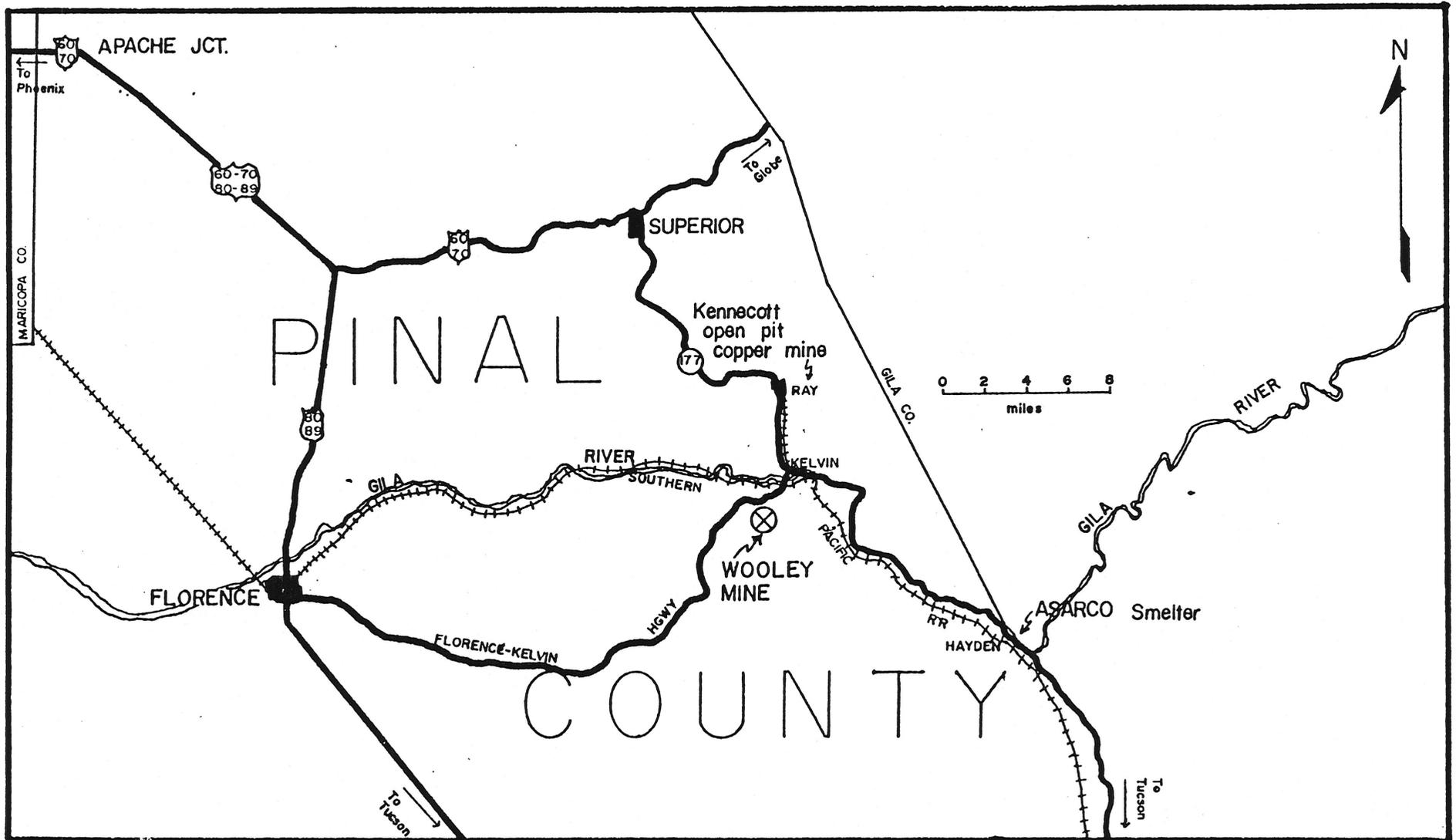
Gary Snyder provided some copies of reports on the Wooley Mine that we did not have. He is investigating the possibility of starting an operation at the property.

Ken A. Phillips, Chief Engineer Date: October 26, 1993

RESULTS OF DIAMOND DRILLING PROGRAM
ON THE
WOOLEY MINE, PINAL COUNTY, ARIZONA.

By: John Dyer

August-September 1974



INTRODUCTION

After a thorough economic evaluation of the San Antonio breccia pipe in Mexico, several things became apparent to the Phoenix staff. Most important of these was the relatively low cost of in situ blasting and leaching as opposed to any conventional mining and milling method. Also of interest was that a relatively small orebody (3-6 million tons) and low grade (0.5-0.8% Cu) could, under certain circumstances, become economic. These conditions were location in the U.S., availability of low cost acid, nearness to railroad and smelter, ore which would leach easily, ore at or near surface, favorable hydrologic conditions, and a low cost option agreement for exploration.

The property meeting most of these conditions was the Wooley property east of Florence, Arizona. T.45S., R.13E., Sec. 33. (See location map, page 1). This property is located 26 miles east of Florence on a good country road. It is within ten miles of the Southern Pacific railroad at Kelvin. Both the Kennecott Ray Mine and the ASARCO smelter at Hayden are close to the property and both are sources of low-cost acid. Chrysocolla is the dominant copper mineral and is readily leachable. The ore is near surface and has been shown to average around 0.5% Cu by surface and underground sampling (See Haynes Report, Appendix, page 19). Hydrologic conditions appeared to be favorable. A positive recommendation for drilling was given by Mr. Charles Elliot, geophysist, in a report based on Alcoa's previous geophysical work on the property in 1969. (See Elliot Report, Appendix, page 9).

Therefore, only two conditions were needed to test the property completely. One was the negotiation of a low-cost agreement with the owner, Mr. M.V. Deen, et al, and the diamond drilling of three exploration holes to prove both the tonnage and the type and grade of copper minerals present. The first of these was solved by Mr. C. Haynes who negotiated a contract (See option agreement, Appendix, page 1) which required no money except for the 1973 assessment work which would be fulfilled by preliminary dozer work in preparation for drilling. The other condition was fulfilled by contract with E.J. Longyear Company for a diamond drill to be used in the drilling program.

In view of the favorable conditions present at the Wooley, an active exploration program was undertaken to make a complete economic evaluation.

WORK PERFORMED

Preliminary work consisted of improvement of the 1 mile access road from the Florence-Kelvin county road to the property. Five drill pads were prepared and all existing roads over the property were graded and repaired.

On August 13, 1974, a Longyear diamond drill rig arrived at the drill site. Drilling began shortly thereafter and was completed September 11th. A total of 696 feet of diamond coring was done in a series of three holes, (A discussion of each hole will be presented later in the report). Core recovery was excellent considering the broken nature of the breccia and was considered to average around 98%. Circulation was maintained throughout the drilling as the highly fractured rock had been resealed or healed by the abundant quartz.

A general re-mapping and sampling was carried on prior to, and during the drilling. A new geologic map was prepared with information gained from more detailed work than that previously performed. (See Benedict Report, Appendix, page 11) all new roads and drill hole locations were added to the revised map.

Two covers were constructed to place over both the 500 foot shaft and the 62 foot shaft on the western end of the breccia. These were deemed necessary to prevent injury to both human and animal life in the area; also for liability reasons which are obvious.

DISCUSSION OF DRILL HOLES

As noted previously, a general discussion of the geology and mineralogy of the individual holes will be presented here.

HOLE DDH WM-1

The first hole was drilled more or less in the central portion of the breccia. The hole was located to determine the dip of the breccia, depth to the bottom of the breccia, and the type and grade of copper mineralization as correlated with the sampling results from the main adit to the northeast.

Mineralization in hole DDH WM-1 consisted of Chrysocolla with very minor malachite and both black and red copper oxides after what is believed to have formerly been Chalcopyrite. Weathering and alteration were variable from strong to relatively mild. Much of the rock was broken down to clay. Nearly all copper values were found within the quartz veins which had originally been the solutions by which the copper was introduced into the breccia.

The average grade of the 222 feet was 0.21% copper. A section from 105-170, (65 feet), produced an average grade of 0.39% Cu. As the bottom of the breccia was encountered at 166 feet, the copper values were found to decrease sharply. (See Assays, Appendix, page 24). All samples were taken in 5 foot intervals. Siderite is an accessory mineral.

HOLE DDH WM-2

This hole was drilled in the western portion of the breccia near the angle hole previously drilled by Anaconda. Although Anaconda had drilled nearby, there were several reasons for the location of the hole. One was no information from Anaconda's hole, but rumored to run .02-.03. Two, Anaconda's hole was an angle hole (60°) across the structure with no depth information; and Three, having been drilled in the mid '50's when copper was much less valuable than now, would have been understandably been "walked-away" from. Hole DDH WM-2 was drilled to a depth of 338 feet. This was the most continuously mineralized hole drilled. The main mineral was Chrysocolla with minor malachite. Of importance was the extreme abundance of red and black oxides which are the end result of leached Chalcopyrite. Siderite is common. There was excellent quartz veining with crystals lining the open vugs. Most mineralization was limited to the quartz veins, but minor amounts were found in fractures in the surrounding granite.

The average grade for hole DDH WM-2 was 0.20% Cu. Although there were good zones of mineralization, the barren or weakly mineralized zones produced a poor average grade. All sampling was on 5 foot intervals and it should be noted that there was a decrease in Cu values as the contact between the breccia and underlying granite was reached. The breccia bottomed at an irregular contact at 326 feet. As copper mineralization was nil no assaying from 332-336 was necessary.

HOLE DDH WM-3

The final hole was drilled to determine the thickness and amount of Cu mineralization present on the southerly dipping breccia structure. The hole was located near the SW boundary of the breccia as appears on surface. The hills to the south have the breccia covered in that direction. Due to poor mineralization and futility of more drilling, hole DDH WM-3 was stopped in breccia at 138 feet.

Although the breccia in the hole contained more fracturing, quartz, and siderite than either of the other two holes, the amount of Cu mineralization was much lower. There was an apparent lack of leached former sulfides and little to no Chrysocolla present in the abundant quartz veins present. The

average grade for the hole was .095% Cu. Perhaps with depth this could have improved, but not likely. All samples were in 10 foot intervals.

DISCUSSION OF DRILLING RESULTS

Even though a minimum amount of drilling was done, several facts concerning the nature of the breccia and it's economic possibilities became apparent. It is believed that due to the following findings and interpretations, that the Wolley breccia can be eliminated from the list of "hopefuls" for an economic copper orebody, They are:

(1) Limited lateral and vertical extent of breccia. As previously shown by surface mapping by Alcoa geologist and geophysical mapping by C. Elliot, the boundaries of the breccia were more or less predicted. Drilling has proven this prediction correct. The breccia ends at a depth of near 300 feet. (Hole DDH WM-2). Therefore tonnage is restricted and there is no deep target.

(2) Distribution of copper mineralization. From a rather thorough study of the core the following hypothesis are made.

- A. Copper mineralization decreases south of breccia outcrop. In other words in the direction the breccia dips.
- B. The copper occurs predominately within the quartz veins and therefore would have to be blasted to a point of pulverization to allow the acid access to the copper for leaching.
- C. The Precambrian granite underlying the breccia shows no copper mineralization and is highly fractured and jointed. Any attempt to recover pregnant copper solutions below the breccia would be impossible.
- D. The increase in siderite, unmineralized quartz veins, and decrease in previous sulfides, all in a down dip or southerly direction suggest that the initial high grade portion of the orebody was in the northern 1/2 of the breccia zone which even if the Chalcopyrite still remained, the tonnage would be so low as to make mining impossible.
Note: If all previous sulfides were Chalcopyrite the initial grade was probably around 2% Cu before leaching.

CONCLUSIONS

As a result of the drilling on the Wooley, it can be said that there is not an economic orebody present. There is little or no chance for any increase in tonnage or grade and only a "fantastic" jump in the price of copper could make the property of any interest to Alcoa in the foreseeable future.

Thus, no future work is planned for the Wooley property and the claims have been returned to Mr. M.V. Deen.

All core, assays, reports, drill logs, cross-sections, and related work concerning the Wooley property will be presented to Mr. M.V. Deen in the form of a copy of this report. Mr. Deen's assistance and cooperation throughout the project is greatly appreciated by the author. Also appreciated is drafting assistance by Alcoa geologist D. Soper and field assistance by Alcoa's C. Haynes and M. Hollingsworth.

APPENDIX

APPENDIX

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Alcoa's Exploration & Option Agreement	1
Geophysists Report - Elliot Geophysical	9
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Drill Logs & Cross-Sections	Rear pocket
Copper Analyses	24
Exploration Cost	27
Underground Workings	Rear pocket

EXPLORATION AND OPTION AGREEMENT

THIS AGREEMENT is made by and between M. V. DEEN and his wife, ROSA LEA WYVONNE DEEN, RONALD R. DEEN and his wife, RUBY MARLENE DEEN, and TOMMY E. DEEN ("Deens"), and ALUMINUM COMPANY OF AMERICA, a Pennsylvania corporation qualified to do business in Arizona ("Alcoa").

1. Deens represent and warrant to Alcoa that except for paramount title of the United States, Deens own twelve (12) unpatented lode mining claims situated in Riverside Mining District, County of Pinal, State of Arizona, named and recorded as follows:

Wooley Mine Lode, Location Certificate recorded in the records of said County, Book 56, Page 8

Wooley No. 1 Lode, Location Certificate recorded in the records of said County, Book 56, Page 8

Wooley No. 2 Lode, Location Certificate recorded in the records of said County, Book 5, Page 430

Wooley No. 3 Lode, Location Certificate recorded in the records of said County, Book 56, Page 40

Wooley No. 4 Lode, Location Certificate recorded in the records of said County, Book 57, Page 401

Wooley No. 5 Lode, Location Certificate recorded in the records of said County, Book 57, Page 401

Wooley No. 6 Lode, Location Certificate recorded in the records of said County, Book 57, Page 402

Wooley No. 7 Lode, Location Certificate recorded in the records of said County, Book 57, Page 402

Wooley No. 8 Lode, Location Certificate recorded in the records of said County, Book 57, Page 403

Wooley No. 9 Lode, Location Certificate recorded in the records of said County, Book 57, Page 403

Wooley No. 10 Lode, Location Certificate recorded in the records of said County, Book 57, Page 404

Wooley No. 11 Lode, Location Certificate recorded in the records of said County, Book 57, Page 404;

that Deens' title to the claims is free and clear of liens and encumbrances; that the locations of the claims have been completed in compliance with the laws of the State of Arizona and of the United States; that Deens have performed or caused to be performed all assessment work required by law to maintain title to the claims and that sufficient affidavits of performance thereof have been properly recorded through the annual assessment year ending September 1, 1973; and that Deens have the full right, power and capacity to enter this Agreement on the terms set forth herein.

2. Alcoa agrees to do the annual assessment work on the above claims for the annual assessment years ending September 1, 1974, and September 1, 1975, in the event that Alcoa exercises the option herein granted, Alcoa agrees to perform annual assessment work required to maintain the above-mentioned claims and to record or furnish to Deens affidavits of such performance for any assessment year in which this Agreement has not expired or been terminated prior to three (3) months before the end of such assessment year. Alcoa shall not be liable on account of holdings of any court or governmental agency that the work elected and performed by Alcoa does not constitute the required annual assessment

work for purpose of preserving title to such claims, provided that the work so done is of the kind generally accepted as assessment work and that Alcoa has expended a total amount sufficient to meet the minimum requirements with respect to all of the claims.

3. Deens hereby grant to Alcoa the sole and exclusive right for a term of eighteen (18) months from the effective date hereof ("the Exploration Period") to enter upon and take possession of the claims, with the right to drill and excavate such holes, pits, shafts and other excavations and to conduct such surveys, explorations, sampling, investigations, and other operations in such manner and to such extent as Alcoa in its sole judgment and discretion may deem advisable, for the purpose of ascertaining any and all facts relating to the occurrence of ores and minerals in and under the property and to the mining, milling and treatment thereof. Except as to such ores as may be shipped for metallurgical testing, bulk assaying, or for other purposes of testing the feasibility of the mining, milling and treatment thereof, Alcoa shall not sell or ship any ore from the property prior to exercise of its option to purchase as hereinafter set forth.

4. During the Exploration Period, Alcoa shall cause not less than five hundred (500) feet of core drilling to be done.

5. At any time during the Exploration Period, Alcoa shall have the exclusive right to purchase the above-mentioned claims, together with such right as Deens may have to use, manage and control the water on and in the above-mentioned claims, and the water rights appurtenant to said claims, and together with all and singular, the mines and minerals within the lines of said claim, their dips, spurs and extralateral rights, and all dumps, severed ore, fixtures, improvements, rights and appurtenances.

6. The purchase price to be paid to Deens by Alcoa, in the event that Alcoa shall exercise the option hereinabove granted, shall be the sum of One Million Dollars (\$1,000,000), which purchase price shall be paid only from ore produced from the above-described claims, Alcoa paying to the Deens five per cent (5%) of the net smelter returns, as hereinafter defined, from said ore; provided, that the minimum monthly payment shall be Four Hundred Dollars (\$400), beginning with the month after the month in which Alcoa shall exercise the option hereinabove granted, and ending when all of the sums paid by Alcoa to the Deens on account of the purchase price shall aggregate One Million Dollars (\$1,000,000), or when Alcoa at its sole option shall reconvey the claims to the Deens, whichever shall be earlier.

7. Net smelter return, as used in this Agreement, means the amount of payments received by Alcoa from the smelter or other buyer to which any ore or concentrates produced from the

premises are delivered for treatment and sale, after deduction has been made of all smelter and treatment charges, and actual freight and cost of transportation and haulage from the premises to the smelter or other buyer, less taxes, if any, levied and paid upon the production thereof, not including Federal income tax. In the event Alcoa shall process the ore and use it, without selling it, net smelter return shall mean the market value of the copper recovered by Alcoa from the ore, computed by multiplying the number of pounds of copper recovered by Alcoa times the average price per pound of domestic producers' electrolytic wirebar copper as reported in the American Metal Market for the period in which the ore is processed by Alcoa, less all smelter and treatment charges and expenses, freight and cost of transportation and haulage from the premises to the smelter or other processing location as limited above, less taxes, if any, levied and paid upon the production thereof, not including Federal income tax.

8. If this Agreement is terminated, Alcoa, upon request given by Deens within thirty (30) days of said termination shall furnish Deens within a reasonable time thereafter copies of all factual maps, drill logs, and any other factual data pertaining to the claims prepared by Alcoa. Alcoa agrees that, as to any core from the claims retained by Alcoa after termination of this Agreement, said core shall be delivered to Deens within thirty (30)

days. In no event shall Alcoa be liable to Deens for the loss or destruction of core from the claims.

9. If, in the opinion of counsel for Alcoa, Deens' title to any of the claims is defective or less than as warranted in paragraph 1 hereof, Alcoa may deliver to Deens written notice stating its objections to the title and if Deens are unable or unwilling to promptly correct the defects in title, Alcoa may attempt, with all reasonable dispatch, to perfect the title. In that event, Deens shall execute all documents and shall take such other actions as are reasonably requested by Alcoa to assist Alcoa in its effort to correct the defects in title. All costs and expenses of perfecting title, including, may not limited to, amounts paid at Alcoa's discretion in settlement of dispute of claims, the costs of attorneys' fees, and the cost of releasing or satisfying mortgages, liens and encumbrances shall be a credit against payments thereafter to be made under this Agreement.

10. Alcoa shall have the right, but shall not be obligated in any way, to amend or relocate any of the above-mentioned claims which Alcoa, in its sole discretion deems advisable to so amend or relocate. Such amendments or relocations shall be made in the name of Deens and the location notices may be signed by Alcoa or its agent as agent for Deens. It is understood and agreed that the work performed by Alcoa or its agents in connection with the amendment or relocation shall be done in a good and miner-like

fashion and at the sole cost and expense of Alcoa. Upon request by Alcoa, Deens shall apply for a patent to any of the unpatented lode mining claims so designated by Alcoa and shall execute all the necessary applications and documents in connection therewith, and shall cooperate fully with Alcoa in securing such patents. All expenses incurred or authorized by Alcoa in connection with such patent proceedings shall be borne by Alcoa. Such expenses shall be deducted from the purchase price to be paid under this Agreement. The rights of Alcoa under this Agreement shall extend to any of the amended, relocated or patented mining claims.

11. Any new claims staked by Alcoa, any portions of which lie within two (2) miles from any point in the above-described claims, whether located in the name of Deens or in the name of Alcoa, shall become subject to the terms and conditions of this Agreement, and upon termination of this Agreement, Alcoa agrees to quitclaim any such claims to Deens. If Deens own or hereafter acquire any land or mineral rights, any part of which lies within two (2) miles of any point in the above-described claims, such lands or mineral interests shall become subject to the terms and conditions of this Agreement, and the parties agree to execute whatever documents are reasonably necessary to evidence the inclusion of such lands or mineral interests.

12. The parties to this Agreement shall execute and record a memorandum of this Agreement in the form attached hereto as Exhibit A.

13. Any notice required to be given to Deens hereunder shall be given by certified or registered mail, return receipt requested, addressed as follows:

Mr. Ronald H. Deen
State Route Box 128
Riverside, Arizona 85237

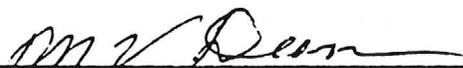
and any notice given to Alcoa shall be given by certified or registered mail, return receipt requested, addressed as follows:

Aluminum Company of America
Alcoa Building
Pittsburgh, Pennsylvania 15219

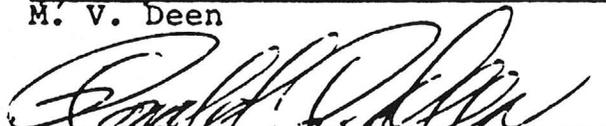
Attention: Raw Materials Division

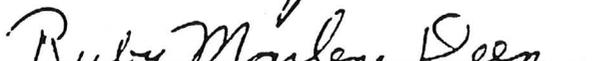
Any notice so given shall be deemed to have been validly given upon mailing. The above addresses may be changed by the respective parties by notice given as herein provided.

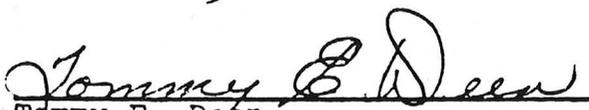
IN WITNESS WHEREOF, this Exploration and Option Agreement has been executed to be effective as of the 15th day of August, 1974.


M. V. Deen


Rosa Lea Wyvonne Deen


Ronald R. Deen


Ruby Marlene Deen


Tommy E. Deen

ALUMINUM COMPANY OF AMERICA

By _____
Vice President

NOT GEOTECHNICAL COMPANY
Mining Geophysical Engineers

4683 EAST PIMA STREET

TUCSON, ARIZONA 85712

TEL. (602) 792-2421

April 23, 1974

Ref: AL4E

Mr. W.J. Colegrove
Aluminum Company of America
Western Exploration Office
P.O. Box 10456
Phoenix, Arizona 85016

Re: Wooley Mine Project, Pinal County, Arizona

Dear Cougar:

As requested by you, I have reviewed all of the available data in my files pertaining to this project including my own report on the ground magnetic, induced polarization, and resistivity results, dated June 13, 1969. This review, as requested by you, is based on the premise that the breccia pipe, even though it may be of only moderate dimensions, could conceivably contain sufficient oxide copper mineralization to make an in situ leaching ore body. This premise differs grossly from previously in that the geophysical programs were basically performed in the search for deep, larged disseminated sulfide bodies that might have been in association with the small breccia pipe located at the Wooley Mine.

All of the induced polarization-resistivity data by Geoscience, Inc. and Canadian Aero Mineral Surveys with the exception of two special lines, Lines C-7 and C-8 by Canadian Aero Mineral Surveys, were for the purpose of deep exploration for large porphyry copper type deposits. On the other hand, Lines C-7 and C-8 with a short dipole length (200 feet) were surveyed for the purpose of mapping in detail the Wooley Mine breccia pipe. In addition, the staff of ALCOA performed ground magnetic lines again as a means of possibly mapping the lateral extent of the breccia pipe. The ground magnetic data in no way reflects the depth of the pipe, but did indicate a subtle expression of the contacts of the breccia pipe with the host rock.

In addition, Canadian Aero Mineral Surveys Lines C-7 and C-8 indicated that the breccia pipe may have a subtle electrical signature consisting of a slight increase in induced polarization response and a slight decrease in resistivity. Both of these subtle electrical indications, suggest that the main breccia pipe has an indicated bottom depth less than 300 feet. More properly, as was originally stated in my report of June 13, 1969 the controlling mineralization that may be effecting the electrical physical properties of the pipe, changing form or intensity at or above 300 feet. Thereby, the breccia structure itself may possibly extend to a greater depth.

CHARLES L. ELLIOT

REGISTERED PROFESSIONAL ENGINEER

There was no major sulfide deposit in association with the breccia pipe as interpreted in the original data, but that the breccia pipe was roughly delineated horizontally and vertically. The original conclusion that the pipe needed drill testing still stands and is basically the prime conclusion today even in view of the new premise.

I totally agree with my previous general conclusions. I would like to emphasize at this time that the interest is now the extent of the breccia with depth that the magnetic and electrical effects noted in association with the breccia pipe are very subtle features and therefore the interpretation of them could be severely inaccurate or grossly misleading. Thereby, reliance on the existing geophysical work is possibly not without some degree of uncertainty. In view of the subtleness of the geophysical responses, no additional geophysical work is warranted or recommended.

My original recommendation to drill the pipe still stands and is emphasized in view of the current economic premise. This property and particularly the oxide mineralized breccia pipe cannot be written off nor emphasized on the basis of the geophysical work alone. Drill testing is necessary and strongly recommended.

Respectfully submitted,

ELLIOT GEOPHYSICAL COMPANY

Charles L. Elliot

Charles L. Elliot



CLE:nd

FROM C. W. Haynes
Phoenix Office

TO G. C. McBride
Pittsburgh Office

June 26, 1974

RE: THE WOOLEY MINE COPPER PROSPECT, PINAL COUNTY, ARIZONA

SUMMARY

The Wooley Mine is a copper prospect in a breccia structure. It may make a profitable operation if expenditures are kept to a minimum and copper can be extracted by in situ blasting, leaching and iron precipitation. Anticipated reserves are three million tons at 0.5% Cu. Its geology, location in Arizona, closeness to smelters, acid supply and rail transportation are very favorable factors. Also the cost of obtaining the land is very favorable. Diamond drilling three holes would cost about \$25,000 and will give an indicated tonnage and grade. Metallurgical testing of the core will indicate if the copper is recoverable in sufficient quantities. A feasibility study would show if the program should be dropped or continued. If continued, additional funds would be requested to complete the evaluation. Although the property might be marginal, its location in the United States may be more important than economic factors.

HISTORY OF EXPLORATION

Old diggings abound in the region, some dating back to the late 1800's. Copper was the main ore sought, due mainly to the operations at Ray. The main mine openings are: the East Shaft, reportedly 500 feet deep, but caved just below the Adit Level; the East Adit, driven in a S 30 E direction, exposes the brecciation for its entire width at that location; the West Shaft, approximately 50 feet deep; and the West Adit, which was driven on a S 10 W bearing, but not completed to the southern boundary of the brecciation. Both shafts were sunk on post-mineral faults that bound the breccia structure on the northern side. Anaconda is reported to have drilled two diamond drill holes in the mid to late 1950's that averaged two or three-tenths copper. Freeport Sulfur did surface and underground sampling and mapping and ran an I.P. survey. Alcoa did underground sampling and surface magnetic and I.P. surveys. Recently Kennecott is reported to have conducted successful leaching studies. All the work to date indicates a low-grade, small tonnage copper deposit associated with a small breccia structure. No underlying sulfide body or zone was detected, either within or away from the breccia.

LAND SITUATION

Twelve unpatented claims, Wooley and Wooley No. 1 through No. 11 cover the area of interest. Another claim, Wooley No. 14, lies about 3/4 of a mile west northwesterly and is separate from the main group. Two other claims, Hidden Treasure No. 1 and No. 2, may be included if we want them. At this time only the twelve listed first are of interest. They lie mainly in the northern half of section 33, T4S, R13E. They are 26 miles east of the Arizona State Prison at Florence, Arizona. The claims are owned by M. V. Deen and sons Tommy and Ronald. Mr. Deen receives mail at P. O. Box 879, Winkleman, Arizona, 85292. His phone number is (602) 356-6742. Copies of ownership, claim location notices and affidavits of labor for annual assessment work will be sent to Walt Howarth with a copy of this report.

Alcoa can obtain an option from Mr. Deen by (1) drilling two or three exploration holes and allowing the work to be used for this year's assessment work (due August 31, 1974). We would then be allowed three to six months to actively conduct metallurgical leach studies and preliminary feasibility studies to see if the deposit could be made commercial by solution mining techniques. If these studies are negative Alcoa drops the properties with no cost outlay, but giving Mr. Deen the results of our work. If the studies are affirmative then (2) Alcoa pays Mr. Deen, et al, a negotiable amount of money per month, probably in the \$400 to \$600 range. These monies are paid until the property is put into production. At that time (3) Alcoa pays 10% of the net smelter return, less transportation, on the copper and any other values recovered. No end price was set and is presumably negotiable. A contract should be drawn up and presented to Mr. Deen at this time.

GENERAL GEOLOGY

The basement rock in the area is Precambrian Oracle granite. It is cut by Younger Precambrian diabase. Paleozoic sediments are absent in this part of the Florence-Ray district. Laramide activity began with the intrusion of quartz diorite which occurs mainly as east-northeasterly trending dikes. This was followed by the Grayback granodiorite. The Granite Mountain porphyry intrusion preceded the ore fluids that formed the porphyry copper deposit at Ray. Tertiary volcanics completed the intrusive activity.

All the Laramide intrusives show some measure of copper mineralization, usually along their contacts. Northeasterly trending faults, with or without quartz, locally contain copper mineralization. The widespread mineralization coupled with known favorable structures, lineaments, rock types etc., have made the general area popular for exploration during the last few years.

THE WOOLEY MINE AREA

The old adits and shafts previously described are located within or near a small breccia structure. The structure is within Precambrian Oracle granite, cuts Younger Precambrian diabase and may be cut by Laramide diorite dikes. The physical appearance of the diabase, diorite and andesite are very similar on surface and underground. Thin-section work would define this problem and probably give a good age range for the structure. The shape of the breccia is roughly "meat cleaver". The northern boundary is sharp along strong post-mineral faulting, although there is an apparent crackle zone present also. This boundary shows a steep northerly dip on the faults, but the breccia may actually dip southerly overall. The remaining boundaries are generally gradational, but can usually be pin-pointed within several feet. I.P. and ground magnetic surveys conducted by Alcoa in 1969 indicate the breccia could dip steeply to the south.

The fracturing within the breccia is usually healed with quartz. Pyrite and chalcopyrite followed the quartz. No evidence of other primary minerals has been found to date. Leaching and oxidation have produced a range of non-sulfide iron and copper minerals. Chrysocolla seems to be the most prevalent copper mineral. Sampling of surface and underground indicates an average grade of 0.5% Cu for near surface mineralization. With depth the grade could decrease if there has been surface enrichment. It could increase if there has been supergene enrichment. There is some evidence for both cases, but nothing definitive. The breccia is very similar to San Antonio in appearance, but much weaker in mineralization. Tonnages could be similar.

TARGET AND RECOMMENDATIONS

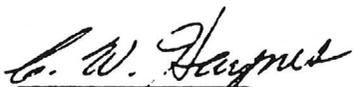
The target is three million tons of 0.5% copper that would be exploited by in situ leaching (blasting and solution mining) followed by iron precipitation. During the feasibility studies made on the San Antonio project Hackman and Carwile noted that a deposit of this type might be commercial in the United States under the right conditions. The Wooley deposit meets some of these conditions. Drilling three holes would give an indication of tonnage, grade and shape of the deposit. Hydrometallurgical

G. C. McBride
June 26, 1974
page 4

testing would indicate if recovery of copper is sufficient. DuPont would provide the explosive technique and Harshbarger the hydrogeological control. Additional drilling would give the needed reserve data plus additional material for more hydro-metallurgical tests. A final feasibility study would show if the deposit is commercial.

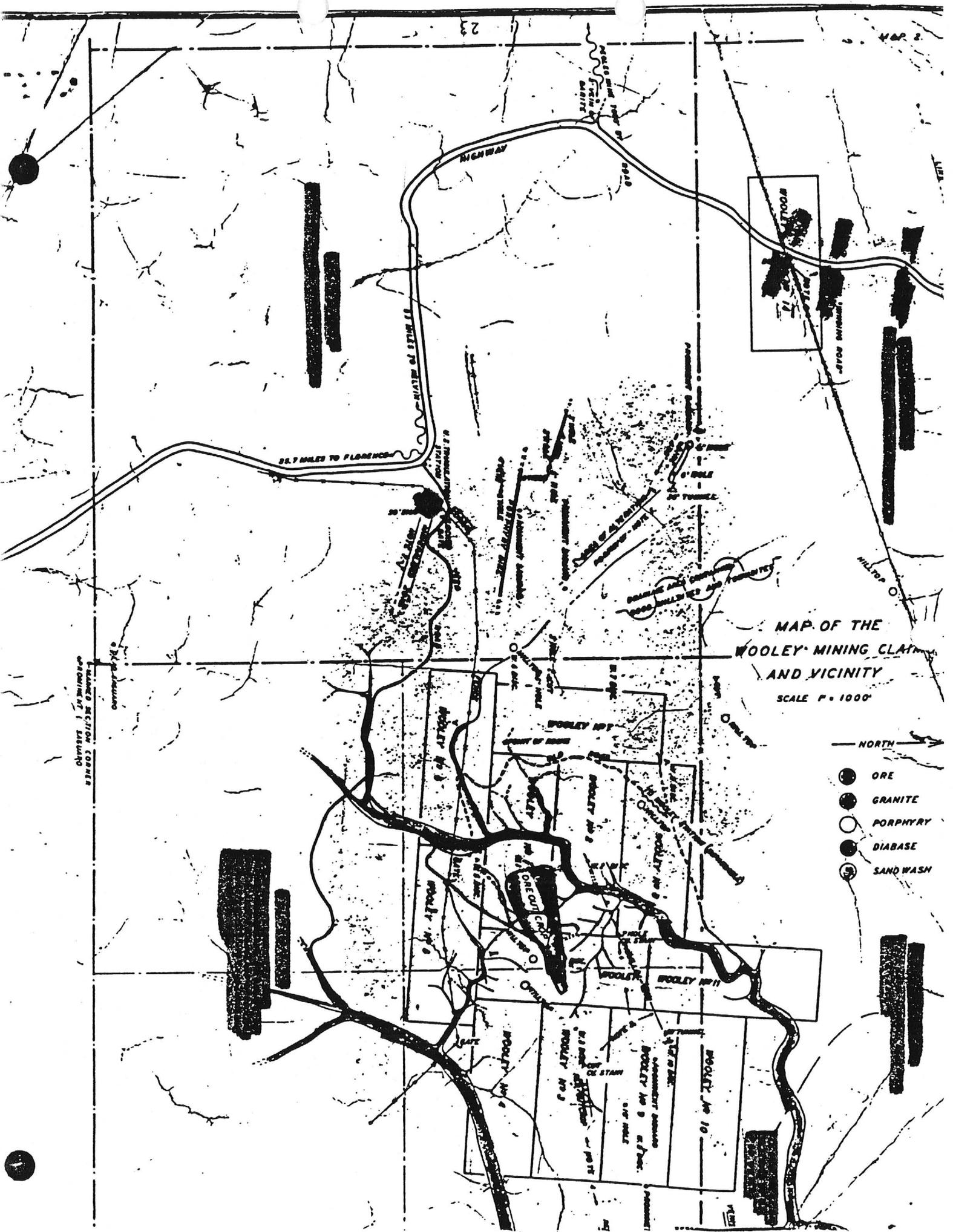
At this time I recommend obtaining a contract with Mr. Deen et al., for the land, have Longyear drill three diamond drill holes and have Alcoa do hydrometallurgical testing. A preliminary feasibility study would then be made to indicate if further work is indicated. This study is recommended at the end rather than the beginning of the program, because of the large number of variables. At the beginning the variables are so numerous as to negate a study. Following the study we would drop the property or pick up the option.

Due to the anticipated low grade the chances are low for a commercial deposit, perhaps 1 in 10. However, we can get an option for the land for no cash outlay. The drilling will probably cost less the \$25,000 and be completed in two to three months. The costs for metallurgical and feasibility studies are unknown, but would be done by Alcoa personnel, if available. Therefore, we have a chance for a partial evaluation for \$25,000 outlay, which is quite low at today's prices. If this first part is successful then we would be asking for additional funds for drilling, consultants, metallurgical tests, land acquisition etc.


C. W. Haynes

CWH:vg

cc: W. J. Colegrove, Phoenix Office
W. O. Howarth, Pittsburgh Office, (with legal attachments)



MAP OF THE
 WOOLEY MINING CLAIM
 AND VICINITY
 SCALE 1" = 1000'

- NORTH →
- ORE
 - GRANITE
 - PORPHYRY
 - DIABASE
 - ⊙ SAND WASH

UNITED STATES GEOLOGICAL SURVEY
 WASHINGTON, D. C.

COPPER ANALYSES OF DDH WM-1 CORE

<u>Sample No.</u>	<u>Interval</u>	<u>Copper</u>
1	10-15	0.25% -
2	15-20	0.16 -
3	20-25	0.12 -
4	25-30	0.30 -
5	30-35	0.11 -
6	35-40	0.07 -
7	40-45	0.14 -
8	45-50	0.24 -
9	50-55	0.17 -
10	55-60	0.16 -
11	60-65	0.13 -
12	65-70	0.16 -
13	70-75	0.14 -
14	75-80	0.16 -
15	80-85	0.20 -
16	85-90	0.21 -
17	90-95	0.19 -
18	95-100	0.10 -
19	100-105	0.07 -
20	105-110	0.21 -
21	110-115	0.17 -
22	115-120	0.39 -
23	120-125	1.50 -
24	125-130	0.18 -
25	130-135	0.12 -
26	135-140	0.11 -
27	140-145	0.49 -
28	145-150	0.31 -
29	150-155	0.63 -
30	155-160	0.70 -
31	160-165	0.15 -
32	165-170	0.11 -
33	170-175	0.08 -
34	175-180	0.06 -
35	180-185	0.06 -
36	185-190	0.09 -
37	190-195	0.10 -
38	195-200	0.09 -
39	200-205	0.08 -
40	205-210	0.11 -
41	210-215	0.07 -
42	215-220	0.08 -

COPPER ANALYSES OF DDH WM-2 CORE

<u>Sample No.</u>	<u>Interval</u>	<u>Copper</u>	<u>Sample No.</u>	<u>Interval</u>	<u>Copper</u>
1	11-16	0.12% ✓	32	167-172	0.23% ✓
2	16-21	0.14 ✓	33	172-177	0.27 ✓
3	21-26	0.19 ✓	34	177-182	0.24 ✓
4	26-31	0.11 ✓	35	182-187	0.22 ✓
5	31-36	0.28 ✓	36	187-192	0.17 ✓
6	36-41	0.18 ✓	37	192-197	0.31 ✓
7	41-46	0.18 ✓	38	197-202	0.15 ✓
8	46-51	0.15 ✓	39	202-207	0.22 ✓
9	51-56	0.18 ✓	40	207-212	0.22 ✓
10	56-62	0.30 ✓	41	212-217	0.21 ✓
11	62-67	0.12 ✓	42	217-222	0.20 ✓
12	67-72	0.24 ✓	43	222-227	0.11 ✓
13	72-77	0.16 ✓	44	227-232	0.18 ✓
14	77-82	0.13 ✓	45	232-237	0.26 ✓
15	82-87	0.18 ✓	46	237-242	0.26 ✓
16	87-92	0.20 ✓	47	242-247	0.23 ✓
17	92-97	0.15 ✓	48	247-252	0.13 ✓
18	97-102	0.17 ✓	49	252-257	0.16 ✓
19	102-107	0.13 ✓	50	257-262	0.35 ✓
20	107-112	0.15 ✓	51	262-267	0.43 ✓
21	112-117	0.18 ✓	52	267-272	0.33 ✓
22	117-122	0.12 ✓	53	272-277	0.26 ✓
23	122-127	0.12 ✓	54	277-282	1.10 ✓
24	127-132	0.14 ✓	55	282-287	0.09 ✓
25	132-137	0.34 ✓	56	287-292	0.10 ✓
26	137-142	0.19 ✓	57	292-297	0.05 ✓
27	142-147	0.15 ✓	58	297-302	0.07 ✓
28	147-152	0.11 ✓	59	302-307	0.36 ✓
29	152-157	0.11 ✓	60	307-312	0.15 ✓
30	157-162	0.21 ✓	61	312-317	0.08 ✓
31	162-167	0.21 ✓	62	317-322	0.05 ✓

0.32 0.17

7.19
0.23

0.17

COPPER ANALYSES OF DDH WM-3 CORE

<u>Sample No.</u>	<u>Interval</u>	<u>Copper</u>
1	5-15	0.09%
2	15-25	0.13
3	25-35	0.11
4	35-45	0.14
5	45-55	0.10
6	55-65	0.06
7	65-75	0.02
8	75-85	0.03
9	85-95	0.04
10	85-105	0.09
11	105-115	0.10
12	115-125	0.22
13	125-135	0.10

1.2
0.09

EXPLORATION COST

Longyear Diamond Drilling	\$10,859.63
Assays & Laboratory	377.60
Drill Pads & Roads	1,700.00
Materials for Core Shed & Miscellaneous	213.02
Geologist Expenses & Transportation and Miscellaneous Labor	1,195.20
Rent on Core Shed	<u>25.00</u>
TOTAL	<u>\$14,370.45</u>

Pages 28-33

WERE NOT PROVIDED

Randolph

430. Eberly, L. D., and Stanley, T. B., Jr., 1978, Cenozoic stratigraphy and geologic history of southwestern Arizona: Geological Society of America Bulletin, v. 89, no. 6, p. 921-940.

Red Hills

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- C17 436. Elsing, M. J., and Heineman, R. E. S., 1936, Arizona Metal Production: Arizona Bureau of Mines Bulletin 140, Economic Series 19, 112 p.

Ripsey

45. Anthony, J. W., Williams, S. A., and Bideaux, R. A., 1977, Mineralogy of Arizona: Tucson, Arizona, University of Arizona Press, 255 p.
- (17) 47. Arizona Bureau of Geology and Mineral Technology File data: Tucson, Arizona, Arizona Bureau of Geology and Mineral Technology, 85719.
301. Cornwall, H. R., and Krieger, M. H., 1975, Geologic map of the Kearny Quadrangle, Pinal County, Arizona: U.S. Geological Survey Geologic Quadrangle Map GQ-1188, scale 1:24,000.
- mw 319. Creasey, S. C., Jackson, E. D., and Gulbrandsen, R. A., 1961, Reconnaissance geologic map of parts of the San Pedro and Aravaipa valleys, south-central Arizona: U.S. Geological Survey Miscellaneous Field Studies Map MF-238, scale 1:125,000.
430. Eberly, L. D., and Stanley, T. B., Jr., 1978, Cenozoic stratigraphy and geologic history of southwestern Arizona: Geological Society of America Bulletin, v. 89, no. 6, p. 921-940.
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WOOLEY CLAIMS

Leo Wall wanted information on leaching. He stated that he has a large tonnage of siliceous copper ore which assays 0.8 to 1 percent copper and 75-80 percent silica. This is at his Wooley Claims.

LEWIS A. SMITH - Superior Conf. - 6-22-61

W. J. Miller
WOOLEY GROUP

PINAL COUNTY
RIVERSIDE DIST.

Leo Wall, Box 164, Ray, Arizona, raised a problem of priorities of homestead over claims for mining purposes ^{and} as to whether mineral rights are included. He also had a problem of leased ground over mining rights on part of the property. The claims are the Wooley Group, near Kelvin. They lie partly in the northwest and northeast quarters of the section. A rancher has a homestead on the northwest quarter but the northeast quarter is leased. Most of the Wooley is on the northeast quarter. Since it was brought out that the rancher is desperately in need of water in the area, it was suggested that a possible agreement may be worked out with the rancher offering water rights in trade for mining rights, preventing possible controversy. The property has a shaft 420' deep which has a strong flow of water which rises to 112 feet. It was also suggested that Wall get a sample of the water analyzed to see if it is suitable for cattle. The claims are valid and the work has been done. Wall has a group who wish to go in and test the property and ship some ore for flux. According to Wall, the exposed ore runs $1\frac{1}{2}\%$ copper and over 80% silica.

LAS
Conf. Report
6-18-59

DEPARTMENT OF MINERAL RESOURCES

State of Arizona

MINE OWNER'S REPORT

Date 2-20-58

1. Mine: ✓ Woolly Claims

2. Location: Sec ^{11W 45-33} 45 Twp. 45 Range 13E Nearest Town Woolley Station Distance 4

Direction N Nearest R.R. " " Distance 4

Road Conditions Poor at present

3. Mining District and County: Riverside Pinal Co.

4. Former Name of Mine: Originally part of Woolley Mining Co. (ABC)

5. Owner: ✓ Leo Wall

Address: Box 144 Ray, Arizona

6. Operator: "

Address: "

7. Principal Minerals: ✓ Copper (oxidized)

8. Number of Claims: Lode 12 Patented Unpatented ✓

Placer Patented Unpatented

9. Type of Surrounding Terrain: Rolly at north end of the Tortilla Mountains

10. Geology and Mineralization: The mine lies in a series of volcanic flows of the Miocene series intruded by diabase. The diabase has localized areas carrying up to 4% copper (as oxides - malachite and chrysocolla. The mineralized acid flows run lower grade but up to 80% SO2. The tunnel has over 200' in width of 1% ore. Extraction tests show 83-85% extraction by leaching with H2SO4.

11. Dimension and Value of Ore Body: Mineralized zone 900' wide and 1500-2000 feet long, but much of this is low grade.

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

12. Ore "Blocked Out" or "In Sight": Not known

STATE OF ARIZONA
MINE OWNER'S REPORT

Ore Probable: Large tonnage of low grade with localized higher grade areas.

13. Mine Workings—Amount and Condition:

No.	Feet	Condition
Shafts..... 1	500	Bottom hit submerges, now under 400' water
Raises.....		
Tunnels..... 1	300	Good 200 feet of 1% ore.
Crosscuts.....		
Stopes.....		

14. Water Supply: 400' of water in shaft. Rate of flow unknown

15. Brief History: Originally Woolley mining Co., then A.B.C. prior to 1922. since when Leo Wall has had the mine.

16. Remarks: The mine is to be examined next week.

17. If Property for Sale, List Approximate Price and Terms: Yes, provided the group now examining it is not interested.

18. Signature: Leo Wall

WOOLEY MINE, RIPSEY DISTRICT

PINAL COUNT, ARIZONA

ABOUT 5 MILES, AIRLINE, S.W.
OF KELVIN, ARIZONA

BY

P.C. BENEDICT

APRIL 23, 1953

(New typed copy)

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APPENDECIES

Excerpts from Henry W. Nichols Undated Report on Wooly Mine, probably written in the late 1948's

Hugh Steele's report (probable late '40's or early '50's) on the Wooley Mine.

MAPS HEREWITH

- W-1 Plan of Wooley Claims by Henry W. Nichols 1" = 1,000'
- W-2 Plan of Wooley Mineralized Zone 1" = 200'
with insert assay plan of Tunnels Nos. 1&2 1" = 100'

April 23, 1953

Mr. Fred Searls, Jr.
Newmont Exploration Limited
Room 1501, 14 Wall Street
New York, New York

Dear Fred:

Re: Wooley Mine, Ripsey Dist.
Pinal Co., Arizona. About
5 miles airline S.W. of
Kelvin, Arizona

FORESTATEMENT

Ken McGriffin and R.J. Searls briefly inspected this property and recommended I take a look which I did, spending about 3/4 day on it, in company with Mr. Leo Wall the owner, on March 27th.

Attached hereto are excerpts from the undated report of Henry W. Nichols, an engineer who formerly worked in the Magma assay office and was one of the vendors of San Manuel. Hugh Steels tells me that his sampling, as shown on accompanying Plate W-2, can be accepted 100%.

I accept Nichols' report except insofar as the following statements may differ from same.

RECOMMENDATIONS

I recommend that we do no work on this property. However, Mr. Leo Wall, the owner, contemplates doing some diamond drilling and I have indicated to him in reply to his query, that I should be interested in reviewing the results therefrom and that, should they be favorable, we might well be interested in optioning the property and prosecuting a vigorous development campaign.

GEOLOGY

The outcropping rock is fine grained pre-Cambrian granite. It is the type classified as 4 in R.B. Hargraves report on the Tortilla Mts., South of Kelvin. To the N.W. of the big wash shown on W-2 is coarse grained granite (Hargraves type 1.)

The "felsite" dikes shown by Nichols are fine grained diabase and pre-mineral. If, as seems probable, the diabase is Laramide in age, the mineralization may also be so classified.

Mr. Fred Searls, Jr.
April 23, 1953
page 2

MINERALIZATION

The area shown on W-2 as "orebody" is a breccia pipe. I get the impression that solutions entering along fractures and cracks have dissolved irregular elliptical holes and irregular tabular cavities in the granite; that the limited amount of brecciation is due to slumping into such holes. These holes have subsequently been lined with radiating, euhedral quartz crystals and between the crystal terminations black (manganiferous?) calcite has been deposited and, in some of the, coarse blebs of sulphide.

All exposures are completely oxidized. On surface the calcite is completely dissolved out but the limonite, where present, remains as discrete blebs. Transportation of iron has been negligible and there is no general discoloration of the rocks. Limonite is usually accompanied by chrysacolla staining which has travelled a maximum of a few inches from the limonite source. No disseminated sulphide was deposited in the rock between the "geodes".

In the two tunnels, the black to brownish calcite remains in a few places. Where leached the quartz crystals are frequently covered with a little black dust which I interpret as being residual manganese oxide relic after the black calcite.

Some of the residual limonite masses suggest pseudomorphs after coarse pyrite cubes, and their preservation, with so little transportation, is probably largely due to the calcite that once surrounded them. However, some copper sulphide was certainly present.

The size of the mineralized area is shown reasonably correctly on W-2 though it contains:

- (1) Substantial areas in which the quartz pockets are sparse or lacking.
- (2) Substantial areas in which the quartz pockets and stringers show no limonite and/or copper stain.

By and large the better mineralized areas have a tendency to outcrop strongly, sometimes as pinnacles, Quartz pockets and very sparse limonite blebs can be found in areas of poor outcrop but the best mineralization is undoubtedly in some of the pinnacles shown, particularly in that at the collar of the 500 foot shaft.

In this latter locality there is sufficient limonite that, if represented chalcopryrite principally, it might account for about 2% Cu for a small area. On the other hand it is my belief that, according

Mr. Fred Seals, Jr.
April 23, 1953
Page 3

MINERALIZATION - continued

to the surface showings, if the limonite represented mostly chalcopryrite, not more than 1/3 of the area shown as "orebody" on W-2 would average 0.4% copper and another third would average something like 0.2% and the remainder substantially less.

It may be that, but little copper has been transported away and that the sampling of the completely oxidized tunnels gives a fairly representative notion of the amount of copper originally present at that elevation.

There is, of course, the optimistic possibility that primary grade might increase rapidly with depth.

THE 500' SHAFT

The shaft dump shows no sulphide and almost none of the quartz "breccia" mineralization. Where the adit level intersects the shaft it may be seen:

- (a) The irregular, more or less gradational, north boundary of the "breccia" is about 50' north of the shaft.
- (b) At the shaft there are three faults cutting one another and together making up a broken zone about 15' wide which represents bad ground and, for some reason which I do not understand, shows very little of the quartz "breccia" mineralization. One of these faults is approximately vertical and is doubtlessly the same one that forms the north boundary of the "breccia" in Tunnel #2, 600' to the west. See W-2. The other two faults dip 75° to 80° southerly.

The barrenness of the dump may be due to any of the three following reasons:

- (1) The shaft stayed in this crushed fault zone which, where exposed in Tunnel #1, is barren. The fineness of the material in the dump supports this possibility.
- (2) The breccia zone dips southerly and the shaft went into its footwall.
- (3) The breccia pipe bottomed above the bottom of the shaft.

Accepting either (1) or (2) carries with it the corollary that no appreciable crosscutting was done from the bottom of the shaft. You

Mr. Fred Searls, Jr.
April 23, 1953
Page 4

THE 500' SHAFT - continued

will note from Nochols' report that even hearsay information about this shaft is scanty. Such as is available suggests the possibility that the shaft caved before any crosscutting off its bottom was possible.

The government township plat shows both the Wolley Mine and Mill. The township was surveyed in 1922 and I would suppose there must have been some relic of the mill building at that date. There is no trace of any buildings on the property today and I say no tailings though they could, of course, have been washed away. Many a mill had been built without any ore. Nevertheless the fact that there was a mill suggests that some sulphide may have exposed somewhere. Nochols' history is very vague, but can be read to mean that there was crosscutting from the shaft either at the 200' level or somewhere between there and the bottom at 500'. If so, such crosscutting may have shown the "abundance of low grade ore" (which seems to be attributed to Matt Davis) and this may have been sulphide, may have been treated in the mill and this may explain the complete absence of sulphide on the shaft dump.

SECONDARY ENRICHMENT

Between 1/2 and 3/4 miles to the east and at a considerably lower elevation is the west boundary of the Gila conglomerate dipping easterly somewhat more steeply than the intervening topography. It is conceivable that the base of the Gila may have once been not many hundreds of feet above the Wooley outcrop. I so there is a possibility that enrichment related to the base of the Gila could be preserved.

On the other hand calcite appears to have been more abundant than sulphide, kaolinization of the granite is not discernible, and there probably never has been any very important secondary enrichment.

OWNERSHIP

Mr. Leo Wall, Box 144, Ray, Arizona. Mr. Wall lives just east of the Kelvin highway and south of the golf course about 1 mile or so southerly from Ray.

Yours very truly,

P. C. Benedict

PCB:mr

cc: A.A. Brant

COPY

SMITH-EMERY COMPANY

ESTABLISHED 1910
CHEMISTS - ENGINEERS
METALLURGICAL AND TESTING ENGINEERS
781 EAST WASHINGTON BOULEVARD
LOS ANGELES 21
CALIFORNIA

LABORATORY

No. 422327

Date July 21, 1956

Sample Pulp

Received 7-19-56

Marked "R.3-0 Sample No. 1351"

Submitted by Arizona Assay Office,
P. O. Box 1148,
Phoenix, Arizona.

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

Element

Approximate Quantity

Silicon, Aluminum, Calcium ----- Major Constituents.

Iron, Magnesium, Sodium,
Potassium ----- Intermediate Constituents.

Minor Constituents

Titanium -----	1%
Manganese -----	0.1%
Barium -----	0.05%
Strontium -----	0.05%
Copper -----	0.01%
Vanadium -----	0.01%
Zirconium -----	0.01%
Gallium -----	0.005%
Chromium -----	0.005%
Nickel -----	0.001%
Cobalt -----	0.001%
Lead -----	0.001%
Boron -----	0.001%
Tungsten -----	None found
Rare Earths -----	None found

Respectfully submitted,

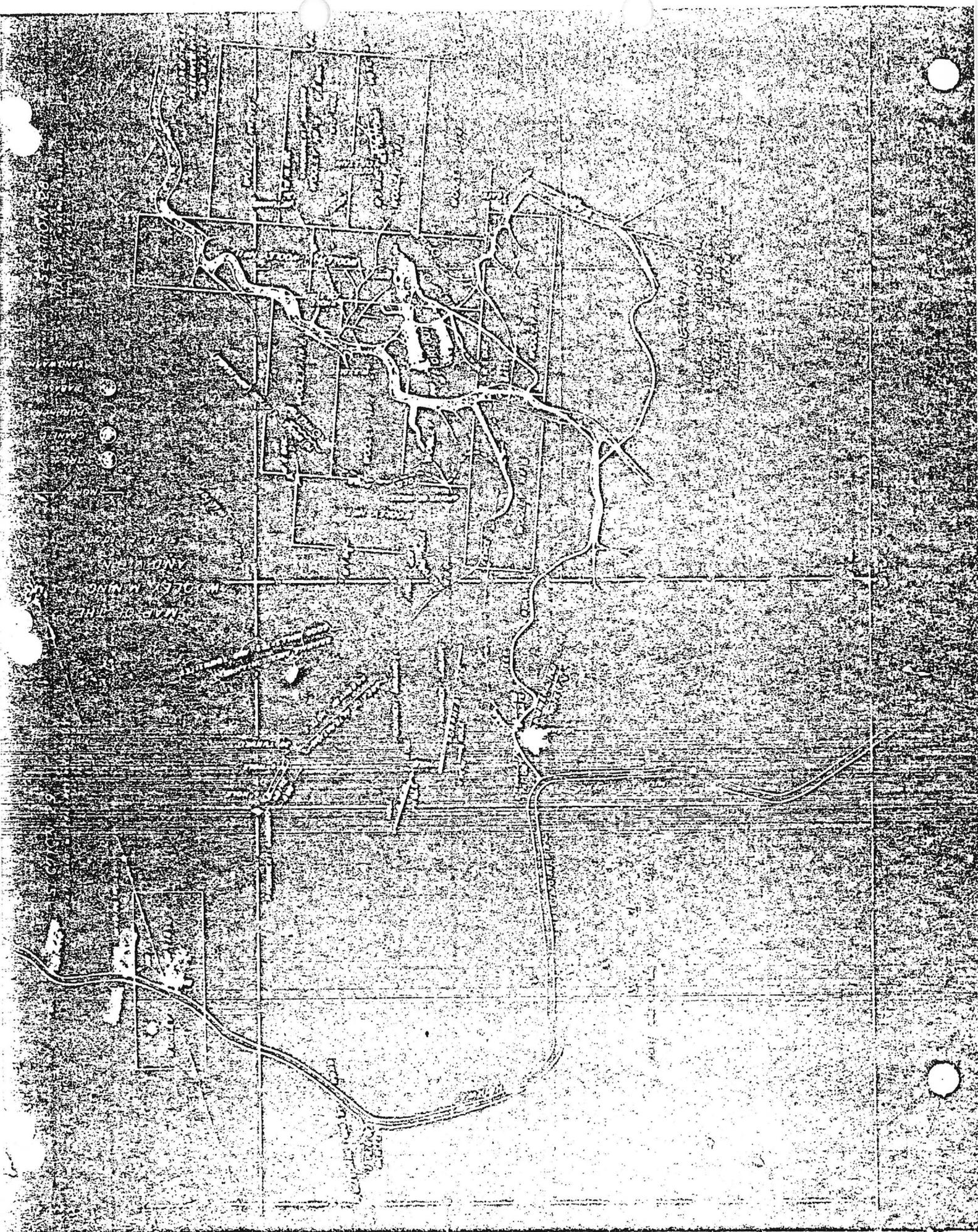
Smith-Emery Co.

CHEMISTS AND ENGINEERS

G.L.C.

All reports are submitted as the confidential property of clients. Authorization for publication of our reports, conclusions, or extracts from or regarding them is reserved pending our written approval as a mutual protection to clients, the public and ourselves.

(See statements on reverse side regarding qualitative spectrographic examination)



DEPARTMENT OF MINERAL RESOURCES

State of Arizona

MINE OWNER'S REPORT

Date 2-20-58

- 1. Mine: Woolly Claims
- 2. Location: Sec. ^{challenge or not} 45-33 Twp. 4S Range 13E Nearest Town Weoley Station Distance 4
 Direction ^N Nearest R.R. " " Distance 4
 Road Conditions Poor at present
- 3. Mining District and County: Riverside Pinal Co.
- 4. Former Name of Mine: Originally part of Weoley Mining Co. (ABC)
- 5. Owner: Leo Wall
 Address: Box 149 Ray, Arizona
- 6. Operator: "
 Address: "
- 7. Principal Minerals: Copper (oxidized)
- 8. Number of Claims: Lode 17 Patented Unpatented
 Placer Patented Unpatented
- 9. Type of Surrounding Terrain: Rolly at north end of the Tortilla Mountains
- 10. Geology and Mineralization: The mine lies in a series of volcanic flows of the Miocene series intruded by diabase. The diabase has localized areas carrying up to 4% copper (as oxides - malachite and chrysocolla. The mineralized acid flows run lower grade, but up to 80% SiO2. The tunnel has over 200' in width, of 1% ore. Extraction tests show 83-85% extraction by leaching with H2SO4.
- 11. Dimension and Value of Ore Body: Mineralized 200 900' wide and 1500-2000 feet long, but much of this is low-grade.

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

12. Ore "Blocked Out" or "In-sight": *Not known*

State of Arizona
MINE OWNER'S REPORT

Ore Probable: *Large tonnage of low grade with localized higher grade areas.*

13. Mine Workings—Amount and Condition:

No.	Feet	Condition
Shafts..... <i>1</i>	<i>500</i>	<i>Bottom hit sulphides, now under 400' water</i>
Raises.....		
Tunnels..... <i>1</i>	<i>300</i>	<i>Good 200 feet of 1% ore.</i>
Crosscuts.....		
Stopes.....		

14. Water Supply: *400' of water in shaft. Rate of flow unknown*

15. Brief History: *Originally Woolley mining Co., then A.B.C., prior to 1922, since when Leo Wall has had the mine.*

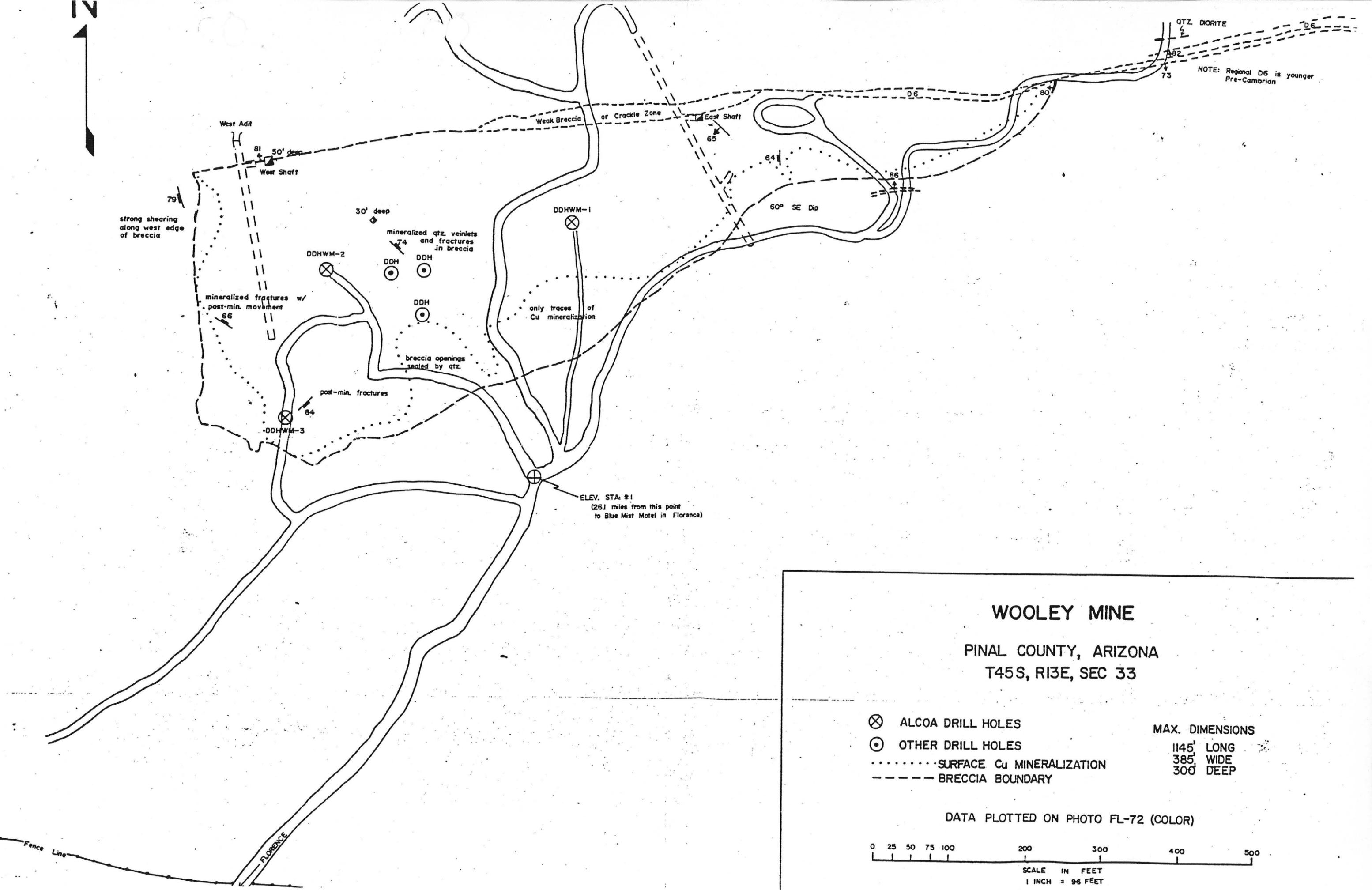
16. Remarks: *The mine is to be examined next week.*

17. If Property for Sale, List Approximate Price and Terms:

Yes, provided the group now examining it is not interested.

18. Signature:

Leo Wall



NOTE: Regional D6 is younger Pre-Cambrian

strong shearing along west edge of breccia

mineralized fractures w/ post-min. movement

mineralized qtz. veinlets and fractures in breccia

only traces of Cu mineralization

breccia openings sealed by qtz.

post-min. fractures

ELEV. STA: #1
(26.1 miles from this point to Blue Mist Motel in Florence)

WOOLEY MINE

PINAL COUNTY, ARIZONA

T45S, R13E, SEC 33

- ⊗ ALCOA DRILL HOLES
- ⊙ OTHER DRILL HOLES
- SURFACE Cu MINERALIZATION
- BRECCIA BOUNDARY

MAX. DIMENSIONS
1145' LONG
385' WIDE
300' DEEP

DATA PLOTTED ON PHOTO FL-72 (COLOR)



Fence Line
FLORENCE

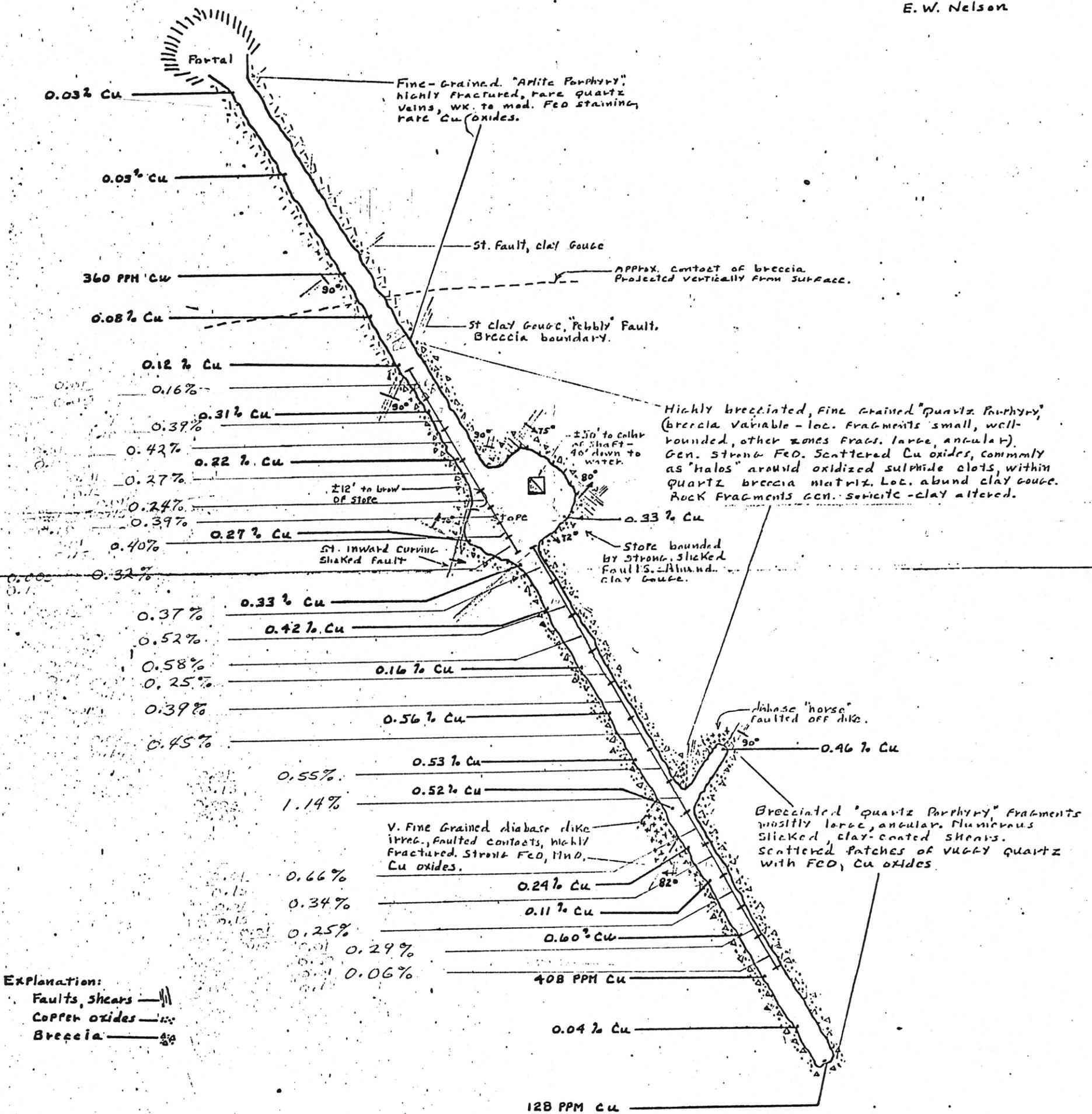
Main Workings, Wooley Mine, Pinal Co., Arizona



Scale: 1" = 30'

June, 1968

F. J. Nelson
N. C. Davidson
E. W. Nelson



Explanation:
Faults, shears ———
Copper oxides ———
Breccia ———

Note:

All samples cut from floor to back, (approx. 6 feet). Samples approx. 10 lbs each.

Visible copper occurs as 'halos' of chrysocolla around clots of FeO - probably after CuFeS₂.

Explanation

AICOA SAMPLES (Cu) 0.16%

Note:

All samples cut horizontally. Ten and five foot lengths.