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01/28/97

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: BIG BUG CLAIM GROUP

ALTERNATE NAMES:

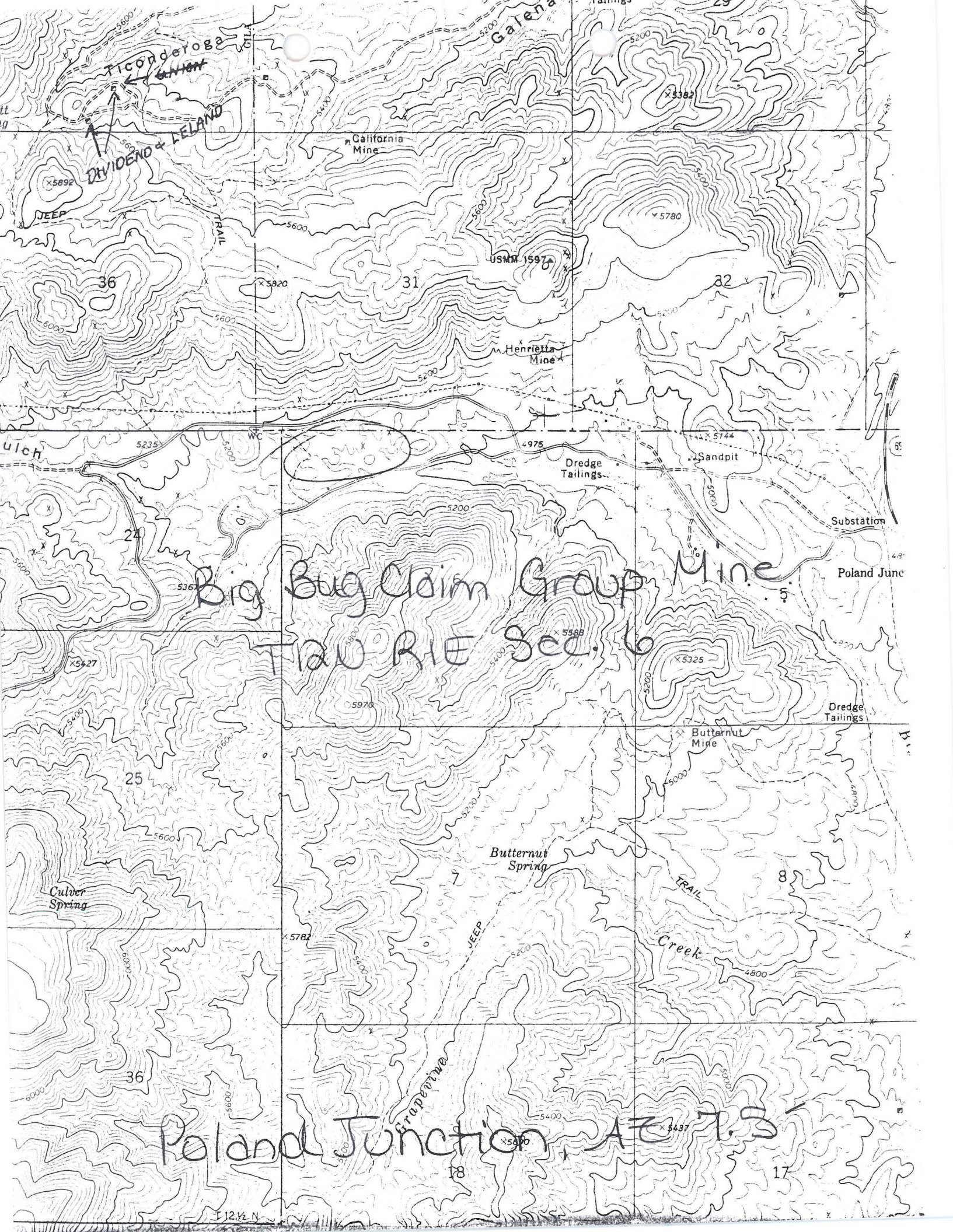
YAVAPAI COUNTY MILS NUMBER: 1033C

LOCATION: TOWNSHIP 12 N RANGE 1 E SECTION 6 QUARTER NW
LATITUDE: N 34DEG 27MIN 28SEC LONGITUDE: W 112DEG 18MIN 05SEC
TOPO MAP NAME: POLAND JUNCTION - 7.5 MIN

CURRENT STATUS: EXP PROSPECT

COMMODITY:
COPPER

BIBLIOGRAPHY:
USGS POLAND JUNCTION QUAD
ADMMR GEOLOGY FILES BIG BUG DISTRICT
GENERAL REPORT



Big Bug Claim Group Mine

TAURIE Sec. 6

Poland Junction, AZ 7.3

COPY

SHATTUCK DENN MINING CORPORATION

IRON KING MINE

P. O. DRAWER C :: HUMBOLDT, ARIZONA 86329

Humboldt

May 25, 1964

MR. D. M. KENTRO

CURRENT DIAMOND DRILLING
by G. FREEMAN in THE BIG BUG
MINING DISTRICT, ARIZONA

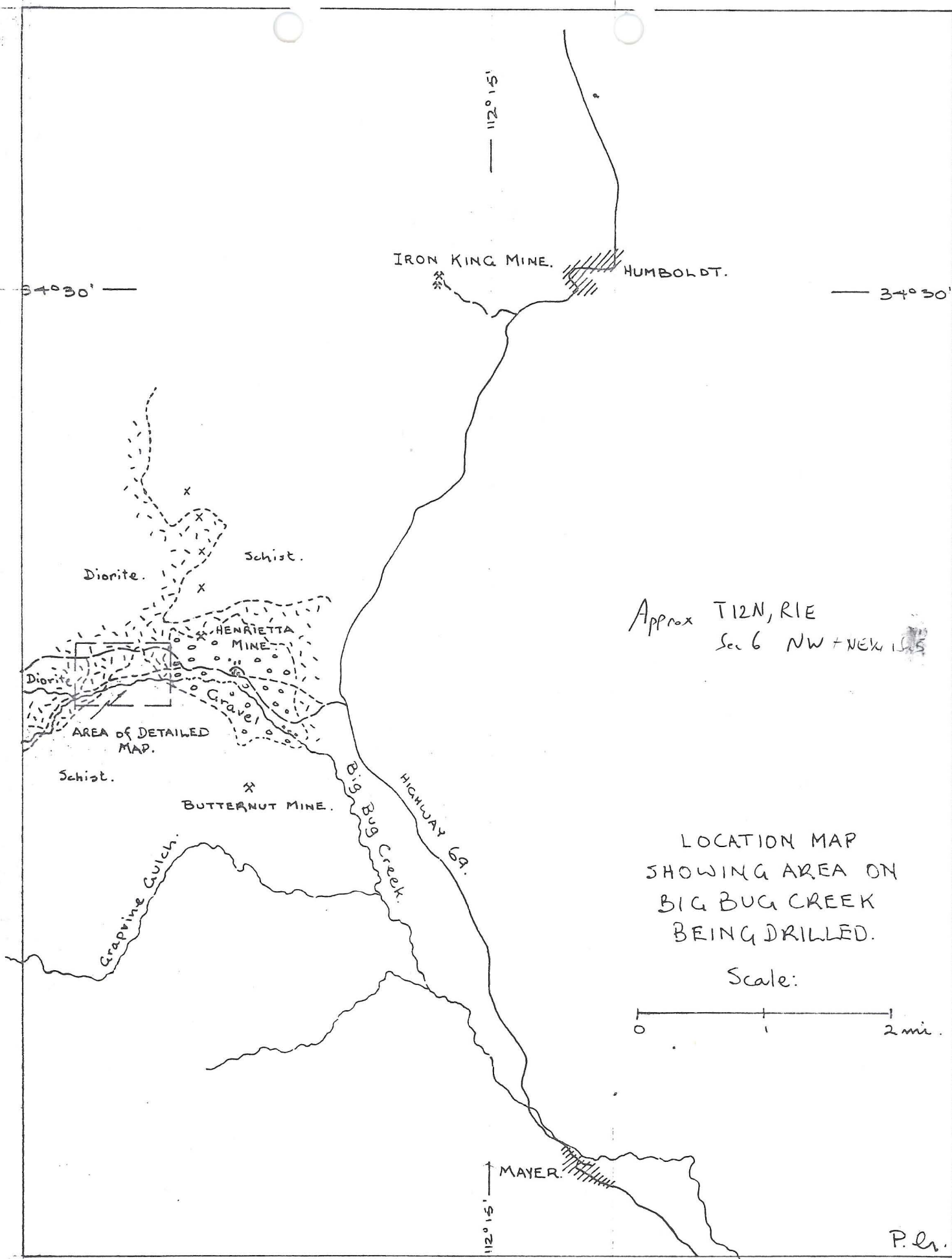
The geological staff of the Iron King Mine became aware of current diamond drilling in the vicinity of the Henrietta Mine May 12, 1964. To date five holes have been drilled on a one hundred foot grid to a depth of approximately 200 feet by McClintock Drilling Company. Mr. J. Ballum, who is supervising the diamond drilling program, stated that a review of data obtained will be conducted before further thought is given to deepening the existing holes. The number of claims held in this area by Mr. Freeman is not known, however, Mr. J. Knox is presently conducting a records search in the County Courthouse to determine the number and location of these claims.

All five holes penetrated a medium grained, dioritic rock to depths of 50 to 150 feet. This rock is poorly fractured and exhibits only moderate evidence of alteration. An Andesite or fine grained dioritic facies was also encountered. The andesitic rock is highly altered and moderately fractured and brecciated. Copper mineralization in the form of chalcopyrite stringers and fine disseminations is evident (see attached assay reports). Though mineralization is not of ore grade, the intense alteration and brecciation of the fine grained, andesitic rock, coupled with structural, and textural, features, suggests the possibility of a large low grade copper deposit at depth. It must be borne in mind that these are impressions obtained from brief examinations of diamond drill core and extensive field reconnaissance will be done within the next few days to determine the validity of these impressions. If field reconnaissance appears favorable and land is open for claim staking, an I. P. survey will be in order.

Mr. Paul Gilmour obtained rock samples bearing chalcopyrite mineralization in diorite from a prospect pit located in Big Bug Creek approximately one mile west of Poland, and one mile southwest of the Henrietta Mine (see attached sketch). Assay results should be available today.

Yours very truly,

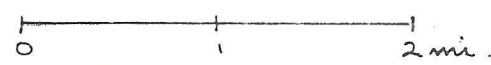
LOUIS ASTUDILLO, JR.



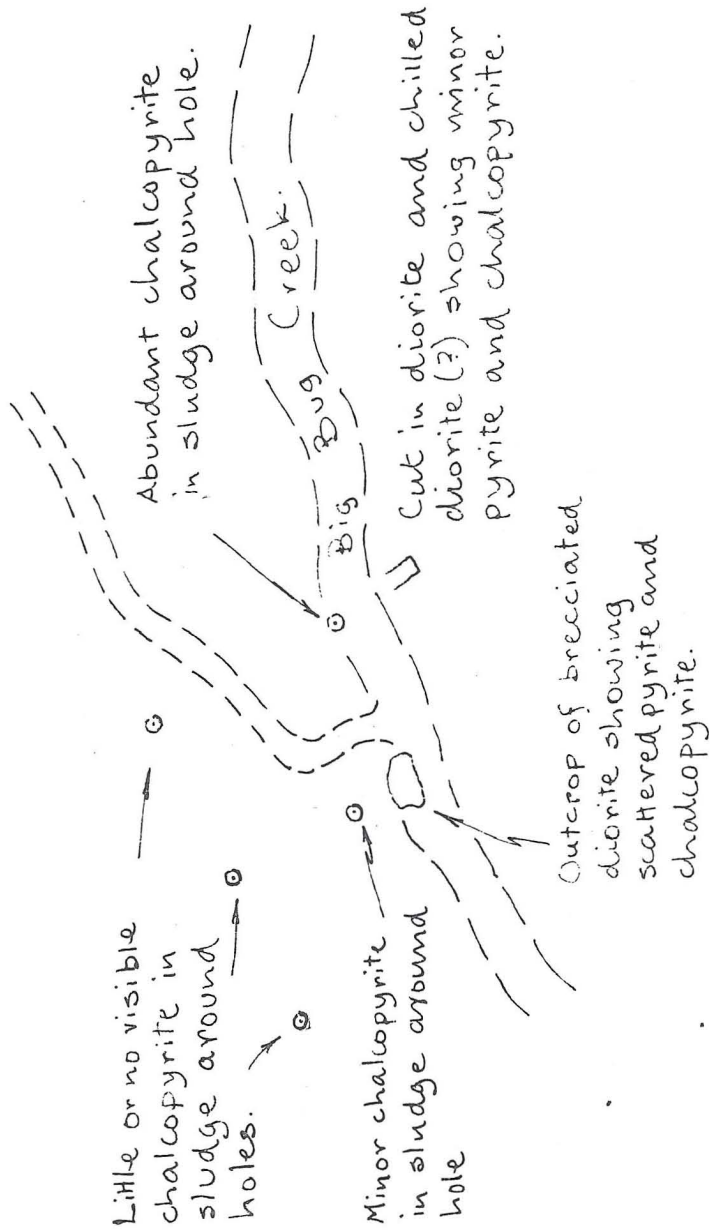
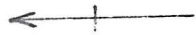
Approx T12N, R1E
Sec 6 NW + NE 1/4

LOCATION MAP
SHOWING AREA ON
BIG BUG CREEK
BEING DRILLED.

Scale:



P. L.



SKETCH MAP
SHOWING LOCATION
OF OUTCROPS AND
DRILL HOLES.

Approx. Scale: 1 in to 100 ft.

SHATTUCK DENN MINING CORPORATION

AND OTHER AREAS

and

SUBSIDIARIES

Humboldt

Office

Date..... December 11, 1953

TO: C. R. Sundeen

SUBJECT: PROGRESS REPORT ON BIG BUG CLAIM GROUP

FROM: J. Olaf Sund

SUMMARIZING REVIEW:

This group of claims along Big Bug Creek and Eugene Gulch was staked and optioned for the purpose of examining a possibility of a disseminated copper and molybdenum deposit within intrusive diorites and suspected breccia pipes within these diorites.

Geological mapping and geochemical sampling was completed by Gilmour and Astudillo from which low but anomalous values of copper and molybdenum were noted in the diorite rocks. Specific reference was also made to actual brecciated zones within the intrusive rocks and such surface expressions as rusty iron stained caps on a number of small knolls or hills.

A reconnaissance induced polarization survey was carried out in the hope that it would indicate where there might be some concentration of the above sulphide and thus allow a relative "pinpointing" of drill targets. McPhar Geophysics, who conducted the survey, suggested that there were three zones with a concentration of metallic mineralization, namely A, B & C.

Zones A and B were considered to be similar and due to large volumes of disseminated mineralization in the diorites. Zone A is "the larger, stronger, and better defined" of the two and hence was to have the better chance of ore grade mineralization.

Subsequently Dr. Harrison Schmitt was consulted for his opinions regarding the economic significance of the above features. He apparently did not consider the area favourable for a potential disseminated porphyry-type mineral deposit.

However, in order to verify the I.P. results, two diamond drill holes were completed, namely BB II to 800.5 feet and BRIV to 785.5 feet. These were located in the extreme western part of the claim group and within the so-called "A" anomalous zone. They were also spotted to intersect the apparent potential brecciated zones or pipes. Both holes passed through dioritic intrusive rocks and sheared meta-volcanic host rocks but no "breccia-pipe" type of structure. All intrusive rock was massive.

Unfortunately neither drill hole intersected any significant mineralization. Disseminated pyrite with minor chalcopyrite does exist and may be the cause of the I.P. anomalies but the average tenor is less than 0.15 per cent copper. Note appendix for a list of actual values obtained.

Zone B has not been drilled as yet, but on the basis of geological and I.P. evidence, and including the opinions of Harrison Schmitt, it can be expected to undoubtedly be similar to Zone A. Hence drilling should be delayed until after a test of zone C is completed.

CONCLUSIONS OF RESULTS TO DATE:

In view of the poorly mineralized results and the lack of proof of any specific geological structure from drill holes BB II and BB IV, it is recommended that the ground presently held under option at the western end of the claim group should not be renewed after the agreements expire. At the same time, the ground held by staking could and should be kept in good standing pending the results of the forthcoming work at the eastern part of the claim group. Drill holes II and IV will be sufficient for assessment requirements.

PROPOSED STUDIES ON EASTERN PART OF BIG BUG CLAIMS

GENERAL

There is a somewhat different geological situation within the eastern part of the claim group. As illustrated on the accompanying 400 foot plan, there is an embayment of metamorphosed volcanic rocks in and along the south margin of the diorite massif.

The third I.P. anomalous zone, Number "C", is according to McPhar, "suggestive of a narrow tabular dipping body." The trace of such a tabular body would approximate to contact of the embayment of meta-volcanics with the intrusive mass.

Utilizing the theory that mineralized zones often collect around the edges of intrusives and that such structural embayments may act as traps or a locus for replacement processes this would appear to be a geological setting for a potential ore deposit. Therefore, the combination of a geophysical anomalous zone with a definite shape and size that correlates with a geological structure that could be critical would rate this as a favorable target.

CONTRADICTIONS TO THEORIES:

It should be realized, however, that there are conclusions in the above theory that are open to question. The foremost point is unfortunately the interpretations of the I.P. survey which is understandable as the anomaly occurs at the extreme eastern ends of the three main reconnaissance lines completed. This is illustrated on the accompanying plan. There is every reason to expect that the lines did not extend far enough to complete the overall pattern of this anomalous zone. Therefore, with additional data the anomalous part of each traverse line would perhaps be modified sufficiently to alter the above "tabular body" interpretation.

RECOMMENDATIONS FOR CONTINUED FUTURE WORK:

Additional detailed I.P. work should be completed over the so-called "C" zone to verify and perhaps expand its size, shape and orientation. Such a detailed survey is illustrated in red on the enclosed 400 foot plan. This is actually a modified version of Gilmour's lay out of lines for the detailed follow-up survey.

There are 18,000 feet of survey line distributed evenly in nine separate lines spaced 400 feet apart. They are oriented in an approximate northwest and southeast direction which is nearly normal to the supposed "narrow tabular dipping body" suggested by the

reconnaissance I.P. survey, as well as the geological contact between volcanic and intrusive rocks.

It is further recommended that the contract for the survey be let to someone other than McPhar which would thus provide an ideal correlation of work and interpretations. There are a number of other groups to call on, including Harold Seigel and Associates, Limited; Sharpe Geophysics, % Sharpe Instruments of Canada Limited; M. J. Morrow Ltd. etc., all of Toronto, Canada). Sharpe has a branch office in the United States (Buffalo??) and Seigel has branches in such places as Ireland, Jamaica and Mexico City etc. Seigel also has had considerable experience in Arizona.

It is expected that the results of the above detailed survey would either disprove or verify and expand the preliminary interpretation by McPhar. That is to say, the anomalous zone may be expanded to a size that suggests a "large volume of dispersed mineralization" similar to zones A & B. It is not inconceivable that the lavas enclosed within the intrusive could be mineralized throughout, and if so continued work may necessarily need reconsideration. However, in the event of the latter case, a sufficiently detailed target should be forthcoming for a drilling program. With such preliminary information it would naturally be expected that the maximum information would be forthcoming from drilling and hence the problem for "wildcat" type drilling would be reduced.

After the above is completed or at least well advanced, a re-evaluation of zone B will be undertaken with the idea of possibly drilling the presently laid out drill hole. (14, 125E and 9, 240 N) This was intended to intersect another "breccia-pipe" structure but at the present time there is little hope for success from such a venture.

JOS/db

APPENDIX

BB IV

0-9.5	.12	% Cu	395.5-405.5	.10
9.5-20.0	.14		405.5-415.0	.14
20-29	.08		415.0-424.5	.18
29-38	.10		424.5-434	.22
38-48	.12		434-443.5	.16
48-57.5	.10		443.5-452.5	.14
57.5-66.5	.08		452.5-461.5	.12
66.5-76.0	.08		461.5-476.5	.12
76.0-86.0	.09		476.5-480.5	.22
86.0-95.0	.09		480.5-489.5	.10
95.0-104.5	.08		489.5-498.5	.18
104.5-113.5	.14		498.5-508	.18
113.5-123.0	.06		508-517.5	.16
123.0-133.0	.06		517.5-527.5	.09
133.0-142.0	.08		527.5-536	.14
142-151.5	.06		536-545	.10
151.5-161.5	.10		545-555	.16
161.5-170.5	.10		555-564.5	.20
170.5-179.5	.14		564.5-573	.14
179.5-189.5	.08		573.0-582.5	.28
189.5-198.5	.06		582.5-592.0	.16
198.5-207.5	.10		592.0-601	.22
207.5-216.5	.12		601.0-610.5	.12
216.5-226.5	.10		610.5-619.5	.17
226.5-235.5	.08		619.5-629	.28
235.5-245.0	.08		629-638	.14
245-254.0	.09		638-647.5	.12
254-263.0	.08		647.5-657.0	.10
263-272.5	.07		657.0-666	.06
272.5-282.5	.08		666.0-676	.06
282.5-292.5	.06		676-685.5	.08
292.5-301.5	.06		685.5-695	.20
301.5-311.0	.10		695-704.5	.12
311-320	.06		704.5-714	.14
320-329.5	.10		714-723.5	.14
329.5-339	.14		723.5-732.5	.12
339-348.5	.12		732.5-742.5	.18
348.5-358.5	.18		742.5-752.0	.18
358.5-367.5	.15		752.0-761.5	.16
367.5-376.5	.12		761.5-771.5	.14
376.5-386.0	.16		771.5-781.0	.16
386.0-395.5	.24		781.0-785.0	.18

Approximate Average .12 across 10 feet

APPENDIX

List of assays obtained from drill holes BB II and BB I.

BB II

0-10		410-420	.14	Cu
10-20	.08 % Cu	420-430	.10	
20-30	.09	430-440	.06	
30-40	.10	440-450	.09	
40-50	.08	450-460	.10	
50-60	.08	460-470	.10	
60-70	.12	470-480	.10	
70-80	.06	480-490	.17	
80-90	.10	490-503	--	
90-100	.10	503-513	.14	
100-110	.10	513-523	.09	
110-120	.06	523.0-532.5	.15	
120-130	.06	532.5-541.5	.14	
130-140	.08	542.5-551.5	.21	
140-150	.10	551.5-560.5	.10	
150-160	.06	560.5-570.0	.13	
160-170	.08	570-580	.16	
170-180	.08	580-591	.14	
180-190	.06	591-600	.10	
190-200	.10	600-619	.10	
200-210	.08	619-627.5	.12	
210-220	.06	627.5-637.5	.06	
220-230	.06	637.5-646.5	.10	
230-240	.08	646.5-655.5	.08	
240-250	.08	655.5-665	.14	
250-260	.10	665-673.5	.06	
260-270	.12	673.5-684	.15	
270-280	.06	684-693.5	.06	
280-290	.08	693.5-702.5	.12	
290-301	.06	702.5-712.5	.10	
301-310.5	.08	712.5-721.5	.16	
310.5-320	.08	721.5-731.5	.13	
320-330	.12	731.5-740.5	.17	
330-340	.12	740.5-750.0	.17	
340-350	.12	750.0-759.5	.14	
350-360	.10	759.5-769	.14	
360-370	.08	769-777.5	.10	
370-380	.08	777.5-787.5	.18	
380-390	.14	787.5-796.5	.22	
390-400	.08	796.5-800.5	.12	
400-410	.14			

Approximate Average .10 across 10 feet

preceding this report.

Line 2	600 Foot Spreads	Dwg. IP 2233-1
Line 2A	600 Foot Spreads	Dwg. IP 2233-2
Line 3	600 Foot Spreads	Dwg. IP 2233-3
Line 4	600 Foot Spreads	Dwg. IP 2233-4
Line 5	400 Foot Spreads	Dwg. IP 2233-5
Line 6	400 Foot Spreads	Dwg. IP 2233-6
Line 7	400 Foot Spreads	Dwg. IP 2233-7
Line 8	400 Foot Spreads	Dwg. IP 2233-8
Line 9	400 Foot Spreads	Dwg. IP 2233-9
Line 10	400 Foot Spreads	Dwg. IP 2233-10
Line 11	600 Foot Spreads	Dwg. IP 2233-11

Enclosed with this report is Dwg. Misc. 4144, a plan map of the grid at a scale of 1" = 400'. The definite and possible induced polarization anomalies are indicated by solid and broken bars respectively on this plan map as well as the data plots. These bars represent the surface projection of the anomalous zones as interpreted from the location of the transmitter and receiver electrodes when the anomalous values were measured.

Since the induced polarization measurement is essentially an averaging process, as are all potential methods, it is frequently difficult to exactly pinpoint the source of an anomaly. Certainly, no anomaly can be located with more accuracy than the spread length; i.e. when using 400' spreads the position of a narrow sulphide body can

only be determined to lie between two stations 400' apart. In order to locate sources at some depth, larger spreads must be used, with a corresponding increase in the uncertainties of location. Therefore, while the center of the indicated anomaly probably corresponds fairly well with source, the length of the indicated anomaly along the line should not be taken to represent the exact edges of the anomalous material.

3. DISCUSSION OF RESULTS

Line #2

There are three shallow anomalies on this line, designated as Zones A, B and C. Zone A is the strongest and appears as a broad anomaly from about station 40W to 70W. The apparent Metal Factor values decrease with increasing separation (i.e. increasing values of 'n') suggesting that the source has limited depth extent.

Zone B extends from 8E to 10W, with a possible extension to 20W, and is considerably weaker.

Zone C is centered at station 26E and in this case the pattern is more suggestive of a relatively narrow dipping body.

Line #2A

All three zones are again evident on this traverse, although it does not extend far enough east to complete the pattern on Zone C.

Zone A extends from 42W to about 70W, still appears to be shallow, but is weaker than on Line 2.

Zone B extends from 10E to 20W and is somewhat stronger than on the preceding line.

Zone C is represented only by a single row of anomalous values at the end of the traverse and hence the exact location of the source is uncertain. It appears to be at 12E-18E, but could be somewhat farther to the east. Since the Metal Factor values are appreciably higher than on Line 2 the traverse should be extended to complete the pattern.

Line 3

The three main zones are absent or only poorly developed on this line. Zone A is represented by weak effects at the end of the traverse. Zone B appears as a broad feature of above-background effects from 34E to 14W. The highest value occurs at 16E-22E and is probably the extension of Zone C.

Line 4

This traverse was run NE-SW across Zone B. It shows a shallow definite anomaly centered near station 6NE, but the pattern is incomplete.

Lines 5 and 6

These two lines were run north-south across Zone B. Line 5 shows a strong shallow source centered at about 6S with a probable extension at depth to the south. In addition there is a weak, questionable feature at the south end of the line. On Line 6 the anomaly is weaker

and centered at 6S; the source is either at depth or, more probably, off to the side of the traverse. There is also a weak, deep feature at 22S-26S.

Lines 7 and 8

These traverses were also run north-south, across the central part of the grid. On Line 7 there is a definite anomaly at 6S which is at depth or off the traverse. The results on Line 8 indicate two weak anomalies at depth, at 10S to 14S and at 6N to 10N.

Lines 9 and 10

Lines 9 and 10 were run NW-SE across Zone A as previously indicated on Lines 2 and 2A. On Line 9 there is a strong anomaly from about 0 to 10N with weaker extensions to about 6S and 16N; there appears to be some depth to the top of the source as the maximum values are on the 2nd and 3rd separations. As on the east-west lines using 600-foot spreads, the 400-foot results show weaker effects on the widest separations.

On Line 10, Zone A appears as a shallow anomaly from 0 to 8N with weaker extensions to about 4S and 12N. The Metal Factor values increase again at the north end of the traverse, suggesting another anomaly in this direction.

Line 11

This short east-west line was intended to trace the northern extension of Zone A. Above background effects were measured

throughout, with the largest being at the east end.

4. SUMMARY AND RECOMMENDATIONS

The Induced Polarization survey has indicated three zones of metallic mineralization which have been labelled alphabetically to facilitate discussion. Two of these, Zones A and B, have characteristics suggesting large volumes of dispersed mineralization. Of the two, Zone A appears to be larger, stronger and better defined. It is probably significant that the shallowest part of this Zone, on Line 10, correlates with an outcrop of quartz diorite. The zone would be best tested by a series of vertical drill holes, but we would prefer to see additional traverses with shorter spreads first. Zone B is not as strong as Zone A and occurs within the main body of quartz diorite. A drill hole at 2W, Line 2 reportedly cut disseminated pyrite and chalcopyrite and additional drilling is warranted to section the anomaly.

Zone C occurs in the east part of the grid and is 3000 feet west southwest of the Henrietta Mine. It is suggestive of a narrow, tabular dipping body. Additional surveying would seem to be warranted to trace this zone along strike and to complete the pattern on Line 2A. In view of the large spreads used in the present work, it would be extremely desirable to check the anomaly with shorter spreads before attempting to spot a drill hole. However, the two shafts near 24E, Line 2 may provide sufficient information on strike and dip to assist in spotting a test hole.

McPHAR GEOPHYSICS LIMITED

Robert A. Bell

Robert A. Bell,
Geologist.



D. B. Sutherland,
Geophysicist.

Dated: April 15, 1965