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GEOLOGICAL SURVEY

of the

COPPER CLIFFS CLAIM

Sec 19, T14^NW, R14W

MOHAVE CO., ARIZONA

27 March, 1967

1. Date of Reconnaissance: 4 February, 1967
2. Name of Property: Copper Cliffs Claim
3. Location of Property: Sec 19, T14^NW, R14W
4. Elevation: 2500 feet to 2800 feet
5. Ownership: Jeanne Berger
Kingman, Arizona
6. Geology

The subject property is situated on the east slope of the south end of the McCracken Mountains. The mountains are composed of a pre-Cambrian granitic gneiss complex and trend approximately north 20 degrees east. The principal fissure veins which occur in this area are aligned generally parallel to the culmination axis of the McCracken Mountains, dip 60 degrees to 80 degrees east, and are accompanied by poorly developed conjugate

fractures which are occasionally mineralized. Certain economically significant veins of this system comprise the McCracken Mine. Pertinent information resulting from a reconnaissance of the McCracken and a study of the available literature is as follows:¹

Vein widths: from 2 feet to 30 feet

Strike length of ore shoots: 200 feet to 400 feet

Dip length of ore shoots: up to 800 feet, limit of
development

Principal metallization: Ag, Pb, Zn, some Cu

Bottom of supergene zone: from 50 feet to 250 feet
below the surface

Ore minerals, oxidized zone: Argentiferous cerussite,
occ. anglesite, zincite,
occ. galena and pyrite, auriferous.

Gangue minerals: quartz, calcite, siderite, limonite,

Production: Intermittent from 1880's to 1920's;
total value of production estimated at
\$1,450,000; chiefly silver

Remarks: Considerable evidence of brecciation of vein
structure and redeposition of ore and gangue
minerals.

1. U.S.G.S. Bulletin 451 pp 123-126, 1911

The Copper Cliffs' Claim is located on a vein which is generally parallel to the McCracken vein system in both strike and dip, and lies approximately 2600 feet east of the easternmost McCracken vein. The exposed country rock is pre-Cambrian gneiss (see accompanying map). The vein can be traced on the surface for a length of approximately 900 feet northerly from the discovery shaft at point A and approximately 350 feet southerly where bed rock is covered with quaternary alluvium. The vein varies in width up to 15 feet at the discovery shaft. Prospect pits and one tunnel have opened the vein to a depth of approximately 30 feet. The structure and mineralization appear very similar to the McCracken vein described herein, with the exception that secondary copper minerals, malachite and chrysacolla, are more abundant on the Copper Cliffs. A composite sample taken from several of the prospect pits were assayed as follows:

Silver	3.1 ozs. per ton
Gold	0.02 ozs. per ton
Copper	0.56 %
Lead	0.10 %
Zinc	2.10 %

7. Conclusions: The similarities and differences of characteristics between the McCracken Veins and the Copper

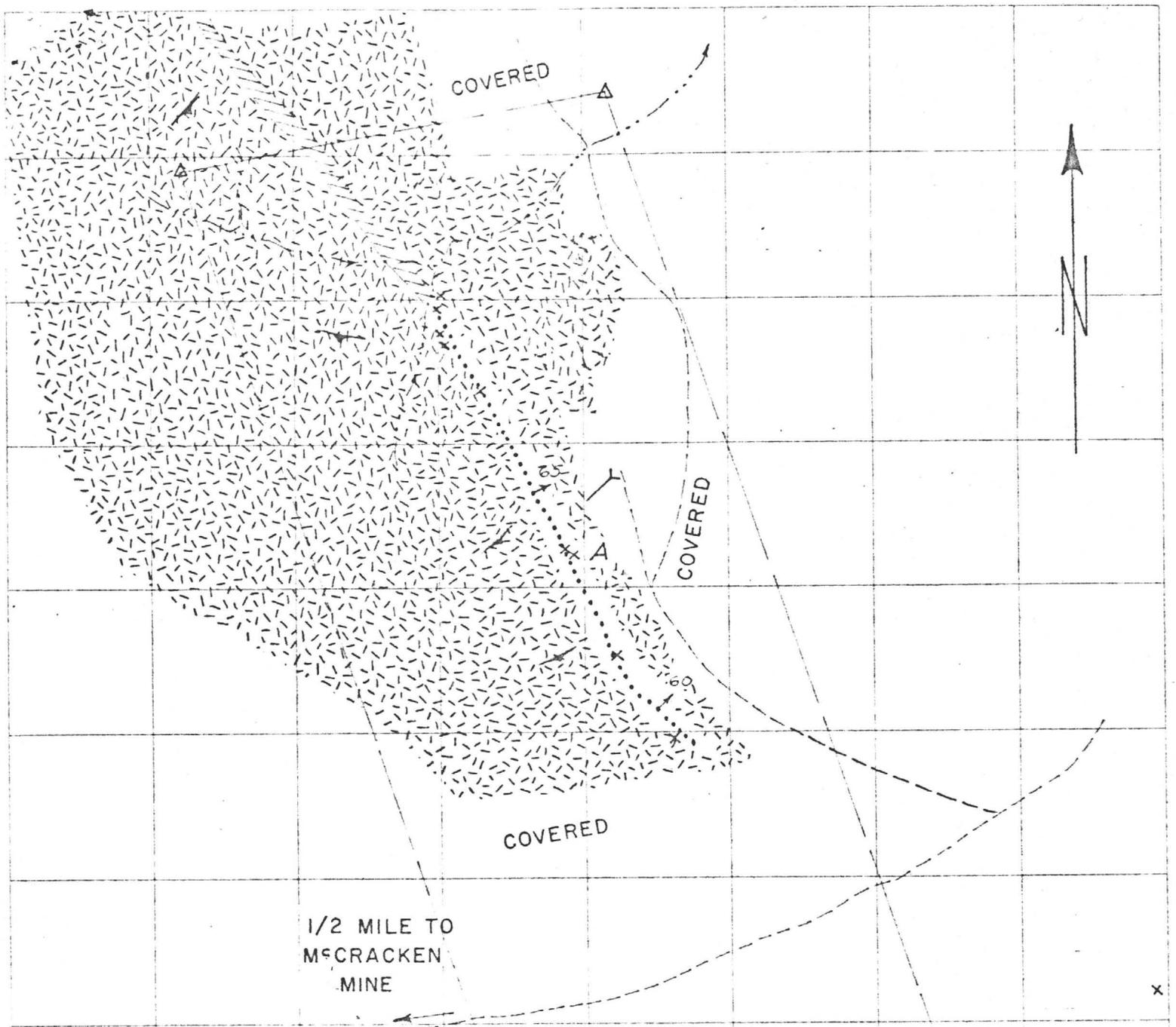
Cliff's vein suggest that the mineralization in the latter will be similar in quality, but less in quantity per vertical foot of vein. The vein structure is consistent and may be expected to extend to any minable depth. Ore shoots most recently reported encountered in the McCracken averaged approximately 10 ounces Ag and 4.2% Pb. It would not be unreasonable to expect the existence of similar mineralization in the Copper Cliff's vein. It must be pointed out that present economics would require that, in order to be profitable, such mineralization would have to exist in considerable quantities. I estimate the probability of encountering such quantities in this vein at 10%.

Respectfully submitted:

KELSEY L. BOLTZ, P.E.

Registered Geologist # 6495

Registered Engineer # 6026



LEGEND

- TRACE OF VEIN OUTCROP
- ////// GOSSAN
- 60 ATTITUDE OF VEIN
- GRANITE GNEISS
- ATTITUDE OF FOLIATION
- x PROSPECT PIT
- TUNNEL
- △ CLAIM CORNER
- ROAD

COPPER CLIFFS CLAIM
 Section 19, T.14 N., R.14 W.
 Mohave County, Arizona
SURFACE GEOLOGY

Scale: 1 Inch = 200 Feet

Kelsey L. Boltz
 Consulting Engineer & Geologist
 Phoenix, Arizona

(UNSURVEYED)

FORM 1036

SALT LAKE FILE

Affidavit of Labor Performed and Improvements Made

STATE OF ARIZONA, }
County of Maricopa } ss.

LEON BERGER being duly sworn, deposes and says that he is a citizen of the United States and more than twenty-one years of age, and resides at Buckeye in Maricopa County, State of Arizona, and is personally acquainted with the mining claim known as Copper Cliff

mining claim, situate in the Owens Mining District, County of Mohave, State of Arizona, the location notice of which is recorded in the office of the County Recorder of said County, in Book 3-A of Records of Mines, at page 217, 218; that between the 4th day of February, A. D. 1967, and the day of A. D. 19 , at least 300

dollars worth of work and improvements were done and performed upon said claim, not including the location work of said claim. Such work and improvements were made by and at the expense of Jeanne Berger

owner of said claim for the purpose of complying with the laws of the United States pertaining to assessment of annual work, and Kelsey L. Boltz

~~was~~ man were the men employed by said owner and who labored upon said claim. Did said work and improvements, the same being as follows, to-wit: In accordance with Title 30 USCA, Section 28-1 & 2 a Geological Survey was performed, a copy of which is attached hereto.

The cost of said survey was \$300⁰⁰. The person performing said survey was: Mr. Kelsey L. Boltz, P.E. 2271 Sky Harbor Boulevard, Phoenix 85034.

Registered Geologist Ariz # 6498. Registered Professional Engineer Ariz # 6024.

This affidavit and the attached geological report sets forth fully:

(a) the location of the work performed in relation to the point of discovery and boundaries of the claim. (b) the nature, extent, and cost thereof, (c) the basic findings therefrom, and (d) the name, address, and professional background of the person conducting the work.

Subscribed and sworn to before me this day of A. D. 19

(My commission expires)

Notary Public.

