

GEOLOGICAL SURVEY OF WYOMING

ECONOMIC GEOLOGY OF THE MCGRAW MINE AREA,
COPPER MOUNTAIN METAMORPHIC COMPLEX
WYOMING

by

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1983

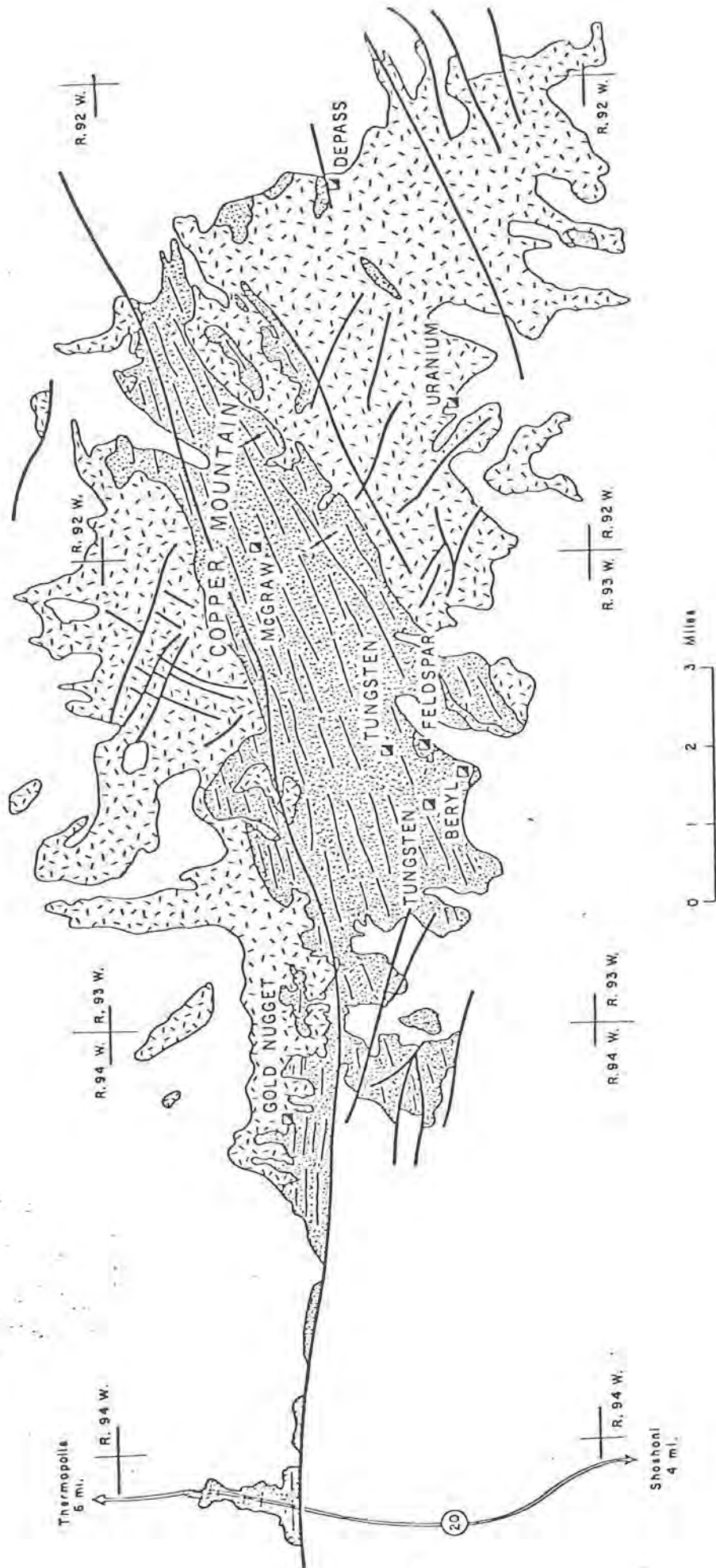
Introduction

The McGraw mineralized area lies near the central portion of the Copper Mountain metamorphic complex on the Guffy 7½-minute quadrangle (Figure 1). A number of mines and prospects in this area were designed to prospect for copper.

South of the map area (Figure 2) are a group of tungsten deposits as well as feldspar prospects and lepidolite, and beryl-bearing pegmatites.

The Geology of the McGraw mineralized area consists of steeply dipping metasediments interbedded with amphibolites that are dominantly porphyroblastic. These porphyroblastic amphibolites may be of igneous genesis. The metasediments consist of metapelites (staurolite schists, andalusite schists, and muscovite schists), chlorite schists, quartzofeldspathic schists, micaceous quartzites (often fuchsitic) and oxide facies iron formations. These metasediments form a synform with the synformal axis located several hundred feet south of the McGraw Mine. Most of the development in the mineralized area occurred on cupriferous quartz veins.

McGraw Mine; SW/4 SW/4 SW/4 sec. 7, T.40N., R.92W.; The McGraw Mine was developed from two shafts located within a few hundred feet of one another. The target of the shafts was a stratiform, copper







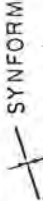
-  METAMORPHICS - Quartz biotite schists, para-amphibolites, arhoamphibolites, quartzites, and iron - formations
-  GRANITIC INTRUSIVES - Leucogranite, quartz monzonites, pegmatites.
-  MINE CAMP
-  FAULT
-  SYNFORM

Figure 1

stained milky quartz vein that trends between N50°E to N70°E and dips 76°S. Two grab samples of the copper-stained vein assayed 0.29 percent copper with a trace of gold and silver, and 0.12 percent copper and 0.04 ounces of gold per ton (Table 1). Overall, the vein appears to be weakly mineralized.

The easternmost of the two shafts was developed on the quartz vein which is hosted by porphyroblastic amphibolite. The exposed width of the vein is approximately 2 feet wide at the surface.

The western shaft was developed along iron formation and it is assumed that drifts were extended to the south to intersect the quartz vein in that cupriferous vein material is found on the mine dump.

The exposed iron formation in the western shaft trends N50°E to N70°E and dips 78°S. At the shaft, the iron formation is approximately 8 to 10 feet wide. Although Harrer (1966) reports that the iron formation and associated quartzites form an aggregate thickness of 750 feet at this locality, it should be realized that four separate iron formations crop out over that 750 feet width and only about 25 to 50 feet of this width is formed by iron formation. The remainder is formed of porphyroblastic amphibolites and quartzites.

The iron formation consists primarily of magnetite. The magnetite is partially altered to hematite and limonite. Gangue minerals are quartz, amphibolites, pyroxenes and some minor almandine. A characteristic sample reported by Harrer (1966) contained 33.7 percent Fe, 0.012 percent Mn, 0.20 percent TiO₂, 0.05 percent P, 0.03



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Request No. 1751-063
Date: 29 August 1983

REPORT OF ANALYSIS

Customer ID	sec. 13 Gold Nugget #GNM-1-83 7/31/83	Hub Mine HBM-1-83 7/27/83 A1690	#McGraw #1 Shaft 8/2/83 A1691 Cu-stained vein	#McGraw #2 Shaft 8/2/83 A1692 Cu-stained vein
Lab No.	A1689	A1690	A1691	A1692
Gold oz/ton	0.77	<0.01	<0.01	0.04
Copper mg/kg	----	----	2910	1180
Silver oz/ton	----	----	<0.01	<0.01

GNM-1-83 Quartz vein sample containing some pyrite and limonite stains.
Dump sample from northern mine dump sec. 13, T. 40N, R. 94W.

HBM-1-83 Hub mine quartz vein sample containing abundant chalcopyrite
Hub mine is located in Sierra Madre Range

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Date: 26 July 1983

REPORT OF ANALYSIS

Customer ID -		NPQ-1B-83I NPQ-113-83I	NPQ-1A-83V	NPQ-3-83	McGraw 6/21/83
Lab No.		A1304	A1305	A1306	A1307
Gold	oz/ton	<0.01	<0.01	<0.01	<0.01
Copper	mg/kg	600			200
Copper	%		9.0	6.8	

NPQ-1B-83I - Sample of iron-formation (?) collected from West Bridger mine dump.

NPQ-1A-83V - Cupriferous quartz vein sample from West Bridger mine dump

NPQ-3-83 - Cupriferous quartz vein from 8201 mine shaft

McGraw - Iron formation from McGraw mine dump

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Request No. 1732-063
Date: 29 August 1983

REPORT OF ANALYSIS

Customer ID		NE/4 NE/4 13-40-93 Copper Mtn #CUMTN-1-83 6/28/83 A1628	Sec. 12, -40-93 Iron-formation Cu-Mtn. #CUMTN-2-83 6/28/83 A1629	McGraw Mine Iron-formation 7-6-83 A1630
Lab No.				
Gold	oz/ton	0.26	<0.01	<0.01
Copper	mg/kg	15800	585	----
Silver	oz/ton	<0.01	----	----
Iron	mg/kg	----	4790 36.8%	2210 33.9%

CUMTN-1-83 - Cupriforous quartz vein samples from ad mine dump of adit in NE/4 NE/4 sec. 13, T. 40N., R93W.

CUMTN 2-83 - Cupriforous iron-formation sample from incline in SE/4 SE/4 sec 12, T. 40N., R93W (near 8086 location).

McGraw Mine - Typical iron formation sample from McGraw mine dump

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Date: September 1, 1983

REPORT OF ANALYSIS

Customer ID	Cu-Mtn., #CUMTN-2-83, 6/28/83.	McGraw Mine Iron- formation 7-6-83.
Lab No.	A1629	A1630

Iron	wt. %	36.8	33.9
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Tammy Anderson
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percent S, 45.6 percent SiO_2 , and 0.25 percent copper.

Two selected samples of dump material were collected to assay for gold (Table 2 and 3). Neither sample of iron formation contained gold and one sample (no. A1307) ran 0.02 percent copper.

8201 Mine; S/2 SW/4 sec. 7, T.40N., R.92W.; Located west of a 8201 foot bench mark and several hundred feet east of the McGraw Mine. This mine was developed by a shaft into a three to four foot wide cupriferous quartz vein hosted by porphyroblastic amphibolites. The vein trends $\text{N}60^\circ\text{E}$ and dips 80 degrees to the south.

Ore minerals include malachite, chrysocolla, and cuprite in the quartz gangue. The host foot wall and hanging wall amphibolites exhibit very little evidence of alteration due to the emplacement of the vein. One selected mine dump sample was assayed (sample no. A1306 - Table 2) and ran 6.8 percent copper and a trace of gold.

Shaft 8086; E/2 SE/4 SE/4 sec. 12, T.40N., R.93W.; This is an incline shaft located near elevation point 8086 feet and approximately 700 feet to the west of the McGraw Shaft. This property extended down into the same iron formation as did the McGraw mine, however the dip is shallower at this location and is only about 58 degrees to the south.

A number of samples of iron formation on the 8086 mine dump are stained with copper. One sample was assayed from selected mine

dump material. Sample no. CUMTN-2-83 (A1629) ran 0.06 percent copper and ~~37~~ percent iron with no gold (Table 3).

Sample no. CUMTN-1-83 (A1628); NE/4 NE/4 NE/4 sec. 13, T.40N., R.93W.;
Copper stained quartz vein material collected from mine dump of an adit developed into amphibolite and pelitic schist. The sample assayed 1.58 percent copper, 0.26 ounces per ton in gold and no silver (Table 3).

References

Harrer, C.M., 1966, Wyoming iron-ore deposits: U.S. Bureau of
Mines Information Circular 8315, 114 p.

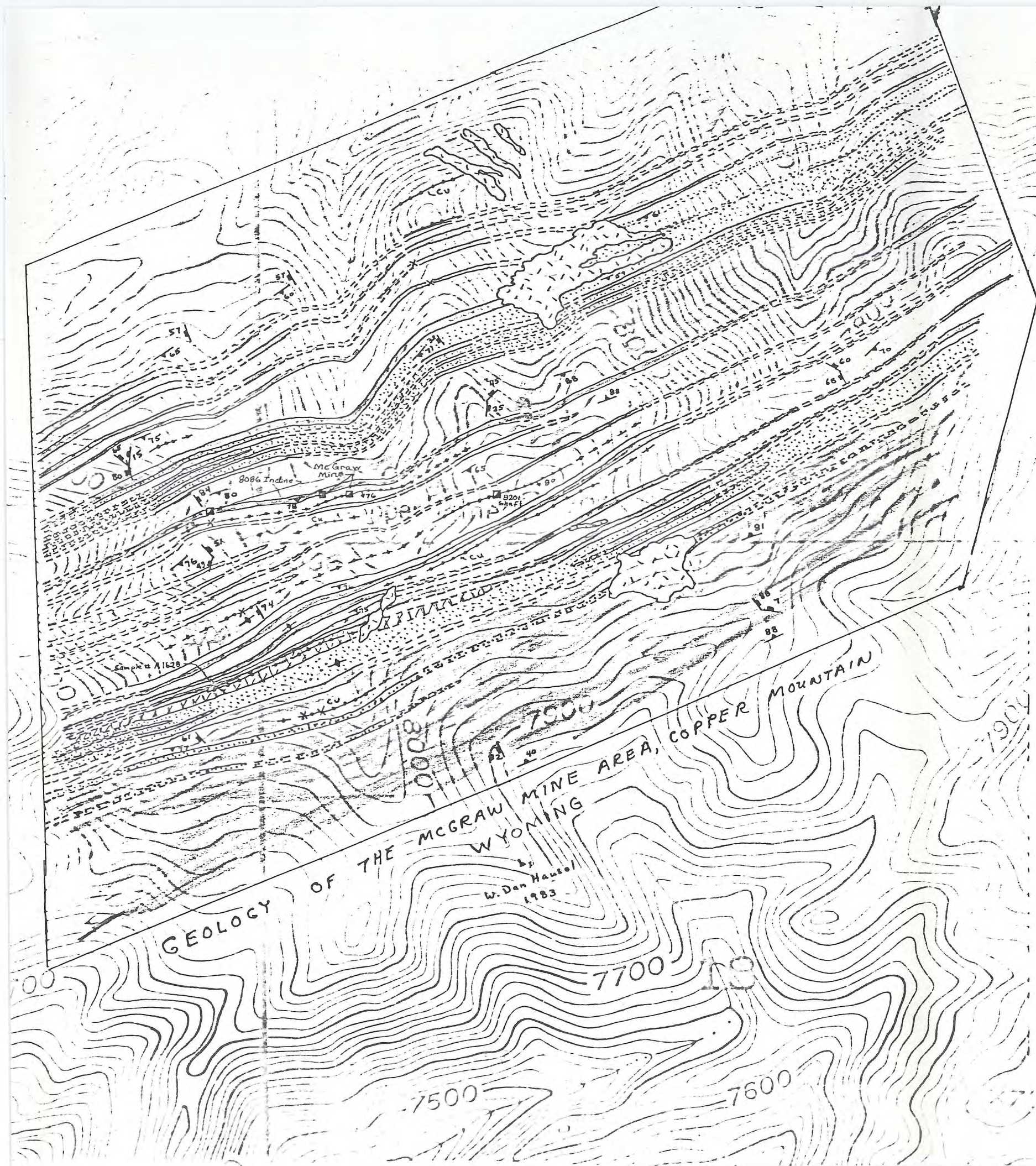


Figure 2

- Muscovite Granite
 - Micaceous Quartzite
 - Iron Formation (Oxide Facies)
 - Massive Amphibolite to Amphibolite Schist
 - Porphyroblastic Amphibolite
 - Metapelite
 - Phyllite
 - Chlorite schist
 - Quartz biotite schist
 - strike & dip of foliation
 - strike & dip of joints
 - Contact
 - Projected contact based on float
 - Probable contact
 - Quartz vein (Cu indicates copper mineralized)
 - shaft
 - Prospect pit
- Scale