

GEOLOGICAL SURVEY OF WYOMING

MINERAL REPORT MR 83-4

FIELD NOTES ON THE MICHIGAN IRON-COPPER MINE, HARTVILLE UPLIFT,
GOSHEN COUNTY, WYOMING

by W. Dan Hausel

1983

The Michigan Mine is located at the intersection of Muskrat Creek with Muskrat Canyon in the NW $\frac{1}{4}$ section 24, T.30N., R.65W. of Goshen County (Figure 1). Much of the mine workings occur within an Archean hematite iron-formation that trends northerly and dips to the east. According to George Snyder of the U.S. Geological Survey (personal communication, 1982) much of the section of the Hartville Uplift has been overturned. If this is valid for Muskrat Canyon, then the footwall rock of this iron-formation should be the stratigraphic top. The unit lying at this position forming the footwall, is a chemically precipitated chert with abundant sericite.

The Archean section is unconformably overlain by limestones of the Mississippian Guernsey Formation. This unconformable contact is also the site of several mine drifts.

Mineralization at the Michigan Mine occurs as copper silicates in a sheared iron-formation, and as copper carbonates in the Guernsey Limestone. The iron-formation progressively becomes more sheared, cupriferous, and silicified to the west towards the chemical chert. It appears that this unit is an exhalite and that silica has been remobilized. Reconstruction of the section suggests that a banded siliceous iron-formation was ejected from a submarine eruption. The final stages of exhalite activity produced a dominantly siliceous eruption which capped the iron-formation. This unit was later overturned and sheared producing remobilized copper. Remobilization

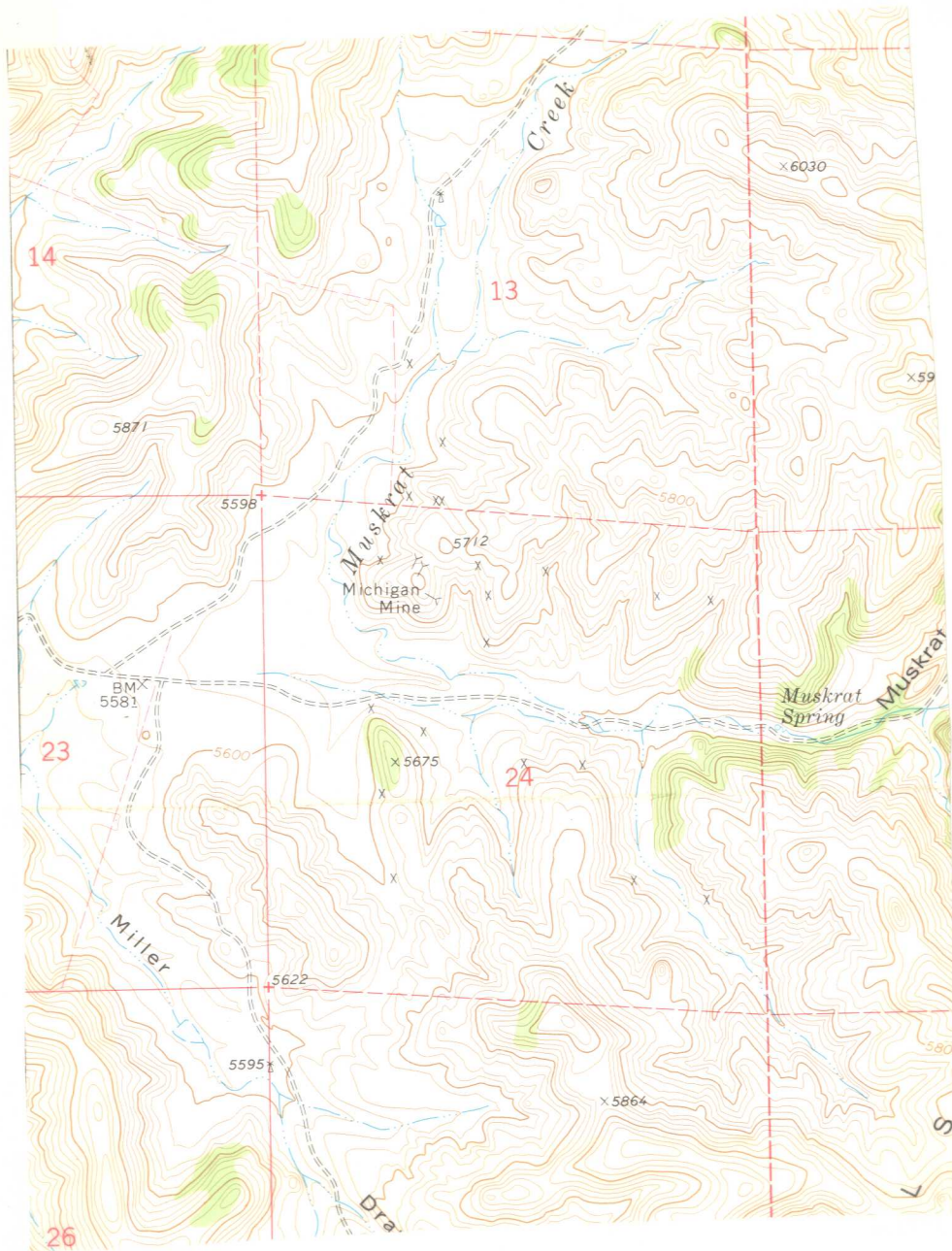


Figure 1. Location map showing the Michigan Mine (from U.S. Geol. Survey Rawhide Buttes West 7½-minute quadrangle).

of copper is also evident by the cupriferous Guernsey-Precambrian contact. Copper expelled from the Precambrian was reduced when it contacted the carbonates, and formed a copper rich zone only a few inches thick (Figure 2).

In summary, the iron-formation represents a viable exploration target for base and precious metals. One grab sample of copper stained iron-formation (#MG-1-83) was assayed and yielded 14 percent iron, 0.76 percent copper, and no detectable gold (Figure 3).

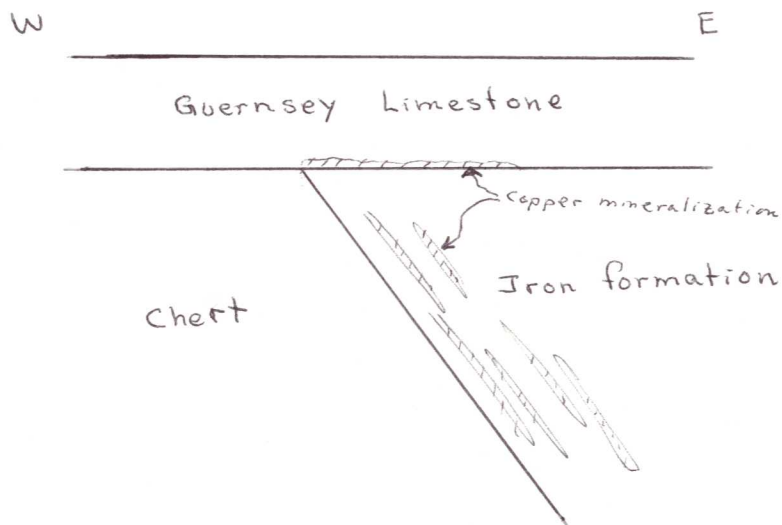
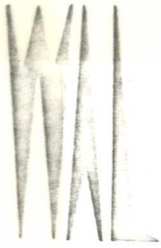


Figure 2. Generalized cross-section showing field relationships at the Michigan Mine. The Archean section is believed to be overturned.



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Request No.: 1908
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REPORT OF ANALYSIS

Customer ID		DePass, DPM-26- chip sample 8-26-83	#H831101 -1	Ferris- Haggarty #FH-1-83 12/2/83	Green Hope #GH-1-83	Michigan Mine #MC-1-83
Lab No.		A2327	A2328	A2329	A2330	A2331
Gold	oz/ton	---	---	<0.1	<0.1	<0.1
Copper	wt.%	---	44.0	3.23	9.74	1.08
Platinum	oz/ton	<0.1	---	---	---	---
Silver	oz/ton	---	11.0	0.61	0.93	<0.1
Zinc	mg/kg	---	---	---	379	---
Iron	wt.%	---	---	---	---	21.0

Customer ID		SPCS-7-83 Carrie Shields, 11/1/83	SPGD-19-83 Gold Dollar, 11/3/83	SPGD-20-83 Gold Dollar, 11/3/83	MG-1-83, Hart- ville Michigan Mine, 11/3/83 A2200
Lab No.		A2197	A2198	A2199	
Gold	oz/ton	<0.01	<0.01	<0.01	<0.01
Copper	wt.%	X	X	X	0.76
Iron	wt.%	X	X	X	14.0

Figure 3. Assay report for Michigan Mine grab sample number MG-1-83 MC-1-83.