CRAIGMONT MINES LTD. N.P.L.

ŝ

.

Geophysical Report on

MAGNETOMETER SURVEY OF HEC SOUTH GROUP

Claims: HEC Nos. 9, 10, 15, 16, 17, 18, 19, 20. Location: 12 miles northwest of Merritt, B.C.(50°, 120° SW) Date of Survey: April 25 - May 31, 1958 Supervision and Report by: C.C. Rennie, P. Eng. June 17, 1958

204

CRAIGMONT MINES LTD. N.P.L.

MAGNETOMETER SURVEY OF HEC SOUTH GROUP

EXPENSES INCURRED

Labour - Line cutting and magnetometer readings 58 man days at \$15.00/man/day	\$870 .00
Calculations and map preparation minimum of 2 man days at \$15.00/man/day	\$ 30.0 0
Direct supervision of map preparation, and report	
2 days at \$35.00/day	₿ 70.00
	^{\$} 970.00

The above direct expenses do not include the following applicable expenses:

1) Supervision of the entire survey by the undersigned resident Professional Engineer-in-charge at Craigmont Mines Ltd. 2) Transportation of personnel nor rental of equipment used.

C.C. Rennie, P. Eng., Geological Engineer.

CCR/MIC June 17, 1958

Report on

MAGNETOMETER SURVEY OF HEC SOUTH GROUP

TABLE OF CONTENTS

Purpose of the Survey	'age 1
	-1-
General Geology of the Area	1
Equipment	2
Method of Survey	3
Calculation and Plotting	3
Interpretation of the Magnetometer Survey Result	s.4
Conclusions	6
Appendixl)Sample of Survey Notes	
#1 2)Plan of Magnetometer Readings	e.

CRAIGMONT MINES LTD. N.P.L.

Report on

MAGNETOMETER SURVEY OF HEC SOUTH GROUP

PURPOSE OF THE SURVEY

This survey was intended to be of a semi-reconnaisance nature, but of sufficient detail that no small indicative magnetic anomolies would be missed.

The purpose of the survey was to discover any magnetic anomolies resulting from the presence or absence of magnetic minerals, primarily magnetite, in the bedrock on the claims. Since copper minerals have been found associated with magnetite on other claims in the neighbourhood, a magnetic anomoly would indicate an area deserving detailed attention in the search for copper orebodies.

GENERAL GEOLOGY OF THE AREA

Reference: G.S.C. Memoir 249" Geology and Mineral Deposits of Nicola Map-Area by W.E. Cockfield, and Geological Map 886A which accompanies the Memoir.

From scattered outcrops, the bedrock on HEC 15 to 20 claims can be determined to be Kingsvale volcanic rocks of Lower Cretaneous age which are a mixture of basalt, andesites, agglomerates, tuff and breccia. This Kingsvale formation is not more than 500 feet thick, overlying volcanic and sedimentary rocks of the Nicola formation of Upper Triassic age.

Limestone and limey tuffs of the Nicola formation outcrop

sporadically along the south side of the HEC No. 9 and 10 claims while occasional outcrops indicate that the northern part of the claims is again capped by Kingsvale volcanics. Where exposed, the Nicola formation is striking approximately S 70° W and dipping from vertical to 80° North. The limey strata of the Nicola formation is of particular interest since those strata are considered to be the host rock for the Craigmont contact replacement-type ore body.

Possibly at some depth, the Micola series on these claims may be intruded by the south boundary and outliers of the Guichon batholith of Jura-Cretaceous age. If such contacts occur, there may be attendant iron and copper mineralization typified by anomoly-producing magnetite.

Therefore the magnetometer may be used over the HEC claims as a tool to indicate mineralization beneath a cap of Kingsvale volcanics, of unmineralized Nicola formation or of glacial overburden which covers an estimated 75% of the HEC claims to unknown depths.

EQUIPMENT

The magnetometer used for this survey was manufactured by the Radar Exploration Co., Toronto, and bears Serial No. 37. The Scale constant on this torsion type instrument is 22.6 gammas per division of the micrometer scale. This instrument, which is very light and portable, requires no locking of the motion before being moved to the next station. With practice, an operator can take readings at 100 foot intervals every two minutes or in the excess of 200 readings per day. This

instrument has no auxiliary magnets but has a mange between 11,000 and 33,000 gammas.

NE THOD OF SURVEY

An eastwest picket line was chopped out from the final posts of the HEC 19 and 20 claims westward to a position south of the west limit of HEC No. 10 claim. Stations were chained at 200 foot intervals along the longth of this line. On the HE C 15 to 20 claims north south compass lines were blazed 1500 feet north and south of the base line and stakes marked with the station number were driven every 100 feet on these lines.

More widely spaced lines with less accurate control were run on the HEC 9 and 10 claims. However, since these lines cross the geological grain of the area and since readings were taken every 100 feet on these lines, the reconnaisance survey should definitely indicate any variations in the magnetic intensity deserving more detailed work.

Magnetometer readings were taken of each station by a team of an instrument man and a note-recorder. Permanent and daily base stations were established so that constant check for diurnal variation and any instrument variation could be made.

CALCULATION AND PLOTTING

The calculation and plotting of the notes was done by M.S. Pentland under the direction of the writer.

No diurnal correction was applied since the diurnal

variation is less than the inaccuracies introduced by the lack of great sensitivity of the instrument. The diurnal variation is less than 200 gammas so that magnetic variations greater than 200 gammas may be considered to have some significance in the interpretation.

The instrument has a scale constant of 22.6 gammas per scale division. This has been checked with a calibration coil. An arbitrary constant of 10,000 gammas has been subtracted from all calculated readings in order to correlate the work on the HEC claims with the work on neighbouring claims.

W.S. Pentland has prepared a map (attached) showing the calculated readings at each station and relation to claim boundaries. Points of equal magnetic intensity have been contoured.

INTERPRETATION OF THE MAGNELOMETER SURVEY RESULTS

Factors which could produce variation in vertical magnetic intensity are:

1) A concentration of magnetic minerals, possibly with associated valuable minerals.

2) A variation in the amount of accessory magnetite in granitic or volcanic bedrock.

3) A variation in the amount of magnetite distributed through , or concentrated in, the overburden.

L.) A variation in depth of non-magnetic overburden or cap rock over bedrock having a constant vertical magnetic

intensity.

٩.

5) Variations in amounts of magnetic minerals in adjacent bands of volcanic and sedimentary rock, such as may be expected in the Nicola formations which would produce elongated magnetic highs and lows parallel to the formational strike. These variations are not expected to be great.

6) Any combination between variations in magnetic minerals in the rock and variation in the thickness of the overlying magnetic or non-magnetic overburden or cap rock.

Because of the many possible combinations of magnifying or nullifying effects in the latter case stated above, there is considerable possibility of either being misled by anomolies not resulting from worthwhile mineralization or of not detecting bodies of interesting material. However, any definite anomoly greater than 1000 gammas in magnitude is deserving of further attention, especially anomolies with abrupt well-defined limits.

At the same time, areas of known cologically favourable rock devoid of anomolies cannot be rejected on the basis of a magnetometer survey alone because there may be commercially interesting mineralization not associated with anomoly-producing magnetic minerals or the absence thereof, of, if containing associated magnetic minerals, at too great a depth to affect the magnetometer.

Page 6

The lack of magnetic variation over a known outcrop of Kingsvale volcanics and over an adjacent outcrop of Nicola limestone is notable. This condition occurs at the west end of the HHC 15 and 16 claim location line, with limestone west of the posts and volcanics to the east. It would appear that both formations are low in magnetic minerals and give only a background reading.

The greatest variation in the whole map area is only 1300 gammas with no abrupt variations over any sizeable area. Although a slight suggestion of east west lineation is present, it is not great enough to be considered significant.

CONCLUSIONS

Conclusions drawn from the magnetometer survey over the HEC South Group are:

1) No magnetic anomolies of interest occur on the HEC South Group, and further magnetometer work on this ground would not alter the picture.

2) If any concentration of magnetic minerals are present in the bedrock, they must be at a depth beyond the range of the Radar magnetometer.

3) Although the magnetometer results are discouraging, the claims are known to cover favourable Nicola calcereous sediments, largely overlain by Kingsvale volcanics, and therefore the claims should be retained on the possibility that extensions of mineralized zones might be contained in the favourable Nicola rocks in proximity

Page 7

to any undetected intrusive contacts. The possibility of nonmagnetic hematite chalcopyrite mineralization occuring in the area must not be overlooked.

_ _ -

-

_

Respectfully submitted,

E. C. Remie

C.C. Rennie, P. Eng., Geological Engineer.

CCR/MIC July 17, 1958.

_ _ . _ . _ .

DATE: May 28, 1958

+ Line O

LINE: Base Line Hec 15-20 Claims

						Col	nstant = - /	0,000
	STAT	READ	VALUE	TIME	DIUR	V - D	V1 - C	REMARKS
2								
TSE LINE	20	1092		9:58			13549	·
" Line	20	1049		10:05			13 707	
11 11	19	1058		10:08			13910	
1, 11	18	1052		10:12			13775	
<i>u n</i>	17	1059		10:14	g		13933	
" "	16	1065		10:15	e s	•	14069	
	15	1050		10:17	3		13956	
	14	10.53		10:18	3.		13797	
,, ,,	13	1064		10:21	X		14046	
·· /	17	1033		10:24	0 U		13345	
1. 11	11	1047		10:25		1997 - 19	13.549	
44 IJ		10-2		10.27	Co	•	13662	
a 1)	0	10+1		10:29	<u> </u>		13639	
4 4	2 Ø	1010		10:21	2		13 504	
N 11	- 0	10+0		10:34	ł		13 504	
		1070		10:27	à		13.4.26	
		1037		10.36	-13		13736	
		1027		10.30	²		13230	
	- -	1036		10.72			/37/3	
	3	1051		10.74			13132	
,, "	<u> </u>	1060		10:45			13750	
., 11		1040		10:46			13307	
	<u>0</u>	1044	1.2° - 11.1° - 1.1° - 1.1° - 1.1° - 1.1° - 1.1° - 1.1° - 1.1° - 1.1° - 1.1° - 1.1° - 1.1° - 1.1° - 1.1° - 1.1°	70: 5-0			<u> </u>	
Line O	100N	1035		10:58			/339/	<u> </u>
	200N	1041		10:59			13526	
	300N	1045		11:01			13617	Υ.
	400N	1071		//.02			14204	
	500N	1048		11:04			13684	
	600 N	1054		11:06			/3820	
	TOON	1052		11:07			13775	
								<u>_</u>
	This	sheet	is a cop	y of y	the fla	Id notes a	and calcul	tions of the
	fir	st da	ys wor	{				
								1-0-10



×			
_/~~.			
	7		
	/		
H F			
HEC 7			
	/		
2	L		
9781 9781 0			
139 13811 13662 13	100000000000000000000000000000000000000	Que ond 1955 18845 19571 19549 19001 19797 1954	9 13544 13571 138210 13826
-3617 -3662 -3594 -3639	13175 13797 13933 13933 13933 13707 13617 13877 13877 13877 19071 13797 13571 18574 19684 13910 13775 13707	3239 39+8 19278 19504 13391 19560 19484 19820 1904	· · · · · · · · · · · · · · · · · · ·
13997	1300 18775 13617 18484 19707 19436 18780 18142	13684 13526 13436 13544 13232 13526 13707 13775 13751 13684 13707 13775 13751 13684 13781 13781 13233 13684 13643 13797 1970	2 13617 13300 13052 13526 7 13662 13418 13617 13418
IEC 9 13871 13436	13436 1368 13210 HEC 15 13868 13210 13820 13820 13820 13807 18413 13707	13659 (3210 13594 12758 13504 13730 13845 (2458) 1354	e 13034 13526 13617 13571
- 30- 13950	13549 13752 13639 1365 3684 13549 13617 13599 00045 13752 13639 1365 3684 13549 13617 13599 00045 13752 13752 1365 3684 13549 1360 13617 13599	13865 13486 13119 13878 13526 13684 13617 13300 1366 13571 13684 13707 13843 13481 13526 13707 13617 1379	13775 13504 13707 13458 13617 HEC 19
13617 13617 13639	19792 19436 19978 19107 19252 19345 19187 19507	13456 14001 13368 13662 13481 13526 13541 3956 1341	3 3617 13547 13654 18775
13°30 13°30	19204 3662 13978 13684 13187 13975 13642 13725 13549 19408 13684 13684 13684 13413 13504 13571 13639	13843 13549 13594 13639 13458 13526 13617 13458 134 3843 13458 13458 13458 13458 13526 13631 13458 13458 13458 13458	
0 33207	13462 13668 13797 13956 3360 3549 1354 13255	3157 13029 13549 19504 19594 19571 19689 19300 193	2) 2015 13747 13639 18639 1945 13549 13639 13639
284 13980 +	- 13730 13684 14136 13752 13978 436 19707 13526 13707 13752 13752 3843 Provi 1436 3000 13750	1375 13436 13594 13504 - 13549 13549 13549 13549 13594 13594 13594	
2 3017 -	13549 13730 13684 14001 14004 14272 14046		-18102 13604 18888 13504
-3707 -29200	13549 13630 19976 13684 13684 1997 1987 13617 13617 Ages 13975 13975 1995	1991 13436 13504 19604 13504 13504 13507 13436 1321	· · · · · · · · · · · · · · · · · · ·
	13888 1975 150 1978 1920 19978 1987 1987	2004 3956 19820 13752 3" (3436)3436 13657 13520 1982 2001 19400 19245 13910 1955 (3955)255 2554 1970 1990	a star star star
1	14227 Prass 13910 13752 13755 13924 -201	HEC 18 AND Ser	Ser ser inter
	Hisz man isan were iser fin mar		HEC 20
	19204 19865	and wise wises and sees and and and and and and	a Sen sens Cisson
1	19204 1923 1940 1921 1921 1921 1900 1900 19204 1923 1940 19159 19978 19978 19970	and with show the sea show show show is	inse sear Sear
	13406 19450 19069 13662 13504 1870 13906	19455 19064 19956 1924 1924 1907 19752 19756 1967 1940 19456 19023 19414 19204 19204 1964 19544 - 19654 -	·) ···································
	19704 19752 19245 19069 13020 1300 1300 1300	wood more more sono in in line in in	is interes and interest
	19342 19000 Wert 19061 19001 1997 for		a contraction inter
	And you now mer isse iness is	non inn inn inn on inn on inn	
	19091 13594 13913 13820 13930 18594 15481	13843 13662 13976 14245 14204 13065 12976 13413 1341.	33375 13368.

