CRAIGMONT MINES LTD. N.P.L.

Geophysical Report on

MAGNETOMETER SURVEY OF HEC NORTH GROUP

CLAIMS: HEC nos. 1,2,3,4, and 6,7, and 8

LOCATION: 12 miles northwest of Merritt, B.C. (50°,120° SW)

DATE OF SURVEY: June 1 - June 16, 1958

SUPERVISION AND REPORT BY: C.C. Rennie, P. Eng.

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June 17, 1958

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CRAIGMONT MINES LTD. N.P.L

MAGNETOMETER SURVEY OF HEC NORTH GROUP

EXPENSES INCURRED

Labour: Line cutting and magnetometer readings 46 man days at $15.00/man/day	$690.00
Calculations and map preparation minimum of 2 man days at $15.00/man/day	$ 30.00
Direct supervision of map preparation and report compilation by Professional Engineer 2 days at $35.00/day	$70.00
	$790.00

The above expenses do not include the following applicable expenses:

1) Supervision of the entire survey by the undersigned Professional Engineer-in-charge at Craigmont Mines Ltd.

2) Transportation of personnel nor rental of equipment used.

CCR/MIC
June 17, 1958

C. C. Rennie

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

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PURPOSE OF THE SURVEY

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.

This survey is of reconnaisance nature only, to be followed by a more detailed survey if any anomolies were indicated.

GENERAL GEOLOGY OF THE AREA

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

Much of the HEC North Group is covered by overburden of an unknown depth. Scattered islands of outcrop on the southern claims are unaltered volcanics of the Lower Cretaceous Kingsvale formation, while those in the northern section are dioritic rocks of the Guichon batholith. Some of the dioritic rocks show alteration and one old trench containing massive to disseminated magnetite was discovered on the HEC 4 claim.

No detailed mapping has yet been done on the claims

whereby the magnetometer survey can be correlated with geology, but this work is planned for the immediate future.

The contact of the Nicola series, which must underly the Kingsvale volcanics at relatively shallow depth, with the dioritic rocks of the south side of the Guichon batholith must pass through the HEC North Group of claims in approximately the vicinity of the HEC 6 claims. This area is of particular interest because of the possible occurence of Craigmont-type contact replacement ore bodies.

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 feet intervals every two minutes or in excess of 200 readings per day. This instrument has no auxiliary magnets but has a range between 11,000 and 33,000 gammas.

METHOD OF SURVEY

Only a small amount of control was established on the magnetometer lines on the HEC North Group. Two tie lines were measured out east west at the south and north end of HEC No. 7 and 8 claims, with stations marked at 200 foot intervals.

All lines were intended to be run north-south parallel to the claim location lines at 400 foot spacing, using a compass to maintain direction. However, due to the difficult brushy terrain, the direction of some lines varied. Also, some lines were inadvertently carried on an incorrect bearing. Nevertheless, the lines cover the area sufficiently to provide a good base for a reconnaisance survey and although the spacing is not uniform the lines have been well tied to known points so that their relative position is approximately correct. Magnetometer readings at 100 foot intervals along these lines will not miss any magnetic anomoly-producing mineralization that has any appreciable strike extent.

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 andany instrument variation could be made.

CALCULATION AND PLOTTING

The calculations and plotting of the notes was done by W.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 MAGNETOMETER SURVEY RESULTS

Factors which could produce variation in vertical magnetic intensity are:

1) 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 throughout, or concentrated in, the overburden.

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

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 attentions, especially anomolies with abrupt well-defined limits.

At the same time, areas of known geologically 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, or, if containing associated magnetic minerals, at too great a depth to affect the magnetometer.

The magnetometer map of the HEC North Group shows a definite band of anomolous high readings across the HEC 3 and 4 claims. Variation in magnetic intensity ranges from a low of 12,035 gammas on HEC 8 claim to a one point high of 16,951 gammas in the old trench on the HEC 4 claim and the general range on the HEC 3 and 4 claims is from approximately 14,000 to over 15,500 gammas. This 1,500 gamma variation, having an apparent definite trend, is very interesting and worthy of much further investigations.

The suggestion of parallel lows and highs on HEC 3 and 4 claims is further evidence for considering the area to be of interest as the parallel high and low condition is characteristic of fairly continuous bands of magnetic mineralization.

The magnetite in the old trench is disseminated to massive in a brecciated zone in dioritic rock. The trend of brecciation is not distinguishable from the one trench. This mineralization is similar to the material from a small anomoly north of the main Craigmont anomoly and therefore the comparison is further encouragement to prospect further the larger anomoly on the HEC, 3 and 4 claims.

The readings on HEC 1 and 2 claims are generally all relatively high, suggesting that the claims are underlain by batholithic rock containing some accessory magnetite. The lower readings on HEC 6 claim are interpreted to indicate low magnetite content Nicola series rocks. Therefore the contact between the Nicola series and the Guichon batholith is probably through the HEC 3 and 4 claims.

The range of intensity from 12,035 gammas to 14,792 gammas on HEC 8 claim is of interest although the anomolous area is relatively small. Since no explanation of this anomoly in an area of known Nicola sediments can be made this area is also worthy of further attention.

CONCLUSIONS

The reconnaisance survey over the HEC North Group, although based on widely spaced lines, is considered very successful in that it has outlined a section of the claims deserving considerable further attention and another area of lesser but definite

interest. While the intensity of the anomoly is not great in comparison to other anomolies on the Craigmont property, the width and the strike continuity is encouraging.

Before any other exploratory work can be considered on the claims, additional survey lines are necessary to complete a more detailed picture of the size, shape and trend of the anomoly. A carefully laid out grid with readings at 100 foot intervals in all directions is justified on the HEC 3 and 4 claims, and lines at 200 foot spacings with the readings every 100 feet are required on the HEC 8 claim with closer detail to be collected later if the anomoly warrants it.

Careful correlation of this survey with a previous reconnaisance survey of the claims to the east is required.

Respectfully submitted,

C.C. Rennie

CCR/MIC
June 17, 1958

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

DATE: June 13, 1958

LINE: Hec 1, 2, 3, 4 Location Line

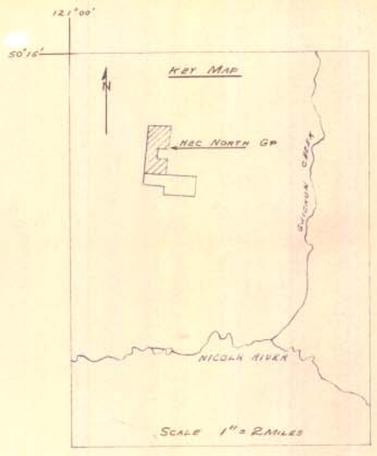
Correlation Correction to Readings + 30° Scale Divisions Constant = -10.0008

STAT	READ	VALUE	TIME	DIUR	V - D	V1 - C	REMARKS
Cabin	1021	1051	9 42			13753	
8100 N	1024	1054	52			13820	Line 30
8000	1044	1074	54			14272	
7900	1020	1050	56			13730	
7800	1024	1054	57			13820	
7700	1027	1057	59			13888	
7600	1030	1060	10 02			13906	
7500	1055"	1085"	:04			14521	
7400	1050	1080	:06			14408	
7300	1044	1074	:08			14272	
7200	1055"	1085"	:09			14521	
7100	1041	1071	:10			14205"	
7000	1047	1077	:12			14340	
6900	1064	1094	:14			14724	
6800	1065"	1095"	:17			14747	
6700	1064	1094	:19			14724	
6600	1076	1106	:21			14996	
6500	1071	1101	:22			14883	
6400	1075"	1105"	:24			14973	
6300	1067	1097	:26			14792	
6200	1063	1093	:28			14702	
6100	1055"	1085"	:30			14521	
6000	1055"	1085"	:32			14521	
5900	1048	1078	:33			14363	
5800	1044	1074	:34			14272	
5700	1041	1071	:35"			14205"	
5600	1040	1070	:36			14182	
5500	1043	1073	:38			14250	
5400	1040	1070	:39			14182	

No Diurnal Correction Used.

This sheet is a copy of the field notes and calculations of the first day's work.

C. Clemmo



A MAP SHOWING

THE

MAGNETIC VALUES AND CONTOURED RESULTS

ON THE

HEC NORTH GROUP OF MINERAL CLAIMS

NEAR

MERRITT, B.C.

IN THE

NICOLA MINING DIVISION

205

SCALE: 1"= 200'

DRAWN BY: W.S. PENTLAND, T. CSIZMAZIA

JUNE 17. 1958.