CRAIGMONT MINES LTD. N.P.L.

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

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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	$ 30.00
Direct supervision of map preparation, and report compilation, by Professional Engineer 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.

CCR/MIC
June 17, 1958

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

Report on

MAGNETOMETER SURVEY OF HEC SOUTH GROUP

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#1 2)Plan of Magnetometer Readings

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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 Nicola 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 range between 11,000 and 33,000 gammas.

METHOD 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 length of this line. On the HEC 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 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) 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.

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 attention, 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, of, if containing associated magnetic minerals, at too great a depth to affect the magnetometer.

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 HEC 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 1800 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 fron 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

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

Respectfully submitted,

C.C. Rennie

CCR/MIC
July 17, 1958.

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

DATE: May 28, 1958

LINE: Base Line
+ Line 0

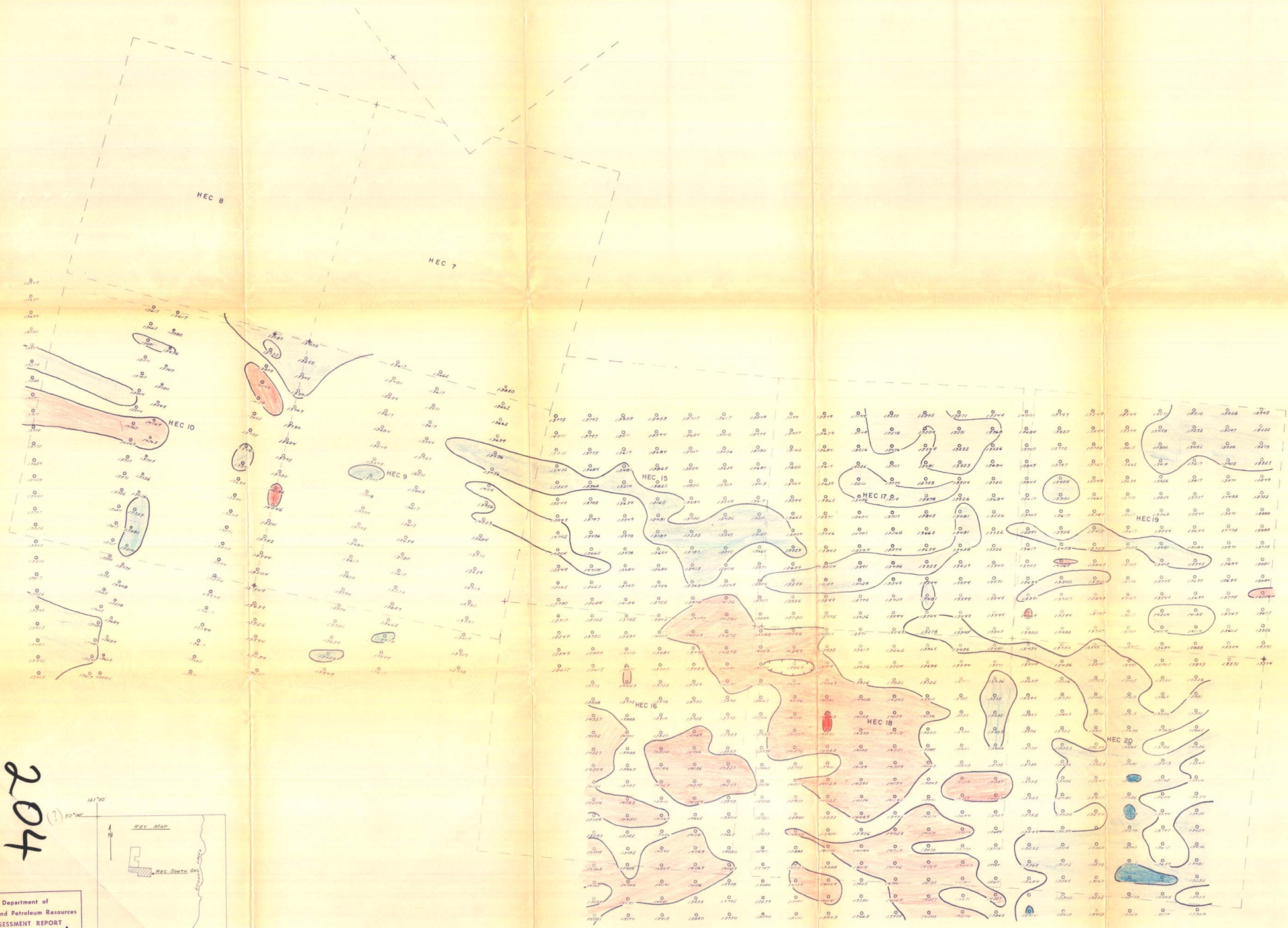
Hec 15-20 claims

Constant = -10,000

	STAT	READ	VALUE	TIME	DIUR	V - D	V1 - C	REMARKS
Base Line	20	1042		9:58			13549	
" Line	20	1049		10:05			13707	
" "	19	1058		10:08			13910	
" "	18	1052		10:12			13775	
" "	17	1059		10:14	No Diurnal Correction Used		13933	
" "	16	1065		10:15			14069	
" "	15	1060		10:17			13956	
" "	14	1053		10:18			13797	
" "	13	1064		10:21			14046	
" "	12	1033		10:24			13345	
" "	11	1042		10:25			13549	
" "	10	1047		10:27			13662	
" "	9	1046		10:29			13639	
" "	8	1040		10:31			13504	
" "	7	1040		10:34			13504	
" "	6	1037		10:36			13436	
" "	5	1029		10:38			13255	
" "	4	1036		10:42			13413	
" "	3	1051		10:44			13752	
" "	2	1060		10:45			13956	
" "	1	1040		10:46			13504	
" "	0	1044		10:50			13594	
Line 0	100N	1035		10:58			13391	Line 0
↓ N	200N	1041		10:59			13526	↓ N.
	300N	1045		11:01			13617	
	400N	1071		11:02			14204	
	500N	1048		11:04			13684	
	600N	1054		11:06			13820	
	700N	1052		11:07			13775	

This sheet is a copy of the field notes and calculations of the first days work.

L. C. Kennedy



N

LEGEND

15000 ϒ +
14500 ϒ — 15000 ϒ
14000 ϒ — 14500 ϒ
13500 ϒ — 14000 ϒ
13000 ϒ — 13500 ϒ
12500 ϒ — 13000 ϒ

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A MAP SHOWING
THE
MAGNETIC VALUES AND
CONTOURED RESULTS
ON THE
HEC SOUTH GROUP OF MINERAL CLAIMS
NEAR
MERRITT, B. C.
IN THE
NICOLA MINING DIVISION
SCALE 1" = 200'

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DRAWN BY: W.S. PENTLAND, JUNE 17, 1958.