REPORT ON MAGNETOMETER SURVEY

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REPORT ON MAGNETOMETER SURVEY NORTHWEST HARKER GROUP OF CLAIMS, HARKER AND GARRISON TOWNSHIPS, LARDER LAKE MINING DIVISION, PROVINCE OF ONTARIO.

Introduction:

The following report describes the magnetometer survey recently completed on the Canadian Johns-Manville Company Limited claims located in the northwestern section of Harker Township and northeast section of Garrison Township, Larder Lake Mining Division, Province of Ontario.

Cutting of picket lines on this group of claims was contracted to Jean Alix Company Limited of Val d'Or, Quebec. Picket lines were cut at right angles to a base line trending N66°30'E and were established at 200 foot intervals. Pickets were fixed at 50 foot intervals along these offset lines by chaining. This work was carried out by L. Allison and R. Kaltwasser, fieldmen for Canadian Johns-Manville Company Limited.

Magnetometer surveying was conducted by the writer with the assistance of W. Petruk, geologist. Readings were recorded using a Sharpe's A-2 type instrument. Stations were spaced at 25 and 50 foot intervals depending upon the amount of detail required.

Supervision and interpretation of this work was the responsibility of the writer, senior geologist with Canadian Johns-Manville Company Limited, Matheson, Ontario.

Property:

The claims surveyed are located in the northwestern section of Harker Township and extend westward into Garrison Township in the Larder Lake Mining Division, and are numbered as follows: -

L-70976 - 77 - 78 - 79

These four claims comprise approximately 160 acres.

Location and Accessibility:

The property is located in the northwestern portion of Harker Township and northeastern section of Garrison Township approximately 30 miles east of the Town of Matheson and immediately north of Highway No. 101 (Matheson - Duparquet). This highway has now been paved to within six miles of the claims group. Note that the west boundary of the claims is situated in Garrison Township, approximately 250 to 500 feet from the Harker Township Boundary.

Topography:

The claims group is of low relief and probably moderately to heavily clay-covered throughout. The terrain rises slightly to the north in a series of low knolls which are timbered by large poplar trees. The remainder of the ground supports stands of mature spruce.

Drainage is supplied by the Ghost River, located to the east of the claims and flowing into Abitibi Lake. Small streams in shallow gulleys drain eastward from the property into the River. A small stream (known locally as Deadhorse Creek) drains the western portion of the property.

Systematic traversing failed to reveal any rock exposures on the claims group.

Previous Work:

Reconnaissance geological mapping was carried out in this area in 1918 by C. W. Knight and the results of his work are shown in Ontario Department of Mines Volume XXVII, Part II, 1919 - Abitibi - Night Hawk Gold Area.

Detailed geological mapping of Harker Township was completed in 1949 by J. Satterly and the results are shown in Ontario Department of Mines Volume LX, Part VII, 1951 - Geology of Harker Township and on the accompanying 1000 scale map - No. 1951-4.

Limited reconnaissance dip needle surveying was carried out by fieldmen from this Company during 1949 - mainly along roads, trails and some north-south claim lines.

The Northwest Harker claims were originally staked by Dale Gold Mines and were along the north boundary of their thirty-three claim group. Exploratory work carried out by Dale was along the Destor-Porcupine Fault Zone to the south of the claims in question; however, the claims were surveyed by an Ontario Land Surveyor during the late 1940's and then allowed to lapse several years later.

On June 8th, 1959 these claims were staked by R. Kaltwasser, on behalf of this Company and same were recorded on June 26th. All interest in the four claims was transferred to Canadian Johns-Manville Company Limited on June 10th, 1960.

Line Cutting:

On February 9th, 1960 a base line trending N66°30'E was turned off from the steel survey pin now at the No. 3 post of claim L-70976. This base line parallels No. 101 highway; is situated immediately north of same and extends to the east for a distance of 3800 feet. Right-angled offset lines were established at 200 foot intervals along this base line and were cut both north and south as required to completely cover the claims group. Pickets with numbered locations were fixed every fifty feet along these offset lines, by chainage. Picket lines were tied in along the old east-west survey lines by chainage to increase the accuracy of the final plan.

Line cutting was contracted to Jean Alix Company Limited of Val d'Or, Quebec, while the chaining was carried out by L. Allison and R. Kaltwasser, fieldmen for Canadian Johns-Manville Company Limited.

A total of 7.48 miles of picket lines and base line was cut and chained during the course of this program, which was completed during the period February 9th - February 24th, 1960.

Geology:

The claims group was traversed by L. Allison and the writer on May 20th, 1960 and was found to be completely drift covered. Areas of strong magnetic "highs" were checked in detail, however, the overburden, although

probably more shallow, still appears extensive.

The geology of the area, Harker and Garrison Townships, was mapped by J. Satterly and assistants during the late 1940's and the results are shown on Map No. 1951-4 and Map No. 1949-1 which accompany geological reports on Harker and Garrison Townships respectively, issued by the Ontario Department of Mines. In order to show the general geology of the region in this report, the following "Table of Formations" has been included and was taken directly from the Sixtieth Annual Report of the Ontario Department of Mines, being Vol. LX, Part VII, 1951, entitled "Geology of Harker Township" and compiled by J. Satterly.

Table of Formations

CENOZOIC	
Recent:	Peat
Pleistocene:	Sand, gravel, boulders; boulder clay; varved clay.
	Great unconformity
PRECAMBRIAN	
Keweenawan (?):	Olivine diabase
	Intrusive contact
Matachewan (?):	Quartz diabase, diabase.
	Intrusive contact
Algoman (?):	Syenite, feldspar porphyry, lamprophyre.
	Intrusive contact
Haileyburian (?):	Diabase, gabbro, peridotite and dunite (serpentinized), pyroxenite
	Intrusive contact
Volcanics:	(Rhyolite: fragmental lava, porphyritic rhyolite (Andesite, basalt: pillow lava, diabasic lava, spherulitic lava, fragmental lava, tuff and chert; talc-chlorite schist, carbonate-chlorite schist.
	Faulted (?) contact
Sediments:	Greywacke, arkose, iron formation.

Acid to basic lavas and interbedded sediments intruded by the Ghost Range complex of basic to ultrabasic rocks underlie the Northwest Harker Group of claims. Structurally, the Destor-Porcupine fault zone, a major east-west strike fault, is located to the south of the group and has been extensively prospected for gold during earlier years. The detailed geology of the claims group will be discussed under the section entitled "Interpretation."

Magnetometer Survey:

A magnetometer survey was conducted over the Northwest Harker claims by W. Petruk and the writer, both geologists with Canadian Johns-Manville Company Limited. This work was carried out intermittently, during the period March 1st - 31st, 1960.

Magnetic readings were recorded using a Sharpe's A-2 type instrument (C. J. M. No. 166) having a sensitivity or scale constant of 20.00 gammas per scale division. Calibration of the instrument and the four auxiliary magnets was completed immediately prior to commencement of this survey.

The value of Base Control Station No. 1, located at 0400 on the base line was corrected to Munro Mine Base Station No. 2 (Munro-Beatty Sill) and was given a fixed value of 1268 gammas. Consequently, with this correction, a gamma value of 1220 corresponds to an absolute value of 57,599 $\pm$15 gammas as established at the Government Magnetic Base Station located at Matheson, Ontario.

During the course of the survey, the base control station was observed at regular intervals (four observations per day) as a check on the working condition of the instrument and to record the daily diurnal variation. Stations were spaced at 25 or 50 foot intervals along the picket lines depending upon the magnetic intensity of the underlying formations.

A total of 875 stations were recorded on the Northwest Harker Group of claims during the magnetometer survey.

The results of the magnetometer survey are depicted on the accompanying plan on a scale of 1 inch equals 200 feet. Contour lines of equal magnetic intensity have been drawn at 500 gamma intervals from 1000 to 6000. The interval has been changed to 1000 gammas for readings exceeding 6000 gammas in value.

Interpretation:

The interpretation has been based upon a study of the contoured magnetometer plan, previous work in the area (diamond drilling, geophysical and geological surveys on adjoining claims), regional geology and aerial data.

Magnetic results indicate the occurrence of two lenticular sill-like bands of ultrabasic rocks striking across the claims group. The ultrabasics trend in a general east-west direction with the north zone dipping 60^{0} - 80^{0} north and plunging to the east while the south zone has a vertical dip and also plunges to the east. Widths vary from 150 to 350 feet.

Readings over the intrusive range in value from 3000 gammas to slightly over 10,000 gammas. This variation in the magnetic intensity over the ultrabasic is due to a series of factors. Alteration, mainly talc-carbonate, greatly reduces the magnetic susceptibility and complicates the distinction between altered serpentinized peridotite and the surrounding rocks (i.e. gabbro, diorite, basic volcanics etc.). Depth of overburden has an appreciable affect - depths of 60 to 100 feet may effectively mask a weakly to moderately magnetic ultrabasic zone. In this regard detailed topography is of major importance in interpreting magnetic results. Structure also plays a large part. Dip changes in different fault blocks are difficult to perceive without a certain amount of surface mapping or diamond drilling.

The ultrabasic zones outlined on the accompanying plan are located between the Garrison ultrabasic sill to the west and the Ghost Mountain Syncline of basic and ultrabasic rocks to the east and probably represent highly faulted and folded continuations of these major intrusives. The cross fault striking in a northerly direction between picket lines 10E and 14E is sharply defined both magnetically and topographically. A second northerly striking cross fault occurs between picket lines 30E and 36E and is moderately defined on a magnetic basis. Both structures probably stem from the Destor-Porcupine

Fault zone which strikes in a general easterly direction and is located to the south of the claims group.

Rock types in contact with the ultrabasic have been interpreted as intermediate to basic volcanics with a band of acidic volcanics (rhyolite) occurring between the two cross faults in the central portion of the claims group. Magnetic intensity over the rhyolite ranges from 650 to 1000 gammas. A second narrow zone of acid volcanics is shown on picket line 20E in close proximity to the north boundary of the claims. As no outcrops occur on this group diamond drill results from adjacent properties to the east and west have been utilized to aid in this interpretation.

Conclusions and Recommendations:

Magnetic surveying of the Northwest Harker Group of claims has indicated the occurrence of two narrow, irregular, sill-like intrusions of ultrabasic rocks striking in an east-west direction across the claims group.

Due to the proximity of the Munro Mine and conditions to both the east and west of this block of claims, a limited drilling program appears warranted.

F. J. Evelegh,
Sr. Geologist.

June 14th, 1960.

GARRISON TWP.

HARKER TWP.

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HIGHWAY 101

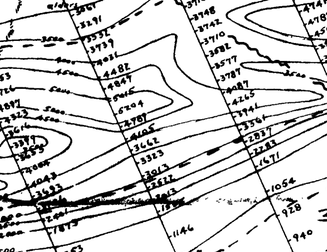
HIGHWAY 101

CANADIAN JOHNS-MANVILLE CO. LTD.
MATHESON MUNRO MINE ONTARIO
GEO-MAGNETIC CONTOUR PLAN
N.W. HARKER GROUP

SCALE 1 INCH = 200 ft. DATE APRIL 30, 1960

DRAWN	A.P.H. F.J.E.	HARKER TWP.
TRACED		
APPROVED	F.J.E.	

LOCATION SKETCH
Scale 1" = 50 Miles



	4	3	2	1
10	9	8	7	6
15	14	13	12	11
20	19	18	17	16
25	24	23	22	21
30	29	28	27	26
35	34	33	32	31

GEOL. LEGEND

- 4b — Diabase, Gabbro
- 4c — Peridotite and Dunite serpentinized
- 3 — Acid Volcanics, Rhyolite
- 2 — Basic Volcanics - Andesite, Basalt
- 1 — Sediments, Arakose, Greywacke

TOPO- SYMBOLS

- Outcrop
- Higher Ground
- Scarp
- Muskeg or Swamp
- Creek
- Drill Hole
- Bush Road

GEO-MAG SYMBOLS

- Contour Interval 500 gammas
- Magnetic Base Control Station
- Geological Contact
- Fault Zone (G - Geologic, M - Magnetic, T - Topographic)

ELECTRO-MAG SYMBOLS

- In phase curve
- Out phase curve
- Conducting Zone (S - Strong, M - Medium, W - Weak)

Scale 40 Units = 1 inch
East is positive
West is negative

N.P.C.S. - Not proper coil spacing

Magnetometer Survey by F.J. EVELEGH