63.340

Dominion Gulf Company
Geology of Chambers-Strathy Claims Group I
Temagami Area - Base Map 31M/4E.

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GENERAL

The property consists of 17 claims lying in the southeastern and southwestern corners of Chambers and Stathy Townships respectively in the Temagami Area. It comprises claims T-32138-54 inclusive and completely surrounds a group of patented claims.

Access to the property may be gained by air, canoe or on foot from the town of Temagami. The canoe route involves three portages of which one is a half mile. Travel by air is the most convenient. The eastern end of the property is 1¼ miles from the nearest road and 2½ miles from a spur line of the Ontario Northland Railway. A lumber road reaches the property from Goward a distance of about 6 miles. A good road exists for half this distance. The remainder can be readily usable by jeep if some work is done on one or two swampy sections.

Picket lines were cut north-south at 400 foot intervals for control in mapping. Three linecutters, a cook and the writer with an assistant were employed for a period of 28 days. Linecutting and mapping were slowed by almost impenetrable thickets of hazel and maple which cover most of the claims area. The area was timbered about 25 years ago and the resulting slash and undergrowth is very dense.

Interest in the area is primarily for iron and other mineral occurrences may exist.

Accompanying this report is a map showing Geology of Chambers-Strathy Claims Group I. - scale 1 inch = 400 feet.

SUMMARY

A series of acid and intermediate volcanics and iron formation, trend north of east through the property. Acid volcanics are mainly fragmental, and usually sheared. Intermediate volcanics comprising andesite, fragmentals and tuffs are usually recrystallized and altered with heavy carbonatization near the iron formation in the west portion. Iron formation occurs at the eastern and western portions of the property and is composed of banded jasper, quartzite, black chert and magnetite. The formations lie on the north flank of a steeply folded syncline. A number of minor cross-faults cut the formation.

The iron formation in the eastern end of the property indicates a body of possible ore grade material. Beneficiation will be necessary

to produce an acceptable iron ore.

A number of sulphide zones occur but are of no economic interest.

RECCOMENDATIONS

Further work is recommended in the form of a stripping and sampling program on the iron formation.

TOPOGRAPHY

The area is of moderate relief with hills seldom exceeding 100 feet in heighth. Hills are usually controlled by the underlying outcrops. Most of the outcrops are found on the north slopes. Several valleys running north-south appear to be controlled by faulting in a general north-south direction. The north-south part of the Vermillion River is probably controlled by such a fault.

Three lakes lie partly within the claims area - Iron Lake, O'Connor Lake, Vermillion Lake. Of these Iron Lake and O'Connor Lake are quite shallow while Vermillion Lake is much deeper.

DESCRIPTION OF FORMATIONS

Table of Formations

Recent: Pliestocene; sand, gravel, boulders

Precambrian: Algoman; feldspar porphyry

Keewatin: Intermediate Volcanics; basalt, andesite, tuffs, fragmentals

Acid Volcanics; rhyolite, fragmental

Iron Formation; banded quartzite, chert, jaspor and magnetite

Pliestocene

Recent deposits consist of a mantle of sand gravel and boulders covering over 90% of the bedrock. Through this covering, outcrops protrude as hills and ridges. These deposits are especially prominent

north of Iron Lake where they form north-south sand and boulder ridges with very little outcrop.

Algoman

The Algoman is not very well represented within the claim boundaries. Only two intrusives of possible Algoman age were found. Both are feldspar porphyries. On L 76 E at 15 + 00 S, a porphyry occurs with white feldspar phenocrysts and a light grey matrix. The other occurrence is a porphry dike about 50 feet wide at 8 + 00 N on L 180 E. It was traced for 200 feet in an easterly direction. It is similar in composition to the previously described porphyry.

Keewatin

Intermediate Volcanics:

Intermediate Volcanics are most common and include andesites, basalts, fragmentals and tuffs. The andesite predominates with fine grained to dioritic types occurring. In some sections a medium grained andesite shows 5-10% leucoxene in the hand specimen. This is distinquished as light yellowish brown flecks throughout the specimen. This is especially noticeable in claims T-32138 and T-32145. In claim T-32138, a probable contact exists between coarse dioritic flows to the north and fine grained flows to the south. Both carry noticeable amounts of leucoxene. South of Iron Lake, the andesites are intensely carbonated with a rusty weathered surface. The rocks now consist primarily of chlorite and carbonate. On the island in claim T-32153, the carbonate rock appears to be in contact with the iron formation. Carbonated rock, probably andesite, occurs along the north shore of Iron Lake. Elsewhere, andesites are often slightly altered and recrystallized. Some of the andesites are probably tuffaceous in part. Isolated occurrences of amygdular and spherulitic horizons were found. One good example of pillow lava gave a good top determination.

Andesitic tuffs are fairly wide-spread in claims T-32139-40. They are massive, fine grained to medium grained rocks, usually light grey to greenish grey in colour. Carbonatization is usually evident. These rocks may be andesites in part as identification is rendered difficult due to the massive character and alteration. In some specimens, small fragments enabled fairly positive identifaction to be made.

Two types of fragmental occur a primarily andesitic fragmental in which both the matrix and the fragments are of andesitic composition, and one in which the fragments are of rhyolitic composition in an andesitic matrix. The latter was noted only in the south west corner of claim T-32143. The former is more widespread, occurring mainly throughout claims T-32139-42. No definite contacts can be indicated as there is probably a gradation into tuffaceous members.

Pyrite occurs throughout the area in disseminated form in the andesitic rocks.

Acid Volcanics:

Acid Volcanics are predominantly fragmental. Some rhyolitic types occur. The fragments are up to 6-8 inches long, often elliptical in shape. Some fragments appear water worn. In general the fragments are composed of white weathering chertz material in an olive green matrix. A few andesitic fragments have been observed. On L 52 E at 16+00 S, the acid fragmental appears gradational into andesitic fragmental.

Iron Formation:

Most of the iron formation lies outside the Gulf claims, within the patented claims shown on the accompanying map. On the claims proper, it lies along the common boundary of claims T-32145 and T-32154 at the eastern end, and on the island in claim T-32153 at the western end.

The iron formation in claims T-32145-54 is composed largely of banded jasper and magnetite. Banding varies in width from infinitessimal to several inches, though the average is about $\frac{1}{4}$" to $\frac{1}{2}$" wide. The central jasper section in bordered on the south by a lean zone of ferruginous quartzite about 50 feet wide. The central zone of banded jasper and magnetite is approximately 180 feet wide with magnetite comprising 20 to 35% of the whole (visual estimate.) At the north edge lies a section of banded black chert and magnetite, comprising about 40% magnetite. A narrow band of ferruginous quartzite forms the north bondary of the iron formation. The iron formation appears to die out immediately east of claim T-32154.

In claims T-32153-51, the iron formation occurs mainly as banded quartzite, black chert and some magnetite. The magnetite content is quite low with much of the material being on the lean side. Some outcrops of 20 to 30% magnetite (estimated) were observed.

Along the south sore of Vermillion Lake and on the island in O'Connor Lake is claim T-32144, lies a formation consisting of banded ferruginous quartzite with interbanded sections of a fine grained, sheared, dark green chloritic rock, probably greywacke. The chloritic rock, was mapped in 1951 as andesite by the writer. On observing the interbanded relationship with the ferruginous quartzite it is now termed greywacke - a member of the ferruginous quartzite iron formation. The formation as a whole is well mineralized with pyrite as replacements parallel to the banding and disseminations. Surface work has been carried out by prospectors along this zone with no results.

STRUCTURAL GEOLOGY

Insofar as present information is concerned, the structure appears to be quite simple. The formations trend south of east in the west to north of east in the east. Dips are 75° south to vertical. Formations are considered to lie on the north flank of a regional steeply folded syncline. One good top determination in the pillow lavas on L 40 E at 18+00 S gave a strike of N 30° E with tops facing south.

Most of the formations are sheared to varying degrees with schistosity paralleling formational trends. No shear zone was observed.

A number of cross faults have been postulated, generally striking N 10°-30° E. Movement is east side north in three cases and the reverse in four cases. One of the faults has a displacement of about 400 feet, west side moving north. This fault passes through claim T-32143 and lines up with a creek flowing through claim T-32149. A possible fault lies in the Vermillion River valley. Positions of most of the faults are marked by gulleys. More faults probably exist, but only those showing displacement on the acid fragmental horizon can be determined.

ECONOMIC GEOLOGY

Interest in this area is primarily for iron with some possibility for the occurrence of other metals such as gold, silver, nickel, copper.

Of the iron occurring within the property, the portion in claims T-32154-45 is of economic interest, but is not sufficiently large to be mined except as part of a larger operation. Probable size of the orebody within the property is 200 feet wide by 1200 feet long and averaging 30% magnetite by volume (estimate).

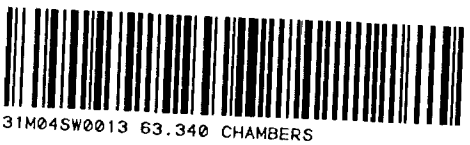
A number of pyrite zones occur throughout the property, but assays for gold and silver were very low. A 3 foot pyrite zone in claim T-32146 occurs in altered andesitic lavas with massive and cube pyrite replacing the volcanics along shear planes. In claim T-32148, a pyrite zone 40' wide in an acid fragmental occurs as disseminated and massive replacement by pyrite. In claims T-32144-54 a feruginous quartzite and greywacke formation carries considerable pyrite in disseminated and massive form.

"H. Reimer"
November 18, 1952.

Attach: Map showing Geology of Chambers-
Strathy Claims Group I
Scale 1" = 400' Oct. 24,52

jm

Dominion Gulf Company
Interpretation Report
on
Ground Magnetometer Survey
Chambers-Strathy Townships
Timiskaming Mining Division
Province of Ontario



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INTRODUCTION

Seventeen claims in Chambers and Strathy Townships, Timiskaming Mining Division, Province of Ontario, were staked for the Dominion Gulf Company during the latter part of November and early December 1951. The claim group surrounds a group of patented claims on which considerable surface work was done over the iron formation during the early 1900's. Recently, interest in the iron possibilities of the old Pre-Cambrian iron ranges has been revived. The Dominion Gulf Company therefore proposed a program to outline the possibilities of the Temagami Iron Range. Interest became centered on the region covered by the present claim group. A geological program of mapping, stripping and trenching was subsequently carried out. It was found however that a considerable proportion of the ground was covered by overburden. Since the primary ore mineral was magnetite, a ground magnetometer survey of the property was proposed, its purposes being to outline possible ore zones directly, and to assist in tracing geological contacts in overburden-covered areas.

An Askania Schmidt-type magnetic balance having a sensitivity of about 24 gammas per scale division, was used in the survey. Readings were taken on picket lines 400 feet apart, using a station interval of 100 feet. Over the iron formation horizon, where highly intense magnetic fields were encountered, intermediate detail stations were added. The survey was carried out in two phases, a winter and a summer program, in order to permit ground magnetometer coverage over the chain of lakes on the property. In all, a total of 970 stations were observed on 16.32 miles of picket line.

The magnetic data were observed and reduced by Dominion Gulf Company magnetometer crews, and then transmitted to the Toronto office of the Dominion Gulf Company for further processing and interpretation. The basic data together with isomagnetic contours and interpretation are presented on a map at a scale of 1 inch equals 400 feet, accompanying this report.

SUMMARY

The claim group, in the main, lies on the flanks of an iron formation horizon. Two possible ore sections, both 400 feet wide and 1200 feet long, at either end of the claim group, have been outlined, and further work on them has been recommended.

INTERPRETATION

In general, the ground magnetometer survey has differentiated between the iron formation series and the enclosing extrusive rocks. The

magnetic data were not contoured above the 5000 gammas level because of the complexity of the magnetic fields, and the lack of data along the central axis of the anomaly zone. It was believed that these limitations did not permit contouring the magnetic data above the 5000 gammas intensity level, and that sufficient delineation of the iron formation zone had been obtained to permit evaluation of the possibilities of the horizon.

For the most part, the Dominion Gulf Company claims lie on the flank of the iron formation. This is indicated by the gradual increase in the magnetic intensity as the central core is approached. The iron formation was traversed by the ground magnetometer in the extreme eastern and western portions of the map area. In the eastern zone, magnetic anomalies in excess of 100,000 gammas were obtained while the maximum values recorded in the western zone were in excess of 30,000 gammas. In both zones, the average width of the iron formation appears to be about 400 feet, but evidence of a 600 foot width may be seen on line 12 east. The magnetic intensities recorded over these zones, when compared to those obtained over similar deposits, indicate that the iron formation horizon contains a magnetite ore of economic grade.

The magnetic data obtained over the Dominion Gulf Company claims north of the major iron formation is characterized by relatively smooth magnetic gradients. This northern flank zone is largely overburden-covered but the few outcrops available indicate that intermediate and acid volcanics are the main underlying rock types. Five magnetic anomalies, three of which are positive, and two negative, appear to be associated with discontinuous bands of ferruginous quartzite, or lean iron formation. These bands have no economic significance.

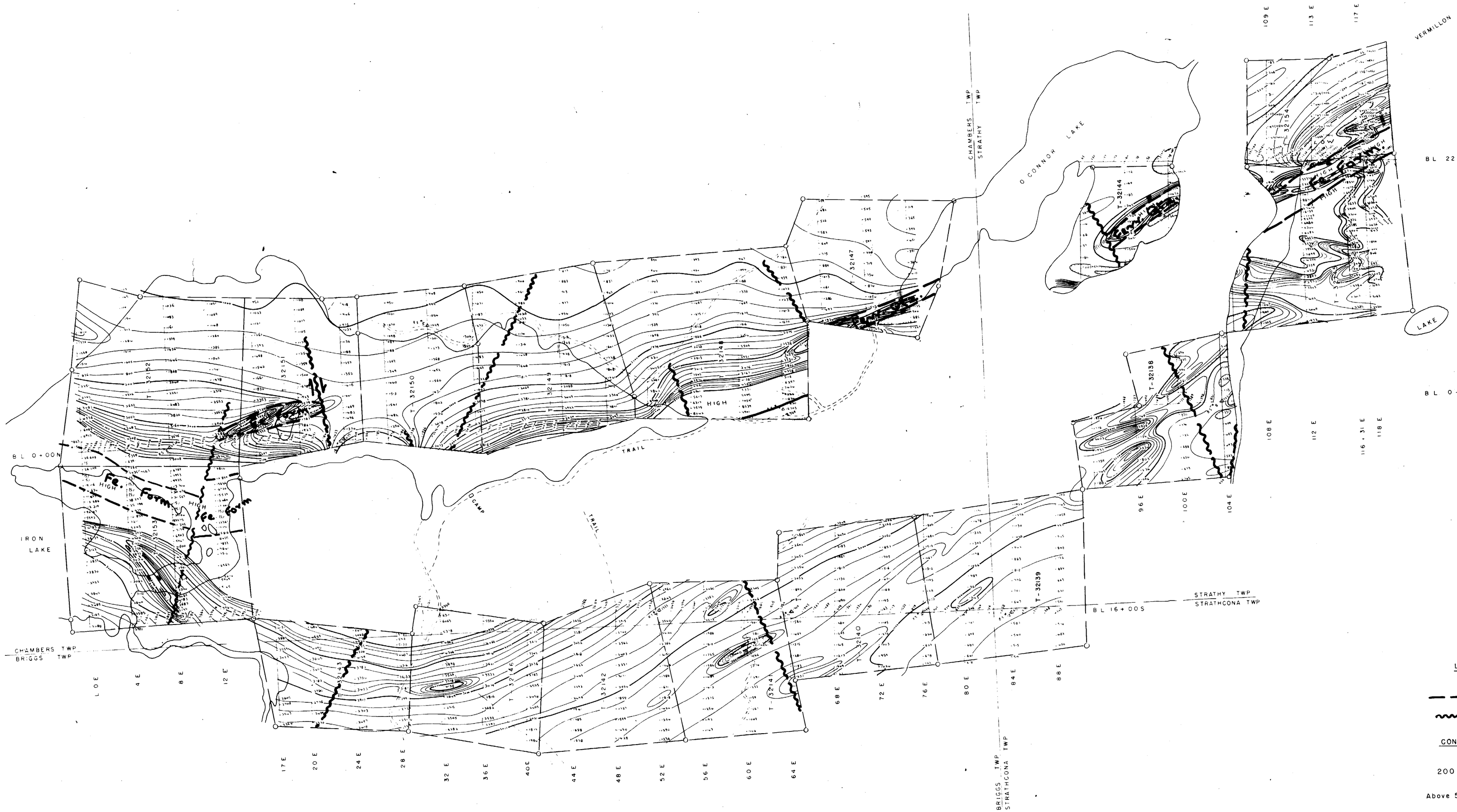
The magnetic conditions along the south flank of the iron formation zone are somewhat similar to those on the north. Rock exposures south of the iron formation, however, are far more plentiful. Again the majority of rock outcrops consist of intermediate to basic lavas. Since the iron formation is largely responsible for the measured magnetic field over the flanking zones, it is impossible to differentiate between the acid and intermediate phases of the volcanic flows. Several peculiar magnetic anomalies occur in the eastern sections of the south flank. These anomalies occur within the andesitic lava horizon, but do not necessarily follow the regional strike as determined from geological observations. The andesites in this zone however have been highly altered, recrystallized and chloritized, so that some of the contained iron may have been freed and changed to magnetite. A similar condition exists in the extreme south western corner of the claim group.

Several faults, trending in a general northerly direction have been postulated. These faults have been interpreted from magnetic discontinuities and warps in the contours, coupled with geological observations. The fault movements, and consequent offsetting have been indicated on the interpretation map. It is doubtful if any economic significance can be attributed to the faulting.

It is believed that the Dominion Gulf Company claims enclose a zone of iron formation of possible economic importance. In two locations, at either end of the major iron formation zone, the ground magnetometer survey had indicated the presence of possible ore deposits 400 feet wide and 1200 feet long. A program of surface work involving stripping, trenching, sampling and diamond drilling is recommended in order to assess the economic possibilities of these zones. Further work on the flanking zones cannot be recommended, however.

"J. H. Ratcliffe"

jm



LEGEND

CONTACT

FAULT

CONTOUR INTERVAL

200 gamma to 5000

Above 5000 marked "HIGH"

Below minus 2000 " "LOW"

DOMINION GULF COMPANY

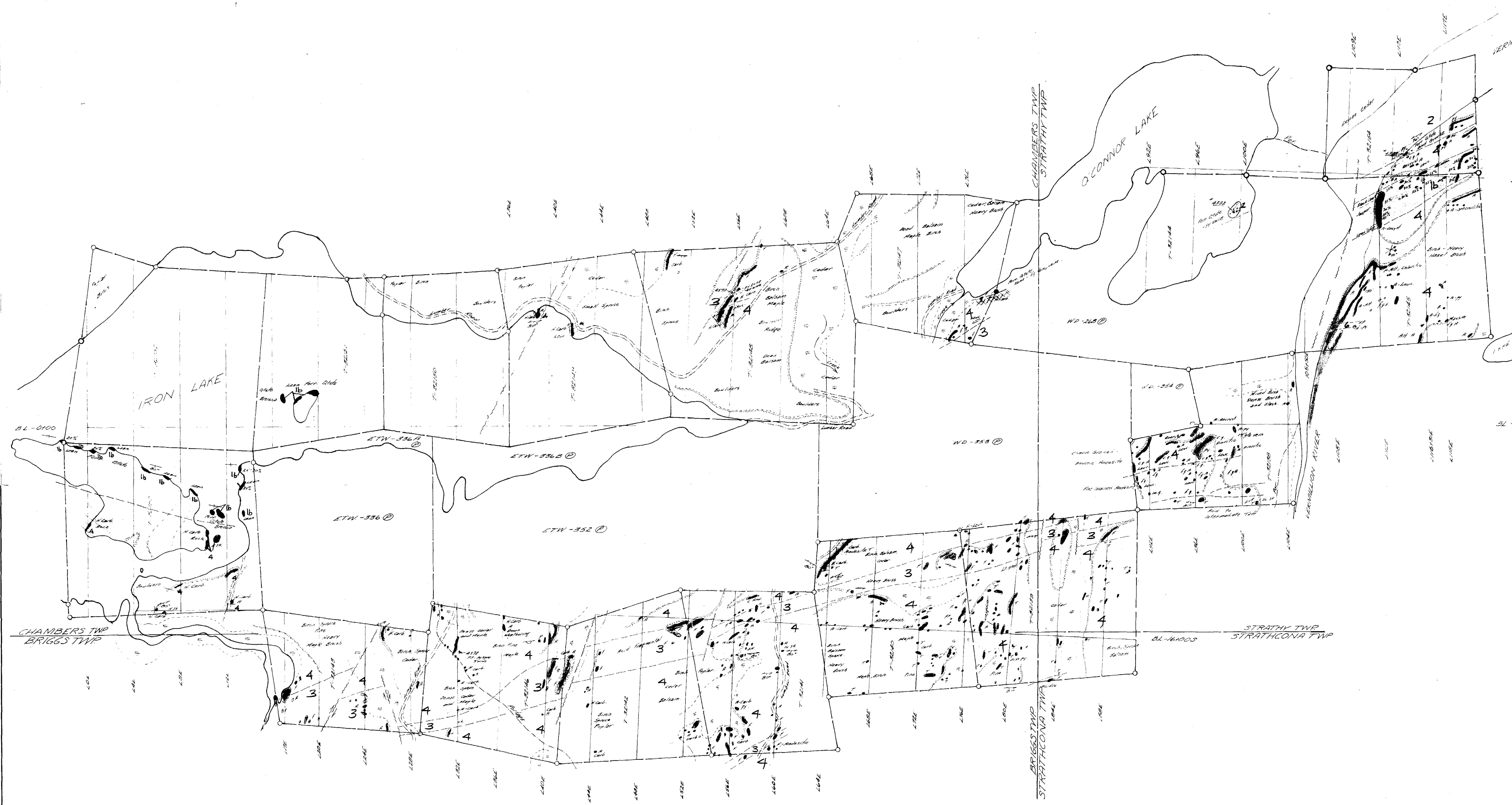
GROUND MAGNETOMETER SURVEY

CHAMBERS - STRATHY TWP. CLAIMS

GROUP - I

PROVINCE OF ONTARIO

DATE DEC. 23 1952. SCALE - 1" = 400'



ALGOMAN

6 Feldspar Porphyry

KEEWATIN

4 Intermediate Volcanics - A. Andesite - may be tuffaceous in part.
T. Tuff - may be andesite in part.
F. Fragmental.
B. Basalt.

3 Acidic Volcanics - F. Fragmental
R. Rhyolite

1b Iron Formation - with % magnetite estimates.

2 Quartzite & Greywacke Formation (probably a lean iron formation).

Leuc.	Leucoxene
H. Carb.	Heavily carbonated.
Qtz.	Quartz
fg.	Fine grained
mg.	Medium grained
cg.	Coarse grained
Alt.	Altered
Sl.Sh.	Slightly sheared
Diss.	Disseminated.

Dominion Gulf Company

GEOLOGY

CHAMBERS - STRATHY TWPS. CLS. - GRP. I

Province of Ontario

Scale: 1"=400'

Nov. 24, 1952.

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