

2617

GEOLOGICAL, GEOCHEMICAL, GEOPHYSICAL REPORT

on the

HI CLAIM GROUPS I, II and III

NORTH SHORE, TCHENILO LAKE

55° 125° SE

OMINECA MINING DIVISION

by

W.R. BACON, Ph.D., P.Eng.

September 21, 1970

for

N.B.C. SYNDICATE

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 2617 MAP

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INTRODUCTION

The HI claim groups described in this report are situated north of Tchentlo Lake extending from the north shore parallel to the northwest arm of the lake for approximately six miles (See Fig. I).

A camp was established about 3½ miles north of the lake and was supplied by fixed-wing and rotary-wing aircraft based at Fort St. James, 60 miles to the south.

Figure I shows the claim groups as listed below. This report is supplementary to a similar report filed on April 21st, 1970, and incorporates additional magnetometer surveying with new geochemical and geological results.

<u>Claim Group</u>	<u>Claim Name</u>	<u>Record Numbers</u>	<u>Recording Date</u>
HI No. 1	HI 1-10	63622-63631	Sept. 16, 1968
	11-26	63831-63846	Oct. 11, 1968
	27, 28 Fr.		
	29, 30	63983-63986	Oct. 21, 1968
HI No. 2	HI 100-117	76048-76065	June 17, 1969
	132-135	76080-76083	June 17, 1969
	201-208	75861-75868	July 7, 1969
	HI 31 Fr.	87263	April 6, 1970
HI No. 3	HI 118-131	76066-76079	June 17, 1969
	136-147	76084-76095	June 17, 1969
	148-155	75869-75876	July 7, 1969
	HI 32 Fr.	87264	April 6, 1970

GEOLOGICAL MAPPING

PURPOSE

Outcrop is generally scarce on the HI claim groups and mapping was initiated to locate as much outcrop as possible in order that some reasonable picture of the geological structure could be made to assist in interpretation of geophysical and geochemical results.

METHOD

Linecutting had proven excessively costly in this area and had not been completed in the burned area occupied by claims HI 11-20 and 100-109.

For mapping purposes 20 chain airphotos of the area, photographed in 1969, were enlarged to 1" = 400' scale. Mapping was done directly on prints of these enlargements and the results traced onto an overall map at 1" = 400' which accompanies this report (See Plate I).

Mapping was done by occupying outcrops in the field which could be identified with certainty on the airphoto. Each outcrop thus occupied was assigned a number, described briefly in field notes and sampled for a type hand specimen which was assigned the same number.

The outcrops definitely located are plotted on the geological map. The extent of the individual rock type is indicated by lighter shading. These areas of lighter shading actually show some outcrop which is not represented by hand specimens.

ROCK TYPES

Pyroclastics

Along the southwest margin of the claim block in the vicinity of HI 17, 19, 21 large outcrops of rather massive character are composed of fragmental volcanic material.

The rock is generally green to light green in colour and composed of angular to sub-angular fragments 1/8" to 3/4" in diameter. The ground mass is generally fine grained but probably of much the same composition as the fragments.

Occasionally small seams of dense black, basaltic material appear to intrude the fragmental material and may be of later origin.

A few small blebs of chalcopyrite were seen.

These pyroclastic deposits may be part of the pyroclastic horizon exposed between HI 5, 7, 9 and the north shore of Tchentlo Lake.

Porphyritic Volcanics

Outcrops of porphyritic andesite occur on claims HI 12, 16 and 19 and may mark a relatively narrow horizon.

The rock is green to dark green in colour with small white feldspar phenocrysts. Phenocrysts are scattered to abundant.

This horizon may correlate with similar volcanics on the boundary between HI 5 and 7.

Massive Volcanics

These are massive dark green volcanics, generally fine grained and featureless. They occur on both sides of the porphyritic volcanics and are assumed to be extrusive in origin.

Limestone

One large outcrop of massive limestone occurs on the claim line on HI 133. This is the only outcrop of sediments shown on the 1" = 400' geological map. Other occurrences of limestone of similar nature but generally smaller dimension occur along the creeks on claims HI 140-144 (not shown on Plate I).

The limestone is generally massive, fine grained and light grey in colour. No fossils have been identified. To the north bedding is more evident and the individual limestone members range from a very few feet up to possibly fifty feet in thickness.

Grit, Greywacke, Argillite

These rock types occur interbedded with limestone along the creeks on claims HI 140-144. The grit and greywacke beds range from very fine grained, dark brown rock to sub-conglomerate, rusty tan in colour. They are generally fairly well bedded and steeply dipping.

Very thin ($\frac{1}{2}$ - 1") argillite partings occur along bedding planes in the greywacke members on the most northerly creek. On both creeks argillite also occurs in contorted horizons from a few feet to perhaps thirty feet thick in the vicinity of limestone.

These argillites are generally well bedded, contorted, jet black and graphitic.

Diorite

The area shown as diorite contains a varied assemblage of basic rock types generally fairly rich in magnetite. The zone appears as a long linear magnetic high on the aeromagnetic maps of the area.

The rocks vary considerably in composition and texture from coarse grained gabbro, medium grained pyroxenite through coarse and medium grained diorite. Remnants of dark green volcanics occur as small zones or lenses in places

Granodiorite

Rocks exposed south of the fault extending east from HI 12 and exposed northeast of the main swamp and creek system along the northeast boundary of the claim groups have been termed granodiorite.

They are medium to coarse grained, granitic rocks ranging from diorite as exposed on the BAL claims to the southeast to medium grained granodiorite, generally light grey to pinkish grey in colour.

These rocks are considered to be part of the main Hogem batholith and are generally more acidic than the "diorite" described above.

Syenite

On claims HI 14, 102, 104, 105 a pink, fine to medium grained, quartz-poor rock is exposed and has been mapped as syenite.

This rock is generally finer grained than the diorite with which it is associated. No distinctly intrusive contact has been observed but it is considered to be a younger intrusive.

STRUCTURE

Outcrops are generally massive and no definite attitudes of individual beds or flows have been determined. Distribution of outcrop, however, indicates a general northwest strike approximately parallel to the main intrusive contact.

Dips steeply east and west have been observed and argillite beds are in part crumpled. Northwest strikes approximately parallel to that inferred for the volcanics are indicated.

The relationship between the sediments and volcanics is unknown as there is a considerable gap between volcanic outcrops on claims HI 19, 20, 22 and limestone on HI 133. No volcanics were observed in the extreme northwest portion of the property.

The batholithic rocks appear to grade from a basic outer margin, in places contaminated with intruded volcanics, to a more acidic core. This has been borne out by regional mapping.

The most dramatic structure indicated on the 1" = 400' mapping is a fault extending S75°E from HI 12 where there is an apparent offset of the volcanic units, possibly in excess of 5000 feet. This

apparent offset is probably not due entirely to lateral movement but no information is available to indicate the possible scale of the vertical component.

Topographic, magnetic and electromagnetic information also suggest a major northwest trending zone of faulting and shearing along a line running approximately from HI 130 (not shown on Plate I) to HI 208.

MAGNETOMETER SURVEY

PURPOSE

This survey was partially completed prior to spring breakup in 1970 and results to that time were filed as part of "Geophysical Report HI Claim Groups I, II and III" by W.R. Bacon, dated April 15th, 1970.

Additional work was done in early summer 1970 to remove possible errors due to apparent magnetic storms in part of the earlier survey and to more completely cover the claims which are devoid of outcrop.

Results of the combined surveys are shown on Plate II.

METHOD

A Craelius Minimag was used to take readings at 100-foot intervals on lines 800 feet apart. Check readings were taken on base line stations approximately every hour to remove magnetic variations.

Because of the intensity of the magnetic anomalies, an accuracy of ± 50 gammas, inherent in the instrument used, was adequate.

RESULTS AND INTERPRETATION

Magnetic results are contoured at 500 gamma intervals and show the following general features:

- (1) A northwest trending zone from 160 NW to 240 NW parallel to the 30 NE base line which is magnetically low and flat. This zone embraces the single limestone outcrop in this area and is presumed to be underlain by sediments.
- (2) A series of magnetic highs along the 58 NE base line extending from the region of diorite outcrops on line 136 NW to line 240 NW. This zone is assumed to be underlain by basic intrusive rocks similar to those mapped to the immediate southeast.

At line 240 NW the magnetic high appears to be truncated by a magnetically low area trending easterly which extends to about line 280 NW. Outcrops of sediments occur in the main creeks in this vicinity.

- (3) Southwest of 58 NE base line from 280 NW to the northwest boundary of the claims an intense magnetic high indicates an isolated basic intrusive body. No outcrop is known in this area.
- (4) Northeast of the magnetic highs a large area of relative magnetic low extends across the wide swampy valley to the base of Mt. Nation where the magnetic levels increase again in the vicinity of granodiorite outcrops. This magnetically low area is assumed to be underlain by a gradational contact between the granodiorite to the northeast and the basic intrusives below the magnetic highs. However, the linear nature of the aeromagnetic anomalies and the linear

topographic low indicate this zone may have been subjected to faulting and the underlying rocks could be highly sheared and altered with development of hematite at the expense of magnetite. Considerable hematite occurs in fractures in dioritic rocks approximately along strike to the southeast.

GEOCHEMICAL SURVEY

PURPOSE

Soil sampling was carried out in several areas to investigate magnetic and EM anomalies.

METHOD

Soil samples were taken at depths of 6 to 16 inches at intervals of 100 or 200 feet on lines generally 800 feet apart. (See Plate III).

Over EM anomaly 'A' at 188 NW an extra line was run for additional information.

At 216 NW, 58 NE samples were collected on a 100' grid to investigate the vicinity of a spring.

At the northwest end of the property, lines were run at 400' intervals over a strong magnetic anomaly. Samples were collected in kraft paper bags, dried at the base camp and sifted to -40 mesh. The determinations for total copper content were done by Chemex Labs of North Vancouver.

RESULTS

Soil conditions vary widely and although an attempt was made to find the 'B' horizon for sampling, this was not always possible. In the area of the spring, for example, all samples contained a high proportion of humus. Over the magnetic high at the northwest end of the property much of the soil appears to be glacial drift, generally gravelly in nature.

On line 176 NW at 88 NE, two fragments of graphitic argillite were noted in a soil sample hole. This raises the possibility the EM anomaly is caused by graphitic sediments and the magnetic low area may be underlain by sediments along the creek valley.

Along 58 NE base line, in the vicinity of EM anomaly 'A' (line 188 NW) several fragments of limestone were found. It is assumed these are part of the glacial till but suggest that the limestone content of the soil may have altered the pH of the soil at least locally to inhibit migration of copper ions. Hence more closely spaced sampling was considered advisable here and the strongest anomaly found so far on the property lies close to the EM anomaly.

Northeast of 58 NE base line, from 120 NW to 160 NW, results apparently indicate anomalous copper content in the underlying diorite. This anomaly lies on a relatively steep slope for this area, where overburden is apparently thin. Fragments of diorite at the southeast end of the anomaly assayed 0.16% copper.

CONCLUSIONS

Geological mapping indicates complex basic intrusive rocks intruding an area of sediments and volcanics. Disseminated pyrite and chalcopyrite have been noted in these rocks.

Magnetic surveying has helped outline the extent of the intrusive rocks in areas of overburden; soil sampling has indicated a large anomaly of low intensity as well as a small, higher intensity anomaly associated with an EM anomaly.

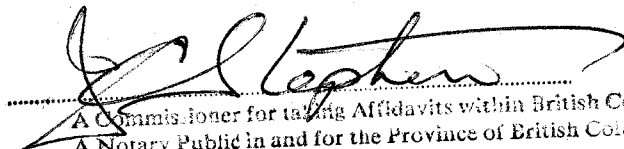


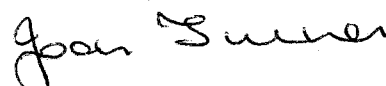
W.R. Bacon, Ph.D., P.Eng.

TABLE OF EXPENDITURES

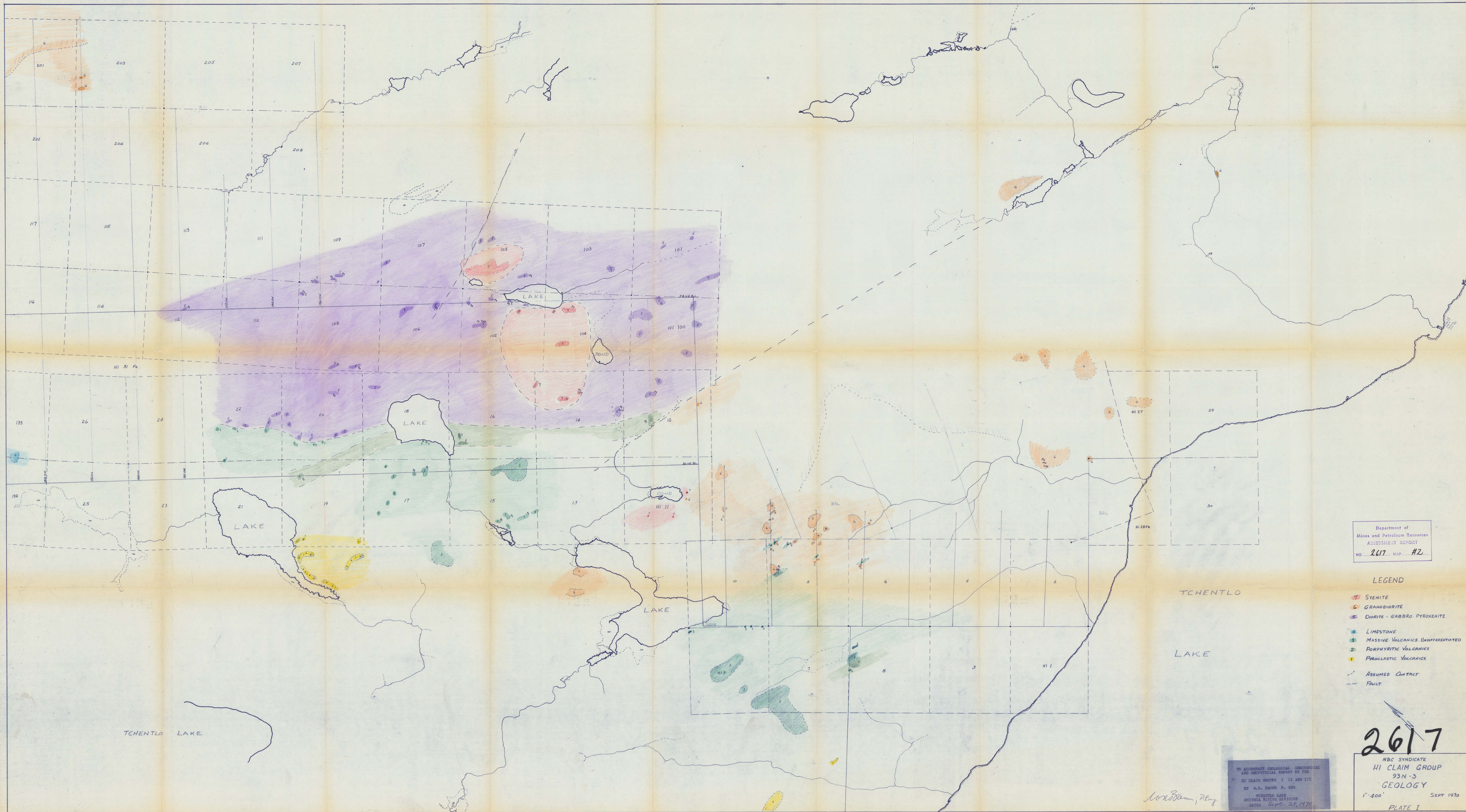
J. Douglas - Geologist	May 27 - June 25	@ \$750/m.	\$750.00
C. Douglas - asst.	May 27 - June 25	475/m.	475.00
D. Douglas asst.	May 27 - June 13	475/m.	285.00
T. Janes asst.	May 27 - June 13	475/m.	285.00
J.C. Stephen, Supt.	May 27 - June 4		<u>360.00</u>
Total wages - mapping, soil sampling, magnetometer survey			2,155.00
Camp supplies - 105 man days @ \$4/day			420.00
Chemex Labs Ltd. - 318 copper determinations @ \$1.00 ea.			318.00
Proportion aircraft costs - May 27, June 5, 15, 25			
4 hours helicopter			600.00
2 hours fixed-wing			<u>180.00</u>
Total applied costs			\$3,673.00

Declared before me at the City
of Vancouver, in the
Province of British Columbia, this 30
day of September 1970, A.D.


A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia,



Sub-Mining Recorder



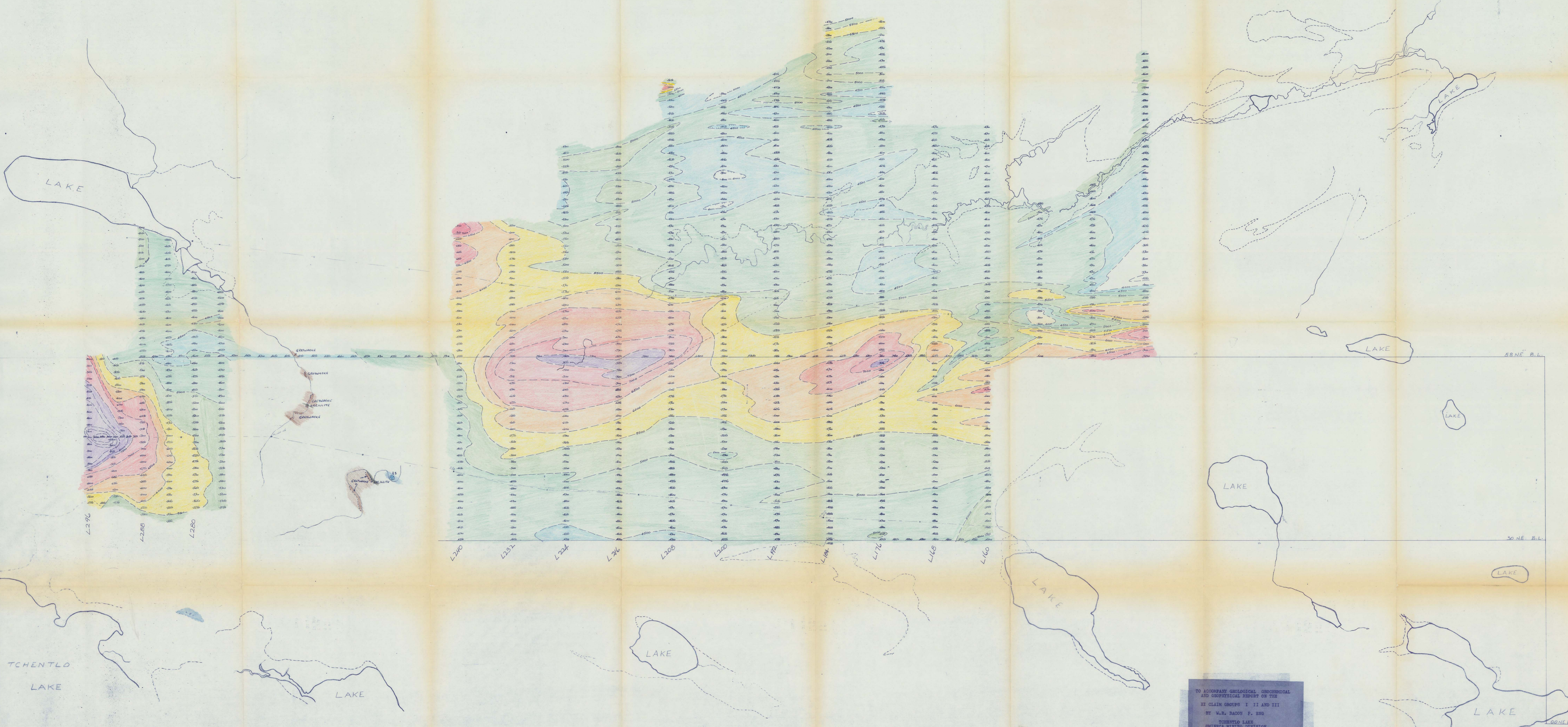
Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 2617 MAP #2

- LEGEND
- 1 SYENITE
 - 2 GRANODIORITE
 - 3 DIORITE - GABBRO - PYROXENITE
 - 4 LIMESTONE
 - 5 MASSIVE VOLCANICS UNDIFFERENTIATED
 - 6 PORPHYRYTIC VOLCANICS
 - 7 PROCLASTIC VOLCANICS
 - ASSUMED CONTACT
 - FAULT

TO ACCOMPANY GEOLOGICAL GEOCHEMICAL
 AND GEOPHYSICAL REPORT OF THE
 HI CLAIM GROUP I II AND III
 BY W.R. SACON P. ENG.
 TCHENTLO LAKE
 QUINCY MINING DIVISION
 DATED Sept. 28, 1970

2617
 NBC SYNDICATE
 HI CLAIM GROUP
 93N-3
 GEOLOGY
 1"-400' SEPT 1970
 PLATE I

W.R. Sacon, P. Eng.



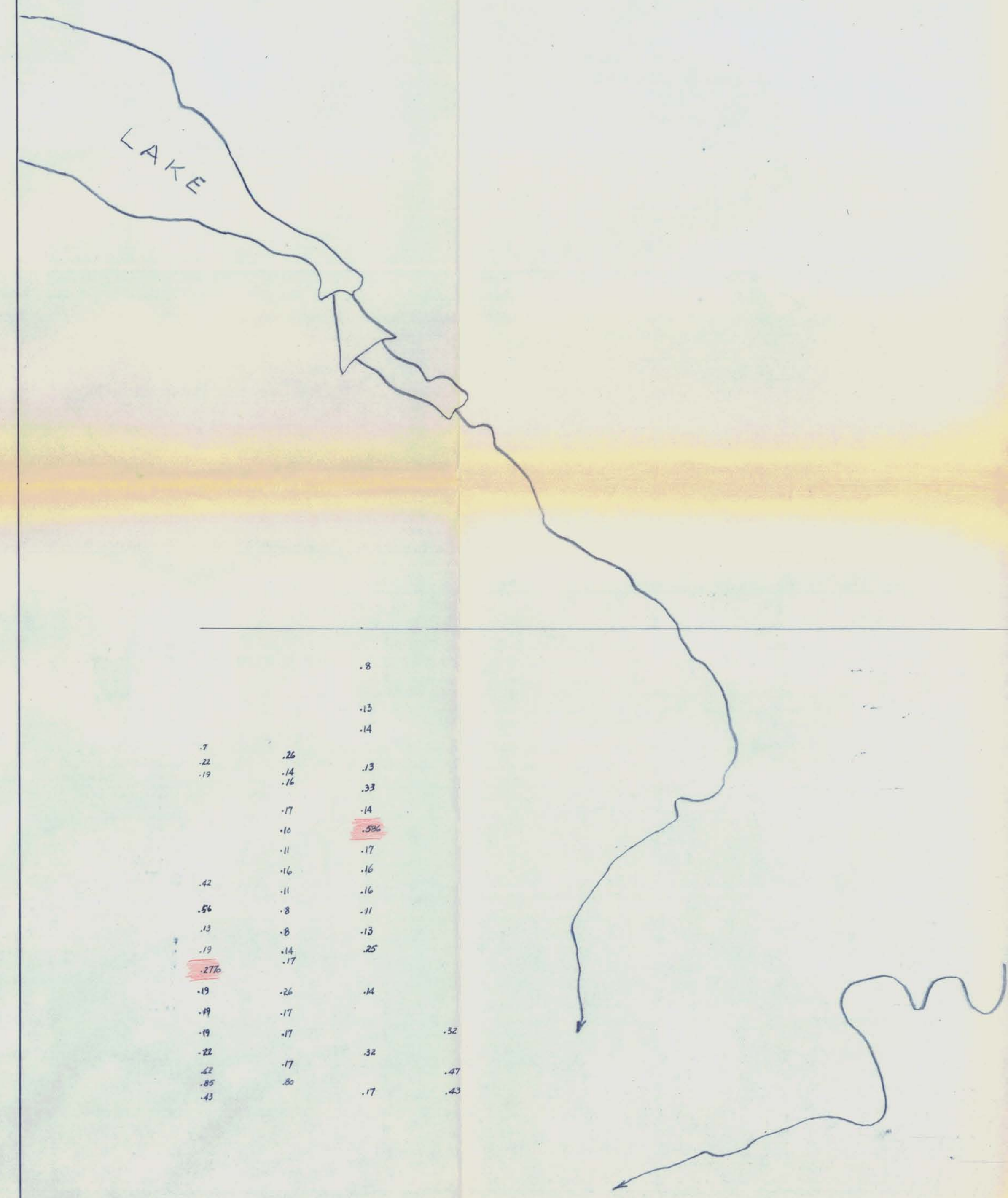
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AND GEOGRAPHICAL REPORT ON THE
HI CLAIM GROUPS I, II AND III
BY W.R. BACON, P. ENG.
TCHENTLO LAKE
GEORGIA MINING DIVISION
DATED SEPT. 28, 1970

W.R. Bacon, P. Eng.

2600 MAGNETOMETER READING
IN GAMMAS
CONTOURS AT 500 GAMMA INTERVALS

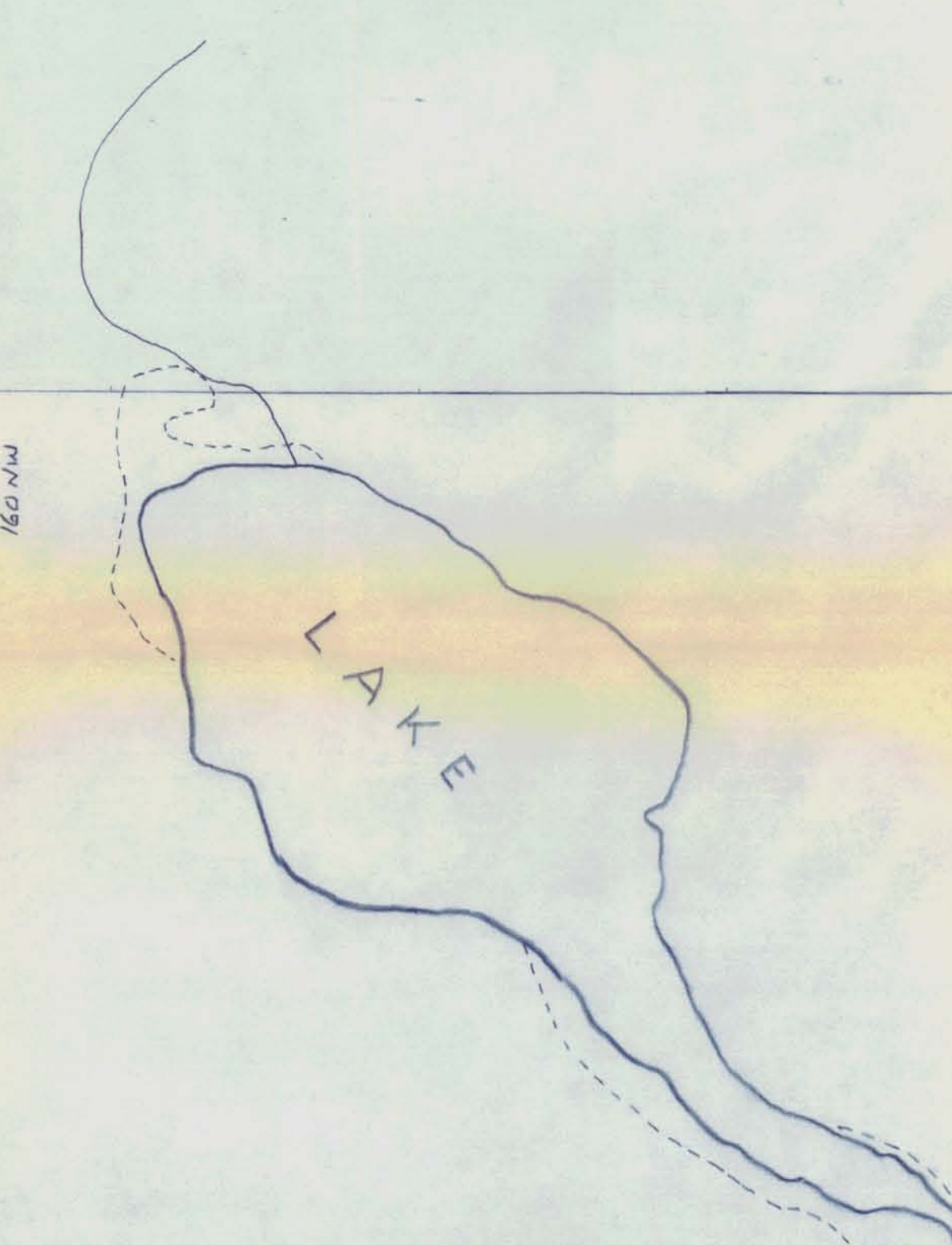
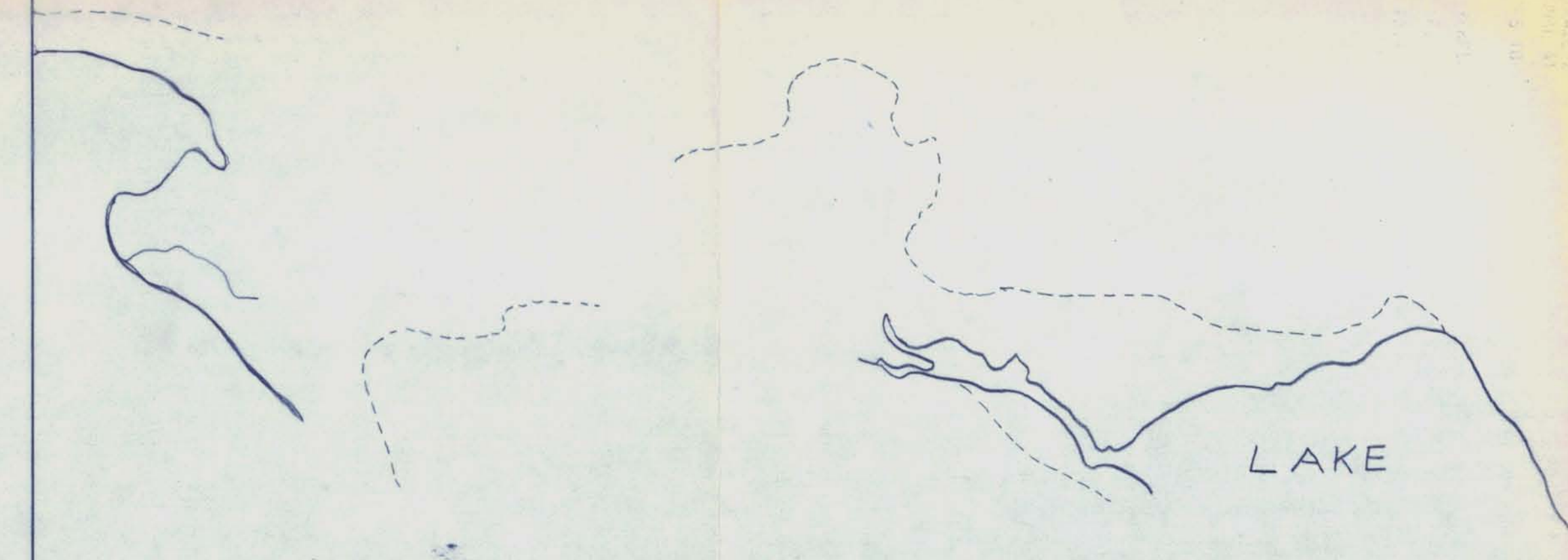
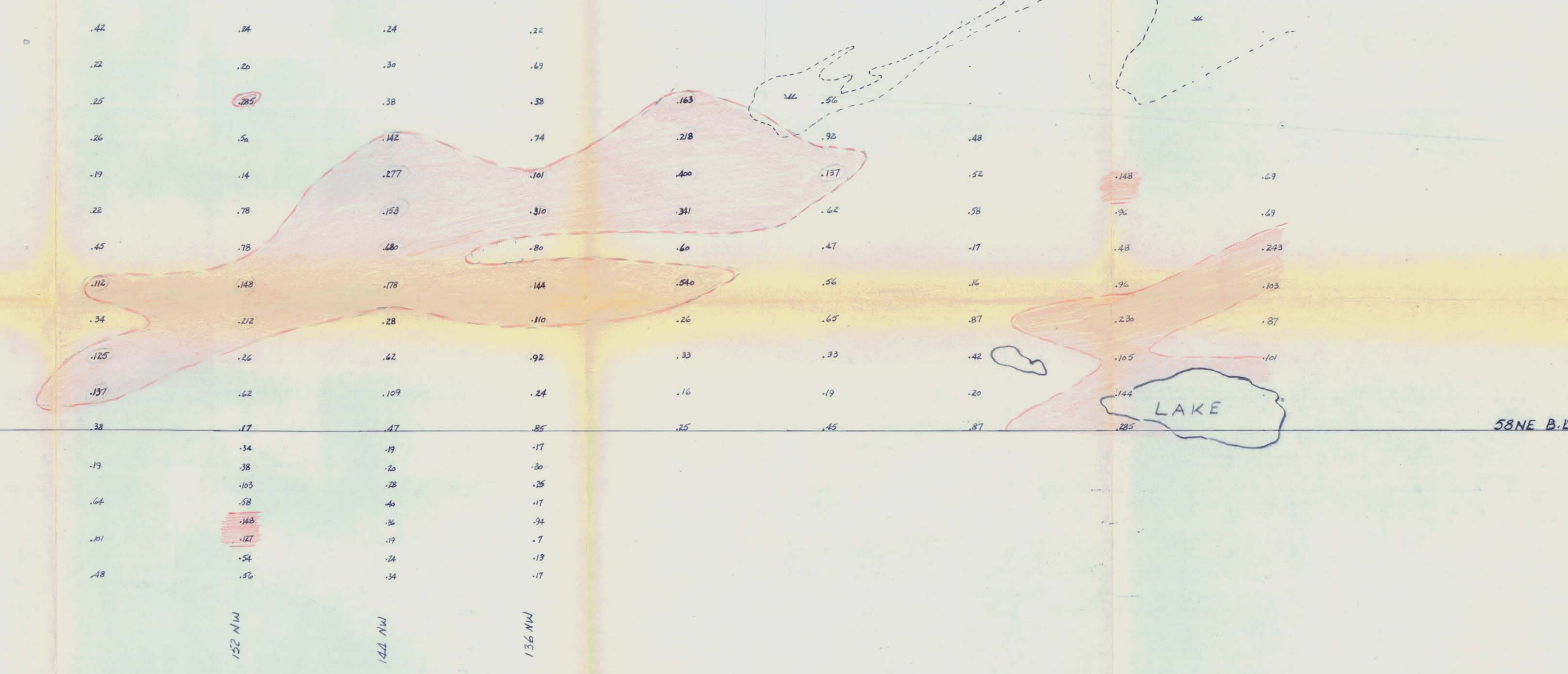
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2617 MAP #3

2617
NBC SYNDICATE
HI CLAIM GROUP
TCHENTLO LAKE 93N/3
MAGNETOMETER SURVEY
SCALE 1"=400' JULY 1970



100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
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Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2617 MAP #4

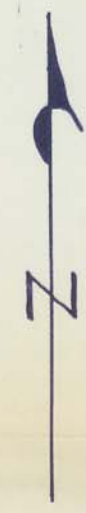
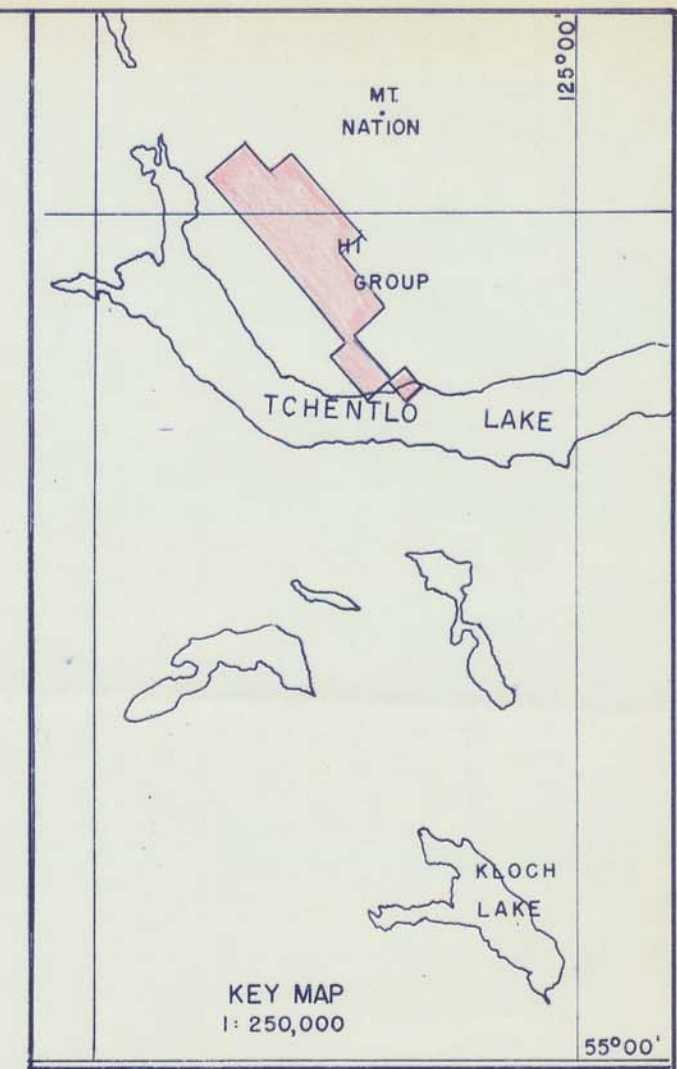
2617

W. R. Bacon, P. Eng.

TO ACCOMPANY GEOLOGICAL, GEOCHEMICAL
AND GEOPHYSICAL REPORT OF THE
HI CLAIM GROUPS I, II AND III
BY W. R. BACON, P. ENG.
TONTULO LAKE
ONTARIO MINING DIVISION
DATED SEPT. 28, 1970

.84 SOIL SAMPLE
TOTAL Cu, Pb, Zn
.85 Location EM ANOMALY

NBC SYNDICATE
HI CLAIM GROUP
TONTULO LAKE 93N/3
GEOCHEMICAL SURVEY
SCALE 1"=400' JULY 1970



- LEGEND**
- HI - WR. BACON FOR N.B.C. SYNDICATE
 - BAL - TCHENTLO LAKE MINES
 - A 1-5 FR. - " " "
 - PJ - " " "
 - TC - A.K. ANDERSON
 - NSZ - MARC EXPLN
 - NS - " "
 - MIKE - " "
 - AL - " "
 - BW - M.W. WARREN
 - HEATH - C CAMPBELL
 - ED - MARC EXPLN

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. **2617** MAP #1

2617

N.B.C. SYNDICATE
TCHENTLO LAKE AREA
93/N-3
CLAIM GROUPS

SCALE 1" = 1/2 MILE OCT. 1969
APRIL 1970