THE INTERPRETATION OF AN AIRBORNE MAGNETIC SURVEY OVER AN AREA IN THE VICINITY OF THE NAGAGAMI RIVER, ONTARIO

for

ALGOMA ORE PROPERTIES LIMITED

by

HUNTING SURVEY CORPORATION LIMITED

TORONTO, ONTARIO

FEBRUARY, 1964

TABLE OF

INTRODUCTION

During the period from November 8th to November 18th, 1963, an aeromagnetic survey was carried out by Hunting Survey Corporation Limited for Algoma Ore Properties Limited. The survey covered part of the Nagagami River area in Northern Ontario, an area of approximately 320 square miles.

Survey Specifications

The survey was carried out with an Aero Commander aircraft, registration CF-OHQ, equipped with a magnetometer, radio-altimeter and a 35 mm aerial camera. A flight line spacing of 1/4 mile was used and the lines were flown in an east-west direction. One control line was flown in a north-south direction, close to the west border of the survey area.

The aircraft operated with a mean terrain clearance of 300 feet and the vertical control was provided by an APN-1 radio-altimeter which recorded the ground clearance of the aircraft continuously on a Texas Instruments Corporation 4.75 inch chart recorder. The chart speed was 3 inches per minute and the sensitivity was such that a full scale deflection was equivalent to a terrain clearance variation of 800 feet.

The flight pattern of the aircraft was recorded by vertical photography, using a Canadian Applied Research Limited Mark VIII, 35 mm aerial camera with a wide angle lens (18 mm) making exposures at 0.75 second intervals. All charts were related to the positioning film

by means of a fiducial number produced simultaneously with every tenth camera exposure.

The magnetometer survey was performed with a Gulf Research and Development Company Mark III flux-gate magnetometer, recording variations in the total intensity of the earth's magnetic field. The magnetometer was rigidly mounted to the tail section of the aircraft.

The resolution and noise level of the magnetometer was such that variations of 1.5 gamma are readable. The magnetic data were recorded on a 10-inch Leeds and Northrop rectilinear chart recorder. The sensitivity was set at 600 gamma full scale with a 500 gamma step interval. The fiducial points, control line intersections and datum lines are all shown on the charts. In addition, the position of every tenth photo frame is indicated by a sharp jog in the magnetic profile.

Base maps at a scale of 1 inch to 2,640 feet were prepared from the Forest Resources Inventory maps produced by the Ontario Department of Lands and Forests.

The magnetic data are presented in the form of contours of total magnetic intensity referred to an artibrary datum. A contour interval of 20 gamma has been used in areas of low magnetic gradient, with suitable larger intervals in areas of high magnetic intensity.

The interpretation of the magnetometer survey is presented on the same base map scale of 1 inch to 2,640 feet.

Accompanying Maps

The airborne magnetometer and interpretation maps have been prepared on Cronoflex film which has been forwarded together with the basic magnetic data, under separate cover. Ozalid prints of the maps are enclosed in the map pocket with this report.

Purpose of the Survey

In February of 1963 Hunting Survey Corporation Limited was retained by Algoma Ore Properties Limited to interpret a small aeromagnetic survey flown by Algoma Ore Properties Limited. The survey covered part of the present survey area, containing the Nagagami River anomaly.

The results of this preliminary study indicated that a more extensive survey should be carried out. On the recommendations of Dr. N. R. Paterson the survey as discussed in this report was flown with the purpose of identifying the Nagagami River anomaly and supplying additional information about the structure and thickness of the sedimentary cover.

KNOWN GEOLOGY

Little geological knowledge is available of the survey area except general information contained in the Sixty-first Annual Report of the Ontario Department of Mines, Vol. 61, Part 6, 1952, Map No. 1952-3 "Southern Part of James Bay Lowland, Province of Ontario".

Almost all of the survey area is covered by the middle Silurian (Guelph(?) and Lockport) Pagwa River formation, grey fossiliferous limestone, chert inclusions.

It is possible that the most southern portion of the survey area includes a few outcrops of Precambrian rocks.

INTERPRETATION

A. Quantitative Interpretation

Two main methods of analysis were used in determining the parameters of the sources of anomalies. These are the dipping dyke (dd.) method and the one-half slope method (1/2S). The letters in parentheses are used in the Appendix and on the interpretation map to indicate the method applied.

(a) Dipping Dyke Method (dd.)

The dipping dyke method was developed by Hunting Survey Corporation Limited. Using certain characteristic points on a perpendicular profile across a dyke-like body, and referring to appropriate charts and tables, the depth, width, dip, location and magnetic susceptibilities can be calculated.

(b) One-half Slope Method (1/2S)

The points of half-maximum slope are empirically related to the depth of a dyke-like body so oriented in space that it produces a symmetrical anomaly. If the anomaly is not quite symmetrical, the two flanks of the anomaly may be processed independently and the results averaged. Under the best of circumstances this is a rule-of-thumb method which can be in error by 50% or more.

Altogether seventeen depth calculations were carried out and the results are presented on the interpretation maps, and in the form of a

table in the Appendix, showing the depth below the ground surface of the causative body, the applied method and the grade of the depth determination.

Grade (A) stands for a good depth determination. Grade (B) is given when slight ambiguity is observed in choosing the characteristic points. Grade (C) indicates that some extraneous factor comes into effect which may cause a relatively large error in the depth calculation but is estimated to be within the allowable error. A depth determination is graded questionable (?) when the calculated depth could be perfectly valid or completely false. The present survey gave no determinations that could be graded either A or B.

The maximum possible error in any depth determination based on magnetic data is approximately 20-25% of the calculated depth from the instrument.

(c) Percentage Magnetite

For discussion of studies relating volume magnetic susceptibility with percentage magnetite, the reader is referred to papers by Harold M. Mooney in Geophysics, July 1952, and L. B. Slichter in Transactions of the A.I.M.E., 1929.

For the purpose of this study a figure of 0.25 c.g.s. units for 100% magnetite per volume is used. Thus it is possible to convert from susceptibility to percentage magnetite by multiplying the susceptibility by the factor 400.

Summary of Quantitative Interpretation

The depth determinations carried out form two groups, one group carried out on the Nagagami River Anomaly, and the other carried out on the dykes.

The depths vary from surface to 900 feet below ground. The average depth is calculated to be 360 feet below ground surface.

Particularly shallow depths on the south part of the survey area indicate the presence of the Precambrian rock close to ground surface.

The average susceptibility of the dykes cutting through the Precambrian country rock is 0.001 c.g.s. units (0.4% Fe_2O_3).

The average susceptibility calculated on the magnetic rim of the Nagagami River anomaly is 0.015 c.g.s. units, corresponding to an average of 6% magnetite content.

Calculations indicate that the magnetic portion of the small circular anomaly immediately to the southwest of the Nagagami River anomaly has an average susceptibility of 0.004 c.g.s. units (1.6% Fe_2O_3) which is markedly different from the value obtained for the Nagagami R. anomaly.

B. Geological Interpretation

(a) Paleozoic Cover

It is believed that the survey area is covered by varying thicknesses of Middle Silurian, Guelph(?) and Lockport Pagwa River formations. The Pagwa River formation consists of grey fossiliferous limestone with chert inclusions, and the thickness of the formation increases towards the north.

(b) Precambrian Country Rocks

The aeromagnetic survey indicates that the northern portion of the area is underlain by rocks containing very little or no magnetite, namely sediments or possibly granite. Since very little is known, in this area, of the Precambrian rocks, only a general interpretation can be made at this time regarding the Precambrian country rock complex, however it is assumed to be mainly sedimentary.

Intermediate to basic volcanics are indicated by the magnetics in the southwestern corner of the survey area.

Another anomaly complex, also in the southwestern corner of the survey area, has the characteristics of ultrabasic to intermediate intrusion, producing the highest intensity anomaly of the survey. The shape of this anomaly does not lend itself to simple calculation, however experience shows that similar anomalies produced by intrusive bodies may have magnetite content as high as 10-15%.

The volcanics and the intrusion are assumed to be of younger origin than the diabase dykes which cut through the Precambrian sedimentary(?) complex.

Two main strike directions of the diabase dyke can be observed. The more prominent, northwest-southeast striking dyke series, is believed to be the older one, the other series strikes northeast-southwest.

(c) Nagagami River Anomalies No. 1 and No. 2

The two unique magnetic anomaly complexes occupying the centre part of the survey area have been designated the Nagagami River

Anomaly No. 1, and No. 2 respectively. The large elliptical magnetic complex is the Nagagami River Anomaly No. 1 and the smaller circular one is the Nagagami River Anomaly No. 2. The contact drawn on the interpretation maps between the country rock and the intrusion is implying a gradational contact and most probably includes the alteration zone also.

From the magnetic evidence it appears that the Nagagami River Intrusive No. 1 was circular originally rather than elliptical. The later, smaller Intrusive No. 2 on the south deformed the circular structure.

The Nagagami River Anomaly No. 1 is most probably caused by a complex syenitic to gabbroic intrusion. The relatively high intensity magnetic anomalies are most probably due to magnetite concentrations corresponding to the different phases of the intrusion.

The depth to the top of the intrusion is calculated to be an average of 700 feet below ground level. However it has to be noted that depth estimates derived from anomalies of this type, i.e. produced by magnetic bodies with gradational contacts, indicate deeper depths than true ones. It is estimated that true depth to the top of the intrusive is between 100 feet and 300 feet.

Since the calculated magnetite content is derived from the calculated susceptibility contrast which is inversely proportional to the arctan of the ratio of half width and depth, any error in calculating the depth and width will result in an error in the calculated magnetite

content. Also the lack of knowledge about the direction and magnitude of the remanent magnetization introduces possible errors into the calculated magnetite content.

Although Anomaly No. 1 is similar to an anomaly produced by a carbonatite or alkaline intrusive of the Nemegosenda Lake-Firesand River type, as described by G. E. Parsons in an Ontario Department of Mines Geological Report #3 1951; there are two principal differences:

(a) a larger size of anomaly (6-7 miles opposed to 2 or 4 miles),

(b) a generally higher magnetic response over the main "circular" member and the apparent absence of the typical radial fault pattern.

It is believed that the Anomaly No. 2 is produced by a younger intrusion from a later phase of the same magma which was involved in forming the first intrusive. The magnetic expression of this intrusion is very similar to those of the Nemegosenda Lake-Firesand River type alkaline or carbonatite intrusive. The diameter of the structure is 2.5 - 3 miles and the magnetic response over the main "circular" member is comparable to the magnetic response over the main circular member of the above-mentioned alkaline or carbonatite intrusives; and there is some indication of radial fault pattern.

Anomaly No. 1 represents a moderately interesting iron prospect, however the possibility of sulphides and/or rare earth minerals cannot be excluded. The Anomaly No. 2 could be considered as a prospect

for columbium, uranium and other rare earth minerals associated with the alkaline or carbonatite intrusive.

(d) Faulting

Two major directions of faulting have been interpreted, northwest and northeast, and appear to have occurred after the intrusive activity causing Anomaly No. 1. Minor directions of faulting found to be north and east are assumed to have originated prior to the Nagagami River Intrusion No. 1.

SUMMARY AND CONCLUSIONS

Depth determinations indicate that the Paleozoic Pagwa River formation cover is virtually non-existent in the southern part of the survey area and gradually reaches a thickness of 300 - 400 feet at the northern boundary.

Diabase dykes in two major directions are indicated cutting through the non-magnetic Precambrian country rock, sediments possibly granite.

The aeromagnetic survey revealed the presence of a small circular anomaly (Nagagami River Anomaly No. 2) and defined the shape of Anomaly No. 1 as elliptical rather than horseshoe-shaped. It is believed that both anomalies are produced by intrusions of the same magma.

Anomaly No. 1 is believed to be associated with a complex basic intrusion. The nature of this intrusion is not certain but it is considered that the more magnetic parts of the rim represent magnetite concentrations of some potential economic interest.

Anomaly No. 2 has an appearance very similar to the magnetic anomalies associated with alkaline and carbonatite complexes found elsewhere. It is believed to represent a reasonable target for columbium and other rare earth mineral exploration, but cannot be considered favourable as an iron prospect.

RECOMMENDATIONS

Since it is impossible by magnetic interpretation to affirm either the quantity or quality of minerals present, it is recommended that the next stage of exploration be carried out by diamond drilling.

Three possible locations are selected on Anomaly No. 1 and they are, in order of priority, located at depth determination #6, #8 and #7. It is recommended that ground magnetometer traverses be carried out prior to the final spotting of the drill holes in order to ensure the best drilling location.

The same procedure may be followed in exploring Anomaly No. 2, where a possible location for drill hole is indicated by the letter "A" on the interpretation map.

Further exploration work should be held in abeyance until the results of the proposed drilling programme can be evaluated.

HUNTING SURVEY CORPORATION LIMITED,

F. L. Jagodits, P.Eng.,
Project Geophysicist.

N. R. Paterson, P. Eng.,
Chief Geophysicist.

Toronto, Ontario,
February, 1964.

REFERENCES

Sixty-First Annual Report of the Ontario Department of Mines, Vol. 61, Part 6, 1952.

A. G. Parsons, Niobium-Bearing Complexes East of Lake Superior; Ontario Department of Mines, Geological Department, No. 3, 1961.

Leo J. Peters, The direct approach to magnetic interpretation and its practical application; GEOPHYSICS, Vol. 14, No. 3, July, 1949.

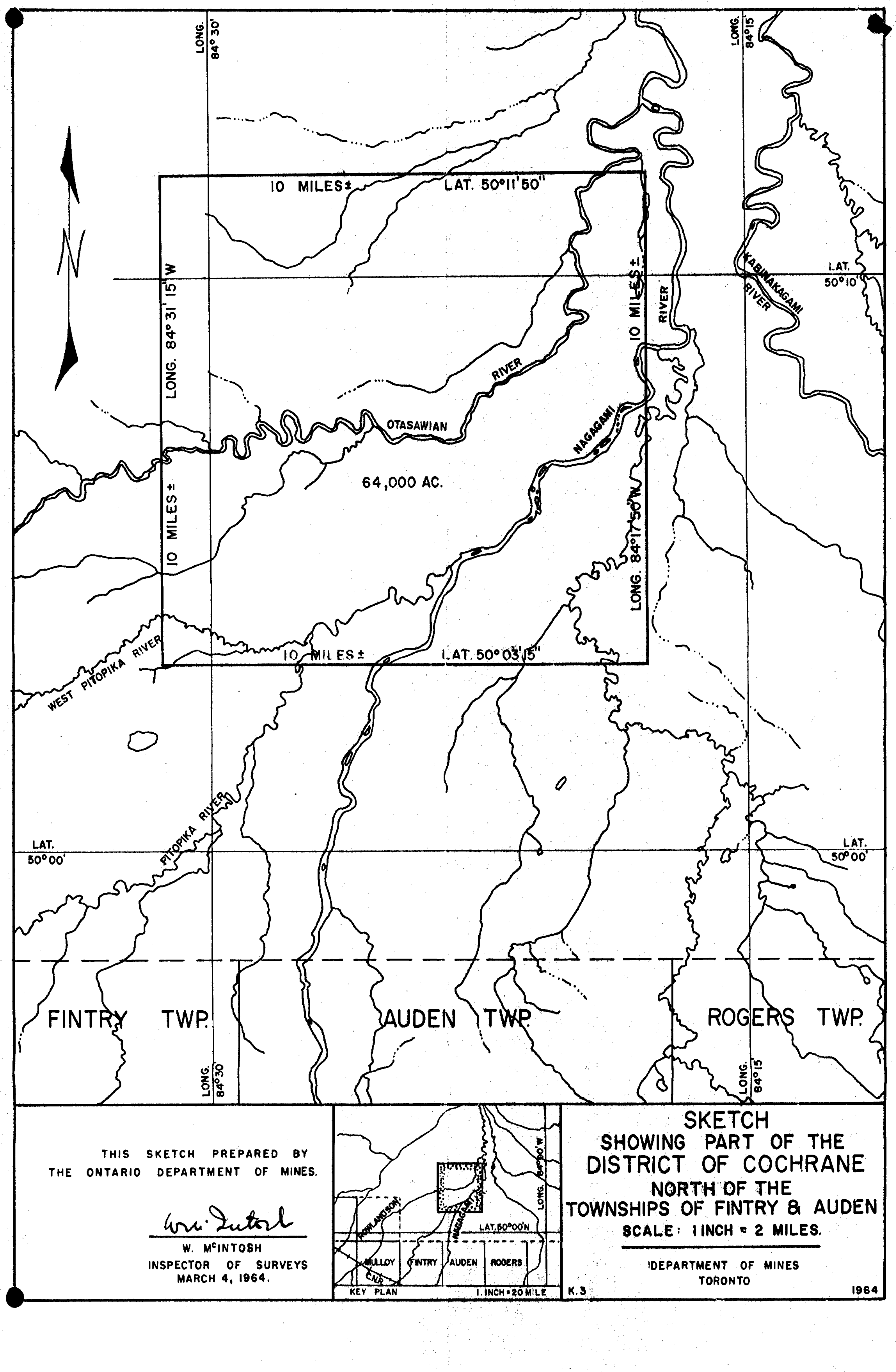
N. R. Paterson, Letter to Mr. J. V. Huddart; Re: Nagagami River Anomaly, March 29, 1963.

APPENDIX

Table of Depth Determinations

Anomaly No.	Depth	Width	Grade	Remarks
1	-120'	960'	C	Dipping dyke determination. The anomaly somewhat influenced d = 44°, K = 0.012 c.g.s. (0.5% Fe_2O_3)
2	-400'	-	?	Half Slope
3	-370'	-	?	Half Slope
4	-720'	3200'	?	Half Slope. The anomaly seems to be disturbed. K = 0.009 c.g.s. (3.5% Fe_2O_3)
5	-300'	900'	C	Dipping dyke determination. K = 0.001 c.g.s. (0.4% Fe_2O_3)
6	-620'	1100'	?	Half Slope determination, assumptions are probably not valid. K = 0.06 c.g.s. (10.6% Fe_2O_3)
7	-460'	1200'	C	Half Slope. K = 0.613 c.g.s. (5.1% Fe_2O_3)
8	-900'	2540'	?	Half Slope. K = 0.016 c.g.s. (6.4% Fe_2O_3)
9	-920'	3800'	?	Half Slope. K = 0.009 c.g.s. (3.7% Fe_2O_3)
10	-280'	-	?	Half Slope
11	- 70'	-	?	Half Slope
12	-230'	-	?	Half Slope. K = 0.004c.g.s. (1.6% Fe_2O_3)
13	-520'	-	?	Half Slope. K = 0.004 c.g.s. (1.6% Fe_2O_3)
14	-130'	-	?	Half Slope. K = 0.001 c.g.s. (0.4% Fe_2O_3)
15	0	-	-	Half Slope
16	- 70'	-	?	Half Slope. Two other depth determinations carried out on the same dyke indicate very shallow depth.

Anomaly No	Depth	Width	Grade	Remarks
17	0	500'	C	Dipping dyke determination. d = 106°, K = 0.015 c.g.s. (0.6% Fe_2O_3)


LONG. 84° 30'
LONG. 84°15'
10 MILES±
LAT. 50°11'50"
LONG. 84° 31' 15" W
10 MILES±
RIVER
KABINAKAGAMI RIVER
LAT. 50°10'
OTASAWIAN
NAGAGAMI
64,000 AC.
10 MILES±
LONG. 84°17'30"W
WEST PITOPIKA RIVER
10 MILES±
LAT. 50°03'15"
PITOPIKA RIVER
LAT. 50°00'
LAT. 50°00'
FINTRY TWP.
AUDEN TWP.
ROGERS TWP.
LONG. 84°30
LONG. 84°15
THIS SKETCH PREPARED BY
THE ONTARIO DEPARTMENT OF MINES.
W. McINTOSH
INSPECTOR OF SURVEYS
MARCH 4, 1964.
ROWLANDSON
NEELAND
LONG. 84°00'W
LAT. 50°00'N
MULLOY
FINTRY
AUDEN
ROGERS
C.N.R.
KEY PLAN
1 INCH = 20 MILE
SKETCH
SHOWING PART OF THE
DISTRICT OF COCHRANE
NORTH OF THE
TOWNSHIPS OF FINTRY & AUDEN
SCALE: 1 INCH = 2 MILES.
DEPARTMENT OF MINES
TORONTO
K.3
1964

83,1-41

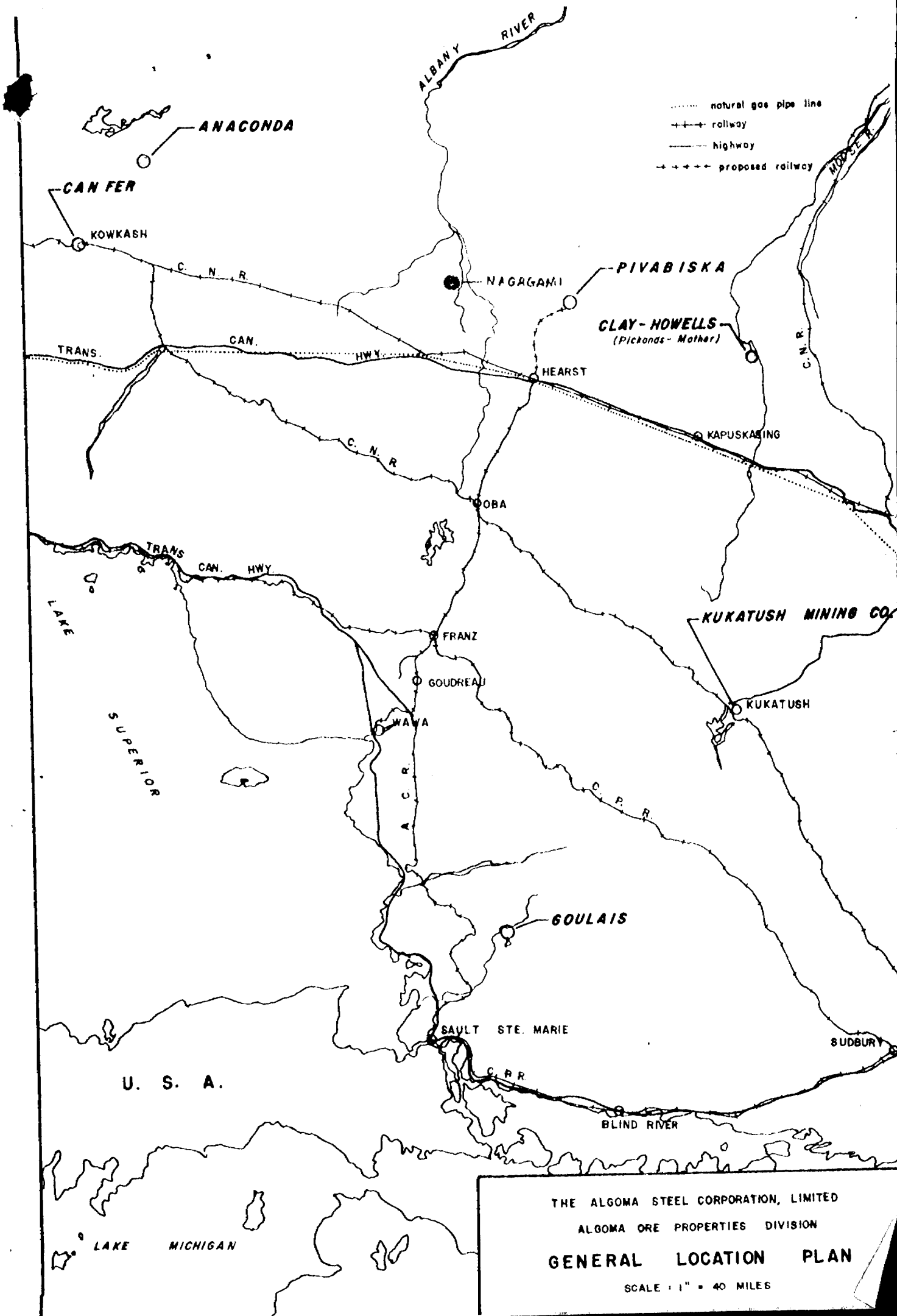
AIGOMA ORE PROPERTIES DIVISION

THE ALGOMA STEEL CORPORATION, LIMITED

EXPLORATION DEPARTMENT

NAGAGAMI RIVER ALKALINE RING COMPLEX

V. R. Venn, P. Eng,


ALBANY RIVER
natural gas pipe line
railway
highway
proposed railway
ANACONDA
CAN FER
KOWKASH
C. N. R.
NAGAGAMI
PIVABISKA
CLAY - HOWELLS
(Pickands - Mather)
MOOSE R.
C.N.R.
TRANS.
CAN.
HWY.
HEARST
KAPUSKASING
C. N. R.
OBA
TRANS CAN. HWY.
LAKE
KUKATUSH MINING CO.
FRANZ
GOUDREAU
KUKATUSH
WAWA
SUPERIOR
C. P. R.
GOULAIS
SAULT STE. MARIE
SUDBURY
U. S. A.
C. P. R.
BLIND RIVER
LAKE MICHIGAN
THE ALGOMA STEEL CORPORATION, LIMITED
ALGOMA ORE PROPERTIES DIVISION
GENERAL LOCATION PLAN
SCALE : 1" = 40 MILES

83-1-41

ALGOMA ORE PROPERTIES DIVISION

THE ALGOMA STEEL CORPORATION, LIMITED

EXPLORATION DEPARTMENT

NAGAGAMI RIVER ALKALINE RING COMPLEX

LOCATION

The Nagagami River Alkaline Ring Complex is located 40 miles north-west of Hearst, Ontario, about four miles south-west of the junction of the Nagagami and Otasawain Rivers and 20 miles north of the C.N.R. tracks. The area lies on the southern edge of the James Bay lowlands.

ACCESS

Access to the area can be gained by canoe, travelling north from the C.N.R. tracks on the Nagagami River or by aircraft into a small lake lying between the Otasawain and Nagagami Rivers just south of their junction.

During the present work, a bombardier tractor was brought 12 miles north-west from the north end of the Rodgers Road through open swamps to the job sight. The tractor was used extensively on the job in the open swamps and more sparsely wooded areas to move men and supplies.

PAST WORK

In 1961, the Algoma Ore Properties' Beaver Aircraft equipped with an airborne magnetometer flew the area to the north of the C.N.R. tracks and revealed a low intensity horseshoe shaped magnetic anomaly lying under the limestone and about ten miles north of its southern contact. In June, 1961 a two man prospecting crew travelled down the Nagagami River to the sight of the anomaly. The party performed a cursory dip needle survey and found that they could detect the anomaly on the ground. In February, 1963 the Hunting Survey Corporation of Toronto were engaged to do an airborne magnetic survey of the area and interpret the results.

The survey indicated two large low intensity magnetic anomalies underlying the Paleozoic limestone. The northern anomaly is about eight miles in diameter and the southern anamoly is about three miles in diameter. Each anomaly is formed by a ring of magnetics in the centre of which is an area of low intensity.

The northern anomaly has peak intensities on the rim of 5,500 to 6,500 gammas while the southern anomaly has peak intensities on the rim of from 3,000 to 4,200 gammas. Back ground in the centre and around both anomalies is about 3,000 to 3,500 gammas.

A copy of Hunting's report was forwarded to the Ontario Department of Mines early in 1964.

Hunting's interpretation of the anomalies inferred that they were caused by syenitic to gabbroic intrusive complexes, and that the ring of magnetics on each anomaly was caused by low concentrations of disseminated magnetite corresponding to different phases of magmatic differentiation. Both anomalies were thought to be formed from the same parent magma. The centre of the northern anomaly was thought to be ultra-basic and the centre of the southern anomaly was thought to be formed by a carbonatite complex.

The northern anomaly was mildly interesting from an iron ore point of view and both anomalies were thought to be interesting from the possibility of the occurrence of niobium or sulphides.

The depth of the basement, pre-cambrian rock was thought to be from 100' to 400'.

LICENSE OF OCCUPATION

Because of the tremendous size of the anomalies and the great expense in staking and holding such ground, it was decided to apply to the Minister of Mines for a license of occupation. This was granted and was to commence on May 1, 1964 for a period of three years. The area covered by the license was

from latitude	50 degrees	03'	15"	North
to "	50 degrees	11'	50"	North

and

from longitude	84 degrees	17'	50"	West
to "	84 degrees	31'	15"	West

PRESENT WORK

Starting in February, 1964 and during the ensuing months until September, 1964, work was done intermittently by a crew which varied from 8 - 10 men.

Two east-west base lines were cut on the east side of the north anomaly. The base lines were placed at points where Huntinghad made depth determinations, points # 6 and # 8. Two tiers of claims were staked on each sight using the base lines as centre lines.

DIAMOND DRILLING

On June 3, 1964, Canadian Longyear of North Bay, Ontario was given the drilling contract. The drill was flown in by Company aircraft from Carey Lake, Ontario 20 miles west of Hearst.

Drilling started on June 25, 1964 and ended on September 27, 1964.

A total of 4,307 feet of AXT drilling was completed in 9 holes. Three thousand two hundred and eighty one feet were drilled on the north anomaly acros point # 6 and 1,026 feet were completed on the south anomaly on base line "C".

Of the nine holes started, two were stopped short of, and one at, the limestone - pre-cambrian contact because of poor drilling.

An attempt was made to move the drill equipment out via open swamps to the south toward a pulp road in Fintry Township. Because of severe swamp conditions, a helicopter from Sparton Air Service at Timmins had to be brought in to transport the drill out.

Since the diametrically opposite sides of the northern anomaly appeared to be geologically similar on the interpretation sheet, only an east-west section through the east side of the north anomaly was drilled.

The drill program attempted to:

(1) Discover the cause of the magnetics

(2) Discover the geological relationships associated with the magnetics.

On the north anomaly drill holes were put down on the magnetic rim, east of the rim and to the west of the rim, on the magnetic low.

Because of the great size of the anomaly, the holes were necessarily spaced far apart.

At first, an attempt was made to drill angle holes but these had to be changed to 90 degree holes because of bad ground.

The diamond drill core is stored on the west side of the small lake where camp was located.

GENERAL GEOLOGY - (See Geological Sections)

The geological section through point 6 contains diamond drill holes No. 1 - 7. From these the following information was ascertained.

The overburden is 34' in D.D.H. # 1, and from 15' on the west bank of the Otaswain River to 127' in D.D.H. No. 3. The overburden is composed of a few feet of black muck on surface, to sand, clay and boulders at depth.

Beneath the overburden lies the Paleozoic limestone. This graded from red mudstone near the top to massive varved and fossiliferous beds toward the bottom.

The limestone is 400' thick.

The depth to the unconformity between the limestone and the pre-cambrian was found to be very regular. At the base of the limestone there usually occurred what would best be described as limy sandstone, about a foot thick and may represent a fossil soil condition.

The Pre-cambrian beneath the limestone is composed of syenite. The top few feet of the syenite in each hole was found to be oxidized a brick red.

The syenite is granitic to pegmatitic in texture. It contains about 50% pink orthoclase feldspar. Interstitial to the feldspar are intermixtures of green amphibole and magnetite. The amphibole occurs with green alteration halos around the edges which are usually visible in hand specimen.

Other low silica alkaline type rocks such as quartz syenite and hornblende, pyroxene, syenite (shonkinite) were encountered to a very minor degree either as differentiates of the syenite or as diklets. The magnetiferous phase of the syenite (10-12% magnetite) appears to represent a phase of intrusion of the magma.

The magnetite is rather uniformly distributed except for a few irratic concentrations of about 25% magnetite around one foot to six inches long.

Magnetite was found to a very limited extent to either side of the magnetic high of the anomaly and the magnetic profile indicates that there is no sharp contact of the magnetiferous phase of the syenite and the syenite inside and outside of magnetic high, only a gradual decrease in the magnetite content.

The results of the drilling verify rather well Hunting's interpretation of the airborne magnetics. Although a basic core was inferred on the northern anomaly, the widely spaced hole does not necessarily disprove its existence.

SOUTHERN ANOMALY

Two holes # 8 and # 9 were drilled on base line "C" as shown on the section. Overburden was similar to that on the north anomaly and is about 50' thick. The limestone was also similar to that on the north anomaly and is 200' thick.

Two holes were drilled on the magnetic high and to one side of it.

The Pre-cambrian was found to be a coarse syenite similar in composition to that on the north anomaly but containing 3 - 5% magnetite.

It would appear that the northern and southern anomalies are genetically related and probably were derived from the same parent magma.

ASSAYS AND SAMPLING

During the first stages of the drill program, samples were taken rather irratically and sent to Technical Service Laboratories in Toronto for spectrographic analysis. Petrographic studies were completed by the Ontario Department of Mines.

Later, the core was gone over with a scintillometer and sampled where radio active responses occurred. These samples were sent out and assayed for Cb_2O_5. The resulting assays indicated the Cb_2O_5 content to be .02 to .03 percent. This corresponds to 20 to 30 scintillometer counts per second.

The scintillometer is a model 939DM manufactured by the Canadian Aviation Electronics Limited.

CONCLUSIONS

The present work did not indicate any economic minerals present on the Nagagami anomalies. The limestone caping and the tremendous size of the anomalies cause exploration costs to be high, and prevents any amount of detailed work unless more encouraging results are obtained in the first drilling.

There is still the possibility that economic concentrations of minerals are associated elsewhere around the anomalies.

V. R. Venn, P. Eng.,
Exploration Dept.

The following maps have been attached:

(1) Two location maps one-half mile = 1 inch of the two anomalies showing base line locations in green ink.

(2) Two maps of the three magnetic profiles over point # 6 scale 1 inch = 400 feet.

(3) Two maps of the drill section over point # 6 scale 1 inch = 400 feet.

(4) Two maps of the three magnetic profiles over point # 8 scale 1 inch = 400 feet.

(5) Two maps of the magnetic profiles on base lines A, B, C, showing the geological drill section on base line "C" scale 1 inch = 400 feet

(6) Two maps of the magnetic profile over base line D scale 1 inch = 400 feet.

ALGOMA ORE PROPERTIES

DIVISION OF

THE ALGOMA STEEL CORPORATION, LIMITED

EXPLORATION DEPARTMENT

DIAMOND DRILL HOLE NO. 2 - 64 PROPERTY Magagami River Location #6

LOCATION OF COLLAR Center Base Line ELEV.

AZIMUTH AT COLLAR 18+00W East

DIP AT COLLAR 65 degrees

VERTICAL SECTION NO. LENGTH 90 feet CORE SIZE A

REC. IN MIN. ZONE. LOGGED BY P. Leahy STARTED July 11, 1964 FINISHED July 13, 1964

FOOTAGE	DESCRIPTION	SAMPLING			ANALYSES				
		FROM	TO	REC.					
0 - 90	Overburden limestone and granite gneiss boulders abandoned in overburden								

Paul Leahy

ALGOMA ORE PROPERTIES

DIVISION OF

THE ALGOMA STEEL CORPORATION, LIMITED

EXPLORATION DEPARTMENT

DIAMOND DRILL HOLE NO. 3 - 64 PROPERTY Nagagami River Location #6

LOCATION OF COLLAR Center Base Line 20+00 West ELEV.

AZIMUTH AT COLLAR

DIP AT COLLAR 90 degrees

VERTICAL SECTION NO. LENGTH 290 feet CORE SIZE A

REC. IN MIN. ZONE LOGGED BY P. Leahy STARTED July 15, 1964 FINISHED July 24, 1964

FOOTAGE	DESCRIPTION	SAMPLING			ANALYSES				
		FROM	TO	REC.					
0 - 110	Overburden								
110 - 187	Poorly-consolidated, limy, red mudstone contains vugs lined with calcite crystals. In part the rock is a finely-banded silt.								
187 - 290	Alternate bands of light buff and grey silting limestone. Few small fossiliferous layers. Last 10 feet all fossiliferous limestone								
- 290	Hole abandoned in limestone								
	Pip Tests								
	Depth 130 feet Angle 88 degrees Corrected 87 degrees								

Paul Leahy

ALGOMA ORE PROPERTIES

DIVISION OF

THE ALGOMA STEEL CORPORATION, LIMITED

EXPLORATION DEPARTMENT

DIAMOND DRILL HOLE NO. 4-64 PROPERTY Nagagami River Location #6

LOCATION OF COLLAR Center Base Line 20+50W ELEV.

AZIMUTH AT COLLAR.

DIP AT COLLAR 90 degrees

VERTICAL SECTION NO. LENGTH 806 feet CORE SIZE B to 250 feet A 250ft. to 806ft.

REC. IN MIN. ZONE. LOGGED BY P. Leahy STARTED July 27/64 FINISHED Aug. 6/64

FOOTAGE	DESCRIPTION	SAMPLING			ANALYSES				
		FROM	TO	REC.					
0 to 127	Overburden								
127 - 185	Mudstone limy red mudstone poorly consolidated containing vugs lined with calcite crystals; in part it is a finely banded silt stone. There are a few small bands of gypsum at a depth of 180 feet. These are less than $\frac{1}{4}$ inch in thickness								
185 - 460	Limestone alternating bands of pure grey limestone, fossiliferous limestone and impure buff-colored silty limestone								
460 - 477.5	Sandstone between 460 and 475 the rock is a limy sandstone This sandstone grades into a conglomerate of large red syenite fragments in a chloritic ground mass.								
477.5 - 479	Syenite Breccia This rock is made up of large angular fragments of red syenite and in a chloritic ground - mass. This appears to be an old weathering surface								

ALGOMA ORE PROPERTIES

DIVISION OF

THE ALGOMA STEEL CORPORATION, LIMITED

EXPLORATION DEPARTMENT

DIAMOND DRILL HOLE NO. 4-64 PROPERTY Nagagami River - Location #6

CONTINUED

FOOTAGE	DESCRIPTION	SAMPLING			ANALYSES				
		FROM	TO	REC.					
479 - 500.3	Syenite The rock is almost entirely composed of large brown-red cleavage fragments of orthoclase The rock is coarse, massive and very uniform. Chlorite-magnetite mixtures form large prismatic masses that may be pseudomorphs of hornblende From 479 to 483 feet the rock is altered with alteration decreasing downward								
500.3 -504.8	Granite quartz - orthoclase granite								
504.8 - 806	Syenite The very same rock as that between 479 and 500.3 feet From 630 to 643 the rock is strongly sheared with a film of chlorite and pyrite along the shear planes. 690 - 710 Strong shearing with Chlorite along shear planes In places the chlorite-magnetite phase of the syenite are more concentrated. These concentrations are usually less than 2 inches in width. The largest of these concentrations is 1 foot in width from 780.5 - 781.5 feet								
806	End of Hole Dip Tests Depth Angle Corrected 280 ft. 89 degrees 88.5 degrees 500 " 89 " 88.5 " 780 " 88 " 87.0 "								

Paul Heaney

ALGOMA ORE PROPERTIES

DIVISION OF

THE ALGOMA STEEL CORPORATION, LIMITED

EXPLORATION DEPARTMENT

DIAMOND DRILL HOLE NO. N-1-64 PROPERTY Nagagami River

LOCATION OF COLLAR 10 + 00 East ELEV.

AZIMUTH AT COLLAR. West

DIP AT COLLAR 45°

VERTICAL SECTION NO. LENGTH 680 Feet CORE SIZE. AXT.

REC. IN MIN. ZONE. LOGGED BY. P. Leahy STARTED. FINISHED. July 4/64

FOOTAGE	DESCRIPTION	SAMPLING			ANALYSES				
		FROM	TO	REC.					
0-34	Casing								
34-669.5	Paleozoic Sediments (mainly limestone)								
	34 - 284 Poorly consolidated siltstone and sandstone. Also bands of poorly cemented red mud balls.								
	284 - 650 Limestone alternating layers of fine silty lst, with layers of fossiliferous lst. The rock is vugy with cavities lined by calcite crystals.								
	650 - 660 Interbedded limestone and sandstone. Some of the sandstone layers contain fine black carbonaceous material.								
	660 - 669.5 Interbedded siltstone and sandstone.								
	666 - 669.5 Very coarse sand particles in matrix of fine green material.								
669.5	Change from bedded clastic sediments to a more crystalline and massive rock type. There is some shearing on either side of the border. This is probably the unconformity between the Precambrian and Paleozoic.								
669.5-679	Complex mineral assemblage with composition of a basic syenite. In hand specimen it appears to contain fragments of red feldspar in a finer ground mass that is mainly black mica. The individual grains lack good cleavage and at the same time the rock lacks any indication of bedding.								

ALGOMA ORE PROPERTIES

DIVISION OF

THE ALGOMA STEEL CORPORATION, LIMITED

EXPLORATION DEPARTMENT

DIAMOND DRILL HOLE NO. 1 PROPERTY Nagagami River

CONTINUED Page Two

FOOTAGE	DESCRIPTION	SAMPLING			ANALYSES				
		FROM	TO	REC.					
669.5-679	The rock is slightly finer grained within two inches of its lower contact, but this could be due to the fact that the rock on the other side of the contact is a coarse intrusive that had a baking effect on the margin.								
679	Sharp contact.								
679 - 680	Diorite. Biotite diorite containing small magnetite crystals								

DIP TEST

Depth	Dip
0 feet	45°
500 feet	51°

Paul Heaney

ALGOMA ORE PROPERTIES

DIVISION OF

THE ALGOMA STEEL CORPORATION, LIMITED

EXPLORATION DEPARTMENT

DIAMOND DRILL HOLE NO. 7 - 64 PROPERTY Nagagami River Location #6 Center Base Line

LOCATION OF COLLAR 45 + 50 West ELEV.

AZIMUTH AT COLLAR. East

DIP AT COLLAR 65 degrees

VERTICAL SECTION NO.

LENGTH 806 feet CORE SIZE B to 250 feet A from 250 feet to 812ft

REC. IN MIN. ZONE. LOGGED BY. P. Leahy STARTED. Aug. 31/64 FINISHED. Sept. 6/64

FOOTAGE	DESCRIPTION	SAMPLING			ANALYSES				
		FROM	TO	REC.					
0 - 65	Overburden								
65 - 190	poorly consolidated limy red mudstone. Cavities in rock lines with calcite crystals. From 145 ft. to 210 ft. get lenses of gypsum most of which are less than 1" in thickness								
190 - 230	Transition from above rock type to grey fine grained limestone								
230 - 510	Alternate bands of grey and buff fine silty limestone. Fossiliferous layers increase toward 500 ft. From 480 ft. to 510 ft. the rock is nearly all composed of fossils.								
510 - 520	Transition from limestone to limy coarse grained sandstone								
520 - 531	coarse impure quartz sandstone								
531 - 532	broken fragments of red syenite in fine chloritic ground mass. The large angular fragments of syenite probably represent a former surface of weathering								
532 - 812	coarse-grained syenite large pink cleavage fragments of orthoclase with large fragments of chlorite with magnetite. All of this syenite is weakly magnetic. At intervals there are segregations of the chlorite-magnetite material most notable of these is the 2½ ft. from 625 ft. to 627.5 feet.								

ALGOMA ORE PROPERTIES

DIVISION OF

THE ALGOMA STEEL CORPORATION, LIMITED

EXPLORATION DEPARTMENT

DIAMOND DRILL HOLE NO. 7-64 PROPERTY Nagagami River

CONTINUED

FOOTAGE	DESCRIPTION	SAMPLING			ANALYSES				
		FROM	TO	REC.					
532 - 812	From 743 to 781.5 and from 808 to 812 the rock is finer grained and changes from a dull pink syenite to a dark green rock that contains nearly 100% green feldspars. These may be more basic sections of the syenite but they are not even weakly magnetic								
	Dip Tests								
	Depth Angle Corrected								
	250 ft. 72 degrees 67 degrees								
	600 " 70 " 65 "								
	797 " 70 " 65 "								

Paul Healy

ALGOMA ORE PROPERTIES

DIVISION OF

THE ALGOMA STEEL CORPORATION, LIMITED

EXPLORATION DEPARTMENT

DIAMOND DRILL HOLE NO. 5-64 PROPERTY Nagagami River Location #6

LOCATION OF COLLAR Center Base Line 70+00W ELEV.

AZIMUTH AT COLLAR

DIP AT COLLAR 90 degrees

VERTICAL SECTION NO. LENGTH 555 feet CORE SIZE B to 250 feet
A from 250 to 555

REC. IN MIN. ZONE. LOGGED BY P. Leahy STARTED Aug. 16/64 FINISHED Aug. 20/64

FOOTAGE	DESCRIPTION	SAMPLING			ANALYSES				
		FROM	TO	REC.					
0 - 90	Overburden								
90 - 160	Mudstone limy red mudstone, poorly consolidated containing vugs lined with calcite crystals From 115 feet to 160 feet the rock contains bands of gypsum from 1/8 inch to 2 inches in thickness								
160 - 455	Limestone alternating bands of pure grey limestone fossiliferous limestone and impure buff-colored silty limestone								
455 - 472	limy sandstone								
472 - 473	fragments of syenite inchloritic ground-mass								
473 - 519.9	Synodiorite medium grained rock cutby a few small bands of lighter, coarser syenite								
519.9 - 552.5	Syenite massive coarse medium to dark green rock. The rock is almost a unimineral rock composed of green feldspar. Some of the green silicate could possibly be a pyroxene which would make the rock a gabbro All of the core from 473' to 552.5' is very weakly magnetic								
552.5-560	Syenite pink orthoclase syenite								
560	End of Hole								

Dip Tests Done Azimuth Surveyed

Paul Leahy

ALGOMA ORE PROPERTIES

DIVISION OF

THE ALGOMA STEEL CORPORATION, LIMITED

EXPLORATION DEPARTMENT

DIAMOND DRILL HOLE NO. 6-64 PROPERTY Nagagami River Location #6

LOCATION OF COLLAR Center Base Line 121+00W ELEV.

AZIMUTH AT COLLAR

DIP AT COLLAR 90 degrees

VERTICAL SECTION NO. LENGTH 590 feet CORE SIZE B to 250 ft. A from 250ft. - 590ft.

REC. IN MIN. ZONE. LOGGED BY P. Leahy STARTED. August 23/64 FINISHED. Aug. 28/64

FOOTAGE	DESCRIPTION	SAMPLING			ANALYSES				
		FROM	TO	REC.					
0 - 65	Overburden								
65 - 220	Mudstone limy red mudstone, poorly consolidated, containing vugs lined with calcite crystals. From 190 ft. to 220 ft. the core contains bands of sypsum from 1/8" to 2½" in width								
220 - 510	Limestone								
510 - 520	Limy Sandstone								
520 - 543	Syenite from 520 - 524 the rock is altered; the alteration decreasing with depth. Biotite is the major mafic mineral								
543 - 590	Granite coarse granite very similar to the syenite from 520 - 543 but is coarser and contains quartz								

Dip Tests

Depth	Angle	Corrected
250 ft.	90 degrees	90 degrees
560 ft.	89 "	88.5 "

Paul Leahy

ALGOMA ORE PROPERTIES

DIVISION OF

THE ALGOMA STEEL CORPORATION, LIMITED

EXPLORATION DEPARTMENT

DIAMOND DRILL HOLE NO. 8 PROPERTY Nagagami River

LOCATION OF COLLAR Base Line C, 21 + 00 W ELEV.

AZIMUTH AT COLLAR 090°

DIP AT COLLAR 60°

VERTICAL SECTION NO. LENGTH 577' CORE SIZE A x T

REC. IN MIN. ZONE. LOGGED BY J.V.H. STARTED Abandoned Sept.17/64 FINISHED. Sept.22/64

FOOTAGE	DESCRIPTION	SAMPLING			ANALYSES				
		FROM	TO	REC.					
0 - 50	Overburden								
50 - 280	Limestone								
280 - 300	Brick red brecciated, weathered syenite								
300 - 350	Brick red syenite contains chlorite and hornblend crystals, minor magnetite crystals 1/8 - 1/4"								
350 - 390	Same as above but colour changes to pink								
390 - 415	Syenite more dense, lighter in colour, liberal chlorite crystals, smaller and more uniformily distributed.								
415 - 465	Pink pigmatitic syenite, minor magnetite								
465 - 525	Same as 390 - 415								
525 - 569	Pigmatitic syenite								
569 - 577	Syenite								
	End of Hole								

ALGOMA ORE PROPERTIES

DIVISION OF

THE ALGOMA STEEL CORPORATION, LIMITED

EXPLORATION DEPARTMENT

DIAMOND DRILL HOLE NO. 9 PROPERTY Magagami River

LOCATION OF COLLAR Base Line C, 37 + 00 W ELEV.

AZIMUTH AT COLLAR 270°

DIP AT COLLAR 60°

VERTICAL SECTION NO. LENGTH 449' CORE SIZE. A x T

REC. IN MIN. ZONE. LOGGED BY. J.V.H. STARTED. Sept.23/64 FINISHED. Sept.27/64

FOOTAGE	DESCRIPTION	SAMPLING			ANALYSES				
		FROM	TO	REC.					
0 - 50	Overburden								
50 - 270	Syenite, pigmatitic in places								
270 - 310	Weathered appearing, altered syenite 300 - Fluorite								
310 - 426	Syenite								
426 - 433	Fine aplite dike								
433 - 449	Syenite								
	End of Hole								

ALGOMA ORE PROPERTIES DIVISION
THE ALGOMA STEEL CORPORATION, LIMITED

EXPLORATION DEPARTMENT

DETAILED CORE SPLITTING NAGAGAMI RIVER

Core Splitting - Ping Lake

Personnel: J. Gray
E. Hillman

Introduction: February 11th and 14th saw the completion of detail core splitting in Ping Lake.

The purpose of the core splitting was:
(a) Better sample coverage of holes
(b) Detailed samples where previous assays show encouraging signs
(c) Check out on interesting assay of columbium from previous work

Holes split at this time were 5, 6, 7, 8, & 9. Amount split, Sample Numbers and Sample Distances are:

	Sample No.	From - To	Feet
Hole No. 5	2488	473' - 480'	7'
	2489	495 - 500	5'
	2490	520 - 525	5'
	2491	535 - 543.5	8.5'
	2492	550 - 555.1	5.1'
		Total Amount	30.6'
Hole No. 6	2451	519' - 525'	6'
	2452	530' - 541	11'
	2453	555 - 565	10'
	2454	570 - 580	10'
	2455	685 - 690	5'
		Total Amount	42'
Hole No. 7	2456	530' - 535'	5'
	2457	535 - 545	10'
	2458	555 - 565	10'
	2459	570 - 580	10'
	2460	590 - 600	10'
	2461	605 - 615	10'
	2462	620 - 630	10'
	2463	640 - 650	10'
	2464	655 - 665	10'

Detailed Core Splitting Nagagami River
Core Splitting - Ping Lake continued ....

	Sample No.	From - To	Feet
Hole No. 7 cont.	2465	690' - 700'	10'
	2466	695-700' - 725-730'	10
	2467	743.5 - 750	7.5'
	2468	785' - 795'	10'
	2469	705' - 715'	10'
	2470	805' - 812'	7'
	Total Amount		139.5'
Hole No. 8	2471	310' - 320'	10'
	2472	340 - 350	10'
	2473	360 - 365	5'
	2474	370 - 375	5'
	2475	420 - 425	5'
	2476	440 - 450	10'
	2477	460 - 470	10'
	2478	545 - 550	5'
	2479	560 - 567	7'
	2480	500 - 507.5	7.5'
	Total Amount		74.5
Hole No. 9	2481	295' - 300'	5'
	2482	320 - 325	5'
	2483	335 - 345	10'
	2484	360 - 365	5'
	2485	395 - 400	5'
	2486	410 - 420	10'
	2487	425 - 435	10'
	Total Amount		50'

Total amount of core split 336.6 ft.

Rock Types: Rock types split in the above holes were mostly syenite and dike material in some places.
Rock types on either side of contacts were split where contacts were prominant.

Scintillometer Tests: Scintillometer tests were done on the above Diamond Drill Holes. Results were as follows:

(a) Hole No. 5 Background readings were twenty counts
(b) Hole No. 6 Forty counts above background 519' - 590'
Samples in the distance were split.
(c) Hole No. 8 750' - 775' Forty points above background
775' - 800' " " "
Samples were split in this distance.

Detailed Core Splitting Nagagami River
Core Splitting - Ping Lake continued ...

Scintillometer
Tests cont. (d) Hole No. 9 Background readings 20 points

All readings were taken on the 120 scale.

Conclusion: All core samples were sent to Technical Laboratories, Toronto.

All samples will be assayed for columbium.

Certainly obtaining counts with the scintillometer proved most interesting, and results from the assay should prove interesting. Core was left in good order.
Core splitting took one day.

Transportation to and from property was provided by Fred Damboise of Hearst Air Service. Ping Lake is now covered with two feet of slush.

J. Gray.

/jm
March 11, 1965.

J. Gray

• CHEMICAL RESEARCH AND ANALYSIS
• INSTRUMENT SALES AND SERVICE

TECHNICAL SERVICE LABORATORIES
DIVISION OF BURGENER TECHNICAL ENTERPRISES LIMITED
355 KING ST. W., TORONTO 2B, ONT., CANADA
TELEPHONE: 362-4848 — AREA 416

Representing . . .
JARRELL-ASH COMPANY
HILGER & WATTS LIMITED
BADTLER RESEARCH
ULTRA CARBON CORPORATION

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM Algoma Ore Properties Division

REPORT NO.
A-11776
T-2413

SAMPLE(S) OF DRILL CORE

Hole No. 5 (cont'd)	Columbium (Cb_2O_5)
2489 A	.05
2490 A	.02
2491 A	.02
2492 A	.02

Pulps and rejects are stored for 6 months, then discarded.

DATE March 2, 1965

SIGNED [signature]

ALGOMA ORE PROPERTIES
EXPLORATION DEPT.
PLEASE CIRCULATE WITHOUT DELAY
J.V.H. ✓
V.R.V. V.R.V.
D.J.T. ✓

Magagame

• CHEMICAL RESEARCH AND ANALYSIS
• INSTRUMENT SALES AND SERVICE

T S L

TECHNICAL SERVICE LABORATORIES
DIVISION OF BURGENER TECHNICAL ENTERPRISES LIMITED
[redacted] TORONTO 2B, ONT., CANADA
TELEPHONE: 362-4248 – AREA 416

Representing . . .
JARRELL-ASH COMPANY
BURGENER & WATTS LIMITED
SADDLEN RESEARCH
ULTRA CARBON CORPORATION

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM: Algoma Ore Properties Division,
Exploration Department,
Cornwall Building,
Sault Ste. Marie, Ontario.
Attn: Mr. John Gray.

REPORT NO.
A-11776
T-2411

SAMPLE(S) OF: DRILL CORE

Sample No.	Columbium (Cb_2O_5)
Hole No. 6	
2451 A	.04
2452 A	.04
2453 A	.03
2454 A	.04
2455 A	.03
Hole No. 7	
2456 A	.02
2457 A	.02
2458 A	.03
2459 A	.03
2460 A	.02
2461 A	.03
2462 A	.04
2463 A	.04
2464 A	.03
2465 A	.02
2466 A	.02
2467 A	.01
2468 A	.02
2469 A	.03
2470 A	.01

DATE: March 1, 1965

SIGNED: E. Lewis McAdams

• CHEMICAL RESEARCH AND ANALYSIS
• INSTRUMENT SALES AND SERVICE

TECHNICAL SERVICE LABORATORIES
DIVISION OF BURGENER TECHNICAL ENTERPRISES LIMITED
355 KING ST. W., TORONTO 2B, ONT., CANADA
TELEPHONE: 362-4248 — AREA 416

Representing...
JARRELL-ASH COMPANY
KIPP & ZONEN N.V.
SARGENT RESEARCH
UNION CARBON CORPORATION

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM Algoma Ore Properties Division

REPORT NO.
A-11776
T-2411

SAMPLE(S) OF DRILL CORE

Sample No.	Columbium (Cb_2O_5)
Hole No. 8	
2471	.02
2472	.02
2473	.03
2474	.04
2475	.02
2476	.02
2477	.03
2478	.02
2479	.02
2480	.03
Hole No. 9	
2481	.03
2482	.03
2483	.03
2484	.04
2485	.04
2486	.03
2487	.06
Hole No. 5	
2488	.04

DATE March 1, 1965

SIGNED Dennis Madsen

Pulps and rejects are stored for 6 months, then discarded.

ALGOMA ORE PROPERTIES DIVISION
THE ALGOMA STEEL CORPORATION, LIMITED

PETROGRAPHIC AND SPECTROGRAPHIC ANALYSES

D.D.H.	FOOTAGE	SAMPLE NO.	REMARKS
1		4213	Petrographic Analysis
2			
3			
4	495 - 500	4243	Spectrographic Analysis
	637.5 - 642.5	4244	" "
		4245	" "
		4246	" "
	575	4247	" "
	650	4228	" "
		4229	" "
	643	4230	" "
5	522	4235	" "
	510	4236	" "
	522	4237	Petrographic Analysis
	510	4238	" "
7		4242	" "
8	243	2256	Spectrographic Analysis
	330	2257	" "
	457.5	2258	" "
	536	2259	" "
	555	2260	" "
	295 - 300	2271	" "
	325	2266	Petrographic Analysis
	525	2268	" "
9	315	2261	Spectrographic Analysis
	378	2262	" "
	420	2263	" "
	428	2264	" "
	330	2269	Petrographic Analysis
	408	2270	" "

April 13, 1965.

DEPARTMENT OF MINES
LABORATORIES BRANCH

C 10898

CERTIFICATE OF ASSAY

The following results have been obtained on samples submitted by:

Algoma Ore Properties, Exploration Dept.,Sault Ste. Marie, Ont.

THIN SECTION STUDY

A hand specimen and petrographic description on your sample (Exploration Sample # 4213) has been performed and the results are given below.

The hand specimen is a fine-to-medium grained syenitic rock composed largely of pinkish feldspar, a green alteration product, and black magnetite.

The results of a petrographic modal analysis gave:

Feldspar	- 55%	Carbonate	- 9%
Biotite	- 12%	Quartz	- 3%
Magnetite	- 4%	Green alteration	- 18%

The mineralogy of the rock is given below:

Feldspar - From the modal analysis, feldspar occupies about 55% of the rock volume. It occurs as subhedral and rarely euhedral crystals. Within the feldspar are altered areas of sericite forming bands or thin streaks. The feldspar has a refractive index less than 1.54 and is biaxial (+) and is likely an alkali feldspar with the sericite alteration replacing a more basic (calcic) phase.

Alteration Products - The greenish alteration phase occupies about 18% of the rock volume. It occurs as semi-opaque clouded masses that are optically amorphous. It is supposed that this is the result of weathering of a primary mafic mineral such as olivine or a pyroxene. A few relict equidimensional crystal outlines which have been altered to this greenish alteration product (serpentine ?) and iron oxide are present and from their appearance they are likely altered olivine crystals.

Biotite - Biotite occupies about 12% of the rock where it occurs as long ragged crystals up to 1.5 mm. in length. On occasion, it surrounds the magnetite.

Fees received for above $.....

Continued on Sheet #1.

Date August 5 19 64

(D. A. Moddle.)
Provincial Assayer

Carbonate, Quartz and Ore - These three constituents occupy 9%, 3% and 4% by volume respectively. The carbonate forms seams and small patches within the feldspar and is secondary in origin. The quartz is interstitial to the feldspar. The magnetite forms irregular grains usually associated with the biotite.

Some unaltered apatite crystals were also seen.

CONCLUSIONS

The rock exhibits a granitic texture. This, and the presence of apatite indicates an igneous origin. The rock has undergone a considerable amount of alteration which precludes the determination of the original mineralogy. If it is assumed that all the green alteration resulted from the breakdown of original mafic minerals (olivine and pyroxene), this in addition to the virtual absence of quartz and the large amount of alkali feldspar would classify this rock as an olivine-bearing syenite.

The indicated presence of olivine suggests an unusual variety of syenite. However, the highly altered nature of the mafic constituents makes such conclusions tentative.

D. A. Moddle,
Chief, Laboratory Branch.

August 5, 1964.

DDH #5 - 622'

ONTARIO

ALGOMA ORE PROPERTIES
EXPLORATION DEPT.
PLEASE CIRCULATE WITHOUT DELAY
J.V.H.
V.R.V.
D.J.T.

DEPARTMENT OF MINES

LABORATORIES BRANCH

C 11271

CERTIFICATE OF ASSAY

The following results have been obtained on samples submitted by:

Algoma Ore Properties, Cornwall Building, Sault Ste. Marie, Ont.

Your Order 92245

PETROGRAPHIC EXAMINATION

Sample 4237 A

(a) Hand Specimen - Green medium-grained feldspathic rock.

(b) Thin Section - The mineral present and their estimated quantities are listed below.

perthite	80%
quartz	10%
fayalite	5%
allanite, fluorite, magnetite, (pyrochlore?)	5%

The outstanding textural feature is the well developed subhedral crystals of perthite consisting of alternating parallel bands of microcline and albite. In places, twinning according to the Carlsbad law was observed. The perthite is medium-grained varying from 1 to 3 mm. in size. Minor alteration in this mineral is responsible for the green colour of the rock.

The only other essential minerals of note are quartz and fayalite. They occur interstitial to the perthite in small irregular grains about 0.5 mm. in size. The fayalite was identified from its refractive index and other optical properties. The occurrence of this iron-rich olivene is not unusual in syenites, although the magnesium rich olivene is usually restricted to basic and ultrabasic rocks.

The accessory minerals, fluorite, allanite, magnetite and possibly pyrochlore are disseminated through the rock in small anhedral grains and crystals 0.1 mm. and less in size. Some of the allanite crystals display microscopic cracks radiating outward into its surroundings, a feature commonly observed in radioactive minerals.

The rock could be classified as a quartz syenite.

Continued on Sheet #1.

Fees received for above $.....

Date December 29 *19* 64

(D. A. Moddle)
Provincial Assayer

Algoma Ore Properties

Sheet #1 to be attached to Certificate
C 11271

DDH A5 - 510'

Your Order
92245

Sample # 4238 A

(a) Hand Specimen - Green medium-grained crystalline rock consisting of light coloured feldspar and dark-green-to-black mafic minerals.

(b) Thin Section - The minerals present are listed below with their estimated quantities:

albite	60%
brown hornblende . . .	20%
green pyroxene	15%
apatite)	.
magnetite)	5%

The rock has a medium-to-coarse-grained texture with predominating subhedral grains of untwinned albite from 1 to 2 mm. in size.

Pyroxene and hornblende occur interstitially as anhedral grains ranging downward in size from 0.5 mm. There is no evidence of secondary replacement. The pyroxene displays slightly better crystal development, but the two mafic minerals appear to be more or less contemporaneous.

Fine-grained apatite and opaque isometric grains believed to be magnetite are disseminated throughout the rock.

The specimen could be classified as hornblende-pyroxene syenite.

D. A. Moddle,
Director, Laboratory Branch.

December 29, 1964

ONTARIO

DEPARTMENT OF MINES

LABORATORIES BRANCH

C 11277

CERTIFICATE OF ASSAY

The following results have been obtained on samples submitted by:

Algoma Ore Properties, Exploration Dept., Sault Ste. Marie, Ont.

YOUR ORDER # 92245

THIN SECTION EXAMINATION

Sample # 4242 A

Hand Specimen - The rock is coarse-grained and dark-green in colour. The chief minerals are feldspar and minor mafics.

Thin Section - The minerals identified in the rock are listed below along with their estimated quantities:

perthite	= 65%	Biotite	= 1%
green pyroxene	= 15%	serpentine	= 1%
fayalite	= 10%	apatite	= 1%
brown hornblende	= 5%	magnetite	= 2%

In texture, the rock is coarse-grained. The constituent minerals are anhedral. The predominant mineral is coarse patch perthite 5 mm. or more in size. This consists of irregularly shaped blebs of potassic feldspar disseminated through the sodic variety. The former displays minor alteration which is responsible for the green colour of the rock.

The primary mafic minerals are coarse anhedral grains of pyroxene and fayalite. They usually occur in contact with one another, rather than as isolated grains. The pyroxene shows patchy alteration to brown hornblende. Locally, near the outer boundaries of the grains, minor biotite occurs.

The fayalite is relatively fresh, except for small quantities of serpentine at the borders of some of the grains.

Apatite, occurring as well-formed hexagonal crystals, and anhedral magnetite are the chief accessories. They are found entirely within the mafic minerals.

The rock could be classified as a syenite.

Fees received for above $.....

Date January 5 1964

W. A. Moddle (D. A. Moddle)

Provincial Assayer

ALGOMA ORE PROPERTIES
EXPLORATION DEPT.
PLEASE CIRCULATE WITHOUT DELAY
J.V.T. J.V.T.
V.R.V.
D.J.T. D.J.T.

Nagagami

ONTARIO

DEPARTMENT OF MINES

LABORATORIES BRANCH

C 11306

CERTIFICATE OF ASSAY

The following results have been obtained on samples submitted by:

Algoma Ore Properties, Exploration Division,, Cornwall Bldg., Sault Ate. Marie, Ontario

SUMMARY

The following rock samples (Nos. 2266, 2268, 2269, 2270) were examined in thin section. Despite differences in texture and mineralogy, they were observed to have certain common characteristics:

(a) Members of the syenite family.
(b) Coarse-grained.
(c) Characterized by predominant, well-developed perthite.
(d) Alteration products of nepheline. (ex. 2268)

Sample # 2266

Hand Specimen - Coarse syenite showing considerable decomposition and hematite staining.

Thin Section - Coarse anhedral grains of perthite up to 5 mm. in diameter make up the predominant part of the rock comprising 90% of the mineral content.

Hematite occurs as interstitial material as well as occupying joint and cleavage fractures in the feldspar. In addition, this mineral permeates the coarse feldspar producing a pale-reddish, cloudy alteration.

The only other minerals worthy of note are calcite and fresh secondary feldspar, occurring together as material filling a series of parallel fractures in the rock. Minor hydronephelite was also noted. Secondary feldspar and calcite constitute only about 1 to 2% of the rock.

Classification - Altered perthite syenite.

Sample # 2268

Hand Specimen - Coarse-grained syenite with disseminated dark-green mafic material.

Thin Section - The principal minerals and their approximate quantities are

Continued on Sheet # 1

Fees received for above $.....

Date January 19 19 65

D. A. Moddle (D. A. Moddle)
Provincial Assayer

Sample # 2 continued.

listed below:

Feldspar (perthite)	70%
Magnetite	10%
Chlorite	5%
Hornblende	10%
Calcite, fluorite and apatite	5%

The texture is coarse-grained. The perthite occurs in large anhedral grains 5 mm. or more in size.

The dark-green mafics are aggregates of magnetite, chlorite, hornblende, calcite, fluorite and apatite. The relationship of these minerals is not clear due to the fact that they disintegrated during the making of the section; however, from a study of the hand specimen and remnants in the section, it appears that hornblende and chlorite have resulted from the alteration of pyroxene, while the magnetite and apatite are closely associated primary accessory minerals. The calcite was subsequently derived from metamorphism.

Classification -Syenite.

Sample # 2269

Hand Specimen - Extremely coarse-grained feldspar syenite with coarse, disseminated light and dark green mafic minerals.

Thin Section - Due to the coarse-grained nature of the rock, the microscope slide did not present a truly representative picture of the rock as some of the mafic material was missing. Consequently additional x-ray and optical work had to be performed in order to identify some of the dark constituents.

The principal minerals identified are listed below:

Feldspar (perthite) -	70%
Hornblende & biotite -	25%
Hydronephelite & hematite -	5%

The testure is coarsely granular, approaching that of pegmatite, with grain sizes of the order of 10 mm. The dark minerals all appear to be interstitial to the feldspar.

The large mafic inclusions, so prominent in the hand specimen, are irregularly-shaped aggregates of dark-green hornblende, light-green hydronephelite and soft reddish-coloured matrolite disseminated within the latter mineral.

Biotite, extremely dark even in thin section, occurs as compact books throughout the rock, frequently close to the hornblende-hydronephelite inclusions.

Minor quantities of hematite also occur through the rock, frequently associated with biotite.

Classification - Altered nepheline syenite.

Sample # 2270

Hand Specimen - Coarse-grained syenite comprising pink feldspar, disseminated hornblende, and light-green hydronephelite.

Thin Section - The chief minerals are listed below:

Feldspar (perthite)	-	60%
Hornblende	-	20%
Hydronephelite and natrolite	-	15%
Biotite and Calcite	-	5%

Coarse-grained perthite is the predominant mineral in subhedral crystals about 5 mm. in diameter.

The mafic constituents are of the same order of grain size as the feldspar. Hornblende and biotite are closely associated with each other. The light-green hydronephelite occurs usually in close proximity to the hornblende. Grains of reddish-coloured natrolite occur similarly. In places this mineral also forms a narrow rim around the outside border of the hydronephelite.

Biotite occurs as coarse isolated books and calcite occurs sporadically as an alteration product.

Classification Altered hornblende-nepheline syenite.

D. A. Moddle

January 19, 1965.

D. A. Moddle,
Director, Laboratory Branch.

DDH

Replacement

Representing . . .
JARRELL-ASH COMPANY
HILGER & WATTS LIMITED
SAMUEL P. SADTLER AND SON
UNITED CARBON PRODUCTS COMPANY

• CHEMICAL REAGENTS AND ANALYSIS
• INSTRUMENT SALES AND SERVICE

TECHNICAL SERVICE LABORATORIES
DIVISION OF BURGENER TECHNICAL ENTERPRISES LIMITED
355 KING ST. W., TORONTO 2B, ONT., CANADA
TELEPHONE : 362-4248

CERTIFICATE OF ANALYSIS

Semiquantitative Spectrographic

SAMPLE(S) FROM Algoma Ore Properties Division,

REPORT NO.
A-11200-4
T-0534

SAMPLE(S) OF DRILL CORE
NAGAGAMI DDH #4 643'

	Sample 4230	Sample	Sample		Sample 4230	Sample	Sample
Antimony	ND			Phosphorus	ND		
Arsenic	ND			Platinum	ND		
Barium	T(.01%)			Rhenium	X		
Beryllium (BeO)	ND			Rhodium	ND		
Bismuth	ND			Rubidium	X		
Boron	FT			Ruthenium	ND		
Cadmium	ND			Silver	FT(2ozs/t)		
Cerium (CeO_2)	ND			Strontium	ND		
Caesium	X			Tantalum (Ta_2O_5)	ND		
Chromium	FT			Tellurium	ND		
Cobalt	T(.05%)			Thallium	T(.01%)		
Columbium (Cb_2O_5)	ND			Thorium (ThO_2)	ND		
Copper	TL(.2%)			Tin	T(.01%)		
Gallium	FT(.001%)			Titanium	TL(.2%)		
Germanium	ND			Tungsten	ND		
Gold	ND			Uranium (U_3O_8)	ND		
Hafnium	ND			Vanadium	T(.01%)		
Indium	ND			Yttrium (Y_2O_3)	ND		
Iridium	ND			Zinc	X		
Lanthanum (La_2O_3)	ND			Zirconium (ZrO_2)	FT		
Lead	TL(.2%)			ROCK FORMING METALS			
Lithium (Li_2O)	ND			Aluminum (Al_2O_3)	MH		
Manganese	LM(1%)			Calcium (CaO)	MH		
Mercury	ND			Iron (Fe)	MH		
Molybdenum	T			Magnesium (MgO)	LM(3%)		
Neodymium (Nd_2O_3)	ND			Silica (SiO_2)	MH		
Nickel	FT			Sodium (Na_2O)	LM		
Palladium	ND			Potassium (K_2O)	LM		

Figures are approximate:

CODE

H — High	— 10 — 100% approx.	LM — Low Medium	— .5 — 5% approx.	FT — Faint Trace	— approx. less than .01%.
MH — Medium High	— 5 — 50% approx.	L — Low	— .1 — 1% approx.	PT — Possible Trace	— Presence not certain.
M — Medium	— 1 — 10% approx.	TL — Trace Low	— .05 — .5% approx.	ND — Not Detected	— Elements looked for but not found.
		T — Trace	— .01 — .1% approx.	X — Not looked for	

DATE August 13th, 1964. SIGNED Edwin Leedham

ACCTLC

Representing . . .
JARRELL ASH COMPANY
HILGER & WATTS LIMITED
SAMUEL P. SADTLER AND SON
UNITED CARBON PRODUCTS COMPANY

• CHEMICAL RESEARCH AND ANALYSIS
• INSTRUMENT SALES AND SERVICE

TECHNICAL SERVICE LABORATORIES
DIVISION OF BURGENER TECHNICAL ENTERPRISES LIMITED
355 KING ST. W., TORONTO 2B, ONT., CANADA
TELEPHONE : 362-4248

CERTIFICATE OF ANALYSIS

Semiquantitative Spectrographic

SAMPLE(S) FROM Algoma Ore Properties Division,
Exploration Dept.,
Cornwall Bldg.,
Sault Ste. Marie, Ontario.

REPORT NO.
A-11288-1
T-0732

SAMPLE(S) OF DRILL CORE

	Sample 4235 522' Amphibolite	Sample 4236 510' Diorite	Sample		Sample 4235	Sample 4236	Sample
Antimony	ND	ND		Phosphorus	ND	ND	
Arsenic	ND	ND		Platinum	ND	ND	
Barium	T	L(.5%)		Rhenium	X	X	
Beryllium (BeO)	FT(<.005%)	ND		Rhodium	ND	ND	
Bismuth	ND	ND		Rubidium	X	X	
Boron	ND	ND		Ruthenium	ND	ND	
[illegible]ium	ND	ND		Silver	ND	ND	
Cerium (CeO_2)	ND	ND		Strontium	ND	TL(.1%)	
Caesium	X	X		Tantalum (Ta_2O_5)	ND	ND	
Chromium	ND	ND		Tellurium	ND	ND	
Cobalt	FT	FT		Thallium	ND	ND	
Columbium (Cb_2O_5)	TL(.1%)	T(.05%)		Thorium (ThO_2)	ND	ND	
Copper	T(.01%)	T(.01%)		Tin	ND	ND	
Gallium	FT	FT		Titanium	L(.5%)	LM(1%)	
Germanium	ND	ND		Tungsten	ND	ND	
Gold	ND	ND		Uranium (U_3O_8)	ND	ND	
Hafnium	ND	ND		Vanadium	T(.01%)	T(.01%)	
Indium	ND	ND		Yttrium (Y_2O_3)	FT	FT	
Iridium	ND	ND		Zinc	ND	ND	
Lanthanum (La_2O_3)	ND	ND		Zirconium (ZrO_2)	T(.05%)	T(.02%)	
Lead	FT	FT		ROCK FORMING METALS			
Lithium (Li_2O)	ND	ND		Aluminum (Al_2O_3)	MH	MH	
Manganese	T(.05%)	TL(.1%)		Calcium (CaO)	LM(2%)	MH	
Mercury	ND	ND		Iron (Fe)	LM(2%)	M(5%)	
Molybdenum	T(.01%)	FT(.005%)		Magnesium (MgO)	L(.5%)	TL(.2%)	
Neodymium (Nd_2O_3)	ND	ND		Silica (SiO_2)	H	H	
Nickel	FT(.001%)	FT(.001%)		Sodium (Na_2O)	MH	MH	
Palladium	ND	ND		Potassium (K_2O)	M	M	

Figures are approximate:

CODE

H — High — 10 — 100% approx.
MH — Medium High — 5 — 50% approx.
M — Medium — 1 — 10% approx.
LM — Low Medium — .5 — 5% approx.
L — Low — .1 — 1% approx.
TL — Trace Low — .05 — .5% approx.
T — Trace — .01 — .1% approx.
FT — Faint Trace — approx. less than .01%.
PT — Possible Trace — Presence not certain.
ND — Not Detected — Elements looked for but not found.
X — Not looked for

DATE September 4th, 1964. SIGNED A. Redden

ACCTLC

CHEMICAL RESEARCH AND ANALYSIS
INSTRUMENT SALES AND SERVICE

Representing . . .
JARRELL-ASH COMPANY
HILGER & WATTS LIMITED
SAMUEL P. BADTLER AND SON
UNITED CARBON PRODUCTS COMPANY

TECHNICAL SERVICE LABORATORIES
DIVISION OF BURGENER TECHNICAL ENTERPRISES LIMITED
355 KING ST. W., TORONTO 2B, ONT., CANADA
TELEPHONE: 362-4246

CERTIFICATE OF ANALYSIS

Semiquantitative Spectrographic

SAMPLE(S) FROM Algoma Ore Properties Division,
Exploration Dept.,
Cornwall Bldg.,
Sault Ste. Marie, Ont.

REPORT NO.
A-11200-4
T-0534

SAMPLE(S) OF Nagagami DRILL CORE

	Sample 4227 syenite 375	Sample 4228 med grained 630 syenite	Sample 4229 syenite mag. rich		Sample 4227	Sample 4228	Sample 4229
Antimony	ND	ND	ND	Phosphorus	ND	ND	ND
Arsenic	ND	ND	ND	Platinum	ND	ND	ND
Barium	T(.05%)	T(.03%)	T(.02%)	Rhenium	X	X	X
Beryllium (BeO)	ND	ND	ND	Rhodium	ND	ND	ND
Bismuth	ND	ND	ND	Rubidium	X	X	X
Boron	FT	FT	FT	Ruthenium	ND	ND	ND
Cadmium	ND	ND	ND	Silver	ND	ND	ND
Cerium (CeO_2)	ND	ND	ND	Strontium	ND	ND	ND
Caesium	X	X	X	Tantalum (Ta_2O_5)	ND	ND	ND
Chromium	FT	FT	FT	Tellurium	ND	ND	ND
Cobalt	T(.01%)	T(.01%)	T(.01%)	Thallium	ND	ND	ND
Columbium (Cb_2O_5)	ND	ND	ND	Thorium (ThO_2)	ND	ND	ND
Copper	TL(.1%)	T(.05%)	T(.02%)	Tin	T(.01%)	T(.01%)	T(.01%)
Gallium	T(.01%)	T(.01%)	T(.01%)	Titanium	LM(2-3%)	LM(2%)	LM(2%)
Germanium	ND	ND	ND	Tungsten	ND	ND	ND
Gold	ND	ND	ND	Uranium (U_3O_8)	ND	ND	ND
Hafnium	ND	ND	ND	Vanadium	ND	T(.01%)	FT
Indium	ND	ND	ND	Yttrium (Y_2O_3)	FT	ND	ND
Iridium	ND	ND	ND	Zinc	ND	ND	ND
Lanthanum (La_2O_3)	ND	ND	ND	Zirconium (ZrO_2)	T(.05%)	T(.01%)	T(.02%)
Lead	T(.01%)	T(.01%)	T(.01%)	ROCK FORMING METALS			
Lithium (Li_2O)	ND	ND	ND	Aluminum (Al_2O_3)	H	H	MH
Manganese	TL(.2%)	TL(.1%)	TL(.3%)	Calcium (CaO)	M	M	M
Mercury	ND	ND	ND	Iron (Fe)	MH	M	M
Molybdenum	T	T	T	Magnesium (MgO)	LM(1%)	LM(1%)	LM(2%)
Neodymium (Nd_2O_3)	ND	ND	ND	Silica (SiO_2)	H	H	H
Nickel	FT	FT	FT	Sodium (Na_2O)	MH	MH	MH
Palladium	ND	ND	ND	Potassium (K_2O)	MH	MH	M

Figures are approximate:

CODE

H — High — 10 — 100% approx.
MH — Medium High — 5 — 50% approx.
M — Medium — 1 — 10% approx.
LM — Low Medium — .5 — 5% approx.
L — Low — .1 — 1% approx.
TL — Trace Low — .05 — .5% approx.
T — Trace — .01 — .1% approx.
FT — Faint Trace — approx. less than .01%.
PT — Possible Trace — Presence not certain.
ND — Not Detected — Elements looked for but not found.
X — Not looked for

DATE August 13th, 1964.

SIGNED Edwin Landau

TECHNICAL SERVICE LABORATORIES

355 KING ST. W., TORONTO 2B, ONT., CANADA

TELEPHONE 362-4248

Representing ...

CERTIFICATE OF ANALYSIS

Semiquantitative Spectrographic

SAMPLE(S) FROM Algoma Ore Properties Division,

REPORT NO.
A-11390-1
T-0926

SAMPLE(S) OF DRILL CORE

	Sample 424.6 ft	Sample	Sample		Sample 424.6 ft	Sample	Sample
Antimony	ND			Phosphorus	ND		
Arsenic	ND			Platinum	ND		
Barium	TL(.1%)			Rhenium	X		
Beryllium (BeO)	FT			Rhodium	ND		
Bismuth	ND			Rubidium	X		
Boron	ND			Ruthenium	ND		
Cadmium	ND			Silver	ND		
Cerium (CeO_2)	ND			Strontium	T		
Caesium	X			Tantalum (Ta_2O_5)	ND		
Chromium	FT			Tellurium	ND		
Cobalt	FT			Thallium	ND		
Columbium (Cb_2O_5)	T(.05%)			Thorium (ThO_2)	ND		
Copper	T(.01%)			Tin	ND		
Gallium	FT			Titanium	L(.5%)		
Germanium	ND			Tungsten	ND		
Gold	ND			Uranium (U_3O_8)	ND		
Halnium	ND			Vanadium	T(.03%)		
Indium	ND			Yttrium (Y_2O_3)	FT		
Iridium	ND			Zinc	ND		
Lanthanum (La_2O_3)	T			Zirconium (ZrO_2)	T(.03%)		
Lead	FT			ROCK FORMING METALS			
Lithium (Li_2O)	ND			Aluminum (Al_2O_3)	MH		
Manganese	T			Calcium (CaO)	LM		
Mercury	ND			Iron (Fe)	M		
Molybdenum	FT(.005%)			Magnesium (MgO)	L		
Neodymium (Nd_2O_3)	ND			Silica (SiO_2)	H		
Nickel	FT			Sodium (Na_2O)	LM		
Palladium	ND			Potassium (K_2O)	M		

Figures are approximate:

CODE

H — High	— 10 — 100% approx.	LM — Low Medium	— .5 — 5% approx.	FT — Faint Trace	— approx. less than .01%.
MH — Medium High	— 5 — 50% approx.	L — Low	— .1 — 1% approx.	PT — Possible Trace	— Presence not certain
M — Medium	— 1 — 10% approx.	TL — Trace Low	— .05 — .5% approx.	ND — Not Detected	— Elements looked for but not found.
		T — Trace	— .01 — .1% approx.	X — Not looked for	

DATE September 22nd, 1964.

SIGNED Edwin Cheesman

ACCTLC

DDH #4

• CHEMICAL RESEARCH AND ANALYSIS
• INSTRUMENT SALES AND SERVICE

TECHNICAL SERVICE LABORATORIES

DIVISION OF BURGENER TECHNICAL ENTERPRISES LIMITED

355 KING ST. W., TORONTO 2B, ONT., CANADA
TELEPHONE: 362-4248

Representing . . .
JARRELL ASH COMPANY
BERGER & WATTS LIMITED
SAMUEL P. SADTLER AND SON
UNITED CARBON PRODUCTS COMPANY

CERTIFICATE OF ANALYSIS

Semiquantitative Spectrographic

SAMPLE(S) FROM Algoma Ore Properties Division,
Exploration Dept.,
Cornwall Plag.,
Sault Ste. Marie, Ontario.

REPORT NO.
A-11390-1
T-0926

SAMPLE(S) OF DRILL CORE

	Sample 4243 A	Sample 4244 A	Sample 4245 A		Sample 4243 A	Sample 4244 A	Sample 4245 A
Antimony	ND	ND	ND	Phosphorus	ND	ND	ND
Arsenic	ND	ND	ND	Platinum	ND	ND	ND
Barium	TL(.1%)	T	T	Rhenium	X	X	X
Beryllium (BeO)	ND	ND	ND	Rhodium	ND	ND	ND
Bismuth	ND	ND	ND	Rubidium	X	X	X
Boron	ND	ND	ND	Ruthenium	ND	ND	ND
Cadmium	ND	ND	ND	Silver	ND	FT(1oz:t)	ND
Cerium (CeO_2)	ND	ND	ND	Strontium	TL(.1%)	T	T
Caesium	X	X	X	Tantalum (Ta_2O_5)	ND	ND	ND
Chromium	FT	FT	FT	Tellurium	ND	ND	ND
Cobalt	FT	FT	FT	Thallium	ND	ND	ND
Columbium (Cb_2O_5)	ND	ND	ND	Thorium (ThO_2)	ND	ND	ND
Copper	T(.01%)	T(.05%)	FT(.005%)	Tin	FT	FT	FT
Gallium	FT	FT	FT	Titanium	LM(3%)	L(.5%)	LM(3%)
Germanium	ND	ND	ND	Tungsten	ND	ND	ND
Gold	ND	ND	ND	Uranium (U_3O_8)	ND	ND	ND
Hafnium	ND	ND	ND	Vanadium	T(.01%)	FT	T(.01%)
Indium	ND	ND	ND	Yttrium (Y_2O_3)	FT	FT	FT
Iridium	ND	ND	ND	Zinc	ND	LM(2%)	ND
Lanthanum (La_2O_3)	ND	ND	T	Zirconium (ZrO_2)	T(.05%)	T(.01%)	T(.05%)
Lead	FT	L(.5%)	FT	ROCK FORMING METALS			
Lithium (Li_2O)	ND	ND	ND	Aluminum (Al_2O_3)	MH	MH	MH
Manganese	TL(.1%)	TL(.2%)	TL(.2%)	Calcium (CaO)	M	MH	LM
Mercury	ND	ND	ND	Iron (Fe)	MH	MH	MH
Molybdenum	T(.01%)	T(.01%)	FT(.005%)	Magnesium (MgO)	LM	LM	LM
Neodymium (Nd_2O_3)	ND	ND	ND	Silica (SiO_2)	H	H	H
Nickel	ND	FT	ND	Sodium (Na_2O)	MH	LM	LM
Palladium	ND	ND	ND	Potassium (K_2O)	M	LM	M

Figures are approximate:

CODE

H — High — 10 — 100% approx.
MH — Medium High — 5 — 50% approx.
M — Medium — 1 — 10% approx.
LM — Low Medium — .5 — 5% approx.
L — Low — .1 — 1% approx.
TL — Trace Low — .05 — .5% approx.
T — Trace — .01 — .1% approx
FT — Faint Trace — approx. less than .01%.
PT — Possible Trace — Presence not certain.
ND — Not Detected — Elements looked for but not found.
X — Not looked for

DATE September 22nd, 1964.

SIGNED Edwin Cullam

ACCTLC Member Canadian Testing Association

Diagram: Rain
D.D.H. 8

• CHEMICAL RESEARCH AND ANALYSIS
• INSTRUMENT SALES AND SERVICE

TECHNICAL SERVICE LABORATORIES
DIVISION OF BURGENER TECHNICAL ENTERPRISES LIMITED
355 KING ST. W., TORONTO 2B, ONT., CANADA
TELEPHONE : 362-4248

Representing . . .
JARRELL-ASH COMPANY
HILGER & WATTS LIMITED
SAMUEL P. SADTLER AND SON
UNITED CARBON PRODUCTS COMPANY

CERTIFICATE OF ANALYSIS

Semiquantitative Spectrographic

ALGOMA ORE PROPERTIES
EXPLORATION DEPT.
PLEASE CIRCULATE WITHOUT DELAY

SAMPLE(S) FROM Algoma Ore Properties Division, Exploration Dept., Cornwall Bldg., Sault Ste. Marie, Ontario.
J.V.H. Dunn
V.R.V.
D.J.T.

REPORT NO.
A-11521
T-1302

SAMPLE(S) OF DRILL CORE

	Sample 2256-A D.D.H. & GRAB SAMPLE 24-3'	Sample 2257-A DDH. & GRAB SAMPLE 330'	Sample 2258-A D.D.H. & 457.5'		Sample 2256-A	Sample 2257-A	Sample 2258-A
Antimony	ND	ND	ND	Phosphorus	ND	ND	ND
Arsenic	ND	ND	ND	Platinum	ND	ND	ND
Barium	T (.01%)	T (.05%)	T (.02%)	Rhenium	ND	ND	ND
Beryllium (BeO)	ND	FT (.001%)	ND	Rhodium	ND	ND	ND
Bismuth	ND	ND	ND	Rubidium	ND	ND	ND
Boron	ND	FT	FT	Ruthenium	ND	ND	ND
Cadmium	ND	ND	ND	Silver	ND	ND	ND
Cerium (CeO_2)	ND	ND	ND	Strontium	ND	ND	ND
Caesium	X	X	X	Tantalum (Ta_2O_5)	ND	ND	ND
Chromium	ND	ND	ND	Tellurium	ND	ND	ND
Cobalt	ND	ND	ND	Thallium	ND	ND	ND
Columbium (Cb_2O_5)	T (.05%)	TL (.3%)	T (.01%)	Thorium (ThO_2)	ND	ND	ND
Copper	TL (.1%)	T (.01%)	FT (.001%)	Tin	ND	ND	ND
Gallium	FT	FT	FT	Titanium	LM (1%)	TL (.1%)	T
Germanium	ND	ND	ND	Tungsten	ND	ND	ND
Gold	ND	ND	ND	Uranium (U_3O_8)	ND	ND	ND
Hafnium	ND	ND	ND	Vanadium	T (.01%)	T (.02%)	T (.01%)
Indium	ND	ND	ND	Yttrium (Y_2O_3)	FT	FT	FT
Iridium	ND	ND	ND	Zinc	ND	ND	ND
Lanthanum (La_2O_3)	TL (.1%)	T	ND	Zirconium (ZrO_2)	T (.02%)	L (.5%)	T (.02%)
Lead	ND	ND	ND	ROCK FORMING METALS			
Lithium (Li_2O)	ND	ND	ND	Aluminum (Al_2O_3)	MH	MH	MH
Manganese	T (.05%)	T (.01%)	T (.01%)	Calcium (CaO)	LM (1%)	LM (1%)	LM (2%)
Mercury	ND	ND	ND	Iron (Fe)	M	M	LM
Molybdenum	T (.01%)	FT (.002%)	FT (.002%)	Magnesium (MgO)	L (.5%)	LM (2%)	LM (2%)
Neodymium (Nd_2O_3)	T (.02%)	ND	ND	Silica (SiO_2)	H	H	H
Nickel	ND	ND	ND	Sodium (Na_2O)	LM	M	LM
Palladium	ND	ND	ND	Potassium (K_2O)	M	MH	M

Figures are approximate:

CODE

H — High — 10 — 100% approx.
MH — Medium High — 5 — 50% approx.
M — Medium — 1 — 10% approx.
LM — Low Medium — .5 — 5% approx.
L — Low — .1 — 1% approx.
TL — Trace Low — .05 — .5% approx.
T — Trace — .01 — .1% approx.
FT — Faint Trace — approx. less than .01%.
PT — Possible Trace — Presence not certain.
ND — Not Detected — Elements looked for but not found.
X — Not looked for

DATE October 27th, 1964.

SIGNED Edwin Wilson

Representing . . .
JARRELL-ASH COMPANY
HILGER & WATTS LIMITED
SAMUEL P. SADTLER AND SON
UNITED CARBON PRODUCTS COMPANY

Engineering Chem. Phys.

L. 211. 8 & 9

• CHEMICAL RESEARCH AND ANALYSIS
• INSTRUMENT SALES AND SERVICE

TECHNICAL SERVICE LABORATORIES
DIVISION OF BURGENER TECHNICAL ENTERPRISES LIMITED
355 KING ST. W., TORONTO 2B, ONT., CANADA
TELEPHONE : 362-4248

CERTIFICATE OF ANALYSIS

ALGOMA ORE PROPERTIES
EXPLORATION DEPT.

Semiquantitative Spectrographic

PLEASE CIRCULATE WITHOUT DELAY

SAMPLE(S) FROM Algoma Ore Properties Division,
Exploration Dept.,
Cornwall Bldg.,
Sault Ste. Marie, Ontario

J.V.H.
V.R.V.
D.J.T.

REPORT NO.
A-11521
T-1302

SAMPLE(S) OF PULP

	Sample 2259-A D.D.H. 8 530'	Sample 2260-A D.D.H 8 555'	Sample 2261-A D.D.H. 9 315'		Sample 2259-A	Sample 2260-A	Sample 2261-A
Antimony	ND	ND	ND	Phosphorus	ND	ND	ND
Arsenic	ND	ND	ND	Platinum	ND	ND	ND
Barium	FT	FT	TL (.2%)	Rhenium	ND	ND	ND
Beryllium (BeO)	ND	ND	ND	Rhodium	ND	ND	ND
Bismuth	ND	ND	ND	Rubidium	ND	ND	ND
Boron	ND	ND	ND	Ruthenium	ND	ND	ND
Cadmium	ND	ND	ND	Silver	ND	ND	ND
Cerium (CeO_2)	ND	ND	ND	Strontium	ND	ND	T
Caesium	X	X	X	Tantalum (Ta_2O_5)	ND	ND	ND
Chromium	ND	ND	ND	Tellurium	ND	ND	ND
Cobalt	ND	ND	ND	Thallium	ND	ND	ND
Columbium (Cb_2O_5)	T (.02%)	T (.02%)	T (.02%)	Thorium (ThO_2)	ND	ND	ND
Copper	FT (.001%)	FT (.001%)	FT (.001%)	Tin	ND	ND	ND
Gallium	FT	FT	FT	Titanium	L (.5%)	TL (.2%)	LM (1%)
Germanium	ND	ND	ND	Tungsten	ND	ND	ND
Gold	ND	ND	ND	Uranium (U_3O_8)	ND	ND	ND
Hafnium	ND	ND	ND	Vanadium	T (.01%)	T (.01%)	FT
Indium	ND	ND	ND	Yttrium (Y_2O_3)	FT	FT	FT
Iridium	ND	ND	ND	Zinc	ND	ND	ND
Lanthanum (La_2O_3)	ND	ND	T	Zirconium (ZrO_2)	T (.01%)	T (.02%)	T (.03%)
Lead	ND	ND	ND	**ROCK FORMING METALS**			
Lithium (Li_2O)	ND	ND	ND	Aluminum (Al_2O_3)	MH	MH	MH
Manganese	T (.01%)	T (.05%)	T (.05%)	Calcium (CaO)	LM (2%)	M (5%)	LM (2%)
Mercury	ND	ND	ND	Iron (Fe)	LM	M	M
Molybdenum	FT (.002%)	FT (.001%)	FT (.001%)	Magnesium (MgO)	T	T	LM (1%)
Neodymium (Nd_2O_3)	ND	ND	ND	Silica (SiO_2)	H	H	H
Nickel	ND	ND	ND	Sodium (Na_2O)	LM	LM	LM
Palladium	ND	ND	ND	Potassium (K_2O)	M	M	MH

Figures are approximate:

CODE

H — High — 10 — 100% approx.
MH — Medium High — 5 — 50% approx.
M — Medium — 1 — 10% approx.
LM — Low Medium — .5 — 5% approx.
L — Low — .1 — 1% approx.
TL — Trace Low — .05 — .5% approx.
T — Trace — .01 — .1% approx.
FT — Faint Trace — approx. less than .01%.
PT — Possible Trace — Presence not certain.
ND — Not Detected — Elements looked for but not found.
X — Not looked for

DATE October 27th, 1964.

SIGNED

Representing . . .
JARRELL-ASH COMPANY
HILGER & WATTS LIMITED
SAMUEL P. SADTLER AND SON
UNITED CARBON PRODUCTS COMPANY

TECHNICAL SERVICE LABORATORIES

DIVISION OF BOSWELL TECHNICAL ENTERPRISES LIMITED

355 KING ST. W., TORONTO 2B, ONT., CANADA

TELEPHONE : 362-4248

CERTIFICATE OF ANALYSIS

Semiquantitative Spectrographic

ALGOMA ORE PROPERTIES
EXPLORATION DEPT.

PLEASE CIRCULATE WITHOUT DELAY
J.V.H.
V.R.V.
D.J.T.

SAMPLE(S) FROM Algoma Ore Properties Division,
Exploration Dept.,
Cornwall Bldg.,
Sault Ste. Marie, Ontario.

SAMPLE(S) OF DRILL CORE

REPORT NO.
A-11521
T-1302

	Sample 2262-A D.D.H 9 3'8"	Sample 2263-A D.D.H 9 4'0"	Sample 2264-A D.D.H 9 4'8"		Sample 2262-A	Sample 2263-A	Sample 2264-A
Antimony	ND	ND	ND	Phosphorus	ND	ND	ND
Arsenic	ND	ND	ND	Platinum	ND	ND	ND
Barium	TL(.2%)	TL(.2%)	T (.01%)	Rhenium	X	X	X
Beryllium (BeO)	ND	ND	FT(<.001%)	Rhodium	ND	ND	ND
Bismuth	ND	ND	ND	Rubidium	X	X	X
Boron	ND	ND	ND	Ruthenium	ND	ND	ND
Cadmium	ND	ND	ND	Silver	ND	ND	ND
Cerium (CeO_2)	ND	ND	ND	Strontium	FT	T	ND
Caesium	X	X	X	Tantalum (Ta_2O_5)	ND	ND	ND
Chromium	ND	ND	ND	Tellurium	ND	ND	ND
Cobalt	ND	ND	ND	Thallium	ND	ND	ND
Columbium (Cb_2O_5)	T(.05%)	T (.01%)	T(.05%)	Thorium (ThO_2)	ND	ND	ND
Copper	FT (.001%)	FT(.001%)	T (.01%)	Tin	ND	ND	ND
Gallium	FT	FT	FT	Titanium	L (.5%)	L(.5%)	TL(.2%)
Germanium	ND	ND	ND	Tungsten	ND	ND	ND
Gold	ND	ND	ND	Uranium (U_3O_8)	ND	ND	ND
Hafnium	ND	ND	ND	Vanadium	FT	ND	FT
Indium	ND	ND	ND	Yttrium (Y_2O_3)	FT	FT	FT
Iridium	ND	ND	ND	Zinc	ND	ND	ND
Lanthanum (La_2O_3)	T (.02%)	T (.01%)	T (.05%)	Zirconium (ZrO_2)	TL(.1%)	T(.02%)	T(.02%)
Lead	ND	ND	ND	**ROCK FORMING METALS**			
Lithium (Li_2O)	ND	ND	ND	Aluminum (Al_2O_3)	MH	MH	MH
Manganese	T (.05%)	T (.05%)	T (.02%)	Calcium (CaO)	LM(2%)	LM (2%)	LM(1%)
Mercury	ND	ND	ND	Iron (Fe)	LM(3%)	LM(3%)	LM(1%)
Molybdenum	FT(.002%)	FT(.002%)	FT(.005%)	Magnesium (MgO)	LM(1%)	L(.5%)	T
Neodymium (Nd_2O_3)	T	ND	ND	Silica (SiO_2)	H	H	H
Nickel	ND	ND	ND	Sodium (Na_2O)	LM	LM	M
Palladium	ND	ND	ND	Potassium (K_2O)	M	M	M

Figures are approximate:

CODE

H — High — 10 — 100% approx.
MH — Medium High — 5 — 50% approx.
M — Medium — 1 — 10% approx.
LM — Low Medium — .5 — 5% approx.
L — Low — .1 — 1% approx.
TL — Trace Low — .05 — .5% approx.
T — Trace — .01 — .1% approx.
FT — Faint Trace — approx. less than .01%.
PT — Possible Trace — Presence not certain.
ND — Not Detected — Elements looked for but not found.
X — Not looked for

DATE October 27th, 1964.

SIGNED

ACCTLC
Member Canadian Testing Association

CHEMICAL RESEARCH AND ANALYSIS
INSTRUMENT SALES AND SERVICE

TECHNICAL SERVICE LABORATORIES

DIVISION OF INTERNATIONAL CHEMICAL ENGINEERS LIMITED

355 KING ST. W., TORONTO 2B, ONT., CANADA

TELEPHONE : 362-4248

CERTIFICATE OF ANALYSIS

ALGOMA ORE PROPERTIES
EXPLORATION DEPT.

Semiquantitative Spectrographic

PLEASE CIRCULATE WITHOUT DELAY
J.V.H.
V.R.V.
D.J.T.

REPORT NO.
A-11329
T-1335

SAMPLE(S) FROM Algoma Ore Properties Div. Exploration Dept., Cormall Bldg., Sault Ste. Marie, Ontario

SAMPLE(S) OF DRILLCORE

	Sample 2271-A 295 [illegible]	Sample	Sample		Sample 2271-A	Sample	Sample
Antimony	ND			Phosphorus	ND		
Arsenic	ND			Platinum	ND		
Barium	T (.05%)			Rhenium	X		
Beryllium (BeO)	ND			Rhodium	ND		
Bismuth	ND			Rubidium	X		
Boron	ND			Ruthenium	ND		
Cadmium	ND			Silver	ND		
Cerium (CeO_2)	TL (.2%)			Strontium	FT		
Caesium	X			Tantalum (Ta_2O_5)	ND		
Chromium	ND			Tellurium	ND		
Cobalt	ND			Thallium	ND		
Columbium (Cb_2O_5)	T (.05%)			Thorium (ThO_2)	ND		
Copper	FT (.0005%)			Tin	ND		
Gallium	FT			Titanium	LM (1%)		
Germanium	ND			Tungsten	ND		
Gold	ND			Uranium (U_3O_8)	ND		
Hafnium	ND			Vanadium	T (.01%)		
Indium	ND			Yttrium (Y_2O_3)	FT		
Iridium	ND			Zinc	ND		
Lanthanum (La_2O_3)	L (.5%)			Zirconium (ZrO_2)	TL (.1%)		
Lead	ND			ROCK FORMING METALS			
Lithium (Li_2O)	ND			Aluminum (Al_2O_3)	MH		
Manganese	T (.02%)			Calcium (CaO)	LM		
Mercury	ND			Iron (Fe)	M		
Molybdenum	FT (.003%)			Magnesium (MgO)	LM		
Neodymium (Nd_2O_3)	TL (.1%)			Silica (SiO_2)	H		
Nickel	ND			Sodium (Na_2O)	LM		
Palladium	ND			Potassium (K_2O)	MH		

Figures are approximate:

CODE

H — High — 10 — 100% approx.
MH — Medium High — 5 — 50% approx.
M — Medium — 1 — 10% approx.
LM — Low Medium — .5 — 5% approx.
L — Low — .1 — 1% approx.
TL — Trace Low — .05 — .5% approx.
T — Trace — .01 — .1% approx
FT — Faint Trace — approx. less than .01%.
PT — Possible Trace — Presence not certain.
ND — Not Detected — Elements looked for but not found.
X — Not looked for

DATE October 29th, 1964.

SIGNED [signature]

DEPARTMENT OF LANDS AND FORESTS

KAPUSKASING, ONTARIO

ROGERS ROAD

83.1-41

TO ALBANY RIVER & JAMES BAY

I.R. No. 66
English River Post

ASH RIVER

LITTLE ASH RIVER

RIVER

KENOGAMI RIVER

PAGWACHUAN RIVER

OTASAWIAN RIVER

NAGAGAMI RIVER

KABINAKAGAMI RIVER

SQUIRREL RIVER

RIDGE RIVER

FOX RIVER

LIMESTONE RAPIDS

16M

10M

Crown Reserve

I.R. No. 92

BURRELL | ROWLANDSON

SHUEL | MULLOY | FINTRY | AUDEN | ROGERS | STODDART

KOHLER | McCOIG | McMILLAN | GILL | STUDHOLME

MERCER | CROSS | ARNOTT | STOREY | NASSAU | IRISH

NO. 11 HIGHWAY

C.N.R.

ROAD

FITOPIKA RIVER

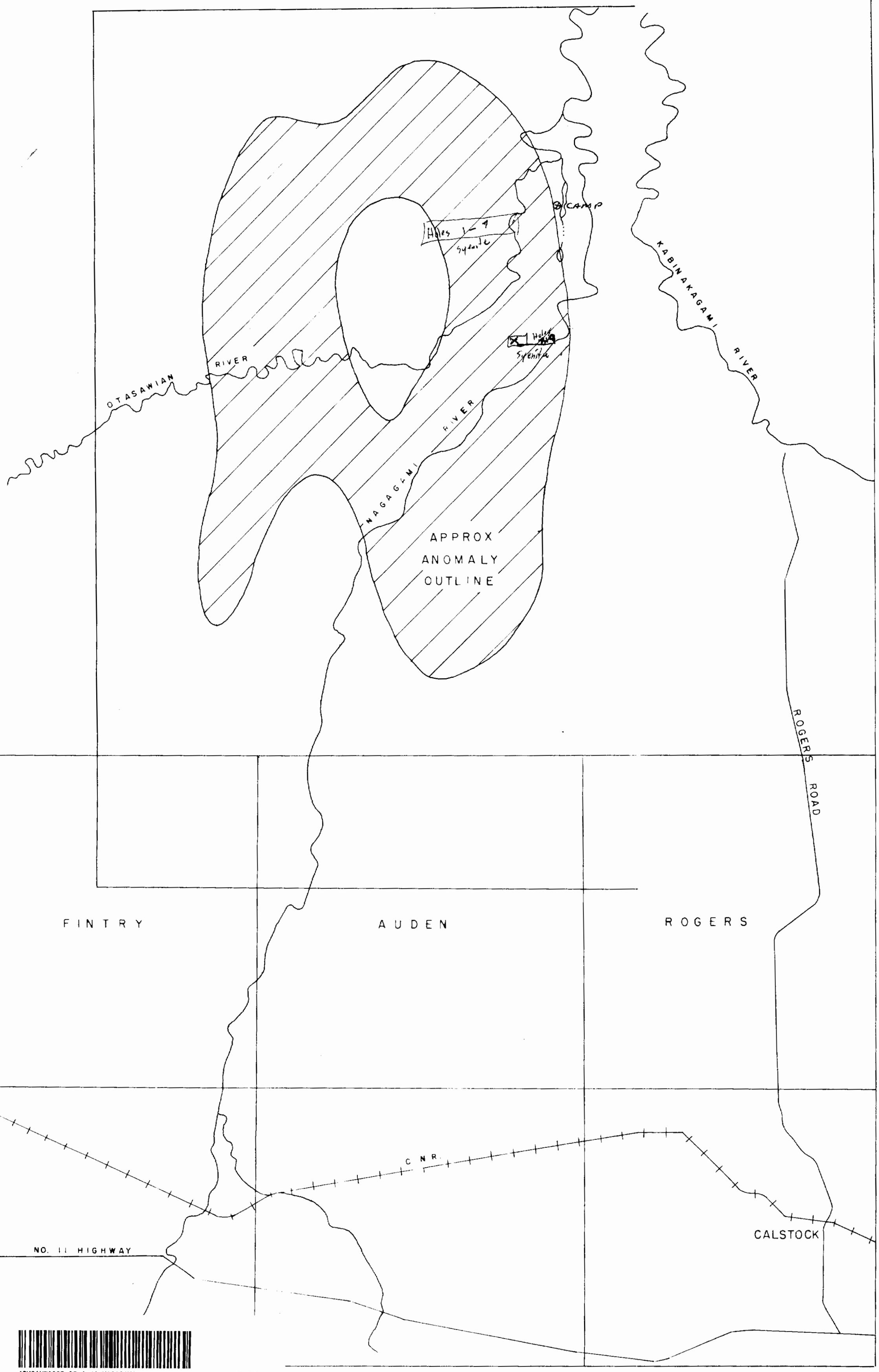
FRASER RIVER

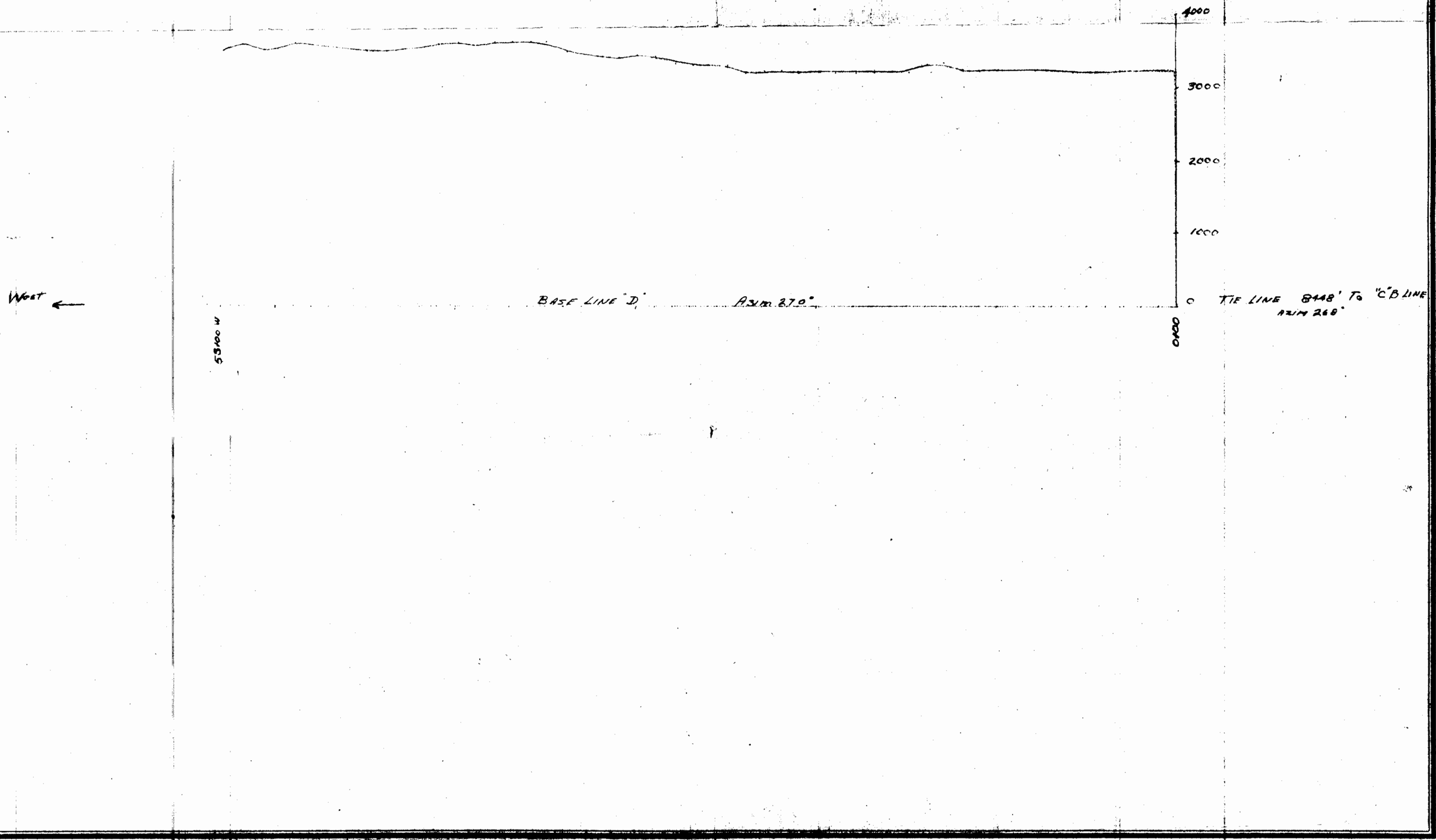
HORNEPAYNE RIVER

SHEKAK RIVER

Scale 2 Miles to 1 Inch

SCALE: 1 INCH = 2 MILES





ALGOMA ORE PROPERTIES LIMITED
EXPLORATION DEPARTMENT

Horizontal Scale 1" = 400'

Vertical Scale 1" = 1000 gammas

NAGAGAMI RIVER SOUTHERN RING COMPLEX

Magnetic Profile over Base Line "D"

ALGOMA ORE PROPERTIES

AIRBORNE MAGNETOMETER SURVEY

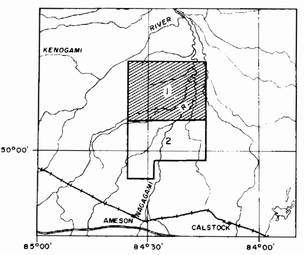
CONTOUR INTERVAL ..... 20 GAMMA
MEAN FLIGHT LINE SPACING ..... 1320 FEET
MEAN TERRAIN CLEARANCE ..... 300 FEET
500 GAMMA CONTOUR .....
100 GAMMA CONTOUR .....
20 GAMMA CONTOUR .....
MAGNETIC LOW .....
FIDUCIAL POINTS ..... 3690 O
FLIGHT LINES .....

NAGAGAMI RIVER AREA

ONTARIO

Flown and compiled by
HUNTING SURVEY CORPORATION LIMITED
Toronto, Canada
1963-1964

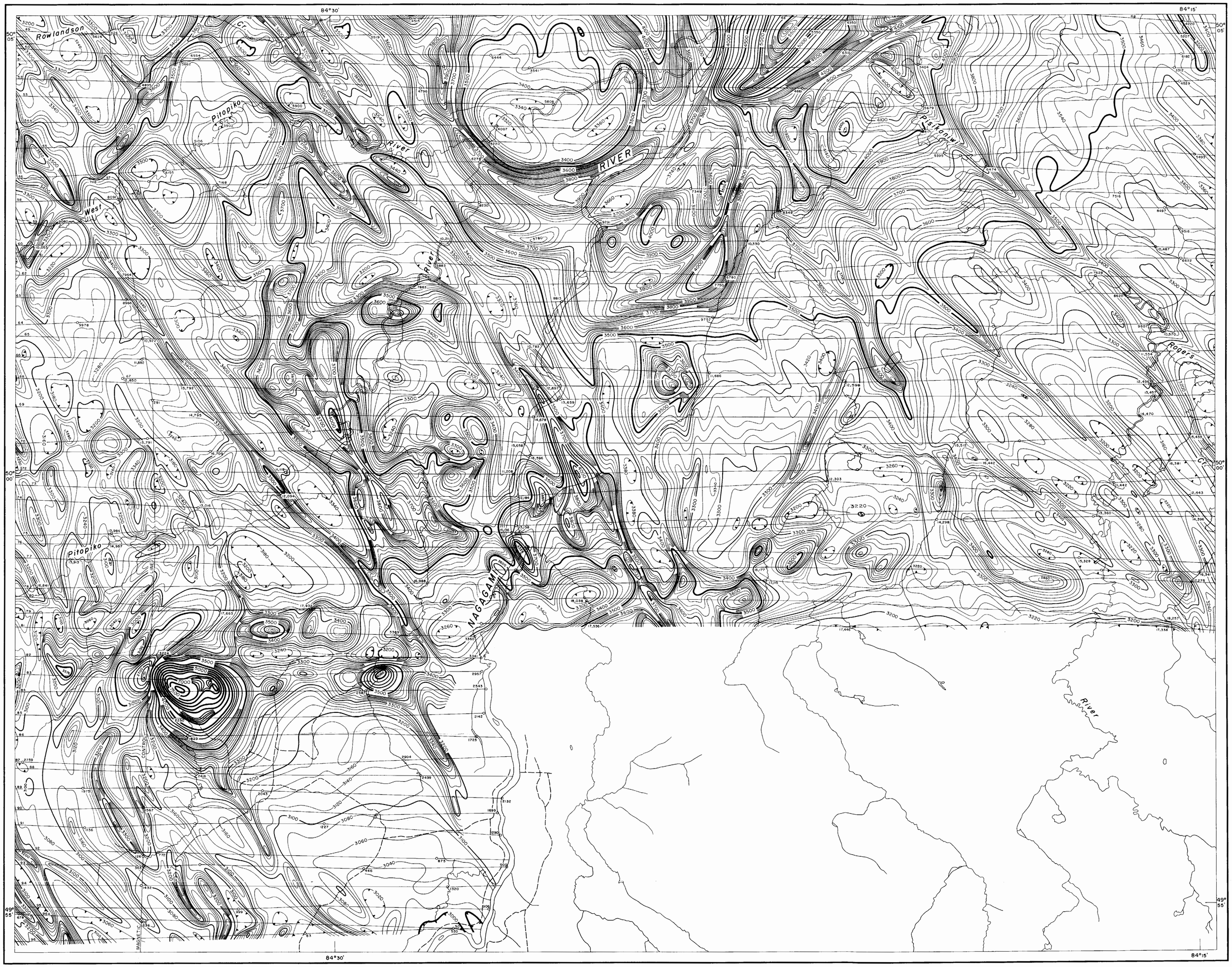
SCALE
2000 0 2000 4000 6000 8000 10000
1 Inch to 2640 Feet



File: 63.1-41
From Electromagnetic Subsurv. Dept.

ALGOMA ORE PROPERTIES

AIRBORNE MAGNETOMETER SURVEY



CONTOUR INTERVAL ..... 20 GAMMA
MEAN FLIGHT LINE SPACING ..... 1320 FEET
MEAN TERRAIN CLEARANCE ..... 300 FEET
500 GAMMA CONTOUR .....
100 GAMMA CONTOUR .....
20 GAMMA CONTOUR .....
MAGNETIC LOW .....
FIDUCIAL POINTS 3690
FLIGHT LINES .....

NAGAGAMI RIVER AREA

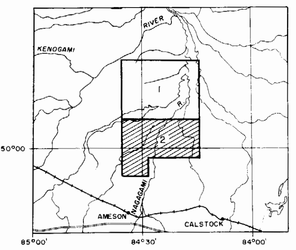
ONTARIO

SCALE

2000 FEET 0 2000 4000 6000 8000 10000 FEET

1 Inch to 2640 Feet

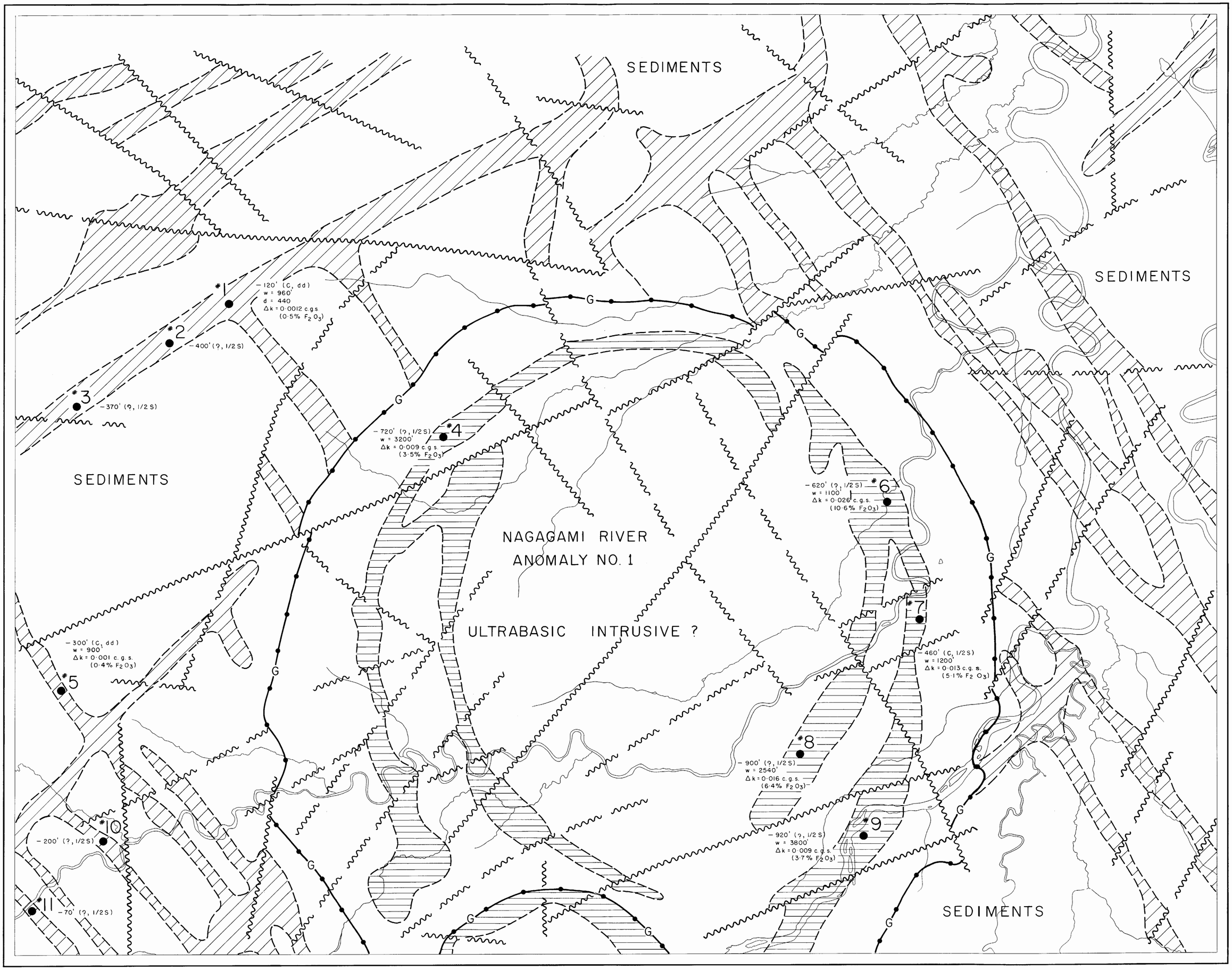
Flown and compiled by
HUNTING SURVEY CORPORATION LIMITED
Toronto, Canada
1963-1964



83.1-41
Aeromagnetic Survey Rept.

ALGOMA ORE PROPERTIES

AIRBORNE MAGNETOMETER SURVEY



LEGEND

- Major geological contact
- ? Possible major geological contact
- G Gradational contact
- Geological contact
- ? ? Possible geological contact
- Diabase dyke
- Magnetite enriched zones within intrusions
- Fault contact
- Fault
- Possible fault
- #14 -720' (?, 1/2S) ... Depth below ground followed by grade and applied method
- w = 3200' ... w = total width
- d = 41° ... d = dip
- Δk = 0·009 c.g.s. (3·6% F_2O_3) ... Δk = susceptibility contrast and magnetite content

NAGAGAMI RIVER AREA

ONTARIO

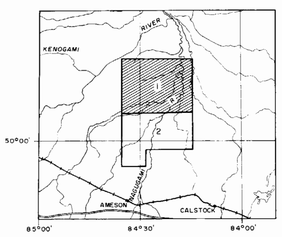
INTERPRETATION

SCALE

2000 0 2000 4000 6000 8000 10000

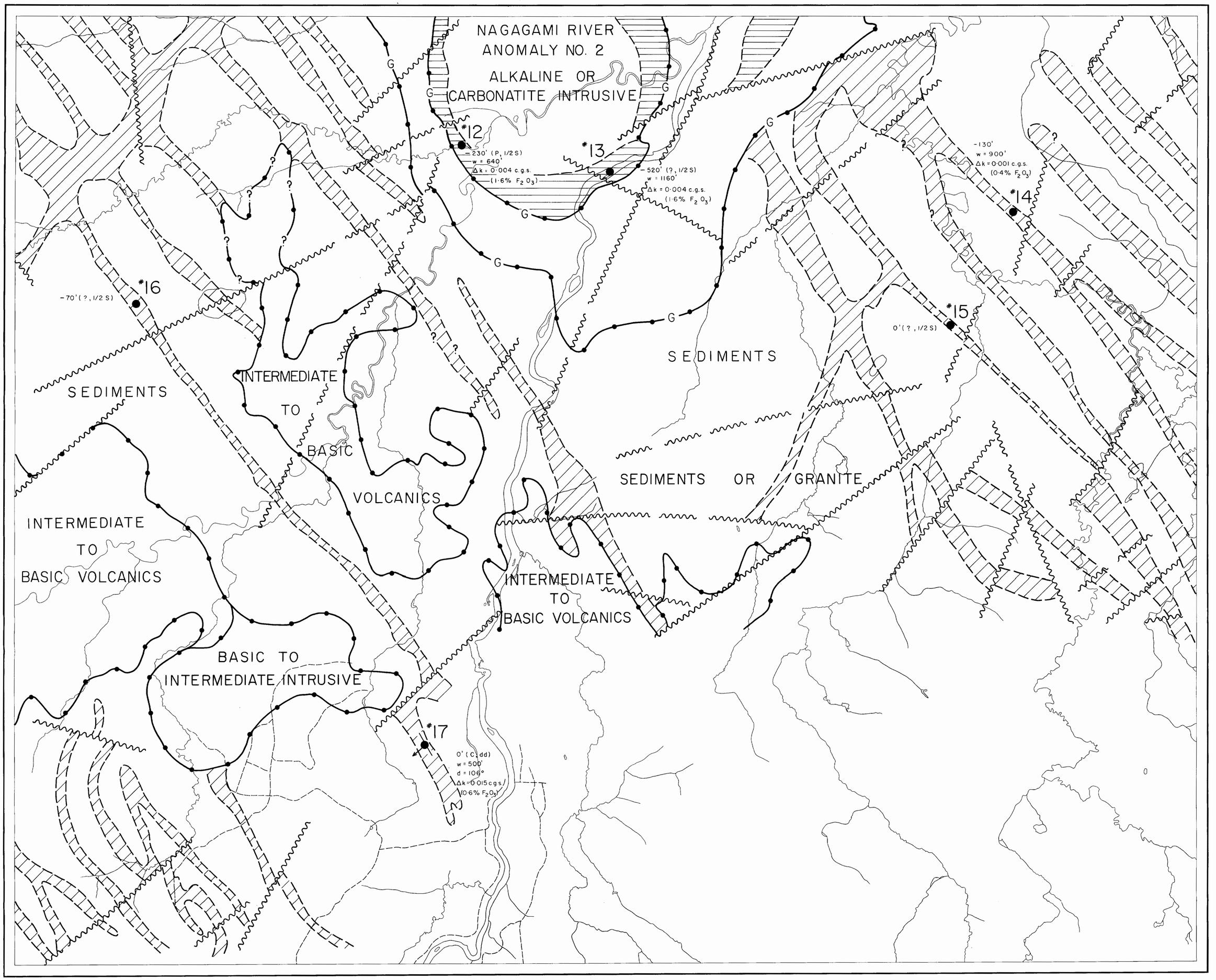
1 inch to 2640 Feet

Flown and compiled by
HUNTING SURVEY CORPORATION LIMITED
Toronto, Canada
1963-1964



ALGOMA ORE PROPERTIES

AIRBORNE MAGNETOMETER SURVEY



LEGEND

- Major geological contact
- Possible major geological contact
- Gradational contact
- Geological contact
- Possible geological contact
- Diabase dyke
- Magnetite enriched zones within intrusions
- Fault contact
- Fault
- Possible fault
- #14
- -720' (?, 1/2 S) ... Depth below ground followed by grade and applied method
- w = 3200' ... w = total width
- d = 41° ... d = dip
- Δk = 0·009 c.g.s. ... Δk = susceptibility contrast
- (3·6% F_2O_3) ... and magnetite content

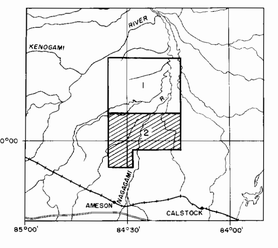
NAGAGAMI RIVER AREA
ONTARIO
INTERPRETATION

SCALE

2000 FEET 0 2000 4000 6000 8000 10000 FEET

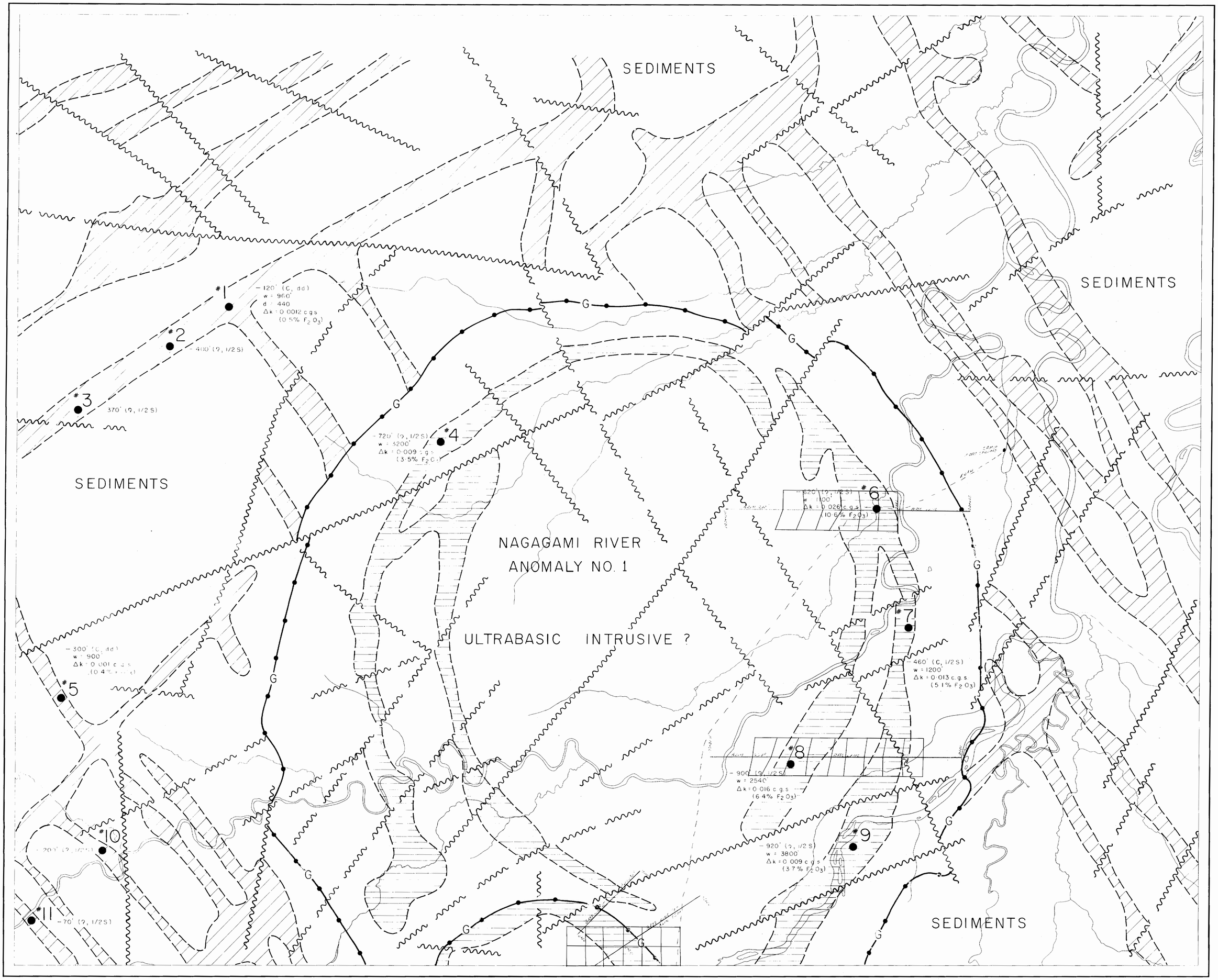
1 Inch to 2640 Feet

Flown and compiled by
HUNTING SURVEY CORPORATION LIMITED
Toronto, Canada
1963-1964



ALGOMA ORE PROPERTIES

AIRBORNE MAGNETOMETER SURVEY



LEGEND

- Major geological contact
- Possible major geological contact
- G ..... Gradational contact
- Geological contact
- Possible geological contact
- Diabase dyke
- Magnetite enriched zones within intrusions
- Fault contact
- Fault
- Possible fault
- #14 -720' (?, 1/2 S) — Depth below ground followed by grade and applied method
- w = 3200' ..... w = total width
- d = 41° ..... d = dip
- Δk = 0.009 c.g.s (3.6% F_2O_3) — Δk = susceptibility contrast and magnetite content

83-1-41

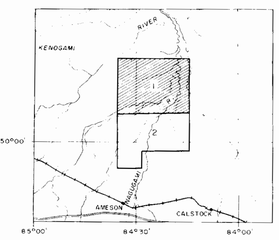
NAGAGAMI RIVER AREA
ONTARIO
INTERPRETATION

SCALE

2000 0 2000 4000 6000 8000 10000

1 Inch to 2640 Feet

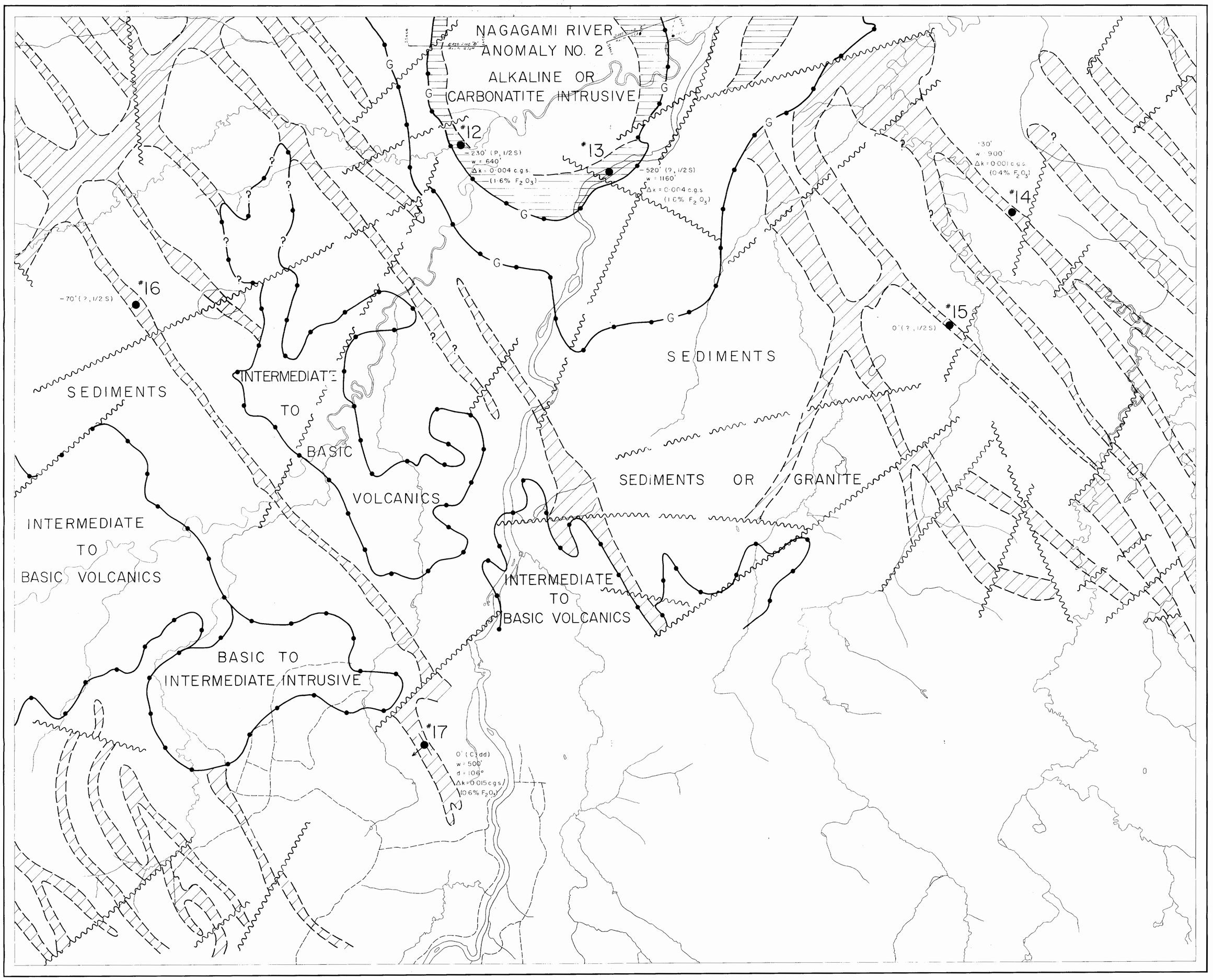
Flown and compiled by
HUNTING SURVEY CORPORATION LIMITED
Toronto, Canada
1963-1964



F.L. 83.1-41

ALGOMA ORE PROPERTIES

AIRBORNE MAGNETOMETER SURVEY



LEGEND

- Major geological contact
- ? Possible major geological contact
- G Gradational contact
- Geological contact
- ? ? Possible geological contact
- Diabase dyke
- Magnetite enriched zones within intrusions
- Fault contact
- Fault
- Possible fault
- #14 — -720' (?, 1/2 S) — Depth below ground followed by grade and applied method
- w = 3200' — w = total width
- d = 41° — d = dip
- Δk = 0·009 c.g.s. (3·6% F_2O_3) — Δk = susceptibility contrast and magnetite content

NAGAGAMI RIVER AREA

ONTARIO

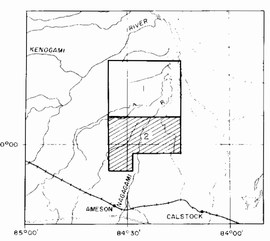
INTERPRETATION

SCALE

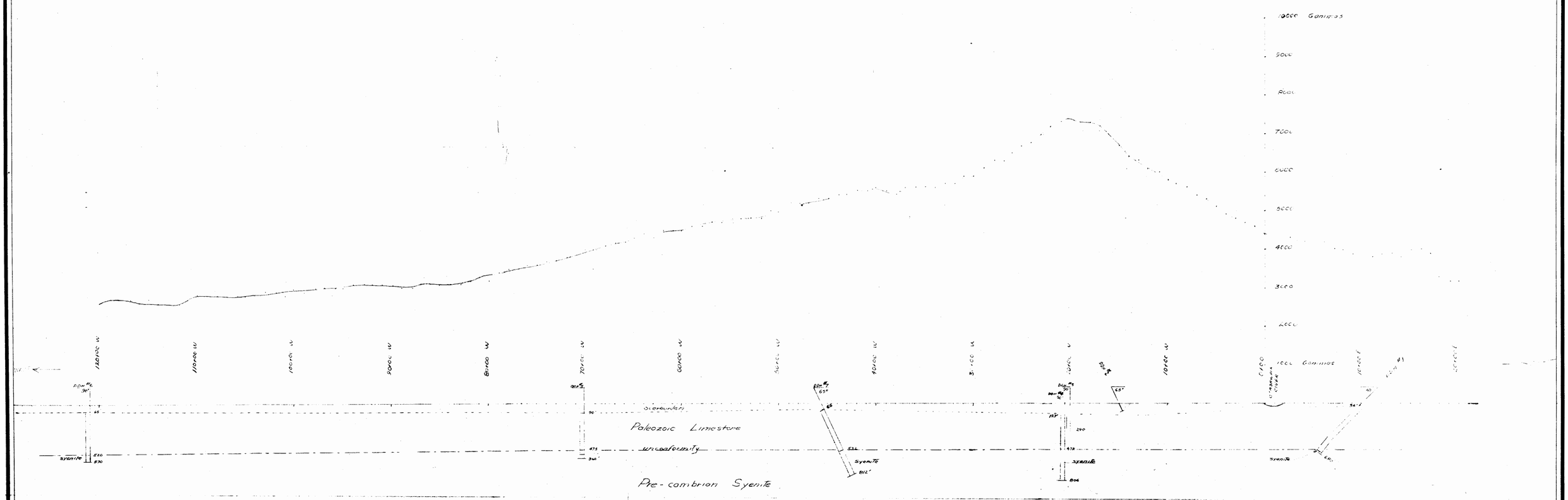
2000 FEET 0 2000 4000 6000 8000 10000 FEET

1 Inch to 2640 Feet

Flown and compiled by
HUNTING SURVEY CORPORATION LIMITED
Toronto, Canada
1963-1964



83.1-41



THE ALGOMA STEEL CORPORATION, LIMITED

ALGOMA ORE PROPERTIES DIVISION

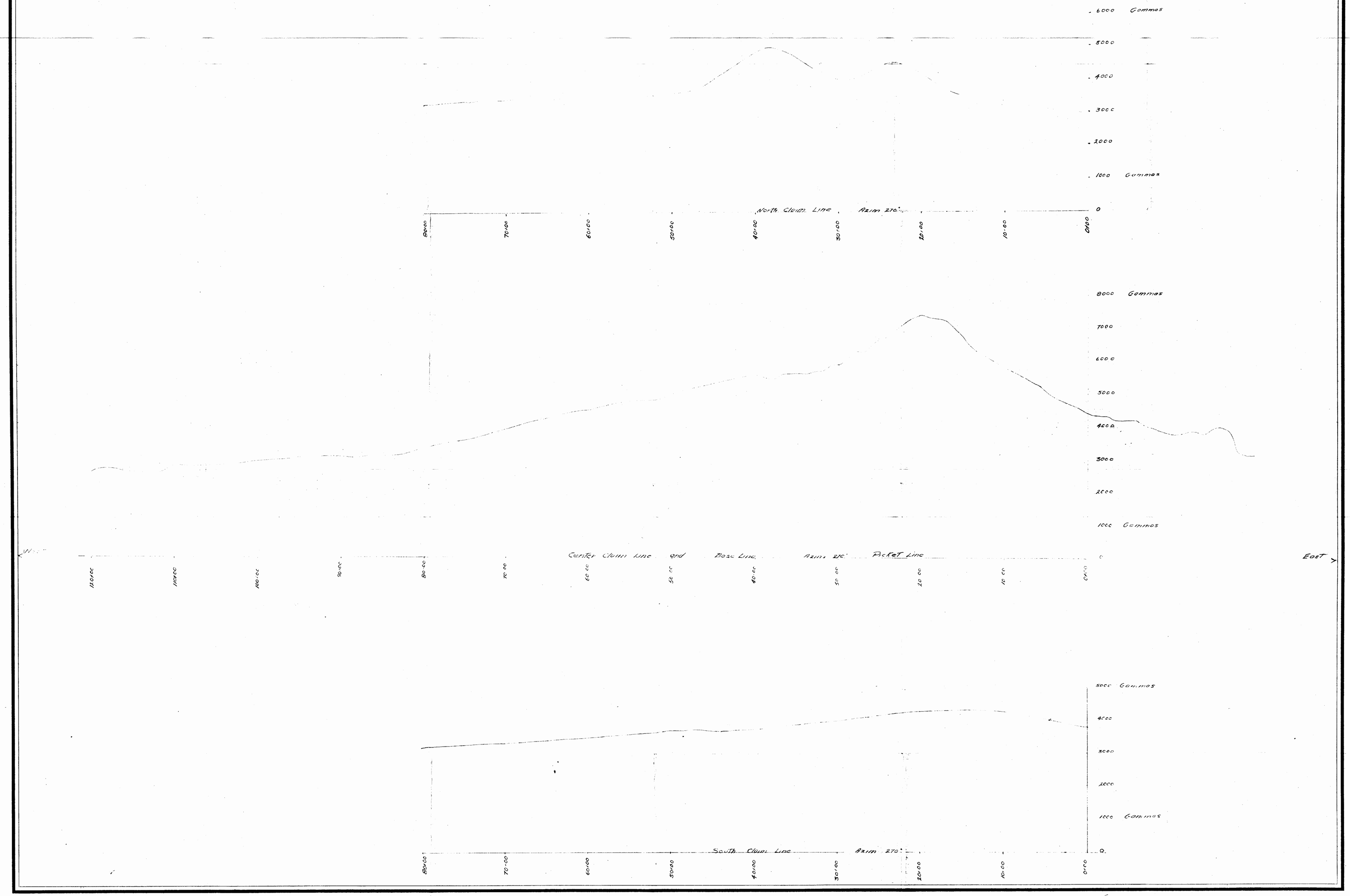
EXPLORATION DEPARTMENT

NAGAGAMI RIVER NOUTHERN RING COMPLEX

MAGNETIC PROFILE AND DRILL SECTION OVER PT #6

HORIZONTAL SCALE 1 INCH = 400 FEET

VERTICAL SCALE 1 INCH = 1000 GAMMAS



THE ALGOMA STEEL CORPORATION, LIMITED

ALGOMA ORE PROPERTIES DIVISION

EXPLORATION DEPARTMENT

[illegible] Mine Northern King Complex

Magnetic Profiles over Point #6

Hor. Scale 1" = 400 Feet

Vert Scale 1" = 1000 Gammas