



41P12SW0065 2.7838 CHESTER

010

GEOLOGICAL AND IP-RESISTIVITY SURVEY  
of the  
Chester Township Property  
Chester Township  
Porcupine Mining Division  
District of Sudbury

for

GOGAMA RESOURCES

by

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MINING LANDS SECTION

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SUMMARY

The Gogama Resources Chester township property is underlain by a multi-phase felsic intrusion and is surrounded by active gold prospects, several with shafts, in identical geology. The extensive but shallow overburden on the claims hampered previous work, and little exploration has been done since 1930 when a spectacular gold discovery was made adjacent to the northwest corner of the claims. Over the past two years, active logging in the area has uncovered several mineralized zones on the property.

The felsic intrusion ranges in composition from granodiorite to a quartz-rich trondhjemite. Minor mafic intrusions and/or xenoliths exist on the property and range in composition from quartz diorite to quartz-gabbro to gabbro. The felsic intrusion is locally intruded by later diabase, lamprophyre, aplitic and quartz-feldspar porphyry dikes. Numerous gold bearing quartz veins have been found in the area, most of which are located within the central trondhjemitic intrusive. These veins occupy easterly trending fractures and shears and consist of quartz with varying amounts of pyrite, chalcopyrite, and less commonly sphalerite.

A total of 12 grab samples were collected from old pits and trenches and from quartz vein bearing mineralized shear zones and various altered zones on the Gogama Resources property. The samples were analyzed for gold. The highest gold value obtained

was 0.275 oz/ton. The mineralization appears to consist of coarse cubes and grains of disseminated pyrite, with disseminated chalcopyrite and sphalerite throughout zones of quartz-filled fractures in silicified trondhjemite, granodiorite and gabbro. In areas of shearing the felsic intrusives often have quartz stockwork veining and are often highly fractured and sericitized. Locally a diagnostic red hematized feldspar alteration is associated with the shear zones and with diabase, quartz-feldspar porphyry, lamprophyre and aplitic dike contacts.

Locally the quartz veining was seen crossing the shear zones at several points and indicates that quartz veining is both post and pre shearing.

Mineralization appears to be controlled by shearing and quartz veining within the felsic and mafic intrusive rocks.

INTRODUCTION

A line cutting, geological mapping and IP survey was conducted in late October to November 5, 1984 on the Gogama Resources property in Chester Township. The property consists of 10 contiguous unpatented mining claims located in the west central part of Chester Township. The property lies approximately 70 miles south of Timmins and 100 miles north of Sudbury via Highway 144, then about 5 miles west by active logging roads which traverse the property.

Personnel employed on the program included Ian Coster, B.Sc., Geology and Nadia Cairra, B.Sc., Geology who carried out the mapping program on a cut grid of approximately 8.3 miles. The grid was cut in October, 1984 by employees of Henry T.Gonzalez Exploration Services, of Timmins, Ontario. The claim group covers approximately 400 acres of mining land.

The Induced Polarization-Resistivity survey commenced during the geological work and was completed on November 8, 1984. the survey was carried out by Robert S. Middleton Exploration Services.

The claim numbers are as follows:

681824 - 681827 all inclusive  
720673 - 720675 all inclusive  
720703 - 720705 all inclusive

A portion of claims 681824, 681826, 681827 are covered by the southeast arm of Clay Lake, and Mollie Creek flows north through claims 720704 and 720674.

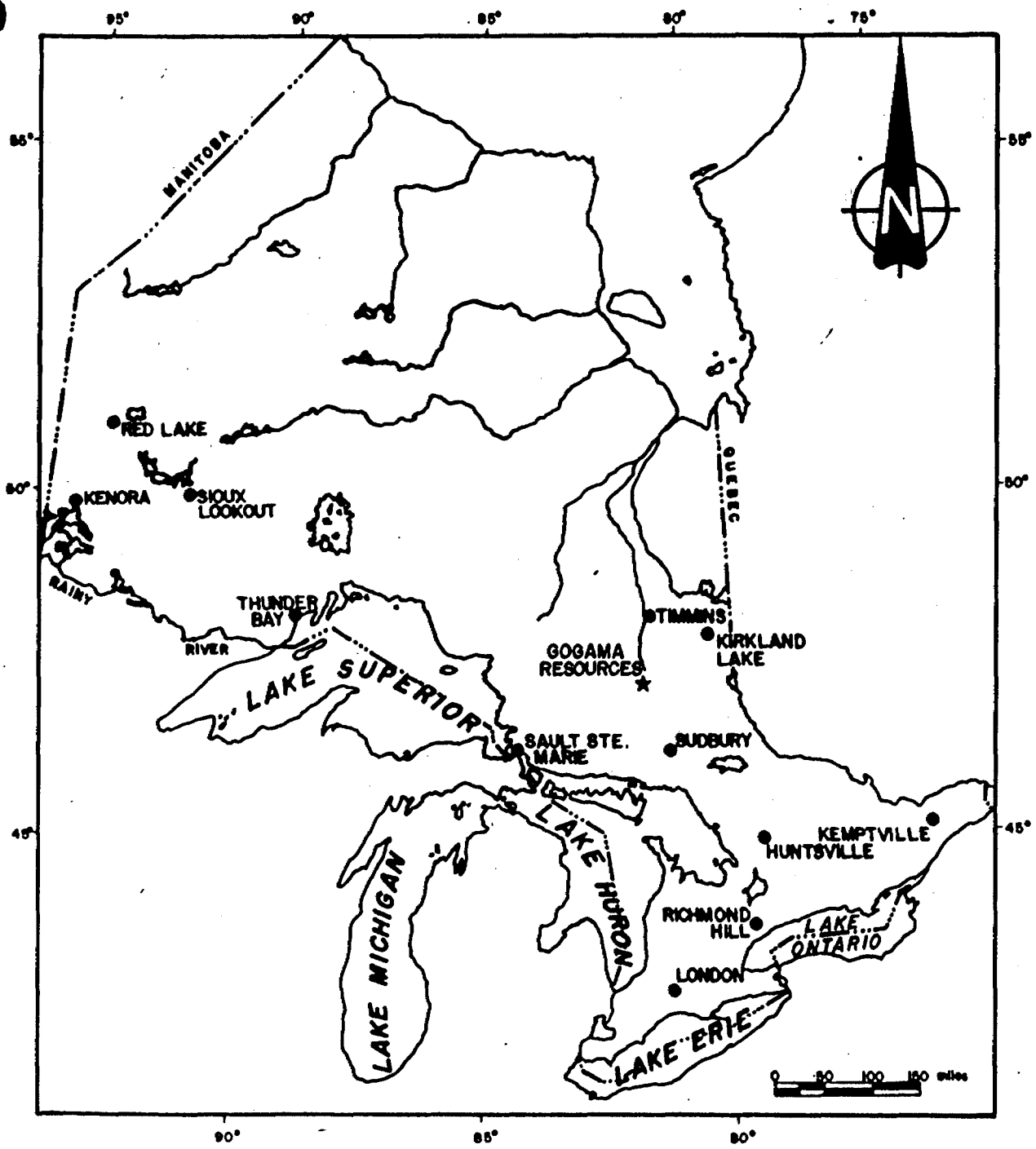
Geological mapping was done on a cut grid having an easterly trending tieline TL 45S located approximately 4,500 feet south of a baseline on the north adjoining grid covering the claims of Chester Minerals.

The grid was extended south from the Chester Minerals property for control. Tieline TL 45S trends easterly across the southern part of claims 681824, 681825, 720675, and across the northern part of claim 720704 and 720703. North-south trending lines were cut 300 feet apart with pickets every 100 feet.

It is the purpose of this report to discuss the findings of the geological survey, the lithochemical results and the results of the Induced Polarization Resistivity survey. Recommendations for further work to locate gold drilling targets are included following discussion of this material.

#### LOCATION AND ACCESS

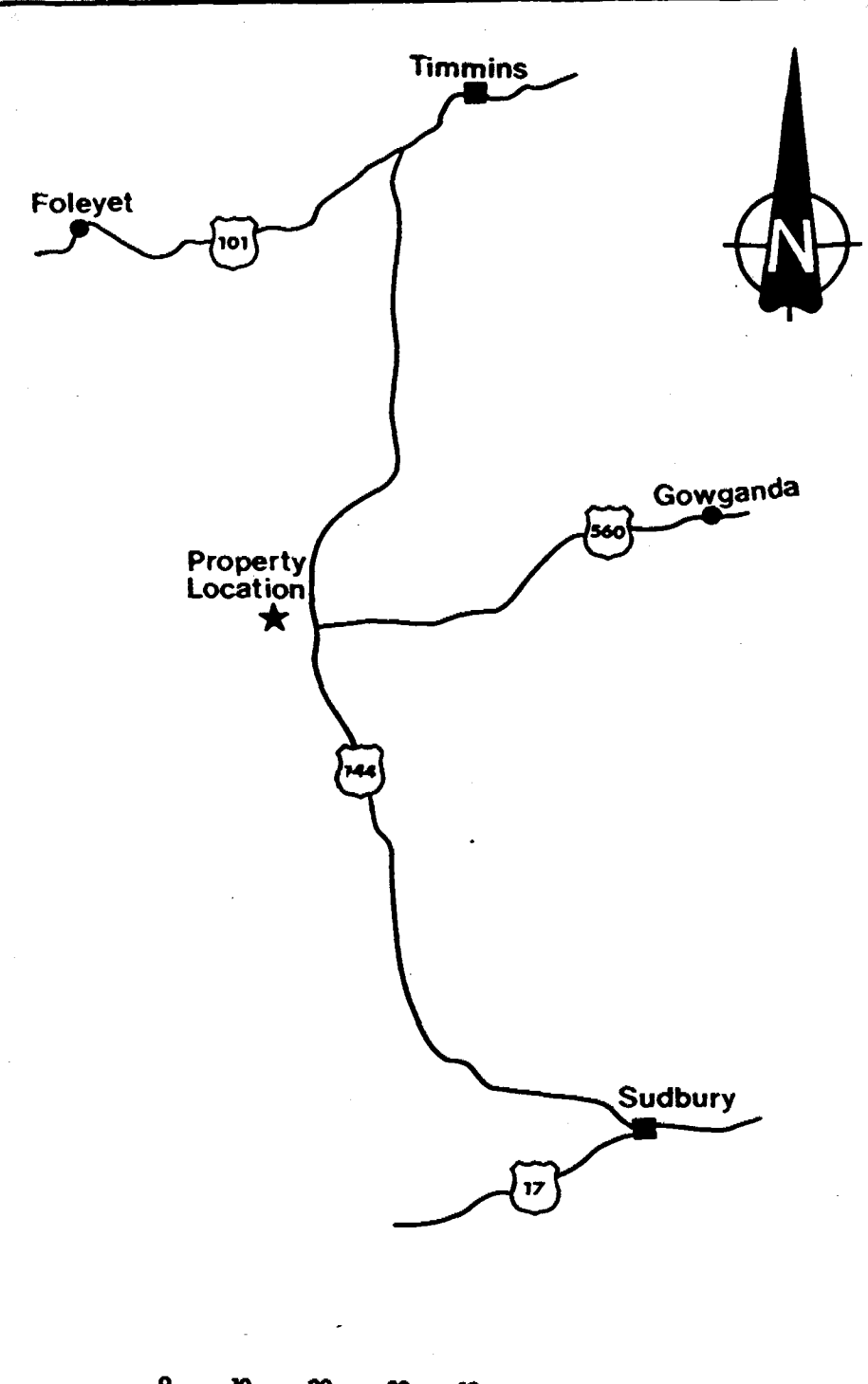
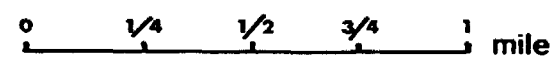
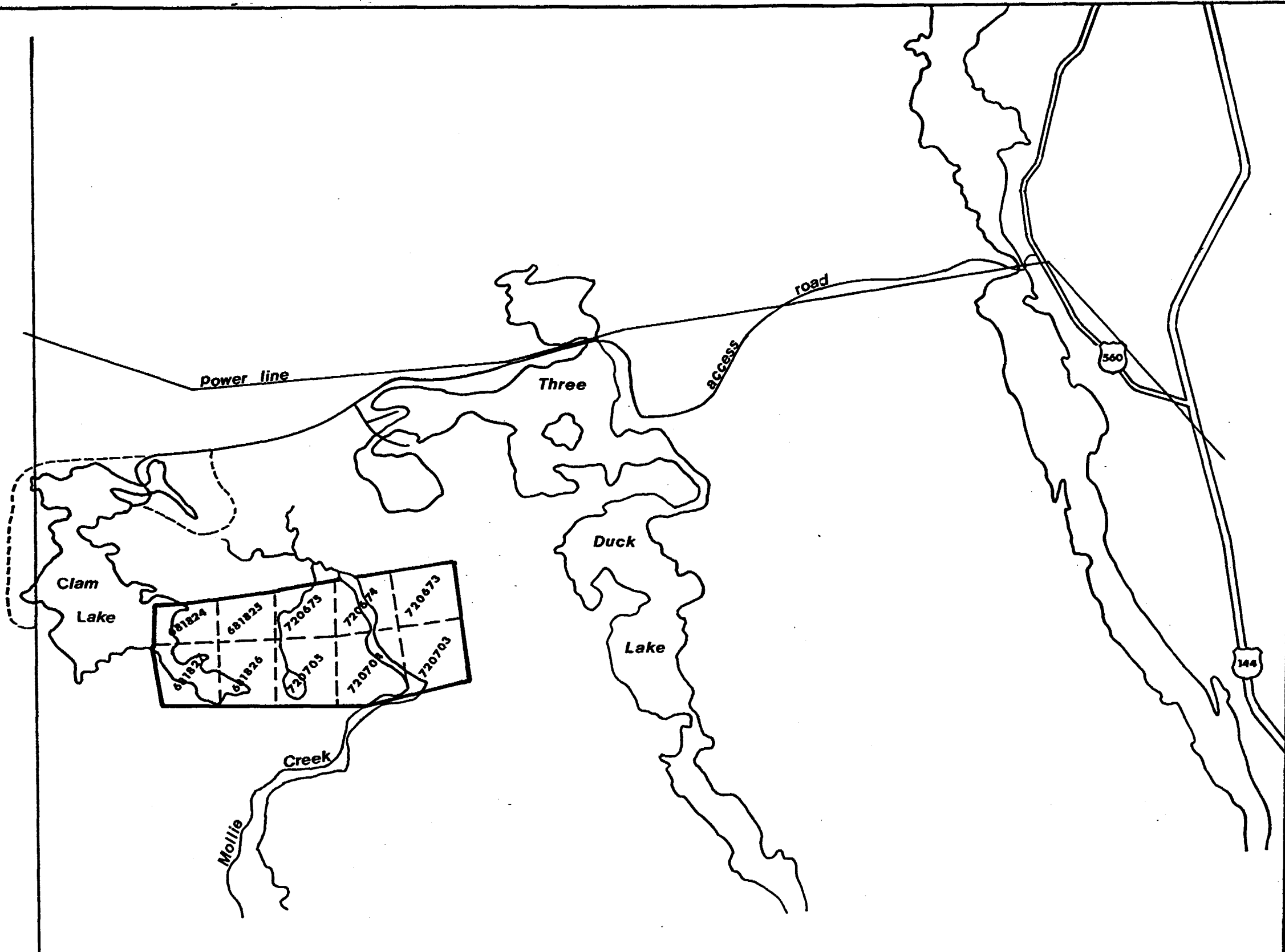
The Gogama Resources property is located in the west central part of Chester Township in the district of Sudbury, Sudbury Mining Division, about 70 miles south-southwest of Timmins and 85 miles north of Sudbury, Ontario (Figure 1 and 2). Access to the claim group is by old mine roads and active logging roads (which



PROVINCE OF ONTARIO

REVISIONS	<b>ROBERT S. MIDDLETON EXPLORATION SERVICES INC.</b>		
	for	GOGAMA RESOURCES	
	Title	PROPERTY LOCATION	
	Fig. 1		
	Date: NOV. 1984	Scale: 1"=40 mi.	N.T.S.:
	Drawn: C.G.	Approved:	File: M-87





REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.	
	for	GOGAMA RESOURCES
	Title	CLAIM INDEX
		Fig. 2
	Date: NOV. 1984	Scale: N.T.S.
	Drawn: C.G.	Approved: File: M-87

traverse the property) that lead west from the Mesomikenda Lake gravel road (formerly Highway 560) which in turn branches off Highway 144 about 20 km south of the town of Gogama. Access can also be made by float plane from Sudbury to Clam Lake at the west end of the property.

#### TOPOGRAPHY AND VEGETATION

The topography in the map area consists of low, flat lying swampy areas interspersed with low rolling areas with rock exposures. Scattered outcrop occurs over approximately 10% of the property.

The Gogama Resources property is flanked to the northwest by Clam Lake and is bisected by Mollie Creek. A smaller pond covers the southwest corner of claim 720705.

At least three-quarters of the property is covered by slash due to recent logging procedures and the rest is covered by a thick forest of spruce, birch, poplar with cedar and alder in swampy areas.

The overburden is shallow but extensive.

#### PREVIOUS WORK

Chester Township has been intermittently explored over the past 80 years. Most of the interest has centered on gold, but base metals have been searched for as well.

Current exploration activity has been directed to the search of gold mineralization. Several important gold prospects as well as numerous gold occurrences in Chester Township implies a good environment to search for gold deposits.

The following summary of the previous work in the area has been abstracted from assessment work files, government reports and reports from other companies that have worked in the area. Sporadic exploration has been carried out on properties in the immediate vicinity around the Gogama Resources property. This work is briefly summarized as follows:

Chester-Shannon Prospect

- 1927 The finding of gold on the northeast shore of Clam Lake approximately 1/2 mile north of the Gogama Resources property. The area is now covered by patented claim 58995 (occurrence No.29 on O.G.S., Preliminary Map 2449.
- 1931 Stripping, trenching, and diamond drilling (footage and number of holes is unknown) by Chester Shannon Syndicate on Shannon Island.
- 1932 The main vein was traced for 200 feet and four diamond drill holes put down to test the vein to a depth of 500 feet.
- 1933 Stripping and test pits exposed vein on west shore of Clam Lake for a distance of 440 feet.
- 1938 II diamond drill holes (1776 feet).

1965 Geological and EM surveys.

1971 Induced Polarization survey and some diamond drilling.

Shannon Island Prospect

1930 Discovery of the Shannon Vein on a small island near the south end of Clam Lake, approximately 1/4 mile east of the northeast corner of the Gogama Resources (occurrence No. 33 O.G.S. on Preliminary Map 2449) property. The area is now covered by patented claim 516304. Vein is 3 feet wide and heavily mineralized with arsenopyrite, pyrite and chalcopyrite.

1933 Trenching a 26 foot pit on vein.

1934 Two compartment shaft sunk to a depth of 100 feet, 100 feet of lateral development on the 100 foot level, as well as 3,000 feet of development diamond drilling.

1973 Induced Polarization carried out by Barringer Research, survey covered eastern part of Gogama Resources property; follow-up diamond drilling in 5 holes to test IP anomalies; power stripping recommended over anomaly "3" which is located in the northeast quarter of claim 720703 in the northeast corner of the Gogama Resources property. Old shaft dewatered and underground workings resampled.

Young-Shannon Prospect

1930, Discovery, stripping and trenching of vein on ground between Cote Lake and Three Duck Lake, approximately 1/2 mile  
1931

north of the Gogama Resources property (occurrence No. 34 O.G.S. on Preliminary Map 2449). The area is now covered by patented claim 519971. Vein is 3 feet wide, quartz-carbonate containing pyrrhotite, pyrite, arsenopyrite, chalcopryrite, sphalerite and native gold.

- 1932 Diamond drilling (no details available)
- 1935 Pitting, trenching and 600 feet of diamond drilling.
- 1936 2-compartment shaft sunk to 200 feet (at -70°) with 172 feet of lateral development on the 100 foot level, 2,196 feet of diamond drilling.
- 1937 160 feet of drifting on the 200 foot level, 500 feet of diamond drilling and 120 ton mill installed.
- 1941 Diamond drilling for assessment credits (by Young-Shannon Gold Mines Ltd., no details).
- 1944 Geophysical surveys (no details) (by Young-Shannon Gold Mines Ltd.).
- 1946 Diamond drilling (no details).
- 1964 Geologic mapping (by Chester Minerals Ltd.).
- 1965 Geophysical survey (by Robert S. Nelson).
- 1978 More underground work completed, steel headframe erected, diesel power plant and concentrating plant installed by Canadian Crest Mines.

Kingbridge (Gomak) Prospect

1932 - 2,000 feet of trenching on a network of mineralized frac-  
1935

tures and quartz veins within intrusives, mineralized with pyrite, pyrrhotite, chalcopyrite and native gold approximately 1 1/4 miles NE of the Gogama Resources property on patented claim No. 20009; 2,500 feet of diamond drilling (occurrence No. 26, O.G.S. Preliminary Map 2449).

1935- 2 compartment shaft sunk to 85 feet (at -65°) with 215  
1936

feet of lateral development and 65 feet of raising on the 65 foot level. A 35 ton mill operated intermittently in 1936 (all work by Gomak Mines Ltd.)

1937- Substantial amount of trenching and 5,000 feet of diamond  
1938 drilling (by Gomak Mines Ltd.)

1945- Two shafts sunk (16 and 20 feet deep), 900 feet of strip-  
1948 ping on No. 1 vein, 300 feet of stripping on No. 2 and No. 3 veins and a total of 8,000 feet of diamond drilling (all work by Chesgo Mines Ltd.).

1970- Trenching, stripping and sampling by Kingbridge Mines Ltd.  
1972

in preparation for a 5 to 10 t.p.d. production schedule.

Production: Intermittent, yeilding 1387 tons of ore yielded 98 ounces of gold and 23 ounces of silver producing average grade of 0.07 oz/ton gold, 0.02 oz/ton silver.

Strathmore Prospect

Northwest corner of patented claim No. S21613, which is approximately 1 1/2 miles east north-east of the Gogama Resources property (occurrence No. 37 on O.G.S. Preliminary Map 2449); 3 parallel shear zones striking N62°W in intrusives.

- 1937 2-compartment shaft sunk to 116 feet (at -65°) with 286 feet of lateral development on the 100 foot level (by Strathy Basin Mines Ltd.).
- 1970-1972 Property included in an area which was explored by an EM 16 and IP survey followed by diamond drilling (by Kingbridge Mines Ltd.).

Beaverbridge Prospect

Gold occurs in narrow quartz veins with associated pyrite and chalcopyrite; approximately 1 1/4 miles north-north-east of the Gogama Resources property; (occurrence No. 19 on Preliminary Map 2449).

- 1965-1967 Geological and EM surveys, stripping, and trenching (by Beaverbridge Mines Ltd.).
- 1973 Surface and geophysical exploration (by Rockzone Mines Ltd.); Geophysical Surveys, surface exploration and diamond drilling were planned.

Numerous other gold ( ± Ag, Cu, Pb, Zn) occurrences exist

within several miles of the Gogama Resources property but are too numerous to mention.

In 1981 wide zones of gold bearing disseminated sulphides were discovered on the Chester Resources/Murgold Resources property which lies approximately 2-3 miles northeast of the Gogama Resources property. Extensive trenching and stripping is presently being carried out.

In 1983, an 11 claim block owned by Jarvis Resources Ltd., located immediately east of the Gogama Resources property, was extensively explored by VLF EM and diamond drilling. A total of 27 holes were drilled. The VLF EM survey defined several strong conductors in the vicinity of the quartz vein shears carrying gold values. Assay results up to 0.48 oz/ton Au over 7 feet were obtained. A 350 ton bulk sample averaged 0.17 oz/ton Au and 125 pound bulk sample assayed 0.94 oz/ton Au, as well as 8.65% Zn. Apparently, some of the expected intersections in diamond drill holes were 'diked out' by numerous lampropheres in the area. A comprehensive program of detailed geological mapping, power stripping and detailed self potential surveying, as well as extensive bulk sampling has been recommended prior to further diamond drilling.

In 1984, Geological and IP surveys occurred on Chester Minerals properties (over the old Shannon and Young-Shannon prospects) located on Clam and Cote Lakes (bordering the Gogama



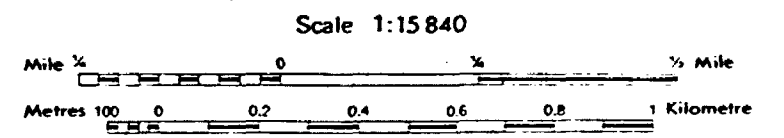
Resources property). The surveys resulted in numerous chargeability anomalies with associated shear zones. Further trenching uncovered shear zones with associated auriferous quartz veins, within trondhjemite and granodiorite.

Between 1940 and 1956, the Jerome Mine, located 3 townships to the northwest (Osway Twp.) within the same mineralized belt, produced 56,893 ounces of gold from 335,060 tons of ore (giving a net average grade of 0.17 oz/ton Au). At present, resources are reportedly in the order of 500,000 tons grading 0.19 oz/ton Au and the mine is being actively explored including dewatering, resampling and diamond drilling. A production decision is imminent.

#### REGIONAL GEOLOGY

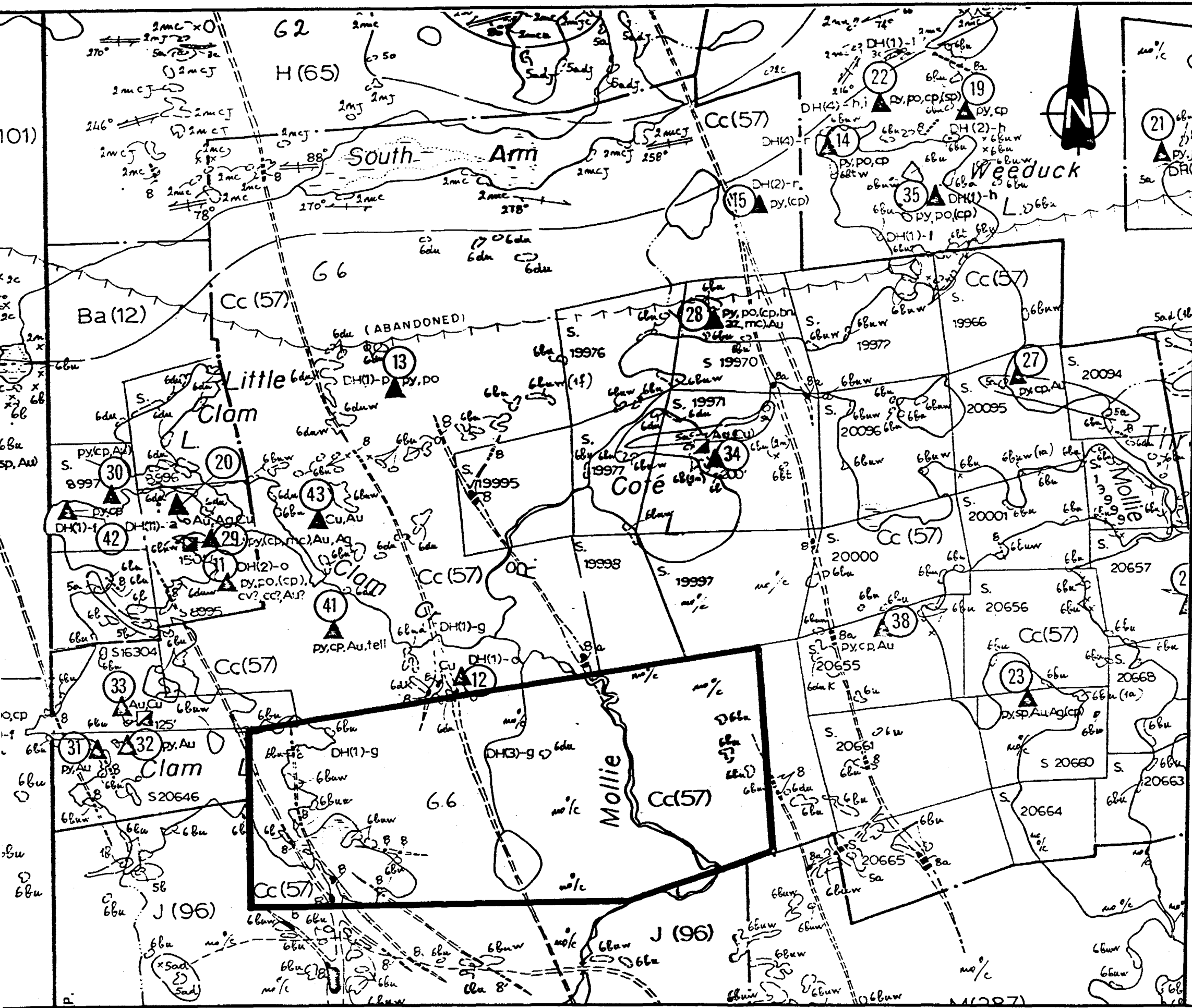
The central part of Chester Township, including the Gogama Resources property, is underlain by a trondhjemite-granodiorite intrusive complex approximately 3 1/2 miles in diameter with migmatitic inliers (Figure 3, after Siragusa, 1981, and is surrounded by active gold prospects and several shafts, in identical geology, O.G.S. map P2449). A series of hornblende diorite and gabbro migmatites occur to the south and southeast of the felsic intrusion. A series of intermediate pyroclastic metavolcanics were intruded by the felsic intrusion and the contact lies about 1/2 mile north of the Gogama Resources

ONTARIO GEOLOGICAL SURVEY  
 PRELIMINARY MAP P.2449  
 GEOLOGICAL SERIES  
 PRECAMBRIAN GEOLOGY  
 OF  
**CHESTER AND YEO TOWNSHIPS**  
 and parts of  
**NEVILLE AND POTIER TOWNSHIPS**  
 JEROME AREA  
 SUDBURY DISTRICT



- LEGEND**
- PRECAMBRIAN
- 8 DIABASE
  - 7 LAMPROPHYRE
  - 6 FELSIC INTRUSIVE ROCKS
  - 5 MIGMATITES
  - 4 SUBVOLCANIC FELSIC INTRUSIVE ROCKS
  - 3 METASEDIMENTS
  - 2 INTERMEDIATE PYROCLASTIC
- METAVOLCANICS
- 1 MAFIC METAVOLCANICS
- Property boundaries

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	REGIONAL GEOLOGY MAP	
	Fig. 3	
	Date: Nov. 1984	Scale: N.T.S.
	Drawn: C.G.	Approved: File: M-87



property. North-northwesterly trending diabase and lamprophyre dikes cross the area, some possibly occupying pre-existing faults. The Mesomikenda Fault offsets the east end of the intrusion.

The trondhjemitic intrusive rocks contain scattered lensey, tabular xenoliths of (older) migmatitic hornblende-diorite and gabbro and host several gold bearing quartz veins generally occupying easterly trending shear zones. <sup>1</sup>"16 important gold showings occur in concentration within one mile of the north contact of the trondhjemite, over a distance of 4 miles. It is highly significant that this area is characterized by inclusions or xenoliths of metavolcanic migmatite up to 500 feet wide and 7,000 feet in length, generally with an easterly strike, and often associated with shear and fracture patterns, reflecting dynamic stress in the vicinity of competent/incompetent rock relationships. Such areas of fracturing are favourable for mineralization." Variable amounts of pyrite, chalcopyrite, pyrrhotite, and lesser amounts of galena, sphalerite, arsenopyrite and tellurides have been noted in some of these shear zones. A relatively wide disseminated sulphide zone on the Chester Resources/Murgold Resources properties, apparently related to migmatites within the intrusive complex occurs about

<sup>1</sup>Report on the Exploration Potential for Gold of Pacific Northern (Gold Mines) by R.J. Graham.

one mile northeast of the Gogama Resources property. although considerable exploration has been done dating back to 1900, and at least five shafts sunk in Chester Township, gold production in the area has been limited.

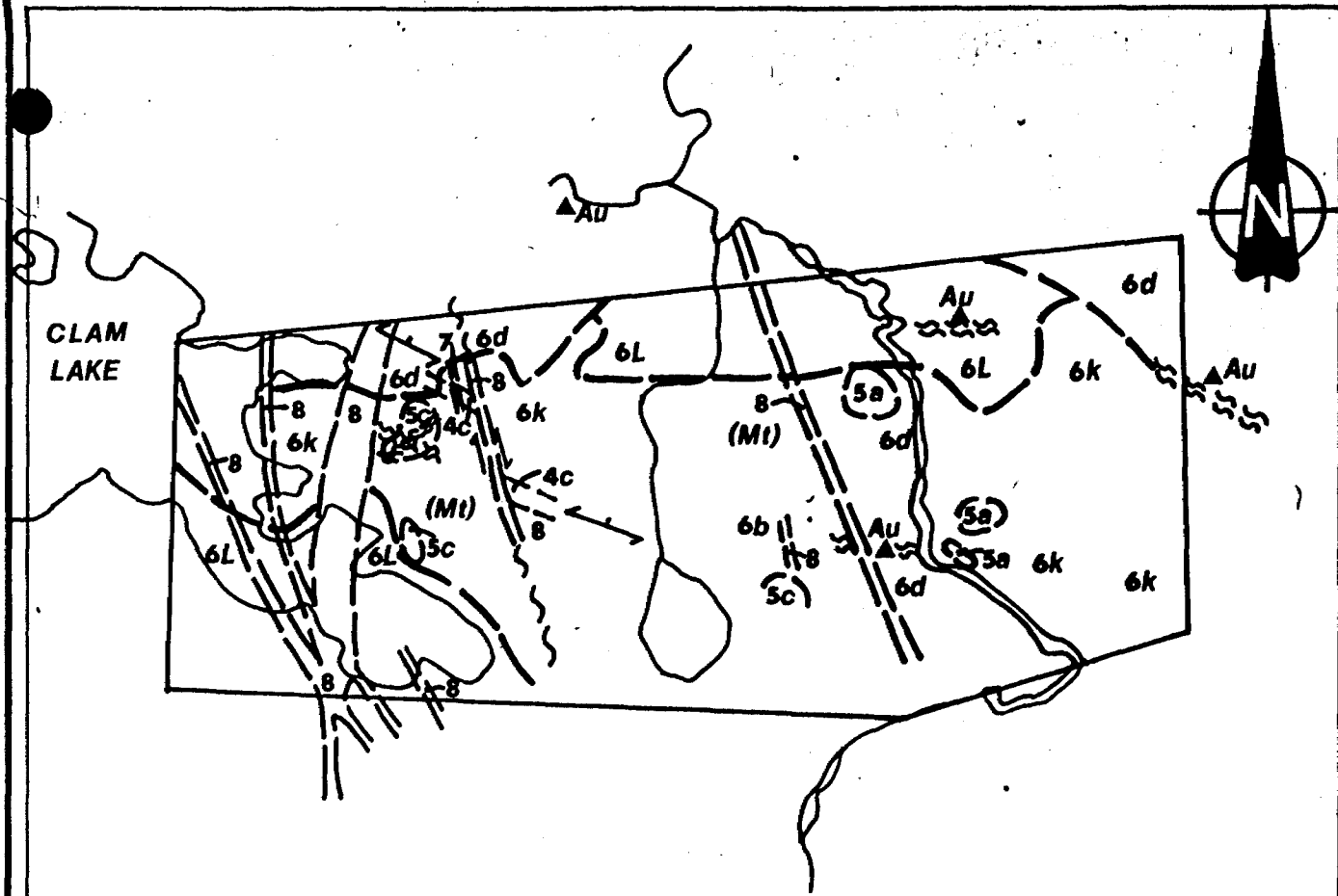
#### PROPERTY GEOLOGY

The Gogama Resources property is underlain by a felsic intrusive complex (Figure 5, back pocket). Medium to coarse-grained granodiorite (Units 6d, 6k) are the most abundant phases on the property but quartz diorite, trondhjemitic and aplitic phases also occur. Less commonly more mafic phases occur including gabbro and quartz gabbro as intrusions and as xenoliths within the felsic phases. Diabase and lamprophyre dikes locally intrude the felsic rocks in a generally north direction. Also, subvolcanic felsic intrusives including feldspar-quartz porphyry sills (?) are found in a east-south-east direction following major foliations in the area.

Mineralization on the property includes disseminated pyrite, chalcopyrite and sphalerite in shears and associated quartz veins. In addition, it was reported that coarsely crystallized arsenopyrite was found in a sub-angular quartz cobble float of probable local origin (R.G. Graham, 1983).

Overburden is shallow but extensive, and the logging operations recently carried out have produced a series of logging

roads across the property. Logging related bulldozing has partly exposed several strong east striking shears, locally well mineralized with pyrite and chalcopyrite. Also, their clearing operations have exposed numerous large angular float of mafic metavolcanics with 2-10% pyrite and chalcopyrite.



**LEGEND**

- 8 Diabase Dike
- 7 Lamprophyre Dike
- 6b Trondhjemite
- 6d Granodiorite (medium grained)
- 6k Granodiorite (coarse grained with hornblende pods)
- 6L Aplitic Dikes
- 5a Quartz Diorite
- 5b Gabbro, Quartz Gabbro
- 5c Gabbroic, Basaltic Inclusions
- 4c Feldspar, Quartz Porphyry

shear

fault

Au Gold

Mt magnetite

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	Title		
	GENERAL PROPERTY GEOLOGY		
	Fig. 4		
	Date: Nov. 1984	Scale: 1:15,840	N.T.S.:
	Drawn: C.G.	Approved:	File: M-87

TABLE 1            TABLE OF FORMATIONS

Middle to Late Precambrian (Proterozoic)

Mafic Intrusive Rocks

- 8     Diabase
- 7     Lamprophyre Dike

Intrusive Contact

Early Precambrian (Archean)

Felsic Intrusive Rocks

Batholithic Intrusive Rocks

- 6d    Potassic-rich Granodiorite (medium-grained)
- 6k    Sodid-rich Granodiorite (coarse-grained with hornblende pods)
- 6l    Trondhjemite (occasionally aplitic)

Felsic Intrusive Dikes

- 6m    Aplitic Granitic Dikes

Mafic Intrusive Rocks

- 5a    Quartz Diorite
- 5c    Gabbro, Quartz-Gabbro, basaltic xenolith and/or intrusion

Subvolcanic Felsic Intrusive Rocks

- 4c    Feldspar-Quartz Porphyry

Mafic Intrusive Rocks

Unit 8    Diabase Dike

Several diabase dikes cut the felsic intrusive rocks on the property. The dikes run just west of north and occur as swarms throughout the western half of the property. The dikes range from 5 to 60 feet in width. A diagnostic red hematitic alteration is associated with the dike contacts. The diabase is reddish brown on weathered surface, black on fresh, equigranular, medium to coarse-grained and locally magnetic. Glomeroporphyritic texture exemplified by clusters of pale green plagioclase occurs throughout most of the dikes. The dikes are chilled against the felsic intrusive rocks.

Unit 7    Lamprophyre Dikes

This unit was seen as a series of dikes in a single location on line 89W at 38S. The dikes range from 1 to 5 feet in width and were seen cutting the felsic intrusive rocks. The lamprophyre dikes are rusty red through red brown on weathered surface and grey black to greenish black on fresh surfaces. The weathered surface is mafic rich with coarse biotite phenocrysts that form a speckled surface. The fresh surface is aphanitic with 1-2mm black biotite phenocrysts. Much coarse silvery specular hematite was associated with dike contacts. A pervasive carbonatization



persists throughout the dikes. The dikes trend roughly north-northwest and were seen crosscutting the quartz feldspar porphyry dikes (Unit 4d).

### Felsic Intrusive Rocks

#### Batholithic Intrusive Rocks

A variety of felsic intrusive rocks occur on the property that seem to vary in age of emplacement. According to Pyke (1982, Geology of the Timmins Area) the soda-rich quartz-feldspar porphyries (Unit 4c) and the trondhjemites (Unit 6b) are the oldest, with the youngest being the more potassic granodiorites (Unit 6d).

#### Unit 6d Potassic-rich Granodiorite (medium-grained)

This phase of the granodiorite is thought to be the youngest felsic intrusive on the property. It consequently flanks the northeastern and northwestern corners of the property with smaller elliptical plugs in the west portion of the property, averaging 100 feet by 100 feet in diameter. The granodiorite is medium-grained, massive to very weakly foliated with a white weathered surface. Adjacent to diabase dikes, this unit weathers a distinctive red colour due to hematization from the dike. Fresh surfaces are light grey to more commonly pinkish grey due to the presence of potassium feldspars and hematized plagioclase crystals. From hand specimen examination, the rock contains 55%

plagioclase, 2-4% potassic feldspar and hematized plagioclase, 20% quartz, 10% hornblende and biotite and 5% combined sericite, chlorite, epidote and trace magnetite. Varying proportions of disseminated pyrite was seen ranging from trace to 2%. The unit is cut by numerous small 1/2"-1" quartz veins, stockwork or pods that vary in attitude but commonly are roughly east-southeast, dipping to the north. Locally north-south trending veins were seen. The granodiorite contains diagnostic blue quartz eyes throughout the matrix exhibiting a weakly porphyritic texture in places. The occasional gabbroic or basaltic xenolith was seen within this unit.

Unit 6k Sodic-rich Granodiorite

(coarse-grained with hornblende pods)

This felsic intrusive phase is by far the most abundant intrusive rock on the property. The granodiorite is coarse-grained, massive with a white to red weathering surface. Fresh surfaces are light grey to dark grey depending on the abundance of hornblende pods or clots throughout the matrix. From hand specimen examination the rock contains approximately 55% sodic plagioclase, 20-25% blue quartz, 15% -25% combined hornblende and biotite with varying proportions of chlorite and sericite. Varying proportions of disseminated pyrite, as well as a hematitic

alteration were seen depending on nearness to diabase and lamprophyre dike contacts and shear zones.

This unit is cut by numerous small veins and pods of quartz throughout the property, associated with a common east-southeast fracture system.

Unit 6l Trondhjemite (Aplitic)

The trondhjemite outcrops in the west central portion of the claim group and is thought, by the author, to be one of the oldest of the felsic phases seen on the property. The rock is equigranular, generally massive and weathers white to buff. Fresh surfaces are white to grey-white, and often display a sugary aplitic texture. Adjacent to shear zones, the rock is moderately foliated and is sericitic along foliation.

From hand specimen examination the rock contains 40-50% blue quartz, 30-40% plagioclase, 5-10% hornblende and biotite with 5-10% sericite, chlorite and minor hematite and epidote. The rock is often aplitic in composition and texture with later dikes of aplite (Unit 6m) seen intruding the granodiorte. These dikes may represent associated late stage differentiates of the trondhjemite (Unit 6L). Shearing within the trondhjemite has associated quartz veins and pods ranging from 1/2" to 2" in diameter, within the shear. Mineralization includes 1-4% disseminated pyrite and lesser chalcopyrite in a partly sericitized, silicified hostrock.

Locally the trondhjemite looks porphyritic with 20% blue 1-2mm quartz eyes.

Unit 6m Aplitic Granitic Dikes

This unit was seen in two locations at L87W/40S and at L69W/46S. In both cases the dikes intruded the coarse-grained diorite (Unit 6k) along a major 170° fracture zone. Similarly a diabase dike occurs just east of the aplites along the same trend. The aplite dikes were seen filling both a roughly north-south and east-west fracture pattern in the same area. The aplites are equigranular, weather a white-red hematitic colour depending on the presence of any potassium feldspar or hematized plagioclase crystals. The dikes are generally medium-grained and sugary textured, similar in composition to the trondhjemite (Unit 6l). The aplites may, in fact, be part of the trondhjemite (i.e. differentiate).

Mafic Intrusive Rocks

Unit 5a Quartz Diorite

On the Gogama Resources property this rock occurs as plugs averaging 100 x 100 feet in diameter. The matrix is composed of 60% combined plagioclase and quartz, 30% hornblende and biotite with up to 10% chlorite, hematite and sericite. The rock locally contains blue quartz eyes averaging 1-2mm in diameter. This unit is seen cut by

numerous small 1-2" wide quartz veins and stockwork systems trending roughly north-south and east-west. Trace amounts of disseminated pyrite were seen.

Unit 5c Gabbro, Quartz-Gabbro Intrusion and/or Xenolith

A more mafic-rich intrusion occurs on the property in several localities and may either be a mafic phase of the quartz diorite intrusion (Unit 5a) or large metamorphosed, partly recrystallized mafic xenoliths. This phase was mapped gabbro and quartz-gabbro depending on the presence locally of up to 15% blue quartz eyes within the rock. The rock is medium grained, slightly foliated, equigranular and dark green in colour. From hand specimen examination it consists of 70% combined, pyroxene, hornblende and biotite, 10-15% interstitial plagioclase and 5-10% chlorite, tremolite.

Subvolcanic Felsic Intrusive Rocks

Unit 4c Feldspar-Quartz Porphyry

This unit was seen in two locations on the property at L85W at 47S and just west of L89W at 39S. The dikes are striking 130° and may, in fact, be the same dike that is offset by a later north-northwest striking diabase dike (see property geology, back pocket).

The dikes are light grey to buff weathering, and are weakly to moderately foliated along contacts. On fresh surfaces the

rocks are light grey to grey green with an aphanitic matrix. The dike is thought to be dacitic in composition and contains from 30-50% subhedral plagioclase phenocrysts, ranging in size from 1mm to 1cm and averaging 3mm - 4mm. Locally the plagioclase phenocrysts are partly sericitized. The matrix is composed of plagioclase and lesser quartz with flecks of sericite imparting a foliation along contacts. Accessory minerals include chlorite and pyrite. The rock also contains from 2-5% quartz phenocrysts that range in size from 1 to 4mm in diameter.

#### STRUCTURAL GEOLOGY AND METAMORPHISM

Throughout Chester Township, the major structural features are roughly east trending shear zones. The shearing generally follows the major foliation and lithologic contacts in the area.

Several north-northwest trending diabase dikes occur throughout the area and possibly occupy pre-existing fault zones, as a 600 foot offset of a quartz-feldspar porphyry dike occurs on the property.

Although these shear zones are small (1-4 feet), they carry significant gold values. Several quartz vein, stockwork systems and pods were seen on the property and seem to occupy shear zones and/or major fracture zones that range from 080° to 180° and dip steeply to the north. The vein walls are bounded by slips but more often the vein is a stockwork system ranging from 1/4" to

12" in width. Locally, the veins were seen crossing the shears at various points, which indicates that the shear zones are pre-quartz veining.

A diagnostic red hematized feldspar alteration is associated with shear zones as well as with diabase, lamprophyre and quartz-feldspar porphyry dike contacts.

Mineralization including pyrite, chalcopyrite and sphalerite, together with associated gold values, occur within or near to the shear zones.

Shearing was located at:

	<u>Directions</u>
1. L60W at 52S	096°/80°S
2. TL 45S at 91W	125°/80°NE & 050°/50°NW
3. L52W at 42S	095°/70°N
4. L44W at 58S	095°/65°N
5. 200' east of L36W/43S	120°/85°S

Foliations throughout the property are parallel or subparallel to regional bedding attitudes. Foliation ranges from 085° to 130°. The foliation is defined by orientation of platy minerals including biotite, sericite and chlorite. Overall the rocks have undergone regional metamorphism to the lower greenschist facies.

#### ECONOMIC GEOLOGY

A total of 12 rock grab samples were taken on the Gogama Resources property and were analysed for gold.

Several areas of interest were located on the property which returned anomalous gold values. These include three previously trenched quartz vein bearing shear zones and two untrenched mineralized shear zones.

#### Area 1

This area occurs on line 60W at 5200S and is composed of a roughly east-west trending 12" wide shear zone within the trondhjemite (Unit 6l) and near to the potassic-hematitic granodiorite contact (Unit 6d). A grab sample was taken of a 1" wide quartz vein within the shear, that was striking at 095° and dipping steeply to the south. The sample returned 0.275 oz/ton gold, while another grab sample of the sericitic, pyritic wall rock returned 121 ppb gold. The shear zone is 12" wide and is striking 096°/80S. The quartz vein is vuggy with abundant boxwork of jarosite, goethite and hematite with 1% cubic pyrite remaining. Alteration envelopes around the vein range from 2" to 6" and are moderately to strongly foliated. The envelope consists of quartz and sericite.

#### Area 2

This area occurs at TL45S at 91W. A 3mx2m circular pit has been blasted and has partially exposed a series of quartz stringers averaging 1/2" in diameter. The pit is partially filled by rubble with a strong rusty staining caused by oxidation of sulphide mineralization consisting of up to 3% disseminated



coarse pyrite. A conjugate set of two shears occur within this pit within a foliated gabbroic xenolith or intrusion. The shears strike  $125^{\circ}$  and  $050^{\circ}$  and dip  $80^{\circ}$  and  $50^{\circ}$  to the north, respectively. Similarly, two directions of quartz veins exist and appear to be the pinch and swell type. Alteration envelopes around the veins range from 2" to 10", varying with the size of the vein. The vein contacts are chloritic and strongly schistose. Mineralization within this zone consists of 1-2% coarsely disseminated pyrite. Hydrothermal alteration includes chloritization, epidotization and hematization. A second pit occurs 60 feet north of the previous one and contains 1-3% pyrite within a gabbro. Two rock samples were taken. One of a 1" wide quartz vein (Pit 1) and another of pyritized gabbro (Pit 2). The vein returned weakly anomalous in gold (52 ppb) and the pyritized gabbro returned 16 ppb in gold.

### Area 3

In the southeast corner of claim 720674 on line 52W at 4200S, a previously trenched 2-5 foot wide shear zone occurs along the contact between the trondhjemite and a more mafic inclusion (Unit 5c). This east west trending shear is following the contact at  $095^{\circ}/70^{\circ}$  north and has been trenched for 10 feet.

The zone is composed of yellow-white strongly schistose sericitic trondhjemite with strong jarosite, goethite and hematite alteration. Associated 1/2 to 1" wide grey quartz veins

also exist roughly paralleling within and around the shear zone. Mineralization includes up to 3% coarsely disseminated pyrite and 2% chalcopyrite within the sericitic rock. Rock samples returned as high as 0.167 oz/ton gold (R.S.Middleton's sample).

A brief property examination by Robert S. Middleton and Bruce Durham and John Scott in September, 1984 resulted in eight grab samples being taken from these trenches. The samples and results are as follows:

<u>Sample No.</u>	<u>Gold/ppb</u>	<u>Gold/oz</u>
5925		0.167
5926	136	
5927	90	
5928		0.148
5929	724	
5930	835	
5931		0.032
5932	29	

A grab sample collected from the trenches during the course of mapping returned 0.051 oz/ton gold.

This zone may be part of a major east west trending shear zone located 1/2 mile east on the Jarvis Property, also within trondhjemite. Samples on the Jarvis ground reportedly returned .88 oz/ton to 1.76 oz/ton gold from this eastern shear zone.

#### Area 4

In the southeastern corner of the property on line 44W at 58+60 south, a roughly east-west trending shear zone exists along the contact between a mafic xenolith or gabbroic dike (Unit 5c)

and the coarse-grained granodiorite (Unit 6k). This shear zone is following the lithologic contact at 095° and is dipping 65° to the north. The mafic xenolith was moderately to strongly foliated and contained numerous crenulated folded quartz pods from which a lineation was taken. Mineralization included trace amounts of pyrite. Low gold values were obtained from this area.

#### Area 5

East of the eastern boundary of the claim group approximately 150' east of L36W at 4300S a 1-2 foot wide roughly southeast trending shear zone exists within the potassic hematitic granodiorite (Unit 6d). The shear zone is striking 120° and dipping 85° to the south. This area has been previously trenched along and across the shear zone for 20 feet. The host rock is sericitized with pyritic quartz stringers 1" wide, and coarse granular pyrite with massive pyrite lenses containing up to 50% pyrite within the shear. The highest gold value obtained here was 392 ppb from within a 1-2" wide quartz vein.

#### Area 6

This area is located on L81W at 44+00S and consists of silicified trondhjemite with associated 1/4" quartz stockwork veining. The trondhjemite is sericitic along foliation and contains from 2-4% chalcopyrite, lesser pyrite with minor sphalerite. The mineralization is associated with a major subvertical fracture system trending roughly 080°. A single rock sample returned weakly anomalous in gold (143 ppb).

TABLE 2 DESCRIPTION, LOCATION, RESULTS OF ROCK SAMPLES

<u>Sample No.</u>	<u>Rock Type and Description</u>	<u>Location</u>	<u>Gold Results</u>
31187	Trench 2 -Sheared, sericitized trondhjemite (Unit 6l) with 1" wide east-west quartz veins; 1-4% pyrite and chalcopyrite.	L52W, approx. 30' west of 42S	0.051 oz/ton
31188	Recrystallized trondhjemite with 1-2% pyrite.	L52W, approx. 30' east of 54S	97 ppb
31189	Limonitic granodiorite (Unit 6k) with 12" wide quartz vein.	L56W, approx. 40' east of creek.	4 ppb
31190	Shear zone within gabbro with 2" wide pyritic quartz vein.	TL45S/91W	52 ppb
31191	Recrystallized trondhjemite with 2-4% pyrite, sphalerite along fractures.	L81W/44S	143 ppb
31192	Sheared gabbroic xenolith?	L44W/58+60S	3 ppb
31193	Trondhjemite with 1" wide quartz vein	L60W/52S	0.275 oz/ton
31194	Sericitic trondhjemite - Wallrock of vein	L60W/52S	121 ppb
31195	Hematitic granodiorite	L40W/42S	7 ppb
31196	Shear zone within quartz diorite, associated 1-2' wide quartz veins, trace pyrite.	TL45S, approx. 30' north of 91W	16 ppb
59704	Old trench with pyritic 1" quartz stringers occupying 2' wide shear zone.	L36W, approx. 200' east of 43S	392 ppb
59705	Old trench with bull quartz vein in hematized granodiorite.	L36W, approx. 150' east of 43S	8 ppb
5925	Trench 1 Quartz stringers with 2% pyrite within silicified trondhjemite.	L52W, approx. 30' west of 42S	.167 oz/ton
5926	Trench 1- Subcrop of silicified trondhjemite near vein contact.	L52W, approx. 30' west of 42S	136 ppb
5927	Unaltered trondhjemite.	L52W, approx. 30' west of 42S	90 ppb

5928	Trench 1- pyrite, chalcopyrite within sheared trondhjemite.	L52W, approx. 30' west of 42S	0.148 oz/ton
5929	Trench 1- 30' chip sample across shear zone - sericitic, occasional quartz vein.	L52W, approx. 30' west of 42S	724 ppb
5930	Trench 2- disseminated pyrite within trondhjemite.	L52W, approx. 30' west of 42S	835 ppb
5931	Trench 2-fracture controlled pyrite and disseminated within trondhjemite.	L52, approx. 30' west of 42S	0.032 oz/ton
5932	Trench 1-Sericite schist	L52, approx. 30' west of 42S	29 ppb

#### DISCUSSION OF THE INDUCED POLARIZATION SURVEY

##### Survey Dates and Statistics

The induced polarization-resistivity survey was conducted during the early part of November, 1984 by four technicians, Chris Jones, Wayne Pearson, Dave Strain and Scott Hurst, of Robert S. Middleton Exploration Services Inc. A total of 777 readings were taken over a total of 9,500 feet of north-south lines that were spaced 300 feet apart, with stations established every 100 feet. A pole-dipole array was used with an "a" spacing of 50 feet and readings taken at  $n= 1, 2, 3, 4$  and 5.

##### INTERPRETATION OF INDUCED POLARIZATION AND RESISTIVITY SURVEY

These IP profiles were run in order to outline east-west trending shear zones which are known to occur in the area, that might contain significant gold sulfide mineralization. Several areas of anomalous chargeability were outlined by the IP survey which suggest areas of mineralization within possible shear zones.

The most distinct anomalies were on line 89W where three anomalies of weak to moderate chargeability occur. Values of 4-8 milliseconds occur at 36+00 to 37+00 south in moderate resistivity. This anomaly may correspond with a zone of mineralization seen on strike on line 93W at 37+00 south. Trace to 1/2% of disseminated pyrite and chalcopyrite occurred within foliated granodiorite (Unit 6d). At 42+00 south an 11 millisecond anomaly in moderate resistivity correlates with an northeast trending mineralized small shear zone located on TL45+00S at 91W. At 45+00S to 46+00S an 8 millisecond anomaly in high resistivities correlates with a southeast trending mineralized shear zone located on TL45+00S at 91W during the previous geological mapping program.

Another set of two broad anomalies occur on line 40W between 37+50S and 39+00S and between 35+00S and 36+00S where chargeabilities of up to 8 milliseconds occur at 38+00S and at 35+50S respectively. Another possible anomalous chargeability occurs at 33+50S. Values of 9 milliseconds occur here. These anomalies have poor shape and may reflect irregular disseminated sulfides that roughly corresponds to the northwest trending shear zone seen just east of L36W at 43+00S.

Resistivity values are high throughout the property due to fairly shallow overburden conditions.

SURVEY PROCEDURE AND INSTRUMENTATION

The IP survey was done using a Scintrex IPR 11 and a TSQ3 transmitter (3.0 k watt). An "a" spacing of 50 foot was used with  $n= 1, 2, 3, 4$  and 5 in a pole-dipole array configuration. This gave theoretical survey depths up to 150 feet which should have been sufficient to explore to bedrock in all areas of the property, as overburden is shallow.

A 2 second "on" 2 second "off" square wave pulse was transmitted into the ground via stainless steel stake electrodes and the voltage readings were taken using porous pots filled with copper sulphate. A series of 10 time windows were recorded after the shut off of the pulse and the 7th time window (690 - 1150 ms) was plotted on the sections which are attached to the back of this report. This time interval is the 690 - 1050 millisecond duration after the shut off of the pulse.

Specifications for the IPR-11 system are given at the back of this report. Lines were run at 400 foot spacings with readings at 50 foot intervals.

CONCLUSIONS

1. The Gogama Resources property lies within or near to the centre of a trondhjemitic-granodioritic felsic pluton approximately 3 1/2 miles in diameter.
2. Mineralization on the Gogama Resources property appears to be controlled by shearing in the felsic intrusive rocks. Locally, shearing centers on mafic xenolith contacts.
3. Several subparallel shear zones occur on the Gogama Resources property, two of which contain highly anomalous gold values up to 0.275 oz/ton and four of which contain weakly to moderately anomalous gold values ranging from 52 ppb to 392 ppb.
4. On the Gogama Resources property the distribution of the felsic intrusives indicates that the trondhjemitic phase (Unit 61) is the oldest phase filling the core of the complex with the potassic-hematitic granodiorite (Unit 6d) being the youngest phase, and therefore flanking the felsic intrusion.
5. Gold Mineralization seems to be related to roughly east trending shear zones containing associated quartz veins.
6. The auriferous quartz veins occur in a variety of host rocks including the trondhjemite, granodiorite and the mafic gabbroic phase.



7. A pervasive hydrothermal alteration occurs within or near these shear zones and along dike contacts including sericitization, hematization, chloritization and minor epidotization.
8. It is possible that the gold was derived from the felsic intrusive complex with later remobilization into favourable structural sights during a period of deformation.
9. Most of the significant gold values throughout the area occur in the quartz veins with weakly anomalous values in the pyritized, sericitized, chloritized hostrock.
10. The quartz veining was emplaced after shearing as quartz veins were seen cross cutting and following shears.
11. Common accessories in the gold bearing veins are sericite, chlorite, pyrite, and chalcopyrite with minor sphalerite and arsenopyrite (seen in float).
12. A second period of deformation produced minor shear folding and the development of crenulations within the quartz veins and pods within the mafic xenoliths. This second period of deformation may have provided development of depositional sites favourable for the remobilization of silica-gold bearing solutions.

RECOMMENDATIONS

The Induced Polarization Resistivity survey outlined several anomalous chargeability zones that coincide with disseminated sulfides at depth.

Bulldozer power stripping to bedrock along with detailed mapping and sampling of the newly exposed outcrops is recommended along anomalies outlined by the IP survey and along projected fault and shear zones located in the field, so that detailed sampling can be done.

A two phase program is recommended to continue the assessment of gold potential on the Gogama Resources property.

Recommended maximum expenditures for each phase are tabulated below with each succeeding phase being contingent upon favourable results from the preceding phase.

Phase III

Contingent on favourable results from Phase II the  
Induced Polarization-Resistivity Survey

Trenching (surface showings and near surface IP anomalies) \$400/day for 10 days	\$4,000.00
Assaying (75 samples at \$13/sample)	975.00
Supervision \$250/day x 10	<u>2,500.00</u>
Total Phase III	<u>\$7,475.00</u>

Phase IV

Contingent on favourable results from Phase III

Diamond Drilling (geophysical targets and near surface IP Anomalies) 3,000' at \$20/foot	\$60,000.00
Core logging and Assessment filing	2,500.00
Assaying	3,000.00
Transportation and Accommodation	<u>3,000.00</u>
Total Phase IV	<u>\$68,500.00</u>

A total budget of \$75,975 will be required to carry out the  
two continued phases of the recommended exploration program.

Respectfully Submitted,

*Nadia Cair*  
Nadia Cair



Ian Coster

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- Winter, L.D.S.  
1982 Jarvis Resources Ltd., Property Report and Proposed Exploration Program.

CERTIFICATION

I, Nadia M. Caira, B.Sc., of Timmins, Ontario, certify that:

1. I am a graduate of the University of British Columbia, Vancouver, B.C., with a B.Sc. degree in Geology obtained in 1981.
2. I have been practising my profession in Canada since 1981.
3. I have no direct or indirect interest in the properties, leases or securities of Gogama Resources, nor do I expect to receive any.

Dated this December 7, 1984, Timmins, Ontario.

*Nadia Caira*  
Nadia M. Caira, B.Sc.

CERTIFICATION

I, IAN P.D.A. COSTER, B.Sc., of Timmins, Ontario, certify  
that:

- 1) I am a graduate of the University of British Columbia, Vancouver, B.C., with a B.Sc. degree in Geology obtained in 1981.
- 2) I have been practising my profession in Canada since 1981.
- 3) I have no direct or indirect interest in the properties, leases or securities of Gogama Resources, nor do I expect to receive any.

Dated this December 7, 1984, Timmins, Ontario.

A handwritten signature in black ink, appearing to read 'Ian Coster', written over a horizontal line.

IAN P.D.A. COSTER, B.Sc.

A P P E N D I X



# BELL - WHITE ANALYTICAL LABORATORIES LTD.

P.O. BOX 187,

HAILEYBURY, ONTARIO

TEL: 672-3107

## Certificate of Analysis

NO. B1100-84

DATE: September 28, 1984

SAMPLE(S) OF: Rock (8)

RECEIVED: September, 1984

SAMPLE(S) FROM: Mr. John Scott  
R. S. Middleton Exploration Services

Project #M-87

<u>Sample No.</u>	<u>Gold/ppb</u>	<u>Gold/oz.</u>
5925		0.167**
5926	136	
5927	90	
5928		0.148**
5929	724	
5930	835	
5931		0.032**
5932	29	

\*\* Checked

IN ACCORDANCE WITH LONG-ESTABLISHED NORTH AMERICAN CUSTOM, UNLESS IT IS SPECIFICALLY STATED OTHERWISE GOLD AND SILVER VALUES REPORTED ON THESE SHEETS HAVE NOT BEEN ADJUSTED TO COMPENSATE FOR LOSSES AND GAINS INHERENT IN THE FIRE ASSAY PROCESS.

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PER





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P.O. BOX 187,

HAILEYBURY, ONTARIO

TEL: 672-3107

## Certificate of Analysis

NO. B1327-84

DATE: November 14, 1984

SAMPLE(S) OF: Rock (12)

RECEIVED: November, 1984

SAMPLE(S) FROM: Mr. Ian Coster  
R. S. Middleton Exploration Services

Project #M-87

<u>Sample No.</u>	<u>Gold ppb</u>	<u>Gold oz.</u>
G31187		0.051**
8	97	
9	4	
G31190	52	
1	143	
2	3	
3		0.275**
4	121	
5	7	
6	16	
G59704	392	
5	8	

\*\* Checked

IN ACCORDANCE WITH LONG-ESTABLISHED NORTH AMERICAN CUSTOM, UNLESS IT IS SPECIFICALLY STATED OTHERWISE GOLD AND SILVER VALUES REPORTED ON THESE SHEETS HAVE NOT BEEN ADJUSTED TO COMPENSATE FOR LOSSES AND GAINS INHERENT IN THE FIRE ASSAY PROCESS.

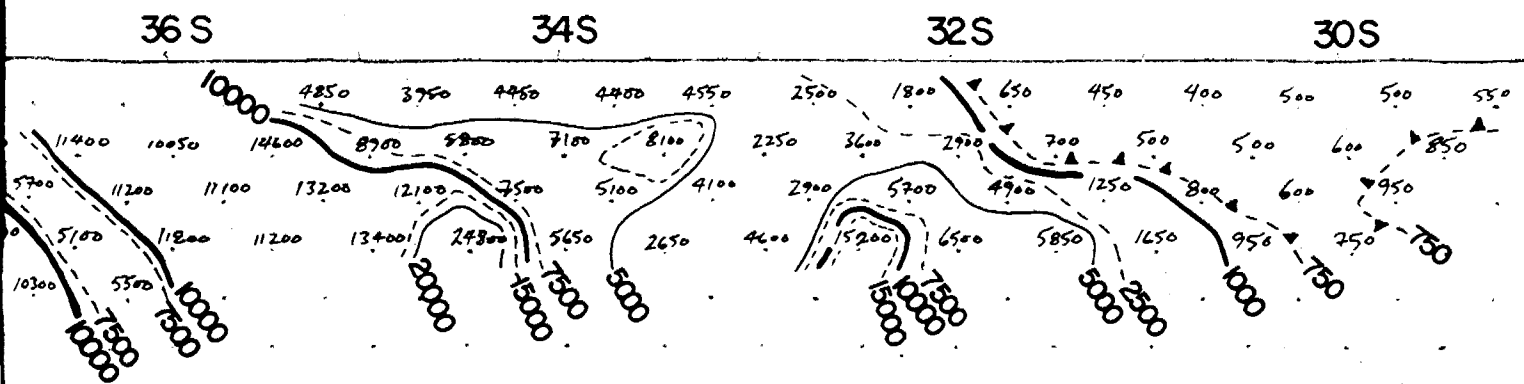
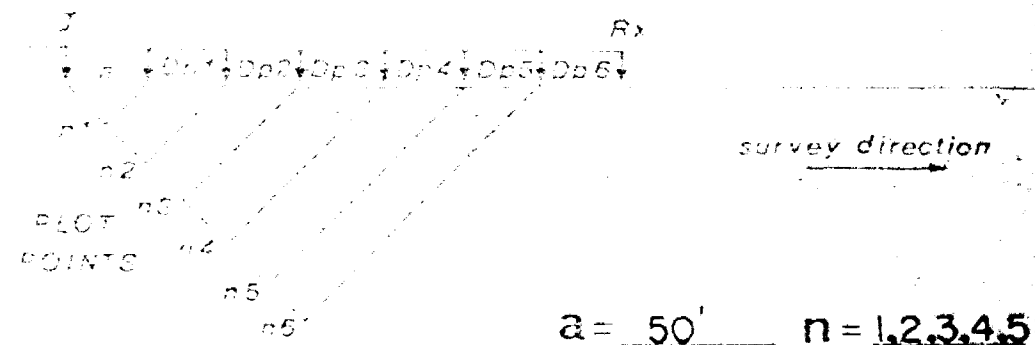
BELL-WHITE ANALYTICAL LABORATORIES LTD.

PER: 

# INDUCED POLARIZATION

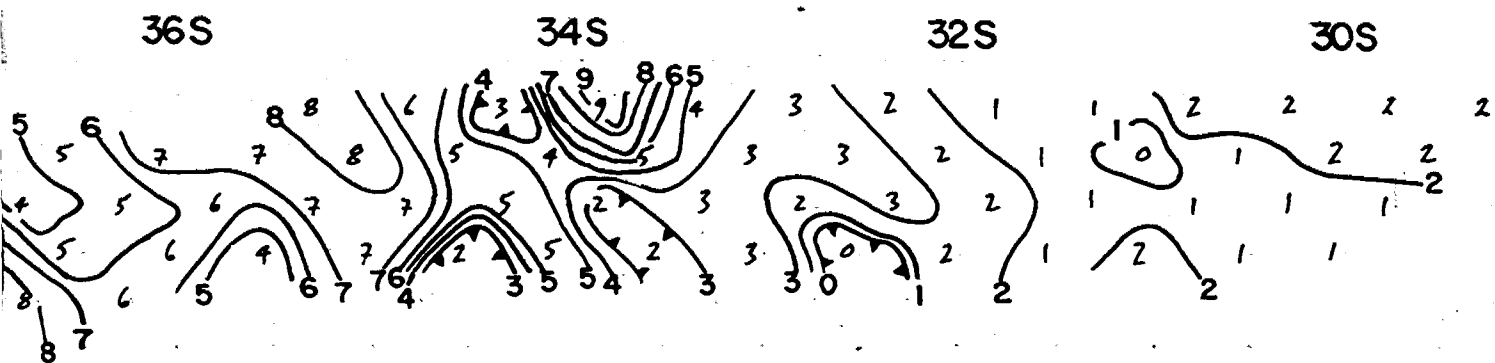
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## POLE-DIPOLE ARRAY



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 RX: Scintrex IPR 11 reading 7th slice 2 sec

Array Length 2250' Total Readings 184



JOHN S. WADDETON  
EXPLORATION SERVICES INC.

for GOGAMA RESOURCES

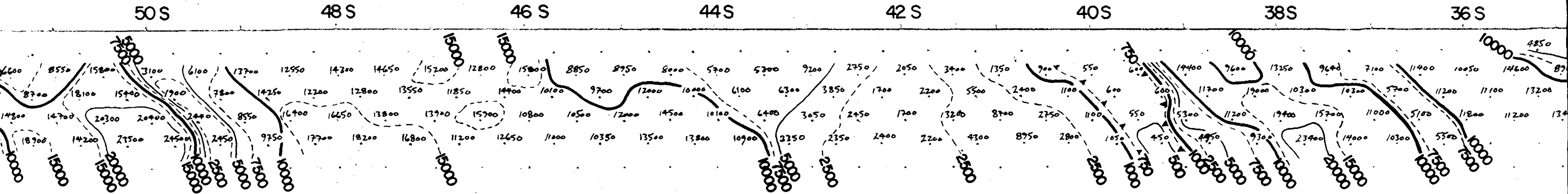
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PORCUPINE MINING DIVISION

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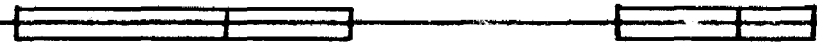
Fig. 6

Date: NOV. 1984 Scale: 1" = 100' N.T.S.: 41 P/12  
 Drawn: CJ/CG Approved: File: M-87

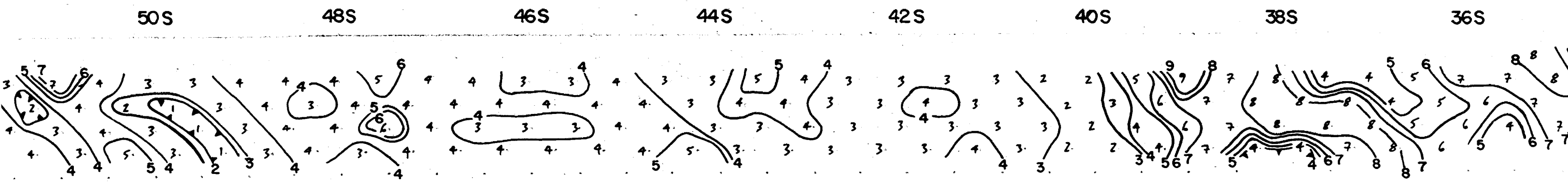
RESISTIVITY (ohm/m)



?



CHARGEABILITY (mv/v)

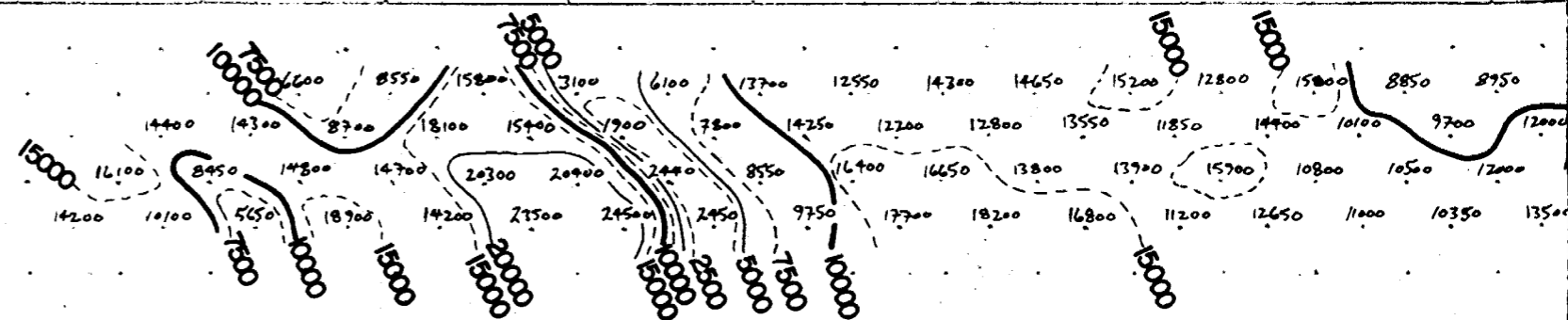


52 S

50 S

48 S

46 S



?

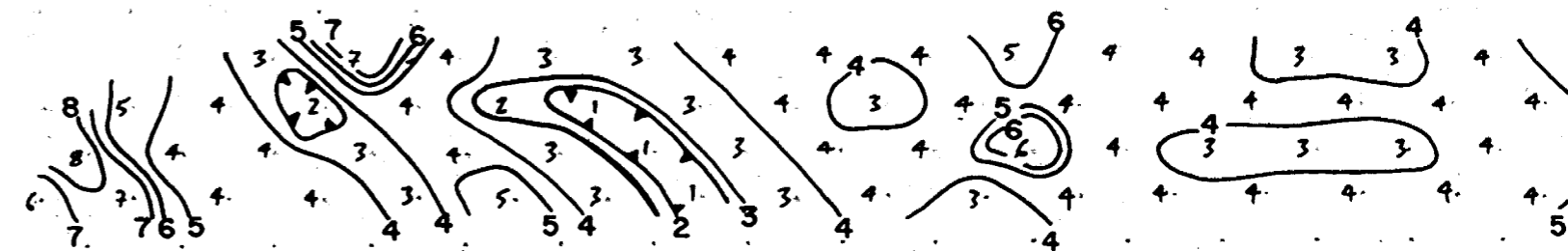
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52 S

50 S

48 S

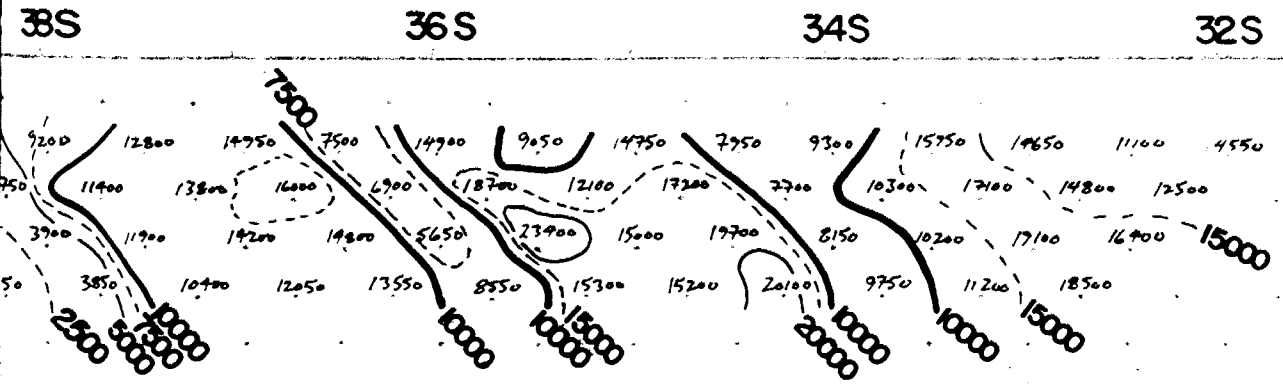
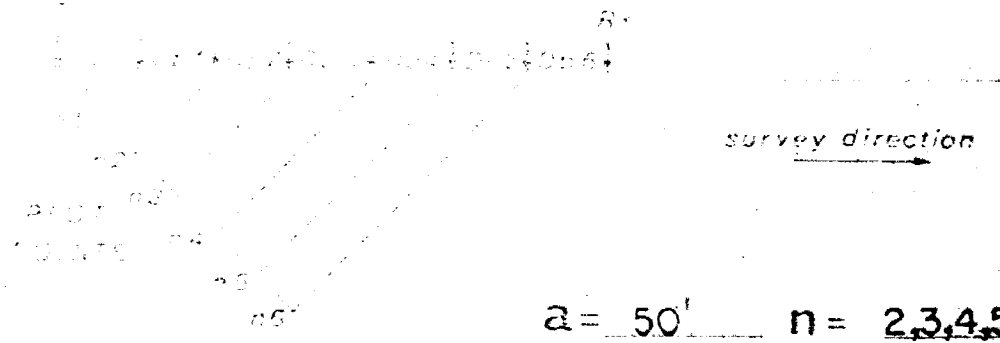
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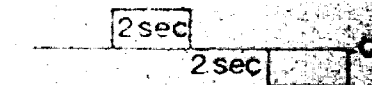


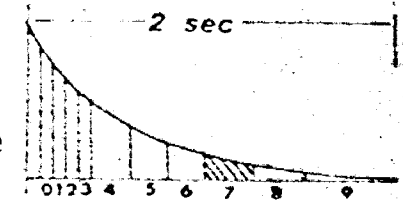
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Time Domain

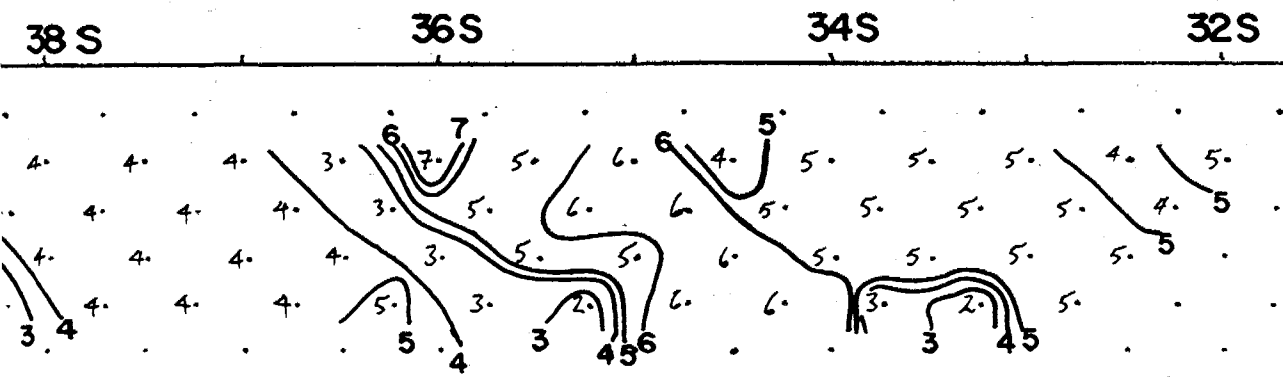
## POLE-DIPOLE ARRAY



Tx: Scintrex TSQ-3 (3kw) Pulse Scheme 

Rx: Scintrex IPR 11 reading 7th slice 

Total Line 1450' Total Readings 124



REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.	
	for GOGAMA RESOURCES	
	Title CHESTER TOWNSHIP PROPERTY PORCUPINE MINING DIVISION	
	L 44 W	
	Date: NOV 1984	Scale: 1" = 100'
	Drawn: /CG	Approved:
		File: M-87

Fig. 7



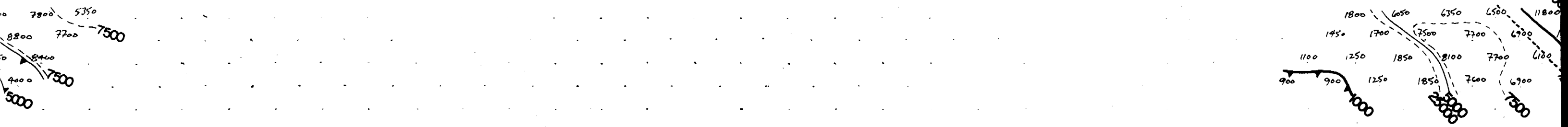






RESISTIVITY (ohm/m)

50S 48S 46S 44S 42S 40S 38S 36S 34S



CHARGEABILITY (mv/v)

50S 48S 46S 44S 42S 40S 38S 36S 34S





38 S

1450 650  
1400 1750 1000  
1700  
2050

38 S

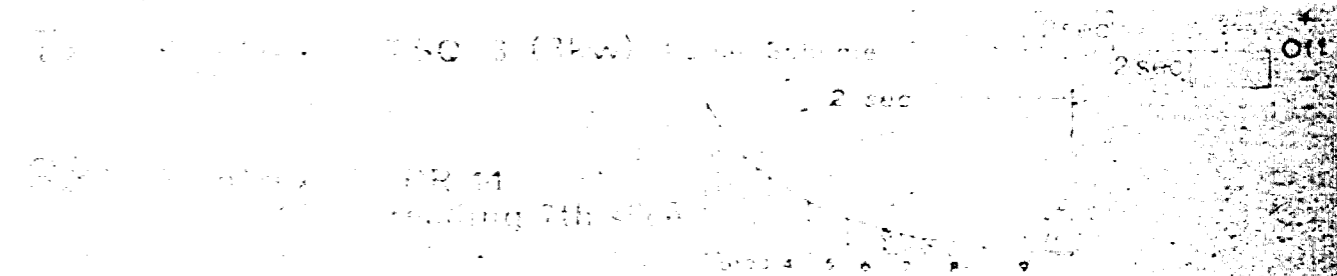
3 2  
3 3  
4 4  
4

POLARIZATION

POLI-DIPOLE ARRAY

array direction

a = 50' n = 2,3,4,5



Line 550' Total Readings 44

ROBERT S. MIDDLETON  
EXPLORATION SERVICES INC.

GOGAMA RESOURCES

CHESTER TOWNSHIP PROPERTY  
PORCUPINE MINING DIVISION

L 52 W

Fig. 9

INT.S.: 41 P/12

/CG File: M-87



38 S

# INDUCED POLARIZATION

## POLE-DIPOLE ARRAY

Survey direction →

a = 50' n = 1,2,3,4,5

38 S

450'

36

A. S. ADDEY  
EXPLORATION SERVICES INC.

GOGAMA RESOURCES

Title CHESTER TOWNSHIP PROPERTY  
PORCUPINE MINING DIVISION

L 56 W

Fig. 10

Date: Nov 1984

Scale: 1" = 100'

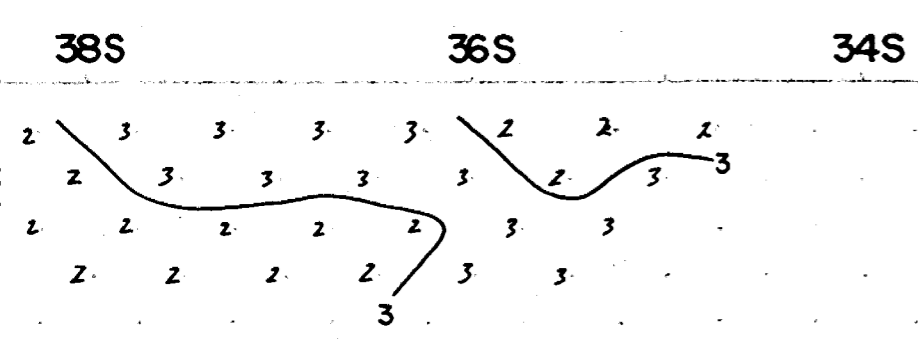
N.T.S.: 41 P/12

Drawn by: /CG

Approved:

File: M-87





2050'

80' R = 1,2,3,4

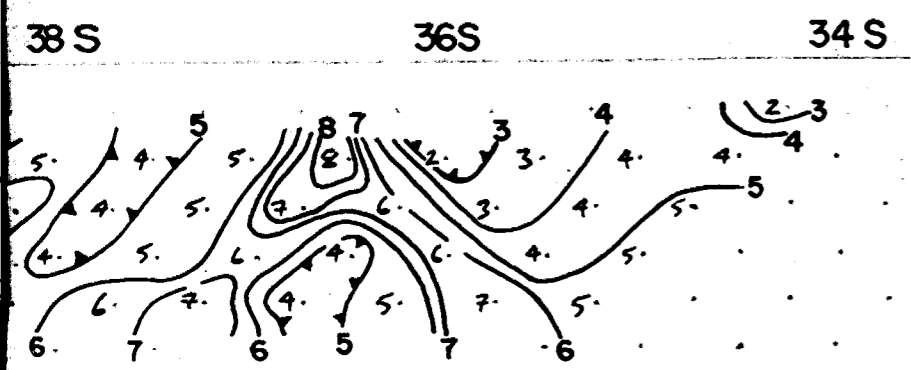
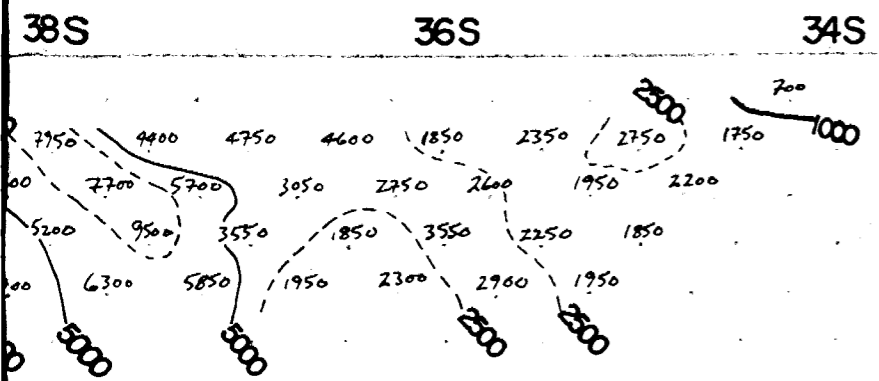
168

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.
for	GOGAMA RESOURCES
Title	CHESTER TOWNSHIP PROPERTY PORCUPINE MINING DIVISION
	L 65 W
	Fig. II
Order No. 94	Scale: 1" = 100'
Drawn by /CG	N.T.S.: 4/P/12
	File: M-87









MAGNETIC ANOMALIZATION

POLE-DIPOLE ARRAY

survey direction

$\Delta = 50'$   $n = 1, 2, 3, 4, 5$

1400'

Total Readings 113

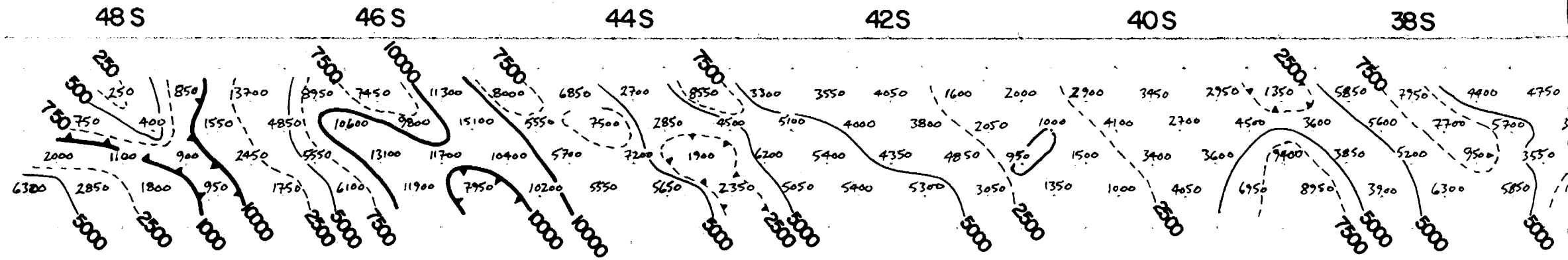
REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for	GOGAMA RESOURCES	
	Title	CHESTER TOWNSHIP PROPERTY PORCUPINE MINING DIVISION	
		L 89 W	

Fig. 12

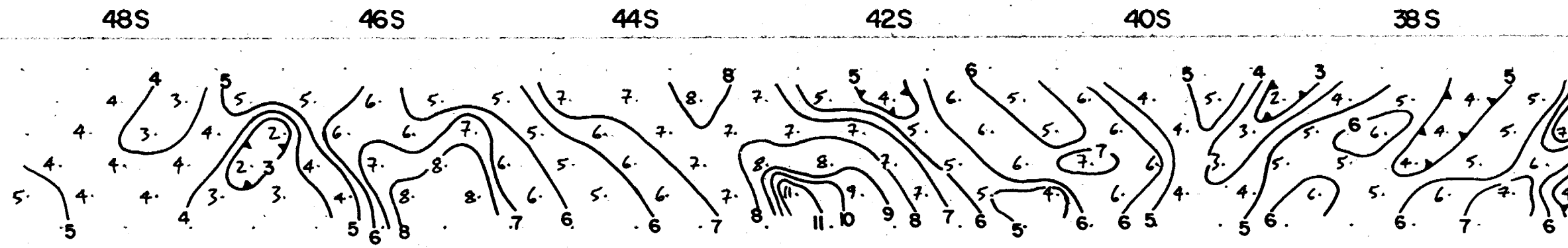
Date: NOV. 1984 Scale: 1" = 100' N.T.S.: 41 P/12

Drawn: CJ/CG Approved: File: M-87

RESISTIVITY (ohm/m)



VARIABILITY (%)





41P12SW0065 2.7838 CHESTER

900

Mining Lands Section

File No 2.7838

Control Sheet

TYPE OF SURVEY

- GEOPHYSICAL
- GEOLOGICAL
- GEOCHEMICAL
- EXPENDITURE

MINING LANDS COMMENTS:

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*LD*

*Dovey*  
Signature of Assessor

3/4/85  
Date

*LD*

1985 05 08

Your File:047/85  
Our File:2.7838

Mining Recorder  
Ministry of Natural Resources  
60 Wilson Avenue  
Timmins, Ontario  
P4N 2S7

Dear Sir:

RE: Notice of Intent dated April 17, 1985  
Geological, Geophysical (Induced polarization)  
on Mining Claims P 681824, et al, in  
Chester Township

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The assessment work credits, as listed with the  
above-mentioned Notice of Intent, have been approved  
as of the above date.

Please inform the recorded holder of these mining  
claims and so indicate on your records.

Yours sincerely,

S.E. Yundt  
Director  
Land Management Branch

Whitney Block, Room 6643  
Queen's Park  
Toronto, Ontario  
M7A 1W3  
Phone:(416)965-4888

D. Isherwood:mc

cc: 593348 Ontario Corporation  
c/o R.S. Middleton Exploration Services  
Timmins, Ontario  
cc: Ed Blanchard  
Lively, Ontario  
cc: Gogama Resources Inc  
Toronto, Ontario  
cc: R.S. Middleton Exploration  
Timmins, Ontario  
cc: Mr. G.H. Ferguson  
Mining & Lands Commissioner  
Toronto, Ontario  
cc: Resident Geologist  
Timmins, Ontario

Encl.



Ontario

Ministry of  
Natural  
Resources

# Technical Assessment Work Credits

File  
2.7838

Date  
1985 04 17

Mining Recorder's Report of  
Work No. 047/85

Recorded Holder <b>ED BLANCHARD</b>
Township or Area <b>CHESTER TOWNSHIP</b>

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
<b>Geophysical</b> Electromagnetic _____ days Magnetometer _____ days Radiometric _____ days Induced polarization <b>60.2</b> _____ days Other _____ days Section 77 (19) See "Mining Claims Assessed" column Geological _____ days Geochemical _____ days Man days <input checked="" type="checkbox"/> Airborne <input type="checkbox"/> Special provision <input type="checkbox"/> Ground <input checked="" type="checkbox"/> <input type="checkbox"/> Credits have been reduced because of partial coverage of claims. <input type="checkbox"/> Credits have been reduced because of corrections to work dates and figures of applicant.	P 681825 720673-674 720703-704

**Special credits under section 77 (16) for the following mining claims**

**No credits have been allowed for the following mining claims**

not sufficiently covered by the survey       Insufficient technical data filed

P 681824  
 681826-827  
 681675  
 720705





Ministry of  
Natural  
Resources

*May 2/85*

1985 04 17

Your File: 047/85  
Our File: 2.7838

Mining Recorder  
Ministry of Natural Resources  
60 Wilson Avenue  
Timmins, Ontario  
P4N 2S7

Dear Sir:

Enclosed are two copies of a Notice of Intent with statements listing a reduced rate of assessment work credits to be allowed for a technical survey. Please forward one copy to the recorded holder of the claims and retain the other. In approximately fifteen days from the above date, a final letter of approval of these credits will be sent to you. On receipt of the approval letter, you may then change the work entries on the claim record sheets.

For further information, if required, please contact Mr. R.J. Pichette at 416/965-4888.

Yours sincerely,

S.E. Yundt  
Director  
Land Management Branch

Whitney Block, Room 6643  
Queen's Park  
Toronto, Ontario  
M7A 1W3

D. Isherwood:mc

Encls.

cc: 593348 Ontario Corporation  
c/o R.S. Middleton Exploration Services  
Box 1637  
Timmins, Ontario  
P4N 7W8

cc: Ed Blanchard  
106 Fielding Road  
R.R.#2  
Lively, Ontario  
POM 2E0

cc: Gogama Resources Inc  
Suite 1710  
390 Bay Street  
Toronto, Ontario  
M5H 2Y2

cc: Mr. G.H. Ferguson  
Mining & Lands Commissioner  
Toronto, Ontario

cc: R.S. Middleton Exploration  
Services Inc  
Box 1637  
Timmins, Ontario  
P4N 7W8

Attention: Ian Coster

845





Ministry of  
Natural  
Resources

Ontario

Notice of Intent  
for Technical Reports

1985 04 17

2.7838/047/85

An examination of your survey report indicates that the requirements of The Ontario Mining Act have not been fully met to warrant maximum assessment work credits. This notice is merely a warning that you will not be allowed the number of assessment work days credits that you expected and also that in approximately 15 days from the above date, the mining recorder will be authorized to change the entries on his record sheets to agree with the enclosed statement. Please note that until such time as the recorder actually changes the entry on the record sheet, the status of the claim remains unchanged.

If you are of the opinion that these changes by the mining recorder will jeopardize your claims, you may during the next fifteen days apply to the Mining and Lands Commissioner for an extension of time. Abstracts should be sent with your application.

If the reduced rate of credits does not jeopardize the status of the claims then you need not seek relief from the Mining and Lands Commissioner and this Notice of Intent may be disregarded.

If your survey was submitted and assessed under the "Special Provision-Performance and Coverage" method and you are of the opinion that a re-appraisal under the "Man-days" method would result in the approval of a greater number of days credit per claim, you may, within the said fifteen day period, submit assessment work breakdowns listing the employees names, addresses and the dates and hours they worked. The new work breakdowns should be submitted direct to the Land Management Branch, Toronto. The report will be re-assessed and a new statement of credits based on actual days worked will be issued.



**Report of Work**  
(Geophysical, Geological,  
Geochemical and Expenditures)

#047/85  
2-1838  
Mining Act

- Instructions: - Please type or print.  
- If number of mining claims traversed exceeds space on this form, attach a list.  
Note: - Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.  
- Do not use shaded areas below.

Apr 15 1985

Type of Survey(s) <b>GEOLOGICAL &amp; GEOPHYSICAL</b>		Township or Area <b>CHESTER</b>	
Claim Holder(s) <b>GOGAMA RESOURCES; Ed Blanchard; 593348 Ont. Corp.</b>		Prospector's Licence No. <b>C-27521</b>	
Address <b>% R.S. Middleton Expl. Services; Box 1637 TIMMINS, ONT. P4N7W8</b>			
Survey Company <b>Robt. S. Middleton Exploration Services Inc</b>		Date of Survey (from & to) Day   Mo.   Yr.   Day   Mo.   Yr. <b>11 84   6 12 84</b>	
Name and Address of Author (of Geo-Technical report) <b>Ian Coster BOX 1637 TIMMINS, ONT. P4N7W8 (264-4246)</b>		Total Miles of line Cut <b>8.36</b>	

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
For each additional survey: using the same grid: Enter 20 days (for each)	Geological	<b>40</b>
	Geochemical	
Man Days Complete reverse side and enter total(s) here	Geophysical	Days per Claim
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other <b>I.P.</b>	<b>30.1</b>
	Geological	
	Geochemical	
Airborne Credits Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	Days per Claim
	Magnetometer	
	Radiometric	

Mining Claims Traversed (List in numerical sequence)

Mining Claim		Expend. Days Cr.	Mining Claim		Expend. Days Cr.
Prefix	Number		Prefix	Number	
<b>P</b>	<b>681824</b>				
	<b>" 825</b>				
	<b>" 826</b>				
	<b>" 827</b>				
	<b>720673</b>				
	<b>" 674</b>				
	<b>" 675</b>				
	<b>" 703</b>				
	<b>" 704</b>				
	<b>" 705</b>				

**RECEIVED**  
MAR 15 1985  
MINING LANDS SECTION

**RECORDED**  
FEB 14 1985  
Receipt No. *J*

**R**  
FEB 14 1985

Total number of mining claims covered by this report of work. **10**

Expenditures (excludes power stripping)

Type of Work Performed
Performed on Claim(s)
Calculation of Expenditure Days Credits
Total Expenditures <b>\$</b> ÷ <b>15</b> = <b></b> Total Days Credits
Instructions Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

For Office Use Only		
Total Days Cr. Recorded <b>701</b>	Date Recorded <b>Feb 14/85</b>	Mining Agent <i>Stanley</i>
	Date Approved as Recorded <i>See Reused Staxobrest</i>	Branch Director

Date <b>Jan 8/85</b>	Recorded Holder or Agent (Signature) <i>Ian Coster</i>
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Certification Verifying Report of Work I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.	
Name and Postal Address of Person Certifying <b>IAN COSTER, BOX 1637 TIMMINS, ONT P4N7W8</b>	
Date Certified <b>Jan 8/85</b>	Certified by (Signature) <i>Ian Coster</i>

## Assessment Work Breakdown

Man Days are based on eight (8) hour Technical or Line-cutting days. Technical days include work performed by consultants, draftsmen, etc..

Type of Survey <b>GEO PHYSICAL (INDUCED POLARIZATION - RESISTIVITY)</b>												
Technical Days	x	7	=	Technical Days Credits	+	Line-cutting Days	=	Total Credits	+	No. of Claims	=	Days per Claim
43				301		<del>0</del>		301		10		30.1

Type of Survey												
Technical Days	x	7	=	Technical Days Credits	+	Line-cutting Days	=	Total Credits	+	No. of Claims	=	Days per Claim

Type of Survey												
Technical Days	x	7	=	Technical Days Credits	+	Line-cutting Days	=	Total Credits	+	No. of Claims	=	Days per Claim

Type of Survey												
Technical Days	x	7	=	Technical Days Credits	+	Line-cutting Days	=	Total Credits	+	No. of Claims	=	Days per Claim

1985 03 05

Your File:  
Our File: 2.7838

Mining Recorder  
Ministry of Natural Resources  
60 Wilson Avenue  
Timmins, Ontario  
P4N 2S7

Dear Sir:

We received reports and maps on Febraury 26, 1985 for a Geophysical (Induced Polarization) and Geological Survey submitted on Mining Claims P 681824 et al in the Township of Chester.

This material will be examined and assessed and a statement of assessment work credits will be issued.

We do not have a copy of the report of work which is normally filed with you prior to the submission of this technical data. Please forward a copy as soon as possible.

Yours sincerely,

S.E. Yundt  
Director  
Land Management Branch

Whitney Block, Room 6643  
Queen's Park  
Toronto, Ontario  
M7A 1W3  
Phone:(416)965-6918

A. Barr:sc

cc: Gogama Resources Inc  
Suite 1710  
390 Bay Street  
Toronto, Ontario  
M5H 2Y2

cc: Edward Blanchard  
106 Fielding Road  
R.R. #2  
Lively, Ontario  
POM 2E0

cc: R.S. Middleton  
Exploration Services Inc  
P.O. Box 1637  
Timmins, Ontario  
P4N 7W8  
Attn: Ian Coster



GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL  
TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT  
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT  
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) GEOLOGICAL & GEOPHYSICAL  
Township or Area CHESTER TOWNSHIP  
Claim Holder(s) GOGAMA RESOURCES INC.; EDWARD  
BLANCHARD; 593348 ONTARIO CORP.  
Survey Company ROBT. S. MIDDLETON EXPLOR. SERVICES  
Author of Report IAN COSTER  
Address of Author BOX 1637 TIMMINS, ONT  
Covering Dates of Survey NOV. 1/84 - DEC 6/84  
(linecutting to office)  
Total Miles of Line Cut 8.36 mi

MINING CLAIMS TRAVERSED  
List numerically

P	681824
(prefix)	(number)
P	681825
P	681826
P	681827
P	720673
P	720674
P	720675
P	720703
P	720704
P	720705

If space insufficient, attach list

SPECIAL PROVISIONS CREDITS REQUESTED	DAYS per claim
ENTER 40 days (includes line cutting) for first survey.	Geophysical
	-Electromagnetic _____
	-Magnetometer _____
	-Radiometric _____
ENTER 20 days for each additional survey using same grid.	i.p. -Other <u>30.1</u>
	Geological <u>40</u>
	Geochemical _____

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer \_\_\_\_\_ Electromagnetic \_\_\_\_\_ Radiometric \_\_\_\_\_  
(enter days per claim)

DATE: Jan. 8/85 SIGNATURE: [Signature]  
Author of Report or Agent

Res. Geol. \_\_\_\_\_ Qualifications 2.6024

Previous Surveys

File No.	Type	Date	Claim Holder

RECEIVED

FEB 26 1985

MINING LANDS SECTION

TOTAL CLAIMS 10

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS -- If more than one survey, specify data for each type of survey

Number of Stations ~~777~~ ~~9500~~ ~~777~~ 777 Number of Readings 777  
Station interval ~~100~~ 50 ft Line spacing 400 feet  
Profile scale see maps  
Contour interval

MAGNETIC

Instrument  
Accuracy - Scale constant  
Diurnal correction method  
Base Station check-in interval (hours)  
Base Station location and value

ELECTROMAGNETIC

Instrument  
Coil configuration  
Coil separation  
Accuracy  
Method:  Fixed transmitter  Shoot back  In line  Parallel line  
Frequency (specify V.L.F. station)  
Parameters measured

GRAVITY

Instrument  
Scale constant  
Corrections made  
Base station value and location  
Elevation accuracy

INDUCED POLARIZATION RESISTIVITY

Instrument SCINTREX IPR-11 receiver / SCINTREX TSA-3 transmitter  
Method  Time Domain  Frequency Domain  
Parameters - On time 2 sec Frequency  
- Off time 2 sec Range  
- Delay time 30 millisecc.  
- Integration time from 768 millisecc to 1792 millisecc  
Power 3.0 KWATT  
Electrode array POLE - DIPOLE  
Electrode spacing 50 feet  
Type of electrode POROUS POTS CONTAINING COPPER SULPHATE

**SELF POTENTIAL**

Instrument \_\_\_\_\_ Range \_\_\_\_\_

Survey Method \_\_\_\_\_

Corrections made \_\_\_\_\_

**RADIOMETRIC**

Instrument \_\_\_\_\_

Values measured \_\_\_\_\_

Energy windows (levels) \_\_\_\_\_

Height of instrument \_\_\_\_\_ Background Count \_\_\_\_\_

Size of detector \_\_\_\_\_

Overburden \_\_\_\_\_

(type, depth – include outcrop map)

**OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)**

Type of survey \_\_\_\_\_

Instrument \_\_\_\_\_

Accuracy \_\_\_\_\_

Parameters measured \_\_\_\_\_

Additional information (for understanding results) \_\_\_\_\_

**AIRBORNE SURVEYS**

Type of survey(s) \_\_\_\_\_

Instrument(s) \_\_\_\_\_

(specify for each type of survey)

Accuracy \_\_\_\_\_

(specify for each type of survey)

Aircraft used \_\_\_\_\_

Sensor altitude \_\_\_\_\_

Navigation and flight path recovery method \_\_\_\_\_

Aircraft altitude \_\_\_\_\_ Line Spacing \_\_\_\_\_

Miles flown over total area \_\_\_\_\_ Over claims only \_\_\_\_\_

GEOCHEMICAL SURVEY - PROCEDURE RECORD

Numbers of claims from which samples taken \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Total Number of Samples \_\_\_\_\_

Type of Sample \_\_\_\_\_  
(Nature of Material)

Average Sample Weight \_\_\_\_\_

Method of Collection \_\_\_\_\_  
\_\_\_\_\_

Soil Horizon Sampled \_\_\_\_\_

Horizon Development \_\_\_\_\_

Sample Depth \_\_\_\_\_

Terrain \_\_\_\_\_  
\_\_\_\_\_

Drainage Development \_\_\_\_\_

Estimated Range of Overburden Thickness \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**SAMPLE PREPARATION**  
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

General \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**ANALYTICAL METHODS**

Values expressed in: per cent   
p. p. m.   
p. p. b.

Cu, Pb, Zn, Ni, Co, Ag, Mo, As, -(circle)

Others \_\_\_\_\_

Field Analysis (\_\_\_\_\_ tests)

Extraction Method \_\_\_\_\_

Analytical Method \_\_\_\_\_

Reagents Used \_\_\_\_\_

Field Laboratory Analysis

No. (\_\_\_\_\_ tests)

Extraction Method \_\_\_\_\_

Analytical Method \_\_\_\_\_

Reagents Used \_\_\_\_\_

Commercial Laboratory (\_\_\_\_\_ tests)

Name of Laboratory \_\_\_\_\_

Extraction Method \_\_\_\_\_

Analytical Method \_\_\_\_\_

Reagents Used \_\_\_\_\_

General \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



good IP

681824

2/4

825

✓

✓

826

1/4

827

2/4

linecutting

Ed Blanchard

104 Fielding Rd

RAM

Lively, Ont.

PO M 2:EO

720673

✓

✓

674

✓

✓

$43 \times 7 = 301 \div 5 = 60.2$

Sogama

675

✓

703

✓

✓

593348

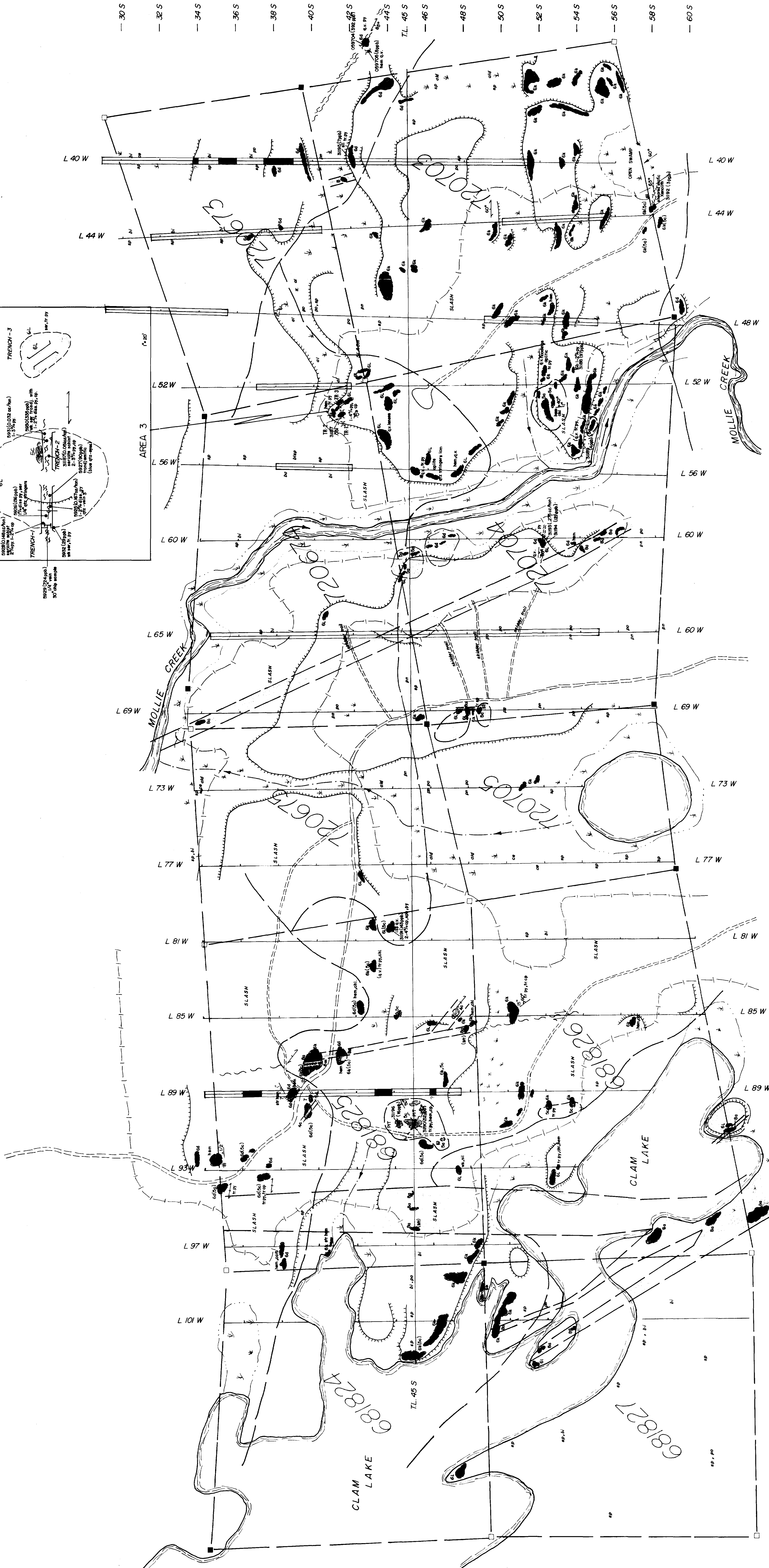
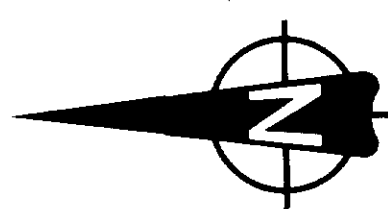
704

✓

✓

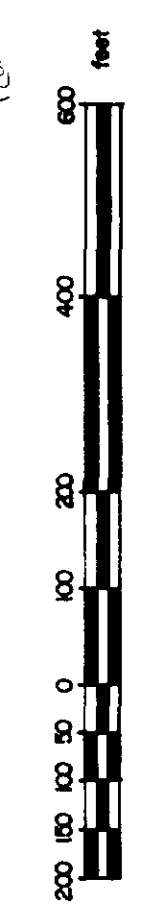
705

1/4



- LEGEND**
- ▬ slash boundary
  - ▬ geological contact
  - ▬ topographic ridge
  - ▬ quartz vein (q.v.)
  - ▬ foliation
  - ▬ shear
  - ▬ road sample location
  - ▬ swamp
  - ▬ gravel road, skidder road
  - ▬ outcrop outline
  - ▬ claim post (locates)
  - ▬ claim post (unlocated)
  - ▬ anomaly
  - ▬ area of line surveys
  - ▬ Induced Polarization
  - ▬ quartz stockwork
  - ▬ carbonization
  - ▬ chert
  - ▬ hematite
  - ▬ pyrite
  - ▬ sphalerite
  - ▬ shungite
  - ▬ old
  - ▬ barren
  - ▬ chert
  - ▬ calc
  - ▬ pyrite
  - ▬ sph
  - ▬ shungite

- 8a Sideroporphyrilic Diabase
- 7 Lamprophyre Dike
- 6d Intermediate (carbon-poor) Diorite
- 6b Basaltic (carbon-poor) Diorite
- 6L Tephritic (quartz)
- 6m Quartz-troctolite granitic Dike
- 5a Quartz Diabase Gabbro
- 5b Sulfate-Quartz Gabbro Melonite and/or intrusion
- 4: Feldspar-Quartz Porphyry



REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.
	for GOGAMA RESOURCES
	Title GEOLOGY
	7838
	Date: NOV. 1984 Scale: 1"=200' N.T.S.
	Drawn: C.G. Approved: [Signature] File: M-87

