



42D16NE0039 2.8708 SEELEY LAKE

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NORANDA INC. (Geco Division)

Assessment Report

Marathon North & South  
Properties

RECEIVED

DEC 06 1985

MINING LANDS SECTION

## GEOLOGICAL REPORT

To accompany the geological maps for Marathon North (Map 1), claims TB 828773 to TB 828781 inclusive.

The purpose of this survey was to delineate the various differences in color, structure and grain size of the property's syenites and determine if quarrying of this material would be feasible.

## LOCATION AND ACCESS

The survey area is located approximately 3 miles north of Marathon (Figure 1) and consists of 9 claims.

The area is accessible via a bush road that cuts diagonally through the property from Highway 17 in the northeast corner to the C.P. Railway tracks in the south-west corner of the property.

## OWNERSHIP




The claims are held by Noranda Inc. with head offices in Toronto, Ontario. The claims were staked in October 1984.

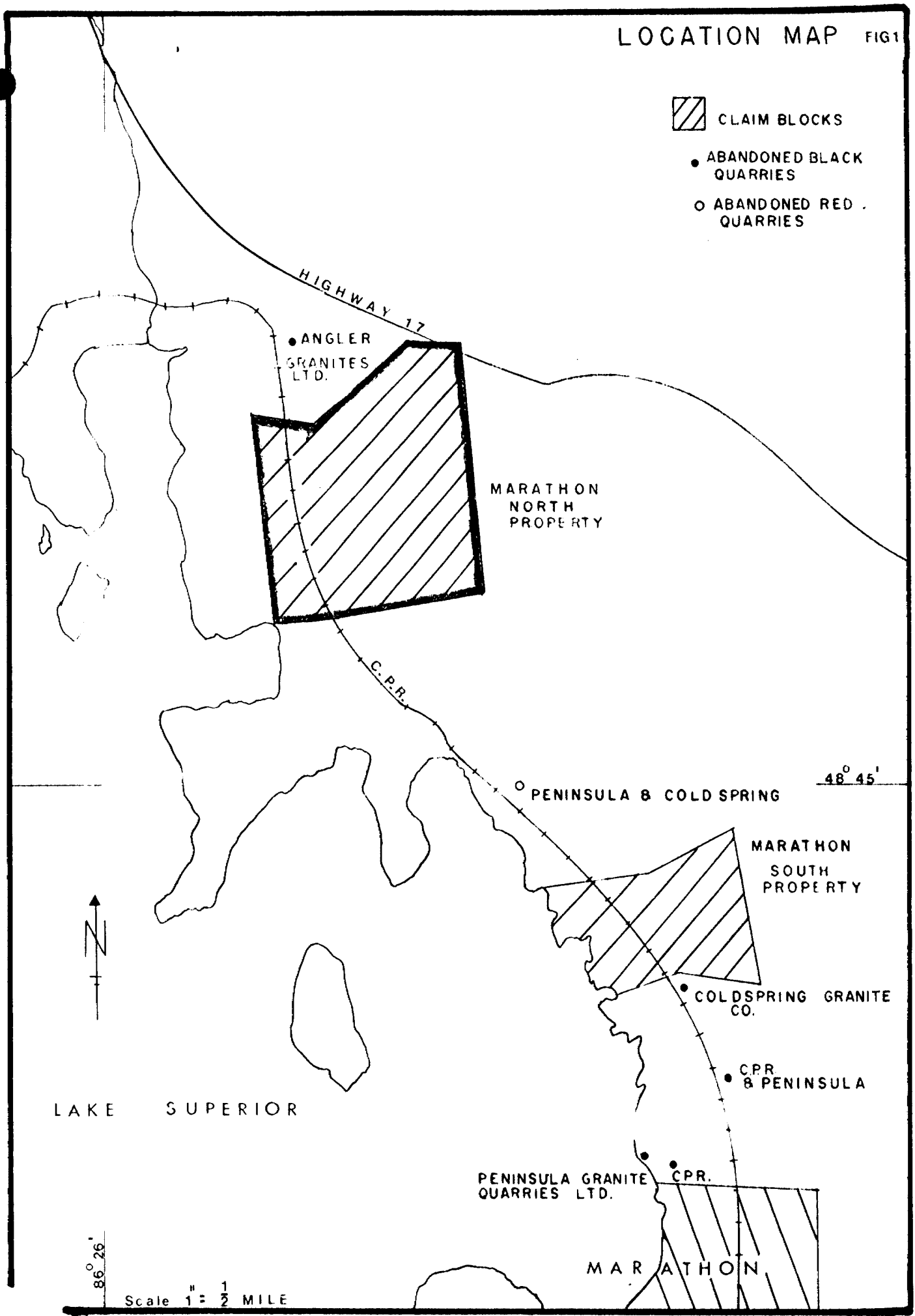
## NATURE OF WORK

This report, submitted by the Geology Department of Noranda Inc., Geco Division is the result of work carried out in the fall of 1985 under the supervision of Robert G. Friesen, Chief Geologist.

The geological mapping was done by Joe W. Campbell and J. Ian Lawyer, BSc. graduates of Acadia University. Both men were employed by Noranda Inc., Geco Division.

The survey was run on 21.6 km of north-south pace and compass lines with approximately 100 m spacing. These lines were flagged at 25 m stations with each flag marked with the grid

-  CLAIM BLOCKS
-  ABANDONED BLACK QUARRIES
-  ABANDONED RED QUARRIES



coordinates (line number and northing). Lines were tied in and controlled by pace and compass tie lines on the north and south claim block boundaries and by known locations of two Ontario Hydro power lines, the main east-west C.P. Railway line and the Trans Canada Highway 17, which all pass through the property.

Mapping was carried out along these lines and all outcrop was tied into the grid system. A geological map was prepared at a scale of 1:5000.

### TOPOGRAPHY

The property can be subdivided into two sections, the north half is rugged with mixed forest and interspersed swamps and consists largely of bare to lightly forested outcrop. The south half is generally flat and covered with overburden. The southwest is covered with fine sand and clay except for the extreme western boundary which has outcrop. Angler Creek passes north-south through this area and has deeply incised sandy clay banks. The south-east portion is covered by a thick spruce swamp except for the south boundary which rises up to a high area of outcrop.

### REGIONAL PORT COLDWELL COMPLEX GEOLOGY

The Port Coldwell Alkalic Complex is almost circular in shape and approximately 25 km in diameter. It contains a wide variety of intrusive rocks. These can be grouped into four main units listed below, from oldest to youngest, as generally accepted by most authors.

- 1) A Gabbro forms an incomplete outer ring around the complex and includes massive and banded varieties. It is situated generally along the eastern and northern boundary of the complex.
- 2) An Augite Syenite overlies the gabbro.
- 3) A complex of Alkalic Gabbro and Syenodiorite (Hornblende Syenite), occurs generally near the core of the complex.

- 4) Quartz Syenites and Nepheline Syenites make up the western half and the core of the complex.

The intrusion cuts an east trending greenstone belt of metamorphosed volcanic, sedimentary and granitic rocks of Early Precambrian age. Generally the age determinations are from around 1050 my. for the syenites although the age determinations from several authors ranges 1005 my. to 1285 my. for various rock types of the complex.

In the vicinity of the claims, regional geology maps show a northwest trending tongue of Syenodiorite extending along the shore of Lake Superior with Augite Syenite covering the remaining area.

#### PAST QUARRY HISTORY

The "Black Granite" or Augite Syenite was first quarried in the Marathon area around 1880 for the construction of bridge abutments. The railway bridges over the Pic and Little Pic Rivers were constructed using rock from this quarry. Two quarries existed, one approximately 1200' west of Peninsula Station (now Marathon) and one approximately 2000' north of Peninsula Station immediately east of the C.P.Railway line.

In 1927 commercial quarrying began on a small scale. Peninsula Granite Quarries Limited shipped its first "Black Granite" in early 1928 and continued until 1930. The first quarry made use of the old C.P.R. quarry north of Peninsula but soon this was abandoned for a quarry on the lake shore about 1800' due west of Peninsula. Blocks 10' in length and weighing up to 35 tons were quarried. During fourteen months of operation in 1929 and 1930, 24 car loads of "Black Granite" were shipped from Peninsula.

Peninsula Granite Quarries Limited also opened a "Red Granite" quarry about 200 feet east of the C.P.Railway line on a ridge approximately 1 3/4 miles north of Peninsula. Large blocks were quarried and hoisted directly on to freight cars. Two car loads were shipped between 1929 and 1930.

weathered surface, dull red-brown on fresh faces. It tends to weather fairly deeply about 30 cm and becomes fissile on heavily weathered surfaces, breaking along crystal surfaces. This rock type has two subvariants. One has black phenocrysts of augite in a red matrix of the above listed minerals. The other is an equigranular unit which is transitional between Red Hornblende Syenite and Brown Augite Syenite.

Brown Augite Syenite- A medium to coarse grained equigranular intrusive with local fine grained equivalents. The dominant minerals are feldspar, augite and hornblende, with minor magnetite observed. The feldspar lacks the red hematite staining, hence its darker color. The same minor constituents mentioned for Red Hornblende Syenite have been observed in this unit by other authors. This unit is tan brown to dark brown on weathered surfaces and chocolate brown to dark green to black on fresh surfaces. The rock weathers fairly deeply, about 30 cm, and becomes fissile on heavily weathered surfaces. The drastic change in appearance from weathered to fresh faces made the identification of the rock color and hence its name in this report difficult, and occasionally in the brown-red weathered varieties it may be confused with Red Hornblende Syenite.

This rock type has three subvariants. One an equigranular unit which is transitional between Red Hornblende Syenite and Brown Augite Syenite. The second is a dark brown phase trending towards black presumably due to a higher augite content. The third is a brown porphyritic unit with large plagioclase (perthite?) laths in a brown matrix.

A sample of the darker brown phase was cut and polished. On the cut surfaces it appears nearly black but shows a distinctive dark olive green hue on close inspection with occasional blue iridescent crystals. On polished surface the crystals are revealed to be highly fractured making identification of individual crystal types and sizes difficult. The rock takes a good polish and shows uniform texture and color with only slight hematite discoloration on occasional fractures and overall the rock has a pleasing appearance.

In 1931 Peninsula Granite Quarries Limited was purchased by Cold Spring Granite Company. The company began a new quarry immediately east of the C.P. Railway line approximately 3/4 of a mile north of the station, the lake shore quarry being abandoned to eliminate an 1800' haul to the railway. This operation shipped 20 carloads of "Black Granite" between 1931 and 1932 when operations ceased for lack of markets.

About the same time or shortly after the Marathon area was active, a small amount of granite was produced on 11 claims along the railway at Angler, several miles north of Peninsula by Angler Granites Limited. These claims covered the area of the present Marathon North property. Openings were made in several kinds of rock from deep red to dark brownish black and almost jet black. Both red and black granites were being produced and a polishing shed was erected in 1932. The rocks were massive at both quarries but numerous pegmatite dykes had to be avoided. This company apparently ceased operation in 1932.

In 1960 the Lake Superior Stone Syndicate was formed and a block of 47 claims were staked, extending south from Hare Lake to within 1/2 mile of the Marathon Townsite. These claims included the present Marathon North property. The quarrying was scheduled to begin in the fall of 1960 but a failure to secure necessary markets forced a halt to the activity. The Marathon area has had no quarry activity since that time.

#### DESCRIPTION OF PRINCIPLE ROCK TYPES IN THE MARATHON NORTH CLAIM BLOCK

Red Hornblende Syenite- A medium grained, equigranular intrusive, with locally fine and coarse grained equivalents. The dominant minerals are feldspar stained by hematite, hornblende and augite with minor magnetite and pyrite observed.

Some authors writing on the Coldwell Complex have indicated the feldspar is an antiperthite, others a perthite. As well minor amounts of nepheline, olivine, apatite, carbonate, biotite, iron-titanium oxides, fluorite etc., have been reported but were not observed in this survey. This unit is rusty red-orange on

Black Augite Syenite (Laurvikite)- A medium grained, equigranular intrusive. The dominant minerals are feldspar, augite and hornblende, with minor constituents similar to the above mentioned units. This unit has black augite with bright red hornblende crystals which are termed phenocrysts because they stand out from the black matrix although their grain size is no larger than the matrix. This rock weathers to a deep red-brown and the hornblende phenocrysts are only evident on fresh faces. The rock weathers fairly deeply and becomes fissile along crystal faces.

White Augite Syenite- A coarse grained porphyritic intrusive. The dominant minerals are feldspar (perthite?), augite and hornblende. This unit has a white to buff coarse grained matrix with brown augite phenocrysts. The weathered surface is relatively thin and is buff to light brown with no decrease in the competence of the rock. The fresh face reveals the porphyritic texture which is partially obscured in the weathered surface.

## GEOLOGY

The geology on the Marathon North Claims consists of two main units; To the south a medium grained Syenodiorite or Red Hornblende Syenite and to the north a medium to coarse grained Augite Syenite (Map 1a). These rock types generally have diffuse contacts but locally show good sharp intrusive contacts with occasional inclusions of Augite Syenite in Hornblende Syenite indicating a younger age for the latter rock type. The Red Hornblende Syenite generally exhibits a uniform medium grained appearance throughout the property only showing some discoloration or darkening near the contacts with the Augite Syenite. The one exception to this was a large exposure of a medium grained Red Hornblende Syenite with black phenocrysts located on the extreme southern boundary of the property on lines L7E to L9E.

By contrast the Augite Syenite appears to have gone through



a prolonged stage of "differentiation" which has produced many phases of this rock type. No sharp contacts were found between these types and faint banding of dark and light minerals on some outcrops suggest settling in a slow crystal melt. The main rock type is an equiangular, medium to coarse grained brown rock which shows some "hematization" or redding near the contact with the Red Hornblende Syenite. This unit encloses large "pods" of two slightly differentiated material, one a black equigranular phase presumably darkened by an increase in mafic minerals such as Augite and Hornblende and the other a lighter porphyritic phase with a larger percentage of white to tan feldspar.

Two other rock types were observed on the property. One unit termed Black Augite occurred in the Red Hornblende Augite, on L1E and L2E near the south west corner of the property. It is suspected since no sharp intrusive contacts were seen, that this unit is a phase of the Red Hornblende Syenite which is darker due to the lack of hematization in that area. Another possibility is that it is a very large portion of the Augite Syenite rafted into the Red Hornblende Syenite. This unit although equigranular contains "phenocrysts" of bright red hornblende.

The last unit mapped on the property occurred in the northwest corner on L1OE. Termed a White Augite, this coarse grained porphyritic unit consists mainly of light coloured to white feldspar with Augite phenocrysts and is probably a further differentiation of the Brown Augite Syenite.

Two major fault directions were observed on the property, one at approximately 40 degrees and the other at approximately 140 degrees (map 1b). These faults were outlined by linear low wooded areas or swamp between higher rock outcrops. The rock adjacent to these faults had a broken and crushed appearance, sometimes for 10's of meters from the low area and hand specimen examination of samples, and the one polished sample revealed fractured and ground crystals. This leads to the conclusion that these fault zones are the result of late shear movement after crystallization of the magma.

A study of approximately 50 vertical to subvertical joints

of outcrop scale reveals a pattern that seems to be related to the major fault directions. Although joints were measured from almost every angle of the compass there is a higher population parallel to the two fault directions generally spaced about 1 m apart, but locally closely spaced. Also there are weaker population groups approximately east-west and north-south or roughly between the major directions. Most of these joints are open with slight discoloration along the contacts but no vein material. Analysis of these joints leads to the conclusion that at some time after the intrusion of the magma a north-south pressure was imparted on the rocks leading to conjugate shearing along the major fault directions and associated fracturing parallel (north-south) and perpendicular (east-west) to that pressure.

Most of the joints observed were vertical or near vertical, although a few were shallow dipping (to 40 degrees from horizontal), and these joints may have had a different origin from the joints mentioned above. Also prevalent in the area were subhorizontal sheeting planes which were evident on vertical rock cuts. These varied from > 1 m apart to < 30 cm apart and were usually open fractures with slight bleaching about the contacts. They were probably due to erosion off-loading although an increase in sheeting was observed near major faults. In addition, several areas particularly near major faults showed networks of irregular fractures ranging in size from hairline to open fissures. These were observed in outcrop surfaces and may be due to weathering, possibly disappearing on fresh surfaces. Locally, pegmatitic and aplitic dykes were observed at various angles on outcrops, some with good intrusive contacts and others more gradational into the surrounding rock. These dykes may be evidence of early tension fracturing before the magma had become fully emplaced and consolidated. These early fractures would naturally be filled with still fluid magma, producing the pegmatite and aplite dykes.

## QUARRY POTENTIAL OF MARATHON NORTH PROPERTY

This mapping project began with an outline of four parameters which must be met before continued study on the feasibility of quarrying the property would proceed. These parameters were:

- 1) An area at least 1000 feet on a side of outcrop accessible to pitting.
- 2) Easily accessible site ie. road, rail or lake transportation on hand.
- 3) Uniform rock of pleasing appearance preferably dark to black "granite".
- 4) Favorable jointing and fracturing for producing large scale blocks for dimension stone.

Mapping on the property has revealed that the first three parameters can be met.

Firstly: Although the southern portion is largely covered by sand and clay overburden, the northern portion is generally bare outcrop.

Secondly: The area is within easy access of the main C.P. Railway line and the main east-west Trans-Canada highway, plus it borders on the shore of Lake Superior.

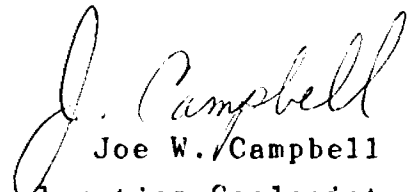
Thirdly: Although there are several heterogeneous zones in the dark Augite Syenite of most interest, mapping shows areas which may meet the required size limitations.

Fourthly: It appears from initial mapping, that the fourth parameter was not met. There were few outcrops which exhibited the required joint spacing and orientation for quarrying large blocks. These outcrops could not be extended over significant areas.


By adhering strictly to the criteria set out for this project, no area within the property is acceptable for commercial quarrying of dimension stone. However several areas within the property would probably be suitable for quarrying monumental stone and other uses requiring small size blocks, although creating a quarry to market this less valuable type of stone may prove uneconomic.

RECOMMENDATION

It is presently believed that this property shows little or no quarry potential and no further work is recommended. However, should a quarry expert be consulted concerning the feasibility of quarries on other properties in the area, his opinion should be sought for this area as well.



Joe W. Campbell  
Exploration Geologist  
Noranda Inc., Geco Division



J. Ian Lawyer  
Assistant Exploration Geologist  
Noranda Inc., Geco Division

## GEOLOGICAL REPORT

To accompany the geological maps for Marathon South (Map 2), claims TB 814725 to TB 814729 inclusive and TB 814740.

The purpose of this survey was to delineate the various differences in color, structure and grain size of the property's syenites and determine if quarrying of this material would be feasible.

## LOCATION AND ACCESS

The survey area is located approximately 1 mile north of Marathon (Figure 1) and consists of 6 claims.

The area is accessible via C.P. Railway line and the shore of Lake Superior.

## OWNERSHIP




The claims are held by Noranda Inc. with head offices in Toronto, Ontario. The claims were staked in October 1984.

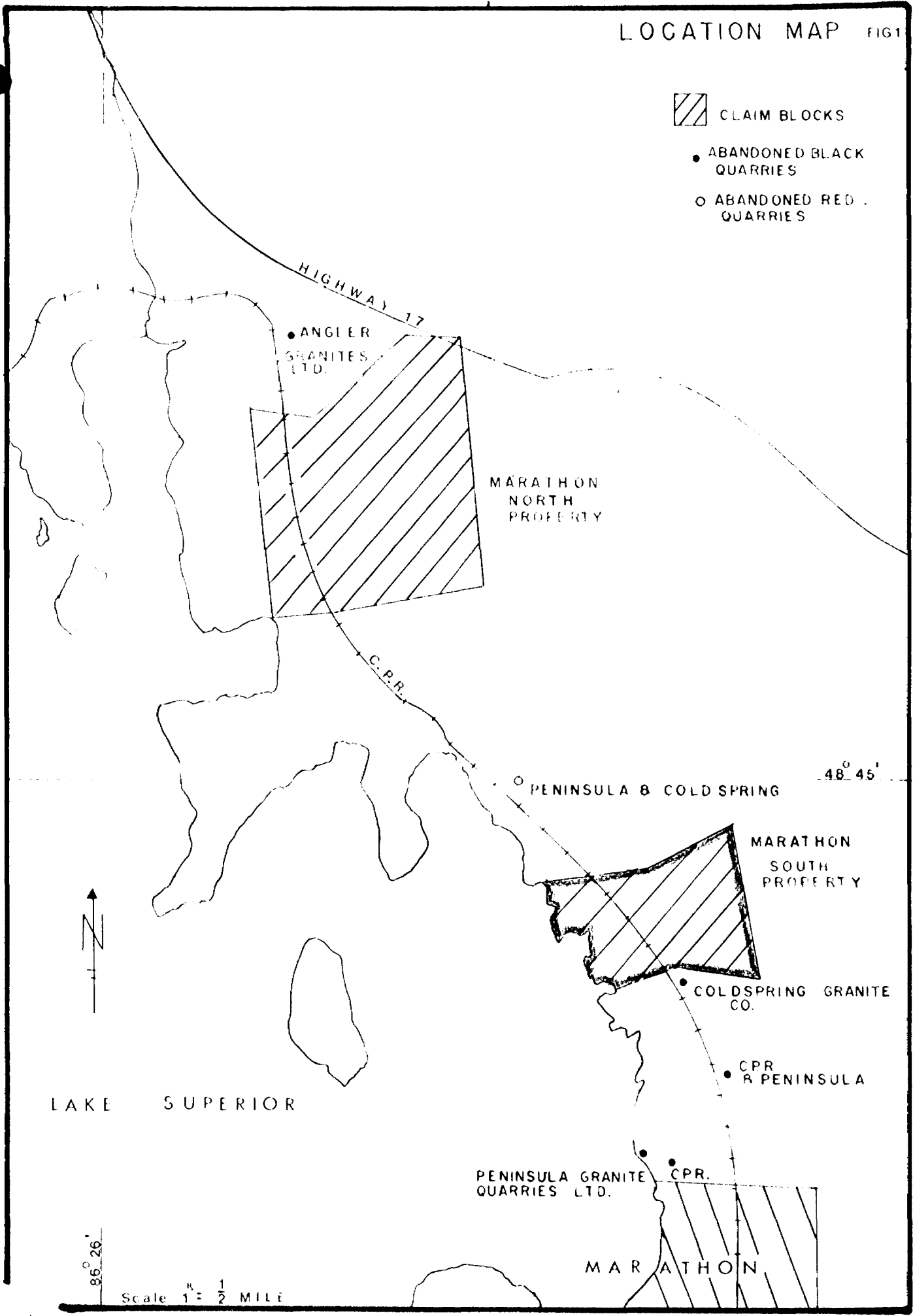
## NATURE OF WORK

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The geological mapping was done by Joe W. Campbell and J. Ian Lawyer, BSc. graduates of Acadia University. Both men were employed by Noranda Inc., Geco Division.

The survey was run on 10.6 km of north-south pace and compass lines with approximately 100 m spacing. These lines were

-  CLAIM BLOCKS
-  ABANDONED BLACK QUARRIES
-  ABANDONED RED QUARRIES



LAKE SUPERIOR

HIGHWAY 17

• ANGLER GRANITES LTD.

MARATHON NORTH PROPERTY

C.P.R.

○ PENINSULA & COLD SPRING

48° 45'

MARATHON SOUTH PROPERTY

• COLDSPRING GRANITE CO.

• C.P.R. & PENINSULA

• PENINSULA GRANITE QUARRIES LTD.

C.P.R.

MARATHON

96° 26'

Scale 1/2 MILE

flagged and marked with grid coordinates (line number and northing) at least every 100 m. Lines were tied in and controlled by pace and compass tie lines on the north and south claim block boundaries and by known locations of an Ontario Hydro power line, the main east-west C.P. Railway line and the coast line of Lake Superior.

Mapping was carried out along these lines and all outcrop was tied into the grid system. A geological map was prepared at a scale of 1:5000.

### TOPOGRAPHY

The western half of the property is largely covered with outcrop interspersed with low forested and swampy areas. The eastern half has outcrop in the extreme north and south of the property with outcrop interspersed between areas of mixed forest over the rest of the property, except the extreme south-western corner which has a mature stand of spruce.

### REGIONAL PORT COLDWELL COMPLEX GEOLOGY

The Port Coldwell Alkalic Complex is almost circular in shape and approximately 25 km in diameter. It contains a wide variety of intrusive rocks. These can be grouped into four main units listed below, from oldest to youngest, as generally accepted by most authors.

- 1) A Gabbro forms an incomplete outer ring around the complex and includes massive and banded varieties. It is situated generally along the eastern and northern boundary of the complex.
- 2) An Augite Syenite overlies the gabbro.
- 3) A complex of Alkalic Gabbro and Syenodiorite (Hornblende Syenite), occurs generally near the core of the complex.
- 4) Quartz Syenites and Nepheline Syenites make up the western half and the core of the complex.

The intrusion cuts an east trending greenstone belt of

metamorphosed volcanic, sedimentary and granitic rocks of Early Precambrian age. Generally age determinations of around 1050 my. have been found for the syenites although age determinations from several authors range from 1005 my. to 1285 my. for various rock types of the complex.

In the vicinity of the claims, regional geology maps show that Augite Syenite covers the area.

#### PAST QUARRY HISTORY

The "Black Granite" or Augite Syenite was first quarried in the Marathon area around 1880 for the construction of bridge abutments. The railway bridges over the Pic and Little Pic Rivers were constructed using rock from this quarry. Two quarries existed, one approximately 1200' west of Peninsula Station (now Marathon) and one approximately 2000' north of Peninsula Station immediately east of the C.P.Railway line.

In 1927 commercial quarrying began on a small scale. Peninsula Granite Quarries Limited shipped its first "Black Granite" in early 1928 and continued until 1930. The first quarry made use of the old C.P.Railway quarry north of Peninsula but soon this was abandoned for a quarry on the lake shore about 1800' due west of Peninsula. Blocks 10' in length and weighing up to 35 tons were quarried. During fourteen months of operation in 1929 and 1930, 24 car loads of "Black Granite" were shipped from Peninsula.

Peninsula Granite Quarries Limited also opened a "Red Granite" quarry about 200 feet east of the C.P.R. on a ridge approximately 1 3/4 miles north of Peninsula. Large blocks were quarried and hoisted directly on to freight cars.

In 1931 Peninsula Granite Quarries Limited was purchased by Cold Spring Granite Company. The company began a new quarry immediately east of the C.P.R. approximately 3/4 of a mile north of the station, located on the south boundary of the present Marathon South property. The lake shore quarry was abandoned to eliminate an 1800' haul to the railway. This operation shipped 20 carloads of "Black Granite" between 1931 and 1932 when operations ceased for lack of markets.



About the same time or shortly after the Marathon area was active, a small amount of granite was produced on claims along the railway at Angler, several miles north of Peninsula by Angler Granites Limited. Openings were made in several kinds of rock from deep red to dark brownish black and almost jet black. Both red and black granites were being produced and a polishing shed was erected in 1932. The rocks were massive at both quarries but numerous pegmatite dykes had to be avoided. This company apparently ceased operation in 1932.

In 1960 the Lake Superior Stone Syndicate was formed and a block of 47 claims were staked, extending south from Hare Lake to within 1/2 mile of the Marathon Townsite. The Quarrying was scheduled to begin in the fall of 1960 but a failure to secure necessary markets forced a halt to the activity. The Marathon area has had no quarry activity since that time.

#### DESCRIPTION OF PRINCIPLE ROCK TYPES IN THE MARATHON SOUTH CLAIM BLOCK

Brown Augite Syenite- There are three varieties on the property, fine grained, medium to coarse grained, and medium to coarse grained dark brown to black. The dominant minerals are feldspar, augite and hornblende with minor magnetite observed. Some authors writing on the Coldwell complex have indicated the feldspar is an antiperthite others a perthite. As well minor amounts of nepheline, olivine, apatite, carbonate, biotite, iron titanium oxides, fluorite, etc. all have been reported but were not observed in this survey.

This unit is dark brown to green black on fresh surfaces and tan to brown on weathered surfaces. The rock weathers fairly deeply, about 30 cm, and becomes fissile on heavily weathered surfaces breaking on crystal faces. The drastic changes in appearance from weathered to fresh faces made identification of the rock color and hence its name in this report difficult. Fresh samples from the old Cold Spring Quarry near the south boundary of the property are mostly deep brown but some of the waste pile shows discoloration of the syenite to dark olive green. Locally pegmatitic varieties of

he syenite were observed.

## GEOLOGY

The geology on the Marathon South Claims consists of two main types of Augite Syenite (Map 2a). One a fine grained type and the second a medium to coarse grained type. These are probably a result of two phases of the same magma, and there is some indication that the fine grained unit is younger, with fine grained dykes locally found in the coarse grained unit. An example of one fairly large fine grained dyke was mapped in the northwest corner of the property.

Two small areas of dark brown to black augite syenite are located on the property, one on L6E and L7E near the south boundary while the other is located on L9E at 6+00 N. These may be a differentiated mafic phase of the Augite Syenite containing a larger percentage of dark minerals like augite and hornblende. also it could be due to some type of alteration since both outcrops showed heavy fracturing and jointing, producing a crumbled degenerated appearance in the rock.

This property also shows a considerable amount of pegmatitic and aplitic dykes consisting of Augite Syenite. Some of these dykes show good sharp intrusive contacts, others grade diffusely into the surrounding rock. These dykes were probably emplaced in the final stages of crystallization of the magma and they appear to show no preferred orientation. Most of these dykes, usually have a more dense jointing pattern than the surrounding rock, possibly the result of tension during cooling.

Two major fault directions were observed on the property running approximately 150 and 50 degrees respectively. These faults were outlined by linear low wooded areas and swamp between high outcrop (Map 2b). The coastline on L3E at 4+00N displays one of the 50 degree faults very well. The rocks adjacent to these faults had a broken and crushed appearance, sometimes for 10's of meters from the low area.

A study of approximately 25 vertical to subvertical joints

reveals a pattern closely related to the major fault directions. There are a high population of joints between 50 + 60 degrees and between 140 + 160 degrees, with little or no jointing in the intervening directions, except a small population cluster in the north-south direction. Most of these joints are open with slight discoloration or bleaching along the contacts but no vein material, leading to the conclusion that they were opened well after the magma crystallized.

#### QUARRY POTENTIAL OF MARATHON SOUTH PROPERTY

This mapping project began with an outline of four parameters which must be met before continued study on the feasibility of quarrying the property would proceed. These parameters were:

- 1) An area at least 1000 feet on a side of outcrop accessible to pitting.
- 2) Easily accessible site ie. road, rail or lake transportation on hand.
- 3) Uniform rock of "pleasing" appearance preferably dark to black "granite".
- 4) Favorable jointing and fracturing for producing large scale blocks for dimension stone.

Mapping on the property has revealed that all the parameters can be met.

Firstly: The property is largely covered by outcrop especially from the coast to the railway tracks.

Secondly: The area borders on Lake Superior and the main C.P.Railway line runs through the property which is only 1.5 km from Marathon.

Thirdly: There are also large areas of uniform rock of the more favorable dark Augite Syenite.

Fourthly: Some of the areas on the property seem to have fairly

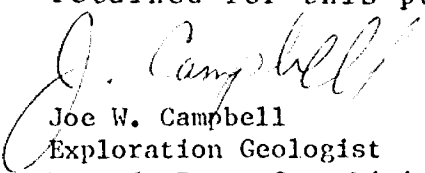
ight to moderate jointing which would make the rock amiable to quarrying of large blocks, and perhaps these favorable zones could be proven over significant areas.

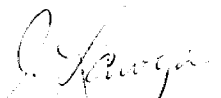
The only cautionary note that can be expressed about the property's potential is the condition of the old Cold Spring Company quarry on the south boundary of the property. On examination of this site, one is initially impressed by the huge waste pile on the north side of the quarry. The sheer volume of the waste would be significant to almost refill the workings. On close examination the waste blocks reveal odd shapes with jointing creating various acute and obtuse angles on the blocks. Also many of the blocks display a distinct olive green discoloration which detracts considerably from the appearance of the rock. Finally an examination of the pit reveals the unfavorable orientation of the jointing with many joints showing moderate dips which cut diagonally across other joint directions creating numerous areas of waste.

In defense of the property it should be noted that a major fault is interpreted to pass close to the northern boundary of the quarry and this probably has much to do with the condition of the workings.

#### RECOMMENDATION

This initial mapping of the property has produced enough favorable results to warrant further investigation. At this point the property requires an expert opinion of someone versed in the economic requirements for a quarry and a consultant should be retained for this purpose.

  
Joe W. Campbell  
Exploration Geologist  
Noranda Inc., Geco Division

  
J. Ian Sawyer  
Assistant Exploration Geologist  
Noranda Inc., Geco Division



W8504-504

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

#504  
2-8708

*Land Management Dept*

- 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.

W8  
Piv: 828773

The Mining Act

|   |  |   |  |
|---|--|---|--|
| Type of Survey(s)<br><b>Geological</b>  |  | Township or Area<br><b>Seeley Lake Area G-613</b> |  |
| Claim Holder(s)<br><b>Noranda Inc. (Geco Division)</b>                            |  | Prospector's Licence No.<br><b>A 19911</b>        |  |
| Address<br><b>P.O. Box 100, Manitowadge, Ontario. POT 2C0</b>                     |  |   |  |
| Survey Company  | Date of Survey (from & to)<br><b>18 Day   09 Mo.   85   09 Day   10 Mo.   85</b> |   | Total Miles of line Cut<br><b>21.6</b> |
| Name and Address of Author (of Geo-Technical report)<br><b>Joseph W. Campbell</b> |  |   |  |

Credits Requested per Each Claim in Columns at right

Mining Claims Traversed (List in numerical sequence)

| Special Provisions  | Geophysical       | Days per Claim |
|---|-------------------|----------------|
| For first survey:<br>Enter 40 days. (This includes line cutting)                | - Electromagnetic |                |
|   | - Magnetometer    |                |
| For each additional survey:<br>using the same grid:<br>Enter 20 days (for each) | - Radiometric     |                |
|   | - Other           |                |
|   | Geological        | 20             |
|   | Geochemical       |                |

| Man Days                                      | Geophysical       | Days per Claim |
|---|-------------------|----------------|
| Complete reverse side and enter total(s) here | - Electromagnetic |                |
|   | - Magnetometer    |                |
|   | - Radiometric     |                |
|   | - Other           |                |
|   | Geological        |                |
|   | Geochemical       |                |

| Airborne Credits   |                 | Days per Claim |
|--|-----------------|----------------|
| Note: Special provisions credits do not apply to Airborne Surveys. | Electromagnetic |                |
|  | Magnetometer    |                |
|  | Radiometric     |                |

| Mining Claim |        | Expend. Days Cr. | Mining Claim |        | Expend. Days Cr. |
|--------------|--------|------------------|--------------|--------|------------------|
| Prefix       | Number |                  | Prefix       | Number |                  |
| TB           | 828773 | 20               |              |        |                  |
|              | 828774 | 20               |              |        |                  |
|              | 828775 | 20               |              |        |                  |
|              | 828776 | 20               |              |        |                  |
|              | 828777 | 20               |              |        |                  |
|              | 828778 | 20               |              |        |                  |
|              | 828779 | 20               |              |        |                  |
|              | 828780 | 20               |              |        |                  |
|              | 828781 | 20               |              |        |                  |

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures  ÷ 15 = 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.

Total number of mining claims covered by this report of work. **9**

For Office Use Only

|  |                                       |                                       |
|--|---------------------------------------|---------------------------------------|
| Total Days Cr. Recorded<br><b>180</b>          | Date Recorded<br><b>October 20/85</b> | Mining Recorder<br><i>[Signature]</i> |
| Date Approved as Recorded<br><b>1.85.12.20</b> |                                       | <i>[Signature]</i>                    |

Date **October 18/85** Recorded Holder or Agent (Signature) *Joseph Campbell*

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  
**Joseph W. Campbell, P.O. Box 100, Manitowadge, Ontario. POT 2C0**

Date Certified **October 18/85** Certified by (Signature) *Joseph Campbell*



Ministry of Natural Resources

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

#505

Land Management Dec. 11

Instructions: Please type or print.

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

File: 814725

The Mining Act

Form header containing: Type of Survey(s) Geology, Township or Area PIC TWP G-630, Claim Holder(s) Noranda Inc. (Geco Division), Prospector's Licence No. A 19911, Address P.O. Box 100, Manitowadge, Ontario. POT 2C0, Survey Company, Date of Survey (from & to) 14/10/85 to 17/10/85, Total Miles of line Cut 10.6, Name and Address of Author (of Geo-Technical report) Joseph W. Campbell

Credits Requested per Each Claim in Columns at right

Mining Claims Traversed (List in numerical sequence)

Table with 3 columns: Special Provisions, Geophysical, Geological, Geochemical, Days per Claim. Includes rows for first survey (40 days), additional surveys (20 days), man days, and airborne credits.

Table with 4 columns: Mining Claim Prefix, Mining Claim Number, Expend. Days Cr., Mining Claim Prefix, Mining Claim Number, Expend. Days Cr. Lists claims 814725 through 814740 with 20 days credit each.

Form section for Expenditures (excludes power stripping), Type of Work Performed, Performed on Claim(s), Calculation of Expenditure Days Credits (Total Expenditures / 15 = Total Days Credits), and Instructions.

Total number of mining claims covered by this report of work. 6

For Office Use Only section containing: Total Days Cr. Recorded 120, Date Recorded October 23/85, Mining Recorder signature, Date Approved as Recorded October 12/85.

Date October 18/85, Recorded Holder or Agent (Signature) Joseph W. Campbell

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: Joseph W. Campbell P.O. Box 100, Manitowadge, Ontario. POT 2C0

Date Certified October 18/85, Certified by (Signature) Joseph W. Campbell



Ministry of Natural Resources

File \_\_\_\_\_

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  
Township or Area McCoy Twp, Seeley Lake Area G-613  
Claim Holder(s) Noranda Inc. (Geco Division)  
P.O. Box 100, Manitowadge, Ontario. POT 2C0  
Survey Company Noranda Inc.  
Author of Report Joey Campbell & Ian Lawyer  
Address of Author Box 100, Manitowadge, Ont. POT 2C0  
Covering Dates of Survey August 1985 - October 1985  
(linecutting to office)  
Total Miles of Line Cut Pace & Compass Flagged Lines 21.6 km

| MINING CLAIMS TRAVERSED<br>List numerically |          |
|---|----------|
| TB  | 828773   |
| (prefix)                                    | (number) |
| TB  | 828774   |
| TB  | 828775   |
| TB  | 828776   |
| TB  | 828777   |
| TB  | 828778   |
| TB  | 828779   |
| TB  | 828780   |
| TB  | 828781   |
| TOTAL CLAIMS <u>9</u>                       |          |

| <u>SPECIAL PROVISIONS<br/>CREDITS REQUESTED</u> | <u>DAYS<br/>per claim</u> |
|---|---------------------------|
| Geophysical                                     |                           |
| --Electromagnetic_____                          |                           |
| --Magnetometer_____                             |                           |
| --Radiometric_____                              |                           |
| --Other_____                                    |                           |
| Geological <u>20</u>                            |                           |
| Geochemical_____                                |                           |

ENTER 40 days (includes line cutting) for first survey.  
ENTER 20 days for each additional survey using same grid.

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

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

DATE: December 3, 1985 SIGNATURE: Joey Campbell  
Author of Report or Agent

Res. Geol. \_\_\_\_\_ Qualifications 24944

Previous Surveys

| File No. | Type | Date | Claim Holder |
|----------|------|------|--------------|
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |

If space insufficient, attach list

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations \_\_\_\_\_ Number of Readings \_\_\_\_\_

Station interval \_\_\_\_\_ Line spacing \_\_\_\_\_

Profile scale \_\_\_\_\_

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 \_\_\_\_\_

Method  Time Domain  Frequency Domain

Parameters -- On time \_\_\_\_\_ Frequency \_\_\_\_\_

-- Off time \_\_\_\_\_ Range \_\_\_\_\_

-- Delay time \_\_\_\_\_

-- Integration time \_\_\_\_\_

Power \_\_\_\_\_

Electrode array \_\_\_\_\_

Electrode spacing \_\_\_\_\_

Type of electrode \_\_\_\_\_



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 \_\_\_\_\_





Ministry of Natural Resources

File \_\_\_\_\_

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  
Township or Area Pic TWP G-630  
Claim Holder(s) Noranda Inc. (Geco Division)  
P.O. Box 100, Manitowadge, Ontario, POT 2C0  
Survey Company Noranda Inc.  
Author of Report Joey Campbell & Ian Lawyer  
Address of Author Box 100, Manitowadge, Ont. POT 2C0  
Covering Dates of Survey August 1985 - October 1985  
(linecutting to office)  
Total Miles of Line Cut Pace & Compass Flagged Lines 10.6 km

**MINING CLAIMS TRAVERSED**  
List numerically

TB 814725  
(prefix) (number)  
TB 814726  
TB 814727  
TB 814728  
TB 814729  
TB 814740

If space insufficient, attach list

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

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

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

DATE: December 3, 1985 SIGNATURE: *Joey Campbell*  
Author of Report or Agent

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

Previous Surveys

| File No. | Type | Date | Claim Holder |
|----------|------|------|--------------|
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |

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DEC 06 1985

MINING LANDS SECTION

TOTAL CLAIMS 6

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations \_\_\_\_\_ Number of Readings \_\_\_\_\_

Station interval \_\_\_\_\_ Line spacing \_\_\_\_\_

Profile scale \_\_\_\_\_

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.I.F. station)

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

GRAVITY

Instrument \_\_\_\_\_

Scale constant \_\_\_\_\_

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

Base station value and location \_\_\_\_\_

Elevation accuracy \_\_\_\_\_

INDUCED POLARIZATION  
RESISTIVITY

Instrument \_\_\_\_\_

Method  Time Domain  Frequency Domain

Parameters -- On time \_\_\_\_\_ Frequency \_\_\_\_\_

- Off time \_\_\_\_\_ Range \_\_\_\_\_

- Delay time \_\_\_\_\_

- Integration time \_\_\_\_\_

Power \_\_\_\_\_

Electrode array \_\_\_\_\_

Electrode spacing \_\_\_\_\_

Type of electrode \_\_\_\_\_

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 \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Noranda Inc.  
Geco Division  
P.O. Box 100  
Manitouwadge, Ontario  
P0T 2C0

Telephone 807-826-3211

December 3, 1985

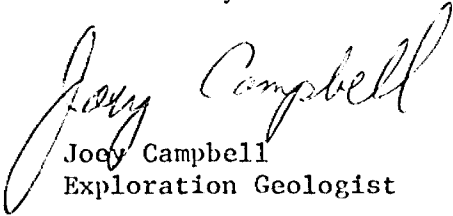
Lands Administration Branch  
Mining Lands Section  
Ministry of Natural Resources  
Room 617, Whitney Block  
Queen's Park  
Toronto, Ontario  
M7A 1W3

Dear Sir:

Please find enclosed two survey reports and maps in duplicate covering areas designated Marathon North Property and Marathon South Property. Two Geological Technical Data Statements have also been included. These are submitted for 20 days assessment per claim.

Reports of work have been submitted and were recorded by the Thunder Bay Mining Recorder on October 22, 1985.

Yours truly

  
Joey Campbell  
Exploration Geologist

JWC/r1  
Encl.

RECEIVED  
DEC 03 1985  
MINING LANDS SECTION

Mining Lands Section

File No 2-8708

Control Sheet

TYPE OF SURVEY     GEOPHYSICAL

GEOLOGICAL

GEOCHEMICAL

EXPENDITURE

MINING LANDS COMMENTS:

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*lqd.*  
*h.s.*

D. Hurst

Signature of Assessor

12/16/85

Date



2.8708

|        |   |  |  |        |   |  |  |  |  |  |  |  |  |
|--------|---|--|--|--------|---|--|--|--|--|--|--|--|--|
| 828773 | ✓ |  |  | 814725 | ✓ |  |  |  |  |  |  |  |  |
| 74     | ✓ |  |  | 26     | ✓ |  |  |  |  |  |  |  |  |
| 75     | ✓ |  |  | 27     | ✓ |  |  |  |  |  |  |  |  |
| 76     | ✓ |  |  | 28     | ✓ |  |  |  |  |  |  |  |  |
| 77     | ✓ |  |  | 29     | ✓ |  |  |  |  |  |  |  |  |
| 78     | ✓ |  |  | 814740 | ✓ |  |  |  |  |  |  |  |  |
| 79     | ✓ |  |  |        |   |  |  |  |  |  |  |  |  |
| 80     | ✓ |  |  |        |   |  |  |  |  |  |  |  |  |
| 81     | ✓ |  |  |        |   |  |  |  |  |  |  |  |  |
|        |   |  |  |        |   |  |  |  |  |  |  |  |  |
|        |   |  |  |        |   |  |  |  |  |  |  |  |  |
|        |   |  |  |        |   |  |  |  |  |  |  |  |  |
|        |   |  |  |        |   |  |  |  |  |  |  |  |  |
|        |   |  |  |        |   |  |  |  |  |  |  |  |  |
|        |   |  |  |        |   |  |  |  |  |  |  |  |  |

A.

MARTINET LAKE G-601

REFERENCES

**AREAS WITHDRAWN FROM DISPOSITION**

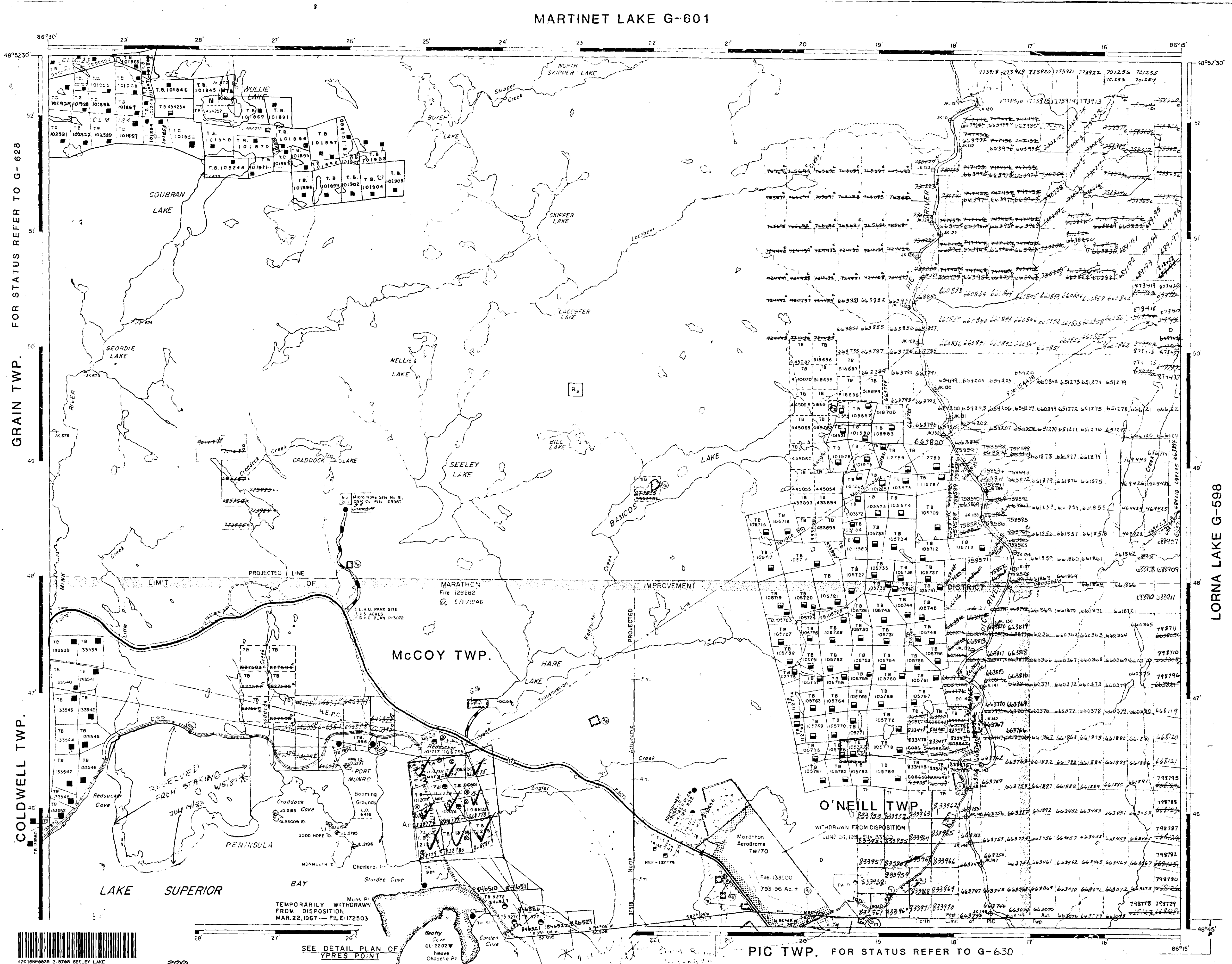
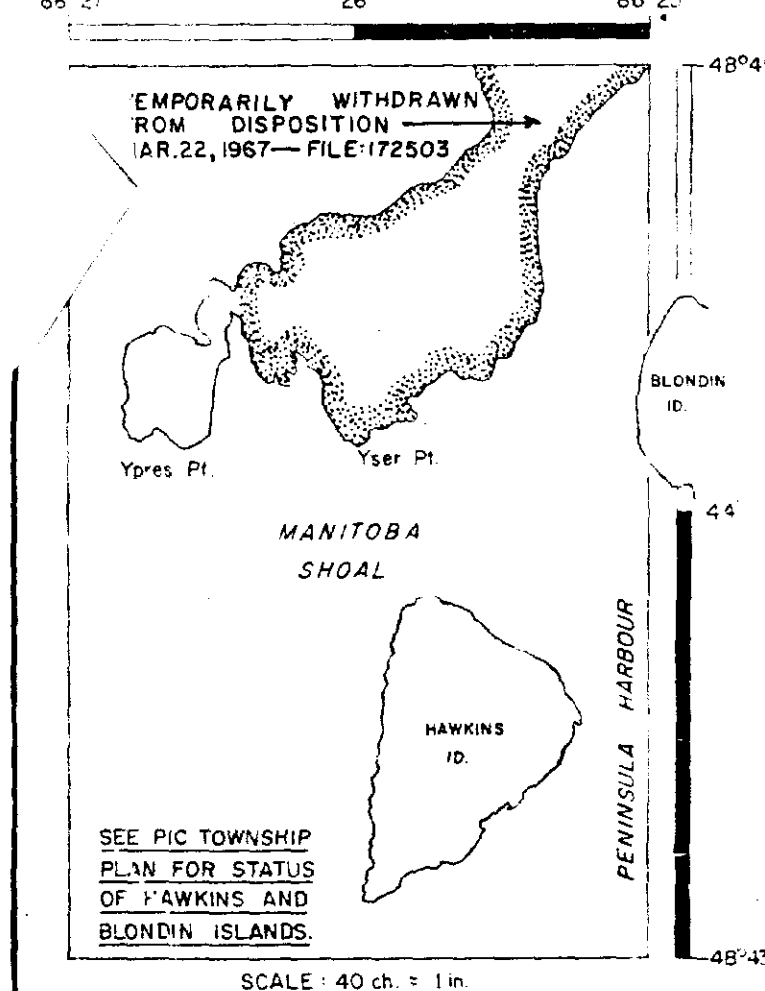
| S.R. - SURFACE RIGHTS |           | M.R. - MINING RIGHTS |                  |
|-----------------------|-----------|----------------------|------------------|
| Description           | Order No. | Date                 | Disposition File |
| W.16/80NCR            | 13/3/80   | S.R.O.               | 190509           |
| W.13/81               | 24/6/81   | S.R.O.               | 133500           |

R<sub>3</sub> WNCR 28/83 S.R.O. WITHDRAWN

**SAND & GRAVEL**

|                     |                     |
|---------------------|---------------------|
| GRAVEL FILE: 152623 | GRAVEL FILE: 152591 |
| 172647              | 147269              |
| M.T.C. PIT NO 1522  | 35500               |
| GRAVEL FILE 153430  | M.T.C. PIT NO 2-7   |
| 155192              |                     |

**DETAIL PLAN OF YPRES POINT**



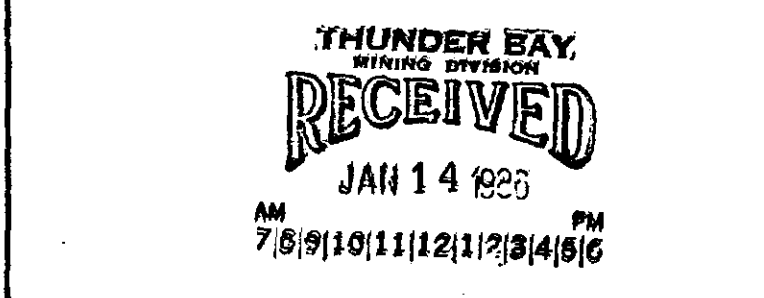
REFERENCES

**NOTES**

Land under water in Lake Superior with drawn from staking by Order in Council dated April 30, 1912.

LIMITS OF MARATHON IMPROVEMENT DISTRICT SHOWN THUS: FILE: 129282

\* Disposition by exploratory licence of occupation only



**LEGEND**

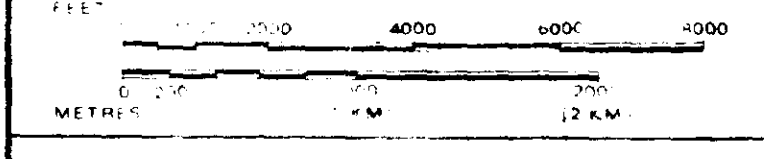
- HIGHWAY AND ROUTES
- OTHER ROADS
- TRAILS
- SURVEYED LINES
- TOWNSHIP BOUNDARIES ETC.
- LOT, MINING CLAIM, PARCELS ETC.
- UNSURVEYED LINES
- LOT LINES
- PARCEL BOUNDARY
- MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

**DISPOSITION OF CROWN LANDS**

| TYPE OF DOCUMENT                | SYMBOL |
|---------------------------------|--------|
| PATENT, SURFACE & MINING RIGHTS | ●      |
| " SURFACE RIGHTS ONLY           | ○      |
| " MINING RIGHTS ONLY            | ◐      |
| LEASE SURFACE & MINING RIGHTS   | ■      |
| " SURFACE RIGHTS ONLY           | ◼      |
| " MINING RIGHTS ONLY            | ◻      |
| LICENCE OF OCCUPATION           | ▽      |
| ORDER IN COUNCIL                | OC     |
| RESERVATION                     | ⊙      |
| CANCELLED                       | ⊘      |
| SAND & GRAVEL                   | ⊕      |

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1912, VESTED IN ORIGINAL PATENTEES BY THE PUBLIC LANDS ACT, CHAPTER 380, SECTION 3, SUBSECTION 1.

SCALE: 1 INCH = 40 CHAINS



**AREA**

**SEELEY LAKE**

M.N.R. ADMINISTRATIVE DISTRICT  
**TERRACE BAY**  
MINING DIVISION  
**THUNDER BAY**  
LAND TITLES / REGISTRY DIVISION  
**THUNDER BAY**

Ministry of Land Management  
Natural Resources Branch  
Ontario

DATE: FEBRUARY 1982

**G-613**

# LEGEND

## RED HORNBLENDE SYENITE (RED GRANITE)

- 1 ORANGE RED
- 1-2 BROWNISH RED
- 1-3 RED WITH BLACK PHENOCRYST

## BROWN AUGITE SYENITE (LAURVIKITE)

- 2 TAN BROWN TO DARK BROWN
- 2-4 BROWN WITH WHITE PHENOCRYST
- 2-3 DARK BROWN TO BLACK
- 2-1 REDDISH BROWN

## BLACK AUGITE SYENITE (LAURVIKITE)

- 3-1 BLACK WITH RED PHENOCRYST

## WHITE AUGITE SYENITE

- 4-2 WHITE WITH BROWN PHENOCRYST

- W COARSE GRAINED
- X MEDIUM GRAINED
- Y FINE GRAINED
- Z PHENOCRYST

- GEOLOGICAL CONTACTS
- - - ASSUMED CONTACTS
- OUTCROP OUTLINES
- FLORA & TERRAIN BOUNDARIES
- == BUSH ROAD
- CLAIM POST
- 828777 CLAIM NUMBER
- + FLAGGED LINES

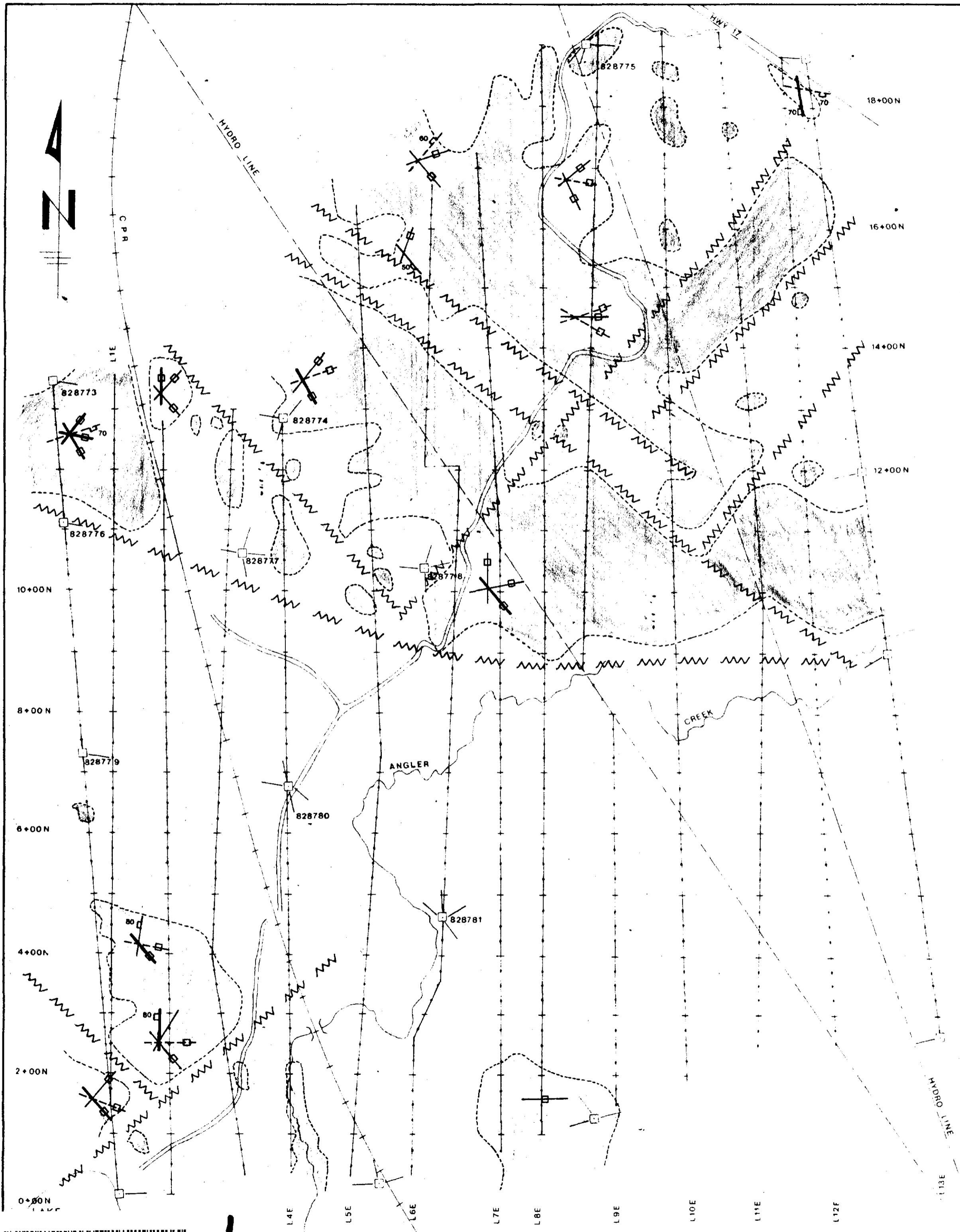
28708

NORANDA INC. GECO DIVISION

# MARATHON NORTH GEOLOGY

Scale 1:5000 Drawn by JWC  
Date Oct 1985 J. Campbell





**LEGEND**

- JOINTING**
- JOINTS VERTICAL/INCLINED
  - <1 METER SPACING
  - 1-2 METER SPACING
  - >2 METER SPACING
- FAULT**
- FAULT
- OUTCROP**
- OUTCROP

2.8708

|   |                    |
|---|--------------------|
| NORANDA INC. GECO DIVISION              |                    |
| <b>MARATHON<br/>NORTH<br/>STRUCTURE</b> |                    |
| Scale 1:5000                            | Drawn by JWC       |
| Date Oct 1985                           | <i>J. Campbell</i> |



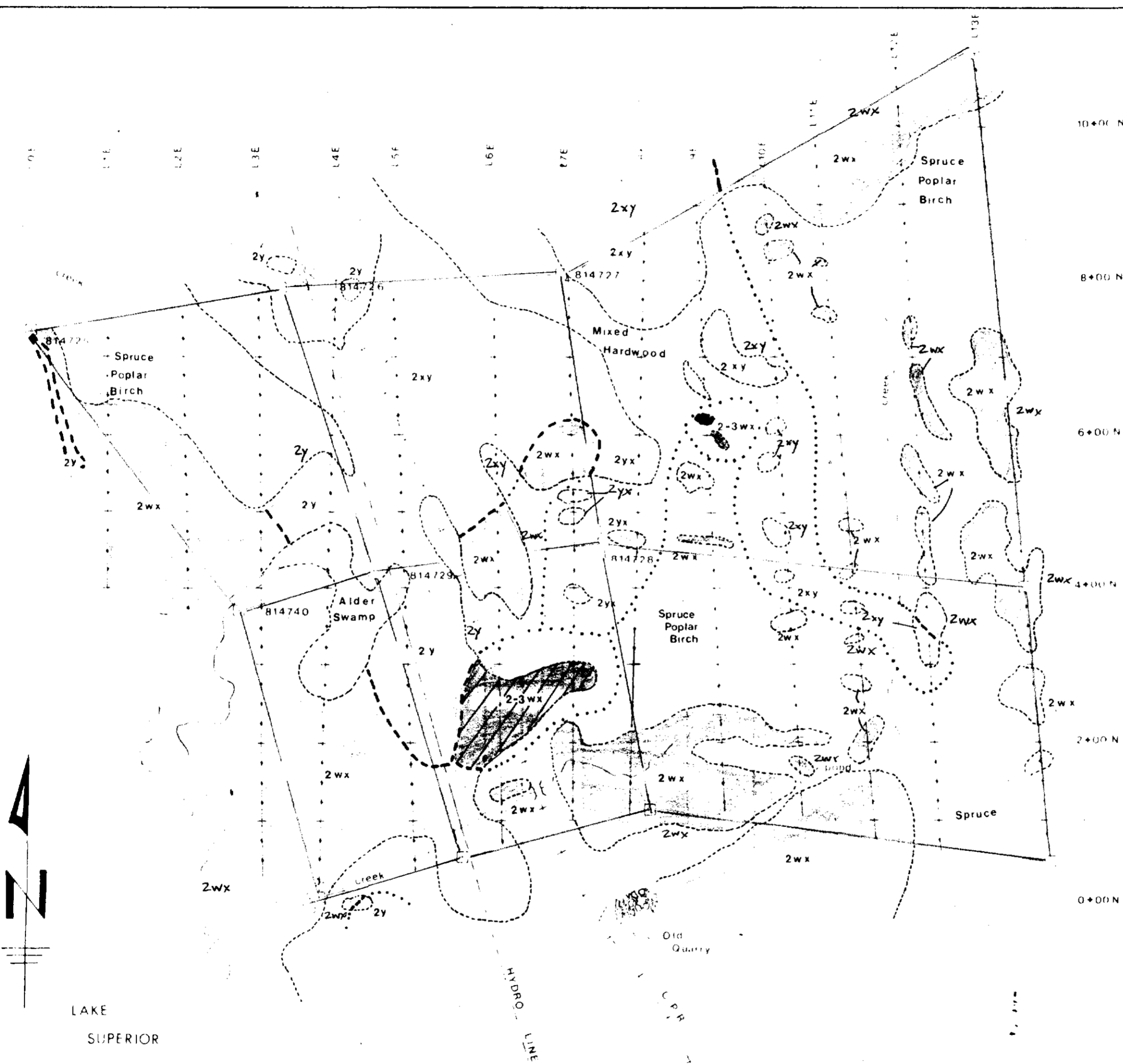
42016NE0039 2.8708 SEELEY LAKE

220



# LEGEND

- Brown Augite Syenite**
- 2 TAN TO BROWN FINE GRAINED/COARSE
  - 2-3 DARK BROWN TO BLACK
- W COARSE GRAINED  
 X MEDIUM GRAINED  
 Y FINE GRAINED  
 Z PHENOCRYST
- GEOLOGICAL CONTACTS  
 - - - ASSUMED CONTACTS  
 ○ OUTCROP OUTLINES  
 □ CLAIM POST  
 814729 CLAIM NUMBER  
 † FLAGGED LINES



LAKE  
SUPERIOR

28708

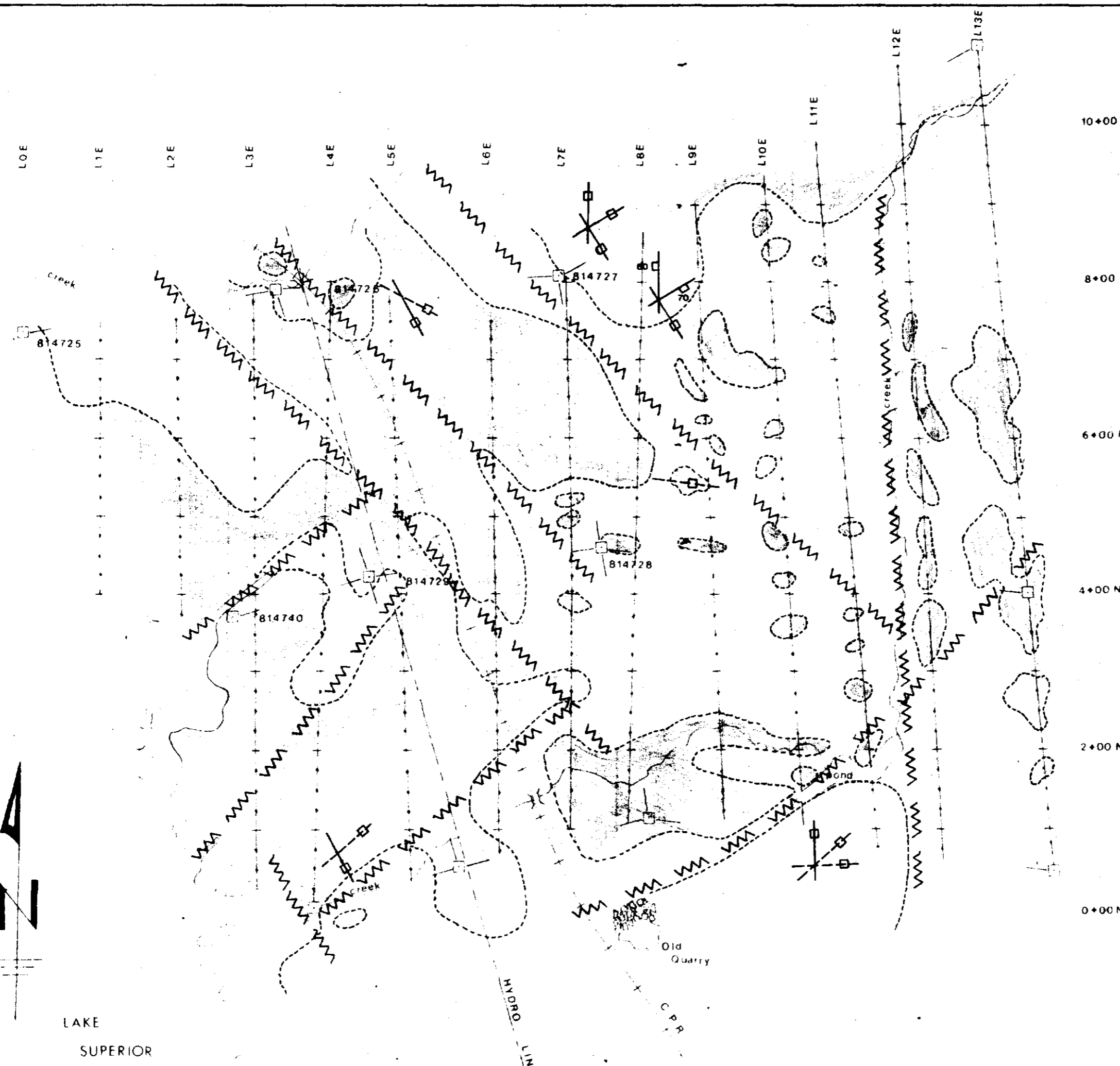
NORANDA INC. GECO DIVISION

**MARATHON  
SOUTH  
GEOLOGY<sub>2a</sub>**

Scale 1:5000 Drawn by JWC  
 Date Oct. 1985 *J. Campbell*



1  
230



# LEGEND

- JOINTING**
- JOINTS VERTICAL/INCLINED
  - <1 METER SPACING
  - 1-2 METER SPACING
  - >2 METER SPACING
- FAULT**
- FAULT
- OUTCROP**
- OUTCROP

28708

NORANDA INC. GECO DIVISION

**MARATHON  
SOUTH  
STRUCTURE<sub>2b</sub>**

Scale 1:5000      Drawn by JWC  
 Date Oct. 1985      *J. Campbell*





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

#50



42D16NE0039 2.8708 SEELEY LAKE

900

WB  
Pin: 828773

**The Mining Act**

- Do not use shaded areas below.

|   |   |   |  |
|---|---|---|--|
| Type of Survey(s)<br><b>Geological</b>  |   | Township or Area<br><b>Seeley Lake Area G-613</b> |  |
| Claim Holder(s)<br><b>Noranda Inc. (Geco Division)</b>                            |   | Prospector's Licence No.<br><b>A 19911</b>        |  |
| Address<br><b>P.O. Box 100, Manitowadge, Ontario. POT 2C0</b>                     |   |   |  |
| Survey Company  | Date of Survey (from & to)<br>18 <u>Day</u> 09 <u>Mo.</u> 85. 09 <u>Day</u> 10 <u>Mo.</u> 85. | Total Miles of line Cut<br><b>21.6</b>            |  |
| Name and Address of Author (of Geo-Technical report)<br><b>Joseph W. Campbell</b> |   |   |  |

**Credits Requested per Each Claim in Columns at right**

| Special Provisions  | Geophysical       | Days per Claim |
|---|-------------------|----------------|
| For first survey:<br>Enter 40 days. (This includes line cutting)                | - Electromagnetic |                |
|   | - Magnetometer    |                |
|   | - Radiometric     |                |
|   | - Other           |                |
| For each additional survey:<br>using the same grid:<br>Enter 20 days (for each) | Geological        | 20             |
|   | Geochemical       |                |

| Man Days                                      | Geophysical       | Days per Claim |
|---|-------------------|----------------|
| Complete reverse side and enter total(s) here | - Electromagnetic |                |
|   | - Magnetometer    |                |
|   | - Radiometric     |                |
|   | - Other           |                |
|   | Geological        |                |
|   | Geochemical       |                |

| Airborne Credits   | Geophysical     | Days per Claim |
|--|-----------------|----------------|
| Note: Special provisions credits do not apply to Airborne Surveys. | Electromagnetic |                |
|  | Magnetometer    |                |
|  | Radiometric     |                |

**Mining Claims Traversed (List in numerical sequence)**

| Mining Claim |          | Expend. Days Cr. | Mining Claim |        | Expend. Days Cr. |
|--------------|----------|------------------|--------------|--------|------------------|
| Prefix       | Number   |                  | Prefix       | Number |                  |
| TB           | 828773 ✓ | 20               |              |        |                  |
|              | 828774 ✓ | 20               |              |        |                  |
|              | 828775 ✓ | 20               |              |        |                  |
|              | 828776 ✓ | 20               |              |        |                  |
|              | 828777 ✓ | 20               |              |        |                  |
|              | 828778 ✓ | 20               |              |        |                  |
|              | 828779 ✓ | 20               |              |        |                  |
|              | 828780 ✓ | 20               |              |        |                  |
|              | 828781 ✓ | 20               |              |        |                  |

**Expenditures (excludes power stripping)**

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures ÷ 15 = Total Days Credits

\$  ÷ 15 =

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.

Total number of mining claims covered by this report of work. **9**

**For Office Use Only**

Total Days Cr. Recorded: **180**

Date Recorded: **October 22/85**

Mining Recorder: **Hyndley M. Lawrence**

Date Approved: **1.85.12.20**

Inspector: **K. Pickett**

Date: **October 18/85**

Recorded Holder or Agent (Signature): **Joey Campbell**

**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



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

W 8504-505  
#505  
2-8108  
The Mining Act

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

*File: 814725*

|   |  |  |  |
|---|--|--|--|
| Type of Survey(s)<br><b>Geology</b>   |  | Township or Area<br><b>PIC TWP G-630</b>                                   |  |
| Claim Holder(s)<br><b>Noranda Inc. (Geco Division)</b>                            |  | Prospector's Licence No.<br><b>A 19911</b>                                 |  |
| Address<br><b>P.O. Box 100, Manitouwadge, Ontario. POT 2C0</b>                    |  |  |  |
| Survey Company  |  | Date of Survey (from & to)<br>14 10 85 17 10 85<br>Day Mo. Yr. Day Mo. Yr. | Total Miles of line Cut<br><b>10.6</b> |
| Name and Address of Author (of Geo-Technical report)<br><b>Joseph W. Campbell</b> |  |  |  |

Credits Requested per Each Claim in Columns at right

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

Mining Claims Traversed (List in numerical sequence)

| Mining Claim |        |                  | Mining Claim |        |                  |
|--------------|--------|------------------|--------------|--------|------------------|
| Prefix       | Number | Expend. Days Cr. | Prefix       | Number | Expend. Days Cr. |
| TB           | 814725 | 20               |              |        |                  |
|              | 814726 | 20               |              |        |                  |
|              | 814727 | 20               |              |        |                  |
|              | 814728 | 20               |              |        |                  |
|              | 814729 | 20               |              |        |                  |
|              | 814740 | 20               |              |        |                  |

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures ÷ 15 = Total Days Credits

\$ [ ] ÷ 15 = [ ]

Total number of mining claims covered by this report of work. **6**

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: **120**

Date Recorded: **October 22/85**

Mining Recorder: *[Signature]*

Date Approved as Recorder: **10.85.12.20**

Date: **October 18/85**

Recorded Holder or Agent (Signature): *Joseph Campbell*

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



Noranda Inc.  
Geco Division  
P.O. Box 100  
Manitouwadge, Ontario  
P0T 2C0

December 3, 1985

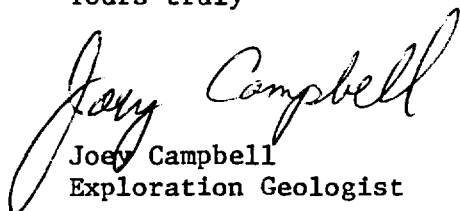
Lands Administration Branch  
Mining Lands Section  
Ministry of Natural Resources  
Room 617, Whitney Block  
Queen's Park  
Toronto, Ontario  
M7A 1W3

Dear Sir:

Please find enclosed two survey reports and maps in duplicate covering areas designated Marathon North Property and Marathon South Property. Two Geological Technical Data Statements have also been included. These are submitted for 20 days assessment per claim.

Reports of work have been submitted and were recorded by the Thunder Bay Mining Recorder on October 22, 1985.

Yours truly

  
Joey Campbell  
Exploration Geologist

JWC/rl  
Encl.

RECEIVED  
DEC 0 6 1985  
MINING LANDS SECTION

Mining Lands Section

File No 2.8708

Control Sheet

TYPE OF SURVEY     GEOPHYSICAL  
                           GEOLOGICAL  
                           GEOCHEMICAL  
                           EXPENDITURE

MINING LANDS COMMENTS:

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lad.  
H.S.

D. Hurst

Signature of Assessor

11/16/85

Date



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  
Township or Area Pic TWP G-630  
Claim Holder(s) Noranda Inc. (Geco Division)  
P.O. Box 100, Manitouwadge, Ontario. POT 2C0  
Survey Company Noranda Inc.  
Author of Report Joey Campbell & Ian Lawyer  
Address of Author Box 100, Manitouwadge, Ont. POT 2C0  
Covering Dates of Survey August 1985 - October 1985  
(linecutting to office)  
Total Miles of Line Cut Pace & Compass Flagged Lines 10.6 km

MINING CLAIMS TRAVERSED  
List numerically

TB 814725  
(prefix) (number)  
TB 814726  
TB 814727  
TB 814728  
TB 814729  
TB 814740

SPECIAL PROVISIONS  
CREDITS REQUESTED

ENTER 40 days (includes  
line cutting) for first  
survey.

ENTER 20 days for each  
additional survey using  
same grid.

Geophysical DAYS  
per claim  
- Electromagnetic \_\_\_\_\_  
- Magnetometer \_\_\_\_\_  
- Radiometric \_\_\_\_\_  
- Other \_\_\_\_\_  
Geological 20  
Geochemical \_\_\_\_\_

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

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

DATE: December 3, 1985 SIGNATURE: Joey Campbell  
Author of Report or Agent

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

Previous Surveys

| File No. | Type | Date | Claim Holder |
|----------|------|------|--------------|
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |
|          |      |      |              |

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DEC 06 1985

MINING LANDS SECTION

TOTAL CLAIMS 6

If space insufficient, attach list

OFFICE USE ONLY

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 \_\_\_\_\_



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 \_\_\_\_\_