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File No 2. 6714

Mining Lands Section

Control Sheet

TYPE OF SURVEY \_\_\_\_\_ GEOPHYSICAL \_\_\_\_\_ GEOLOGICAL \_\_\_\_\_ GEOCHEMICAL

EXPENDITURE

MINING LANDS COMMENTS:

Checked

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Signature of Assessor

#### GEOLOGICAL REPORT

#### LAC MINERALS LTD.

## PROPERTY J-8, WHITE RIVER CLAIM GROUP

CLAIMS: SSM 607760 SSM 607761 SSM 607762 SSM 607763 SSM 607774 SSM 607775 SSM 607776 SSM 607777

June, 1983

A. Campbell, B.Sc.
K. Donnelly

LIST OF FIGURES

# FIGURE

PAGE

1

- 1. Location of Property J-8
- 2. Geology
- 3. Schematic Stratigraphic Section

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**010C** 

#### LIST OF TABLES

TABLE

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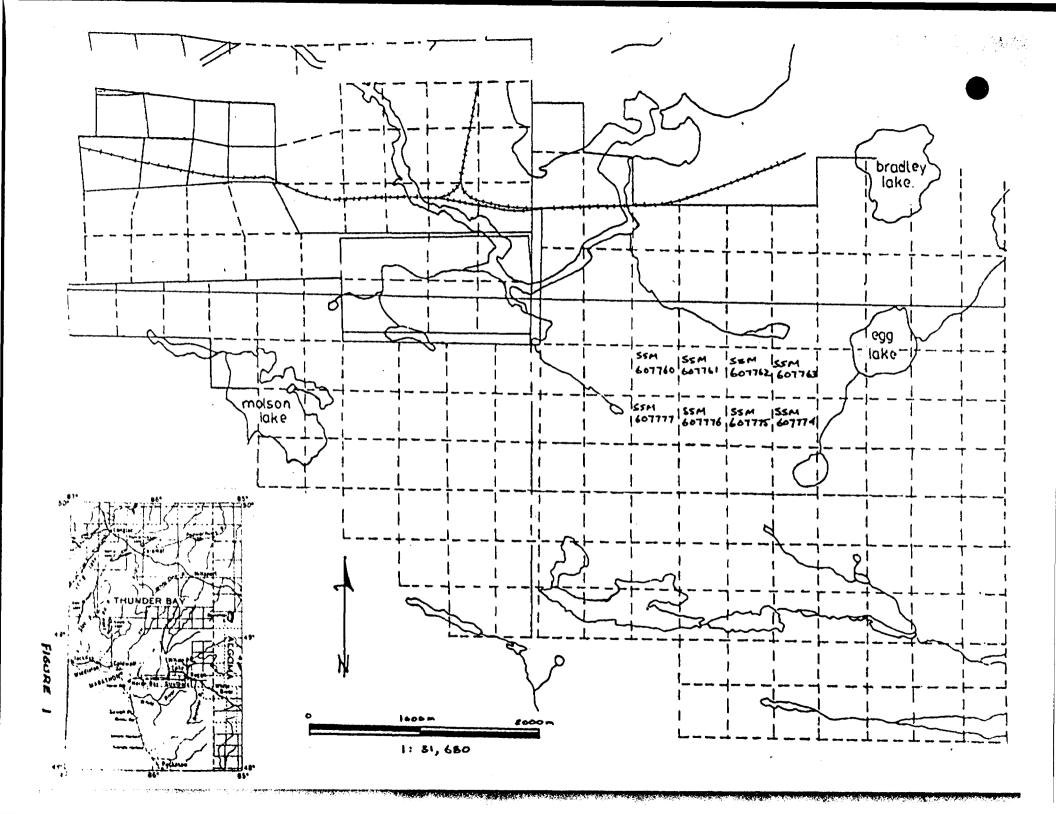
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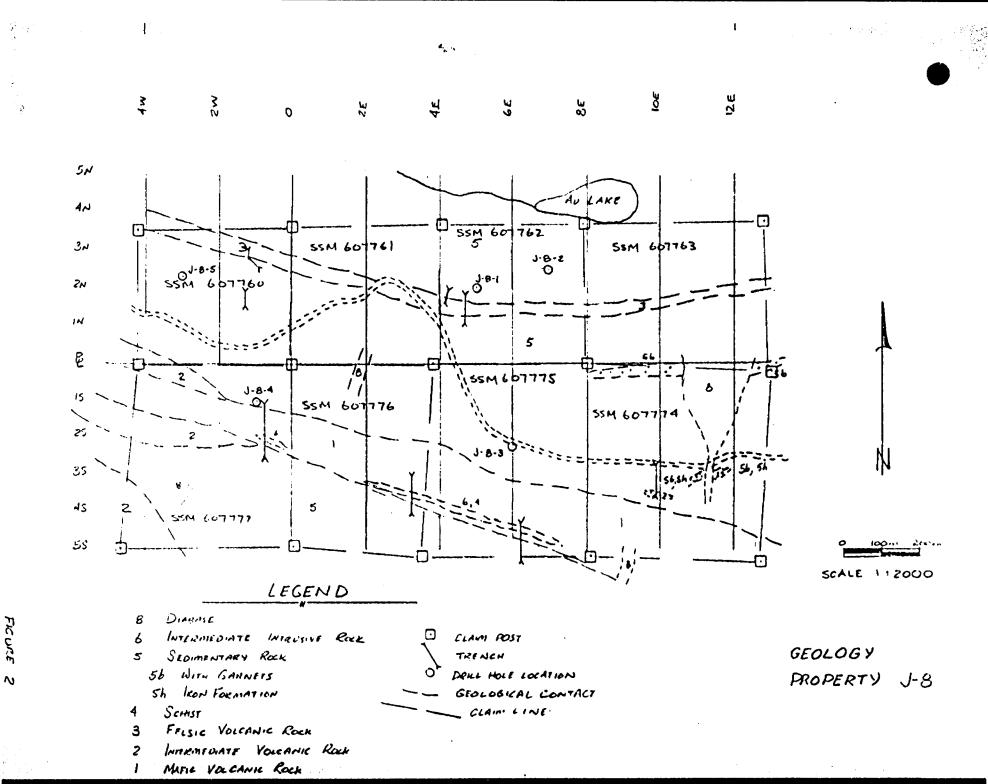
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1. Representative Sample Suite

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2. List of Rock Samples





FICURE

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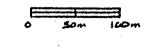
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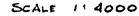
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## LEGEND

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- Garodiorite 6 c
- Feldsper porphyry dyke 6a
- Sedimentary rocks Iron formation 5
- 54
- Feldspathic wocke 5e
- 51 Lithic wacke
- Schist 4
- 46 Quartz - eye - sericite schist
- Felsic volconic rocks 3
- Mofic volcanic rocks 1
- 11
- Amygdaloidal flows Sublapillisize Aagmental tuff Fine grained tuff 1e
- 10





#### GENERAL STATEMENT

1.

The northern half of property J-8 was mapped during the 1982 field season by G. A. Motzok and G. Skrecky of Lac Minerals Ltd.

The southern half of the property, consisting of four claims, was mapped during the last half of June, 1983 by Andy Campbell and Keith Donnelly. Concurrent with the mapping, detailed soil sampling and I.P. were done. All of the ground geophysics, soil geochemistry and geological mapping data has been compiled on 1:2,000 scale maps.

Little previous work has been done in the area prior to staking of the White River claims by Lac Minerals Ltd. During the 1940's gold rush in the area, several companies reported geological mapping in the Au and Egg Lakes area. They were hampered by extensive swamp cover and lack of outcrop. Lake Superior Mines drilled three holes, each less than 30.5 m long into "brown sediments" with no reported assays. Two old claim posts were found in the area, one at L8E, 1+50S and the other near L8E, 4+90S.

Subsequent to Lac Minerals Ltd. staking of the claim block, airborne EM, MAG, and RAD were flown and soil sampling and reconnaissance geological mapping were conducted on the claim lines with I.P. also done on selected claim lines. Upon completion of the regional reconnaissances, a detailed grid was cut over the western third of the claim block. The lines trend north-south and are spaced 100 meters apart with 25 m stations.

VLF EM-16, magnetometer, and I.P. ground surveys were conducted on the grid lines. Basal till sampling was conducted over selected lines testing I.P. conductors and, later following up soil geochemical anomalies. Eight trenches have been excavated on the property J-8 on lines 6+25E, 3+25E, 0+75W, 9+75E, 4+74E, 4+37E, 1+14W, and 1+21W.

Five diamond drill holes have been cored in property J-8.

#### 1.2 LOCATION AND ACCESS

The map area is situated in west central Brothers Township of northwestern Ontario and is covered by eight claims which are part of Lac Minerals Ltd. larger contigous White River claim group, (Figure 1). The eight claims covered are as follows: SSM 607760, SSM 607761, SSM 607762, SSM 607763, SSM 607777, SSM 607776, SSM 607775 and 607774.

The best access is provided by a Lac Minerals Ltd. constructed dirt bush road which extends southeast from Highway 17 across the railroad tracks near Struthers crossing and across the northwest portion of the White River claim block. The area mapped lies immediately north and south of the bush road on pre-cut grid lines which are accessible by foot. The area mapped is bounded east and west by lines 12E to 4W respectively and north from baseline to 5N and 5S. SUMMARY AND CONCLUSIONS

Three major units are exposed in the map area (Figure 2). A continuous mafic volcanic unit trends northwest-southeast across the property and is flanked by two sedimentary units. The mafic volcanic unit hosts a sericite-chloritebiotite schist near the lower contact which contains significant amounts of pyrite. The upper sedimentary unit is intercalated with thin banded oxide facies iron formations which may contain gold. A thin, continuous felsic volcanic unit trends northwest-northeast across the northern half of property J-8.

At present soil sampling and ground geophysical surveys have been completed. Results of the soil sampling are pending. Eight trenches have been excavated and five drill holes cored on the property. The following are recommended:

- 1) Map and sample the trenchas on L3+25E, L6+25E and L9+75E.
- 2) Wait for assay and geochemical results from the drill holes and trench samples before committing further work.

Map area J-8 is part of Lac Minerals Ltd. White River claim group. The White River claim group is underlain by sedimentary rocks, mafic and intermediate flows and tuffaceous rocks which comprise the Schreiber-Marathon greenstone belt. The greenstone belt is intruded by large granitic plutons with associated gneissic assemblages and mafic to felsic dykes and sills.

The unitr strike approximately 300° at the western part of the claim group, 270° at the central part of the claim group, and range between 340° in the northeastern and 290° in the southeastern part of the claim group. Rock units dip 45° north but in places vary from almost horizontally dipping to steeply south dipping.

West of the White River claim group, mineral assemblages in volcanic and sedimentary rocks indicate upper greenschist facies regional matamorphism (Muir, 1982).

#### PROPERTY GEOLOGY

#### .1 STRATIGRAPHY

The rock types in the map area consist of three general rock units. These units, from south to north, are as follows: 1) lower sedimentary unit; 2) mafic volcanic unit which also hosts a intermediate sill with a sericite-chlorite-biotite schist near the stratigraphic lower contact and; 3) upper sedimentary unit, which is intercalated with thin garnetiferous sedimentary rock and thin banded oxide facies iron formation and contains a thin bed of felsic volcanic rocks and quartz-sericite schist, (Figure 3). A list of representative samples is recorded in Table 1.

The lower sedimentary unit is exposed intermittently in claims SSM 607777, SSM 607776, and SSM 607775. Although the upper and lower contacts are not exposed, the apparent thickness is 300 m.

The rock types are predominantly lithic and feldspathic wackes with lesser amounts of quartzite and pelite. The rocks are generally medium-to finegrained and thinly laminated to thickly bedded (less than 1 mm to several cm). The rocks are commonly composed of biotite, quartz and feldspar with minor muscovite and amphibole. The unit weathers to a light grey color and is dark grey on a fresh surface. The lower sedimentary rock unit is not yery resistant to weathering and occupies the lowlands.

#### 5.1.2 MAFIC VOLCANIC ROCK UNIT

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The mafic volcanic rock crops out sporadically across all four southern claims. The lower and upper contacts of the unit are inferred. The apparent thickness of the mafic volcanic rock unit is 150 to 200 meters. In contrast to the sedimentary rock unit the mafic volcanic unit is fairly resistant and usually forms a ridge.

The mafic volcanic rock weathers dark brown to green and on a fresh surface it is dark green to black in color. The unit consists predominantly of fine-grained well foliated mafic tuffs, sublapilli size fragmental tuff and lesser amygdaloidal flows. The mafic volcanic rock is composed of amphibole, feldspar, quartz and minor blotite. The amygdaloidal flows are commonly fine-grained, very dense and contain quartz-feldsparcarbonate-rich amygdules which are usually flattened in the direction of foliation. The flows are also dark in color and generally have the same composition as the tuffs.

Two thin rock types in contact with each other are hosted within the mafic volcanic unit near the lower contact with the lower sedimentary unit. The intermediate sill is a coarse-to medium-grained unfoliated rock. The rock can be traced from L2E, 3+25S to L7E, 5+00S and has an apparent thickness of up to 25 meters. The sill is semi-concordant, to the stratigraphy. The intermediate sill has intruded the sericite-chlorite-biotite schist.

## 5.1.2 MAFIC VOLCANIC ROCK UNIT (continued)

The sericite-chlorite-biotite schist rock is composed of plagioclase, biotite, potassium-feldspar, quartz, minor amphibole, and traces of disseminated molybdenite.

The schist crops out sporadically across the whole property from LO+75W, 2+00S in the trench to L6E, 4+45S. The unit has an apparent thickness of 25 meters. The rock is highly schistose with abundant crenulations and wrinkles. In outcrop the schist weathers to a pale green and on a fresh surface the rock is olive green to brownish-green in color. As seen in the trench on L0+75W, the middle of the schist contains a 2 cm thin seam filled with clay material. Below this clay seam the unit contains abundant carbonate and sericite and above the clay seam the unit contains abundant chlorite and biotite. The grains range in size from fine to medium and are composed of biotite, chlorite, sericite, carbonate, minor feldspar, amphibole and pyrite. The amphiboles occurs as black coarse-grained hornblende crystals in small isolated pockets surrounded by green, fine-to medium-grained chlorite in mats and clots. The biotite is caught up in the crenulations, and wrinkles and parallels the foliation defining a strong schistosity. The pyrite occurs as coarse subhedral to euhedral disseminated crystals. The rock contains a few late stage quartz veins and there is very little to no free silica in the form of interstitial quartz.

#### 5.1.3 UPPER S DIMENTARY ROCK UNIT

The upper sedimentary unit crops out intermittently through all eight claims. The lower contact is inferred, the upper contact is not exposed in the map area and the apparent thickness is greater than 600 meters.

The rock types that make up the unit in the map area consist predominantly of lithic wacke with lesser amount: of garnetiferous sedimentary rock, thin banded oxide facies iron formation, sandstone, feldspar porphry sills and late crosscutting diabase dykes and gabbroic intrusions. A thin band of felsic volcanic rock and quartz-eye, quartz-sericite-schist outcrops sporadically across all four northern claims. These rocks contain about 1 to 2% disseminated fine-grained pyrite. Sericite development is variable.

The lithic wacke is medium-grained, well foliated, both thinly laminated to thickly bedded and is composed of quartz, biotite, and minor feldspar, sericite and amphibole.

The garnetiferous sedimentary rock and thin banded oxide facies iron formation are spatially related to each other and are exposed at L10E, 3+25S and at L11E, 2+75S and along the Lac Minerals Ltd. access road. These units are tens of meters thick and laterally continous over hundreds of meters. The units are intercalated and contacts with the surrounding lithic wacie are gradational. The garnet content decreases northward and the magnetite bands become more abundant in the thin banded oxide facies iron formation.

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### 5.1.3 UPPER SEDIMENTARY ROCK UNIT (continued)

The garnetiferous sedimentary rock consists of fine to medium grains of guartz, feldspar and biotite with coarse subhedral to subhedral garnet porphyroblasts. The rock is well foliated and well banded.

The oxide facies iron formation consists of 1 to 2 cm thick magnetiterich bands separated by 5 to 10 cm thick bands of sedimentary rock. The sedimentary rock is a light grey colour while the magnetite-rich bands are a darker, blue-grey colour. The rock consists of fine-to mediumsize grains of quartz, biotite, magnetite and minor amphibole, feldspar and pyrite.

#### 5.1.4 INTRUSIVE ROCK

A feldspar porphyry sill occurs within the upper sedimentary unit near the lower contact. The unit can be traced discontinuously on surface for several hundred meters across claims SSM 607777, SSM 607776, SSM 607775, and SSM 607774. The apparent thickness is less than 25 meters, with massive, rounded to subrounded outcrops. The rock is medium-to coarse-grained and porphyritic with no preferred orientation of the grains. The rock is composed of feldspar, biotite, guartz and minor amphibole.

Late-stage diabase dykes and gabbroic intrusives crosscutt the stratigraphy. Weathering to brown colour and black on the fresh surface, the rock exhibits an ophitic texture and is essentially composed of plagioclase and pyroxene.

#### 5.2 STRUCTURAL GEOLOGY

The strike of the foliation in the rocks varies from 110° in the southwest to 85° in the northeast and the dip varies from 30° to 55° north. Bedding is parallel to the foliation. Folding and faulting are not readily observable in outcrop however, in the trench on L0+75W isoclinal folds in the sedimentary rock south of the mafic volcanic unit, have been observed. The isoclinal folds trend eastwest and plunge 20° east. Joints in the mafic volcanic and sedimentary units trend 10° to 20° and dip 80° to 85° to the west, following the most common trend of the diabase dykes. In the intermediate intrusive and feldspar porphyry sills there are two vertically dipping joint sets, one trending 55° and the other trending 170°.

The sericite-chlorite-biotite schist is a possible shear zone. The schist appears highly shear d and is semi-concordant with the surrounding stratigraphy, striking 145° and dipping 32° to the north. The schist is also sporadically intruded by later sills of intermediate composition.

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#### SOIL GEOCHEMISTRY

Soil sampling of the humus "A" horizon along the grid lines was completed. Results are pending at the time of writing.

#### 6.3.2 BASAL TILL GEOCHEMISTRY

Basil till sampling was conducted over selected lines to test I.P. conductors. Samples were analyzed for gold and molybdenum. Gold anomalies, >10 ppb, were detected on L1W, 1+65S, 2+00S and 2+25S; L3E, 2+50S, 2+75S and 4+00S and L5E, 2+50S. The gold anomalies on L1W are spatially related to the schist and the mafic volcanic rock.

#### 6.3.3 ROCK GEOCHEMISTRY

Seven rock samples, sample #707 to 710 and 713 to 715, were collected from property J-8. The rock samples were analyzed for Au, Ag, Mo, Cu, Zn, As, Sb and Hg. The location and results are recorded in Table 2. No anomalous results were received.

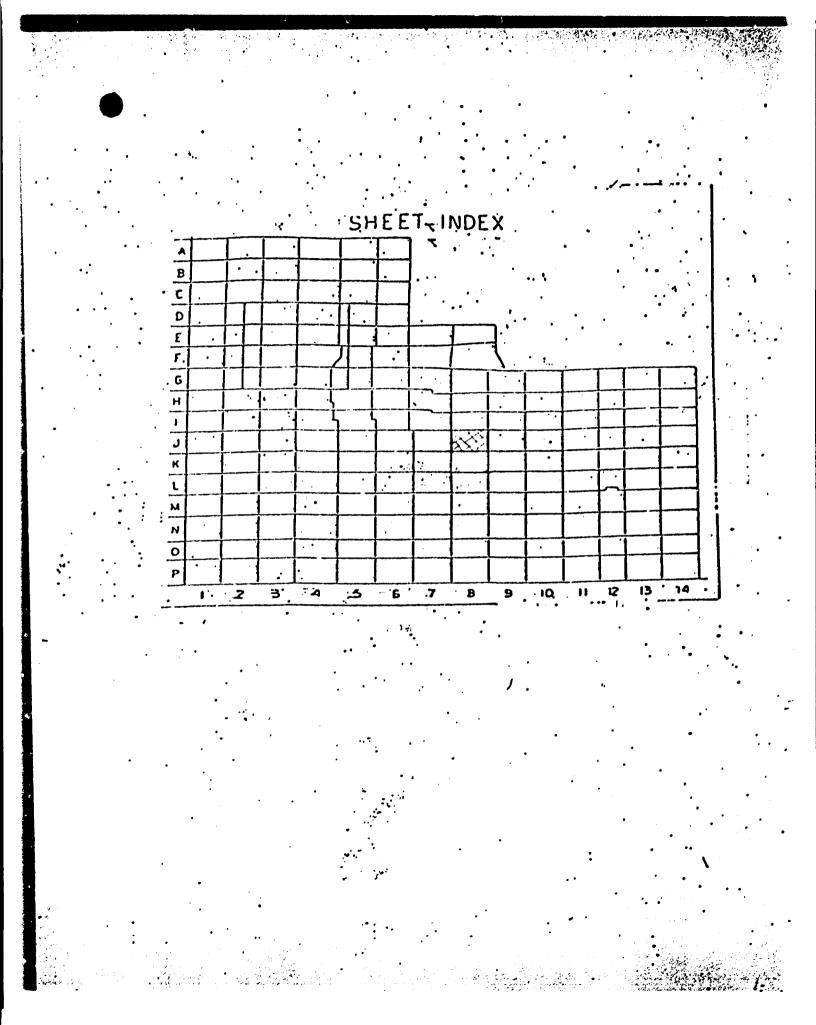
#### DISCUSSION OF GEOLOGY AND EXPLORATION WORK

Three distinct rock units are identified in the map area. They are: 1) biotite-sericite-chlorite schist 2) mafic volcanic unit and 3) banded oxide facies iron formation and associated sedimentary rocks of the upper sedimentary unit. Regionally these rock units are latterally continuous and correlative with rock units near the Williams property.

The mafic volcanic unit is very similar to the mafic volcanic unit on Highway 17 near the southwest corner of the Williams property. The units are approximately the same width, texture and mineralogical composition and appear to lie on strike with each other. If they are the same rock unit this might give a stratigraphic marker horizon with which to correlate the stratigraphy of property J-8 and the Williams property. Assuming this, the ore zone on the Williams property lies some 600 m to the north of the mafic volcanic unit and on the main grid this would correspond with the Egg Lake area.

The biotite-sericite-chlorite schist that is spatially related to the mafic volcanic unit can also be traced for a considerable distance. On the main grid the schist is sheared, crenulated and wrinkled and occurs near the bottom contact of the mafic volcanic unit. On the Williams property and along Highway 17 west of the Williams property a very similar schist occurs near the top contact of the mafic volcanic unit. Based on the available data, these two schists are interpreted to be the same. The schist represents a major regional shear zone that cuts across the stratigraphy at an oblique angle.

On property J-8, overlying the mafic volcanic unit is a sedimentary rock unit composed predominantly of pelites, iron formation, and lithic and felsic wackes. This is comparable to the intercalation of predominantly felsic volcanic rocks, iron formation, and pelites overlying the mafic volcanic unit in the area of the Williams property. This difference indicates that felsic volcanism was occuring along with sedimentation in the Williams area and deposition became more distal and sedimentdominated to the east on property J-8.





Lac Minerals Ltd. Exploration Division

I, G. Alexander Motzok, do hereby certify that:

- i) I have graduated from the University of Western Ontario, London Ontario, with a B.A. in Geology.
- ii) I have been employed by Lac Minerals Ltd. as a Geologist since
   January 1982.

March 20, 1984

G.A. Motzok.



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## **Ministry of Natural Resources**

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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)_	GEOLÓGICAL		
Township or Area_	BROTHERS TO		
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## GEOPHYSICAL TECHNICAL DATA

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Mrs. M.V. St. Jules Mining Recorder Ministry of Natural Resources 875 Queen Street East P.O. Box 669 Bault Ste. Marie, Ontario P6A 5N2

## Dear Madam:

We have received reports and maps for a Geological Survey submitted under Special Provisions (credit for Performance and Coverage) on Mining Claims SSM 607760 et al in the Township of Brothers.

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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, 1.1

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8.B. Yundt Director " £ Land Management Branch

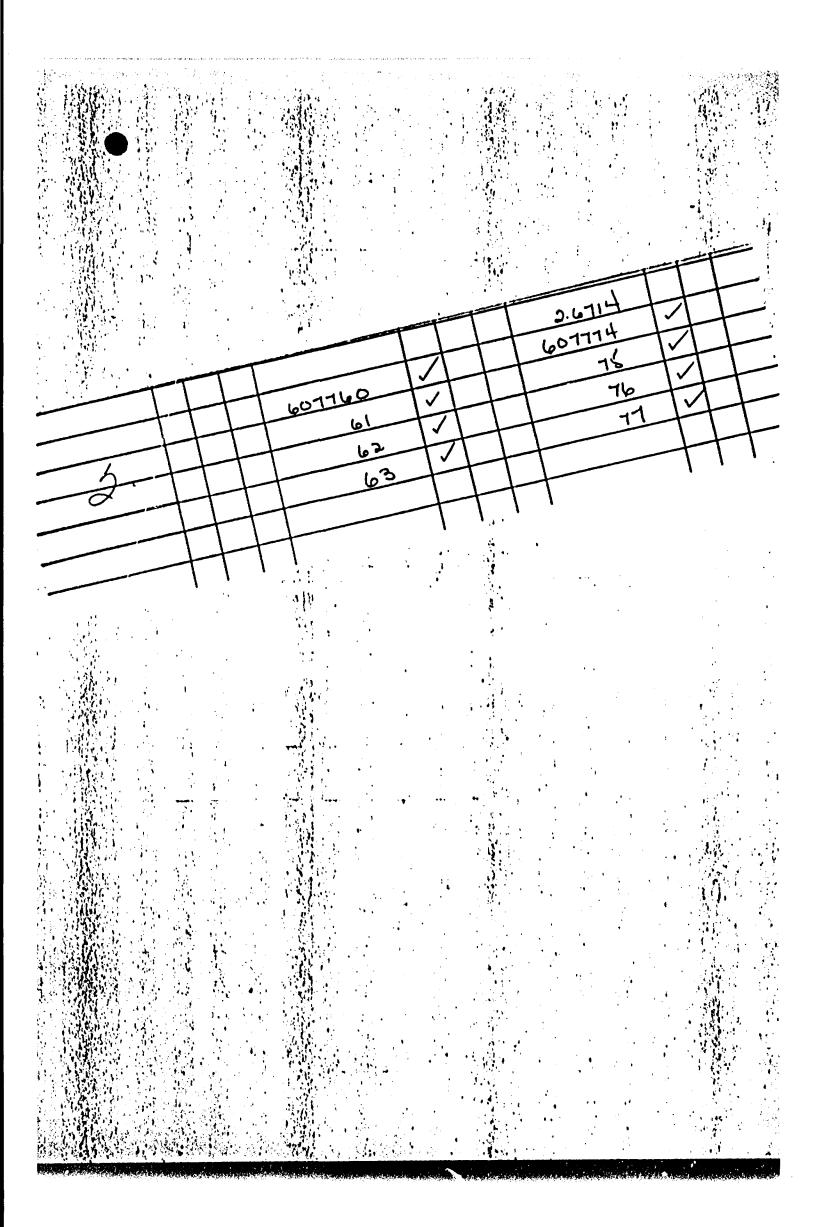
Whitney Block, Room 6643 Queen's Park Toronto, Ontario M7A 1W3 Phone: (416) 965-6918

A. Barrisc

м • co: Lao Minerals Limited 9.0. Box 580 Manitouwadge, Ontario POT 2C0 0 . . . 

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TAN MARY



SEE ACCOMPANYING MAP(S) IDENTIFIED AS 420/12NW-0033-A1 #1 LOCATED IN THE MAP CHANNEL IN THE FOLLOWING SEQUENCE (X)

