



53814NE0011 2.11398 KEEYASK LAKE

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#### REPORT

ON

# MAGNETIC AND VLF-EM SURVEYS

#### ON THE

# KEEYASK LAKE PROPERTY

# DISTRICT OF KENORA, PATRICIA MINING DIVISION

### NORTHWESTERN ONTARIO

# FOR

### MOSS RESOURCES LTD.

NTS 53-B/14 53-G/3

RECEIVED MINING LANDS SEUTION

June 1988

Stephen B. Medd, B.Sc.



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#### 1.0 SUMMARY

Magnetic and VLF-EM surveys were carried out during February 1988 on the Keeyask Lake property of Moss Resources Ltd.

Five geological domains are interpreted from the magnetic and VLF-EM data in conjunction with previous geological data. The east side of the property is covered by clastic metadediments (Eyapamikama Lake Metasediments). This domain possesses an unconformable, probably sheared boundary with the underlying mafic and ultramafic metavolcanic domains (Keeyask Lake Metavolcanics) and with felsic and intermediate intrusive rocks of the Weagamow Lake Batholith occupying the west side of the property. The mafic and ultramafic metavolcanic domains trend north to northwest and are completely truncated by the boundary fault on the north part of the property. On the southwest part of the property a sequence of intermediate metavolcanics (Agutua Arm Metavolcanics) unconformably underlies the ultramafic metavolcanic domain.

Hosted within the west half of the ultramafic metavolcanic domain is at least one strong, semi-continuous magnetic band representing iron formation. Parts of this horizon are conductive, indicating probable secondary pyrrhotite-pyrite mineralization in shear structures occupying oxide facies iron formation.

Magnetic data also reveal a number of east-west crosscutting fault/shear structures. Although small scale folding probably exists within the individual rock horizons, there is no conclusive indication of such folding from the magnetic data.



The majority of VLF-EM conductors are interpreted as representing concordant to subconcordant fault/shear structures and/or lithological contacts. The dominant conductive feature is the unconformable west boundary of the clastic metasedimentary domain. A number of strong, continuous conductors mark this boundary and could reflect graphitesulphide mineralization.

Seven fences have been selected along which diamond drilling should initially commence. This totals to 21 holes and approximately 7,350 feet of drilling.

#### 2.0 INTRODUCTION

The following report describes the results of ground magnetic and VLF-EM surveys conducted during February 1988, over the Keeyask Lake property of Moss Resources Ltd. The two surveys were undertaken to delineate lithological units, structural trends and alteration zones, and to locate conductive zones of sulphide-bearing iron formation, other stratabound sulphide mineralization and shearing, all of which could host gold.

Very little is known about the geology or gold potential of this area because of the extensive cover of sand and boulder till, and the paucity of previous exploration work. However, encouraging results from possible  $D_1$  shear structures along the north and south margins of the North Caribou-Opapimiskan Lakes greenstone belt have led to the realization that similar structures could exist along the west boundary of the belt. The Keeyask Lake property was staked based in part on this premise.

#### 3.0 PROPERTY DESCRIPTION, LOCATION AND ACCESS

The Keeyask Lake property is located approximately 115 miles north of the town of Pickle Lake and nine miles east of the Weagamow Lake Indian Reserve located on the north shore of Weagamow Lake (Fig. No. 1). A block of 119 contiguous, unpatented mining claims forms the property (Fig. No. 2). Claim numbers and recording dates are as follows:





#### Claim Numbers

#### Recording Dates

Pa	1002791-1002810	inclusive	(20)	July	22,	1987
Pa	1002944-1002953	inclusive	(10)	July	22,	1987
Pa	1002984-1003013	inclusive	(30)	July	22,	1987
Pa	1009759-1009787	inclusive	(29)	July	22,	1987
Pa	1009789-1009796	inclusive	(8)	July	22,	1987
Pa	1009799-1009820	inclusive	(22)	July	22,	1987

#### Total 119 Claims

These claims are held by Moss Resources Ltd., 1003-34 King Street East, Toronto, Ontario, M5C 1E5.

Access to the property is attained by helicopter or by fixed wing aircraft from Pickle Lake to the west end of Eyapamikama Lake. Furthermore, Highway 808, an all weather gravel road from Pickle Lake to Windigo Lake ends approximately 30 miles south of the property. During January to April, a winter road exists between Windigo Lake and Weagamow Lake and passes within six miles of the property.

#### 4.0 TOPOGRAPHY AND VEGETATION

The property is situated, for the most part, on the west side of Eyapamikama Lake. It stretches north-northwesterly along the west margin of the greenstone belt from the vicinity of Pakiagama Lake, at its south end, to the vicinity of Miskeesik Lake at its north end. An extensive cover of sand and boulder till hides most of the bedrock and has produced a gently rolling relief that does not usually exceed 100 feet. Black spruce forest blankets most of the area.

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#### 5.0 PREVIOUS WORK

The following is a chronological account of previous work on the property and adjacent areas:

<u>1939</u> - The geology of the area was mapped at a scale of one inch to one mile by Jack Satterly for the Ontario Department of Mines.

<u>1960</u> - An airborne magnetic survey was flown in the area by the 0.D.M. - 0.G.S.

<u>1967</u> - Pyrotex Mining and Exploration Company drilled four diamond drill holes for a total of 840 feet on the southeast side of Agutua Arm.

<u>1978</u> - St. Joseph Explorations Ltd. conducted geological, magnetic and electromagnetic surveys on a property which borders the Keeyask Lake property to the south.

<u>1979</u> - St. Joseph Explorations Ltd. drilled five diamond drill holes for a total of 460 metres as follow-ups to their 1978 geological and geophysical surveys. Assays were obtained for Cu, Zn, Au and Ag. The best gold assay was 0.06 ounces per ton over 1.53 metres from banded chert and magnetite which was chloritized and brecciated. The assay was taken from Hole 3190-5-79 on Claim 501004 located on the south side of the North Caribou River. Other holes showed sericite, silica and fuchsite alteration but only trace values of gold. The holes were drilled at a -45° dip in a northwest direction. Overburden depths of less than nine metres were encountered. <u>1982</u> - The Ontario Geological Survey published a regional geological compilation map (Map 2292) at a scale of one inch to four miles (O.G.S., 1982). This map was compiled from data obtained during a 1973 reconnaissance geological survey.

<u>1985</u> - The Ontario Geological Survey released a preliminary geological map (Map P.2834) at a scale of one inch to onehalf mile (Bartlett <u>et al.</u>, 1985). This map was based on geological mapping of the Eyapamikama Lake area during the summer of 1984.

<u>1985</u> - Sulpetro Minerals Ltd. conducted geological mapping and diamond drilling for gold on a property adjoining the Keeyask Lake property to the south.

<u>1985</u> - Moss Resources Ltd. carried out ground magnetic and VLF-EM surveys, geological mapping and rock soil geochemistry (Au, Ag, Cu) on its Augutua Lake property includes the Pyrotex showing which consists of en echelon gold-bearing quartz-arsenopyrite-pyrite-chalocpyrite veins up to 25 cm wide.

<u>1985</u> - Ground magnetic and electromagnetic surveys, rock and geochemistry (Au), and stripping and trenching were undertaken by the Northern Dynasty Exploration Limited joint venture on its Arseno Lake property, located northeast of the Keeyask Lake property.

<u>1985</u> - Comstate Resources Ltd. conducted geological mapping and rock geochemistry (Au, Cu) on a property that currently makes up the southern one-third of the Keeyask Lake property. Because of the lack of anomalous gold values, no further work was recommended.

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<u>1986</u> - The Ontario Geological Survey released a set of 38 airborne magnetic and electromagnetic maps (scale 1:20,000) that covered the entire North Caribou-Opapimiskan Lakes greenstone belt. Maps 80718 and 80725 cover the property area.

<u>1986</u> - Moss Resources Ltd. conducted ground magnetic and electromagnetic surveys on its Eyapamikama Lake property located northeast of the Keeyask Lake property.

<u>1986</u> - Geological and geophysical surveys were undertaken by Northern Dynasty Exploration Limited, Agnico-Eagle Mines Ltd. and C.R. Bowdidge on their respective properties located along the north margin of the belt.

<u>1987</u> - The Keeyask Lake property was staked by Moss Resources Ltd. after the claims belonging to Comstate Resources Ltd. expired.

#### 6.0 REGIONAL GEOLOGY AND ECONOMIC MINERALIZATION

The property is located in the North Caribou-Opapimiskan Lakes greenstone belt which belongs to the Sachigo-Subprovince of the Superior Province of the Canadian Shield. The belt forms a narrow, arcuate, isoclinal synclinorium that stretches for approximately 90 miles from end to end (Fig. No. 3).

A thick clastic metasedimentary sequence, known as the Eyapamikama Lake Metasediments, occupies the central and northwest part of the belt. This sequence is flanked to the north by the North Rim Metavolcanics and to the south by the South Rim Metavolcanics. The South Rim Metavolcanics contain







mafic to felsic metavolcanic flows and tuffs; the main lithologies being fine-to-medium grained, massive and pillowed mafic flows. The North Rim Metavolcanics contain predominantly mafic metavolcanic rocks. Both units host extensive sulphide-chert iron formation and cherty chemical sediments. Gabbro and quartz-feldspar porphyry sills and dykes are found throughout the North and South Rim Metavolcanics. These intrusives are probably co-magnetic with their host rocks because they commonly predate  $D_1$  structures.

In the vicinity of Opapimiskan Lake, the North and South Rim Metavolcanic units pinch out and they are replaced by the Opapimiskan-Markop Metavolcanics. These rocks are mafic and ultramafic in composition, and are possibly older and geochemically more primitive. They are similar compositionally to the Keeyask Lake Metavolcanics at the west end of the belt. Located at the easternmost end of the belt are a sequence of pillowed and massive mafic metavolcanic flows known as the Forester-Neawagank Metavolcanics. These rocks may be confused with metamorphosed mafic plutonic rocks, however, the presence of interbeds of banded iron formation and pillow structures are evidence of their volcanic origin (Breaks, et al., 1986).

Granitoid paragneiss and migmatitized rocks border the north side of the belt. Felsic intrusives such as the North Caribou Lake Batholith border the south side. A myriad of felsic porphyry, aplite and pegmatite dykes crosscut the margins of the belt.

The regional metamorphic grade varies from greenschist to lower-middle amphibolite facies.



Deformation of the belt involved at least three phases of Only rare examples can be documented of the  $D_1$ folding. event which produced isoclinal folding resulting in the synclinal shape of the belt. The present isoclinal shapes of F1 folds are sometimes seen in banded iron formation and are probably the result of rotation of fold limbs nearly parallel to F<sub>2</sub> fold limbs. The D<sub>2</sub> deformation event was the major tectonic and metamorphic event in the belt. Fo folds are closed to open, assymetric Z and S mesoscopic folds which possess near vertical, axial planar, penetrative In most of the belt, this cleavage is generally cleavage. oriented in a northwest to west-northwest direction with associated lineations having shallow plunges to the northwest or northeast. D<sub>3</sub> structures are only locally penetrative and are usually manifested as broad open warps in the stratigraphy and earlier fabrics.

Gold mineralization occurs with quartz-pyrrhotite veins and disseminated sulphides in grunerite-chert banded iron formation at Opapimiskan Lake. The presence of grunerite in banded iron formation correlates with zones of increased shearing that commonly parallel iron formation banding and axial planes of  $F_2$  folds. Sulphide mineralization commonly shows a preferential association with these gruneritic zones. Sulphide-bearing quartz-carbonate + tourmaline veins and shear zones are gold-bearing and could be related to either S<sub>1</sub> or S<sub>2</sub> structures.  $D_1$  related shear zones, such as the North Caribou River Fault are hosts for gold. The gold is associated with intense shearing and quartz-sulphide-iron carbonate alteration (North, 1987).

To date, the most economic gold zones in the belt are found in the West Anticline Zone of the Musselwhite deposit and the Snoppy Lake deposit, located in the Opapimiskan Lake area.

Published reserves for the West Anticline zone are over 3.2 million tons at 0.17 ounces gold per ton. The Snoppy Lake deposit has estimated reserves of 4 million tons grading 0.2 ounces gold per ton.

#### 7.0 PROPERTY GEOLOGY

The southern one-third of the Keeyask Lake property was mapped in detail in 1985 by Comstate Resources Ltd. when these claims belonged to this company. Rocks in this area are subdivided into the older Agutua Arm metavolcanic sequence, on the west part, and the younger, unconformably overlying Keeyask Lake metasediments and metavolcanics, on the east part of the claim block. The unconformity is exposed south of the portage between Eyapamikama Lake and Pakiagama Lake. In this area, north trending (east facing) cross-bedded, quartzose sandstones form the base of the Keeyask Lake sequence and unconformably overlie northeast trending intermediate crystal tuffs and tuff breccias of the Agutua Arm sequence.

The Keeyask Lake metasedimentary basal unit also contains minor siltstone and marlstone as well as sandstone. The unit is approximately 60 feet thick and is capped by a thin unit of chert-magnetite iron formation. Ultramafic metavolcanic flows overlie the metasediments and form the base of the Keeyask Lake volcanic succession. Outside the east boundary of the claim block are the Eyapamikama Lake clastic metasediments which unconformably overlie the Keeyask Lake metavolcanic rocks.



Minor pyrite and arsenopyrite mineralization (3-4%) was encountered in rocks of the Agutua Arm metavolcanic sequence. The mineralization is generally confined to narrow shear zones intruded by quartz and/or carbonate veins with minor fuchsite (Comstate Resources Ltd., 1985).

Relatively little is known about the geology on the northern two-thirds of the property due to the extensive overburden cover. However, it is conjectured that the west part of the property is dominated by felsic and intermediate granitoid intrusive rocks, and the east part by clastic metasediments of the Eyapamikama Lake sequence.

#### 8.0 DESCRIPTION OF GEOPHYSICAL PROGRAM

During January and February 1988, linecutting and ground magnetic and VLF-EM surveys were conducted over the Keeyask Lake property of Moss Resources Ltd. The personnel involved were:

J.	Robert	Amos,	Quebec	Linecutter	Jan.	23-Feb.	2,	1988
c.	Darveau	Amos,	Quebec	Linecutter	Jan.	23-Feb.	2,	1988
Υ.	Jacques	Amos,	Quebec	Linecutter	Jan.	23-Feb.	2,	1988
Y.	Gregoire	Amos,	Quebec	Linecutter	Jan.	23-Feb.	2,	1988
Α.	Bernier	Amos,	Quebec	Linecutter	Jan.	23-Feb.	2,	1988
Ρ.	Phillipps	Amos,	Quebec	Linecutter	Jan.	23-Feb.	2,	1988
R.	Morand	Val d	'Or,	Linecutter	Jan.	23-Feb.	2,	1988
		Quebeo	2					
G.	Morand	Val d	'Or,	Linecutter	Jan.	23-Feb.	2,	1988
		Quebeo	2					
J.	Morand	Val d	'Or,	Linecutter	Jan.	23-Feb.	2,	1988
		Quebeo	2					
J.1	L. Paquette	La Sar	rre,	Linecutter	Jan.	23-Feb.	2,	1988
		Quebeo	2					
Ρ.	Trapper	La Sar	rre,	Linecutter	Jan.	23-Feb.	2,	1988
		Quebeo	2					

F. Recoskie Pickle Lake, Magnetometer Feb. 11-26, 1988 Ontario Operator Magnetometer D.J. Recoskie Val d'Or, Feb. 11-26, 1988 Quebec Operator D.E. Recoskie Val d'Or, Feb. 11-26, 1988 VLF Operator Quebec VLF Operator Feb. 11-26, 1988 R. Carpenter Sioux Lookout, Ontario

A total of 107.56 miles of linecutting was carried out, followed by 99.38 miles of magnetic surveying and 99.38 miles of VLF-EM surveying. Survey lines were spaced 400 feet apart with pickets erected every 100 feet along the lines. Lines 232+00N to 216+00N were cut perpendicularly to BL73+00W (azimuth: 330°). Lines 212+00N to 156+00N were cut perpendicularly to BL38+00W (azimuth: 330°). Lines 152+00N to 0-0 were cut perpendicularly to BL30+00W (azimuth: 330°). Lines 0 to 140+00S were cut perpendicularly to BL0+00 (azimuth: Two claims spur off the southeast corner of the 360°). property and are covered by six short survey lines cut perpendicularly to a baseline oriented at 340°.

The magnetic survey was performed using a Scintrex Fluxgate MF-2 magnetometer. Readings of the vertical magnetic field were taken every 100 feet along the survey lines and in areas of high magnetic gradient readings, were taken at 50-foot intervals. Diurnal drift changes in the magnetic field were estimated by taking repeat readings at previously established stations at time intervals not exceeding 1.5 hours. Corrections were made, accordingly, to the vertical magnetic field value obtained at each station. The results of the magnetic survey were plotted and contoured and are presented on maps in back of the report.

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Over the north half of the property, the VLF-EM survey employed a Geonics EM-16 receiver tuned to receive the 21.4

kHz signal transmitted from Annapolis, Maryland (NSS). Over the south half of the property, the 24.0 kHz signal transmitted from Cutler, Maine (NAA) was used. Readings of inphase (tilt-angle) and quadrature were taken every 100 feet The results are presented in proalong the survey lines. filed format and contoured format (Fraser-filtered inphase values) on maps in back of the report.

#### RESULTS AND INTERPRETATION 9.0

Refer to the geophysical interpretation maps in back of the report.

#### 9.1 Magnetic Data

Five major geological domains are inferred from the magnetic data, in conjunction with geological data from two sources (Bartlett, et al., 1985) and Comstate Resources Ltd., 1985). From east to west, the domains are as follows:

- 1. Clastic metasediments (Eyapamikama Metasediments).
- 2. Mafic metavolcanic flows (Keeyask Lake Metavolcanics).
- 3. Ultramafic metavolcanics flows with minor iron formation (Keeyask Lake Metavolcanics).
- 4. Intermediate metavolcanic flows and tuffs (Agutua Arm Metavolcanics). Located on southwest part of property only.
- 5. Felsic and intermediate granitoid intrusives (Weagamow Lake Batholith).



The clastic metasedimentary domain which covers the easternmost part of the property is characterized by relatively subdued and isolated magnetic peaks and depressions and a low number of VLF-EM conductors. Magnetic values generally range between 300 and 600 gammas. This domain appears to possess an unconformable boundary with the mafic and ultramafic metavolcanics of the Keeyask Lake sequence. The boundary crosscuts at shallow angles individual magnetic horizons within the mafic and ultramafic metavolcanic domains. It is conductive over almost all of its length and could be faultrelated.

The mafic metavolcanic domain possesses background magnetic values between 500 and 700 gammas. Discontinuous, isolated peaks of up to 1,300 gammas occur sporadically throughout this domain and could represent small ultramafic bodies or iron formation lenses. Only one significant VLF-EM conductor is contained within this domain.

The ultramafic metavolcanic domain stretches north to northwest across the property. It is subdivided into east and west units. The west unit is interpreted to contain at least one semicontinuous iron formation horizon, as indicated by an increased magnetic response and previous geological mapping (Bartlett <u>et al.</u>, 1985). Most magnetic readings on the west unit are between 1,000 and 2,000 gammas with a number of values greater than 10,000 gammas. Magnetic readings on the east unit vary considerably in a multitude of pronounced peaks and depressions. Background values are generally less than 1,500 gammas. A dense cluster of VLF-EM conductors exist within the ultramafic metavolcanic domain.



The intermediate metavolcanic domain is characterized by broad magnetic high and low patches. Background magnetic values are generally between 700 and 1,000 gammas.

The

domain occupies the southwest part of the property only and appears to be in fault contact with granitoid intrusive rocks A number of VLF-EM conductors are conat its north end. tained within this domain.

Most of the west part of the property is covered by felsic and intermediate granitoid intrusive rocks of the Weagamow Lake Batholith. These rocks exhibit a mottled magnetic response characterized by numerous peaks and depressions and weak linear magnetic features in various orientations. This distinctive magnetic texture is believed to be caused by a myriad of faults, dykes and xenoliths contained within the batholith. Background magnetic values are generally between 400 and 700 gammas. A number of VLF-EM conductors are contained within this domain.

Although small scale isoclinal folding probably exists within the individual rock horizons, there is no conclusive indicacation of such folding from the magnetic data. On the south part of the property, an apparent thickening of the west ultramafic unit containing iron formation could be indicative of small scale folding.

A number of east-west trending faults or shears that crosscut the stratigraphy are indicated by flexures or disruptions of magnetic and VLF-EM trends. One such zone was mapped on the south end of the property by the O.G.S. (Bartlett et al., 1985). It consists of an east-west trending sinstral shear containing fuchsite, located in chert, dolomitic marble and These rocks are contained within the ultraquartz arenite. mafic metavolcanic domain.

VLF-EM conductors on the property are subdivided into five classes as outlined below. Note that nearly all of the conductors trend north to north-northwest and are interpreted to be concordant to subconcordant fault/shear structures and/or lithological contacts.

- I Conductors with a high intensity magnetic association. Class 1: Conductors representing pyrrhotite-bearing lenses, contacts and shear zones; sulphide-bearing iron formation; and serpentinite-magnetite-bearing horizons, contacts and shear zones. These conductors occur within the mafic and ultramafic domains.
- II Conductors without a magnetic association.

Class 2: Conductors representing the unconformable west boundary of the clastic metasedimentary domain. This domain comes in contact with three other domains: the ultramafic metavolcanic domain, the mafic metavolcanic domain and the felsic and intermediate granitoid intrusive domain. These conductors are usually quite strong and could be due to graphite or graphite and sulphides in a continuous shear structure along the boundary.

Class 3: Conductors representing intradomain shear zones and/or contacts within the clastic metasedimentary domain.

Class 4: Conductors representing intradomain shear zones and/or contacts within the intermediate metavolcanic domain.



Class 3, 4 and 5 conductors could be caused by sulphides or conductive gouge and ionic solutions in shear structures.

Table No. 1 describes each conductor in detail and assigns a priority (very high, high, moderate, low) with respect to the conductor's potential for gold mineralization.

Note that each conductor is assigned a conductor strength rating (strong, moderate, low, very low) based on a scheme Negative quadrature response refers to quadoutline below. rature that behaves inversely to the inphase (i.e. quadrature values are positive when inphase values are negative and vice versa). This is typical of good conductors. Positive guadrature response refers to quadrature that behaves the same way as the inphase (i.e. quadrature values are positive when inphase values are positive). This is typical of poor con-Also, note that most conductors vary in strength ductors. along strike, therefore conductor strengths are given as a percentage over the total length of the conductor.

I Strong Conductance

domain.

- A. Inphase peak-to-peak response is 60-100% and with negative (inverse) quadrature or weak to moderate positive quadrature response, or
- B. Inphase peak-to-peak response is 50-60% with strong negative quadrature response.

#### KEEYASK LAKE PROPERTY

			<u>TA</u>	BLE NO. 1 KE	- VLF-F Eyask La	SM BEDROG NKE PROPI	CK CONDUCTORS	
(Nume Cond	Conductor Label aral Denotes ductor Type)	Map Sheet	Probable Host Rock	Conduct Strengt	tor th	Length (Feet)	Priority	Interpretation
	A 1	A,B	Iron Formation	30% st: 35% mod 35% wea	rong derate ak	4,800	Very high	Faulted boundary between metasediments and iron formation horizon hosted in ultramafic metavolcanics. High magnetic association.
	B <sub>1</sub>	В	Ultramafic Metavolcanics	70% wei 30% vei	ak ry weak	1,600	High	Sheared contact between ultramafic metavolcanic horizons.
	c <sub>1</sub>	В	Ultramafic Metavolcanics	100% mod	derate	2,700	High	Sheared contact between ultramafic meta- volcanic horizons. Same zone as B <sub>l</sub> .
	D1	с	Ultramafic Metavolcanics and Iron Formation	30% mod 55% wea 15% vei	derate ak ry weak	3,100	Very high	Same shear zone as $B_1$ , $C_1$ following contact between ultramafic metavolcanic horizons then crossing iron formation horizon.
	E <sub>1</sub>	C,D	Ultramafic Metavolcanics and Iron Formation	50% sti 25% mod 25% wea	rong derate ak	3,300	Very high	Subconcordant shear zone crossing ultramafic metavolcanics and iron formation.
	F <sub>1</sub>	D	Ultramafic Metavolcanics and Iron Formation	10% sti 10% mod 80% wea	rong derate ak	4,400	Very high	Same shear zone as E <sub>1</sub> crossing ultra- mafic metavolcanics and iron formation then following boundary between ultra- mafic and intermediate metavolcanic domains.
	G <sub>1</sub>	A,B	Iron Formation	75% sti 15% mod 10% vei	rong derate ry weak	2,900	Very high	Concordant shear zone in iron formation.

1 21

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# KEEYASK LAKE PROPERTY

		TAI	<u>BLE NO. 1 - VLF-</u> <u>KEEYASK L</u>	EM BEDROG	CK CONDUCTORS	
Conductor Label Jumeral Denotes Conductor Type)	Map Sheet	Probable Host Rock	Conductor Strength	Length (Feet)	Priority	Interpretation
н <sub>1</sub>	В	Iron Formation	45% strong 35% moderate 20% weak	8,000	Very high	Subconcordant shear zone in iron formation.
I 1	с	Iron Formation	45% strong 25% moderate 30% weak	3,200	Very high	Same shear zone as H1 following west contact of iron formation.
J	C,D	Iron Formation- Intermediate Metavolcanic Contact	20% moderate 40% weak 40% very weak	3,900	High	Sheared contact between iron formation and intermediate metavolcanics. Conducto is strongest adjacent to high magnetics due to possible pyrrhotite increase.
40 <b>K 1</b> 121	B,C	Ultramafic Metavolcanics	8% strong 40% moderate 52% weak	9,700	High	Subconcordant shear zone in ultramafic metavolcanics.
L <sub>1</sub>	с	Ultramafic Metavolcanics	25% weak 75% very weak	1,600	Moderate	Same shear zone as K <sub>1</sub> .
M <sub>1</sub>	D	Ultramafic Metavolcanics and Iron Formation		4,000	High	Same subconcordant shear zone as $K_1$ , $L_1$ crossing ultramafic metavolcanics and iron formation.
N 1 12 12 12 12 12 12 12 12 12 12 12 12 12	С	Ultramafic Metavolcanics- Iron Formation Contact	65% weak 35% very weak	1,300	High	Sheared contact between ultramafic metavolcanics and iron formation lens.
0 1	с	Ultramafic Metavolcanics	45% moderate 55% weak	2,300	High	Sheared contact between ultramafic metavolcanic horizons.

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#### KEEYASK LAKE PROPERTY

Server 2017		TA	BLE NO. 1 - VLF	-EM BEDRO	CK CONDUCTORS		
			KEEYASK	LAKE PROP	ERTY		
Conductor Label (Numeral Denotes Conductor Type)	Map Sheet	Probable Host Rock	Conductor Strength	Length (Feet)	Priority	Interpretation	
P 1	D	Ultramafic Metavolcanics	100% weak	1,600	Moderate	Could be same shear zone as $O_1$ .	
Q1	D	Ultramafic Metavolcanics and Iron Formation	45% strong 30% moderate 25% weak	2,700	Very high	Same shear zone as P <sub>1</sub> crossing ultra- mafic metavolcanics and iron formation.	
R <sub>1</sub>	с	Mafic Metavolcanics	50% weak 50% very wea	1,700 k	Moderate	On the edge of a discrete magnetic high. Could be sheared contact between mafic metavolcanics and a small ultramafic body or iron formation lens.	
s <sub>1</sub>	В	Ultramafic Metavolcanics	100% moderate	500	Moderate	Could be sulphide lens along the boundary between ultramafic meta- volcanics and granitoid intrusives.	
T <sub>1</sub>	В	Iron Formation	100% weak	800	High	Secondary pyrrhotite-bearing horizon or small shear in iron formation.	
A <sub>2</sub>	A	Clastic Metasedimentary Unconformable Boundary	80% strong 20% moderate	10,000	Moderate	Sheared boundary between metasediments and granitoid intrusives. Strong conductance could reflect graphite- sulphide mineralization.	
B <sub>2</sub>	B,C	Clastic Metasedimentary Unconformable Boundary	75% strong 20% moderate 5% weak	12,300	High	Sheared boundary between metasediments and ultramafic and mafic metavolcanics. Strong conductance could reflect graphite-sulphide mineralization and lake edge effect.	

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# KEEYASK LAKE PROPERTY

			<u>.</u>	ABLE NO	<u> </u>	EM BEDRO	CK CONDUCTORS	
					KEEYASK L	AKE PROP	ERTY	
Nu Con	Conductor Label eral Denotes ductor Type)	Map Sheet	Probable Host Rock	Con Str	ductor ength	Length (Feet)	Priority	Interpretation
	с <sub>2</sub>	С	Clastic Metasedimentary Boundary	100%	weak	1,800	Moderate	Sheared boundary between metasediments and mafic metavolcanics. Same zone as $A_2$ , $A_1$ , $B_2$ .
	D <sub>2</sub>	C,D	Clastic Metasedimentary Boundary	30% 55% 15%	moderate weak very weak	2,700	High	Sheared boundary between metasediments and mafic metavolcanics. Same zone as A2, A1, B2 and C2.
	E2	D	Clastic Metasedimentary Boundary	408 308 308	strong moderate weak	2,400	High	Sheared boundary between metasediments and ultramafic metavolcanics. Same zone as $A_2$ , $A_1$ , $B_2$ , $C_2$ and $D_2$ .
	F <sub>2</sub>	D	Clastic Metasedimentary Boundary	80% 20%	weak very weak	1,600	Moderate	Sheared boundary between metasediments and ultramfic metavolcanics. Same zone as $A_2$ , $A_1$ , $B_2$ , $C_2$ , $D_2$ and $E_2$ .
	A <sub>3</sub>	A	Clastic Metasediments	20% 10% 70%	strong moderate weak	3,900	Low	Shear zone and/or intradomain contact.
	B <sub>3</sub>	Α	Clastic Metasediments	100%	weak	800	Low	Shear zone and/or intradomain contact.
	c <sub>3</sub>	A	Clastic Metasediments	258 758	moderate weak	1,800	Low	Same zone a B3.
	D <sub>3</sub>	A	Clastic Metasediments	40% 30% 30%	moderate weak very weak	1,200	Moderate	Associated with small magnetic high. Could be pyrrhotite-bearing lens or splay shear off boundary shear A <sub>2</sub> .

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#### KEEYASK LAKE PROPERTY

				<u>KI</u>	EEYASK LI	AKE PROPI	ERTY	
(Num Con	Conductor Label eral Denotes ductor Type)	Map Sheet	Probable Host Rock	Conduc Streng	ctor gth	Length (Feet)	Priority	Interpretation
	E 3	A	Clastic Metasediments	100% mc	oderate	800	Moderate	Associated with small magnetic high Could be pyrrhotite-bearing lens or splay shear of boundary shear A <sub>2</sub> .
	F3	A,B	Clastic Metasediments	20% mc 70% we 10% ve	oderate eak ery weak	5,700	Low	Shear zone and/or intradomain contact.
	G <sub>3</sub>	В	Clastic Metasediments	20% st 15% mc 65% we	trong oderate eak	2,800	Low	Could be same zone as F3.
	H <sub>3</sub>	В	Clastic Metasediments	50% st 50% mc	trong oderate	1,000	Low	Could be same zone as F3, G3 offset by east-west trending fault.
	I <sub>3</sub>	В	Clastic Metasediments	10% st 25% mc 65% we	trong oderate eak	6,200	Low	Shear zone and/or intradomain contact.
	A_4	D	Intermediate Metavolcanics	100% we	eak	500	Low	Shear zone and/or intradomain contact.
	в <sub>4</sub>	D	Intermediate Metavolcanics	100% we	eak	500	Low	Same zone as A4.
	c <sub>4</sub>	D	Intermediate Metavolcanics	100% we	eak	1,000	Low	Same zone as A4 and B4.
	D <sub>4</sub>	C,D	Intermediate Metavolcanics	100% we	eak	1,200	Low	Shear zone and/or intradomain contact.

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#### KEEYASK LAKE PROPERTY

				TABLE NO. 1	- VLF-EM BEDRO	CK CONDUCTORS	•
				KEE	YASK LAKE PROP	ERTY	-
(Nu Con	Conductor Label Meral Denotes Muctor Type)	Map Sheet	Probable Host Rock	Conduct Strengt	or Length h (Feet)	Priority	Interpretation
	E <sub>4</sub>	D	Intermediate Metavolcanics	40% mod 60% weat	erate 4,100 k	Low	Same zone as D <sub>4</sub> .
	F <sub>4</sub>	D	Intermediate Metavolcanics	100% mod	erate 600	Low	Shear zone and/or intradomain contact.
	G 4	C,D	Intermediate Metavolcanics	100% weat	k 800	Low	Shear zone and/or intradomain contact.
	H <sub>4</sub>	D	Intermediate Metavolcanics	100% mode	erate 500	Low	Same zone as G4.
	14	D	Intermediate Metavolcanics	75% stre 25% mode	ong 2,400 erate	Low	Same zone as G4 and H4.
	J <sub>4</sub>	D	Intermediate Metavolcanics	15% str 30% mode 55% weal	ong 2,400 erate k	Moderate	Extension of boundary shear J <sub>l</sub> between ultramafic and intermediate metavolcanic domains.
	K <sub>4</sub>	D	Intermediate Metavolcanics	60% mod 40% weal	erate 1,100 K	Low	Shear zone and/or intradomain contact.
	L <sub>4</sub>	с	Intermediate Metavolcanics	100% weal	k 1,100	Low	Could be same zone as $K_4$ .
	А <sub>5</sub>	А	Granitoid Intrusives	100% wea)	s 500	Low	Shear zone.
	<sup>B</sup> 5	Α	Granitoid Intrusives	50% weal 50% very	k 900 Yweak	Low	Shear zone.

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				<u>TABLE NO. 1 - VI</u> KEEYASI	.F-EM BEDRO ( Lake Prop	<u>CK CONDUCTORS</u> ERTY	
( Nume Cond	Conductor Label sral Denotes luctor Type)	Map Sheet	Probable Host Rock	Conductor Strength	Length (Feet)	Priority	Interpretation
	C <sub>5</sub>	A	Granitoid Intrusives	25% moderat 60% weak 15% very we	e 2,600 Bak	Low	Shear zone.
	D <sub>5</sub>	A	Granitoid Intrusives	25% strong 75% moderat	1,500 .e	Low	Same zone as C5.
	<b>E</b> <sub>5</sub>	A	Granitoid Intrusives	70% moderat 30% weak	e 1,800	Low	Same zone as C5 and D5.
	F <sub>5</sub>	A	Granitoid Intrusives	60% moderat 40% weak	e 2,400	Low	Shear zone.
	G <sub>5</sub>	A	Granitoid Intrusives	55% moderat 45% weak	e 1,600	Low	Shear zone.
	H <sub>5</sub>	A	Granitoid Intrusives	100% weak	800	Low	Shear zone.
	1 <sub>5</sub>	с	Granitoid Intrusives	65% weak 35% very we	2,200 ak	Low	Extension of shear zone I <sub>1</sub> which follows west contact of iron formation horizon.
	J 5	С	Granitoid Intrusives	40% moderat 30% weak 30% very we	e 3,900 ak	Low	Shear zone.
	κ <sub>5</sub>	B,C	Granitoid Intrusives	15% moderat 85% weak	e 2,800	Low	Shear zone.

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# KEEYASK LAKE PROPERTY

Conductor Label (Numeral Deno Conductor Ty	Map Sheet tes pe)	Probable Host Rock	Conductor Strength	Length (Feet)	Priority	Interpretation
L <sub>5</sub>	С	Granitoid Intrusives	50% weak 50% very weak	800	Low	Same shear zone as L4 which crosses into intermediate metavolcanic domain.
M 5	B,C	Granitoid Intrusives	50% moderate 25% weak 25% very weak	2,000	Low	Shear zone.
N 5	с	Granitoid Intrusives	45% moderate 55% weak	1,500	Low	Shear zone.
0 <sub>5</sub>	B,C	Granitoid Intrusives	20% strong 55% moderate 25% weak	4,800	Low	Same zone as N5.
P S	В	Granitoid Intrusives	50% moderate 50% weak	900	Low	Same zone as $N_5$ , $O_5$ .
Q <sub>5</sub>	В	Granitoid Intrusives	100% weak	400	Low	Same zone as $N_5$ , $O_5$ and $P_5$ .
Reference R Reference R Reference S Reference S	В	Granitoid Intrusives	100% strong	2,000	Low	Same zone as N5, 05, P5 and Q5.
<b>S</b> <b>S</b> <b>S</b> <b>S</b> <b>S</b> <b>S</b>	В	Granitoid Intrusives	50% strong 50% moderate	1,400	Low	Shear zone.
All Andrew State S	В	Granitoid Intrusives	20% strong 35% moderate 45% weak	7,200	Low	Shear zone.

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# KEEYASK LAKE PROPERTY

Conductor Label (Numeral Denotes Conductor Type)	Map Sheet	Probable Host Rock	Conductor Strength	Length (Feet)	Priority	Interpretation
U5	В	Granitoid Intrusives	70% moderate 30% weak	2,200	Low	Shear zone.
v <sub>s</sub>	В	Granitoid Intrusives	100% weak	400	Low	Same zone as U5.
W <sub>5</sub>	В	Granitoid Intrusives	30% strong 50% moderate 20% weak	1,600	Low	Same zone as $U_5$ and $V_5$ .
х <sub>5</sub>	В	Granitoid Intrusives	50% strong 50% moderate	1,000	Low	Shear zone.
Bennin Bernin Bernin Bernin Bernin Bernin Bernin Bernin	В	Granitoid Intrusives	15% strong 40% moderate 45% weak	5,500	Low	West-northwest - east-southeast trending shear zone appearing discordant to the normal northwest-southeast trend.

#### II Moderate Conductance

- A. Inphase peak-to-peak response is 30-60% with negative quadrature or weak to moderate positive quadrature response, or
- B. Inphase peak-to-peak response is 20-30% with strong negative quadrature response, or
- C. Inphase peak-to-peak response is 60-70% with strong positive quadrature response.
- III Low Conductance
  - A. Inphase peak-to-peak response is 10-30% with negative quadrature or weak to moderate positive quadrature response, or
  - B. Inphase peak-to-peak response is 30-40% with strong positive guadrature response.
- IV Very Low Conductance
  - A. Inphase peak-to-peak response is less than 10% with negative quadrature or weak to moderate positive quadrature response, or
  - B. Inphase peak-to-peak response is 10-20% with strong positive quadrature response.

#### 10.0 CONCLUSIONS AND RECOMMENDATIONS

Drill targets selection is based on two general models of gold mineralization for the west end of the North Caribou-Opapimiskan Lakes greenstone belt. Gold mineralization on the Keeyask Lake property should be sought in the following geological environments:

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- Iron Formation: particularly, D<sub>2</sub> fold hinges; concordant to subconcordant axial shear zones; conductive zones which could represent both primary and secondary replacement of magnetite; and areas of magnetic abatement which could represent gruneritization, and silica and carbonate flooding.
- 2.  $D_1$  fault/shear structures: particularly where they intersect or are proximal to iron formation or iron-rich mafic and ultramafic metavolcanics which could provide the right chemical environment for precipitating gold. These structures could manifest themselves as concordant to subconcordant VLF-EM conductors along the margins of the greenstone belt. The North Caribou River Fault system located south of the property along the south margin of the belt is an example of a  $D_1$  fault/shear system.

An initial diamond drilling program should test a variety of targets based on the two models described above. To accomplish this, seven fences have been selected for a total of 21 holes and approximately 7,350 feet of drilling. This is based on an average hole depth of 350 feet; an average hole separation of 400 feet; and a drilling direction from east to west at an inclination of  $-50^{\circ}$ .
### Fence No. 1

Location: L208+00N, 48+00W to 57+00W Number of Holes: 3 Approximate Footage: 1,050 feet Targets to Test:

- 1. Conductor  $D_3$ , associated with a small magnetic high, could represent a pyrrhotite-bearing lens or shear zone in clastic metasediments splaying off the boundary shear marked by conductor  $A_2$ .
- 2. Conductor  $E_3$  is a target similar to conductor  $D_3$ .
- 3. Conductor  $A_2$  is a strong continuous conductor marking the boundary shear zone between the clastic metasedimentary and the granitoid intrusive domains. This conductor could be caused by graphite and sulphides but nevertheless should be tested to deduce its true source.

Fence No. 2

Location: L108+00N, 28+00W to 36+00W Number of Holes: 2 Approximate Footage: 700 feet Targets to Test:

 Conductor A<sub>1</sub>, associated with a strong magnetic high, could represent a pyrrhotite-bearing section of the boundary shear zone where it occupies iron formation. An east-west trending fault crosses the stratigraphy 400 feet to the south.  Conductor G<sub>1</sub> could represent a concordant shear zone occupying ultramafic metavolcanics or weak iron formation. An east-west trending fault crosses the stratigraphy 400 feet to the south.

Fence No. 3

Location: L60+00N, 18+00W to 32+00W Number of Holes: 3 Approximate Footage: 1,050 feet Targets to Test:

- 1. Conductor  $B_2$  is a strong, continuous conductor marking the unconformable boundary shear zone between the clastic metasedimentary and the ultramafic metavolcanic domains. This conductor could be caused by graphite and sulphides but nevertheless should be tested to deduce its true source.
- 2. Conductor  $B_1$  could represent a sheared contact between the east and west ultramafic units.
- 3. Conductor  $H_1$ , a strong, continuous conductor associated with a strong magnetic high, could be caused by a concordant, pyrrhotite-bearing shear zone occupying iron formation.

Fence No. 4

Location: L36+00N, 27+00W to 35+00W Number of Holes: 3 Approximate Footage: 1,050 feet Targets to Test:



- 2. Conductor  $T_1$ , a short, weak conductor associated with a strong magnetic high, could represent a pyrrhotitebearing lens or shear structure hosted in iron formation. An east-west trending fault crosses the stratigraphy 400-600 feet to the south.
- 3. Conductor  $H_1$  could be caused by pyrrhotite mineralization in a shear zone subconcordantly crosscutting iron formation. An east-west trending fault crosses the stratigraphy 400-600 feet to the south.

Fence No. 5

Location: L40+00S, 11+00E to 20+00W Number of Holes: 5 Approximate Footage: 1,750 feet Targets to Test:

- Conductor R<sub>1</sub>, on the edge of a small magnetic high located in the mafic metavolcanic domain, could represent a sheared contact between mafic metavolcanics and a small ultramafic body or iron formation lens.
- Conductor K<sub>1</sub> is associated with a pronounced magnetic abatement as it subconcordantly crosscuts a magnetic high representing iron formation or magnetite-pyrrhotite mineralization in an ultramafic body.
- 3. Conductor O<sub>1</sub> could represent a sheared contact between the east and west ultramafic units.

- 4. Conductor  $D_1$  could be a pyrrhotite-bearing subconcordant shear zone crosscutting iron formation.
- 5. Conductor  $I_1$  could represent the sheared west contact of an iron formation horizon.

Fence No. 6

Location: L72+00S, 6+00E to 2+00W Number of Holes: 2 Approximate Footage: 700 feet Targets to Test:

- The contact between the east and west ultramafic units is marked by a magnetic abatement and an absence in conductance in this area. This could be due to silica flooding associated with an east-west crosscutting fault.
- Conductor E<sub>1</sub> could represent a shear zone subconcordantly crosscutting iron formation and ultramafic metavolcanics. A magnetic abatement in this area is associated with an east-west crosscutting fault.

## Fence No. 7

Location: L132+00S, 21+00E to 7+00E Number of Holes: 3 Approximate Footage: 1,050 feet Targets to Test:

 Conductor M<sub>1</sub> crosses subconcordantly from the east to west ultramafic unit. In the west ultramafic unit it encounters iron formation. Pyrrhotite mineralization in a subconcordant shear zone hosted, in part, in iron



formation is the probable source of this conductor. East-west crosscutting faults are located 400-600 feet to the north and south of this target.

- 2. Conductor  $Q_1$  is a target similar to conductor  $M_1$ .
- 3. Conductor  $F_1$  also represents a subconcordant shear zone through ultramafic metavolcanics and iron formation within the west ultramafic unit. It then follows the boundary between the ultramafic metavolcanic and the intermediate metavolcanic domains. This boundary is the target to be drilled.

Respectfully submitted,

Stephen hedd

Stephen B. Medd, B.Sc. Geocanex Ltd.

### 11.0 REFERENCES

- Comstate Resources Ltd., 1985. A report on geological and geochemical surveys on their Weagamow-Eyapamikama Lakes area property; from the Ontario Geological Survey Assessment Files Research Office, Toronto.
- Bartlett, J.R., <u>et al.</u>, 1985. Precambrian Geology of Eyapamikama Lake Area (Opapimiskan Lake Project), Kenora District (Patricia Portion); Ontario Geological Survey, Map P.2834, Geological Series -Preliminary Map. Scale 1:31,680. Geology 1984.
- Breaks, F.W., <u>et al.</u>, 1985. Opapimiskan Lake Project; Precambrian and Quaternary Geology of the North Caribou Lake Area, District of Kenora Patricia Portion; p.268-276 in Summary of Fieldwork and Other Activities 1985, Ontario Geological Survey.
- Breaks, F.W., <u>et al.</u>, 1986. Opapimiskan Lake Project: Precambrian Geology of the Opapimiskan-Forester Lakes Area, District of Kenora, Patricia Portion; p. 368-378 in Summary of Fieldwork and Other Activities 1986, Ontario Geological Survey.
- North, J.W., August 1987. Report on Prospecting, Trenching, Channel Sampling and Geological Mapping, Randall Lake Property, District of Kenora, Patricia Mining Division, Northwestern Ontario for Power Explorations Inc.; 39p., unpublished report of Geocanex Ltd.
- O.G.S., 1982. Map 2292, Big Trout Lake-North Caribou Lake Geological Compilation Series, Scale: one inch to four miles.
- O.G.S., 1985. Airborne Electromagnetic and Total Intensity Magnetic Survey, Opapimiskan Lake Area, District of Kenora, Patricia Portion; by Aerodat Limited for Ontario Geological Survey, Geophysical/Geochemical Series, Maps 80718 and 80725, Scale 1:20,000. Survey and Compilation March to July, 1985.
- Piroschco, D., and Shields, H., 1985. Geology and Gold Mineralization of the Eyapamikama Lake Area of the North Caribou Lake Greenstone Belt, District of Kenora (Patricia Portion); p.277-286 in Summary of Fieldwork and Other Activities 1985, Ontario Geological Survey.

11.0 REFERENCES (Cont'd)

- Piroschco, D., 1986. Structural Geology and Gold Mineralization of the Eyapamikama Lake Area of the North Caribou Lake Greenstone Belt, District of Kenora (Patricia Portion); p.379-385 in Summary of Fieldwork and Other Activities 1986, Ontario Geological Survey.
- Sage, R.P., and Breaks, F.W., 1982. Geology of the Cat Lake - Pickle Lake Area, Districts of Kenora and Thunder Bay; Ontario Geological Survey, Report 207, 238p.

## APPENDIX A

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## CERTIFICATE OF QUALIFICATION

## CERTIFICATE OF QUALIFICATION

### THIS IS TO CERTIFY THAT:

I have been a resident of Toronto, Ontario since 1984.

I have been actively engaged in Canadian and foreign mining and explorations since 1979.

I am a graduate of the University of Waterloo, Waterloo, Ontario, with an Honours B.Sc. (1983) in the Co-op Program of Earth Sciences.

I am an associated member, in good standing, of the Geological Association of Canada.

I have disclosed, to the best of my knowledge, all relevant material, descriptive and interpretative, used in the compilation of this report.

DATED THIS 20th DAY OF June, 1988

Steph redd

Stephen B. Medd, B.Sc. Geologist

Ministry of Northern Developme	Report of W	ork Geological	DOCUM'					
Ontario	Geochemical a	nd Expend	litures)					
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July 5th/88	sorded Holder or Agent (S	Signature)	7140	Date Approved	h XX	Branch Diroct	Al hou	
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.								
Tobe U 1-1	ion Certifying	• •						
John n. Adams,	-P-O-Box-25	v.,Osg	oode.,Or	Date Certified		Certified by (	Signature)	
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Former Director

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## Revised July 12/88

05-Jul-88

CLA	INS LISTIN	g - Keeyask lake property
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. C	laim Nos.	Claim Nos.
Pa	1002791 1002792 1002793 1002793 1002795 1002795 1002795 1002795 1002799 1002800 1002801 1002803 1002803 1002805 1002805 1002805 1002805 1002805 1002805 1002805 1002805	Pa 1009799   1009800 1009801   1009802 1009803   1009804 1009805   1009805 1009806   1009806 1009808   1009808 1009809   1009810 1009812   1009813 1009813   1009814 1009815   1009815 1009816   1009818 1009819   1009819 1009820
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05-Jul-88

Revised July 12/88

CLAIMS LISTING - KEEYASK LAKE PROPERTY

STAKER: RENE DARVEAU

LICENSE NO.: 5 6095

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Claim Nos.		Claim Nos.		
PA	1002984	Pa	1002998	
	10029851		1005333	
	10029861		1003000	
	1002987		1003001	
	1002988		1003002	
	1002989		1003003	
	1002990		1003004	
	1002991		1003005	
	1002992		1003006	
	1002993		1003007	
	1002994		1003008	
	1002995		1003009 /	
	1002996		1003010	
	1002997		1003011	
		•	1003012	
			1003013	

TOTAL NUMBER OF CLAIMS:

222302225

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05-Jul-88

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Revised July 12/88

CLAIMS LISTING - KEEVASK LAKE PROPERTY

STAKER: JEAN ROBERT

LICENSE NO. : E 29771

Ciain Nos.	Claim Nos.
p. 1002866	D. 1000750
10000/5	F8 1993//2
1002046	1005773
1000270	1003774
1000040	1003775
1002348	1003/76
1002343	1009777
1002320	1003778
1002901	1003779
1002952	1009780
1002953	1009781
1009759	1009782
1009760	1009783
1009761	1009784
1009762	1009785
1009763	1009786
1009764	1009787
1009765	1009789
1009766	1009790
1009767	1009791
1009768	1009792
1009769	1009793
1009770	1009794
1003771	1009795
	1009796

TOTAL NUMBER OF CLAIMS:





Ministry of Northern Development and Mines Geophysical-Geological-Geochemical Technical Data Statement

Keeyask Lake

File W8803-185

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) Geophysic	al	
Township or Area <u>Randall</u> Lak	MINING CLAIMS TRAVERSED	
Claim Holder(s) see attache	List numerically	
Geography Lt		
Survey Company		(prefix) (number)
Author of ReportStephen_B	Meda	
Address of Author_111/-/ Cre	scent PI, Toront	to, Ont.
Covering Dates of Survey 23/01	/88 to 26/02/88 (linecutting to office)	
Total Miles of Line Cut 107.56		
SPECIAL PROVISIONS	Γ	DAYS
CREDITS REQUESTED	Geophysical <sup>pe</sup>	r claim
ENTER 40 days (includes	Electromagnetic4	LO
line cutting) for first	Magnetometer2	20
survey.	-Radiometric	
ENTER 20 days for each	Other	
additional survey using	Geological	
same grid.	Geochemical	
AIRBORNE CREDITS (Special provision	on credits do not apply to airborr	ne surveys)
MagnetometerElectromagne	tic Radiometrie	c
	/s per claim)	
DATE: July 19/88 SIGNAT	URE:	
Res. GeolQualific	cations 2.9752	······
Previous Surveys		
File No. Type Date	Claim Holder	
		TOTAL CLAIMS

837 (85/12)

OFFICE USE ONLY

## **GEOPHYSICAL TECHNICAL DATA**

<u> </u>	<b><u>GROUND SURVEYS</u></b> – If more than one survey, specify data for	each type of survey
N	Number of Stations 5,680	umber of Readings 8,520
- 5	Station interval 100 feet (50 feet)	ne spacing 400 feet
P	Profile scale  1" = 40%	
•	Contour interval	
. `		
	Instrument Scientrex MF - 2 magnetometer	
g	Accuracy - Scale constant $\frac{+}{-10}$ gammas	
NE	Diversion method looping back to control	l stations
AG	Base Station shack in interval (hours) 1.5 hours may	
Z	Base Station check-in interval (nouis) <u>110 nours</u> maxim	
	base Station location and valueValiable	
	Geonics EM - 16 receiver	
TIC	O il official vertical	
NE	Coll configuration	
IAG	$\frac{1}{28}$	
Ő.	Accuracy	
5	Method: If Ixed transmitter I Snoot	Dack $\Box$ in line $\Box$ Parallel line ) 24.0 KHz (Cutler, Maine NAA)
SLE	Frequency 21.4 Kitz (annaports, Maryrana Nob (specify V.L.F. s	tation)
	Parameters measured inphase and quadrature	
	Instrument	
	Scale constant	
E	Corrections made	
AV		
ß	Base station value and location	
	•	
	Elevation accuracy	
	Instrument	
	Method 🗖 Time Domain	🗀 Frequency Domain
	Parameters – On time	Frequency
Я	– Off time	Range
IN	– Delay time	
STI	– Integration time	
ESI	Power	
R	Electrode array	
	Electrode spacing	
•	Type of electrode	

INDUCED POLARIZATION

18,632

## 05-Jul-88

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## CLAIMS LISTING - KEEYASK LAKE PROPERTY

STAKER: C	Laudf. 1	Darveau	L	ICENSE NO. 1 K 20388
	C  	laim Nos.	0	laim Nos.
	Pa	1002791 1002792 1002793 1002793 1002795 1002795 1002795 1002795 1002797 1002799 1002800 1002801 1002801 1002803 1002804 1002805 1002805 1002805 1002806 1002807 1002808 1002809 1002810	Pa	1003739 1003800 1003800 1003802 1003802 1009803 1003805 1003805 1003805 1003805 1003805 1003807 1003808 1003809 1003810 1003810 1003811 1003812 1003813 1003813 1003815 1003815 1003815
tutal nur	iber of	CLAIMS:		1003820

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05-Jul-88

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## CLAIMS LISTING - KEEYASK LAKE PROPERTY

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STAKER: RENE DARVEAU LICENSE NO.: 5 6095

Claim Nos.	Claim Nos.	
PA 1002984 1002985 1002986 1002987 1002987 1002989 1002989 1002990 1002991 1002991 1002993 1002993 1002993 1002995 1002995 1002995	Pa 1002998 1002999 1003000 1003001 1003002 1003003 1003003 1003005 1003005 1003005 1003005 1003007 1003008 1003009 1003010 1003011 1003012	

1003013

TOTAL NUMBER OF CLAIMS:

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Revised July 12/88

05-Jul-88

CLAIMS LISTING - KEEYASK LAKE PROPERTY

STAKER: JEAN ROBERT

LICENSE NO. : E 29771

Claim Nos.	Claim Nos.
Pa 1002944	Pa 1009772
1002945	1009773
1002946	1009774
1002947	1009775
1002948	1009775
1002949	1009777
1002950	1003778
1002951	1009779
1002952	1009780
1002953	1009781
1009759	1009782
1009760	1009783
1009761	1009784
1009762	1009785
1009763	1009785
1009764	1009787
1009765	1009789
1009766	1009790
1009767	1009791
1009768	1009792
1009769	1009793
1009770	1009794
1009771	1009795
	1009795

TOTAL NUMBER OF CLAIMS: 47 Ezerenenen

## SELF POTENTIAL Instrument\_\_\_\_\_ Range\_\_\_\_\_ Survey Method Corrections made\_\_\_\_\_ RADIOMETRIC Instrument\_\_\_\_\_ Values measured Energy windows (levels)\_\_\_\_\_ Height of instrument\_\_\_\_\_Background Count \_\_\_\_\_Background Count \_\_\_\_\_ Size of detector\_\_\_\_\_ 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)			
xiistrument(5)	(specify for each type of su	rvey)	
Accuracy			
	(specify for each type of su	rvey)	
Aircraft used			
Sensor altitude	**************************************		
Navigation and flight path recover	y method		
Aircraft altitude		Line Spacing	
Miles flown over total area		Over claims only	

## GEOCHEMICAL SURVEY - PROCEDURE RECORD

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Numbers of claims from which samples taken					
Total Number of Samples	ANALYTICAL METHODS				
Type of Sample	Values expressed in:per centIp. p. m.Ip. p. m.Ip. p. b.II				
Method of Collection	Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)				
Soil Horizon Sampled	Others				
Horizon Development	Field Analysis (tests				
Sample Depth	Extraction Method				
Terrain	Analytical Method				
	Reagents Used				
Drainage Development	Field Laboratory Analysis				
Estimated Range of Overburden Thickness	No. (tests				
	Extraction Method				
	Analytical Method				
	Reagents Used				
SAMPLE PREPARATION	Commercial Laboratory (tests				
(includes drying, screening, crusning, asning)	Name of Laboratory				
mesh size of maction used for analysis	Extraction Method				
	Analytical Method				
	Reagents Used				
General	General				







Grid line with 100 foot stations
Claim post and line
Stream, swamp, lakeshore
Bush road.
Instrument Scintrex MF-2
Contours of vertical magnetic field in gammas
2500 gamma contour
500 gamma contour
100 gamma contour
25 gamma contour
20 gamma contour

**}** 



53814NE0011 2.11398 KEEYASK LAKE

![](_page_59_Figure_0.jpeg)

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53B14NE0011 2.11398 KEEYASK LAKE

230

![](_page_59_Figure_4.jpeg)

![](_page_59_Picture_5.jpeg)

## LEGEND

Grid line with 100 foot stations	÷ • •
Claim post and line	
Stream, swamp , lakeshore	
Bush road	
Instrument Sc	intrex MF-2
Contours of vertical magnetic fiel	d in gammas
2500 gamma contour	
500 gamma contour	
100 gamma contour	
25 gamma contour	
INTERPRETATION LEGENI	D
Fault or shear	$\sim \sim \sim \sim$
Major geological boundary	
Minor geological boundary	
VLF-EM conductor axis	
Strong	
Moderate	••••••••••
Weak	
Very weak	
Conductor label (numeral denotes	C2

Interpretation by: S. Medd

![](_page_59_Picture_9.jpeg)

Scale Linch = 400 ft.

2.11398

![](_page_59_Picture_12.jpeg)

-

L4400S

1L4800S

L5200S

L5600S

L6000S

L6400S

L6800S

L7600S

L8000S

L8400S

L8800S

![](_page_60_Picture_0.jpeg)

![](_page_60_Picture_1.jpeg)

![](_page_60_Picture_2.jpeg)

4. L11600S

L12000S

L12400S

L12800S

. L 880

<u>~</u>>-

• L9200S L9600S

> L10000S . L10400S

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# LEGEND

•	
Grid line with 100 foot statio	ins i + +
Claim post and line	
Stream, swamp , lakeshore	
Bush road	
Instrument	Scintrex MF 2
Contours of vertical magnetic	field in gammas
2500 gamma contour	
500 gamma contour	· · · <del></del>
100 gamma contour	<del> </del>
25 gamma contour	· <u></u>
INTERPRETATION LEG	END
Fault or shear	
Major geological boundary	
Minor geological boundary	
VLF-EM conductor axis	
Strong	
Modorato	

.

Interpretation by: S. Medd

![](_page_60_Picture_22.jpeg)

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240

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![](_page_60_Picture_27.jpeg)

![](_page_61_Figure_0.jpeg)

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LAKE

![](_page_62_Picture_0.jpeg)

53814NE0011 2.11398 KEEYASK LAKE

260

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![](_page_63_Figure_0.jpeg)

Grid line with 100 foot stations -+-+-+
Claim post and line
Stream, swamp , lakeshore
Bush road
Instrument
Contours of vertical magnetic field in gammas
2500 gamma contour
500 gamma contour
100 gamma contour
25 gamma contour

![](_page_64_Figure_0.jpeg)

•

· \_\_\_\_ · · ·\_\_\_

![](_page_64_Figure_2.jpeg)

![](_page_64_Picture_3.jpeg)

![](_page_64_Figure_4.jpeg)

![](_page_64_Figure_5.jpeg)

![](_page_64_Figure_6.jpeg)

![](_page_64_Figure_7.jpeg)

![](_page_64_Figure_8.jpeg)

![](_page_64_Figure_9.jpeg)

![](_page_64_Figure_10.jpeg)

L8400S

![](_page_64_Picture_12.jpeg)

· .

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![](_page_64_Picture_14.jpeg)

![](_page_64_Figure_15.jpeg)

## LEGEND

Grid line with 100 foot stations	
Claim post and line	
Stream, swamp , lakeshore	C
Bush road	
Instrument	-2
Magnetic readings in gammas	189

![](_page_64_Picture_18.jpeg)

Scale Tinch = 400 ft.

•

## 2.11398

![](_page_64_Picture_21.jpeg)

![](_page_65_Figure_0.jpeg)

![](_page_66_Figure_0.jpeg)

![](_page_66_Figure_1.jpeg)

![](_page_66_Figure_2.jpeg)

![](_page_67_Figure_0.jpeg)

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Grid line with 100 foot stations	• • • • • • • • • • • • • • • • • • • •
Claim post and line	
Stream, swamp , lakeshore	.#
Bush road	
InstrumentScintrex	MF-2
Magnetic readings in gammas	189

![](_page_68_Figure_0.jpeg)

LI1600N L11600N 1009785 23 L11200N L11200N 1009783 S 28 30 € 19 19 19 L10800N L10800N 1009784 39 23 13 14 25 L10400N L10400N 1009782 -30 -25 -25 ► <u>8</u> <del>•</del> • L10000N a ja h a s a i L10000N 2 2 20 8 12 2 L9600N L9600N 100978030 53 33 26 23 35 23 23 L9200N L9200N 1009775 -35 -35 -30 -12 -12 40 40 50 1 2 2 L8800N L 1009773 1009779 10097 23 41 37 41 23 32 1 5 6 -15 -28 -36 -25 -25 L8400N L8400N 1009772 28 40 36 28

![](_page_69_Figure_1.jpeg)

![](_page_69_Figure_2.jpeg)

L8800N

![](_page_69_Figure_3.jpeg)

Grid line with 100 foot stations+ +-+
Claim post and line
Stream, swamp , lakeshore
Bush road
Instrument
Transmitter NSS, Annapolis, MD., 21.4kHz
Contours of Fraser filtered inphase data
+ 50% contour
+ 10% contour

![](_page_70_Figure_0.jpeg)

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340

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![](_page_70_Figure_4.jpeg)

••• • • • • • • • • • • • •

![](_page_70_Figure_5.jpeg)

![](_page_70_Figure_6.jpeg)

![](_page_70_Figure_7.jpeg)

L4800S L5200S

> L5600S L6000S L6400S

L6800S L7200S

L7600S

L8000S

L8400S

L8800S

•

![](_page_70_Figure_15.jpeg)

<del>.</del> .

**-** • ···

![](_page_70_Picture_16.jpeg)

## LEGEND

Grid line with 100 foot stations
Claim post and line
Stream, swamp , lakeshore
Bush road
Instrument
TransmitterNAA, Cutler, Maine, 24.0kHz
Contours of Fraser filtered inphase data
+ 50% contour
+ 10% contour
+ 5% contour

![](_page_70_Picture_20.jpeg)

Scale Tinch = 400 ft.

## 2.11398

![](_page_70_Picture_23.jpeg)

![](_page_71_Picture_0.jpeg)

Grid line with 100 foot stations -+-+-+
Claim post and line
Stream, swamp , lakeshore
Bush road
Instrument
TransmitterNAA, Cutler, Maine, 24.0kHz
Contours of Fraser filtered inphase data
+ 50% contour
+ 10% contour
+ 5% contour

53814NE0011 2.11398 KEEYASK LAKE

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Grid line with 100 foot stations
Claim post and line
Stream, swamp , lakeshore
Bush road
Instrument
Transmitter NSS, Annapolis, MD., 21.4kHz
Readings, taken facing east, plotted
Profiles, at 1 = 40%, plotted
Profiles, at 1° = 40%, plotted
Profiles, at 1° = 40%, plotted



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370



380





## LEGEND

Grid line with 100 foot stations
Claim post and line
Stream, swamp , lakeshore
Bush road
Instrument
TransmitterNAA, Cutler, Maine, 24.0kHz
Readings, taken facing east, plotted
Profiles, at 1" - 40%, plotted
Inphase profile
Quadrature profile



Scale linch = 400 ft.

## 2.11398





L4400S

L4800S

L7200S

L7600S L8000S

L8400S

L8800S

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5 5 5



53B14NE0011 2.11398 KEEYASK LAKE

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