NTS 42A/1



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GEOLOGICAL REPORT

FOR

F. T. O'Connor

TECK AND BERNHARDT TOWNSHIP

LARDER LAKE MINING DIVISION

ONTARIO

AUG 3 I BBA MINING LAWDS SECTION C

CONSTABLE CONSULTING INC.

CONSTABLE CONSULTING INC.

Aug. 2.3493

August 21, 1984 Sudbury, Ontario



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#### INTRODUCTION

The geological survey covers a contiguous block of 15 unpatented mining claims held by F. T. O'Connor of Kirkland Lake. Complete linecutting coverage at 400-foot line spacings and 100-foot stations was established over the claim group for survey control. Mapping was done from July 11 to July 27, 1984. The property lies 2 miles north of the city of Kirkland Lake and is accessible via the paved highway to the airport and by numerous local bush roads. The western portion of the property is accessible by foot or boat.

#### PROPERTY DESCRIPTION, LOCATION AND ACCESS

The property consists of 15 contiguous unpatented mining claims recorded in the name of F. T. O'Connor. The

group includes claims:

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L-548712	L-548723
L-548713	L-548724
L-548714	L-548725
L-548715	L-548726
L-548719	L-5487 <b>27</b>
L-548721	L-548728
<b>L</b> -548722	L-800873
	L-800872

The claims are presently in good standing but are under extension until early September, 1984.

The claims are located roughly two miles north of Kirkland Lake on the Goodfish-Airport road. The claims lie north and south of the common Teck-Bernhardt township line west of Goodfish and Gami Lakes.

Access is via paved road (Goodfish-Airport) for roughly two miles to claim L-800872. Small bush roads also allow access to patented claim P-2845 and north of Goodfish Lake to unpatented claim L-548713. Goodfish Lake also

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provides good water access to the northern portion of the group.

#### PHYSIOGRAPHY

The property is rugged with areas of moderate relief of the order of 50 to 100 feet. Outcrop coverage is 5 to 10% and swamps cover large areas, particularly in the north and north-central portions of the property. Swamps are covered with grasses and scrub brush while immature spruce, jackpine, poplar and alders cover the highlands. The last observed ice direction is north to south. Overburden is clay to silty loam and varies from nil to 60 feet in depth, but averages less than 10 feet.

PREVIOUS WORK

In 1912 E. L. Bruce of the Ontario Bureau of Mines

published a report on the Swastika-Kirkland Lake area which covered the south half of Teck township. In 1914 Burrows and Hopkins published a report and map (O.B.M.) covering Grenfell to Gauthier township, including Teck and Lebel townships. In 1919-20 Burrows and Hopkins examined the geology and ore deposits of Kirkland Lake including Teck and the western half mile of Lebel. Todd in 1926-27 completed a detailed report and maps about Kirkland Lake with a few references to Lebel township. Finally, in 1956 A. MacLean completed a report and map (Bulletin 150, Ontario Department of Mines) of Lebel Township. Also in 1945 J. Thompson (O.D.M.) released a map (1945-1) of Teck Township while in 1979 Ploeger, Campbell and Grobowski issued map P-2009 of Lebel township.

Bernhardt and Morrisette townships were mapped in 1921 by D.G.H. Wright of the Ontario Department of Mines (Map 30C). Also in 1916 Burrows and Hopkins described a small

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area around Goodfish Lake. In 1970 Rupert and Lovell mapped the two townships in geological report 84, Ontario Department of Mines.

Numerous companies and individuals have explored the subject area; E.C. Deloye, Haas-Warner Mining Ltd., Kirana Kirkland Gold Mines Ltd. and F. T. O'Connor. In a 1974 report on the Kirana gold property by L. J. Cunningham, P.Eng. for Haas-Warner Mining Ltd. he describes a zone of 40,000 to 50,000 tons of ore above the 275-foot level but no grade is given. This zone is on patented claim P-1751. The zone appears to consist of guartz-filled shears in a sericite schist with molybdenite, sulfides and free gold.

#### PRESENT GEOLOGICAL SURVEY

The survey was run from July 11-27, 1984 and a grid of 400-foot line spacings and 100-foot stations was used

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as control for the survey. Map 1 shows the results.

The property lies in an Archean sequence of mafic flows, pyroclastics, metasediments and sericite schists. All these units have been carbonated in places and have a pervasive fracture cleavage (S<sub>1</sub>). Pillows were infrequently observed in the mafic flows. Bedding was hard to delineate but generally was north 40-70° east and dipped steeply. Similarly the S<sub>1</sub> was northeast-trending and steeply dipping. The metasediments consisted of greywackes and argillites. The sericite schist was a distinct rock type and is orange to rust-brown in color and invariably is carbonated and pyritized.

Younger Archean quartz-feldspar porphyries were noted at a couple of places on the property. Rock samples were collected from all mineral showings, where feasible, and the results are listed in Appendix I. The only results of significance are samples 8 and 8a on patented claim P-2845,

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where free gold was observed. Numerous old trenches are also present on the property. Almost invariably sericite schist was present at trenched sites and this unit appears to be the loci for gold deposition both on the subject property and on the nearby Kirana property. It appears the sericite schist was sheared and quartz-sulfides-carbonatization-molybdenitefree gold were developed along the fault structures. The fault structures are in excess of 10,000 feet long.

Regional metamorphism is lower greenschist facies. The projection of the north-south Lake Shore fault may cross the subject property but it was not observed during the survey.

#### CONCLUSIONS AND RECOMMENDATIONS

The following salient points should be emphasized:

(1) Gold occurs in the area in quartz-sulfide-

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carbonatization-molybdenite-fault zones.

diamond drilling.

(2) The known gold showings and fault zones are confined to the sericite schist unit or its contacts.

(3) Several areas of untested sericite schist are present on the subject property.

(4) The mineralized fault zones on the nearby patented claims appear to extend onto the subject claims.

As a result of these conclusions I recommend a geophysical program over the property consisting of EM-VLF and magnetic surveys followed by detailed induced polarization and geochemical surveys over the most promising areas. Stripping and trenching would be helpful, where feasible, followed by

H.BSC. F.G.A.C.

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# SWASTIKA LABORATORIES LIMITED

P.O. BOX 10, SWASTIKA, ONTARIO POK 1TO TELEPHONE: (705) 642-3244 ANALYTICAL CHEMISTS • ASSAYERS • CONSULTANTS

# Certificate of Analysis

Certificate No. 58344	Date:	August 1 1984
Received July 30/84 11	Samples of <u>ore</u>	
Submitted by Nova Beaucage Mines Ltd.,	Sudbury, Ontario	Att'n: Mr. D. Constable

SAMF	PLE NO.	GOLD PPB
SompleKR-1	l	Nil
Sample 2	2	Nil
Sample 3	3	Nil
Sample 4	4	Nil
Sample	5	10
Sample (	6	Nil
Sample	7	Nil
Sample 1	8	21260 21260
Second	Pulp	18510 19940
Sample 1	BB	900
Somple	9	70
Sample	10	Nil

Per G. Lebel -- Manager

ESTABLISHED 1928



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# SWASTIKA LABORATORIES LIMITED

P.O. BOX 10, SWASTIKA, ONTARIO POK 1TO TELEPHONE: (705) 642-3244 ANALYTICAL CHEMISTS . ASSAYERS . CONSULTANTS

# Certificate of Analysis

Certificate	No	58365		-	Date:	August 3	1984
Received_	August	1/84	8	Samples o	of <u>ore</u>		
Submitted	by	Nova Beaucage	Mines Ltd.,	Sudbury,	Ontario	Att'n: Mr. D	. Constable

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3903	20	Trench 36toor
3904	40 40	Trench 40+00%
9449	20	Trench 0+00
9450	20	Trench otoo
KR12	10	Line 24+00 K
KR13	Nil	Lmi 24+00 €

h Per

G. Lebel -- Manager

**ESTABLISHED 1928** 



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GEOPHYSICAL REPORT

FOR

F. T. O'CONNOR

TECK AND BERNHARDT TOWNSHIPS

LARDER LAKE MINING DIVISION

ONTARIO

RECEIVED

AUG 31 1984

MINING LANDS SECTION

August 21, 1984 Sudbury, Ontario

David W. Constable CONSTABLE CONSULTING INC.



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#### INTRODUCTION

This report covers the results of EM-VLF and magnetic surveys completed over 15 contiguous unpatented mining claims in Teck and Bernhardt townships, Larder Lake Mining Division, Ontario. The claims are recorded in the name of F. T. O'Connor, Kirkland Lake. The surveys were completed from July 24-August 2, 1984 over a grid cut at 400-foot line spacings and 100-foot station spacings.

The claims are located 2 miles north of Kirkland Lake on the Goodfish-Airport Road. Access is via this paved road and locally via bush roads or by water across Goodfish Lake.

The property is underlain by Archean mafic flows, pyroclastics, metasediments and sericite schists. This sequence is intruded by younger Archean guartz-feldspar

porphyry intrusions. The rock units strike north 20 to 70<sup>o</sup> east and dip steeply. The geophysical surveys attempted to delineate various rock types, structures and possible mineralization related to gold values in the area.

# PROPERTY DESCRIPTION, LOCATION AND ACCESS

The property consists of 15 contiguous unpatented

mining claims recorded in the name of F.T. O'Connor. The

group includes claims:

L-548712	L-548723
L-548713	L-5487 <b>24</b>
L-548714	L-548725
L-548715	L-548726
L-548719	L-5487 <b>27</b>
L-548721	L-548728
L-548722	L-800873
	L-80087 <b>2</b>

The claims are presently in good standing but are

under extension until early September, 1984.

of Kirkland Lake on the Goodfish-Airport road. The claims lie north and south of the common Teck-Bernhardt township line west of Goodfish and Gami Lakes.

The claims are located roughly two miles north

Access is via paved road (Goodfish-Airport) for roughly two miles to claim L-800872. Small bush roads also allow access to patented claim P-2845 and north of Goodfish Lake to unpatented claim L-548713. Goodfish Lake also provides good water access to the northern portion of the group.

#### PHYSIOGRAPHY

The property is rugged with areas of moderate relief of the order of 50 to 100 feet. Outcrop coverage is 5 to 10% and swamps cover large areas, particularly in the north and north-central portions of the property. Swamps

are covered with grasses and scrub brush while immature spruce, jackpine, poplar and alders cover the highlands. The last observed ice direction is north to south. Overburden is clay to silty loam and varies from nil to 60 feet in depth, but averages less than 10 feet.

### PAST AND PRESENT EXPLORATION PROGRAMS

Several companies and individuals have worked the property and its environs; including E.C. Deloye, Haas-Warner Mining Ltd., Kirana Kirkland Gold Mines Ltd. and F. T. O'Connor. This work primarily consisted of trenching, shaft-sinking and diamond drilling. No record of geophysical surveys is known for the subject property.

The present program consists of EM-VLF surveys reading both the Cutler, Maine and Annapolis, Maryland stations.

In addition a magnetic survey was completed over the entire

grid. The former surveys were designed to delineate the northeast-trending structures and their associated sulfide mineralization. The latter survey was intended to define rock types and structure. A total of 16 miles of line were cut and read during the course of this survey.

#### LINECUTTING

A grid was cut over the entire group with the base line orientated at 065° (true) and the picket lines at 155° (true). Tie lines were also established at 24+00N and 56+00N for further line control. Lines were turned off at 400-foot intervals and stations established at 100-foot spacings. All lines were chained and pickets set up and marked. The contractor, Mr. Castonguay of Kirkland Lake and his crews, did an excellent job on the linecutting under

trying conditions.

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#### EM-VLF SURVEYS

The instrument utilized for this survey was a Ronka EM-16 and the operator was T. Obradovich, Kirkland Lake. The EM-16 is a one-man instrument which measures the vertical component of the distortion of a primary electrical field caused by the proximity of a local secondary field such as graphite or sulfides. This distortion may be measured in degrees or as a percentage of the primary field. The latter method was used and both the in-phase and out-of-phase readings were recorded. Cutler, Maine station was read in order to delineate the northeast-trending fault zones and conformable sulfide mineralization. Annapolis, Maryland station was chosen in hopes of defining the possible extension of the north-south Lake Shore fault or any parallel structure. All readings were plotted on Maps 1 and 2 enclosed

in this report. Readings were taken at 100-foot intervals. © CONSTABLE CONSULTING INC.

All readings are percentages. Conductors are indicated on the maps.

MAGNETIC SURVEY

A Sharpe MF-1 fluxgate magnetometer was employed for this survey and the operator was K.Cright, Kirkland Lake. The MF-1 fluxgate magnotometer is a one-man instrument which measures the vertical component of the earth's magnetic field. The instrument is accurate to within 10 gammas and the instrument operator must face magnetic north during operation.

Readings were corrected for day-to-day and diurnal variations using the loop method with maximum loop time 2 hours. Corrections were made down to 20 gamma variations. The corrected readings were plotted on Map 3 and contoured at 100 gamma contour intervals. Note that all readings must have

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1000 gammas added to give the actual reading, thus 120 is actually 1120.

#### INTERPRETATION

The EM-VLF surveys were affected by the rough topography and the clay-swamp areas however the following

conductors have possible bedrock sources.

Cutler, Maine: Map 1:

<u>Lines</u>	Station	Comments
12W to 24W	13 to 15 S	Moderate strength, coincident with Sericite Schist, pyrite and Trenches
12W to 28W	3 to 4 N	Strong to moderate, magnetic low. On strike from Fidelity Shaft
12E to 8W	26 to 28 N	Moderate to strong, on edge of magnetic high
l2E to 4E	34 to 39 N	Strong, Disconformable, Structure (?), pyrite also present in ar <b>ea</b>
8E to 4W	56 to 57N	Strong, Conformable, magnetic Low Area.
28E to 16E	49 to 53N	Moderate to Strong, Coincident with Annapolis Conductor and Sericite Schist area and Old Trenches

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Annapolis, Maryland: Map 2:

Lines	Station	Comments			
12W to 24W	3 to 11S	Moderate to Weak, Conformable, Could be extension of Fidelity Shaft Zone.			
8E to 0	31 to 32N	Moderate to Strong, Conformable			
20E to 28E	53 to 55N	Moderate, Coincident with Cutler, Maine Conductor.			

The magnetic survey shows little relief, readings

range from less than 100 gammas to over 700 gammas. Most of the magnetic relief is centred in the southern portion of the group and over a small area in the northeast corner. The magnetic variations are mostly in areas of mafic volcanics and are probably due to variations in magnetite and/or pyrrhotite content. The magnetic contours do however show a 065° strike for the area and suggests a near-vertical dip or a steeply northward-dipping sequence.

#### CONCLUSIONS AND RECOMMENDATIONS

The EM-VLF and magnetic surveys have suggested a few areas for followup, however one should not be led to exclude areas without geophysical anomalies from future gold exploration programs. Future work should be concentrated on the areas of sericite schist and additional prospecting should be done over the suggested EM-VLF conductors. Future programs should include induced polarization and geochemical surveys followed by stripping and diamond drilling.

Respectful ted H.BSc., F.G.A.C. Consul

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TEL. (705) 566-5931

10 KINGSTON COURT SUDBURY, ONTARIO P3A 1C9

## RECEIVED

## OCT 0 2 1984

#### MINING LANDS SECTION

September 26, 1984

Mw. S. E. Yundt Director, Land Management Branch Whitney Block, Room 6643 Queens Park Toronto, Ontario M7A 1W3

#### RE: File No. 2,7126

Dear Ms. Yundt:

Enclosed are the returned survey maps. The VLF readingswere taken using two traverses with a station being read on each traverse.

Sincerely

David Constable

cc: F.T. O'Connor

cc: George Kolezar Mining Recorder, Kirkland Lake

DC:dc

Enclosures 4

September 20, 1984

File: 2.7126

F.T. O'Connor P.O. Box 136 **Toburn Drive** Kirkland Lake, Ontario P2N 3M6

Dear Sir:

RE: Geophysical (Electromagnetic) Surveys submitted on Mining Claims L 548712 et al in the Townships of Teck and Bernhardt

Enclosed are the plans, in duplicate, for the above-mentioned surveys. Please have the data profiled on the plans and return them to this office quoting file 2.7126.

Also, would you please notify this office as to whether the readings were taken during one traverse pass over the grid or two traverse passes, each using a different transmitter.

For further information, please contact Doug Isherwood at (416)965-4888. Sept 26, 1984

Yours sincerely.

Toronto, Ontario M7A 1W3 Phone: (416)965-4888

S.E. Yundt He also questioned the need to define whether Director Land Management Branch the survey was done in one traverse or two Again informed that interpretations from OGS Queen's Park Minds Made. The said he would be calling Roger Barlow to discuss these points. Dorug

Lovid Constable called complaining

about request for data profiling - informed

him that this was a volicy of OC.S.

D. Isherwood:mc

CC: Mining Recording Kirkland Lake, Ontario

David W. Constable CC: 10 Kingston Court Sudbury, Ontario P3A 1C9

Encl.

1984 09 11

Your File: 337 Our File: 2.7126

George J. Koleszar Mining Recorder Ministry of Natural Resources 4 Government Road East Kirkland Lake, Ontario P2N 1A2

Dear Sir:

We have received reports and maps for a Geophysical (Electromagnetic and Magnetometer) and Geological Survey submitted under Special Provisions (credit for Performance and Coverage) on Mining Claims L 548712 et al in the Townships of Teck and Bernhardt.

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

Yours sincerely,

S.E. Yundt Director Land Management Branch

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

A. Barr:mc

- cc: F.T. O'Connor P.O. Box 136 Torburn Drive Kirkland Lake, Ontario P2N 3M6
- cc: David Constable 10 Kingston Court Sudbury, Ontario P3A 1C9

#### Mining Lands Section

File No 2.7/26

Control Sheet



MINING LANDS COMMENTS:

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J. Hurd .

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