STEEP ROCK IRON MINES LIMITED

TURNING LAKE PROP.

1 mile SW of Norway Lake
Lumby Lake Area

NTS - 52-G-3
Lat - 49° 04' N
Long - 91° 20' W

Geophysical Report
(Mag and EM)

March 15, 1982

Raymond A. Bernatchez, P.Eng.
Geologist
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Location

The property consists of 15 unpatented mining claims staked in January 1981. The claims are located 1 mile S-W of Norway Lake on plan No. M-2385. The claims are numbered 487487 to 487495 inclusive, 487412 to 487417 inclusive. Turning Lake is located approximately in the centre of the claim group.

The claim group is accessible by bush road from Highway 11. The road leads to within 200 metres at the south end of the property. The property is located 50 miles north-northeast of Atikokan.

History

The area has been periodically prospected in the past by several mining companies including Steep Rock Iron Mines. Most of the work has been concentrated north, south east end west of the property.

The main metals sought were iron, gold, copper, nickel, and zinc to a lesser extent.

The iron formations are located about ¼ to 1 mile north of the property and extends eastward along a chain of lakes near Seahorse Lake, south end of Norway Lake, Spoon Lake, Pinecone Lake, Keewatin and Hematite Lake. Several patented claims are still held near Keewatin and Hematite Lake. Most of the known gold occurrences are located between Red Paint Lake, Rea and Spoon Lake.

The former L. C. Anderson property on the north shore of Little Morris Lake was prospected in 1948-51 for gold, copper, silver, lead and zinc mineralization in a quartz-sericite schist in shear zones. Noranda Mines Ltd. carried out drilling near Lumby Lake. A second property of interest is the former C. A. Alcock property located on the east side of the north end of Red Paint Lake. Early prospecting took place here in 1895-1900 and again by C. A. Alcock in 1946.

The gold values are localized in quartzankerite veins up to 5 feet wide in folded sericite carbonate schists. Reports of gold values ranging from 0.07 to 1.99 oz are reported from this area.

In 1956-57 Steep Rock Iron Mines conducted an airborne magnetic and electromagnetic survey of the Lumby Lake metavolcanic belt. Some weak EM anomalies were detected on the north end of Turning Lake and the east end of Core Lake.

The 1980 airborne survey by the O.G.S. also detected electromagnetic anomalies in the same area of Turning Lake.
Geology

The author has not completed the geological mapping of the property and will therefore combine his rock classification with that of (1) Woolverton's (1960).

Keewatin - Altered basic to intermediate volcanics (massive flows)
- Altered tuff (basic and intermediate)
- Pillowed lava
- Hornblende, biotite, chlorite, sericite and carbonate schist

The partial geological mapping has revealed the presence of massive flows (intermediate and mafic) on the south half of the property. Pillowed lavas were observed on 400W at 150N, 50W at 115S and 640E at 240N. The north topping pillows are overturned and amygdaloidal. Several tuff horizons were observed on the east shore of Turning Lake and strike N850E to S850E.

Geophysical Surveys

Grid

A grid was cut in the spring of 1981 over the property. The baseline traverses the property from east to west for a total distance of 1.7 km. The zero picket line is located on the west shore of Turning Lake. Picket lines were established at every 100 metres along the baseline. The picket lines are cut due north and south of the baseline with stations established at every 25 metres along the picket lines, 25 metre stations were also established along the baseline. The north-south measurements range from 4+25S to 7+75N.

Magnetic Survey

A total of 791 magnetic readings were taken over the cut grid with a proton magnetometer. Readings were taken at every 25 metres along the picket lines and contoured maps were produced. The proton mag has an accuracy of 1 gamma.

Magnetic Survey Results

The ground magnetic survey confirmed a similar profile to that obtained in the 1981 O.G.S. survey map 80530 and Steep Rock Iron Mines 1956 survey (plate 3).

The area covered by the ground survey indicates rocks of mafic composition on the northern portion of the area. The magnetic fluctuation of these mafic rocks range from +100 gamma to +4209 gamma. The magnetic contours display a series of discontinuous magnetic anomalies in the north third and southeast quarter of the property.

A magnetic low trend predominates in the south west section of the property with a narrow continuous low trend extending eastward from the north east corner of Turning Lake.

It is not certain whether this low trend signified a fold structure or a facies change between two volcanic sources. Further geological mapping in 1982 will assist in interpreting the magnetic data.

Electromagnetic Survey

An EM survey using a Max Min II at 444 Hz and 1777 Hz frequencies with in-phase and out-of-phase response was carried out over the same grid. A total of 773 station readings were taken at these two frequencies. Two separate profile maps were drafted, readings were read to the nearest degree.

Electromagnetic Survey Results

A total of four (4) separate conductive zones were detected. They are located as follows:

- **EM Anomaly 1)** lines 4W, 5W, 6W at 0+25N, 0+50N, 1+00N respectively
- **" 2) **lines 1E, 2E at 0+25S
- **" 3) **lines 2E, 3E, 4E at 2+75N
- **" 4) **lines 7E and 8E at 2+00N
- **" 5) **line 2W at 3+00N (weak anomaly)

Magnetic high anomalies are associated with EM anomalies #2 and #4. Magnetic low anomalies are associated with EM anomalies 1 and 3. A magnetic high anomaly is also associated with a weak EM anomaly #5.

Conclusions and Recommendations

1. Five separate EM anomalies have been located by ground geophysics
2. Four of the EM anomalies are located at or near the mafic to intermediate volcanic interface
3. One anomaly (No. 1) is located within intermediate metavolcanic rocks.
Recommendations

1. It is recommended that geological mapping be completed prior to any drilling.

2. Geochemical soil sampling should be done on the property and analyzed for Cu, Zn, Au and As.

Raymond A. Bernatchez, P. Eng.
Geologist

RAB:jef
March 15, 1982
I, Raymond A. Bernatchez, of 126 Willow Road, Atikokan, Ontario, do hereby certify that:

1) I am a Professional Engineer registered in the Province of Ontario.

2) I am an exploration geologist living in Atikokan, Ontario.

3) I graduated from the South Dakota School of Mines in Rapid City, South Dakota in 1972 with a B. Sc. degree in Geological Engineering.

4) I graduated from the Haileybury School of Mines in Haileybury, Ontario, with a Mining Technology diploma (3 year program) in May 1969.

5) I have been permanently employed in my profession since graduation in 1972.

6) I have no interest either directly or indirectly nor do I anticipate receiving such interest in the properties or securities of Steep Rock Iron Mines Ltd.

7) The attached report and its enclosed maps are the product of surveys carried out under my indirect supervision.

8) The surveys were carried out during the period of April 1 to May 1, 1981.

Atikokan, Ontario

Date: March 29, 1982
SRIM Airborne Magnetic
1956
Scale 1" = 1/2 mile.
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: Electromagnetic Survey
Township or Area: Norway Lake Area M-2-85
Claim holder(s): Steep Rock Iron Mines Ltd
Atikokan, Ontario

Author of Report: Raymond A. Bernatchez
Address: Box 1376, Atikokan, Ontario
(linecutting to office)
Total Miles of Line cut: 21.025 km

SPECIAL PROVISIONS
CREDITS REQUESTED

Geophysical DAYS per claim
Electromagnetic 20

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

MAGNETIC PROVISIONS
Magnetometer
Radiometric

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

DATE: February 1882
SIGNATURE: Raymond A Bernatchez
Author of Report or Agent

PROJECTS SECTION
Res. Geol. Qualifications
Previous Surveys
Checked by date

GEOLOGICAL BRANCH
Approved by date

GEOLOGICAL BRANCH
Approved by date

TOTAL CLAIMS: 15
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: Magnetometer Survey
Township or Area: Norway Lake Area, M-2385
Claim holder(s): Steep Rock Iron Mines Ltd
Atikokan, Ontario
Author of Report: Raymond A. Bernatchez
Address: Box 1376, Atikokan, Ontario
(linecutting to office)
Total Miles of Line cut: 21.025 Km

SPECIAL PROVISIONS
CREDITS REQUESTED

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

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

Magnetometer: Electromagnetic: Radiometric

DATE: February 1982
SIGNATURE: Raymond A. Bernatchez
Author of Report or Agent

PROJECTS SECTION
Res. Geol.: Qualifications:
Previous Surveys:
Checked by: date:

GEOLOGICAL BRANCH
Approved by: date:

MINING CLAIMS TRAVERSED
List numerically

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TOTAL CLAIMS: 15

RECEIVED
FEB 10 1982
MINING LANDS SECTION
Date of recording of work: February 4th, 1982
Recorded holder: Steep Rock Iron Mines Ltd.
Address: Atikokan, Ontario POT 1CO
Township or Area: Schwenger Township (M2364) Freeborn Twp. (M2361)
Richardson Lake Area (M2384) Norway Lake Area (M2385)

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Notice to recorded holder:
☒ Survey reports and maps in duplicate be submitted to the Lands Administration Branch, Toronto within 60 days from the date of recording of this work.
☐ Reports and maps are being forwarded to the Lands Administration Branch with this letter.

Acting Mining recorder
Steeprock Iron Mines Limited
Atikokan, Ontario POT 1CO
Lands Administration Branch
Mining Lands Section
Ministry of Natural Resources,
Room 1617, Whitney Block
Queen's Park, Toronto
M7A 1W3

February 4, 1982

Steep Rock Iron Mines Limited
Atikokan, Ontario P0T 1CO

Township or Area:
Richardson Lake Area (M2384) Schwenger Twp. (M2364)
Norway Lake Area (M2385) Hepburn Lake Area (M2388)
Freeborn Township (M2361)

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Notice to recorded holder:
Survey reports and maps in duplicate be submitted to the Lands Administration Branch, Toronto within 60 days from the date of recording of this work.

Reports and maps are being forwarded to the Lands Administration Branch with this letter.

Acting Mining recorder
Steep Rock Iron Mines Limited
P.O. Box 1376
Atikokan, Ontario P0T 1CO
Dear Sir:

RE: Geophysical (Electromagnetic & Magnetometer) Survey submitted on Mining Claims K 487412 et al in the Norway Lake Area

The Geophysical (Electromagnetic & Magnetometer) Survey assessment work credits as shown on the attached statement have been approved as of the above date.

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

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1380

Encls:

cc: Steep Rock Iron Mines Limited
Attn: Mr. Raymond Bernatchez

cc: Resident Geologist
Kenora, Ontario
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<th>Type of survey and number of Assessment days credit per claim</th>
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<td>☐ Credits have been reduced because of corrections to work dates and figures of applicant.</td>
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Special credits under section 86 (15a) for the following mining claims:

No credits have been allowed for the following mining claims:

☐ not sufficiently covered by the survey
☐ insufficient technical data filed

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical — 80; Geological — 40; Geochemical — 40; Section 86(18) — 60.
To: Geophysics

Mr. Bailes

Comments

☐ Approved  ☐ Wish to see again with corrections  Date: Dec 27 82  Signature

To: Geology - Expenditures

Comments

☐ Approved  ☐ Wish to see again with corrections  Date  Signature

To: Geochemistry

Comments

☐ Approved  ☐ Wish to see again with corrections  Date  Signature

To: Mining Lands Section, Room 6462, Whitney Block. (Tel: 5-1380)
February 9, 1983

Mr. E. F. Anderson
Director
Land Management Branch
Whitney Block, Room 6450
Queen's Park
Toronto, Ontario M7A 1W3

Dear Sir:

Enclosed are the magnetic and electromagnetic survey maps of the Turning Lake claims numbered TB 487412 to 487417 and 487487 to 487495 inclusive.

These show claim lines and numbers on the maps as requested in your letter dated January 17, 1983.

Yours truly,

R. A. Bernatchez, P.Eng
Geologist

RAB*blk
Enclosures (6)
Steep Rock Iron Mines Limited
Atikokan, Ontario
POT 1CO
Attention: Mr. Raymond Bernatchez.

Dear Sirs:

RE: Geophysical (Electromagnetic & Magnetometer) Survey submitted on Mining Claims K 487412 et al in the Norway Lake Area

Enclosed are the plans in duplicate for the above mentioned survey. Please show all claim lines and numbers and return the maps to this office.

For further information, please contact Mr. F.W. Matthews at 416/965-1380.

Yours very truly

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
416/965-1380

A. Barr:sc

Encls:

cc: Mining Recorder
    Kenora, Ontario
Mining Recorder
Ministry of Natural Resources
808 Robertson Street
Box 5160 Kenora, Ontario
P9N 3X9

Dear Sir:

We have received reports and maps for a Geophysical (Electromagnetic and Magnetometer) Survey submitted under Special Provisions (credit for Performance and Coverage) on mining claims K 487412 et al in the Norway Lake Area.

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

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1316

J. Skura/amc

cc Steep Rock Iron Mines Ltd., Atikokan, Ontario
March 29, 1982

Land Administration Branch
Mining Land Section
Ministry of Natural Resources
Room 1617, Whitney Block
Queen's Park
TORONTO, Ontario
M7A 1W3

Dear Sir:

I am submitting duplicate sets of geophysical reports and maps for evaluation as partial fulfillment of assessment work on the following properties in the Atikokan area. The properties are listed as follows with their respective claim numbers:

1) Marsh Lake Property - Schwenger Twp, M2364, Cl. No. 487657, 487658, 487659, 487360, 487361, 487363 and 560304.
2) Little Ganell Lake Property - Freeborn Twp, M2361, Cl. No. 487366 to 487370, 487374, 487375, 487380, and 487402.
3) Long Lake Property - Tanner Twp, M2388, Cl. No. 560274, 560275, 560277, 560278, 560298 and 560300.
4) Turning Lake Property, Norway Lake Area, M2385, Cl. No. 487412 to 487417, 487447 to 487495 inclusive.
5) Keewatin - Jefferson Lake Property, M2384, Richardson Lake, Cl. No. 487390 to 487401 inclusive (Jefferson Lake group) Cl. No. 487497, 487498, 487500 to 487504, 487456 to 487462, 487464 to 487466, 487468, 487424, 487428, 487432, 487436, (Keewatin Lake group).

Yours very truly,

Raymond A. Bernatchez, P. Eng.
Geologist

RAB:jef
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