



52002NW8963 2.7020 DUFFELL LAKE

010

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)
DUFFELL LAKE PROPERTY
GEOLOGICAL REPORT
52 0/2

RECEIVED
AUG 03 1984
MINING LANDS SECTION

July 10, 1984
Thunder Bay, Ontario

I. Perry
Project Geologist-Red Lake
Northwestern Ontario Division



52002NW8963 2.7020 DUFFELL LAKE

010C

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INTRODUCTION:

The Duffel Lake Property consisting of 64 claims was staked by Noranda Exploration Company, Limited personnel in July 1983 to cover a small gold showing discovered by earlier prospecting and a large magnetic anomaly, indicated on the 1"=1 mile Government Aeromagnetic Map #912G.

Geological mapping, and magnetometer surveys carried out along the claim lines, upon completion of the staking indicated a central 24 claim group to be of primary interest.

From May 30 to June 18, 1984 a flagged, pace and compass grid was installed with 100m line spacing over the 24 claim central portion.

Detailed geological mapping, fluxgate magnetometer and VLF-EM-16 surveys were then carried out along these lines.

LOCATION AND ACCESS:

The Duffel Lake Property is located approximately 31 miles southwest of Pickle Lake, lying within the Dempster Lake-Pickle Lake Greenstone Belt. The northern property boundary runs just south of Duffel Lake, the southern boundary runs along Whitemore Creek, and the eastern boundary just touches the south end of Jarrow Lake. It lies within the area covered by NTS map 52 0/2 and claim map #M2513.

Access to the property is by float or ski equipped aircraft from Pickle Lake or Sioux Lookout,

Ontario.

A campsite has been cleared on the north shore of the small lake located two miles south of the west end of Duffel Lake.

CLAIMS:

The following 24 claims were covered by geological mapping, fluxgate magnetometer and VLF-EM-16 surveys during the period of May 30 to June 18, 1984.

Pa727837	Pa759061
727838	759062
727841	759063
727842	759064
732457	759065
732458	759066
732460	759067
732461	759068
732463	759069
732464	759070
759059	766722
759060	766723

The surveys were carried out by L. Manson, S. Moran and I. Perry, all employees of Noranda Exploration Company, Limited.

GEOLOGY:

Description of Units

1) Basic Volcanics: This unit outcrops frequently in the northern and western portions of the property.

It is dark grey-green in color, typically fine-

grained and appears to be basaltic in composition. It is frequently sheared and calcareous along the northern edge of the property, probably as a result of the intrusion of the Duffel Lake Pluton. Stretched pillow remnants were observed at several locations, with a typical long axis to shore axis ratio in excess of 10:1. A tentative northerly younging direction was determined from the pillows.

Several outcrops of basalt, containing oval felsic clasts occur through the central portion of the northern row of claims. These clasts range from 2 to 8" in length, and could be either true felsic clasts which have been stretched or a siliceous alteration of the interstitial rock between pillows.

2) Tuffaceous Greywacke: This unit outcrops frequently throughout the southeastern portion of the property. It is dark grey in color, medium- to coarse-grained, and usually well foliated. It consists of 20-70% hornblende, 20-50% biotite and 20-50% quartz and feldspar. It appears to grade into the Unit #3 greywacke to the south, with a decreasing hornblende content. This unit is frequently magnetic and two zones of Py and Po mineralization were noted in outcrop and picked up geophysically. Weak carbonate was noted in several outcrops, typically occurring along fracture planes.

3) Greywacke: This unit outcrops frequently in the southeastern and south-central portions of the property. It is dark to light grey in color, fine-grained and normally well foliated. It consists of 40-50% biotite, 5% hornblende, 30% quartz and 20% feldspar.

4) Psammitic Sediments: This unit outcrops infrequently along the extreme southern edge of the property. Where visible in outcrop it appears as a light brown, very well foliated rock, normally very soft due to alteration by ground water and consisting primarily of quartz and feldspar with minor sericite.

5) Quartz-Feldspar-Porphyry: Several quartz-feldspar-porphyry dykes ranging from 0.3 to 2.5m in width were noted on the property, mostly occurring in the western half. These are pale brown on the weathered surface and normally greyish in color on the fresh surface. Good feldspar phenocrysts up to 3mm in diameter comprise up to 50% of the rock, with occasional quartz phenocrysts (5%) and a grey siliceous matrix comprising the remaining 50%. Pyrite and carbonate are typically present in minor quantities (1%).

PROPERTY GEOLOGY:

The Duffel Lake Property is underlain by a series of volcanic, volcano-sedimentary and sedimentary rocks of Precambrian Age.

The sequence of units from south to north on the property is:

Psammitic Sediments	Sharp Contact
Greywacke	Gradational Contact
Tuffaceous Greywacke	?
Basalt	?
Iron Formation	?
Basalt	
Q.F.P. Dykes	Related to Duffel Lk. Stock?

Structurally all of the rocks trend east/west except in the northern row of claims, where the basic volcanics wrap around the Duffel Lake Pluton. Dips on the property range from vertical to steep northerly. Several faults can be inferred from the geophysical data, but none were observed in the field, and no major offsets are proposed. The central band of iron formation also inferred from geophysical data, underlies a broad swampy, muskeg area and does not outcrop anywhere on the property.

MINERALIZATION:

The main gold showing on the property is located between lines 18 and 19W on the 1st claim line north of the southern boundary. It consists of a 12-24cm wide quartz vein, in basaltic rock, containing up to 35% arsenopyrite and pyrite. The vein strikes approximately 35° , dips vertically and can be followed intermittently in trenches for about 100' along strike. South of the claim line the vein appears to follow a more easterly trend at about 70° Azimuth. Of the 10 samples taken from this zone, 5 assayed Nil while the remaining 5 returned values of:

0.10 oz/ton

0.18 oz/ton Grab samples

0.25 oz/ton

0.07 oz/ton/6.0 ft.

0.43 oz/ton/2.0 ft.

A second showing from which no assays have yet been returned is located on lines 6 and 7W approximately 325m and 350m south of the base line. This showing consists of a 36cm quartz vein and 2 smaller (12cm)

quartz veins, carrying approximately 2-3% Molybdenite and 1% pyrite. The vein strikes at 66° Azimuth and dips 75° to the north.

Two further zones of strong sulphide mineralization were found at the eastern end of the property. These are located within the tuffaceous greywacke along the 1st claim line north of the southern boundary between lines 2E and 8E, and 200m north of the southern boundary between lines 0 and 6E. Both of these zones consist of disseminated pyrite and pyrrhotite, with minor carbonate and magnetite. Only extremely low gold values (Tr to 0.01) were obtained from these showings.

The large magnetic anomaly, and conductor located in the central portion of the property is assumed to be mainly oxide facies iron formation, with some pyrrhotite and pyrite, although this unit was not observed in outcrop. The geophysical data in this area also indicates the possibility of a tight fold within the iron formation, a site with some potential for Au mineralization.

CONCLUSIONS:

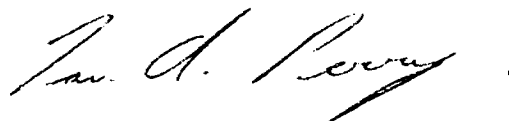
- 1) The strong aeromagnetic anomaly is caused by iron formation (oxide and sulphide facies).
- 2) The main gold showing is located a claim's length southwest of the iron formation and no relationship between the two has been determined.
- 3) The presence of numerous pyrite and carbonate bearing quartz-feldspar-porphyry dykes in the vicinity of the gold showing is an encouraging geological factor, although again no real relationship between the two has been determined.

RECOMMENDATIONS:

The iron formation should be tested at several points along its' strike length, either by overburden drilling or diamond drilling, particularly in the vicinity of the bifurcation.

Respectfully submitted

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

A handwritten signature in cursive script, appearing to read "I. Perry".

I. Perry

July 10, 1984
Thunder Bay, Ontario

Project Geologist-Red Lake
Northwestern Ontario Division

STATEMENT OF QUALIFICATIONS

I received a BSc degree in Geology from Acadia University, Nova Scotia in May 1980.

Since graduation, I have worked continuously as a Project Geologist for:

Camflo Mines Ltd.

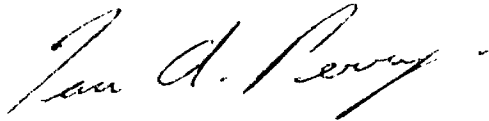
May 1980 - April 1982

Goldfields Canadian Mining Corp.

April 1982 - April 1983

Noranda Exploration Company, Limited

April 1983 - Present

A handwritten signature in cursive script, reading "Ian A. Perry". The signature is written in dark ink and is positioned above the printed name.

Ian A. Perry



52002NW8963 2.7020 DUFFELL LAKE

900

Mining Lands Section

File No 2.7020

Control Sheet

TYPE OF SURVEY ☐ GEOPHYSICAL
 ☒ GEOLOGICAL
 ☐ GEOCHEMICAL
 ☐ EXPENDITURE

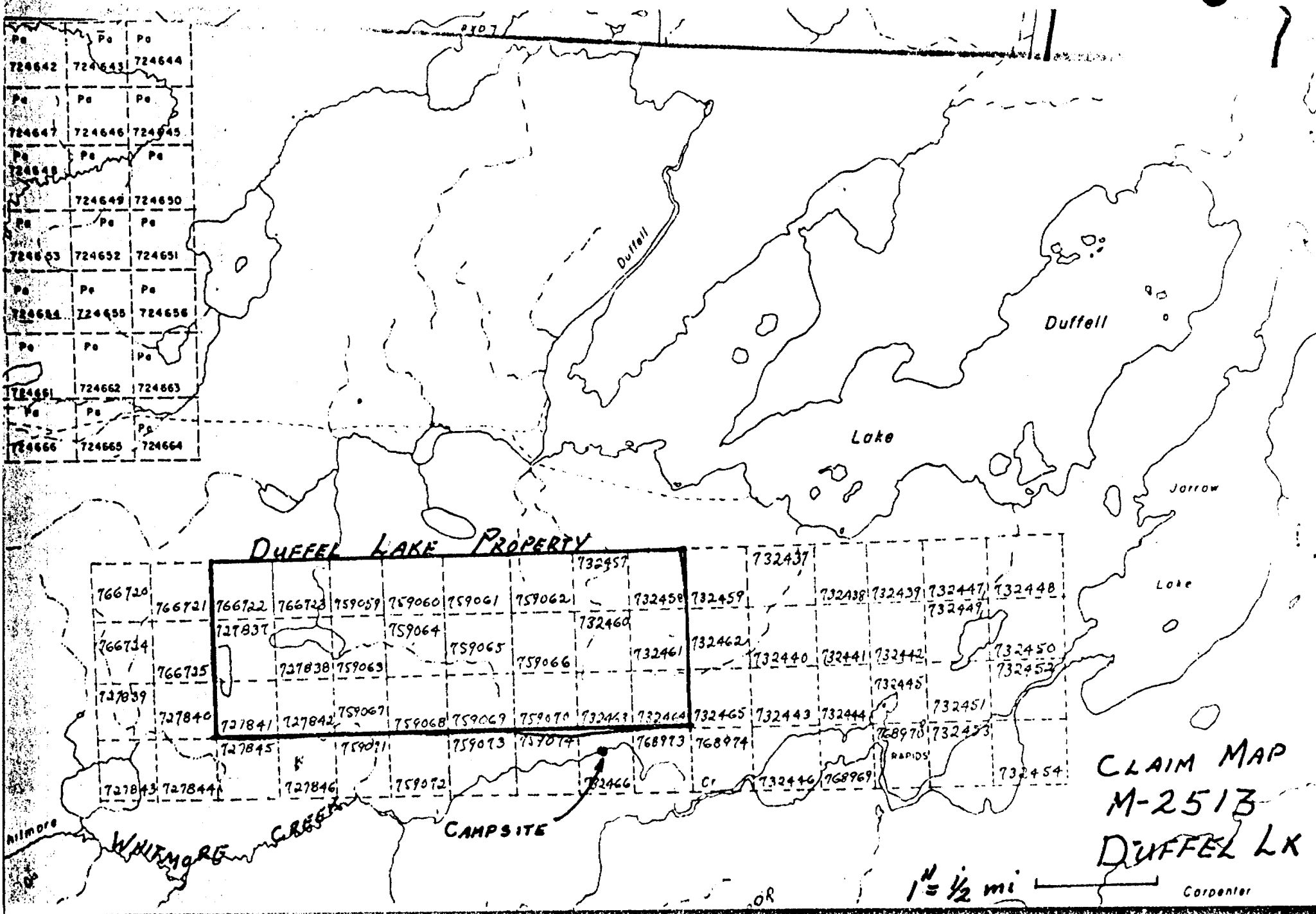
MINING LANDS COMMENTS:

LD

Derry
Signature of Assessor

18/09/64
Date

Pa	Pa	Pa
724642	724643	724644
Pa	Pa	Pa
724647	724646	724645
Pa	Pa	Pa
724648		
	724649	724650
Pa	Pa	Pa
724653	724652	724651
Pa	Pa	Pa
724654	724655	724656
Pa	Pa	Pa
724657	724662	724663
Pa	Pa	Pa
724666	724665	724664



CLAIM MAP
M-2513
DUFFELL LK

1" = 1/2 mi

Corderior



Ministry of Natural Resources

File _____

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL
TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Geological

Township or Area Duffel Lake

Claim Holder(s) Noranda Exploration Company, Limited

Survey Company Noranda Exploration Company, Limited

Author of Report L. Perry

Address of Author P. O. Box 2656, Thunder Bay, Ont. P7B 5G2

Covering Dates of Survey May 30 – June 18, 1984
(linecutting to office)

Total Miles of Line Cut _____

MINING CLAIMS TRAVERSED
List numerically

See attached list.
(prefix) (number)

SPECIAL PROVISIONS
CREDITS REQUESTED

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

ENTER 20 days for each
additional survey using
same grid.

Geophysical
–Electromagnetic _____
–Magnetometer _____
–Radiometric _____
–Other _____
Geological 20
Geochemical _____

DAYS
per claim

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

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: July 10, 1984 SIGNATURE: [Signature]
Author of Report or Agent

Res. Geol. _____ Qualifications 2.7019

Previous Surveys

File No.	Type	Date	Claim Holder

TOTAL CLAIMS 24

84-102

2.7020

766778 1/4

723 ✓

732457 ✓

837 1/4
777838

458 ✓

841 1/4

460 ✓

842 ✓

461 ✓

759059 ✓

463 ✓

060 ✓

464 ✓

061 ✓

062 ✓

063 ✓

064 ✓

065 ✓

066 ✓

067 ✓

068 ✓

069 ✓

070 ✓

F.R.N.
Mining Act

84-102

27020

Mining Act

Geological Mapping

Duffell Lake G-2013

Noranda-Exploration Company, Limited

A 34387

P.O. Box 2656, THUNDER BAY, Ontario P7B 5G2

Survey Company

Noranda Exploration Company, Limited

Name and Address of Author (of Geo. Technical report)

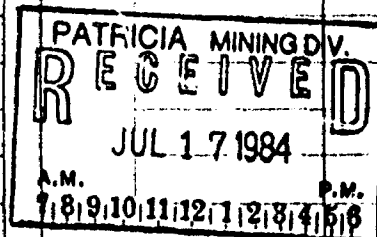
Ian A. Perry, P.O. Box 2656, THUNDER BAY, Ontario P7B 5G2

Credits Requested per Each Claim in Columns at right

Mining Claims Traversed (List in numerical sequence)

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

Prefix	Mining Claim Number	Expend Days Cr	Prefix	Mining Claim Number	Expend Days Cr
Pa	766722		Pa	732464	
	766723				
	727837				
	727838				
	727841				
	727842				
	759059				
	759060				
	759061				
	759062				
	759063				
	759064				
	759065				
	759066				
	759067				
	759068				
	759069				
	759070				
	732457				
	732458				
	732460				
	732461				
	732463				



Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures \$ ÷ 15 = Total Days Credits

Instructions

Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Pa. 727837

For Office Use Only

Total Days Cr. Date Recorded July 17, 1984

Recorded 480 Date Approved as Recorded see revised statement

Mining Recorder JAC 100

Branch Director

Date July 16/84

Recording Holder or Agent (Signature)

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying

Ian A. Perry, P.O. Box 2656, THUNDER BAY, Ontario P7B 5G2

Date Certified July 16/84

Certified by (Signature)



Ministry of
Natural
Resources

Technical Assessment Work Credits

File 2.7020

Date 1984 10 09

Mining Recorder's Report of
Work No. 84-102

Recorded Holder

NORANDA EXPLORATION COMPANY, LIMITED

Township or Area

DUFFELL LAKE AREA

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	
Electromagnetic _____ days	PA 727837
Magnetometer _____ days	727841-842
Radiometric _____ days	732457-458
Induced polarization _____ days	732460-461
Other _____ days	732463-464
Section 77 (19) See "Mining Claims Assessed" column	759059 to 070 inclusive
Geological _____ 20 days	766722-723
Geochemical _____ days	
Man days <input type="checkbox"/> Airborne <input type="checkbox"/>	
Special provision <input checked="" type="checkbox"/> Ground <input checked="" type="checkbox"/>	
<input type="checkbox"/> Credits have been reduced because of partial coverage of claims.	
<input type="checkbox"/> Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (18) for the following mining claims

10 DAYS
PA 727838

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 77 (19)—80;

CLAIMS TRAVERSED
ON THE
DUFFEL LAKE PROPERTY

Pa727837	Pa759061
727838	759062
727841	759063
727842	759064
732457	759065
732458	759066
732460	759067
732461	759068
732463	759069
732464	759070
759059	766722
759060	766723

Noranda Exploration Company, Limited
(no personal liability)
P.O. Box 2656
Thunder Bay, Ontario P7B 5G2

noranda

Telephone (807) 623-4339
Telex 073-4659

July 30, 1984

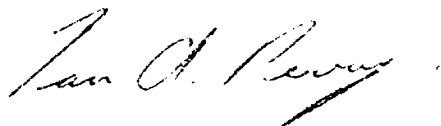
Lands Administration Branch
Ministry of Natural Resources
Room 6450, Whitney Block
Queen's Park
Toronto, Ontario
M5A 1W3

Attention: Mr. E. F. Anderson

Dear Mr. Anderson:

Please find enclosed Report of Work and Pink
Technical Data Statement in duplicate for the Geological
survey which was done on the Duffel Lake Property cover-
ing claims 732457 et al.

Yours truly,



I. Perry
Project Geologist-Red Lake
Northwestern Ontario Division

IP:js

c. c. F. Tergie
File 1335

Enclosure

RECEIVED
AUG 03 1984
MINING LANDS SECTION

1984 08 13

Your File:
Our File: 2.7020

Mr. Albert Hanson
Mining Recorder
Ministry of Natural Resources
P.O. Box 669
Sioux Lookout, Ontario
POV 2T0

Dear Sir:

We have received reports and maps for a Geological Survey submitted under Special Provisions (credit for Performance and Coverage) on Mining Claims PA 727837 et al in the Area of Duffel Lake.

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

We do not have a copy of the report of work which is normally filed with you prior to the submission of this technical data. Please forward a copy as soon as possible.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch

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

A. Barr:sc

cc: Noranda Exploration Co Ltd
P.O. Box 2656
Thunder Bay, Ontario
P7B 5G2
Attn: I. Perry.

cc: Noranda Exploration Co Ltd
Suite 400
55 yonge Street
Toronto, Ontario
M5E 1J4



Ministry of
Natural
Resources

OCT 25, 1984

1984 10 09

Your File: 2.7020
Our File: 84-102

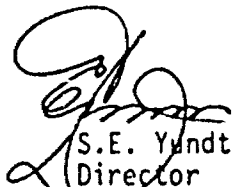
Mining Recorder
Ministry of Natural Resources
P.O. Box 309
Sioux Lookout, Ontario
POV 2T0

Dear Sir:

Enclosed are two copies of a Notice of Intent with statements listing a reduced rate of assessment work credits to be allowed for a technical survey. Please forward one copy to the recorded holder of the claim and retain the other. In approximately fifteen days from the above date, a final letter of approval of these credits will be sent to you. On receipt of the approval letter, you may then change the work entries on the claim record sheets.

For further information, if required, please contact
Mr. R.J. Pichette at 416/965-4888.

Yours sincerely,



S.E. Yundt
Director

Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3

R D. Isherwood:mc

Encls.

cc: Noranda Exploration Company, Limited P.O. Box 2656 Thunder Bay, Ontario P7B 5G2 Attention: I. Perry	cc: Noranda Exploration Company, Limited Suite 400 55 Yonge Street Toronto, Ontario M5E 1J4
cc: Mr. G.H. Ferguson Mining & Lands Commissioner Toronto, Ontario	cc: Resident Geologist Sioux Lookout, Ontario

845

22



Ministry of
Natural
Resources

Notice of Intent
for Technical Reports

1984 10 09

2.7020/84-102

An examination of your survey report indicates that the requirements of The Ontario Mining Act have not been fully met to warrant maximum assessment work credits. This notice is merely a warning that you will not be allowed the number of assessment work days credits that you expected and also that in approximately 15 days from the above date, the mining recorder will be authorized to change the entries on his record sheets to agree with the enclosed statement. Please note that until such time as the recorder actually changes the entry on the record sheet, the status of the claim remains unchanged.

If you are of the opinion that these changes by the mining recorder will jeopardize your claims, you may during the next fifteen days apply to the Mining and Lands Commissioner for an extension of time. Abstracts should be sent with your application.

If the reduced rate of credits does not jeopardize the status of the claims then you need not seek relief from the Mining and Lands Commissioner and this Notice of Intent may be disregarded.

If your survey was submitted and assessed under the "Special Provision-Performance and Coverage" method and you are of the opinion that a re-appraisal under the "Man-days" method would result in the approval of a greater number of days credit per claim, you may, within the said fifteen day period, submit assessment work breakdowns listing the employees names, addresses and the dates and hours they worked. The new work breakdowns should be submitted direct to the Lands Management Branch, Toronto. The report will be re-assessed and a new statement of credits based on actual days worked will be issued.

Your File: 84-102
Our File: 2.7020

1984 10 30

Mining Recorder
Ministry of Natural Resources
P.O. Box 309
Sioux Lookout, Ontario
POV 2T0

Dear Sir:

RE: Notice of Intent dated October 9, 1984
Geological Survey on Mining Claims
PA 727837 et al in the Area of Duffel Lake.

The assessment work credits as listed with the
above mentioned Notice of Intent, have been approved
as of the above date.

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

Yours sincerely,

S.E. Yundt
Director
Land Management Branch

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

D. Isherwood:lg

Encls.

cc: Noranda Exploration Company, Limited	cc: Noranda Exploration Company,
P.O. Box 2656	Limited
Thunder Bay, Ontario	Suite 400
P7B 5G2	55 Yonge Street
Attention: I. Perry	Toronto, Ontario
	M5E 1J4
cc: Mr. G.H. Ferguson	cc: Resident Geologist
Mining & Lands Commissioner	Sioux Lookout, Ontario
Toronto, Ontario	

SEE ACCOMPANYING
MAP(S) IDENTIFIED AS

520/02NW-0016-A1 #1

LOCATED IN THE MAP
CHANNEL IN THE FOLLOWING
SEQUENCE (X)

