86-996 - 15641

11/87

ASSESSMENT REPORT

GEOLOGICAL SURVEY ON THE

HARDY GRID/EAGLE MOUNTAIN CLAIM GROUP

N.T.S. 82E/2

GREENWOOD MINING DIVISION

Latitude 49°03' Longitude 118°31'

John Keating, Project Geologist
Noranda Exploration Company, Limited (no personal liability)
May 1 - August 15, 1986

TABLE OF CONTENTS

APPENDICES

DRAWINGS

I. INTRODUCTION

1. Location and Access

The Eagle Mountain group of claims is comprised of 39 units in the Greenwood Mining Division on N.T.S. Mapsheet 82E/2. The property is located on the southern flanks and ridge of Eagle Mountain which is approximately 7.0 km WNW of Grand Forks, B.C. and is situated between July Creek and the Granby River within the Monashee Mountains.

Access to the property is obtained via logging roads along the eastern slopes of Hardy Mountain and a power line access road that bisects the property from east to west.

2. Topography and Physiography

The Eagle Mountain claim group lies directly over Eagle Mountain and covers a large portion of the north-south trending ridge which runs to the south of Eagle Mountain. The northeast portion of the claims is drained by Hardy Creek. Steepness of the terrain ranges from moderate (within creek valleys and ridge flanks) to flat (tops of ridges). Maximum relief of the claim group is 1200' with a maximum elevation of 4100'.

Vegetation of the area ranges from grasslands and scrub bush on exposed southern hillsides to stands of cedar and fir in swamps, creek beds and north facing slopes.

3. Previous Work

A number of different companies and prospectors have worked on or around the Eagle Mountain group of claims as many pits and trenches (old and new) were encountered during this survey.

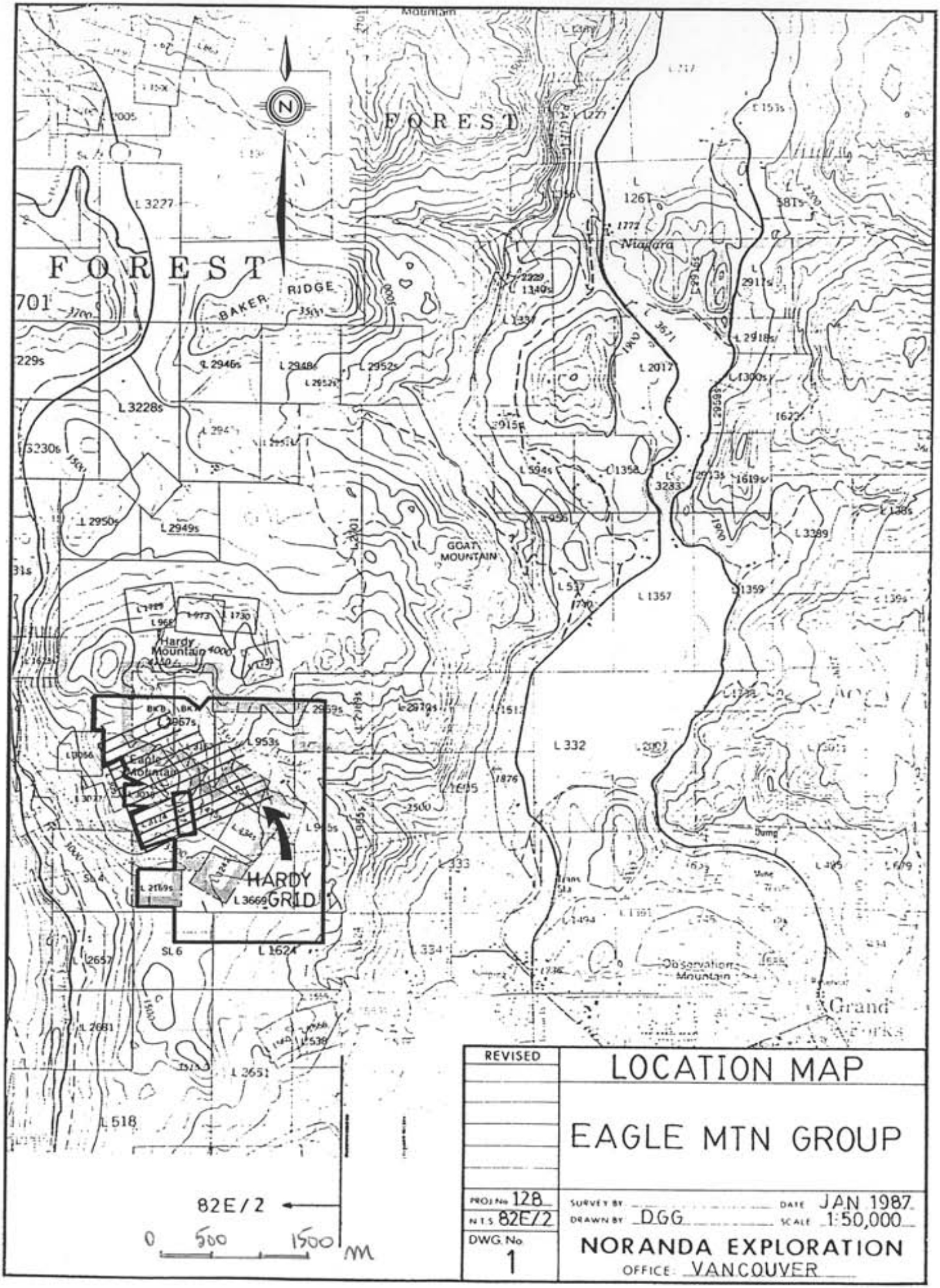
Recent recorded work done by various companies on or around the claims is listed below in chronological order.

1967 Granby Mining Company, Ltd. Stripping and trenching occurred on small showings found by earlier prospecting.

1969 Granby Mining Company, Ltd. Small programme of soil geochemistry was completed.

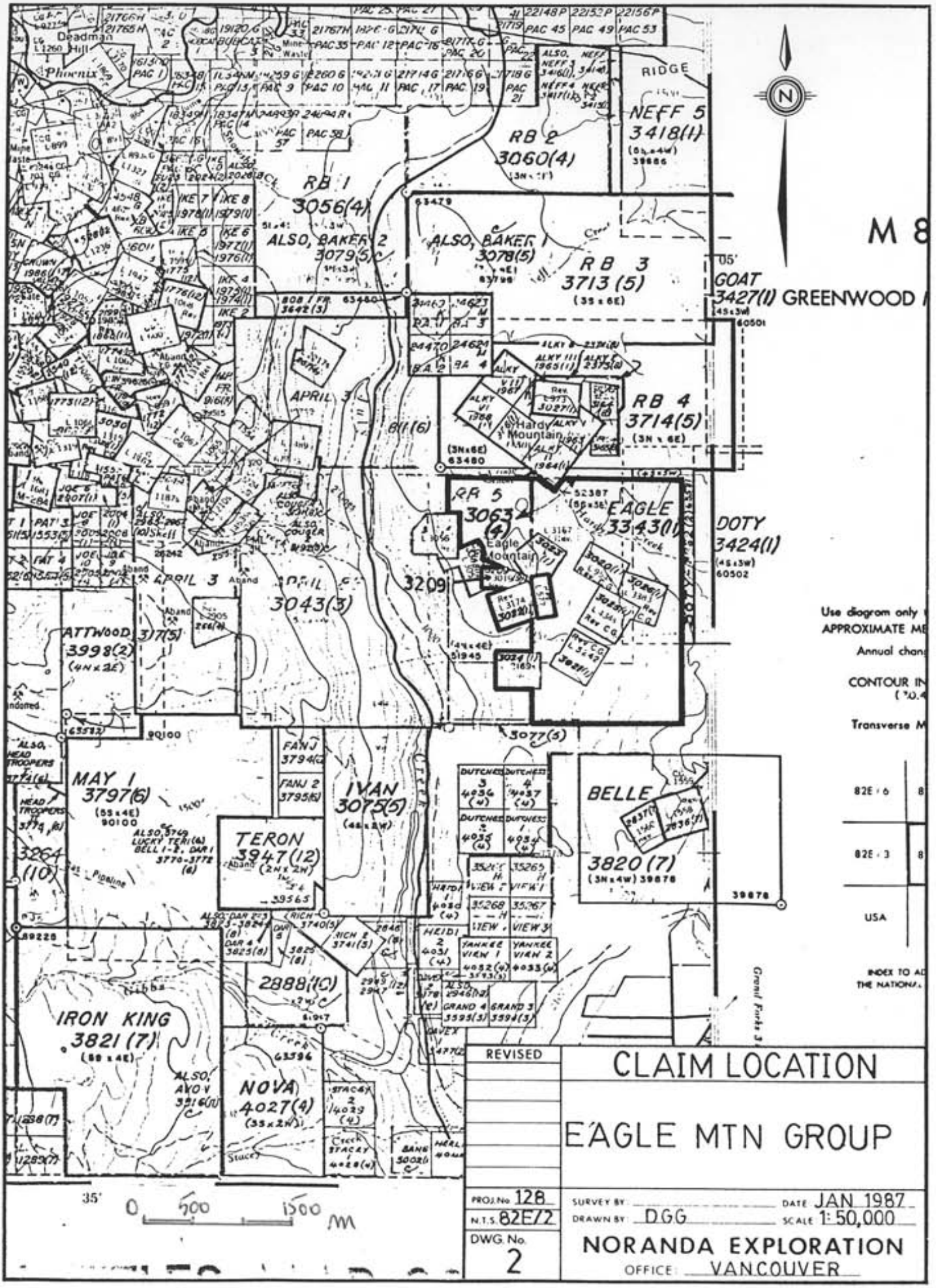
1969 International Mogul Mines Ltd. Geophysical, geochemical and geological surveys, including pitting and stripping was done by M.E.M. Consultants for International Mogul Mines Ltd.

1970 Granby Mining Company, Ltd. Further soil geochemistry as well as an induced polarization survey was completed between May and August.



REVISED	LOCATION MAP
	EAGLE MTN GROUP
PROJ No 128	SURVEY BY _____ DATE JAN 1987
NTS 82E/2	DRAWN BY DGG SCALE 1:50,000
DWG. No 1	NORANDA EXPLORATION
	OFFICE VANCOUVER

NCI-774


Deadman Hill
Phoenix
RIDGE
NEFF 5
3418(1)
(5L x 4W)
39686
RB 2
3060(4)
(3N x 7E)
RB 1
3056(4)
(5L x 4E)
ALSO, BAKER 2
3079(5)
(3N x 3W)
ALSO, BAKER 1
3078(5)
(3N x 4E)
63479
RB 3
3713(5)
(3S x 6E)
GOAT
3427(1)
GREENWOOD
(4S x 3W)
60501
808 1 FR 63480
3642(3)
APRIL
RB 4
3714(5)
(3N x 6E)
Hardy Mountain
63480
RB 5
3063
(4)
(4S x 4E)
51945
EAGLE
3343(1)
DOTY
3424(1)
(4S x 3W)
60502
Eagle Mountain
3209
APRIL 3
3043(3)
ATTWOOD 3
3998(2)
(4N x 2E)
3077(5)
MAY 1
3797(6)
(5S x 4E)
90100
ALSO, 3769
LUCKY TERI(6)
BELL 1-2, DAR 1
3770-3772
(6)
FANJ
3794(2)
FANJ 2
3795(6)
IVAN
3075(5)
(4S x 2W)
TERON
3947(12)
(2N x 2W)
Aband
39565
3264
(10)
Pipeline
DUTCHESS 3
4034
(4)
DUTCHESS 4
4037
(4)
DUTCHESS 2
4035
(4)
DUTCHESS 1
4036
(4)
BELLE
3820(7)
(3N x 4W) 39878
39878
35265
VIEW 1
35268
VIEW 2
35267
VIEW 3
HEIDI 1
4030
(4)
HEIDI 2
4031
(4)
YANKEE VIEW 1
4032(4)
YANKEE VIEW 2
4033(4)
ALSO,
2946(2)
GRAND 4
3593(3)
GRAND 3
3594(3)
2888(10)
IRON KING
3821(7)
(5S x 4E)
ALSO,
AVON
3216(7)
NOVA
4027(4)
(3S x 2W)
63396
STACEY 2
14033
(4)
Creek
STACEY
4028(4)
BANG
3002(1)
HERL
4044
Use diagram only
APPROXIMATE ME
Annual chan
CONTOUR IN
Transverse M
82E/6
82E/3
USA
INDEX TO AD
THE NATIONA
Grand Forks
REVISED
CLAIM LOCATION
EAGLE MTN GROUP
PROJ. No. 128
N.T.S. 82E/2
DWG. No. 2
SURVEY BY:
DRAWN BY: DGG
DATE JAN 1987
SCALE 1:50,000
NORANDA EXPLORATION
OFFICE: VANCOUVER
35'
0
500
1500
M

4. Owner - Operator

All of the 39 units comprising the Eagle Mountain claim group are owned by Kettle River Resources Ltd., P.O. Box 130, Greenwood, B.C. Noranda Exploration Company, Limited of 1050 Davie Street, Vancouver, B.C. is the sole operator of the property.

The following is a list of Eagle Mountain claims to which assessment work is being filed.

Claim Name	Owner	Record #	Units	Anniv. Date
Eagle	Kettle River Resources Ltd., P.O. Box 130, Greenwood, B.C.	3343	15	Nov. 26/88
RB 5	" "	3063	16	Apr. 22/88
Alpha	" "	3022	1	Jan. 13/88
Connection	" "	3020	1	Jan. 13/88
Cressant	" "	3026	1	Jan. 13/88
The Layover	" "	3025	1	Jan. 13/89
Homestake-Eagle	" "	3023	1	Jan. 13/88
Myrtle Fr.	" "	3209	1	Sept. 8/90

5. Economic Potential

Due to the presence of gold bearing, massive pyrrhotite-pyrite bodies within Brooklyn aged limestone found on the Sylvester "K" deposit coupled with the fact that similar geology and mineralization exists on the Hardy grid makes the latter a viable target for the same type of deposit.

II. SUMMARY OF WORK DONE

1. Geological Survey

Geological mapping was conducted at a scale of 1:2,500 along 15.25 km of grid line cut in 1985 for a Noranda geophysical survey (Assessment Report on the Hardy Grid/Eagle Mountain Claim Group by L. Bradish, 1986). In all, mapping covered an area of approximately 1.395 square kilometres.

2. Claims Worked

All work during the report period (May 1 - August 15, 1986) was done on the Eagle (3343), RB 5 (3063), Myrtle Fraction (3209), Homestake-Eagle (3023), Alpha (3022), Connection (3020), Cressant (3026) and the Layover (3025) claims of the Eagle Mountain group of claims.

III. DETAILED TECHNICAL DATA

1. Geological Survey

i) Purpose

A total of 20 mandays were spent mapping the Hardy grid at a scale of 1:2,500 over 15.25 km line of grid. This survey was carried out in an attempt to delineate any possible auriferous pyrite-pyrrhotite bearing zones similar to that found on the Sylvester "K" deposit which is hosted within similar Brooklyn aged limestones and skarnified sediments found on Eagle Mountain.

Similar geology combined with previous workings found during reconnaissance traverses on Eagle Mountain led to the undertaking of the geological survey referred to in this report.

ii) Regional Geology

According to the G.S.C. Map 1500-A from Paper 79.29 by H.W. Little most of the Eagle Mountain claim group is underlain by a package of volcano-sedimentary rocks ranging in age from Carboniferous-Permian to Jurassic. This sequence of shallow marine sediments and volcanics has subsequently been intruded by Jurassic aged serpentinites and minor Eocene syenites of the Coryell intrusives.

A major NW-SE trending fault (Eagle Mountain Fault) has cut off the SW corner of the claim group and reveals limestones and greenstones of similar ages (Triassic-Jurassic) to those rocks mapped across the rest of the property.

iii) Detailed Geology

Twenty mandays were spent producing a detailed geological map at a scale of 1:2,500 of the Hardy grid located on the Eagle Mountain claim group. The following is a description and interpretation of the stratigraphy observed. See Drawing #3 for reference.

Beginning in the northwest corner of the grid rocks of the Carboniferous-Permian Knob Hill Group or Attwood Formation were encountered. Originating from a low energy, eugeosynclinal environment these rocks of Unit 1 are described as very fine grained, siliceous, grey, green, tan, brown cherts, cherty siltstones with minor tuffaceous and limestone units. Unit 2 located in the west central portion of the grid, consists of fine grained massive greenstones believed to be of similar age as Unit 1.

An angular unconformity exists between the rocks described above and the medium to coarse grained sharpstone conglomerate of the Lower to Middle Triassic aged Brooklyn Formation (Unit 3). This ridge forming unit runs north to south throughout the entire grid and is comprised of angular to subrounded clasts of chert, limestone and siltstone. Due to the angularity of the clasts and the fact that there is no normal basal conglomerate (H.W. Little, Paper 79-29), the sharpstone must have been deposited on top of the older cherts and siltstones very quickly and from a proximal source.

Conformably overlying the sharpstone unit is a package of silicified, green-grey siltstones, sandstones and minor sharpstone conglomerate which are also intercalated with massive to well-bedded limestone. These 2 rock assemblages have been broken into 2 mappable units (Units 6 & 7 respectively) on Drawing #3 although both can be grouped into the Middle Triassic Brooklyn Formation. These sediments become increasingly more calcareous to the east suggesting a change in the depositional environment from a nearshore to offshore situation.

Unit 8 is comprised of fine grained greenstone interbedded with minor siltstone which becomes progressively more massive and gradually changes to a volcanic agglomerate further eastward. Although mapped regionally by the G.S.C. to be unconformable with the Brooklyn Formation, these volcanics appear conformable in this location. Two points of argument for a conformable contact are listed below:

1. Strikes and dips of both the Brooklyn sediments and the volcanics are the same.

2. Interbedding and interfingering of the 2 units suggest a gradational contact.

This suggest that the volcanics may in fact be of Brooklyn age and not Jurassic as seen on G.S.C. Map 1500-A.

Sometime during the Upper Triassic-Jurassic periods the sedimentary-volcanic package described above was subjected to a phase of folding severe enough to cause overturning of the units. Evidence for this is shown on Drawing #3 where dips of the Triassic sediments show that older rocks overly younger rocks.

Following the folding event a large block of silty limestone and fine to medium grained, white, grey, black, massive to well bedded limestone (Units 4 & 5) was faulted into place by a large NW-SE trending fault which exists on Drawing #3 from L.117N, 210+50E to L.124N, 207+75E. Due to the apparent thickness of this limestone package which lies in the southwest corner of the grid, these rocks are probably Middle to Upper Triassic in age.

A large "intrusive" body of serpentinite (Unit 9) exists in the west central portion of the grid. It is not certain whether this rock type is a true intrusive or a diapiric intrusion as serpentinized ultramafics can become very plastic even at low temperatures (G.S.C. Paper 79-29, 1983). However, because the serpentinite body is seen on both sides of the large fault and that the southern extent of the ultramafic body mimics the fault trace, it is

suggested that the fault acted at least as a partial conduit for the serpentinite and places the age of the "intrusive" within the Jurassic.

Three other types of intrusive rocks were observed on the Hardy grid and are described below.

Unit 10 is a fine to medium grained, locally porphyritic, mottled light to dark grey, white and black monzonite-diorite-gabbro complex. This intrusive occurs at the NW corner of the grid intruding the knob Hill sediments and along the NW-SE trending fault. Since this unit crosscuts the serpentinite it is of younger age.

Unit 11 is also younger than the serpentinite body and is described as a mottled white, green, grey feldspar porphyry of diorite composition. This intrusive is seen mainly in the southeast portion of the grid in the form of dykes which have been emplaced in the Triassic-Jurassic sedimentary-volcanic pile. It is believed that this unit is responsible for most of the mineralization seen on the property.

Rock types of both units 10 and 11 suggest that they are of the Middle Eocene Marron intrusives.

The last intrusive noted on this grid (Unit 12) occurs in only 2 minor outcrops within Triassic sharpstone and Jurassic greenstone. This unit of syenite composition probably belongs to the Eocene Coryell intrusives.

iv) Mineralization

Mineralization discovered on the property consisted primarily of pyrrhotite and pyrite with minor chalcopyrite and even lesser amounts of sphalerite and galena. These sulfides generally occur as small discontinuous pods or lenses which exist as replacements either within small limestone beds or along limestone-siltstone contacts. Most of the mineral occurrences have been exposed by pits or trenches in the past and occur for the most part within units 6 and 7.

Associated with the majority of these small replacement deposits are the feldspar porphyry dykes of dioritic composition.

Minor amounts of copper staining is also observed in fissures within the sharpstone conglomerate whereas pits and adits explored within the serpentinite revealed massive pyrrhotite.

IV. CONCLUSIONS AND RECOMMENDATIONS

Several conclusions can be drawn from this geological survey in regards to the geology and mineralization on the Hardy grid.

1. The absence of an unconformity between the easternmost volcanics and the Brooklyn sediments suggests that these volcanics are Triassic and not Jurassic in age as mapped by the G.S.C.

2. Mineralization in the Triassic limestones and sediments occur as small discontinuous pods of pyrrhotite, pyrite and minor chalcopyrite. Often associated with these sulfide bodies are feldspar porphyry dykes which are probably the source of the sulfide mineralization.

3. Mineralization within the sharpstone conglomerate occurs as pyrite, chalcopyrite, malachite and azurite in fissures. Massive pyrrhotite was observed in pits within the serpentinite.

4. All showings are very small and far apart suggesting that the possibility of a large massive sulfide deposit existing in this area is quite small.

5. Soil and rock geochem should be done to delineate any unexposed mineralized zones and to evaluate the gold content of the existing sulfide bodies.

REFERENCES

Little, H.W., (1983) G.S.C. Paper 79-29 Geology of the Greenwood Map Area British Columbia.

Keating, J., (1984) Assessment Report for Sylvester "K" Grid of the Greenwood Claim Group.

Bradish, L., (1986) Assessment Report on the Hardy Grid/Eagle Mountain Claim Group, Greenwood Mining Division.

Dodds, A.R., (1970) Prendergast, J.B. A Geophysical Report on the Induced Polarization Survey Wet, Eagle and Hope Claim Groups for the Granby Mining Company, Limited.

Zurowski, M., (1969) Report on the Exploration Programme Performed on the Alpha-Eagle Homestake-Myrtle Claims for International Mogul Mines Ltd. by M.E.M. Consultants Ltd.

APPENDIX I

STATEMENT OF COSTS

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COSTS

PROJECT: Eagle Mtn. Group DATE: January, 1987

TYPE OF REPORT: Geological

a) Wages:

No. of Days 20

Rate per Day $ 120.53

Dates From: May 1 - Aug. 15, 1986

Total Wages 20 x $ 120.53 $2,410.60

b) Food & Accomodations:

No. of Days 20

Rate per Day $ 48.00

Dates From: May 1 - Aug. 15, 1986

Total Costs 20 x $ 48.00 $ 960.00

c) Transportation:

No. of Days 12

Rate per Day $ 63.30

Dates From: May 1 - Aug. 15, 1986

Total Costs 12 x $ 63.30 $ 759.60

d) Instrument Rental:

Type of Instrument

No. of Days

Rate per Day $

Dates From:

Total Costs x $

Type of Instrument

No. of Days

Rate per Day $

Dates From:

Total Costs x $

e) Analysis:
(See attached schedule)

f) Cost of preparation of Report

Author:	$ 482.12
Drafting:	$ 327.30
Typing:	$ 218.18

g) Other:

Contractor

Total Cost	$5,157.80

h) Unit costs for Geology

No. of Days	20	
No. of Units	20 mandays	
Unit costs	257.89 / day	
Total Cost	20 x 257.89	$5,157.80

GRAND TOTAL	$5,157.80

APPENDIX II

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

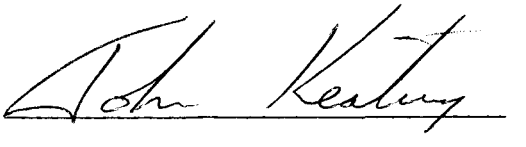
I, John G. Keating of the City of Vancouver, Province of British Columbia, do hereby certify that:

- I am a resident of British Columbia, residing at 335 East 47th Avenue, Vancouver, B.C.

- I am a graduate of Concordia University, Montreal, with a Bachelor of Science Degree in Geology.

- I am a member in good standing with the Canadian Institute of Mining and Metallurgy.

- I have been a temporary employee with Noranda Exploration Company, Limited (No Personal Liability) since May, 1979 and a permanent employee since March, 1983.



John G. Keating
Project Geologist

Noranda Exploration Company, Limited
(No Personal Liability)

207+00E. 208+00E. 209+00E. 210+00E. 211+00E. 212+00E. 213+00E. 214+00E. 215+00E. 216+00E. 217+00E. 218+00E. 219+00E. 220+00E.

L.129+00N. L.128+00N. L.127+00N. L.126+00N. L.125+00N. L.124+00N. L.123+00N. L.122+00N. L.121+00N. L.120+00N. L.119+00N. L.118+00N. L.117+00N.

ANGULAR UNCONFORMITY

O.B.

LOCATION MAP

Metres 1000 0 1000 Metres

1:50,000

LEGEND

INTRUSIVES

12 Syenite

11 Mottled, white-green-grey feldspar porphyry of diorite composition. Feldspar phenocrysts to 5mm long.

10 Fine-medium grained, locally porphyritic, light to dark grey-white-black mottled monzonite-diorite-gabbro dyke complex. Slightly magnetic.

9 Light-dark green-brown weathered, light-dark green fresh surfaced serpentinite. Chrysotile fracture fillings noted. May not be intrusive as field relations do not indicate positively as such.

BROOKLYN Fm. (Triassic)

8 Fine grained, massive greenstones and agglomerates.

7 Massive to well bedded limestone. White-grey-brown weathered surface. White-grey fresh surface. Locally cherty + may become laterally silty.

6 Silicified, fine grained, green-grey siltstones, sandstones + minor green-white mottled sharpstone conglomerate.

5 Fine to medium grained, white-grey black, massive to moderately well bedded + foliated limestone.

4 Fine grained, massive beds of grey-light green silty limestone.

3 Medium to coarse grained, locally calcareous, green-white mottled sharpstone conglomerate with chert, limestone + siltstone clasts.

KNOB HILL Group (Carboniferous-Permian)

2 Fine grained, massive greenstones. Locally well foliated with abundant calcite + quartz sweats. May be somewhat serpentinized in part.

1 Very fine grained, siliceous, micro-fractured in part, grey-green-cream-brown cherty siltstones, cherts + minor tuffs + limestone locally pyritic.

SYMBOLS

- Geological Contact
- Unit Boundary
- Bedding
- Schistosity
- Fault
- Old Workings
- Gulley (downhill →)
- Talus Slopes or Bluffs
- Swamp
- Forest Boundary (open / Forested)
- Contact Strike + Dip
- O.B. Overburden
- Road
- Trail
- Sulfide Zone

GEOLOGICAL BRANCH ASSESSMENT REPORT

15,641

SCALE 1:2500

Metres 50 0 50 100 150 200 250 Metres

REVISED	GREENWOOD J.V.
	HARDY GRID
	GEOLOGY
PROJ. No. 1:15	SURVEY BY: J. Keating DATE: Feb./87
N.T.S. 82E/1&2	DRAWN BY: [illegible] SCALE: 1:2500
DWG. No. 3	NORANDA EXPLORATION
	OFFICE Vancouver