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NORANDA EXPLORATION COMPANY, LIMITED
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REPORT OF 1986 DIAMOND DRILLING PROGRAM
AND TAILINGS SAMPLING PROGRAM
FOR
NORMAN RESOURCES LTD

GRAND BAY OPTION - CASUMMIT LAKE PROPERTY

N.T.S. 52N/8

RED LAKE DISTRICT
NORTHWESTERN ONTARIO DIVISION

PROJECT 1307
THUNDER BAY, ONTARIO
NOVEMBER 10, 1986

IAN PERRY
PROJECT GEOLOGIST



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1.0 SUMMARY

The 1986 drill program carried out on the Grand Bay property consisted of 12 diamond drill holes totaling 3897 feet. The program was designed to test five of the known quartz veins, the major iron formation and the Southeast Porphyry Showing for gold mineralization.

Gold values ranged up to 1.58 opt with the best results coming from samples of quartz vein material within which specks of visible gold were noted.

No evidence of sulphidization or gold mineralization was noted within the iron formation, nor were any zones of economic mineralization encountered in the Southeast Porphyry holes.

Drilling of the known veins returned erratic gold values over generally narrow widths. No evidence of high grade ore shoots within the veins adjacent to the iron formations was found.

Based on these results, no further diamond drilling is warranted at this time, however, the tailings sampling program and some additional detailed mapping should proceed as planned.

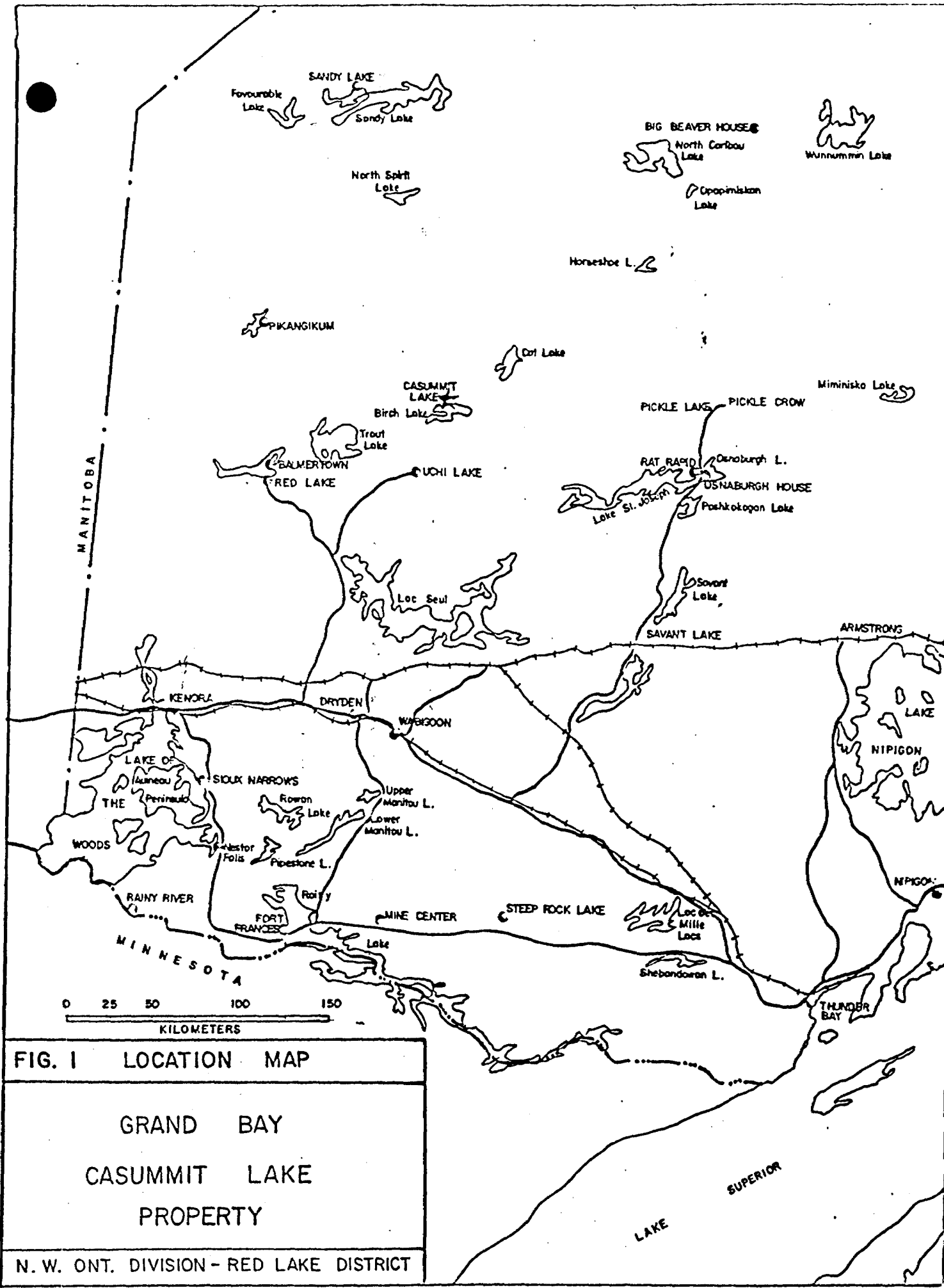
2.0 INTRODUCTION

Between January 25 and February 21, 1986, a 12-hole, 3897-foot diamond drilling program was carried out on the Grand Bay, Casummit Lake property. The work was performed by N. Morissette Diamond Drilling Limited using a Boyles 25-A diamond drill and NQ sized coring equipment. Moves between holes were facilitated by the use of a small bulldozer. A DC-3 aircraft, chartered from Austin Airways in Pickle Lake, was used for transporting all equipment between the Red Lake airport and the property.

A winter drill camp was set up just west of the old mine site on the north shore of Casummit Lake between lines 5800E and 5900E. All of the core, except for selected intersections, is stored on the old road directly behind the camp site.

The overall cost of the program, excluding administration and overhead, was \$155,600 or \$39.92/foot drilled.

This report deals only with the 1986 diamond drilling program. For information on previous work, claim status, geology, etc., please refer to the Report of Work dated November 19, 1985.



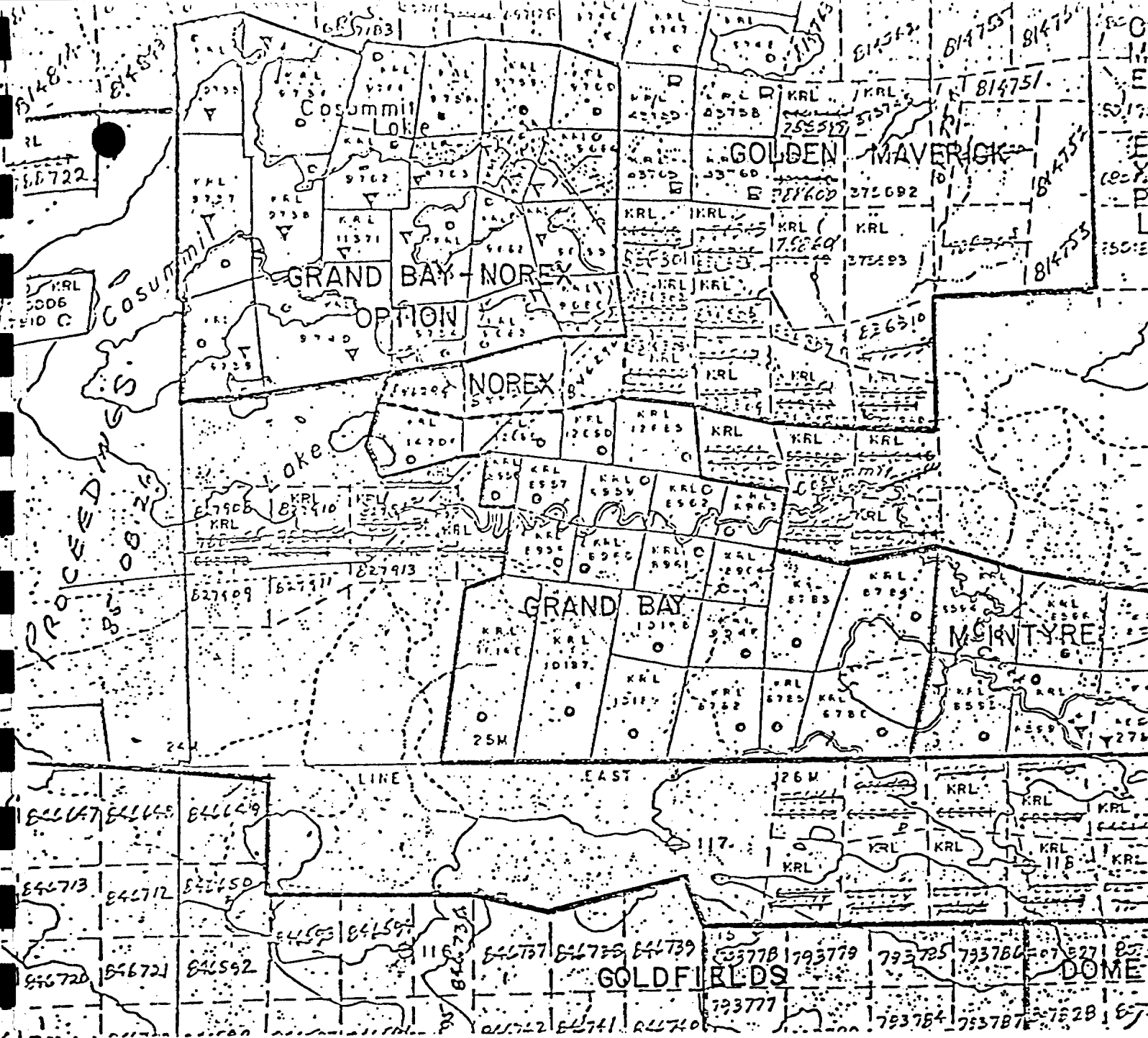
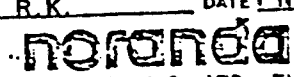


FIGURE 2

REVISED	<h1>CLAIM MAP</h1>
PROJ.No.: I307	PROJECT: GRAND BAY OPTION
N.T.S.: 52 N/B	DRAWN BY: R.K. DATE: NOV 1985
SCALE: 1" = 1/2 mile	 NORANDA EXPLORATION Co. LTD. - THUNDER BAY

3.0 OBJECTIVES

The Grand Bay property was re-optioned in 1985 to test several possibilities that came to light during the extensive exploration programs carried out between 1981 and 1983 both on the Grand Bay property and on a more regional scale in the Mink-Richardson-Casummit Lakes area as a whole.

First among these possibilities was the fact that the major iron formation which caps the sedimentary sequence on the property had never been tested on a systematic basis for gold mineralization. The spatial relationship between the iron formation and the ore zones within the cross-cutting veins (most ore was mined within 1000' of the iron formation) may indicate that gold within the veins was remobilized from the iron formation by high temperature solutions, possibly generated by the quartz-feldspar-porphyry intrusions. If that is the case, the iron formation itself has some potential for carrying ore grade mineralization, particularly in areas of structural deformation.

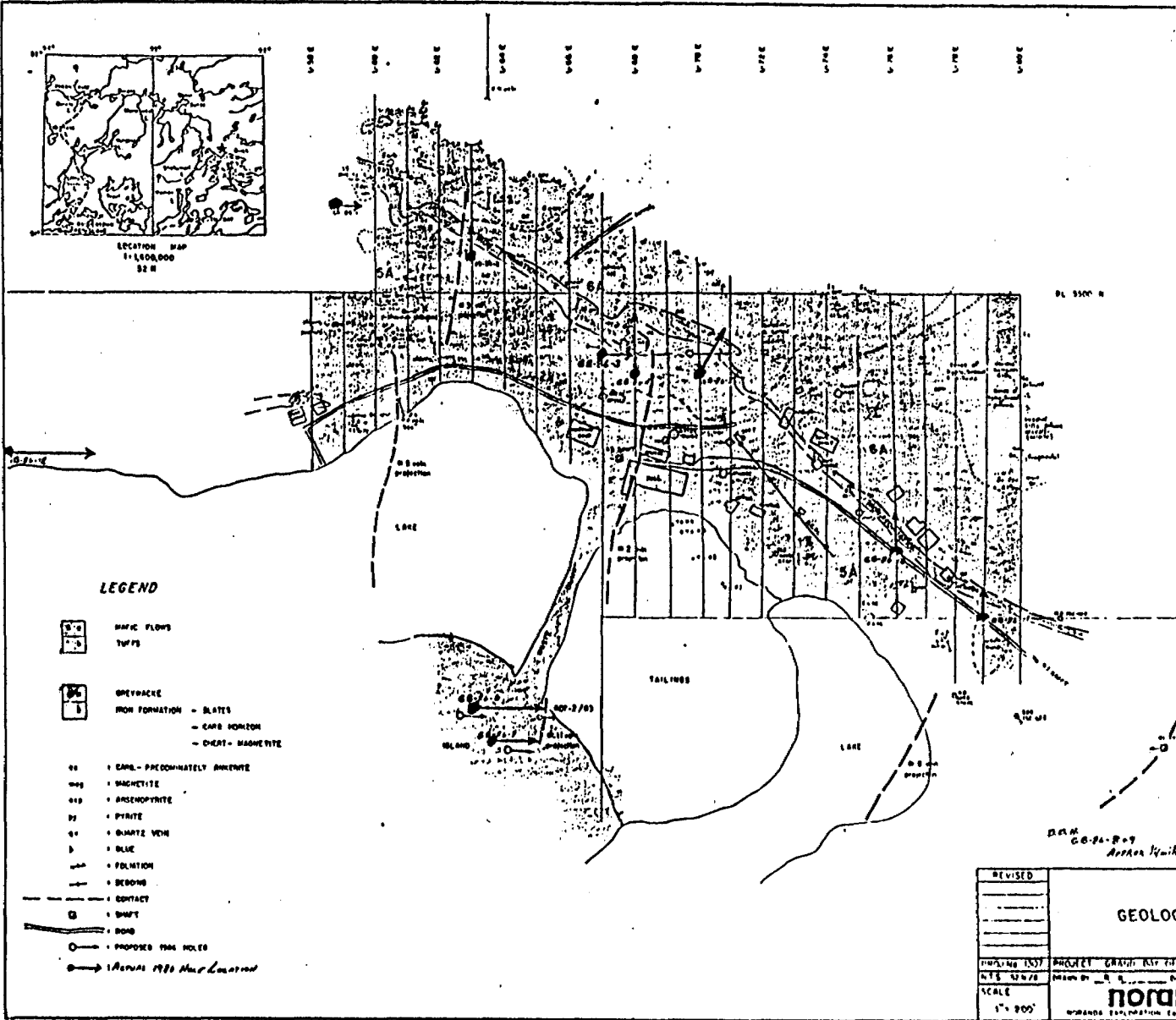
A total of five diamond drill holes, numbered GB-86-2, 4, 5, 10 and 11, were put down to test this iron formation over a strike length of approximately 1600 feet.

A second area considered to have some potential for ore grade mineralization and not previously tested by diamond drilling is situated in the southeast corner of the property and is called the Southeast Porphyry Showing. The showing consists of a quartz-carbonate stringer system which yielded values on surface of up to .46 opt over 5.0 feet. This system occurs within strongly carbonatized mafic to intermediate volcanic rocks, approximately 60 feet south of a small quartz-feldspar porphyry body. Two holes, numbered GB-86-8 and 9, were drilled to test this stringer system.

The third possibility was to test the intersections of Veins No. 2 and No. 3 with the iron formation. Evidence from the 1982 drill program suggested an increase in both grade and width in the No. 3 Vein in close proximity to the iron formation. Holes GB-86-1 and 3 were drilled to test the No. 3 and No. 2 Veins, respectively, for higher grade ore shoots close to or within the iron formation.

The fourth objective of the program was to test the grade and continuity of the No. 11 Vein which was first discovered in hole 1607-2-83. Holes GB-86-6 and GB-86-7 tested the vein along strike and down dip.

The final objective was to test for the southern extensions of the No. 6 and No. 7 Veins from the basalts in which they are found in outcrop into the metasediments which seem more susceptible to fracturing and from which all ore (except the "P" Vein) has been mined to date. Hole GB-86-12 was set up to test for these veins.



4.0 RESULTS

Summary logs for each hole are presented below along with the significant assays, objective of the hole and comments on the results

Hole GB-86-1 5880E,5760N, Azimuth 090°, Dip 60°

Purpose: To test for high grade shoots in the No.3 Vein down dip from hole 82-5-3 which intersected 2.7 meters grading 0.56 opt Au.

0.0- 12.0'	Casing
3.4-229.0'	Greywacke
229.0-274.0'	Mudstone and Shales
274.0-378.5'	Greywacke
378.5-437.0'	Iron Formation
437.0'	End of Hole

Mineralization and Alteration:

10.25-12.0'	- 25% arsenopyrite, lcm quartz stringer 50° to core axis, pale green alteration of the sediments
166.0-181.5'	- siliceous zone with trace arsenopyrite, 1/2" quartz stringer at 175.8', 176.3', 176.5' and 181.5'

Significant Assays:

10.25- 12.75	- 0.22 opt Au
350.5 -352.5	- 0.04 opt Au

Comments: No real quartz vein was intersected in this hole. A zone of strong silicification intersected between 294.0 and 301.0' occurs at the projected intersection point, however, this zone was not mineralized

Hole GB-86-2 6300E,5600N, Azimuth 090°, Dip 60°

Purpose: To test the iron formation for gold mineralization in close proximity to the No.3 Vein/iron formation intersection.

0.0- 40.0'	Casing
40.0-147.5'	Greywacke
147.5-167.0'	Shale
167.0-196.5'	Greywacke
196.5-212.3'	Basalt
212.3-223.0'	Greywacke
223.0-293.0'	Iron Formation
293.0-307.0'	Basalt
307.0'	End of Hole

Mineralization:

- 69.25- 77.0' - grey quartz stringers and flooding, greenish alteration, traces of arsenopyrite
84.5 -100.0' - grey quartz stringers, 1.25 foot quartz vein (No.3 Vein?), light green alteration, up to 3% arsenopyrite

Significant Assays:

- 91.0 - 94.0' - 0.04 opt Au
94.0 -95.25' - 0.18 opt Au

Comments: No evidence of sulphidization of the iron formation was encountered in this hole.

Hole GB-86-3 6700E,5300N, Azimuth- 090°, Dip 60°

Purpose: To test for possible increases of width and grade in Vein #2 in close proximity to the iron formation.

- 0 - 12.0' Casing
7.0-288.0 Greywacke
109.4-110.0 - Quartz vein with 3% Asp
- Assays 0.15 opt Au
252.75-253.3 - Quartz vein with visible gold
- Assays 0.44 opt Au
288.0-296.4 Basalt
296.4-307.0 Greywacke
307.0 End of Hole

Comments: The lower quartz vein (252.75-253.3) is very likely the No.2 Vein but it has not improved in grade or width at this location near the iron formation. The upper vein, which assayed 0.15 opt/.60 feet, appears to be a new vein not mentioned in any of the previous work.

Hole GB-86-4 6800E,5250N, Azimuth 360°, Dip -49°N

Purpose: To test for sulphide-gold mineralization within the iron formation.

- 0 - 22.0' Casing
16.0-335.0 Greywacke
74.0-81.0 - quartz-arsenopyrite stringers
81.0-85.5 - quartz vein (No.3?)
335.0-353.2 Shale
353.2-368.0 Greywacke
368.0-427.0 Banded Iron Formation
427.0 End of Hole

Mineralization:

77.0-79.0' 2' @ 0.10 opt Au
79.0-81.0 2' @ 0.12 opt Au
81.0-83.0 2' @ 0.10 opt Au
83.0-85.6 2.6' @ 0.17 opt Au
Weighted average: 77.0-85.6' 8.6' @ .126 opt Au

Comments: The vein intersected in this hole appears to be the upper vein cut in Hole GB-86-3, however in GB-86-4 it has been intersected subparallel to the strike of the vein. True width of this vein is probably less than 1.0 feet. No evidence of sulphidization or brecciation of the iron formation was encountered in this hole.

Hole GB-86-5 7000E,5250N, Azimuth 030°, Dip -49°

Purpose: To test the iron formation for sulphide-gold mineralization.

0 - 32.0' Casing
31.0- 69.0 Dark Greywacke
69.0-148.5 Greywacke
148.5-174.0 Banded Iron Formation
174.0-213.5 Greywacke
213.5-307.0 Basalt
307.0 End of Hole

Mineralization: no significant mineralization

Comments: The only sulphide mineralization noted in the iron formation was sparse cubic pyrite. No alteration of magnetite to pyrite was evident.

Hole GB-86-6 6305E,4227N, Azimuth 090°, Dip -60°

Purpose: To test the No.11 vein beneath the level of Hole 607-83-2 which encountered 1.7 meters of 0.16 opt Au.

0 -102.0' Casing
100.0-176.0 Black Shale
176.0-192.0 Greywacke
186.6-187.8 - quartz vein with visible gold
187.8-189.2 - green alteration
192.0-231.0 Black Shale
231.0-283.0 Greywacke
283.0-337.0 Black Shale
337.0 End of Hole

Mineralization:

186.6-187.8' 1.2' @ 1.19 opt Au
187.8-189.2 1.4' @ 0.14 opt Au

Comments: This hole was successful in reaching the No.11 Vein. It dips at a shallower angle than anticipated and carries minor visible gold.

Hole GB-86-7 6355E,4127N, Azimuth 090°, Dip -60°

Purpose: To test the No.11 vein 100 feet south of Hole GB-86-6.

0 - 82.0' Casing
82.0-246.0 Greywacke
246.0 End of Hole

Mineralization:

179.5-181.1' Quartz vein with up to 1% Asp - No significant assays

Comments: This hole also intersected the No.11 Vein with associated arsenopyrite and green wallrock alteration, however assays returned only trace gold values.

Hole GB-86-8 8324E,2510N, Azimuth 140°, Dip -49°

Purpose: To test the Southeast Porphyry gold showing which assayed up to 0.45 opt Au in quartz-carbonate stringers at surface.

0 - 12.0' Casing
4.0- 23.2 Basalt
23.2- 76.2 Intermediate Volcanic Rocks
76.2-107.0 Quartz-Feldspar Porphyry
107.0-242.0 Intermediate Volcanic Rocks
242.0 End of Hole

Mineralization: Minor barren quartz stringers and abundant carbonatization.

Comments: No appreciable quartz veins or vein systems were intersected in this hole. The entire section contains trace to 10% carbonate and minor cubic pyrite.

Hole GB-86-9 8240E,2410N, Azimuth 135°, Dip -49°

Purpose: To test the Southeast Porphyry gold showing which assayed up to 0.45 opt Au in quartz-carbonate stringers at surface.

0 - 22.0' Casing
22.0-247.0 Intermediate Volcanics
247.0 End of Hole

Mineralization: Several quartz stringers with minor Asp.
163.25-166.5' 3.25' @ 0.12 opt Au

Comments: The volcanic rocks contain up to 15% carbonate and are weakly sheared. Numerous quartz veins up to 1/4" wide were found throughout the hole as well as minor disseminated cubic pyrite.

Hole GB-86-10 7600E,4750N, Azimuth 360°, Dip -49°

Purpose: To test for sulphide-gold mineralization in a non-magnetic section of iron formation.

0 - 12.0'	Casing
12.0- 91.5	Shale and Greywacke
91.5-115.8	Cherty Mudstone
115.8-145.0	Altered (?) Iron Formation - 60% chert and quartz, 40% pale green sericite and/or clay minerals(?)
145.0-175.5	Alternating Shale and Iron Formation
175.5-218.0	Shale
218.0-247.0	Basalt
247.0	End of Hole

Mineralization: None

Comments: The lack of magnetite in this portion of the iron formation seems to be caused by a facies change rather than sulphidization. Only a trace amount of cubic pyrite was encountered.

Hole GB-86-11 7900E,4500N, Azimuth 360°, Dip -49°

Purpose: To test for sulphide-gold mineralization in a non-magnetic section of iron formation.

0 - 22.0'	Casing
17.0- 69.1	Shale
69.1- 79.0	Greywacke
79.0-103.0	Muddy Iron Formation
103.0-125.0	Greywacke
125.0-175.4	Altered (?) Iron Formation - 60% chert and quartz, 40% pale green sericite and/or clay minerals(?)
175.4-182.0	Grey Quartz Diorite Sill?
182.0-195.0	Shale
195.0-227.0	Altered Iron Formation
227.0-247.0	Basalt
247.0	End of Hole

Mineralization:

110.5-130.0 Series of grey quartz veins, greenish alteration and 1-25% Asp. This appears to be the No.8 vein intersected sub-parallel to strike. Angles on veins are distinct at 32-50° to c.a., but cutting across the angle of foliation:

Veins at 113.2 -113.25
 113.5 -115.25
 117.6 -118.1
 122.0 -122.1
 123.6 -123.65
 126.7 -126.7

Speck of v.g. at 129.25-129.26

Significant Assays:

110.5 -112.5'	2.0'	Trace
112.5 -113.5	1.0	0.18
113.5 -115.25	1.75'	0.04
115.25-116.0	0.75'	0.28
116.0 -117.6	1.6'	0.15
117.6 -118.1	0.5'	0.14
118.1 -119.0	0.9'	0.08
119.0 -121.5	2.5'	0.07
121.5 -122.5	1.0'	0.12
122.5 -126.5	4.0'	0.14
126.5 -127.5	1.0'	0.42
127.5 -129.0	1.5'	0.07
129.0 -130.0	1.0'	0.24
130.0 -131.0	1.0'	0.04
131.0 -132.5	1.5'	Trace
Average: 18.4" @ 0.134 opt Au		

Note: True width would be much narrower than 18.4' as the vein was intersected subparallel to the strike.

Comments: The lack of magnetite in this portion of the iron formation seems to be caused by a facies change rather than sulfidization. Only a trace amount of cubic pyrite was encountered.

GB-86-122 4800E, 5000N, Azimuth 090°, Dip -75°

Purpose: To test for the southern extension of the No. 6 and No. 7 veins which have been found only in outcrop to date. Extending this hole to 3600' should intersect traces of all the veins known on the property.

0 - 8.0" Casing
 8.0-547.0 Greywacke
 547.0 End of Hole

Generalization:

452.0-452.4' 5" quartz vein assayed 0.04 opt Au

Comment: The narrow quartz vein intersected at 452.0' is probably No. 6 Vein. No evidence of the No. 7 vein was encountered.

mapping and sampling should be carried out in the following areas:

a) The silicified basalts in the northeastern portion of the property.

b) The intermediate tuffs across the bay from the mine site and along strike to the south from the veins.

Only very minor previous work was carried out in these areas and the potential for additional veins is untested. These two areas should be mapped in detail and any zones of interest hydraulically stripped and channel sampled.

Respectfully submitted

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)



Ian Perry
Project Geologist-Red Lake District
Northwestern Ontario Division

Thunder Bay, Ontario
April 8, 1986

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

DIAMOND DRILL RECORD

Property GRAND BAY OPTION - NORMAN J.V. - 1307 Grid Ref. 6305E/4227N
 Hole No. GB-86-6 Azimuth 090° Surveys _____
 Length 337.0 feet Inclination -60° 337' 54° _____
 Casing 102.0 feet Elevation _____
 Core Size NQ
 Drilled By N.MORISSETTE D.D. Started Feb. 6/86 Finished Feb. 8/86
 Logged By I. Perry Date Logged Feb. 8/86

From	To	Description
0.0	102.0	Casing
100.0	176.0	Black Shale - black, fine grained and strongly foliated parallel to c.a. - numerous hairline sweats? of silica and minor calcite occur throughout the top portion of the unit - occasional small <1/10" cube of Py along fractures - towards bottom of unit foliation becomes more pronounced at 19° to c.a. at 170.0' - core very blocky throughout, fracturing at very low angles to core axis
176.0	192.0	Greywacke - typical greyish-green, fine grained with little or no foliation - upper contact is sharp at 35° to c.a. - a few rock fragments (<1/16" diameter) and small quartz clasts (<1/20" diameter) are visible 186.6-187.8 - grey quartz vein with numerous specks V.G., lower contact at 65° to c.a., only minor Asp in quartz vein and very minor green alteration - hanging wall unaltered except for 1.0" of greenish alteration 187.8-189.2 - much greenish alteration and grey quartz stringers, 2-3% Asp - V.G. in stringers at 42-75° to c.a. 189.2-191.5 - 1% Py in silicified greywacke and traces Asp
192.0	231.0	Shale - same as 100-176.0 - calcite-silica sweats more abundant, foliated at 24° to c.a.
231.0	283.0	Greywacke - typical greyish-green, poorly foliated to massive rock - occasional carbonate stringers and small shaley bands - trace cubic pyrite throughout

From	To	Description
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283.0	337.0	Black Shale - same as 192.0-231.0 - some narrow patches of greywacke but mainly a homogeneous black shale with stringers of calcite and chlorite - foliation at 16° to c.a.
	337.0	END OF HOLE Core stored at Casummit Lake

7. ADDENDUM: TAILINGS SAMPLING PROGRAM

7.1 Introduction

In August 1986 a sampling program was carried out on the Grand Bay tailings pile to determine the average gold values. A total of 169 samples were collected from 41 holes spaced at 100' centers (Figure 4) across the surface of the tailings. Samples were collected at 3' depth intervals in each hole. Results are presented in Appendix II.

7.2 Method of Sample Collection

Tailings samples were collected with the assistance of a small, portable, tractor-mounted drill which powered a 3" diameter continuous auger. This auger is assembled in 3' lengths and may be lengthened as necessary.

The method of sampling at each hole is described below:

a) The hole is augered to a depth of 3.0' and the auger continues turning for several minutes at this depth to ensure that material from the deepest part is brought to the surface.

b) A pie-shaped wedge is collected from the mound of cuttings built up around the auger and deposited in a plastic bag marked with the hole number and the depth of the auger bit, i.e. 2-3 indicating sample site #2 and a 3.0' sample depth.

c) Another 3.0' section of auger is added on top of the first and drilled down to 6.0'. This process is repeated until no more tailings are brought up by the auger.

This sampling method seemed to work quite well in the drier sections of the tailings pile. However, since most of the tailings are at or below the level of Casummit Lake, samples taken from below 3.0' tend to be very "soupy" and analyses from these samples are probably more representative of the entire depth of the hole rather than just that particular interval.

7.3 Conclusions

The results of Au analyses on the tailings samples show a range of from 31 to 1720 ppb with an average of 374 ppb. The best values were obtained from holes 7, 8 and 9 which are the closest to the mill and probably the oldest material on the tailings pile.

The average figure of 374 ppb indicates a total of not more than 2800 ounces remaining in the entire 300,000 tons of the tailings, the vast majority of which lie beneath Casummit Lake.

The grade of the tailings pile is apparently too low to

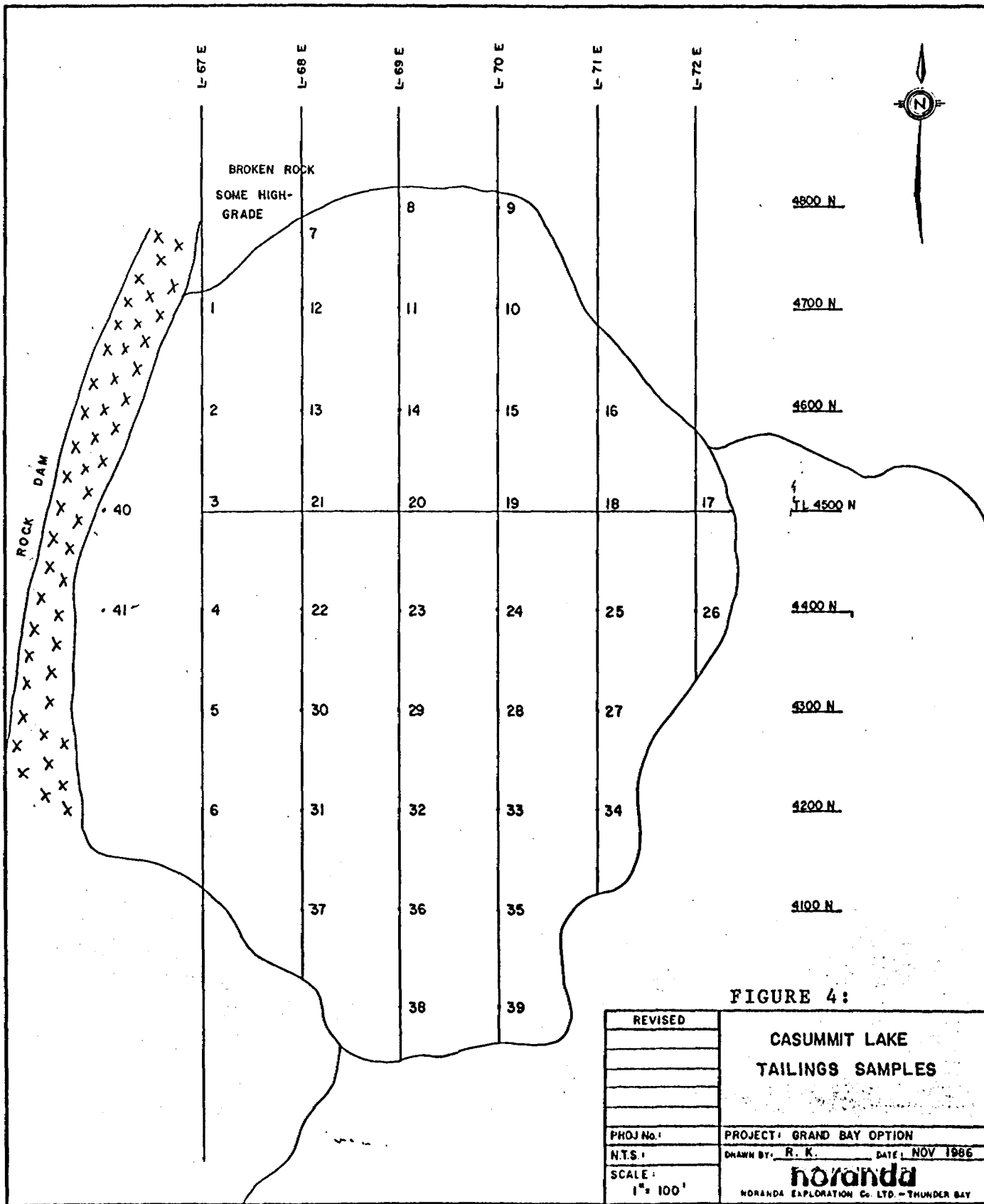


FIGURE 4:

was not a recovery program and no further work is recommended.

Respectfully submitted

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)



Thunder Bay, Ontario
November 10, 1986

Ian Perry
Project Geologist-Red Lake District
Northwestern Ontario Division

A P P E N D I X I

DIAMOND DRILL LOGS GB-86-1 TO GB-86-12

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

DIAMOND DRILL RECORD

Property GRAND BAY OPTION - NORMAN J.V. - 1307 Grid Ref. 5880E/5760N
 Hole No. GB-86-1 Azimuth 090° Surveys _____
 Length 437.0 feet Inclination 60° 437' 44° _____
 Casing 12.0 feet Elevation _____
 Core Size NQ _____
 Drilled By N.MORISSETTE D.D. Started Jan.25/86 Finished Jan.27/86
 Logged By I. Perry Date Logged Jan.25-27/86

From	To	Description
0.0	12.0	Casing
3.4	229.0	Greywacke - greenish grey, medium to coarse grained - fragments of mafic volcanics up to 1/2" diameter clearly visible, as well as quartz and feldspar grains 1/10" in diameter. - section is quite fractured with fractures sealed by silica 3.4- 35.3 - entire section seems flooded with SiO ₂ , numerous specks of Py and occasional specks of Asp - stringers of olive green epidote/sericite are common 3.4- 15.0 - numerous rusty seams approximately 55° to c.a. - silicified sediments, trace Py + Asp 11.0- 12.0 - 25% Asp, 1/2" quartz stringer at 50° to c.a., pale green alteration 35.3- 45.0 - rock becomes somewhat more homogeneous and silicification fades - grains of quartz and feldspar still noticeable but mafic volcanic fragments now <1/4" in diameter 45.0-129.5 - silicified patchy sediments with patches of greenish sediments in more siliceous grey rock, patchy appearance caused by sealed fractures running at all angles to the c.a. - small cubes Py common throughout, several patches Asp - 1% Py 4" either side of narrow .2" stringer at 52° to c.a. 55.5 - 2" grey quartz vein at 80° to c.a., 1% disseminated Asp in wallrock 56.0 - 1" quartz vein at 80° to c.a., 1% disseminated Asp in wallrock

From	To	Description
		63.0 - 1.2" quartz vein, 2% Asp, green alteration, minor Py
		89.9 - .3" quartz veinlet, <1% Asp, minor Py, weak carbonatization on some fractures
		90.7 - 4" wide siliceous zone, <1% Asp, minor Py, weak carbonatization on some fractures
		96.5 - siliceous zone, 1% Asp over 5"
		96.5-131.0 - patchy texture continues, greenish patches appear to be sericite and epidote?, Py also continues but is sparse
		- overall, there appears to be a large SiO ₂ influx in this top section with no distinct bedding, either along or across c.a.
		- several zones show some alignment around 50° to c.a. but not consistently
		- silicified alteration ends at 129.5 - fairly sharp contact 15 20° to c.a.
		129.5-229.0 - rock is not patchy looking but fairly homogeneous greywacke
		- small fragments of quartz and feldspar visible throughout, as well as occasional larger fragments of white siliceous rock up to 1/4" in diameter
		131.5-132.5 - silicified zone, typical green sericite-epidote wisps within SiO ₂ flooded zone
		134.0-135.0 - as 131.5-132.5
		146.0-147.5 - as 131.5-132.5
		166.0-166.7 - siliceous zone with trace Asp
		175.8, 176.3 and 176.5 - 1/2" grey quartz veins cutting at 53° to c.a., trace-.5% Asp, also greenish alteration
		177.6 - 1/4" quartz stringer with 2" green alteration above and below, 3% Asp
		181.5 - 1/4" quartz stringer at 64° to c.a., trace Asp throughout section
		197.0-229.0 - several bleached out looking sections caused by SiO ₂ influx, small quartz grains or porphyries are still visible within these zones
		- trace to .5% Py throughout
		201.25 - 9" bleached zone, green sericite and quartz, tr. Py
		202.0-203.0 - 1.0' bleached zone
		204.1 - 1.0' bleached zone, additional speck Py
		213.0-217.0 - bleached SiO ₂ flooded, additional speck Py
229.0	274.0	Fine-Grained Mudstones, Shales
		- typically dark greenish grey-black with occasional pale grey-green band
		- upper contact is broken and at low angle to c.a.
		- entire section shows contorted banding or foliation, chlorite developed along bands-slippage? on micro scale
		241.0 - shaley section, well foliated at 32° to c.a.
		232.8-234.0 - narrow chert-magnetite horizon, bedding 1/10", 25° to c.a.

From	To	Description
		237.0-238.3 - narrow fine-grained siliceous mudstone, pink to pale green, foliated and weakly bedded, <1% disseminated Py
		258.0-266.0 - greywacke, medium grained, quartz grains visible
		270.0 - shaley section, well foliated at 30° to c.a.
274.0	378.5	Greywacke - similar to 3.5-229.0, except somewhat finer grained and lacking coarse fragments - foliated at low angle to core axis
		275.1-277.5 - iron formation, alternating bands of dark chert and magnetite, only traces of Py
		294.0-301.0 - much silicification, looks like quartz vein except for narrow (.5') zones of typical sediment and green sericite wisps within quartz, traces cubic Py, no Asp
		301.0-378.5 - short shaley sections become abundant below 300', these frequently have contorted foliations with abundant pale green patches and stringers of sericite and epidote - only traces of Py, no Asp
		306.0-330.0
		306.5 - .75" wide quartz vein at 62° to c.a.
		307.0 - .50" wide quartz vein at 53° to c.a.
		310.0 - .50" wide quartz vein at 53° to c.a.
		313.0 - .50" wide quartz vein at 54° to c.a.
		314.0 - .25" wide quartz vein at 45° to c.a.
		314.14-318.14 - large crack sealed with quartz and minor carbonate
		323.9 - .30" wide quartz vein at 55° to c.a.
		343.5 - three .3" wide quartz stringers, trace Asp
		344.9 - .25" wide quartz stringer at 68° to c.a.
		347.6 - .25" wide quartz stringer
		348.0 - .75" wide quartz stringer at 70° to c.a.
		348.5 - 2.0" wide quartz stringer at 70° to c.a.
		348.8 - 1.0" wide quartz stringer at 70° to c.a.
		350.6 - .4" wide quartz stringer at 70° to c.a.
		351.15 - .25" wide quartz stringer
		351.4 - .5" wide quartz stringer
		351.6 - .5" wide quartz stringer at 70° to c.a.
		352.0 - .5" wide quartz stringer at 76° to c.a.
		354.0-361.5 - minor basalt unit, dark green, shows much less distortion and stringers than sediments
		356.0 - .5 wide quartz stringer at 70° to c.a.
		361.5-376.5 - greywacke
		376.5-378.5 - basalt
378.5	437.0	Chert-Magnetite Banded Iron Formation - mottled purple grey and green, shows strong foliation at 15° to c.a. - banding is not distinct, has more stringy texture than actual banding

From	To	Description
------	----	-------------

- composed mainly of grey-pale green chert with discrete grains of magnetite (20%)
 - very little sulphide development except along fracture faces
 - no carbonate
 - frequent rubbly looking sections healed by darker mudstone, possibly "slump" features
- 397.0-398.5 - Py along fractures
405.0 - minor reddish hematite over 6"

437.0 END OF HOLE

Core recovery >99%, full 10' every run, core not blocky
Core stored at Casummit Lake , L58E/51+00N

N O R A N D A E X P L O R A T I O N C O M P A N Y , L I M I T E D
(n o p e r s o n a l l i a b i l i t y)

S A M P L E R E C O R D S H E E T

PROPERTY:

GRAND BAY - 1307

HOLE NO: GB-86-1

PAGE 1 of 1

SAMPLE NUMBER	DESCRIPTION	FROM	TO	LENGTH	AU (opt)	ASSAYS	
						AU (opt)	AU (opt)
						Rerun	Reject
31001		10.25	12.75	2.50	.22	.22	.22
31002		17.0	19.0	2.0	tr		
31003		47.0	48.0	1.0	tr		
31004		55.0	57.0	2.0	.02		
31005		62.0	65.0	3.0	tr		
31006		89.0	92.0	3.0	tr		
31007		95.5	97.5	2.0	tr		
31008		165.0	167.0	2.0	tr		
31009		175.0	177.0	2.0	tr		
31010		177.0	179.0	2.0	tr		
31011		179.0	182.0	3.0	tr		
31012		200.0	202.0	2.0	tr		
31013		202.0	206.0	4.0	.01		
31014		213.0	217.0	4.0	tr		
31015		232.5	234.0	1.5	.01		
31016		237.0	238.5	1.5	tr		
31017		275.1	277.5	2.4	tr		
31018		294.0	297.0	3.0	tr		
31019		297.0	301.0	4.0	tr		
31020		304.5	307.25	2.75	tr		
31021		309.5	310.5	1.0	tr		
31022		312.5	314.0	1.5	tr		
31023		314.0	318.0	4.0	tr		
31024		323.5	325.0	1.5	tr		
31025		342.6	343.85	1.25	.02		
31026		343.85	347.0	3.15	tr		
31027		347.0	349.0	2.0	tr		
31028		349.0	350.5	1.5	tr		
31029		350.5	352.5	2.0	.04		
31030		355.5	356.5	1.0	tr		
31031		397.0	398.5	1.5	tr		

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

DIAMOND DRILL RECORD

Property GRAND BAY OPTION - NORMAN J.V. - 1307 Grid Ref. 6300E/5600N

Hole No. GB-86-2 Azimuth 360° Surveys _____

Length 307.0 feet Inclination 49° 307.0' 38° _____

Casing 40.0 feet Elevation _____

Core Size NQ _____

Drilled By N.MORISSETTE D.D. Started Jan.28/86 Finished Jan.30/86

Logged By I. Perry Date Logged Jan.28-30/86

From	To	Description
0.0	40.0	Casing
40.0	147.5	<p>Greywacke</p> <ul style="list-style-type: none"> - greenish grey with occasional light green streaks caused by sericite and epidote, fine to medium grained with quartz clasts up to 1/20" in diameter - occasional pebble sized fragment of intermediate volcanic rock - small specks Py throughout - appears to be composed of approximately 60% quartz, 40% sericite, or similar pale green platy mineral, only minor unaltered feldspar found mainly as discrete grains in core - foliation not pronounced in top section, but weak at 54° to c.a. - several zones of grey quartz stringers and general flooding of silica at 47.0-53.0 and 69.25-77.0, these zones in spots consist mainly of grey quartz with wisps of greenish sericite?, traces Asp observed, only traces Py particularly along fractures <p>84.5-100.0 - zone of silicification, grey quartz stringers and pale green alteration wisps, tr.-3% Asp</p> <p>84.5-91.0 - silicification - trace-.5% Py</p> <p>91.0-94.0 - 8" strong grey quartz-silicified zone 2-3% Asp</p> <p>94.0-95.25 - 1/2" quartz stringers running along core and across at 42° to c.a., much green alteration and 1-2% Asp</p> <p>95.25-96.5 - grey quartz vein, top contact 42° to c.a., lower 62° to c.a., few wisps pale green sericite, 1% Asp crystals</p> <p>96.5-97.4 - footwall greywacke, trace silicification, .5% Asp</p> <p>97.4-100.0 - three .5" grey quartz veinlets, .5% Asp, silicified</p> <ul style="list-style-type: none"> - silicification fades below 100' into good greywacke <p>131.25-147.5 - further silicification, rock is typically grey with greenish wisps of sericite, no Asp only traces Py - this section may be cherty (i.e. primary silica rather than introduced)</p>

From	To	Description
147.5	167.0	Shale - greyish blue, well foliated at 56° to c.a. at 150.0' and 42° at 164.0' - individual bands are not distinct caused either by slumping during deposition or slippage - traces cubic Py throughout - lower contact is gradational with very fine-grained greywacke
167.0	196.5	Greywacke 167.0-173.0 - weakly foliated, very fine grained 173.0-177.5 - well foliated at 48° to c.a. 177.5-183.0 - bleached, alternating bands of pale green and pale pink rock, traces of Py throughout 183.0-195.0 - bedding very irregular and contorted
196.5	202.0	Basalt - dark green, aphanitic, well foliated at 50° to c.a. - few specks Py throughout
202.0	207.3	Iron Formation - pale pink and green bands, bleached appearance - only weakly magnetic - trace Py throughout - most of section has reddish tint (hematite?) - lower contact sharp at 56° to c.a.
207.3	212.3	Basalt - as 196.5-202.0
212.3	223.0	Greywacke - typical 215.0 - foliated at 50° to c.a.
223.0	293.0	Iron Formation - pale pink and green bands, well foliated but bands are broken and discontinuous - iron formation sections strongly magnetic and very cherty with traces of Py along fracture planes and throughout 228.0-233.5 - narrow greywacke unit 237.0-277.0 - magnetite rich, dark green, well foliated, possibly mafic tuff or erosion off a body of mafic volcanics - up to 20% magnetite, very little chert 240.0, 251.0 - foliation at 60° to c.a. 271.5-274.0 - bleached section, trace Py, Po 272.0 - foliation at 66° to c.a. 277.0-293.0 - banding very distorted and twisted
293.0	307.0	Basalt - contact not defined, but lower magnetite and only poor definition to foliation at 60° - typical dark green, aphanitic
	307.0	END OF HOLE

N O R A N D A E X P L O R A T I O N C O M P A N Y , L I M I T E D
(n o p e r s o n a l l i a b i l i t y)

S A M P L E R E C O R D S H E E T

PROPERTY:

GRAND BAY - 1307

HOLE NO: GB-86-2

PAGE 1 of 1

SAMPLE NUMBER	DESCRIPTION	FROM	TO	LENGTH	AU (opt)	ASSAYS	
						AU (opt)	AU (opt)
						Rerun	Reject
31032		47.0	50.0	3.0	.01		
31033		50.0	53.0	3.0	.02		
31034		69.25	72.0	2.75	tr		
31035		72.0	74.0	2.0	tr		
31036		74.0	77.0	3.0	tr		
31037		84.5	88.0	3.5	tr		
31038		88.0	91.0	3.0	tr		
31039		91.0	94.0	3.0	.04		
31040		94.0	95.25	1.25	.18	.14	.08
31041		95.25	96.5	1.25	tr		
31042		96.5	97.4	.9	.01		
31043		97.4	100.0	2.6	tr		
31044		131.0	133.0	2.0	tr		
31045		133.0	136.0	3.0	tr		
31046		136.0	140.0	4.0	tr		
31047		140.0	144.0	4.0	tr		
31048		144.0	147.5	3.5	tr		
31049		177.5	180.0	2.5	tr		
31050		180.0	183.0	3.0	tr		
31051		202.0	205.0	3.0	tr		
31052		205.0	207.3	2.3	tr		
31053		223.0	227.0	4.0	tr		
31054		234.0	237.0	3.0	tr		
31055		271.5	274.0	2.5	tr		

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

DIAMOND DRILL RECORD

Property GRAND BAY OPTION - NORMAN J.V. - 1307 Grid Ref. 6700E/5300N
Hole No. GB-86-3 Azimuth 090° Surveys _____
Length 307.0 feet Inclination 50° _____
Casing 12.0 feet Elevation _____
Core Size NQ _____
Drilled By N.MORISSETTE D.D. Started Jan.30/86 Finished Feb. 1/86
Logged By I. Perry Date Logged Jan.30-Feb.1/86

From	To	Description
0.0	12.0	Casing
7.0	229.0	Greywacke - typical greenish grey, medium to coarse grained - foliation generally indistinct, very massive looking - consists of approximately 50% quartz, mainly as fine grains in an aphanitic matrix of fine clay minerals 7.0-22.0 \uparrow rock has altered appearance as follows: 7.0-9.0 - mainly white quartz with wisps of green sericite at 22° to c.a., no Asp or Py 9.0-14.5 - dark shaley looking rock, some rust along fractures, broken up quartz-rich bands, well foliated at 15° to c.a., trace Asp, Po, Py, weakly magnetic 14.5-22.0 - weakly altered greywacke with .5" grey quartz vein at 60° to c.a. at 21.8', 1% Asp for 2" either side of vein. 33.0- 36.0 - minor greenish alteration and 2 narrow (.25") grey quartz stringers 36.0-109.0 - monotonous greywacke 109.4-110.0 - 8" blue-grey quartz vein with up to 3% Asp for 2" above vein and up to 1% Asp for 2.0' below the vein, both contacts at 90° to c.a. - very little alteration in hanging wall but quite extensive sil. and greenish alteration in 2.0' of footwall below vein 110.0-120.0 - weak alteration 120.0-161.0 - monotonous, typical greywacke

N O R A N D A E X P L O R A T I O N C O M P A N Y , L I M I T E D
(n o p e r s o n a l l i a b i l i t y)

S A M P L E R E C O R D S H E E T

PROPERTY:

GRAND BAY - 1307

HOLE NO: GB-86-3

PAGE 1 of 1

SAMPLE NUMBER	DESCRIPTION	FROM	TO	LENGTH	AU (opt)	ASSAYS	
						Rerun	Reject
31056		7.0	9.0	2.0	tr		
31057		9.0	12.0	3.0	tr		
31058		12.0	14.5	2.5	tr		
31059		14.5	17.0	2.5	tr		
31060		17.0	21.0	4.0	.01		
31061		21.0	22.0	1.0	.04		
31062		22.0	23.0	1.0	.01		
31063		33.0	36.0	3.0	.01		
31064		108.4	109.4	1.0	tr		
31065		109.4	110.0	.6	.20	.12	.10
31066		110.0	112.0	2.0	tr		
31067		112.0	116.0	4.0	tr		
31068		116.0	120.0	4.0	tr		
31069		161.0	163.0	2.0	tr		
31070		175.0	176.0	1.0	tr		
31071		180.5	181.5	1.0	tr		
31072		230.0	232.0	2.0	.01		
31073		246.0	248.0	2.0	tr		
31074		248.0	252.0	4.0	tr		
31075		252.0	252.75	.8	tr		
31076		252.75	253.3	.6	.44	.32	.50
31077		253.3	257.0	3.7	tr		
31078		257.0	259.0	2.0	tr		

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

DIAMOND DRILL RECORD

Property GRAND BAY OPTION - NORMAN J.V. - 1307 Grid Ref. 6800E/5250N
 Hole No. GB-86-4 Azimuth 000° Surveys _____
 Length 427.0 feet Inclination -49° 387' 43° _____
 Casing 22.0 feet Elevation _____
 Core Size NQ _____
 Drilled By N.MORISSETTE D.D. Started Feb. 1/86 Finished Feb. 4/86
 Logged By I. Perry Date Logged Feb. 2-4/86

From	To	Description
0.0	22.0	Casing
16.0	335.0	Greywacke - typical greyish green sediment, massive (not foliated), contains coarse (up to 1/10") quartz clasts 31.0- 32.5 - slightly silicified, traces of greenish alteration 73.25-74.0 - weakly altered, 2% Asp in last 2" 74.0- 75.3 - increasingly altered greywacke 5x.25" grey quartz stringers 47° to c.a., 1.5-2% Asp throughout 75.3- 75.6 - grey quartz veins, contacts at 36° to c.a., 2% Asp throughout 75.8- 76.8 - as 75.3-75.6 77.0- 81.0 - altered greywacke, light green, 3% Asp, few grey quartz stringers at 25-47° to c.a. 81.0- 85.6 - grey quartz vein, upper contact 18° to c.a., lower contact 28° to c.a., few greenish wisps in top half of vein, 1-6% Asp 85.6- 87.0 - weakly altered greywacke, few specks Asp in top 2" below 87.0 - siliceous greywacke, occasional tiny quartz seam, no sulphides, quartz clasts prominent throughout much of the core 144.5-147.0 - two quartz stringers 20° to c.a., trace greenish alteration, trace Py 201.0-210.0 - weakly silicified greywacke, few quartz stringers at 45° to c.a. 207.8-208.8 - grey quartz sweat 210.0-242.0 - typical greywacke 242.0-335.0 - weak alteration with a few quartz stringers at low angles to c.a. 245.0-247.0 - silicified greywacke, minor grey quartz 282.0-287.0 - as 245.0-247.0 - these are almost cherty in spots with greenish wisps of sericite, few specks Py

From	To	Description
335.0	353.25	Shale - dark grey, very fine grained and well foliated 337.0 - foliated 50° to c.a. 353.0 - foliated 45° to c.a. - contacts are sharp although individual bands within unit are frequently distorted
353.25	368.0	Greywacke - typical, slightly silicified
368.0	427.0	Banded Iron Formation - good chert magnetite iron formation, bands 1/10" - chert is pale green, hematite and magnetite are purple to pink - almost no sulphide development - well foliated, 45° to c.a. at 373.0' and 48° at 384.0' - up to 20% magnetite 368.0-369.1 - bleached looking with .5% Py cubes 392.0-427.0 - frequent mafic looking sections, probably derived from mafic volcanic unit 406.0-407.0 - bleached, pale green section 426.0 - foliation at 58° to c.a.
427.0		END OF HOLE Core stored at Casummit Lake

N O R A N D A E X P L O R A T I O N C O M P A N Y , L I M I T E D
(n o p e r s o n a l l i a b i l i t y)

S A M P L E R E C O R D S H E E T

PROPERTY:

GRAND BAY - 1307

HDLE NO: GB-86-4

PAGE 1 of 1

SAMPLE NUMBER	DESCRIPTION	FROM	TO	LENGTH	AU (opt)	ASSAYS	
						AU (opt)	AU (opt)
						Rerun	Reject
31079		31.0	32.5	1.5	tr		
31080		73.25	74.0	.75	tr		
31081		74.0	75.3	1.3	tr		
31082		75.3	77.0	1.7	tr		
31083		77.0	79.0	2.0	.08	.12	.16
31084		79.0	81.0	2.0	.12	.12	.12
31085		81.0	83.0	2.0	.06	.14	.58
31086		83.0	85.6	2.6	.22	.12	.20
31087		85.6	87.0	1.4	tr		
31088		144.5	147.0	2.5	tr		
31089		201.0	203.0	2.0	tr		
31090		207.0	209.0	2.0	tr		
31091		245.0	247.0	2.0	tr		
31092		282.0	287.0	5.0	tr		
31093		314.5	317.0	2.5	tr		
31094		317.0	322.0	5.0	tr		
31095		322.0	327.0	5.0	tr		
31096		327.0	332.0	5.0	tr		
31097		368.0	369.0	1.0	tr		
31098		406.0	407.0	1.0	tr		

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

DIAMOND DRILL RECORD

Property GRAND BAY OPTION - NORMAN J.V. - 1307 Grid Ref. 7000E/5250N
Hole No. GB-86-5 Azimuth 030° Surveys _____
Length 307.0 feet Inclination -49° 307' 47°
Casing 32.0 feet Elevation _____
Core Size NQ
Drilled By N.MORISSETTE D.D. Started Feb. 5/86 Finished Feb. 6/86
Logged By I. Perry Date Logged Feb. 6/86

From	To	Description
0.0	32.0	Casing
31.0	69.0	Dark Greywacke - dark grey to black, fine grained, not foliated - almost intrusive looking, but it has typical quartz clasts and disseminated Py common in greywacke on the property 62.0- 64.0 - typical of this unit - trace Py
69.0	148.5	Greywacke - light green to grey with small dark rock fragments and occasional quartz clasts - upper contact gradational over 2.0" at 18° to c.a., indistinct 78.0- 79.0 - narrow shaley unit, 5% Py, foliated at 46° to c.a. 79.0- 80.0 - silicified zone 87.0- 92.0 - also silicified, pale brown with traces Py, foliated at 44° to c.a. 92.0- 97.0 - weakly magnetic 121.0-148.5 - texture changes from typical greyish greywacke to greenish tuff? greywacke with white felsic stringers, only trace Py 131.0-132.0 - narrow bleached zone 144.0-148.5 - dark grey shaley unit, well foliated at 47° to c.a.
148.5	174.0	Banded Iron Formation - top 2.0' consists of chert and reddish jasper- not magnetic 150.5-163.0 - muddy looking greenish section, still well foliated 153.0 - foliated 48° to c.a. 162.0-163.0 - 1% disseminated Py 163.0-166.0 - 1% cubic Py in siliceous iron formation 169.0 - foliated 48° to c.a.
174.0	213.5	Greywacke - muddy looking dark green greywacke 179.0 - well foliated at 44° to c.a. 179.2-180.7 - bleached zone 190.0 - foliated 50° to c.a. 201.0 - foliated 50° to c.a. 202.6 - 2" white quartz vein at 48° to c.a., traces Py

<u>From</u>	<u>To</u>	<u>Description</u>
213.5	307.0	Basalt - dark green, aphanitic, poorly foliated, numerous white calcite stringers - rubbly in spots, possibly flow tops? breccia - only very minor Py found in unit, particularly in rubbly segments - considerable chlorite throughout 226.0 - foliated 50° to c.a.
	307.0	END OF HOLE Core stored at Casummit Lake

SAMPLE RECORD SHEET

PROPERTY: GRAND BAY - 1307

HOLE NO: GB-86-5

PAGE 1 of 1

SAMPLE NUMBER	DESCRIPTION	FROM	TO	LENGTH	ASSAYS	
					AU (opt)	AU (opt)
31099		62.0	64.0	2.0	.0	
31100		78.0	80.0	2.0	.0	
31101		88.5	90.5	2.0	tr	
31102		131.0	132.0	1.0	tr	
31103		162.0	163.0	1.0	.0	
31104		163.0	166.0	3.0	.0	
31105		179.2	180.7	1.5	.0	
31106		202.0	203.0	1.0	tr	

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

DIAMOND DRILL RECORD

Property GRAND BAY OPTION - NORMAN J.V. - 1307 Grid Ref. 9324E/2510N
 Hole No. GB-86-8 Azimuth 140° Surveys _____
 Length 242.0 feet Inclination -49° 242' 49° _____
 Casing 12.0 feet Elevation 40' above Lake _____
 Core Size NQ _____
 Drilled By N.MORISSETTE D.D. Started Feb.10/86 Finished Feb.11/86
 Logged By I. Perry Date Logged Feb. /86

From	To	Description
0.0	12.0	Casing
4.0	23.25	Basalt - dark green with white specks approx. 1/20" in diameter caused by small calcite flecks within the dark green aphanitic basalt groundmass - no real foliation but some weak alignment parallel or subparallel to c.a. - 15% calcite, few specks Py disseminated throughout - three 1/2" quartz veins at 13.0, 14.5 and 15.5 at 60°, 46° and 30° to c.a., trace Py
23.25	76.25	Intermediate Volcanic Rocks (Andesite, Dacite) - olive green, cut by numerous white calcite stringers (probably fracture fillings) - aphanitic, moderately well foliated at 15° to c.a., angle not distinct 32.25 - narrow quartz vein 70° to c.a., 1/2" wide, trace Py 41.6- 41.8 - narrow quartz vein 60° to c.a., 1/2" wide, 1% Py, .5% Asp for 6" 56.0- 57.2 - Py along foliation planes in shear zone 20° to c.a. 68.0- 73.0 - 1-2% Py along foliation planes, much carbonate
76.25	107.0	Quartz Feldspar Porphyry - gold coloured, fine grained, extremely siliceous - massive to weakly foliated at 17° to c.a. - no phenocrysts visible - sulphide mineralization limited to sparse specks Py - top contact sharp at 17° to c.a., lower not distinct - abundant calcite along fractures 88.0- 93.0 - few specks Py

m	To	Description
107.0	242.0	Intermediate Volcanic Rocks - greyish green, aphanitic, weak to moderate foliation at 17° to c.a. 107.0-116.0 - few patches green-gold coloured porphyry 150.25-152.50 - narrow pale green dyke with feldspar phenocrysts 1/4" in diameter 192.0-194.0 - 1% disseminated Py 201.0-203.0 - 1-2% disseminated Py
	242.0	END OF HOLE Core stored at Casummit Lake

SAMPLE RECORD SHEET

PROPERTY:

GRAND BAY - 1307

HOLE NO: GB-86-B

PAGE 1 of 1

SAMPLE NUMBER	DESCRIPTION	FROM	TO	LENGTH	ASSAYS	
					AU (opt)	AU (opt)
31121		12.6	15.6	3.0	tr	
31122		31.5	32.5	1.0	.01	
31123		40.0	41.5	1.5	tr	
31124		41.5	42.0	.5	.01	
31125		42.0	43.0	1.0	tr	
31126		56.0	57.5	1.5	tr	
31127		68.0	73.0	5.0	tr	
31128		88.0	93.0	5.0	tr	
31129		192.0	194.0	2.0	tr	
31130		201.0	203.0	2.0	tr	

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

DIAMOND DRILL RECORD

Property	<u>GRAND BAY OPTION - NORMAN J.V. - 1307</u>	Grid Ref.	<u>8240E/2410N</u>
Hole No.	<u>GB-86-9</u>	Azimuth	<u>135°</u>
Length	<u>247.0 feet</u>	Inclination	<u>-49°</u>
Casing	<u>22.0 feet</u>	Elevation	<u> </u>
Core Size	<u>NQ</u>		<u> </u>
Drilled By	<u>N.MORISSETTE D.D.</u>	Started	<u>Feb.12/86</u>
		Finished	<u>Feb.13/86</u>
Logged By	<u>I. Perry</u>	Date Logged	<u>Feb.13/86</u>

From	To	Description
0.0	22.0	Casing
17.0	247.0	Intermediate Volcanic Rocks - olive green, aphanitic, weak foliation or shear 45-50° to c.a. - strong carbonate alteration stringer type and pervasive - very sparse Py mineralization throughout as cubes - sheared throughout hole, not pronounced in cross core foliation, but during splitting the core tends to break into platy pieces 44.0- 45.0 - two .5" quartz stringers at 50° and 70° to c.a., no sulphides 45.0-105.0 - uniform, calcareous volcanic rocks with trace sulphides 105.0-106.0 - 1-2% Py in footwall below a 4" quartz carbonate seam which runs along c.a. for 4" then veers off at approximately 48° 160.75 - 1/2" quartz vein, trace Py in wall rock over 2.0' 163.25-166.5 - two 3" quartz carbonate sweats, trace Py 174.5-176.5 - three quartz sweats at 38° to c.a., twisted and distorted, trace Py 194.0-196.0 - series of quartz carbonate stringers parallel to c.a., trace Py (-0.5%) 229.0-230.0 - quartz carbonate sweats? or stringers from parallel to 46° to c.a. 338.0-342.0 - as 229.0-230.0 247.0 END OF HOLE

Core stored at Casummit Lake

SAMPLE RECORD SHEET

PROPERTY:

GRAND BAY - 1307

HOLE NO: GB-86-9

PAGE 1 of 1

SAMPLE NUMBER	DESCRIPTION	FROM	TO	LENGTH	AU (opt)	ASSAYS	
						AU (opt)	AU (opt)
						Rerun	Reject
31131		43.5	46.0	2.5	tr		
31132		104.0	105.0	1.0	tr		
31133		105.0	106.0	1.0	.01		
31134		106.0	107.0	1.0	tr		
31135		129.5	130.5	1.0	tr		
31136		154.6	155.6	1.0	tr		
31137		155.6	156.1	.5	tr		
31138		156.1	157.1	1.0	tr		
31139		160.0	162.0	2.0	tr		
31140		162.0	163.25	1.25	tr		
31141		163.25	166.5	3.25	.12	.12	.12
31142		174.5	176.5	2.0	tr		
31143		194.0	196.0	2.0	tr		
31144		229.0	230.0	1.0	tr		
31145		238.0	242.0	4.0	tr		

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

DIAMOND DRILL RECORD

Property GRAND BAY OPTION - NORMAN J.V. - 1307 Grid Ref. 7600E/4700N
Hole No. GB-86-10 Azimuth 360° Surveys _____
Length 247.0 feet Inclination -49° 247' 48° _____
Casing 12.0 feet Elevation _____
Core Size NQ _____
Drilled By N.MORISSETTE D.D. Started Feb.13/86 Finished Feb.15/86
Logged By I. Perry Date Logged Feb.15/86

From	To	Description
0.0	12.0	Casing
8.5	46.5	Greywacke - light greenish grey, fine to medium grained, very weakly foliated - small quartz clasts visible throughout section - core is very blocky with dark rust or orangey limonite staining on rubble - occasional narrow shaley band foliated at 40° to c.a. - very minor calcite in hairline stringers
46.5	61.1	Black Shale - black to dark grey, very fine grained, well foliated, bedded - contacts sharp at 39° to c.a. - occasional speck Py, very minor carbonate 48.0 - foliation at 42° to c.a. 60.5 - foliation at 43' to c.a.
61.1	78.75	Greywacke - typical greywacke, quartz clasts very prominent 65.5-78.75 - very blocky with orange rust on rubble 72.0-75.0 - slightly bleached and foliated at 51° to c.a. 75.0-75.9 - shaley band, 2% Py
78.75	91.5	Black Shale - typical shale down to 80.5' then banding becomes distorted and numerous quartz-calcite clots appear - greenish (dark) tint throughout distorted section - while overall rock is shaley, core splits with cherty, conchoidal fracture and does not splinter in flakes like typical shale 82.5-83.0 - 2% cubic Py 90.0-91.0 - 1-2% cubic Py

From	To	Description
91.5	115.8	Cherty Mudstone - gradational change from shaley unit above into variable, dark green mudstone to pale green chert - distorted foliation down to 111.0' - only traces of carbonate and very few specks of cubic Py 112' - weak foliation at 40° to c.a.
115.8	145.0	Altered Iron Formation - pale green colour caused by greenish strands of sericite or epidote in recrystallized quartz-rich matrix - no sulphides or carbonate 118.0 - well foliated at 36° to c.a. 133.3 - 1.5" white quartz vein at 55° to c.a., no sulphides 144.5 - foliation at 54° to c.a.
145.0	175.5	Alternating Shale and Altered Iron Formation - scattered traces of cubic Py throughout 145.0-155.0 - dark greenish black shale, well foliated at 42° to c.a. 155.0-157.25 - pale green, altered iron formation 157.25-159.0 - shale 159.0-161.1 - altered iron formation 161.1-166.0 - cherty mudstone, brecciated appearance, Tr-.5% Py 166.0-167.5 - shale, foliated at 30° to c.a., varies 10° either way 167.5-175.5 - cherty shale
175.5	218.0	Shale - dark black-green, numerous narrow calcite clots and hairline stringers, trace disseminated Py throughout 177.0 - moderately well foliated at 44° to c.a. 207.0 - moderately well foliated at 38° to c.a. 209.0-218.0 - pale green siliceous iron formation, no sulphides
218.0	247.0	Basalt - olive green, aphanitic, indistinct foliation - 15-20% carbonate occurs as wisps and clots throughout - several specks cubic Py
	247.0	END OF HOLE

NDRANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

SAMPLE RECORD SHEET

PROPERTY: GRAND BAY - 1307

HOLE NO: GB-86-10

PAGE 1 of 1

SAMPLE NUMBER	DESCRIPTION	FROM	TO	LENGTH	ASSAYS	
					AU (opt)	AU (opt)
31146		75.0	75.9	.9	tr	
31147		82.5	83.5	1.0	.01	
31148		90.0	91.0	1.0	.01	
31154		119.0	120.5	1.5	tr	
31149		120.5	122.0	1.5	.01	
31156		122.0	127.0	5.0	tr	
31157		127.0	130.0	3.0	tr	
31158		130.0	132.5	2.5	tr	
31150		132.5	133.5	1.0	tr	
31159		133.5	136.5	3.0	tr	
31160		136.5	140.0	3.5	tr	
31155		140.0	141.0	1.0	tr	
31162		141.0	143.0	2.0	tr	
31161		143.0	145.0	2.0	tr	
31162		145.0	147.0	2.0	tr	
31152		162.0	165.0	3.0	tr	
31153		212.0	213.0	1.0	tr	

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

DIAMOND DRILL RECORD

Property	<u>GRAND BAY OPTION - NORMAN J.V. - 1307</u>		Grid Ref.	<u>7900E/4500N</u>	
Hole No.	<u>GB-86-11</u>	Azimuth	<u>360°</u>		Surveys
Length	<u>247.0 feet</u>	Inclination	<u>49°</u>	<u>247'</u>	<u>48°</u>
Casing	<u>22.0 feet</u>	Elevation	_____		
Core Size	<u>NQ</u>	_____			
Drilled By	<u>N.MORISSETTE D.D.</u>	Started	<u>Feb.15/86</u>	Finished	<u>Feb.16/86</u>
Logged By	<u>I. Perry</u>	Date Logged	<u>Feb.16/86</u>		

From	To	Description
0.0	22.0	Casing
17.0	69.1	Shale - dark greenish black, very fine grained and well foliated at 37° to c.a. at 19', 36° to c.a. at 42' and 38° to c.a. at 65°. - numerous calcite hairline stringers and clots throughout unit but comprising <5% of total rock, parallel to foliation - traces of cubic Py common - slight purplish tint to rock imparted by magnetite - entire section is moderately magnetic - magnetite occurs as very fine discrete grains 65.0-67.0 - very light brecciation, strong carbonate, trace Py 67.0-69.1 - minor reddish hematite
69.1	79.0	Greywacke - typical greenish-grey, medium-grained, massive metasediment 72.0 - 1/2" white quartz vein at 33° to c.a., no sulphides
79.0	103.0	Muddy Iron Formation - unit varies between shale and alternating bands of muddy chert and dark chloritic material - minor reddish hematite present in cherty sections, but no magnetite - occasional cube of Py throughout - well foliated at 53° to c.a. at 82.0' and 31° at 100'
103.0	125.0	Greywacke - typical greenish-grey sediment, somewhat shaley throughout - grey quartz veins at 113.2-113.25 52° to c.a. 113.5-115.25 50° to c.a. 117.6-118.1 38° to c.a. 112.5-119.0 - greenish alteration extends for approximately 6" into footwall and hanging wall of each vein with continuous Asp mineralization extending 5' below contact with iron formation

From	To	Description
		<ul style="list-style-type: none"> - additional grey quartz veins 122.0 -122.1 50° to c.a. <li style="padding-left: 100px;">123.6 -123.65 47° to c.a. <li style="padding-left: 100px;">126.7 -126.8 40° to c.a. <li style="padding-left: 40px;">(1 speck V.G.) 129.25-129.26 35° to c.a.
		<p>120.0-130.0 - Asp mineralization picks up again</p> <ul style="list-style-type: none"> - abundant greenish alteration around second group of quartz veins with up to 10% Asp and traces of Py and non-magnetic Pyrrhotite <p>112.5-130.0 - mineralized section is probably the No.8 Vein intersected sub-parallel to strike</p>
125.0	175.4	<p>Altered Iron Formation</p> <ul style="list-style-type: none"> - pale green, siliceous, well foliated consisting of quartz and a fibrous greenish material, possibly sericite or a clay mineral (muddy detritus layers within a cherty horizon) - calcite occurs as hairline stringers and clots - sulphides very scarce with only few specks Py observed - well foliated at 46° to c.a. at 134.0' <li style="padding-left: 100px;">34° to c.a. at 153.0' <li style="padding-left: 100px;">44° to c.a. at 170.0' <p>136.2 and 136.9 - 1/2" grey quartz veins with minor Asp at 35-40° to c.a., cross cutting foliation</p> <p>146.8 - 1/4" white quartz stringer at 50° to c.a., no sulphides</p> <p>157.5 - stringer same as at 146.8</p> <p>170.8 - 1/2" quartz stringer at 39° to c.a.</p>
175.4	182.0	<p>Quartz Diorite Sill</p> <ul style="list-style-type: none"> - light grey, fine grained, equigranular, no foliation - contacts sharp at 32° to c.a.
182.0	195.0	<p>Shale</p> <ul style="list-style-type: none"> - typical dark greenish-black, well foliated, banded 186.0 - foliation at 41° to c.a. 188.5 - 1/2" white quartz veinlet at 49° to c.a., 1% Asp 2" above and below veinlet 193.2 - 1/2" white quartz stringer at 46° to c.a. trace Py
195.0	227.0	<p>Altered Iron Formation</p> <ul style="list-style-type: none"> - pale green, less quartz, more muddy matrix - moderately well foliated at 44° to c.a. - 2-3% carbonate 205.5 and 226.2 - 1/4" white quartz veins at 35° to c.a., no sulphides
227.0	247.0	<p>Basalt</p> <ul style="list-style-type: none"> - typical dark green rock with white calcite clots and stringers, trace Py 230.0 - 1/2" white quartz stringer at 22° to c.a.
	247.0	End of Hole

SAMPLE RECORD SHEET

PROPERTY:

GRAND BAY - 1307

HOLE NO: GB-86-11

PAGE 1 of 1

SAMPLE NUMBER	DESCRIPTION	FROM	TO	LENGTH	AU (opt)	ASSAYS	
						AU (opt)	AU (opt)
						Rerun	Reject
31163		65.0	67.0	2.0	tr		
31164		71.5	73.0	1.5	tr		
31165		110.5	112.5	2.0	tr		
31166		112.5	113.5	1.0	.18	.18	.18
31167		113.5	115.25	1.75	.04		
31168		115.25	116.0	.75	.28	.28	.34
31169		116.0	117.6	1.6	.14	.16	.18
31170		117.6	118.1	.5	.14	.14	.22
31171		118.1	119.0	.9	.08	.08	.14
31172		119.0	121.5	2.5	.06	.08	.14
31173		121.5	122.5	1.0	.10	.14	.18
31174		122.5	126.5	4.0	.12	.16	.20
31175		126.5	127.5	1.0	.52	.32	.34
31176		127.5	129.0	1.5	.06	.08	.04
31177		129.0	130.0	1.0	.28	.20	.28
31178		130.0	131.0	1.0	.06	.02	.08
31179		131.0	132.5	1.5	tr		
31180		134.5	135.5	1.0	tr		
31181		135.5	137.0	1.5	tr		
31182		137.0	138.0	1.0	tr		
31183		146.0	147.0	1.0	tr		
31184		157.0	158.0	1.0	tr		
31185		170.5	171.5	1.0	tr		
31186		188.0	189.0	1.0	.12	.16	.20
31187		193.0	193.5	.5	tr		
31188		205.0	206.0	1.0	tr		
31189		226.0	226.50	.5	.01		
31190		229.75	230.25	.5	.01		

DIAMOND DRILL RECORD

Property GRAND BAY OPTION - NORMAN J.V. - 1307 Grid Ref. 4780E/5000N
 Hole No. GB-86-12 Azimuth 090° Surveys _____
 Length 547.0 feet Inclination -75° 300' 69° _____
 Casing 8.0 feet Elevation _____ 547' 63° _____
 Core Size NQ _____
 Drilled By N.MORISSETTE D.D. Started Feb.16/86 Finished Feb.20/86
 Logged By I. Perry Date Logged Feb.17-20/86

From	To	Description
0.0	8.0	Casing
2.0	547.0	Greywacke - typical greenish grey, medium grained, very weak foliation - quartz clasts prominent throughout 6.0- 9.0 - weak silicification 25.0- 27.0 - more silicification, grey quartz stringers at 80° to c.a., trace Py 92.0- 97.3 - shaley section, dark greenish black, foliated parallel to c.a., occasional trace Py cubes 107.0-112.25 - as 92.0-97.3 209.5-210.5 - shaley section, foliated at 8° to c.a. - rock is extremely hard 274.0-277.0 - zone of weak silicification, grey quartz stringer with trace Py - .5" to 1.0" grey quartz veins 45-50° to c.a. at 324.25', 324.8', 325.25', 326.0', 329.0' and 329.75' - trace Py, no Asp or green alteration 367.0-374.0 - silicified shaley section 444.0-457.0 - very minor greenish alteration in silicified greywacke 452.0-452.4 - greyish quartz vein with only trace very fine Asp - quartz vein is at 58° to c.a., few narrow grey stringers for 4' above and below vein 482.0-485.0 - zone of silicification, fine grey silica, not coarse like the veins in the area - only trace Py, slight greenish alteration 498.5-504.5 - zone of fine-grained grey quartz (silica - possibly remobilized chert?) stringers - stringers range from 13° to 75° to c.a., 1/4" to 1.0", only trace Py 517.0-518.0 - siliceous zone, fine-grained grey quartz at 33° to c.a. 532.1 - 1/2" grey quartz stringer at 57° to c.a., no sulphides 547.0 END OF HOLE

S A M P L E R E C O R D S H E E T

PROPERTY: GRAND BAY - 1307

HOLE NO: GB-86-12

PAGE 1 of 1

SAMPLE NUMBER	DESCRIPTION	FROM	TO	LENGTH	ASSAYS	
					AU (opt)	AU (opt)
31191		6.0	9.0	3.0	.01	
31192		25.0	27.0	2.0	tr	
31193		274.0	277.0	3.0	.01	
31194		319.0	322.0	3.0	tr	
31195		322.0	324.0	2.0	tr	
31196		324.0	326.0	2.0	tr	
31197		326.0	330.0	4.0	tr	
31198		367.0	370.0	3.0	tr	
31199		370.0	374.0	4.0	tr	
31200		444.0	447.0	3.0	tr	
31201		447.0	450.0	3.0	.04	
31202		450.0	452.0	2.0	.01	
31203		452.0	452.4	.4	.04	
31204		452.4	455.0	2.6	tr	
31205		455.0	457.0	2.0	.01	
31206		457.6	458.0	.4	.01	
31207		482.0	485.0	3.0	tr	
31208		498.5	501.5	3.0	tr	
31209		501.5	504.5	3.0	tr	
31210		517.0	518.0	1.0	tr	
31211		531.5	532.5	1.0	tr	

A P P E N D I X I I

TAILINGS SAMPLE RESULTS

SEP 22 1986

ACME ANALYTICAL LABORATORIES LTD.
852 E. HASTINGS, VANCOUVER B.C.
PH (604) 253-3158 COMPUTER LINE: 251-1011

DATE RECEIVED SEPT 11 1986

DATE REPORTS MAILED

Sept 18/86

GEOCHEMICAL ASSAY CERTIFICATE

SAMPLE TYPE : TAILING

Au# - 10 GM. IGNITED, HOT AQUA REGIA LEACHED, MIBK EXTRACTION, AA ANALYSIS.

ASSAYER: *D. Toye* DEAN TOYE, CERTIFIED B.C. ASSAYER

NORANDA EXPLORATION PROJECT GRAND BAY FILE# 86-2604
(Thunder Bay)

PAGE# 1

SAMPLE	Au# ppb
1-3	450
1-6	400
1-9	840
1-12	380
1-15	470
1-18	650
1-21	290
2-3	260
2-6	280
2-9	290
2-12	300
3-3	220
3-6	210
3-9	200
3-12	81
3-15	71
4-3	370
4-6	690
4-9	38
5-3	320
5-6	370
5-9	220
5-12	490
6-3	137
7-3	580
7-6	520
7-9	540
7-12	450
7-15	590
8-3	950
8-6	1190
8-9	500
9-3	1180
9-6	1720
9-9	380
10-3	390

SAMPLE	Au*
	ppb
10-6	355
10-9	330
11-3	425
11-6	595
11-9	515
12-3	305
12-6	310
12-9	355
12-12	505
12-15	425
12-18	420
12-21	335
12-24	375
12-26	425
13-3	210
13-6	275
13-9	255
13-12	335
13-15	210
14-3	425
14-6	650
14-9	395
14-12	465
14-15	430
14-24	445
14-27	460
15-3	295
15-6	265
15-9	505
15-12	425
15-15	395
15-18	305
15-21	445
16-3	395
16-6	390
16-9	305

SAMPLE	Au# ppb
16-12	555
16-15	570
17-3	445
17-6	250
17-9	330
17-12	325
17-15	245
17-18	175
18-3	425
18-6	295
18-9	245
18-12	195
19-3	635
19-6	655
19-9	450
19-12	320
20-3	195
20-6	235
20-9	430
20-12	360
21-3	355
21-6	515
21-9	755
22-3	305
22-6	385
22-9	610
22-12	98
23-3	235
23-6	320
23-9	325
23-12	375
23-15	425
23-18	82
24-3	495
24-6	1120
24-9	305

NORANDA EXPLORATION PROJECT GRAND BAY
(Thunder Bay)

FILE# 86-2604

PAGE# 4

SAMPLE	Au† ppb
24-12	210
24-15	130
25-3	380
25-6	350
25-9	450
25-12	330
25-15	300
25-18	230
25-21	210
26-3	340
27-3	420
27-6	350
28-3	260
28-6	290
28-9	250
28-12	180
28-15	210
28-18	110
29-3	330
29-6	240
29-9	320
29-12	300
29-15	170
30-3	250
30-6	580
30-9	440
30-12	100
31-3	330
31-6	310
31-9	180
32-3	600
32-6	430
32-12	105
33-3	480
33-6	660
33-9	360

SAMPLE	Au* ppb
33-12	82
34-3	560
34-6	240
34-9	132
35-3	440
35-6	260
35-9	138
36-3	360
36-6	310
36-9	160
36-12	110
37-3	370
37-6	260
37-9	96
38-3	460
38-6	78
39-3	310
39-6	420
39-9	31
40-3	720
40-6	620
40-9	131
41-3	210
41-6	490
41-9	119

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

DIAMOND DRILL RECORD

Property GRAND BAY OPTION - NORMAN J.V. - 1307 Grid Ref. 6355E/4127N
Hole No. GB-86-7 Azimuth 090° Surveys _____
Length 246.0 feet Inclination -60° 246' 57° _____
Casing 82.0 feet Elevation _____
Core Size NQ _____
Drilled By N.MORISSETTE D.D. Started Feb. 8/86 Finished Feb. 9/86
Logged By I. Perry Date Logged Feb. 9/86

From	To	Description
0.0	82.0	Casing
79.0	246.0	Greywacke - typical grey-green, medium grained, very poorly foliated, hole drilled subparallel to strike - top 10' feet quite fractured and rubbly - numerous narrow shaley bands with trace Py - considerable black chlorite along fracture seams - only minor calcite in top 117' 116.2 - 1/10" grey quartz stringer at 58° to c.a. 133.5-135.0 - fault zone, rock is leached to a very soft muddy-sand consistency, both contacts broken 135.0-172.0 - rock is finer grained, greyish black and has numerous calcite stringers running at all angles to c.a. 172.0-246.0 - good greywacke 179.5-181.1 - grey quartz vein with up to 1% Asp throughout, contacts at 72° to c.a. - considerable green sericite alteration extends for 1.5' into hanging wall and down to 188.0' in footwall - several grey quartz stringers occur within altered sections 187.0-187.5 - grey quartz vein with 2% Asp and much green sericite within vein material 187.5-246.0 - typical greywacke, few calcite stringers, massive
246.0		END OF HOLE

Core stored at Casummit Lake

SAMPLE RECORD SHEET

PROPERTY: GRAND BAY - 1307

HOLE NO: GB-86-7

PAGE 1 of 1

SAMPLE NUMBER	DESCRIPTION	FROM	TO	LENGTH	ASSAYS	
					AU (opt)	AU (opt)
31112		115.5	116.5	1.0	tr	
31113		176.0	178.0	2.0	.01	
31114		178.0	179.5	1.5	tr	
31115		179.5	181.1	1.6	tr	
31116		181.1	183.0	1.9	tr	
31117		183.0	186.0	3.0	tr	
31118		186.0	187.0	1.0	tr	
31119		187.0	187.5	.5	.01	
31120		187.5	190.5	3.0	tr	

NORANDA EXPLORATION COMPANY, LIMITED
 (no personal liability)

SAMPLE RECORD SHEET

PROPERTY: GRAND BAY - 1307

HOLE NO: GB-86-6

PAGE 1 of 1

SAMPLE NUMBER	DESCRIPTION	FROM	TO	LENGTH	AU (opt)	ASSAYS	
						AU (opt)	AU (opt)
						Rerun	Reject
1107		183.6	186.6	3.0			tr
1108		186.6	187.8	1.2	.80	1.58	1.22
1109		187.8	189.2	1.4	.22	.06	.08
1110		189.2	191.5	2.3	.01		.01
1111		191.5	194.5	3.0	tr		tr