

85-1117-14387

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

14,387

11/86

REPORT ON DRILLING

ON THE

BC-LORANGER GROUP

BC 1	4400(4)
BC 2	5953(11)
BC 3	5954(11)
JEAN 3	5539(3)
WOLVERINE 1	4369(3)
WOLVERINE 2	4370(3)

FILMED

KAMLOOPS MINING DIVISION

N.T.S. 82M/5W

Lat. $51^{\circ}21.5'$ Long. $119^{\circ}56.5'$

**MINISTRY OF ENERGY, MINES
AND PETROLEUM RESOURCES**

Rec'd **FEB 4 1986**

SUBJECT _____

FILE _____

VANCOUVER, B.C.

Owners : Leo Loranger
Noranda Exploration Company, Limited (no personal liability)

Operator: Noranda Exploration Company, Limited (no personal liability)

Author : R. Wilson, Project Geologist

Date : January, 1986

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1.0 INTRODUCTION

1.1 Location and Access

The BC-Loranger group of claims is located 85 km NNE of Kamloops, B.C. on Birk Creek (Figure 1). Table 1 below is a listing of the BC-Loranger Group claims and related information.

TABLE 1: BC-LORANGER GROUP CLAIM INFORMATION

CLAIM NAME	RECORD NO.	UNITS	RECORD DATE	EXPIRY DATE
BC 1	4400 (4)	20	April 18	1991
BC 2	5953 (11)	20	November 7	1990
BC 3	5954 (11)	15	November 7	1990
Jean 3	5539 (3)	18	March 2	1990
Wolverine 1	4369 (3)	1	March 7	1991
Wolverine 2	4370 (3)	1	March 7	1991

=====
The BC-Loranger group of claims is accessed by paved and gravel logging roads from Barriere, B.C. From Barriere, a paved road (Barriere Lakes Road) is followed to the turnoff to North Barriere Lake. From this point a gravel road (North Barriere Lake Road) is followed for 6.9 km to the South Birk Creek Road. South Birk Creek Road is followed until Birk Creek is crossed. From this point the clearcut in which the drilling occurred is another 4 km. Average dry season travel time to the property is 40 minutes.

1.2 Topography and Physiography

The drill project area is situated on the slope facing south into Birk Creek at approximately 5100' (1554 m). All drill holes were located within a logged clearcut in an area where slopes average 2-18°.

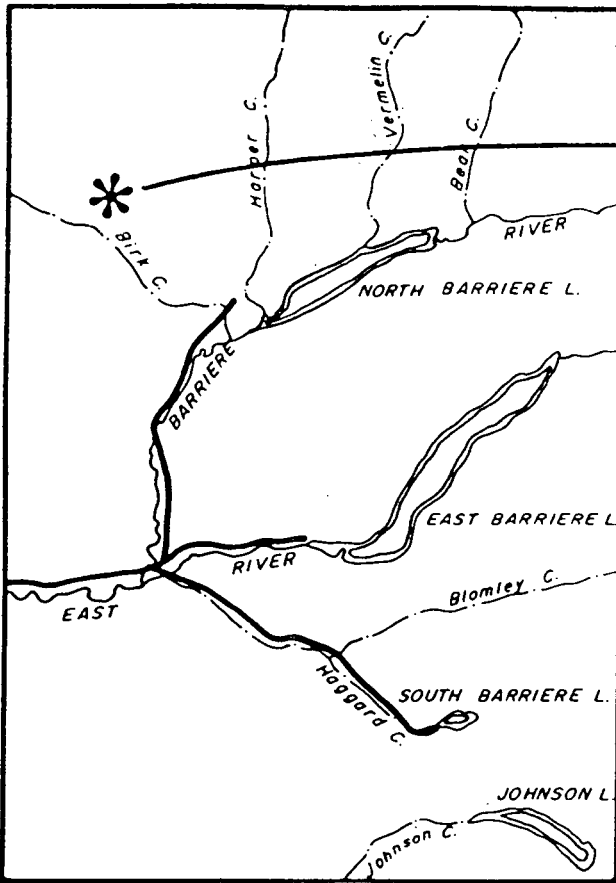
Second growth underbrush, consisting mainly of fireweed and minor blueberry is not of significant height to hinder traverses. The replanted forest is deformed with a series of kinks and twists and is from 3-5' (.9-1.5 m) tall.

Mature forests of hemlock and balsam surrounding the clearcut are open and traversing is generally easily accomplished.

1.3 Previous Work

Historically this area has been prospected several times and 3 showings which occur on the claim group are reported in Minfile. Several other showings are reported in Minfile 1-2 km downstream on Birk Creek.

A number of assessment reports are available on properties in this area. The reader is referred to Assessment Report Index Map 82M (Seymour Arm), and the Minfile map and listing for "MI 82M/5W" for further historical information.

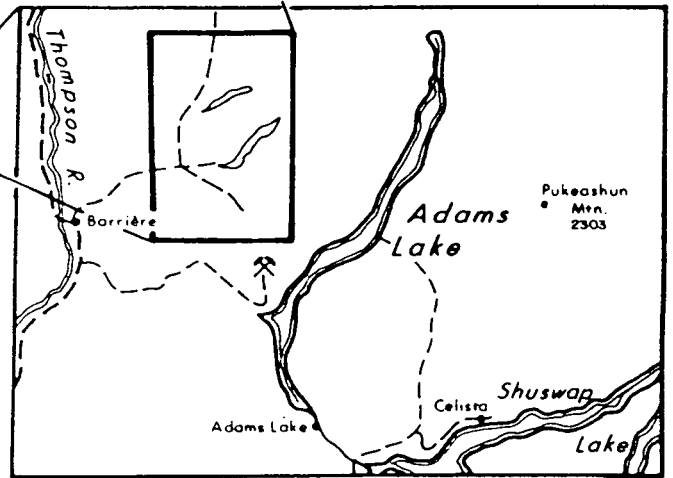


1:250 000

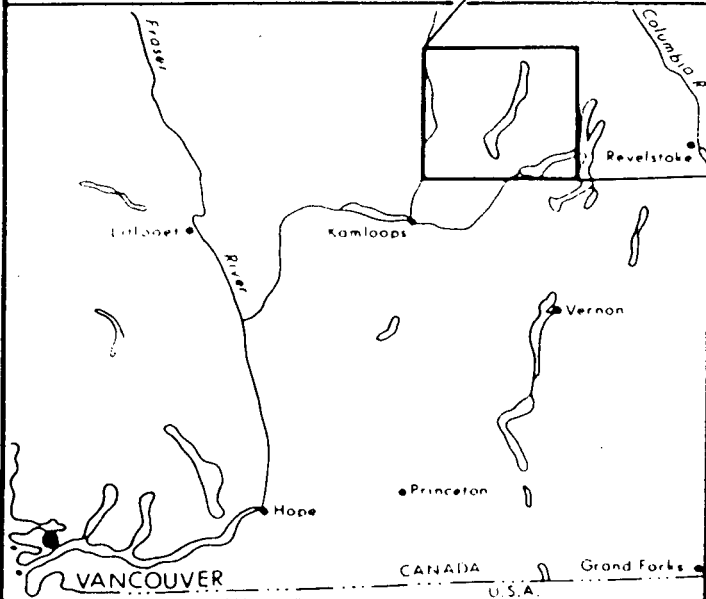
PROPERTY
LOCATION



1:1 000 000



1:4 000 000



REVISED	BIRK CK PROJECT	
	BC-LORANGER CLAIM GROUP	
	PROPERTY LOCATION	
PROJ No 11	SURVEY BY	DATE JAN 1986
N.T.S. 82M/5	DRAWN BY	SCALE 1:50000
DWG. No 1	NORANDA EXPLORATION	
	OFFICE: Vancouver	

VANCAL 11927

CANADA
U.S.A.

The property was staked by L. Loranger in 1983 primarily due to a past regional soil survey by Cominco which had shown low grade soil anomalies in the vicinity of the present claims. Additional claims were staked by Noranda in 1984.

In 1983 a VLF, magnetometer, HLEM, geology and limited geochemical survey was completed in the vicinity of the Cominco soil anomaly. A distinct geophysical response at an angle to the baseline was received and a new grid more closely perpendicular to the response direction was cut. This grid was surveyed at a 50 m linespacing using geology, HLEM and magnetometer. Four trenches were dug by D8 cat across zones of coincident anomalous geochemistry and geophysics and discovered Pb, Zn, and Ag mineralization in 2 of the trenches. The other two trenches failed to reach bedrock.

Drilling was proposed to test the showings and anomalies at depth. A portion of that drill programme is covered by this report.

1.4 Owner - Operator

Table 2 below lists the BC-Loranger Group claims and respective owners. Noranda Exploration Company, Limited (no personal liability), Vancouver is the present operator.

TABLE 2: CLAIM OWNERSHIP

CLAIM NAME	OWNER	STATUS
BC 1	Leo Loranger	Option
BC 2	Noranda	100% Ownership
BC 3	Noranda	100% Ownership
Jean 3	Noranda	Option
Wolverine 1	Noranda	Option
Wolverine 2	Noranda	Option

1.5 Economic Potential

The economic potential of this property is considered good due to the presence of argentiferous galena and sphalerite on this property.

2.0 SUMMARY OF WORK DONE

2.1 Drilling

A total of 4 drill holes are being reported in this report for 212.7 m of NQ sized (47.6 mm diameter) diamond drill core.

2.2 Claims Worked

All drilling was performed on the BC-1 claim, a 20 unit claim in the centre of the BC-Loranger group.

3.0 DETAILED TECHNICAL DATA AND INTERPRETATION

3.1 Drilling Summary

Geological, geophysical and geochemical surveys together with follow-up trenching preceded the current drill programme. Diamond drilling was used to test the southern extension of a linear HLEM (and VLF) anomaly along which anomalous soil geochemistry had been successful in locating galena-sphalerite mineralization in a trench. Diamond drill holes Lor 85-6, 7, 8 and 9 tested the southern extension of the geophysical anomaly. A characteristic stratigraphic sequence was recognized consisting of: 1) a hanging wall of "spotted biotite-pyrrhotite" quartz latite to rhyodacite tuff and "blue-grey" (+ argillaceous ?) rhyodacitic tuff; 2) a projected mineralized horizon of an argillaceous dacitic to rhyodacitic tuff lapilli breccia; and 3) a dacitic to rhyodacitic tuff and ? flow footwall.

This stratigraphic sequence was recognized in holes Lor 85-7, 8 and 9. Hole Lor 85-6 was lost in a fault zone before it could penetrate this sequence. Appendix I contains all drill logs for holes Lor 85-6 to 9.

Only trace quantities of sphalerite and galena were found in core samples and this mineralization is not totally restricted to the projected mineralized horizon. Appendix II is a summary of all core sampling together with results for all elements analyzed. All core samples were analyzed by Bondar Clegg Laboratories Ltd. Vancouver using rock geochemical methods. Appendix III is an information sheet prepared by Bondar-Clegg Laboratories Ltd. on their procedures for sample analysis.

3.2 Rock Descriptions

The following unit descriptions correlate with the drill sections and are based in part on thin section descriptions of type samples by Vancouver Petrographics Ltd.

Unit 1: Quartz Latite Tuff ("Po Tuff")

Unit 1 is seen in holes Lor 85-6, 7, 8, 9 and is pale grey green to brownish, with fine to coarse grained partly resorbed tuffaceous fragments of quartz and feldspar in a fine grained plagioclase-sericite-Kspar matrix.

Two rocks from the same apparent stratigraphic horizon were examined in thin section and given the names quartz latite and rhyodacite. There appear therefore to be several thin tuff beds within Unit 1 which have a similar characteristic field appearance but have minor compositional differences.

Thermal metamorphism has produced biotite-pyrrhotite spots which nucleate around quartz lapilli and are up to 1.5 mm in size.

Sulphides (pyrrhotite with minor pyrite) comprise from 5 to 15% of the rock. The sulphides occur associated with the biotite spots and as distinct grains (fragments) occasionally displaying pressure shadows of carbonate growth.

Sericite has developed as an alteration product of plagioclase and K-spar and is a major constituent of the rock.

Unit 2: Argillaceous Tuff ("Blue Grey Tuff")

Unit 2 is seen in holes Lor 85-7, 8 and 9 and is grey to blue grey, very fine to fine grained, moderately hard to moderately soft, and sheared (parallel to bedding ?) with fine grained quartzitic tuff fragments parallel to foliation. A fine crenulated network of opaque material (? graphite) is present within the foliation. The percentage of graphite increases in the southern most holes.

In thin section the rock has been identified as a rhyodacite tuff which was highly sheared and then thermally metamorphosed. Biotite-pyrrhotite spots .1 to .3 mm in diameter have developed around quartz lapilli, similar to Unit 1. Sericite is less common than in Unit 1.

Unit 3: Argillaceous Tuff Breccia

Unit 3 is seen in holes Lor 85-7, 8 and 9 and contains quartz fragments in an argillaceous tuff unit similar to Unit 2. The rock is dark grey, very fine grained, thin bedded (due shearing ?), soft except where unseen silicification ? is present, and well sheared with elongate quartz lapilli.

The unit has been identified in thin section as a possible dacite tuff which has been highly sheared but lacks biotite-pyrrhotite spots. Sericite is a major constituent of the rock, probably as an alteration product of plagioclase. Graphite is present in the foliation in varying amounts, but generally increases in the southern most holes.

Sulphides are mainly pyrrhotite, minor pyrite and trace sphalerite as fine grained disseminations. This unit is the expected host of and economic sulphide mineralization.

Unit 4: Dacite Tuffs and Flows

Unit 4 is seen in holes Lor 85-7, 8, and 9. Originally named dacite, thin section studies have shown the unit to contain some rhyodacite rocks. The rock is a thermally metamorphosed to hornfels, and is considered to be the footwall horizon.

The unit is green to maroon grey green, fine to medium grained, hard (silicified ?), and thin to medium bedded. Both tuff and flow rocks are present within the unit.

This unit is generally sulphide poor and provided a geophysically resistive footwall.

Unit 5: Latite Tuff

Unit 5 is only seen at the top of hole Lor 85-6 and is dark grey green, hard, moderately to thinly bedded, and has a very weakly developed fabric. The unit is composed of several tuffaceous beds of intermediate to acidic composition. The rocks lack recognizable feldspars and biotite-pyrrhotite spots do not occur in this unit.

Sulphides (generally <1%) are mainly pyrrhotite and pyrite and occur as euhedral crystals and fragments.

Unit 6: Quartz Lapilli Tuff

Unit 6 is only seen below the footwall rocks (Unit 4) in hole Lor 85-9. The rocks are grey green, hard, with coarse grained lapilli (average 1 cm) and a finer grained matrix. The lapilli are slightly elongated and are mainly quartz with minor feldspar. The matrix is the same composition as the lapilli but is finer grained. A moderate fabric is developed but the rock is massive bedded.

Sulphides are 1-2% and are pyrite and minor pyrrhotite occurring as fine grained disseminations.

3.3 Mineralization

Economic sulphide mineralization, being sphalerite and argentiferous galena, was expected within Unit 3 in all three holes but in fact was only seen in this unit in one hole (Lor 85-9). Trace grains of sphalerite were seen in Unit 2 in holes Lor 85-7, 8, 9. No mineralization was seen in Lor 85-6.

No samples from these trace mineralized sections returned encouraging Zn, Pb, or Ag results.

4.0 CONCLUSIONS

Although 3 of the 4 drill holes crossed the favourable stratigraphic sequence only minor economic sulphide mineralization was encountered. An increase in the graphite content of Unit 3 and 4 to the south produced a stronger geophysical response in this area.

No further work is expected to be done on this area due to the lack of encouraging results.

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Robert G. Wilson of 3328 West 15th. Avenue, City of Vancouver, Province of British Columbia, do hereby certify that:

1. I have been employed as a Project Geologist for Noranda Exploration Company, Limited (no personal liability) since 1983 to the present.
2. I graduated from the University of British Columbia in 1976 with a B.Sc degree in geology.
3. I have worked in mineral exploration since 1973 and have practiced my profession as a geologist since 1976.
4. I am a member of the Geological Association of Canada (Cordillera Division)

R. Wilson
Project Geologist

STATEMENT OF COSTS

MORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT BC LORANGER
TYPE OF REPORT DRILLING

DATE

a) Wages:

No. of Days 12

Rate per Day \$ 102.15

Dates From: July 1 - August 31, 1985

Total Wages 27 man days x \$ 102.15/man day 2,758.05

b) Food and Accomodation:

No of days 27 man days

Rate per day \$ 45 X 27 man days

Dates From: July 1 - August 31, 1985

Total Cost 27 man days x \$ 45.00/man day 1,215.00

c) Transportation:

No of days 15 Truck Days

Rate per day \$ 50.00 X 15

Dates From: July 1 - August 31, 1985

Total Cost 15 Truck days X \$ 50.00/Truck day 750.00

d) Instrument Rental:

Type of Instrument N/A

No of days

Rate per day \$

Dates From:

Total Cost X \$

Type of Instrument

No of days

Rate per day \$

Dates From:

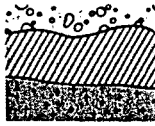
Total Cost X \$

f) Analysis		1,089.00
(See attached schedule)		
g) Cost of preparation of Report		
Author	5 X \$ 169.65	
Drafting	5 X \$ 169.65	
Typing	5 X \$ 169.65	2,544.75
h) Other:		
Contractor: Olympic Drilling		16,490.03
Field Supplies: Pete's Core Rack		<u>500.03</u>

Total Cost		\$ 25,347.46
------------	--	--------------

e) Unit costs for Drilling		
No of days		
No of units	212.7 m	
Unit costs	\$ 25,347.46 / 212.7 m + \$ 119.17/Metre	
Total Cost	119.17 × 212.7 =	\$ <u>25,347.46</u>

APPENDIX I
ANALYTICAL METHOD DESCRIPTIONS FOR
GEOCHEMICAL ASSESSMENT REPORTS



GEOCHEMICAL METHODS

ELEMENT	EXTRACTION	METHOD OF ANALYSIS
Cu, Pb, Zn, Mo, As, Cd, Ni, Co, Mn, Fe	Hot Lefort Aqua Regia	Atomic Absorption
U	Hot Conc HNO ₃	Fluorimetric
W	Basic Oxidation Fusion	Colourimetric
F	Basic Fusion	Citrate Buffer-Specific Ion
Au, Pt, Pd	Fire Assay & Hot Aqua Regia	Atomic Absorption
As	HClO ₄ -HNO ₃ Arsine	Colourimetric
Hg	Aqua Regia	Closed Cell, Flameless Atomic Absorption
Sn, Sb, Ba, Rb, Sr, Y Zr, Nb, La, Ce, Ti	5.0-10.0g	Energy dispersive XRF
Th, Se, Te, Ga, In		Discrete angle/cathode XRF
Ki	Hot Conc HNO ₃	Atomic Absorption
V, Be, Li	HClO ₄ -HNO ₃ -HF	Atomic Absorption
Cr	Sodium Peroxide Fusion	Atomic Absorption
Tl, Te	HBr-Br + Organic Extraction	Atomic Absorption
B	Basic Fusion	Plasma
Re	Alkali Fusion + Organic Extraction	Atomic Absorption
C		Leco Induction Furnace

WHOLE ROCK ANALYSIS

SiO₂ K₂O Na₂O CaO

MgO MnO Fe Al₂O₃

TiO₂ P₂O₅

S

HF-HNO₃

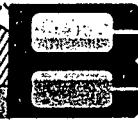
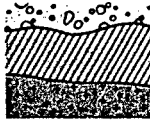
HF-HNO₃

Atomic Absorption

Colourimetric

Leco Induction Furnace

Fraction used for analysis: Rocks -100 mesh; soils/sediments -80 unless otherwise noted.



GEOCHEMICAL SAMPLE FLOW

- STEP 1
LOGGING IN - each sample submission is assigned a unique lot number
- STEP 2
SORT - according to sample type (soils, streams, rocks, etc.) and then according to alphabetic and/or numeric order.
- physical sample is checked off against sample submittal form which has been completed (?) by the client.
- STEP 3
SAMPLE PREPARATION - all samples are processed in numeric order with adequate drying being ensured before preparation
- a) soils-sediments - bang dry sample in the bag with rubber mallet to break loose fines from clods/mosses/etc.
- pour into 80 mesh stainless steel sieve.
- sift out all-80; if samples are for Au, sift out -20 +80 if -80 fraction less than 20 gm.
- re-bag sample and refile if retention of rejects requested otherwise - out goes the oversize
- b) rock and drill core - put in numerical order; insert made-up pulp bags into proper rock bag
- primary crush
- secondary crush (80% -10 mesh)
- split out 200 - 400 gm with a Jones riffle splitter
- pulverize via an impact (ring and puck) grinder.
Final product is about 50% -150 mesh and 99% -80 mesh, and is free from pulverizer contamination.
- c) Pan concentrates - sample is pulverized in its entirety to ensure homogeneity
- please no coarse metallic nuggets without prior warning
- d) PULPS - spot check for proper preparation; if unacceptable we re-PREP
- e) other sample types are prepared according to client's request
- STEP 4
WEIGHING - using electronic balances, with a precision of +/-0.01g., we weigh 5% of the samples for duplicate analysis and 2% of our analyses are performed on accepted standards.
- STEP 5
EXTRACTION METHODS - HNO₃-HCl - a vicious attack that satisfactorily leaches Cu Pb Zn Mo Ag Mn Cd Ni Co etc. in "all" rocks and soils/seds. Problems would be low level values (less 40 ppm) in high iron oxide soils or in tight refractory lattices

- 2 -

- HNO₃ - satisfactory for almost all ore minerals of U, Bi some As minerals, and most sulphides.
- PARTIAL EXTRACTIONS - specific for specific type occurrences or for loosely bonded (e.g. hydromorphically deposited) ions.
- HNO₃-HC104-HF - a higher temperature, vicious attack that specifically attacks some refractory silicates and oxides. More difficult to control precision, but useful for elements like V, Be, Se and certain low level metallics in rock geochem programs.
- HBr-Br - a slow, but powerful oxidative attack designed for Te and Tl minerals.
- VARIOUS FUSIONS - for difficult to handle elements in refractory lattices (e.g. W Cr Au Pt).
- STEP 6
ANALYSIS - (see attached sheet)
- STEP 7
DATA APPROVAL AND
TRANSFER - (see accompanying sheet entitled Computer services)
- STEP 8
QUALITY CONTROL - fifteen percent of our staff do nothing else but supervise and check procedures and techniques. The resident assayer, chemist and geochemist provide the final check.

APPENDIX II
DIAMOND DRILL LOGS

NORANDA EXPLORATION COMPANY LTD.

Date Collared		Date Completed		Core Size		DIP TESTS				PROPERTY		PROJECT No.		N.T.S. No.			
AUGUST 4, 1985		AUGUST 5, 1985		NQ						B.C. - TORANGER		11		82m/5			
FIELD CO-ORDINATES				DEPTH		BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 1 of 3			
Lat.		Elev.		Dip		None				Lat.		Elev.		Dip			
306+00N		1567.9m(5144')		-40°		Taken								HOLE No.			
Dep.		Length		Bearing						Dep.		Length		Bearing			
298+67.5E		34.1m		056°										LOR 85-6			
From	To	Recovery	Description			Structure		% Sulph.	Est. Grade	SAMPLE No.	Width	ASSAYS					
METERS	METERS	%										Au(ppb)	Ag(ppm)	Pb(ppm)	Zn(ppm)		
0	6.7		OVERBURDEN Triconed, no core recovery														
6.7	18.7 (27.2)	80%	LATITE? (crystal) tuff Dark grey green, fine grained, hard, moderate to thinly bedded. Green color may in part be due to chlorite alteration. Chlorite altered mafic fragments are set in a finer grained grey (silicified) matrix. The rock is metamorphosed to lower greenschist facies with a very weakly developed fabric. Quartz veins are present from 3 mm to 10 cm at 50 - 60°CA. Quartz is also present as flooding as at 10.5 m. Core is moderately to highly broken over this unit with many gossanous fractures, due mainly to the proximity with surface. This feature dies out at approximately 11.0 m. Pyrrhotite + pyrite is present as euhedral crystals and fragments from 2 - 4 mm diameter but is less than 1%. Unit appears to be several tuffaceous beds (events) which vary in color from greenish to green brown and from fine to very fine grained. The rock has an intermediate to acidic composition, average approximately latitic to dacitic, lacking recognizable feldspars. Fabric varies over unit from weak to moderate. Variable carbonate content of fragments. Contact with below unit gradational from 27.2 - 27.6 with frequent quartz veins, same showing bondinage texture.			BEDDING 55° CA @ 12.4 56° CA @ 14.3 58° CA @ 16.0 27° CA @ 20.4 Sub unit contacts 80° CA @ 10.5 62° CA @ 15.1 72° CA @ 16.4 BEDDING 58° CA @ 23.0 30° CA @ 25.2		1%									

Drill LOG - 81

Date August 7, 1985 Logged By R.G. Wilson

NORANDA EXPLORATION COMPANY LTD.

Date Collared		Date Completed		Core Size		DIP TESTS				PROPERTY		PROJECT No.		N.T.S. No.	
AUGUST 4, 1985		AUGUST 5, 1985		NQ		BEARING		ANGLE		B.C. - TORANGER		11		82m/5	
FIELD CO-ORDINATES						DEPTH				SURVEYED CO-ORDINATES				Sheet 2 of 3	
Lot.		Elev.		Dip		None Taken				Lot.		Elev.		Dip	
306+00N		1567.9m(5144')		-40°										HOLE No.	
Dep.		Length		Bearing						Dep.		Length		Bearing	
298+67.5E		34.1m		156°										LOR 85-6	
From	To	Recovery	Description	Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS						
									Au(ppb)	Ag(ppm)	Pb(ppm)	Zn(ppm)			
18.7	19.7	100%	AS ABOVE Quartz flood zone over 80% of sample with chloritic alteration. Minor po.		1%		57579	1.0	10	0.3	84	40			
19.7	27.2	80%	AS ABOVE No sample. At 25.2 fabric and bedding are in opposite directions, both 25-30° CA.		1%										
27.2	28.0 (30.2)	100%	QUARTZ LATITE TUFF Blue grey, fine grained, moderately soft to moderately hard, moderately to thickly bedded. Rock is altered, masking fragments of feldspar and minor quartz. Rock has a mottled (dalmation) texture due to pyrrhotite and biotite. Quartz veins to 1 cm are present with chlorite alteration along the vein margins. Pyrrhotite occurs as blebs with fine grained biotite and fragments from 2 - 10 mm. Rock has a moderate developed fabric at 25 - 40° CA. Thin coarser grained tuffaceous interbed at 28.2 @ 25° CA.	BEDDING 48° CA @ 28.4	10 - 15%										
			Possible contact with below unit at 17° CA @ 30.2m.												
28.0	29.0	100%	AS ABOVE P ₈ as altered blebs and fragments to 10 - 15%. P ₈ tuff starts at 27.6.		10 - 15%		57580	1.0	5	< 0.2	10	147			

DRILL LOG - 81

Date August 7, 1985 Logged By R.G. Wilson

NORANDA EXPLORATION COMPANY LTD.

Date Colored		Date Completed		Core Size		DIP TESTS				PROPERTY		PROJECT No.		N.T.S. No.	
AUGUST 4, 1985		AUGUST 5, 1985		NQ						R.C. - LORANGER		11		R2m/5	
FIELD CO-ORDINATES				DEPTH		BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 3 of 3	
Lot.		Elev.		Dip		None				Lot.		Elev.		Dip	
306+00N		1567.9m(5144')		-40°		Taken									
Dep.		Length		Bearing						Dep.		Length		Bearing	
298+67.5E		34.1m		156°										LOR 85-6	
From	To	Recovery	Description	Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS						
									Au (ppb)	Ag (ppm)	Pb (ppm)	Zn (ppm)			
29.0	30.2	100%	AS ABOVE No sample		10 - 15%										
30.2	34.1	10%	FAULT ZONE Clay, sand and rubble core of quartz, and very fine grained light grey, very hard rhyodacitic (quartz eyes + minor, <1%, mafics) tuff and darker mudstone. This zone swelled with water and held the rods from turning and cut off water return. An attempt made to tricone through the zone was unsuccessful and reducing or reaming casing to the zone was considered too costly and risky. The first target was not intersected and is thought to be on the footwall side of the fault. The hole was abandoned and the drill moved forward and restarted as LOR 85 -7 Sample is a composite of fault zone material and may not represent a true composite due to sloughing in hole.				57581	3.9	< 5	0.3	46	106			
34.1			END OF HOLE Casing pulled hole abandoned.												

NORANDA EXPLORATION COMPANY LTD.

Date Coiled August 6, 1985		Date Completed August 7, 1985		Core Size NO		DIP TESTS				PROPERTY B.C. LORANGER		PROJECT No. 11		N.T.S. No. 82M/5	
FIELD CO-ORDINATES				DEPTH	BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 1 of 10		
Lat.	Elev.	Dip			RECORDED	CORRECTED	RECORDED	CORRECTED	Lat.	Elev.	Dip	HOLE No.			
306 + 00N	1573.2m (5161.4')	-40°		65.5m				40°				LOR 85-7			
Dep 299 + 29E	Length 68.9 m	Bearing 056°							Dep.	Length	Bearing				
From METRES	To METRES	Recovery %	Description	Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS						
									Au (ppb)	Ag (ppm)	Pb (ppm)	Zn (ppm)			
0	3.7		OVERBURDEN Triconed - no core recovery												
3.7	17.1 (35.4)	89%	QUARTZ LATITE TUFF Mottled maroon, light blue-grey, light green to dark green. Fine to medium grained. Spotted texture due to Bi & Po grains, average 3mm with red to a brass-brown, comprising from 10 - 20% of rock. Texture highly variable due to alteration. Irregular veins and pods of blue-green alteration and silicification. H4 to >6. Thin to thickly bedded. Core moderately competent. Lower green-schist grade meta with weak to moderate fabric development. Non calcareous. Numerous hairline fractures, some with silicate veinlets <1mm. Feldspar fragments, 1 - 2mm are common often chloritized. Po also occurs as fresh looking angular fragments, average approx. 3mm. Total sulphides approx. 15%. Economic 0%. 8.4m - Quartz veinlet, 1cm @ 120° C.A. 9.1m - Quartz veins with abundant chlorite(?) alteration 3cm @ 135° & 45° to C.A. 10.1m - Quartz vein, 3cm @ 90° to C.A. 10.6m - Quartz vein, 8cm @ 100° to C.A. with abundant chlorite alteration. 10.9m - Quartz vein 10cm with abundant chlorite @ 70° to C.A. 13.9m - Quartz vein, 3cm with abundant chlorite alteration @ 120° to C.A. from 10m → increased chlorite alteration. 15.5m - Quartz vein with abundant chlorite alteration 10cm wide @ 50° C.A.	BEDDING 7.7m @ 165° C.A. 6.5m @ 45° C.A. (questionable bedding)											

DRILL LOG - #1

Date AUGUST 9, 1985 Logged By D, J. DEVIN

NORANDA EXPLORATION COMPANY LTD.

Date Collared August 6, 1985		Date Completed August 7, 1985		Core Size NO		DIP TESTS				PROPERTY B.C. LORANGER		PROJECT No 11		N.T.S. No. 82M/5	
FIELD CO-ORDINATES				DEPTH	BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 2 of 10		
Lat.	Elev.	Dip	Bearing		RECORDED	CORRECTED	RECORDED	CORRECTED	Lat.	Elev.	Dip	Bearing	HOLE No. LOR 85-7		
306 + 00N	1573.2m (5161.4')	-40°	056°	65.5m				40°							
299 + 29E	Length 68.9 m														
From METRES	To METRES	Recovery %	Description	Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS						
									Au (ppb)	Ag (ppm)	Pb (ppm)	Zn (ppm)			
17.1	17.6	100%	HIGHLY ALTERED ZONE Pale green with pink/white veins and pods, calcareous (xodochrosite?) vein @ 20° to C.A. approx. 4. Pink quartz veinlets approx. 1cm @ 158° C.A. Po 1% Economic 0% Total sulphides approx. 1%		1%		57583	0.5	< 5	< 0.2	32	96			
17.6	18.6	100%	QUARTZ LATITE TUFF Representative sample as described 3.7m - 17.1m Po 15 - 20% Total sulphides 15 - 20% Economic 0%	BEDDING 14.8m @ 45° C.A. 18.8m @ 45° C.A.	15 - 20%		57584	1.0	< 5	0.3	32	100			
18.6	20.3	82%	QUARTZ LATITE TUFF As above 19.3 - 19.6 - Silicified zone, numerous quartz veinlets and pods. Veinlets @ 85° C.A. Calc-silicate veinlets approx. 1mm @ 20° C.A. Po/Py as disseminations and fracture fillings. Total 10%		10%										
			20.2m - 20.5m - Quartz vein 90° C.A. Po approx. 1%												
20.3	21.3	100%	ZONE OF INTENSE CHLORITIZATION Host rock as above, but mainly green for chlorite alteration. Numerous quartz veinlets and pods, average 1cm and milky white (feldspathic?) veinlets. Minor Po/Py <1% H 4-6. Total sulphides <1% Economic 0% 20.6 - Feldspar veinlet - 1cm @ 30° C.A. - Quartz veinlet @ 13.5° C.A. (1cm)	BEDDING 25.8m 60° - C.A. 22.4m 160° C.A. (not reliable - bedding not well developed)	1%		57585	1.0	10	0.4	41	77			

DRILL LOG - 81

Date AUGUST 9, 1985 Logged By D.J. DEVIN

NORANDA EXPLORATION COMPANY LTD.

Date Collared		Date Completed		Core Size		DIP TESTS				PROPERTY		PROJECT No.		N.T.S. No.	
August 6, 1985		August 7, 1985		NQ		BEARING		ANGLE		B.C. LORANGER		11		82M/5	
FIELD CO-ORDINATES				DEPTH		RECORDED		CORRECTED		SURVEYED CO-ORDINATES				Sheet 3 of 10	
Lat.		Elev.		Dip		RECORDED		CORRECTED		Lat.		Elev.		Dip	
306 + 00N		1573.2m (5161.4')		-40°						40°				HOLE No.	
Deg.		Length		Bearing						Dep.		Length		Bearing	
299 + 29E		68.9 m		056°										LOR 85-7	
From METRES	To METRES	Recovery %	Description	Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS						
									Au (ppb)	Ag (ppm)	Pb (ppm)	Zn (ppm)			
21.3	22.3	100%	AS ABOVE Representative sample				57586	1.0	5	0.2	30	126			
22.3	24.9	62%	QUARTZ LATITE TUFF As previously described (3.7 - 17.1) colour varies from green-grey to maroon. Po/Py comprises 10 - 15% of rock.		10 - 15%										
			23.9 - Quartz vein 6cm @ 100° to C.A. Calc-silicate veinlets @ 70° C.A.												
24.9	25.0	100%	QUARTZ VEIN Milky white @ 135° to C.A. Minor pyrite as crystal aggregates approx. 1%.		1%		57587	0.1	5	0.2	18	28			
25.0	26.2	83%	QUARTZ LATITE TUFF As described 22.3m to 24.9m		10 - 15%										
26.2	27.3	99%	INTENSELY ALTERED ZONE Maroon to pale to medium green, fine to medium grained. Thin to thickly bedded H.4 to >6. Core moderately competent. Alteration consists of intense bleaching and silicification as well as quartzo-feldspathic veining and calc-silicate veining. Quartz as veinlets and pods. Chloritized. Po as 2mm "spots". - 10%	BEDDING 29.6m @ 70° CA	15 - 20%		57588	1.1	<5	0.3	20	112			
			26.2 to 26.5 - maroon colour dominates												
			26.6 to 26.8 - pale green and finer grained, possible flow, contact with above 100° to C.A. Contact with below												

DRILL LOG - 81

Date AUGUST 9, 1985 Logged By D. J. DEVIN

NORANDA EXPLORATION COMPANY LTD.

Date Collared August 6, 1985		Date Completed August 7, 1985		Core Size NO		DIP TESTS				PROPERTY B.C. LORANGER		PROJECT No. 11		N.T.S. No. 82M/5			
FIELD CO-ORDINATES				DEPTH		BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 4 of 10			
Lot 306 + 00N		Elev. 1573.2m (5161.4')		Dip -40°		65.5m		RECORDED		CORRECTED		RECORDED		CORRECTED		HOLE No.	
Dep 299 + 29E		Length 68.9 m		Bearing 056°												LOR 85-7	
From METRES	To METRES	Recovery %	Description			Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS						
											Au (ppb)	Ag (ppm)	Pb (ppm)	Zn (ppm)			
			gradational. 27.4 to 27.7 - light green, possible flow. Po, Py Total sulphides 20% Economic 0%.														
27.3	28.4	67%	AS ABOVE Total sulphides 15 - 20%. Po, Py				15 - 20%		57589	1.1	<5	0.4	29	98			
28.4	29.3	100%	QUARTZ LATITE TUFF As previously described with increased chlorite alteration resulting in mottled green colour. 29.2 - Quartz vein 2cm @ 135° C.A.				1%										
			29.3 - 29.4 - Quartz vein with abundant chloritic alteration Po/Py < 1%.														
29.3	30.4	82%	QUARTZ LATITE TUFF As previously described, (28.4 - 29.3) core broken, numerous calc-silicate veinlets @ 130° C.A. <1mm H 3 to >6 Highly silicified in part.				1%										
			30.0 - 30.4 - Core highly broken and caved. 29.3 - 29.4 - Quartz vein. - 60° to C.A. Gradational contact with below.														
30.4	34.4	80%	BLEACHED ZONE AS ABOVE Pale green fine to medium grained, thin to thickly bedded. H approx. 4, core broken, prevasively bleached numerous hairline fractures and calc-silicate veining, generally @ 60° C.A. but highly variable. Parts of core show a weak fabric.														
			30.5m - calc-silicate vein 2cm - @ 70° C.A. Small (< 1mm) felsic fragments constitute 10 - 20%				1%										

DRILL LOG - 81

Date AUGUST 12, 1985 Logged By D.J. DEVIN

NORANDA EXPLORATION COMPANY LTD.

Date Collared August 6, 1985		Date Completed August 7, 1985		Core Size NQ		DIP TESTS				PROPERTY B.C. LORANGER		PROJECT No. 11		N.T.S. No. 82M/5	
FIELD CO-ORDINATES				DEPTH	BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 5 of 10		
Lot 306 + 00N	Elev. 1573.2m (5161.4')	Dip -40°	Length 68.9 m		RECORDED	CORRECTED	RECORDED	CORRECTED	Lat.	Elev.	Dip	HOLE No. LOR 85-7			
Dep. 299 + 29E	Length 68.9 m	Bearing 056°						Dep.	Length	Bearing					
From METRES	To METRES	Recovery %	Description	Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS						
									Au (ppb)	Ag (ppm)	Pb (ppm)	Zn (ppm)			
			of rock. Combined Po/Py combined approx. 1% as isolated fragments and disseminations.												
34.4	35.4	80%	AS ABOVE Representative sample 35.0 - 35.4 is brecciated in part. Po occurs as angular fragments from 1 - 7mm, Average 3mm, and comprising 2 - 3% of rock. Total sulphides - 2 - 3% Contact with below @ 115° to C.A. - Sharp with both above and below highly brecciated.		2 - 3%		57632	1.0	5	0.4	11	100			
35.4	38.4 (46.3)	100%	ARGILLACEOUS TUFF Dark grey, fine grained with minor zones of small (< 1mm) felsic fragments. Occasional altered bleached fragments, semi-rounded occur and are from 0.5cm to 3mm - possible fragments of pre-existing veins. Thinly to thickly bedded. H 4-5. Competant core. Alteration consists of minor chloritization. Numerous calc-silicate veinlets, generally < 1cm from 45° to 65° C.A. Minor wispy zones of cal-silicate alteration. Po/Py occurs as angular fragments. Average 3 - 4mm and as veinlets (approx. 1mm), fracture fillings... disseminations and oxidized grains, constituting 10 - 15% of the rock. Graphitic in part. 40.2 - 40.8 - interbed of tuff. H 5-6 40.2 - Quartz vein 2 - 3cm. Orientation highly variable.		10 - 15%										

DRILL LOG - #1

Date AUGUST 12, 1985 Logged By D.J. DEVIN

NORANDA EXPLORATION COMPANY LTD.

Date Colored		Date Completed		Core Size		DIP TESTS				PROPERTY		PROJECT No.		N.T.S. No.			
August 6, 1985		August 7, 1985		NO		BEARING		ANGLE		B.C. LORANGER		11		82M/5			
FIELD CO-ORDINATES				DEPTH	RECORDED		CORRECTED		SURVEYED CO-ORDINATES				Sheet 6 of 10				
Lot		Elev.		Dip	RECORDED		CORRECTED		Lot.		Elev.		Dip		HOLE No.		
306 + DDN		1573.2m (5161.4')		-40°					40°						LOR 85-7		
Dep.		Length		Bearing						Dep.		Length		Bearing			
299 + 29E		68.9 m		056°													
From METRES	To METRES	Recovery %	Description	Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS								
									Au (ppb)	Ag (ppm)	Pb (ppm)	Zn (ppm)					
			41.9 - 1cm Po/Py veinlet @ 65° to C.A. with recumbant folds.														
38.4	39.4	95%	AS ABOVE Representative sample. 38.4 - 38.6 - Quartz vein @ 120° to C.A. Po/Py total sulphides 15%.		10 - 15%		57633	1.0	10	0.5	18	174					
39.4	43.5	95%	AS ABOVE Quartz vein @ 44.2m @ 95° to C.A. 4cm wide. Contact with below 145° to C.A. - gradational over 1cm. Numerous calc-silicate veinlets approx 1cm from 100° to 135° to C.A., often severely deformed. Fabric @ 145° to C.A.		10 - 15%												
43.5	44.5	95%	AS ABOVE Representative sample - Quartz vein @ 44.2 - described above has < 1% sphalerite. Total sulphides 10% Economic <1% (sphalerite)		SP 10		57634	1.0	<5	0.3	15	188					
44.5	46.3	95%	AS ABOVE No sample		10 - 15%												
46.3	48.8 (53.1)	95%	QUARTZ LATITE TUFF "Pyrrhotite tuff" Light grey with pale green tinge. Fine to medium grained. Spotted texture due to abundant Po grains, <1mm, but with 2 - 3mm oxidation holes surrounding		10 - 15%												

DRILL LOG - 81

Date AUGUST 12, 1985 Logged By D.J. DEVIN

NORANDA EXPLORATION COMPANY LTD.

Date Colored August 6, 1985		Date Completed August 7, 1985		Core Size NQ		DIP TESTS				PROPERTY B.C. LORANGER		PROJECT No. 11		N.T.S. No. 82M/5	
FIELD CO-ORDINATES				DEPTH	BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 7 of 10		
Lot 306 + 00N	Elev. 1573.2m (5161.4')	Dip -40°	Length 68.9 m		RECORDED	CORRECTED	RECORDED	CORRECTED	Lot	Elev.	Dip	Bearing	HOLE No. LOR 85-7		
Dep 299 + 29E	Length 68.9 m	Bearing 056°						Dep	Length	Bearing					
From METRES	To METRES	Recovery %	Description				Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS			
												Au (ppb)	Ag (ppm)	Pb (ppm)	Zn (ppm)
			them. These "spots" comprise approx. 25% of the rock. Thickly bedded. H approx. 4. Core moderately competent. Alteration consists of minor chloritization as well as oxidation of Po grains.				BEDDING 44.5m @ 40° - CA 52.0m @ 140° - CA								
			46.7 - 46.8 - Quartz vein @ 70° to C.A. Contact with below sharp @ 135° to C.A.												
48.8	49.4	100%	QUARTZ LATITE TUFF As described above, but without spotted texture. 50.2 - Quartz vein - 8cm wide @ 140° to C.A. Contact with below sharp @ 135° to C.A.					2 - 3%							
49.4	50.4	95%	QUARTZ LATITE TUFF As described 46.3m to 48.8m. Representative sample Po 10% Total sulphides approx. 10% Contact with below sharp @ 110° to C.A.					10%		57635	1.0	10	0.9	73	380
50.4	50.6	95%	AS ABOVE No sample					10%							
50.6	53.1	86%	QUARTZ LATITE TUFF As 48.8 to 49.4m. but with increased Po - totaling 15% to 20%. 52.5m to 52.6m - Quartz vein @ 140° to C.A. with 10% Po.					15 - 20%							
53.1	54.3 (55.3)	95%	ARGILLACEOUS TUFF Dark grey, fine grained. Spotted texture due to numerous Po fragments angular to sub-rounded usually lineated, average approx. 3mm long,				BEDDING 55.6m @ 135° - CA 54 m @ 130° - CA 54.4m @ 140° - CA	10 15%							

DRILL LOG - 81

Date AUGUST 13, 1985 Logged By D.J. DEVIN

NORANDA EXPLORATION COMPANY LTD.

Date Collared August 6, 1985		Date Completed August 7, 1985		Core Size NQ		DIP TESTS				PROPERTY B.C. LORANGER		PROJECT No. 11		N.T.S. No. 82M/5	
FIELD CO-ORDINATES				DEPTH	BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 8 of 10		
Lat.	Elev.	Dip	Length		RECORDED	CORRECTED	RECORDED	CORRECTED	Lat.	Elev.	Dip	Length	Bearing	HOLE No. LOR 85-7	
306 + 00N	1573.2m (5161.4')	-40°	68.9 m	65.5m				40°							
299 + 29E		056°													
From METRES	To METRES	Recovery %	Description			Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS				
			constituting approx. 10 - 15% of rock. Thinly to thickly bedded. H approx. 3 - 4. Core moderately competent. Numerous calc-silicate veinlets from 1mm to 2cm, average 1cm orientation highly variable.												
			Minor hairline fractures. Some sections show weak fabric development. Po fragments are lineated 135° to C.A.												
			54.1 - 54.3 Interbed of quartz-lignite tuff.												
			Contact gradational @ 140° to C.A.												
54.3	55.3	95%	AS ABOVE Representative sample. Po 15% Total sulphides 15% Contact with below sharp @ 45° C.A.			CONTACT 45° CA @ 55.3	15%		57636	1.0	10	0.8	19	270	
55.3	57.3 (59.3)	70%	ARGILLACEOUS TUFF BRECCIA Mottled dark grey-light grey, fine to coarse grained. Rock consists of a dark grey argillaceous matrix with light grey tuffaceous fragments from 5mm to 5cm, average approx. 1.5cm, angular to sub-rounded. Also pervasive wispy calc-silicate veinlets and pods with highly variable orientation, but frequently @ approx. 70° C.A. H 4-5. Core moderately competent. Minor hairline fractures.				15%		57644	2.0	15	1.8	55	370	
			The rock shows a moderately strong fabric - possible remanent bedding @ 115° to C.A.												
			Po as angular fragments average 3mm - 15% of rock.												

DRILL LOG - 81

Date AUGUST 13, 1985 logged By D.J. DEVIN

NORANDA EXPLORATION COMPANY LTD.

Date Collared August 6, 1985		Date Completed August 7, 1985		Core Size NQ		DIP TESTS				PROPERTY B.C. LORANGER		PROJECT No. 11		N.T.S. No. 82M/5		
FIELD CO-ORDINATES						DEPTH	BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 10 of 10	
Lat.	Elev.	Dip	Length	Bearing			RECORDED	CORRECTED	RECORDED	CORRECTED	Lat.	Elev.	Dip	HOLE No.		
306 + 00N	1573.2m (5161.4')	-40°	68.9m	056°	65.5m								LOR 85-7			
From	To	Recovery	Description			Structure	% Sulph.	Est. Grade	SAMPLE No.	Width	ASSAYS					
60.3	61.3	100%	AS ABOVE From 60.0m to 61.1m is a calc-silicate flooded zone.				10 - 15%		57640	1.0	10	1.0	330	750		
61.3	62.3	100%	AS ABOVE Representative sample.				10 - 15%		57641	1.0	10	0.6	34	107		
62.3	63.5	83%	AS ABOVE Po 10 - 15% Total sulphides 10 - 15% 62.3 - 62.6 minor argillaceous zone.			BEDDING	10 - 15%		57642	1.2	15	0.6	39	100		
63.5	64.4	100%	AS ABOVE Po 10 - 15% Total sulphides 10 - 15%			64.4m @ 40° - CA 68.9m @ 45° - CA	10 - 15%		57643	0.9	45	1.3	45	90		
64.4	68.9	91%	AS ABOVE End of hole - casing pulled. Note: From 65.4m downward - there is a marked change in alteration. Below 65.4 the alteration is dominated by a bright green colour, as opposed to the brown colour above 65.4.				10 - 15%									
68.9			END OF HOLE CASING PULLED													

DRILL LOG - 81

Date AUGUST 13, 1985 Logged By D.J. DEVIN

NORANDA EXPLORATION COMPANY LTD.

Date Colored August 6, 1985		Date Completed August 7, 1985		Core Size NO		DIP TESTS				PROPERTY B.C. LORANGER		PROJECT No. 11		N.T.S. No. 82M/5	
FIELD CO-ORDINATES				DEPTH	BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet g of 10		
Lot 306 + 00N	Elev. 1573.2m (5161.4')	Dip -40°	Length 68.9 m		RECORDED	CORRECTED	RECORDED	CORRECTED	Lat.	Elev.	Dip	HOLE No. LOR 85-7			
Dep. 299 + 29E	Length	Bearing 056°						Dep.	Length	Bearing					
From	To	Recovery	Description	Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS						
									Au (ppb)	Ag (ppm)	Pb (ppm)	Zn (ppm)			
57.3	58.4 (58.4)	100%	FAULT ZONE Within above unit. Highly sheared, but core is still competent Po approx. 10% Total sulphides approx. 10%		10%		57637	1.1	10	0.8	128	350			
58.4	58.6 (59.3)	95%	ARGILLACEOUS TUFF BRECCIA As described 55.3 - 57.3.		15%										
58.6	59.3	95%	AS ABOVE Representative sample Fault zone 58.7 - 58.8 Po 3% Total sulphides 3%	BEDDING 64.3m @ 120°-CA 61.0m @ 100°-CA 58.9m @ 100°-CA	3%		57638	0.7	5	0.6	112	196			
59.3	60.3 (68.9)	100%	DACITE TUFF "FOOTWALL" Mottled light green-light to dark grey-maroon, fine to medium grained. "Wispy mottled texture. Thinly to thickly bedded. H 4->6. Competant core. Thighly altered including a brown unidentified alteration, abundant chloritization and calc-silicate flooding. Numerous hairline fractures. Minor zones of brecciation. Quartz vein from 59.6m to 59.9m @ 45° to CA. Vein includes aggregates and fracture fillings of Po 5% and sphalerite 5% - Total sulphides 10% Economic 5%		SP 10		57639	1.0	11	1.1	260	4000			

DRILL LOG - 01

Date AUGUST 13, 1985 Logged By D.J. DEVIN

NORANDA EXPLORATION COMPANY LTD.

Date Collared August 6, 1985		Date Completed August 7, 1985		Core Size NQ		DIP TESTS				PROPERTY B.C. LORANGER		PROJECT No. 11		N.T.S. No. 82M/5		
FIELD CO-ORDINATES						DEPTH	BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 10 of 10	
Lat.	Elev.	Dip	Length	Bearing	RECORDED		CORRECTED	RECORDED	CORRECTED	Lot.	Elev.	Dip	HOLE No.			
306 + 00N	1573.2m (5161.4')	-40°	68.9m	056°				40°				LOR 85-7				
From	To	Recovery	Description	Structure	% Sulph.	Est. Grade	SAMPLE No.	Width	ASSAYS							
60.3	61.3	100%	AS ABOVE From 60.0m to 61.1m is a calc-silicate flooded zone.		10 - 15%		57640	1.0	10	1.0	330	750				
61.3	62.3	100%	AS ABOVE Representative sample.		10 - 15%		57641	1.0	10	0.6	34	107				
62.3	63.5	83%	AS ABOVE Po 10 - 15% Total sulphides 10 - 15% 62.3 - 62.6 minor argillaceous zone.	BEDDING	10 - 15%		57642	1.2	15	0.6	39	100				
63.5	64.4	100%	AS ABOVE Po 10 - 15% Total sulphides 10 - 15%	64.4m @ 40° - CA 68.9m @ 45° - CA	10 - 15%		57643	0.9	45	1.3	45	90				
64.4	68.9	91%	AS ABOVE End of hole - casing pulled. Note: From 65.4m downward - there is a marked change in alteration. Below 65.4 the alteration is dominated by a bright green colour, as opposed to the brown colour above 65.4.		10 - 15%											
68.9			END OF HOLE CASING PULLED													

DRILL LOG - 81

Date AUGUST 13, 1985 Logged By D.J. DEVIN

NORANDA EXPLORATION COMPANY LTD.

Date Called August 6/85		Date Completed August 7/85		Core Size NQ		DIP TESTS				PROPERTY B.C.-LORANGER		PROJECT No. 11		N.T.S. No. 82M/5	
FIELD CO-ORDINATES				DEPTH	BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 2 of 7		
Lat.	Elev.	Dip			RECORDED	CORRECTED	RECORDED	CORRECTED	Lat.	Elev.	Dip	HOLE No.			
304 + 50N	1564.7m (5133.5')	-40°		50.0m				41°				LOR 85-8			
Dep. 299 + 17E	Length 56.1m	Bearing 056°							Dep.	Length	Bearing				
From METRES	To METERS	Recovery %	Description	Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS						
									Au(ppb)	Ag(ppm)	Pb(ppm)	Zn(ppm)			
7.2	8.2	100%	AS ABOVE Larger (to 3cm) lithic? fragments of host unit. Pyrite 2-3%.		2-3%		57590	1.0	5	0.4	16	90			
8.2	9.2	100%	AS ABOVE As 7.2 - 8.2		2-3%		57591	1.0	<5	0.3	14	89			
9.2	10.2	100%	AS ABOVE As 7.2 - 8.2		2-3%		57592	1.0	10	0.3	14	90			
10.2	11.2	100%	AS ABOVE Quartz veins contain green (chlorite?) alteration, frequently surrounding pyrite grains.		2-3%		57593	1.0	<5	0.2	16	88			
11.2	12.2	100%	AS ABOVE As 10.2 - 11.2		2-3%		57594	1.0	<5	0.4	25	40			
12.2	13.2	100%	AS ABOVE As 10.2 - 11.2		2-3%		57595	1.0	10	0.4	14	90			
13.2	21.3	100%	AS ABOVE No sample												
21.3	22.3	100%	AS ABOVE Po, Py ± Cp approximately 2%		2%		57596	1.0	20	0.6	25	84			

DRILL LOG - 01

Date August 9, 1985 Logged By R.G. Wilson

NORANDA EXPLORATION COMPANY LTD.

Date Collared August 6/85		Date Completed August 7/85		Core Size NQ		DIP TESTS				PROPERTY B.C.-LORANGER		PROJECT No. 11		N.T.S. No. 82M/5	
FIELD CO-ORDINATES				DEPTH	BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 3 of 7		
Lat.	Elev.	Dip	Length		RECORDED	CORRECTED	RECORDED	CORRECTED	Lat.	Elev.	Dip	Bearing	HOLE No. LOR 85-8		
304 + 50N	1564.7m (5133.5')	-40°	56.1m					41°							
299 + 17E		Bearing 056°													
From METRES	To METERS	Recovery %	Description	Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS						
									Au(ppb)	Ag(ppm)	Pb(ppm)	Zn(ppm)			
22.3	23.3	100%	AS ABOVE As 21.3 - 22.3		1-3%		57597	1.0	20	0.7	44	72			
23.3	24.3	100%	AS ABOVE As 21.3 - 22.3		1-3%		57598	1.0	10	0.4	26	86			
24.3	25.4	100%	AS ABOVE Interbeds of fine grained argillaceous tuff from 26.5 - 26.7, and several thin bands (1cm - 10cm) from 27.5 - 33.0.		1-3%		57599	1.1	20	0.6	38	70			
25.4	26.4	100%	AS ABOVE Trace sphalerite in quartz vein (10cm)				57600	1.0	15	0.6	26	82			
26.4	32.3	100%	AS ABOVE No sample												
32.3	33.3	100%	AS ABOVE Reddish-brown alteration surrounding minor quartz flooding is present over sample. 1-3% Py & Pø		1-3%		57601	1.0	5	1.5	34	110			
33.3	34.3	100%	AS ABOVE Several irregular quartz veins with Py, Pø and sphalerite (<1%).				57602	1.0	5	1.3	32	138			
34.3	35.4 (47.9)	100%	ARGILLACEOUS TUFF "Blue-grey tuff" Blue grey, very fine grained to fine grained, moderately soft H 4 - 4½, medium to thin bedded.	BEDDING 48° CA @ 35.2 54° CA @ 38.2 72° CA @ 43.0			57603	1.1	10	1.0	28	110			

DRILL LOG - 81

Date August 9, 1985 Logged By R.G. Wilson

NORANDA EXPLORATION COMPANY LTD.

Date Colored August 6/85		Date Completed August 7/85		Core Size NQ		DIP TESTS				PROPERTY B.C.-LORANGER		PROJECT No. 11		N.T.S. No. 82M/5		
FIELD CO-ORDINATES				DEPTH	BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 4 of 7			
Lat.	Elev.	Dip	Length		RECORDED	CORRECTED	RECORDED	CORRECTED	Lat.	Elev.	Dip	HOLE No.				
304 + 50N	1564.7m (5133.5')	40°	56.1m					41°				LOR 85-8				
299 + 17E		Bearing 056°														
From METRES	To METERS	Recovery %	Description				Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS				
			The core is very competent with only minor hairline fractures seen in the rock. The rock displays a weak to moderate fabric at 48° CA and quartz pressure shadows are seen at the ends of pyrite fragments.				74° CA @ 46.0 85° CA @ 48.3 69° CA @ 49.9									
			Several interbeds of the above unit are seen to 20cm wide, especially in the top 3m. Quartz is present as regular to irregular veins 1-10mm wide, and as flood zones to 10mm.													
			Sulphides present are pyrite, pyrrhotite and traces of sphalerite, especially within quartz zones. 38.9 - 39.4 and 40.2 - 41.9 FAULT ZONES.													
			Brecciated, slickensided, sheared, and gouged material of host unit. Chlorite alteration over sections. These sections are more argillite rich and are in part brecciated. Some sericite alteration is noted in the more tuffaceous sections.													
			Contact with below unit between core runs in ground core.													
35.4	36.4	100%	AS ABOVE 5-7% Py + P ₆ and trace sphalerite in a quartz alteration vein.					5-7		57604	1.0	5	1.0	34	148	
36.4	37.4	100%	AS ABOVE 5-7% Py and P ₆					5-7		57605	1.0	<5	0.8	34	204	
37.4	38.4	100%	AS ABOVE 5-7% Py and P ₆ . Trace sphalerite and ? chalcopryrite in quartz veins.					5-7		57606	1.0	5	0.5	32	120	

DRILL LOG - 81

Date August 9, 1985 Logged By R.G. Wilson

NORANDA EXPLORATION COMPANY LTD.

Date Colored August 6/85		Date Completed August 7/85		Core Size NQ		DIP TESTS				PROPERTY B.C.-LORANGER		PROJECT No. 11		N.T.S. No. 82M/5	
FIELD CO-ORDINATES				DEPTH		BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 5 of 7	
Lat. 304 + 50N		Elev. 1564.7m (5133.5')		Dip -40°		RECORDED		CORRECTED		Lat.		Elev.		Dip	
Dep. 299 + 17E		Length 56.1m		Bearing 056°						Dep.		Length		Bearing	
From METRES	To METERS	Recovery %	Description			Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS				
											Au (ppb)	Ag (ppm)	Pb (ppm)	Zn (ppm)	
38.4	38.9	100%	AS ABOVE 20cm of quartz latite (lapilli) tuff. 3-5% Py and P ϕ				3-5		57607	0.5	15	0.6	41	110	
38.9	39.4	60%	AS ABOVE Fault breccia, chlorite altered slickenside. Mainly mudstone, graphitic. 1-3% P ϕ + Py.				1-3		57608	0.5	10	0.4	24	145	
39.4	40.2	90%	AS ABOVE Mainly mudstone, not brecciated, irregular quartz zones + veins. 10 - 15% Py + P ϕ Graphitic				10-15		57609	0.8	20	0.6	28	126	
40.2	40.9	50%	AS ABOVE Fault breccia, gouge and chlorite altered and sheared host. 1-3% Py and P ϕ Graphitic				1-3		57610	0.7	5	0.6	36	112	
40.9	41.9	70%	AS ABOVE Highly fractured, but is lighter grey (higher % of tuff?) 1-3% Py and P ϕ .				1-3		57611	1.0	5	0.7	30	154	
41.9	42.9	90%	AS ABOVE Appears more tuffaceous, and brecciated 41.9 - 42.1. Py + P ϕ ± Cp to 1-3%				1-3		57612	1.0	15	1.1	24	102	
42.9	43.9	100%	AS ABOVE Intergrown Py + P ϕ to 3%. Tuffaceous				1-3		57613	1.0	<5	1.0	24	106	
43.9	44.9	100%	AS ABOVE Slightly tuffaceous, sericite alteration P ϕ + Py to 3%				1-3		57614	1.0	5	0.8	28	110	

DRILL LOG - 01

Date August 10, 1985 Logged By R.G. Wilson

NORANDA EXPLORATION COMPANY LTD.

Date Collared August 6/85		Date Completed August 7/85		Core Size NQ		DIP TESTS				PROPERTY B.C.-LORANGER		PROJECT No. 11		N.T.S. No. 82M/5	
FIELD CO-ORDINATES				DEPTH	BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 6 of 7		
Lot.	Elev.	Dip	Bearing		RECORDED	CORRECTED	RECORDED	CORRECTED	Lat.	Elev.	Dip	Bearing	HOLE No.		
304 + 50N	1564.7m (5133.5')	-40°	056°	50.0m				41°					LOR 85-8		
Dep.	Length								Dep.	Length	Bearing				
299 + 17E	56.1m														
From METRES	To METERS	Recovery %	Description	Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS						
			AS ABOVE						Au(ppb)	Ag(ppm)	Pb(ppm)	Zn(ppm)			
44.9	45.9	95%	As 43.9 - 44.9 Minor 10cm quartz vein at 44.4		1-3		57615	1.0	10	0.8	28	92			
45.9	46.9	70%	AS ABOVE As 43.9 - 44.7. Core highly broken from 45.4 - 46.9.		1-3		57616	1.0	5	1.0	28	178			
46.9	47.9	80%	AS ABOVE Slightly darker, more argillaceous P ϕ and py 3-5%.		3-5		57617	1.0	5	0.6	49	98			
47.9	48.9 (50.0)	90%	ARGILLACEOUS TUFF BRECCIA Tuff breccia. The rock is mainly (graphitic) argillite with elongated and irregular breccia fragments of tuff? which is quartz carbonate altered. This zone and below correlates with section from top of sample 57525 to top of 57527 (35.9 - 38.2) in LOR 85 - 2 and 57509 to top of 57513 (28.3 - 31.3) in LOR 85 - 1. Py + P ϕ 1%		1		57618	1.0	10	0.4	30	94			
			Top 20cm is quartz - calcite cemented rubble breccia zone. The rock matrix is as 34.3 - 35.4 with dacitic? breccia fragments.												
48.9	50.0	95%	AS ABOVE As 47.9 - 48.9 P ϕ + Py 3-5		3-5		57619	1.1	5	0.4	27	252			

DRILL LOG - 81

Date August 10, 1985 logged By R.G. Wilson

NORANDA EXPLORATION COMPANY LTD.

Date Colored August 6/85		Date Completed August 7/85		Core Size NQ		DIP TESTS				PROPERTY B.C.-LORANGER		PROJECT No. 11		N.T.S. No. 82M/5	
FIELD CO-ORDINATES				DEPTH		BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 7 of 7	
Lat.		Elev.		Dip		RECORDED		CORRECTED		Lat.		Elev.		Dip	
304 + 50N		1564.7m (5133.5')		-40°										41°	
Dep.		Length		Bearing		RECORDED		CORRECTED		Dep.		Length		Bearing	
299 + 17E		56.1m		056°										LOR 85-8	
From METRES	To METERS	Recovery %	Description	Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS						
									Au(ppb)	Ag(ppm)	Pb(ppm)	Zn(ppm)			
50.0	50.5	100%	<p><u>FAULT GOUGE</u></p> <p>Clay gouge and ground fragments of below unit and quartz-tuff breccia, a 10cm section of which is seen below gouge and is approximately equivalent to 57527 in LOR 85-2 and 57513 of LOR 85-1. Contact with below unknown.</p>				57620	0.4	15	0.8	53	145			
50.5	51.9	95%	<p><u>DACITE TUFF</u></p> <p>"FOOTWALL DACITE" Green to maroon grey green, fine to medium grained hard, H > 5, thin to medium bedded, showing some chlorite alteration.</p> <p>Top 1.4m is very fine grained, and is bleached cream-brown with fine grained altered brown pyrite blebs.</p> <p>Quartz and quartz-carbonate veinlets are present but are narrow 1-4mm. Fine grained pyrite is present but is less than 1%.</p>	<p><u>BEDDING</u></p> <p>56° CA @ 54.5</p>	1%		57621	1.4	5	0.5	20	70			
51.9	54.2	95%	<p><u>AS ABOVE</u></p> <p>Representative sample - not originally intended to be taken.</p>				57645	2.3	20	0.2	12	66			
54.2	56.1	95%	<p><u>AS ABOVE</u></p> <p>No sample.</p>												
56.1			<p><u>END OF HOLE</u></p> <p>Casing pulled</p>												

NORANDA EXPLORATION COMPANY LTD.

Date Collared August 7/85		Date Completed August 8/85		Core Size NQ		DIP TESTS				PROPERTY BC - LORANGER		PROJECT No. 11		N.T.S. No. 82M/5	
FIELD CO-ORDINATES				DEPTH	BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 1 of 7		
Lot.	Elev.	Dip			RECORDED	CORRECTED	RECORDED	CORRECTED	Lot.	Elev.	Dip	HOLE No.			
303 + 00N		-40	176'					39°	Dep.	Length	Bearing	LOR 85-9			
Dep. 299 + 03E	Length 53.6m	Bearing 056°													
From METRES	To METRES	Recovery %	Description	Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS						
									Au(ppb)	Ag(ppm)	Pb(ppm)	Zn(ppm)			
0	15.8 (15.8)		OVERBURDEN Triconed, no core recovery. Clay sand and rock fragments - may be a fault zone as the drill is set up on a gully.												
15.8	18.2 (18.2)	50%	QUARTZ LATITE TUFF Grey-green, fine grained, moderately soft to thin bedded with quartz fragments to 1cm (broken veins?). Tuff fragments are fine grained and indistinct but appear to be mainly quartz and feldspars. Quartz veins from 3-10mm are present as both are present as both regular and irregular forms. Chlorite alteration is present throughout unit, locally intense. The rock displays a weak fabric at approximately 50-55° CA. The core is highly to moderately broken especially top 1m. No samples taken in this unit. Contact with below unit at 18.2m is unknown in broken core.	BEDDING 63° CA @ 16.5											
18.2	20.1	60%	ARGILLACEOUS TUFF (BRECCIA) Dark grey, fine grained, thin bedded, soft H=3-4. Rock is quartz veined and has quartz (tuff?) breccia fragments which are slightly elongated parallel to bedding and foliation. Rock is slightly graphitic and has a weak fabric. Quartz veining, from 1-10mm is regular to wispy and discontinuous. Hairline fractures are	BEDDING 65° CA @ 19.0 66° CA @ 20.6 73° CA @ 22.3	5-7										

DRILL LOG - 81

Date August 11, 1985 Logged By R.G. Wilson

NORANDA EXPLORATION COMPANY LTD.

Date Colored August 7/85		Date Completed August 8/85		Core Size NQ		DIP TESTS				PROPERTY BC - LORANGER		PROJECT No 11		N.T.S. No 82M/5	
FIELD CO-ORDINATES				DEPTH		BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 2 of 7	
Lot 303 + 00N		Elev.		Dip -40		176'		39°		Lot.		Elev.		Dip	
Dep. 299 + 03E		Length 53.6m		Bearing 056°						Dep.		Length		Bearing	
From METRES	To METRES	Recovery %	Description			Structure		% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS			
												Au(ppb)	Ag(ppm)	Pb(ppm)	Zn(ppm)
			present throughout unit at 40° CA.												
			The top 60cm of this unit is tuffaceous (blue-grey tuff) with 15% altered pyrrhotite blebs.					5-7							
			In some quartz veins are thin sulphide (py) stringers perpendicular to the long direction of the veins.												
			19.1 - 19.6 Fault zone with sheared and gouged host rock. Bottom contact at 45° CA.			FAULT									
			Sulphides present in unit are pyrrhotite and pyrite as fragment blebs, fracture fillings and fragments rims at 5 - 2%. Some sulphide fragments show silica pressure shadows.												
			Contact with below unit gradational over 10cm.												
20.1	21.1	90%	AS ABOVE Py + P ₀ 5-7%					5-7		57622	1.0	5	0.6	18	128
21.1	22.5	60%	AS ABOVE As 20.1 - 21.1 Py + P ₀ 5 - 7 %					5-7		57623	1.4	5	0.5	15	125

DRILL LOG - 81

Date August 11/85 Logged By R.G. Wilson

NORANDA EXPLORATION COMPANY LTD.

Date Colored August 7/85		Date Completed August 8/85		Core Size NQ		DIP TESTS				PROPERTY BC - LORANGER		PROJECT No. 11		N.T.S. No. 82M/5		
FIELD CO-ORDINATES				DEPTH		BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 3 of 7		
Lot. 303 + 00N		Elev.		Dip -40		176'		39°		Lot.		Elev.		Dip		
Dep. 299 + 03E		Length 53.6m		Bearing 056°						Dep.		Length		Bearing		
From METRES	To METRES	Recovery %	Description			Structure		% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS				
22.5	25.9 (25.9)	85%	<p>QUARTZ LATITE TUFF</p> <p>Brown grey, medium grained, moderately soft to hard H 3-6, massive bedded with altered chilled margins.</p> <p>Similar to LOR 85-1 14.0 - 21.5 but lacking the coarser grained quartz grains in 85-1.</p> <p>Chlorite alteration is present over entire unit and hardness varies from soft at top and bottom contacts to hard in the central section.</p> <p>Quartz veins are seen occasionally across unit to 1cm.</p> <p>The rock lacks fabric and consists of subangular fragments of quartz and feldspar (< 1mm diameter) set in a very fine grained, grey matrix.</p> <p>Sulphides present are pyrite and pyrrhotite as fine grained disseminations to 3 - 5%.</p> <p>Contact with below unit sharp in minor fault gouge @ 70° CA.</p>			CONTACT										
25.9	26.9 (35.1)	95%	<p>ARGILLACEOUS TUFF (BRECCIA)</p> <p>As 18.2 - 22.5 with an increase in carbonate content, higher frequency of quartz (carbonate) veining and decrease in tuffaceous content to near zero.</p> <p>The rock is generally harder than 18.2 - 22.5 and more graphitic along slips.</p>			BEDDING				5-7	57624	1.0	35	0.4	14	203
						63° CA @ 26.5										
						71° CA @ 29.9										
						62° CA @ 32.3										
						46° CA @ 33.0										

DRILL LOG - 81

Date August 11, 1985 Logged By R.G. Wilson

NORANDA EXPLORATION COMPANY LTD.

Date Collared August 7/85		Date Completed August 8/85		Core Size NQ		DIP TESTS				PROPERTY BC - LORANGER		PROJECT No. 11		N.T.S. No. 82M/5	
FIELD CO-ORDINATES				DEPTH	BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 4 of 7		
Lat.	Elev.	Dip			RECORDED	CORRECTED	RECORDED	CORRECTED	Lot.	Elev.	Dip	HOLE No. LOR 85-9			
303 + 00N		-40	176'					39°							
Dep.	Length	Bearing							Dep.	Length	Bearing				
299 + 03E	53.6m	056°													
From METRES	To METRES	Recovery %	Description	Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS						
			The fabric is weak to moderate, perpendicular to veining. Sulphides are as 18.2 - 22.5 with occasional traces of sphalerite. 27.2 - 28.0						Au(ppb)	Ag(ppm)	Pb(ppm)	Zn(ppm)			
			Fault zone includes fault gouge and 1m of solid core. Also at 30.0 - 31.0 several narrow faults.												
			Contact with below unit sharp at 19° CA at 35.1.	CONTACT 19° CA @ 35.1											
26.9	31.5	95%	AS ABOVE No sample												
31.5	32.5	95%	AS ABOVE Trace sphalerite in thin quartz veins.				57625	1.0	10	0.6	26	196			
32.5	33.5	100%	AS ABOVE Dip becomes near-parallel to core axis in a breccia zone at 33.3 - 33.8				57626	1.0	10	0.7	49	168			
33.5	34.5	100%	AS ABOVE Bedding near-parallel to core axis. Pyrite and pyrrhotite to 5%.		3-5		57627	1.0	10	0.6	35	76			
34.5	35.1	100%	AS ABOVE As 33.5 - 34.5		3-5		57628	0.6	10	0.5	35	62			

DRILL LOG - 81

Date August 11, 1985 Logged By R.G. Wilson

NORANDA EXPLORATION COMPANY LTD.

Date Colored August 7/85		Date Completed August 8/85		Core Size NQ		DIP TESTS				PROPERTY BC - LORANGER		PROJECT No. 11		N.T.S. No. 82M/5	
FIELD CO-ORDINATES				DEPTH	BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 5 of 7		
Lot	Elev.	Dip			RECORDED	CORRECTED	RECORDED	CORRECTED	Lot	Elev.	Dip	HOLE No.			
303 + 00N		-40	176'									LOR 85-9			
Dep	Length	Bearing						Dep	Length	Bearing					
299 + 03E	53.6m	056°													
From METRES	To METRES	Recovery %	Description				Structure	% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS			
											Au(ppb)	Ag(ppm)	Pb(ppm)	Zn(ppm)	
35.1	36.1 (37.6)	100%	ARGILLACEOUS TUFF Grey-green and fine grained, thin bedded, hard and soft layers of argillite and fine grained tuff. The rock is in places chlorite altered and frequently displays contorted bedding. The rock has only a very weak fabric. 37.3 - 37.4 Fault gouge 35.8 - 35.9 Silicified zone with fragmental? sphalerite and pyrite-pyrrhotite. 36.1 - 37.6 Moderate degree of calc-silicate alteration. Sample of this section includes 10cm sphalerite intersection (35.1 - 36.1 at 35.8). Contact with below unit gradational over 10cm at end of calc-silicate zone.					1-2		57629	1.0	10	1.5	74	650
36.1	37.6	100%	AS ABOVE Moderate calc-silicate alteration this sample. Finely disseminated pyrite, minor amount of sericite alteration. Some red-brown and yellow-brown, fine grained alteration minerals throughout sample.					1-2		57630	1.5	45	0.8	67	220
37.6	38.6 (41.0)	100%	DACITE TUFF "FW Rock" Altered grey, green and reddy brown, very fine to fine grained, hard H6, irregular bedded. Chlorite and unidentified yellow-brown and red brown alteration minerals (very fine grained). In places the rock appears to be larger fragments (>10cm) which are calc-silicate healed as the							57631	1.0	5	0.2	12	56

DRILL LOG - 81

Date August 11, 1985 Logged By R.G. Wilson

NORANDA EXPLORATION COMPANY LTD.

Date Collared August 7/85		Date Completed August 8/85		Core Size NO		DIP TESTS				PROPERTY BC - LORANGER		PROJECT No. 11		N.T.S. No. 82M/5		
FIELD CO-ORDINATES				DEPTH		BEARING		ANGLE		SURVEYED CO-ORDINATES				Sheet 6 of 7		
Lot. 303 + 00N		Elev.		Dip -40		176'		RECORDED		CORRECTED		RECORDED		CORRECTED		
Dep. 299 + 03E		Length 53.6m		Bearing 056°										HOLE No. LOR 85-9		
From METRES	To METRES	Recovery %	Description				Structure		% Sulph.	Est. Grade	SAMPLE No.	Width METRES	ASSAYS			
													Au (ppb)	Ag (ppm)	Pb (ppm)	Zn (ppm)
			grain size varies greatly in short irregular distances.													
38.6	41.0	100%	AS ABOVE. No sample													
41.0	53.6	100%	<p>QUARTZ (LAPILLI) TUFF</p> <p>Grey green, coarse grained with a fine grained matrix with larger (lapilli) fragments to 2cm, massive bedded, very hard H6. Bedding is shown by elongated (ovular) fragments. Fractures are seen at 30 and 60° CA and are quartz-calcite healed. The rock is very competent.</p> <p>The rock displays a moderate fabric which has elongated fragments.</p> <p>Fragments are mainly quartz with some finer grained feldspars.</p> <p>Alteration, silica and minor chlorite is seen across entire unit.</p> <p>Sulphides are present as fine grained pyrite and pyrrhotite and coarser grained pyrite and pyrrhotite and coarser grained pyrite and pyrrhotite fragments.</p> <p>In places the pyrrhotite is seen replacing euhedral pyrite crystals 1-2%.</p> <p>Calc-silicate veining is seen occasionally as regular 1mm - 2cm veinlets, generally at 50 - 60° CA.</p>				<p>BEDDING</p> <p>42° CA @ 41.5</p> <p>33° CA @ 46.5</p> <p>33° CA @ 50.0</p> <p>35° CA @ 53.0</p>		1-2%							

DRILL LOG - 81

Date August 11, 1985 Logged By R.G. Wilson

APPENDIX III

CORE SAMPLE GEOCHEMICAL ANALYSIS

NORANDA EXPLORATION COMPANY, LIMITED

N.T.S. 82M/5

PROPERTY BC - LORANGER DDH LOR 85-8

DATE August, 1985

SAMPLE REPORT

Geochemistry

SAMPLE NO.	LOCATION & DESCRIPTION	TYPE	WIDTH Metres	Geochemistry					SAMPL BY
				Au (ppb)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Cu (ppm)	
57590	7.2 - 8.2 m	Core	1.0	5	0.4	16	90	62	
1	8.2 - 9.2 m	"	1.0	< 5	0.3	14	89	71	
2	9.2 - 10.2 m	"	1.0	10	0.3	14	90	54	
3	10.2 - 11.2 m	"	1.0	< 5	0.2	16	88	42	
4	11.2 - 12.2 m	"	1.0	< 5	0.4	25	40	52	
5	12.2 - 13.2 m	"	1.0	10	0.4	14	90	52	
6	21.3 - 22.3 m	"	1.0	20	0.6	25	84	62	
7	22.3 - 23.3 m	"	1.0	20	0.7	44	72	86	
8	23.3 - 24.3 m	"	1.0	10	0.4	26	86	67	
9	24.3 - 25.4 m	"	1.1	20	0.6	38	70	99	
57600	25.4 - 26.4 m	"	1.0	15	0.6	26	82	67	
1	32.3 - 33.3 m	"	1.0	5	1.5	34	110	80	
2	33.3 - 34.3 m	"	1.0	5	1.3	32	138	112	
3	34.3 - 35.4 m	"	1.1	10	1.0	28	110	122	
4	35.4 - 36.4 m	"	1.0	5	1.0	34	148	86	
5	36.4 - 37.4 m	"	1.0	< 5	0.8	34	204	75	
6	37.4 - 38.4 m	"	1.0	5	0.5	32	120	76	
7	38.4 - 38.9 m	"	0.5	15	0.6	41	110	90	
8	38.9 - 39.4 m	"	0.5	10	0.4	24	145	71	
9	39.4 - 40.2 m	"	0.8	20	0.6	28	126	90	
57610	40.2 - 40.9 m	"	0.7	5	0.6	36	112	50	
1	40.9 - 41.9 m	"	1.0	5	0.7	30	154	54	
57612	41.9 - 42.9 m	"	1.0	15	1.1	24	102	80	

78541

ADDENDUM

B.C. LORANGER GROUP "REPORT ON DRILLING"

All diamond drill core from the present drill programme is stored on the property on the BC 1 Claim in an all weather wood and steel core rack.

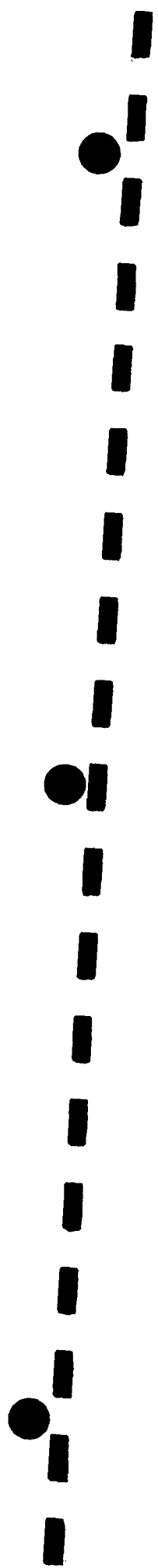
The author logged the cores from Holes Lor 86-6, 8 and 9 and supervised or co-logged the core from Hole Lor 85-7.



Rob Wilson
Project Geologist

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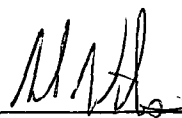


ASSESSMENT REPORT
GEOLOGICAL

AUTHORS QUALIFICATIONS

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

- I am a geologist residing at 3328 West 15th. Avenue, Vancouver
B.C.
- I graduated from the University of British Columbia in 1976 with
a BSc degree in Geology.
- I have worked in mineral exploration since 1973 and have practised
my profession as a geologist since 1976.
- I am presently a Project Geologist with Noranda Exploration
Company, Limited.
- I am a member of the Geological Association of Canada (Cordillera
Division).



Rob Wilson

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W

E

D.D.H. LOR. 85-6
 306+00N.
 298+67.5E.
 Elev.: 1567.9m.
 Az.: 056°
 Dip: -40°
 Length: 34.1m.
 Casing Pulled
 Hole Abandoned
 NQCore

EDGE
OF
TRENCH DEBRIS

TRENCH BC 84-2
 Massive Zn-Pb Veinlet
 Sulphides as Breccia Matrix
 25cm wide.
 4.32% Pb, 33.0% Zn, 29.2oz/t Ag, 0.011oz/t Au.

APPROX.
CENTRE
OF
TR-84-2

D.D.H. LOR. 85-7
 306+00N.
 299+29E.
 Elev.: 1573.2m.
 Az.: 056°
 Dip: -40°
 Length: 68.9m.
 Casing Pulled
 NQCore

MAG AXIS
299+50E
EDGE
OF
TRENCH DEBRIS

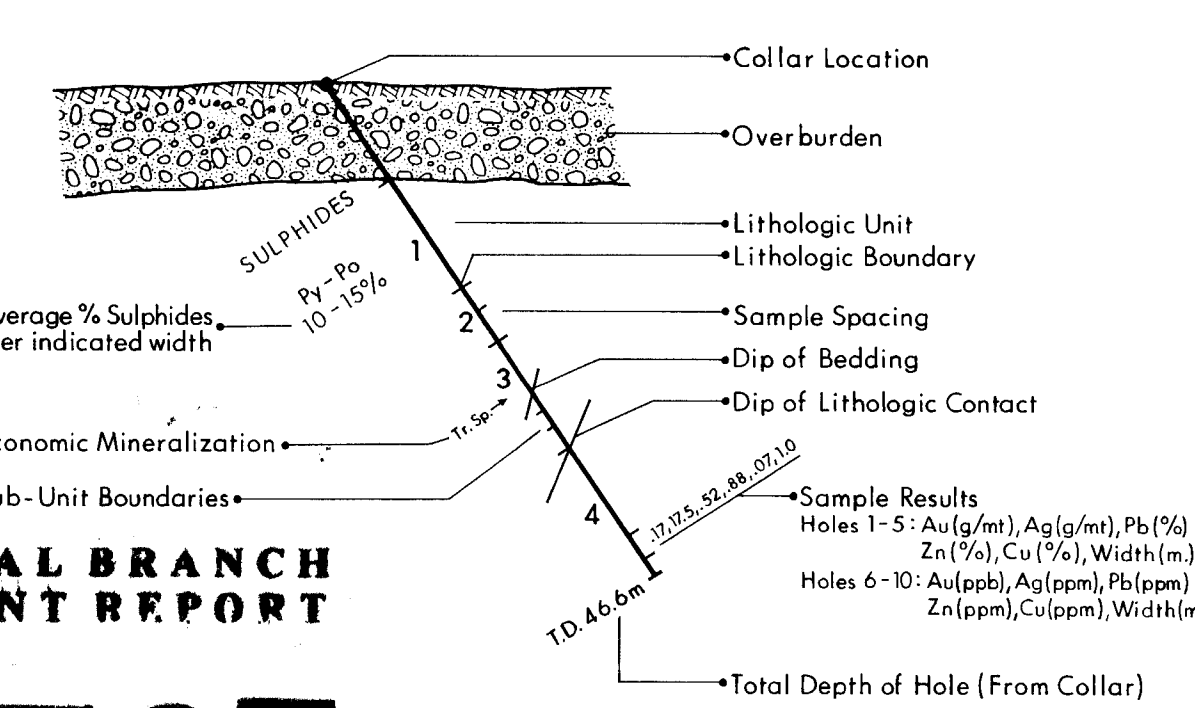
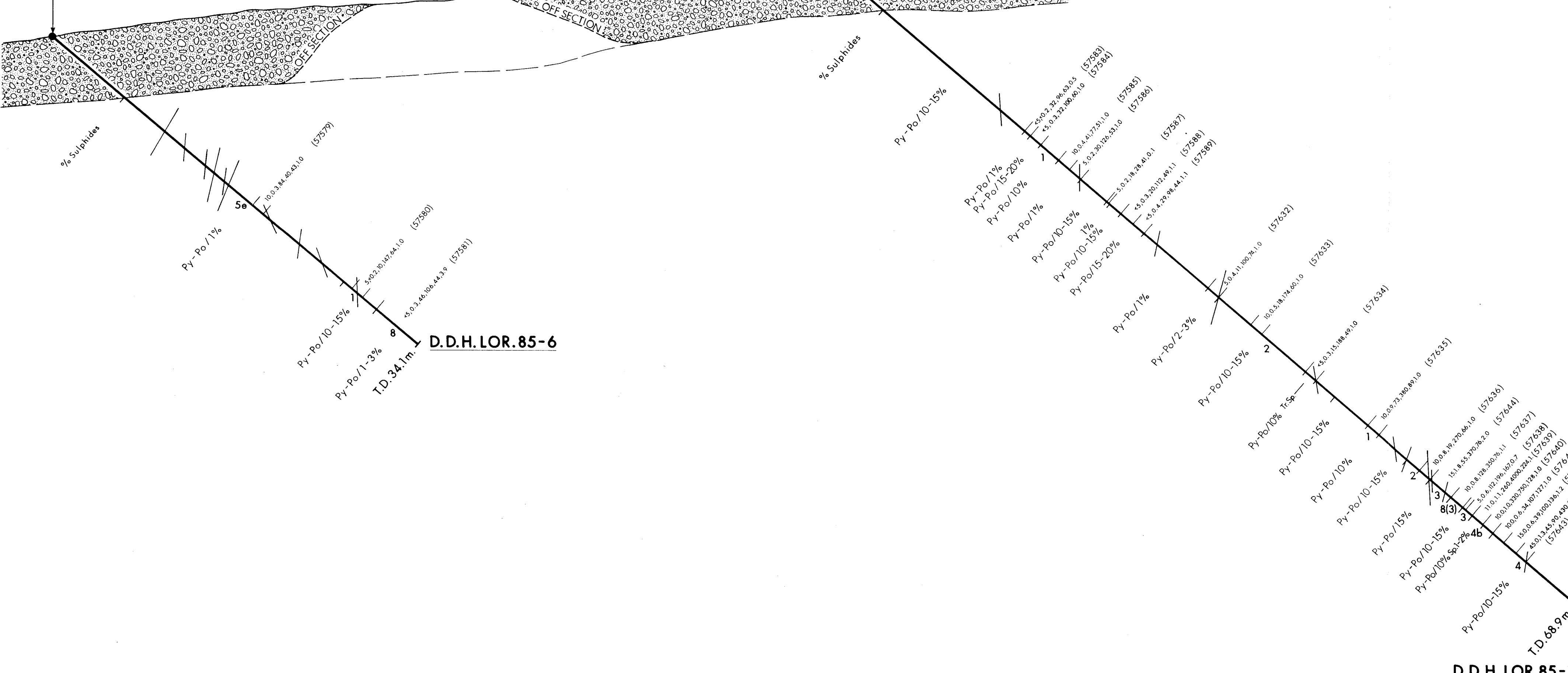
299+70E
H.L.E.M.
TARGET
AXIS

300+00E

LEGEND

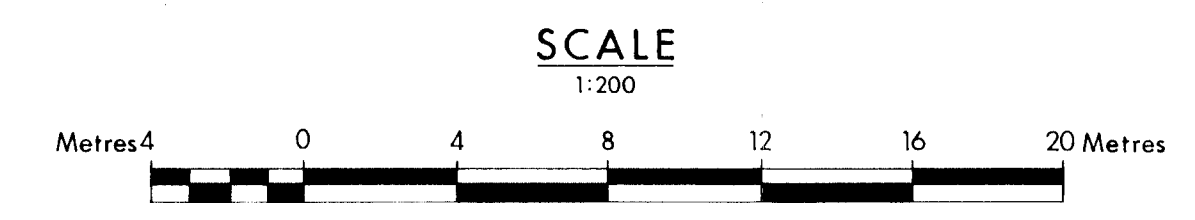
- (a) No pyrrhotite - biotite blebs
- (b) Calc.-silicate alteration
- (c) Breccia
- (d) Lapilli
- (e) Crystal

- 1 QUARTZ LATITE TUFF
May in part be rhyodacite. Contains distinctive pyrrhotite biotite alteration blebs.
- 2 ARGILLACEOUS TUFF
Quartz latite to rhyodacite composition with variable amounts of fine grained sediment and graphite.
- 3 ARGILLACEOUS TUFF BRECCIA
As 3 with elongated dacitic ? tuff breccia fragments and variable quantities of sphalerite and galena.
- 4 DACITE TUFFS & ?FLOWS
May in part be rhyodacite. Unit contains distinctive lack of sulphides as compared to units 1-3.
- 5 LATITE TUFF
Lacks pyrrhotite - biotite alteration blebs.
- 6 QUARTZ LAPILLI TUFF
Rhyodacite to rhyolitic composition.
- 7 RHYODACITIC (CRYSTAL LITHIC LAPILLI) TUFF
- 8 FAULT ZONE
Contains fault gouge and may contain fragments of several rock types.
- 9 FRACTURE ZONE
Highly broken rock of one rock type.



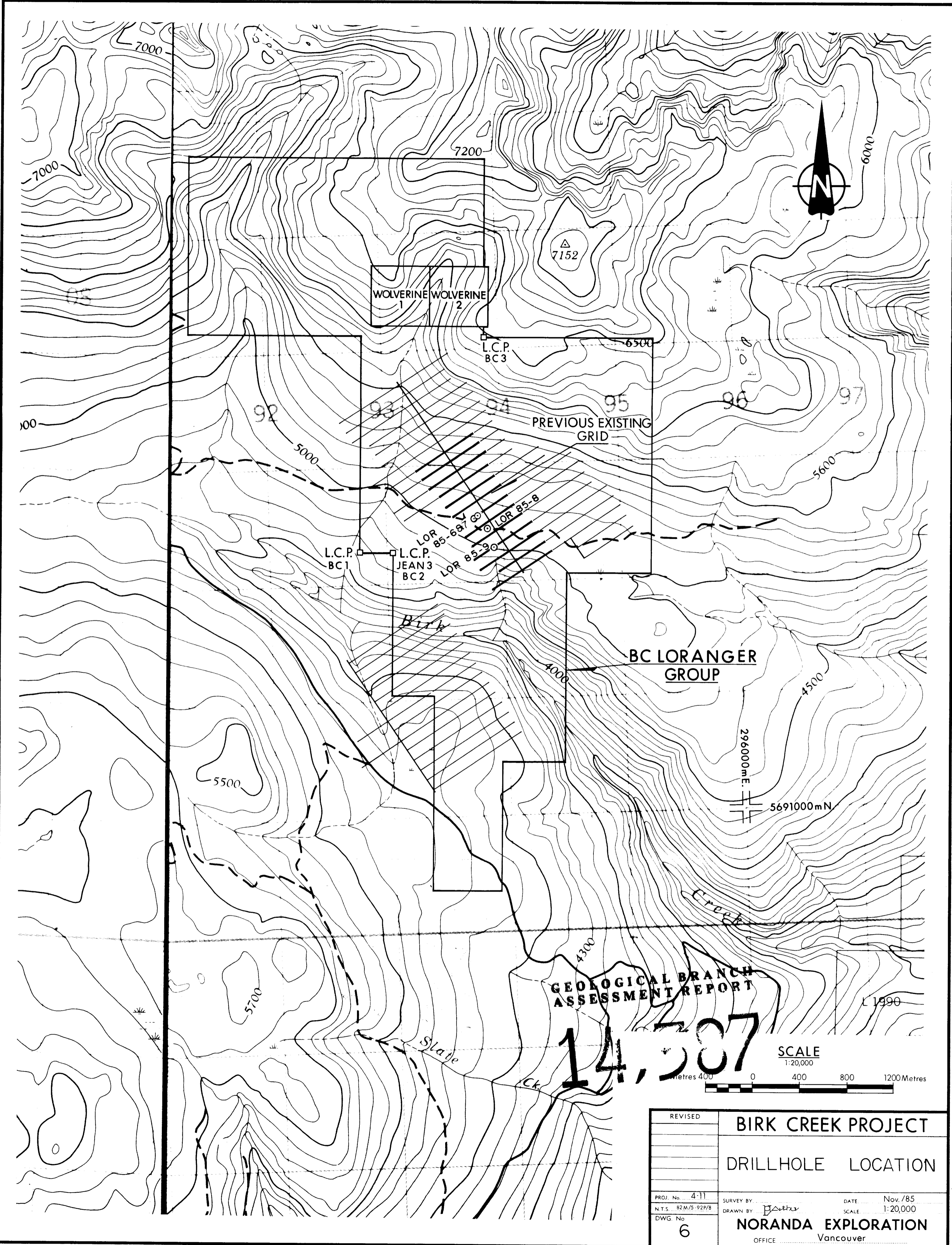
**GEOLOGICAL BRANCH
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 No Vertical Exaggeration

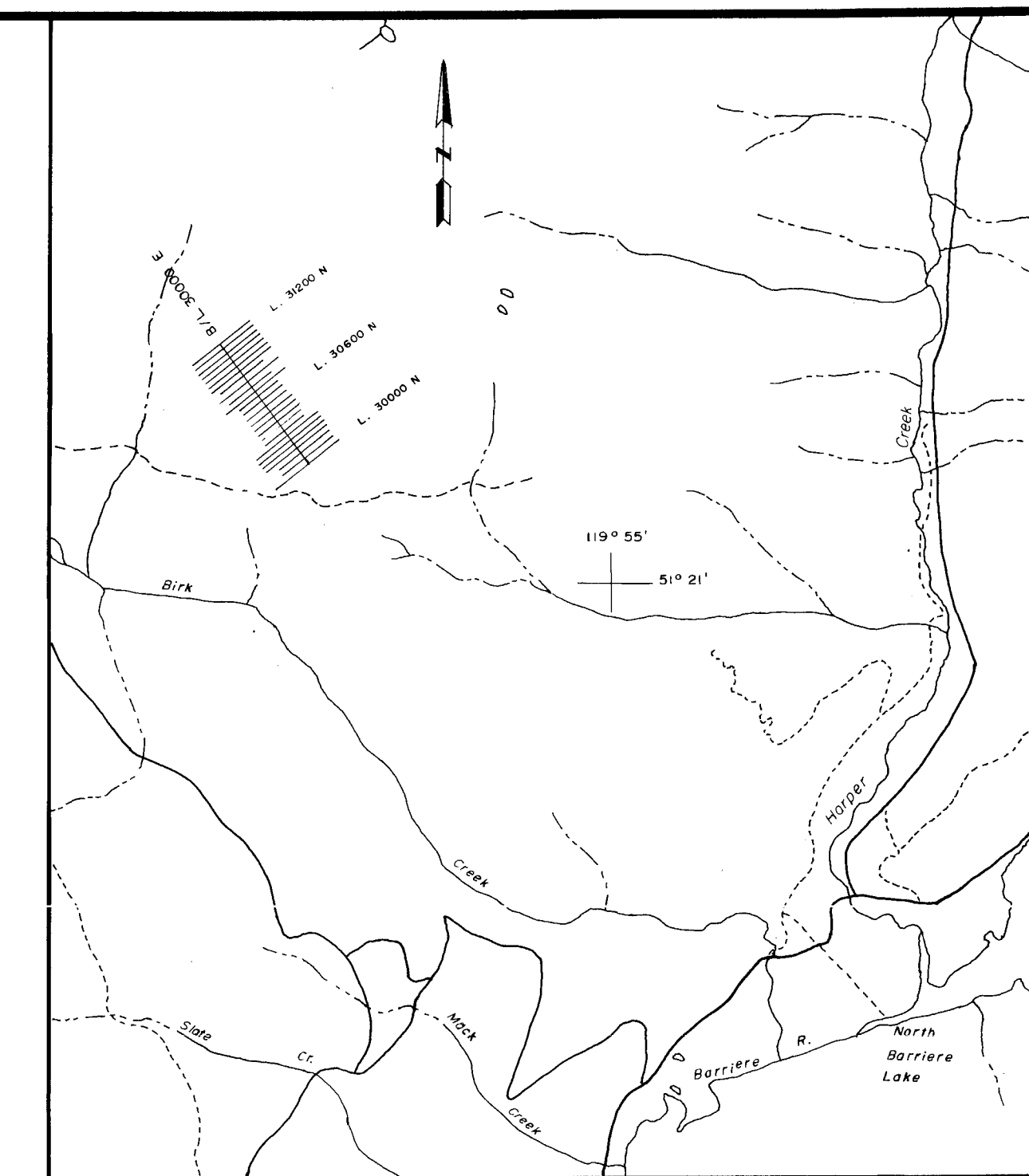
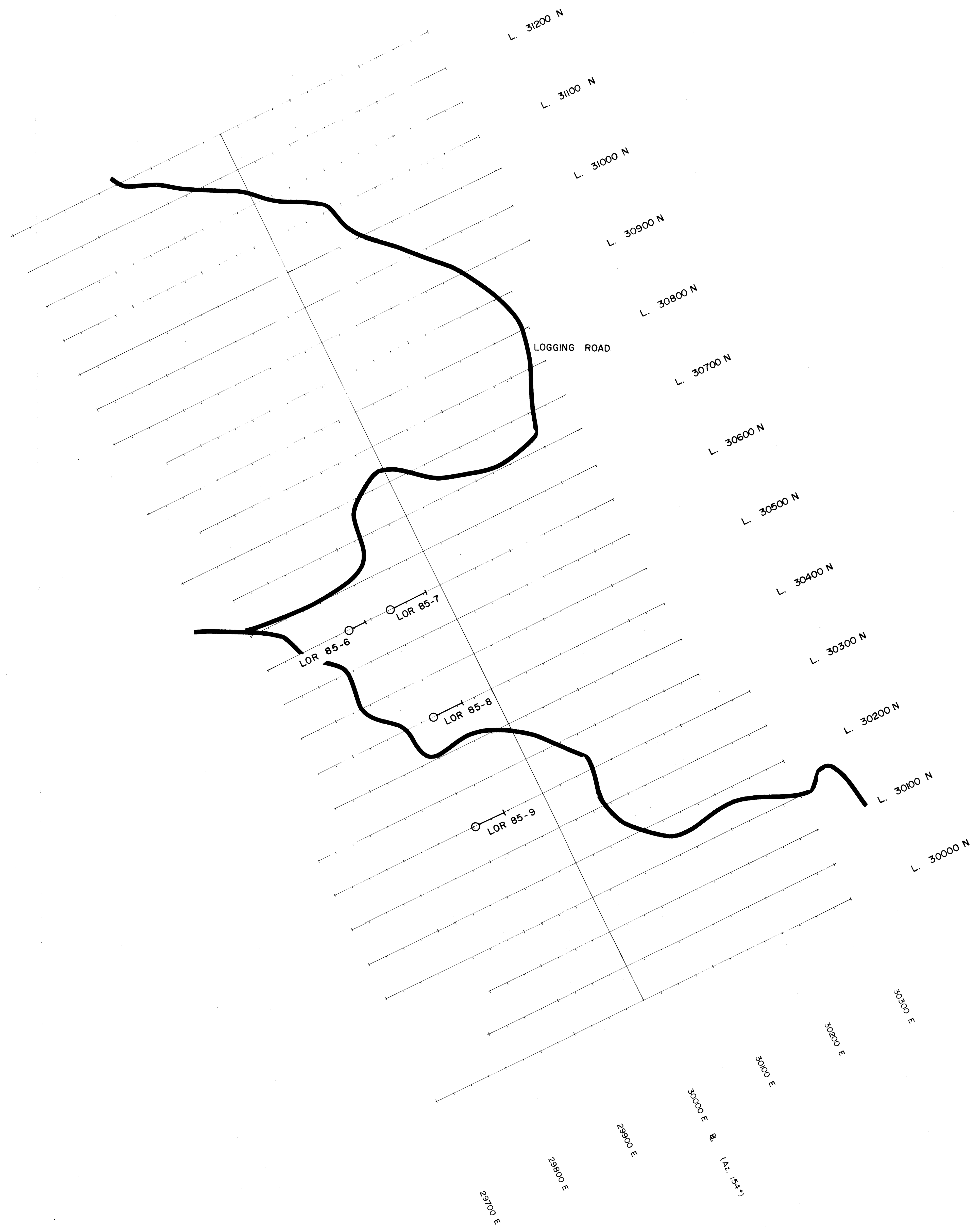


REVISED	BC CLAIMS LORANGER OPTION	
	SECTION: 306+00N.	
	D.D.H. LOR. 85-6&7	
PROJ. No. 11	SURVEY BY: R.G.W.	DATE: Sept/85
N.T.S. 82M/5	DRAWN BY: J. Atter	SCALE: 1:200
DWG. No. 3	NORANDA EXPLORATION	
	OFFICE: Vancouver	

VANICAL-8828



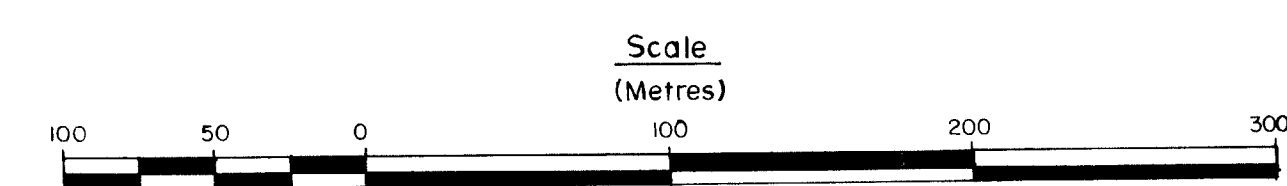
REVISED	BIRK CREEK PROJECT	
	DRILLHOLE LOCATION	
PROJ. No. 4-11	SURVEY BY	DATE Nov./85
N.T.S. 82M/5-92P/8	DRAWN BY <i>Bartha</i>	SCALE 1:20,000
DWG. No. 6	NORANDA EXPLORATION	
	OFFICE Vancouver	



LOCATION MAP
1:50,000

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REVISED	BC CLAIMS LORANGER OPT.	
	DETAIL DRILLHOLE LOCATION	
PROJ. No. 11	SURVEY BY: W.M.R.	DATE: Jan./85
N.T.S. 82 M / 5	DRAWN BY: W.M.R.	SCALE: 1:2500
DWG. No. 7	NORANDA EXPLORATION	
	OFFICE: Vancouver	

W

E

299+00E

299+25E

299+50E

299+75E

D.D.H. LOR. 85-9

303+00N.
299+03E.
Elev.: 1549.1m.
Az.: 056°
Dip: -40°
Length: 53.6m.
Casing Pulled
NQCore

299+30E

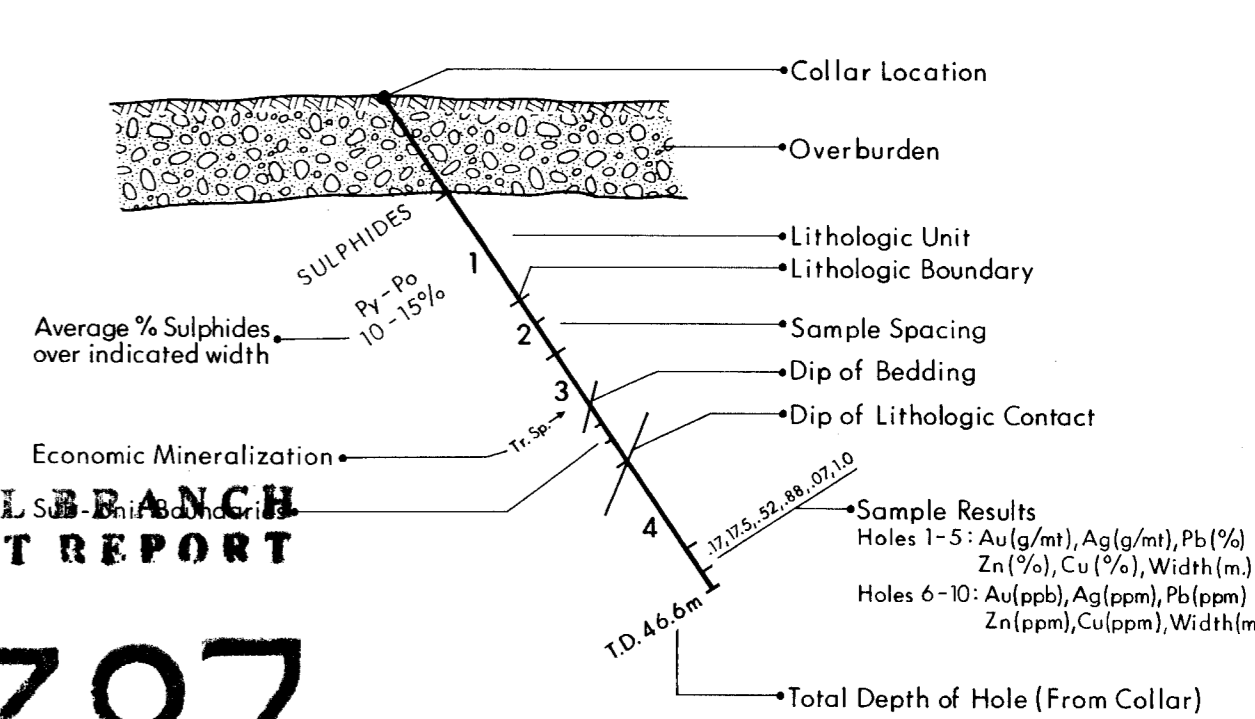
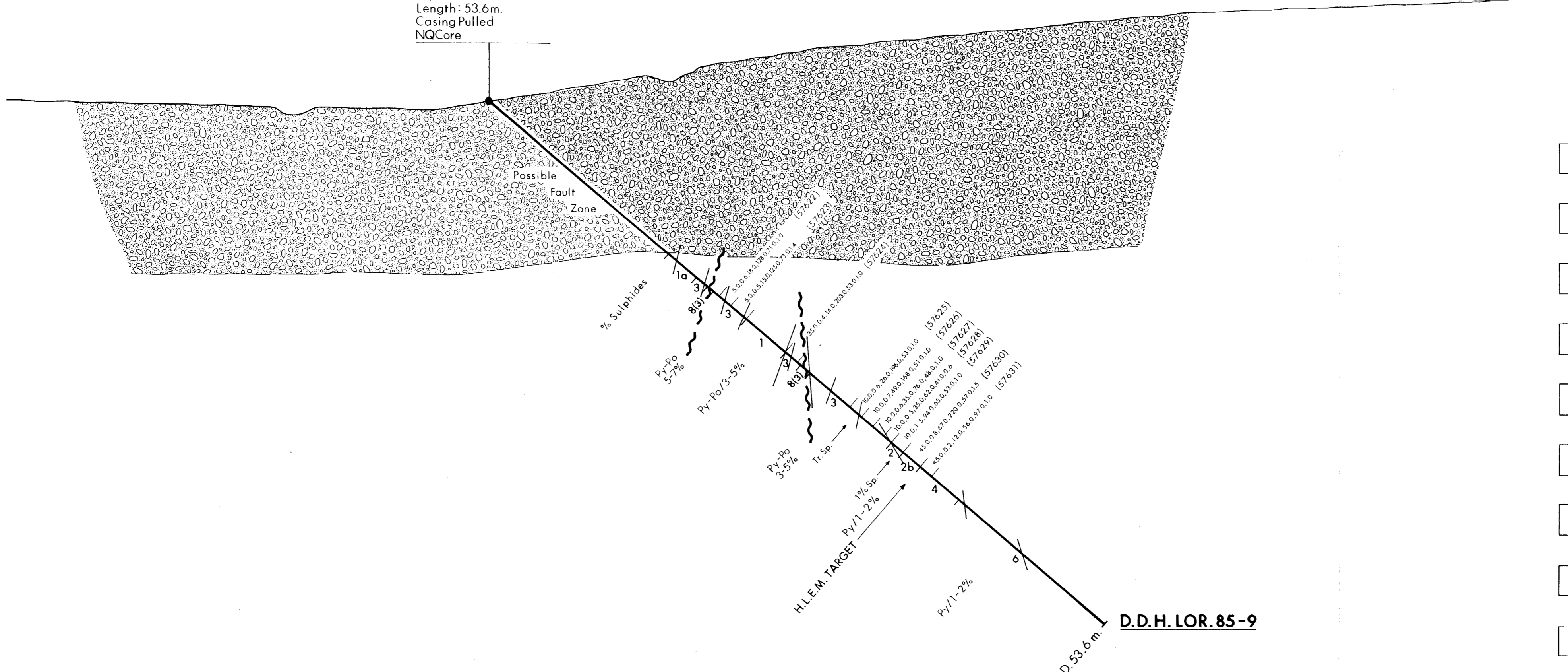
H.L.E.M.
TARGET
AXIS

MAG
AXIS

LEGEND

- (a) No pyrrhotite - biotite blebs
- (b) Calc.-silicate alteration
- (c) Breccia
- (d) Lapilli
- (e) Crystal

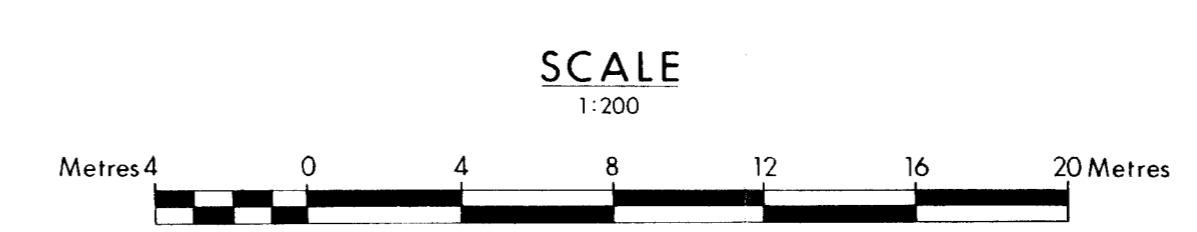
- 1 QUARTZ LATITE TUFF
May in part be rhyodacite. Contains distinctive pyrrhotite biotite alteration blebs.
- 2 ARGILLACEOUS TUFF
Quartz latite to rhyodacite composition with variable amounts of fine grained sediment and graphite.
- 3 ARGILLACEOUS TUFF BRECCIA
As 3 with elongated dacitic ? tuff breccia fragments and variable quantities of sphalerite and galena.
- 4 DACITE TUFFS & ?FLOWS
May in part be rhyodacite. Unit contains distinctive lack of sulphides as compared to units 1-3.
- 5 LATITE TUFF
Lacks pyrrhotite - biotite alteration blebs.
- 6 QUARTZ LAPILLI TUFF
Rhyodacite to rhyolitic composition.
- 7 RHYODACITIC (CRYSTAL LITHIC LAPILLI) TUFF
- 8 FAULT ZONE
Contains fault gouge and may contain fragments of several rock types.
- 9 FRACTURE ZONE
Highly broken rock of one rock type.



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No Vertical Exaggeration



REVISED	BC CLAIMS LORANGER OPTION	
	SECTION: 303+00N. D.D.H. LOR. 85-9	
PROJ. No. 11	SURVEY BY: R.G.W.	DATE: Sept/85
N.T.S. 82M/5	DRAWN BY: [Signature]	SCALE: 1:200
DWG. No. 5	NORANDA EXPLORATION OFFICE: Vancouver	

W

E

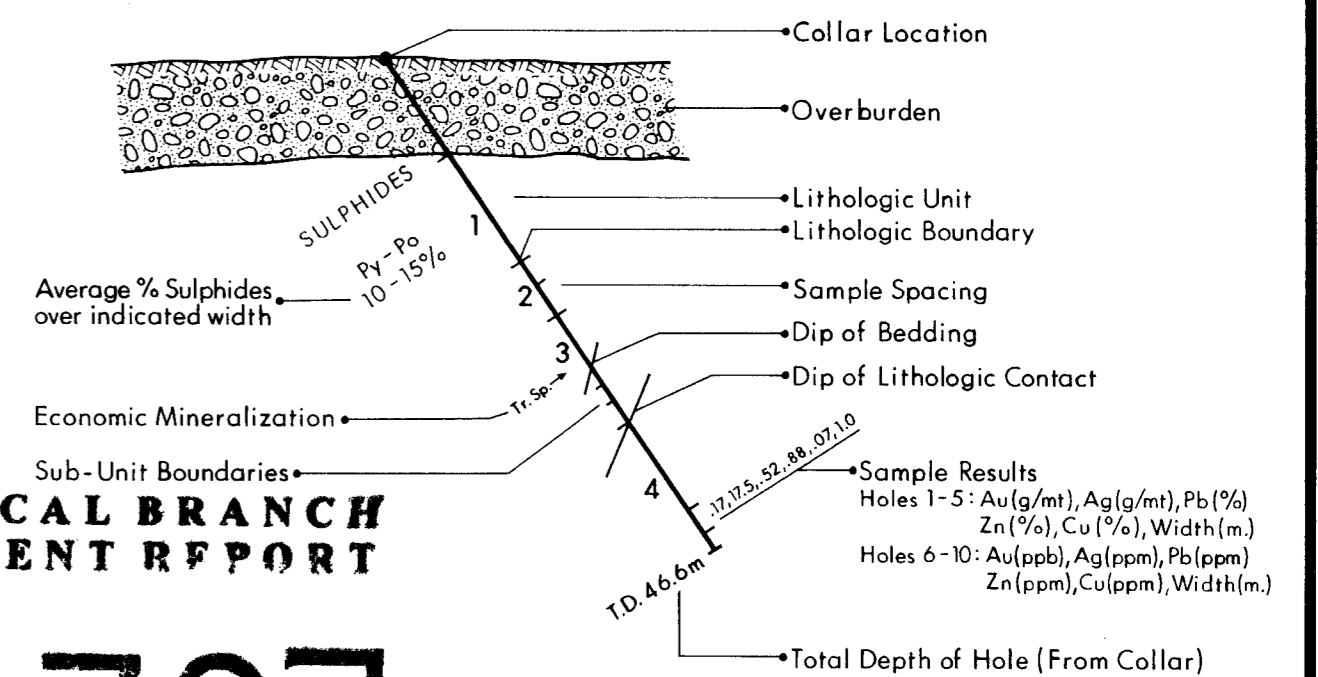
D.D.H. LOR. 85-8
 304 + 50N.
 299 + 17 E.
 Elev.: 1564.7m.
 Az.: 056°
 Dip: -40°
 Length: 56.1m.
 Casing Pulled
 NQ Core

299 + 50E
 H.L.E.M.
 TARGET
 AXIS

300+00E

LEGEND

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 - (c) Breccia
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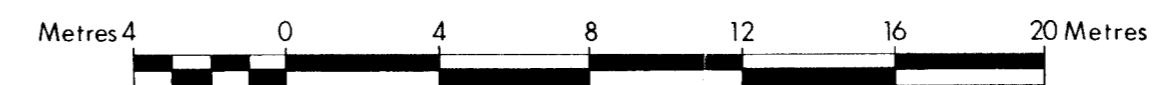


GEOLOGICAL BRANCH ASSESSMENT REPORT

14,387

No Vertical Exaggeration

SCALE 1:200



REVISED	BC CLAIMS LORANGER OPTION	
	SECTION: 304+50N.	
	D.D.H. LOR. 85-8	
PROJ. No. 11	SURVEY BY: R.G.W.	DATE: Sept/85
N.T.S. 82M/5	DRAWN BY: J. A. H.	SCALE: 1:200
DWG. No. 4	NORANDA EXPLORATION	
	OFFICE: Vancouver	