81-#1021 . - 9787

ASSESSMENT REPORT

LINECUTTING, SOIL GEOCHEMISTRY, VLF-EM, INDUCED POLARIZATION, MAGNETIC AND GEOLOGICAL SURVEYS AND DIAMOND DRILLING ON

THE THOMLINSON NORTH AND SOUTH CLAIMS

OMINECA MINING DIVISION N.T.S. 93M/11W

55°33'N, 127°20'W

part 1 of 2

9787

Submitted by: S.E. Prest, November 1981

Owner/Operator: Noranda Exploration Company, Limited
(No Personal Liability)

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SUMMARY

The following exploration was completed on the Thomlinson property during the 1981 field season:

1.	Photogrammetric mapping and topographical survey	26.55 km^2
2.	Linecutting	35.18 km
3.	Soil sampling	282 samples
4.	VLF-EM survey	35.18 km
5.	Magnetometer survey	35.18 km
6.	Induced polarization survey	21.25 km
7.	Geological survey	35.18 km
8.	Diamond drilling (5 holes)	411.2 m

Copper/molybdenum mineralization at Thomlinson Creek is fracture controlled and occurs within Babine intrusive quartz diorite, granodiorite and biotite-feldspar porphyry rocks, and less commonly in hornfelsed Bowser Group sediments. Thin sheets of chalcopyrite, pyrite, pyrrhotite and minor amounts of molybdenite and scheelite occur along very tight but widely distributed fractures within intrusive rocks. The hornfelsed rocks contain abundant pyrite and occasional molybdenite and chalcopyrite as fine disseminations and fracture fillings.

Substantial silicification together with kaolinitic/chloritic/limonitic alteration and sericitic overprinting is characteristic of most outcrops, however lack of exposure, deep surficial weathering and insufficient drill testing has not permitted the definition of a systematic alteration pattern during the course of the above surveys.

Drill results to date indicate consistent copper/molybdenum mineralization in quartz diorite with grades similar to that encountered in DDH TC-81-6, which averaged 0.10% copper and 0.03% molybdenum over 72 meters. These grades have been defined by drilling to depths of at least 120 meters extending over an area 600 meters by 250 meters, leaving the area open to the north, east and west, where potential for the occurrence of higher grade fracture-type sulphide mineralization cannot be ruled out.

1. INTRODUCTION

This report describes the 1981 field season results of geochemical, geophysical, geological and diamond drilling surveys on the Thomlinson Creek mineral property. The program was a continued effort to further investigate the style and grade of copper/molybdenum mineralization within a small plug of Babine (Richards, 1980) intrusive rocks of Tertiary age.

2. LOCATION AND ACCESS

The property is situated on Hazelton map sheet 93M at 55°33'N, 127°20'W, approximately 100 kilometers north of Smithers on Thomlinson Creek and 8 kilometers upstream from its confluence with the Babine River (Fig. 1). The Suskwa River forestry road provides truck access to within 16 kilometers of the work area. Access beyond this point is by helicopter.

The holdings consist of 26 two-post claims and 7 four-post claims, comprising 134 units grouped in two sections designated Thomlinson North and Thomlinson South, as follows:

GROUP NAME	INDIVIDUAL CLAIM	RECORD NO.	DATE RECORDED	RENEWAL DATE
Thomlinson North	Thomlinson 2 (20)	3128	August 29, 1980	August, 1987
	Thomlinson 6 (16)	3278	October 6, 1980	October, 1987
	Thomlinson 7 (12)	3279	October 6, 1980	October, 1987
	7A-32	106089	October 8, 1971	October, 1990
	7A-34	106091	October 8, 1971	October, 1990
	7A-35	106092	October 8, 1971	October, 1990
	7A-36	106093	October 8, 1971	October, 1990
	7A-37	106094	October 8, 1971	October, 1990
	7A-38	106095	October 8, 1971	October, 1990
	7A-40	106097	October 8, 1971	October, 1990
	7A-47	106104	October 8, 1971	October, 1990
	7A-49	106106	October 8, 1971	October, 1990
	7A-50	106107	October 8, 1971	October, 1990
	7D-7	99247	October 8, 1971	October, 1990
	7D-8	99248	October 8, 1971	October, 1990
	7D-9	99249	June 9, 1971	June, 1990
	7D-10	99250	June 9, 1971	June, 1991

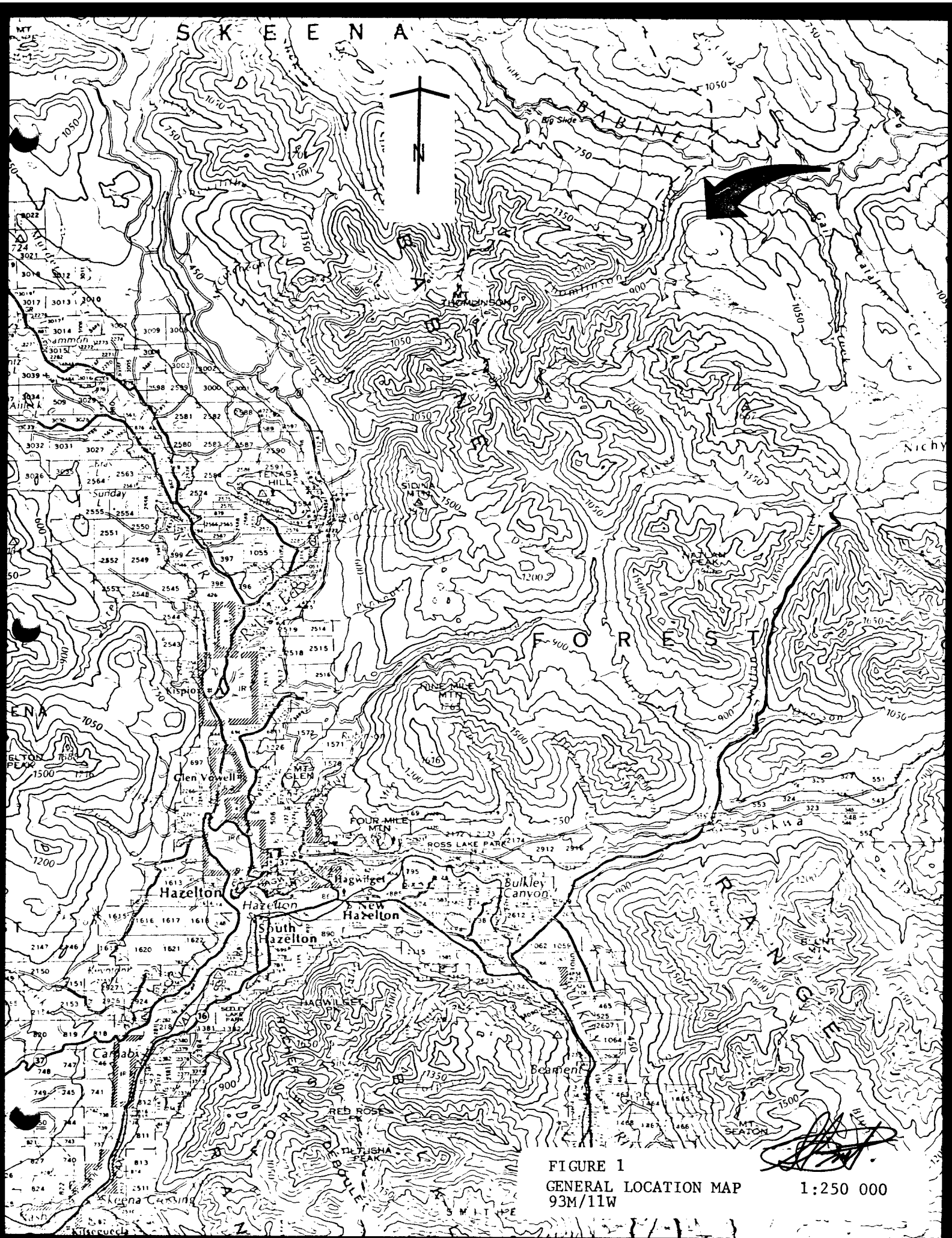


FIGURE 1

GENERAL LOCATION MAP 1:250 000

93M/11W

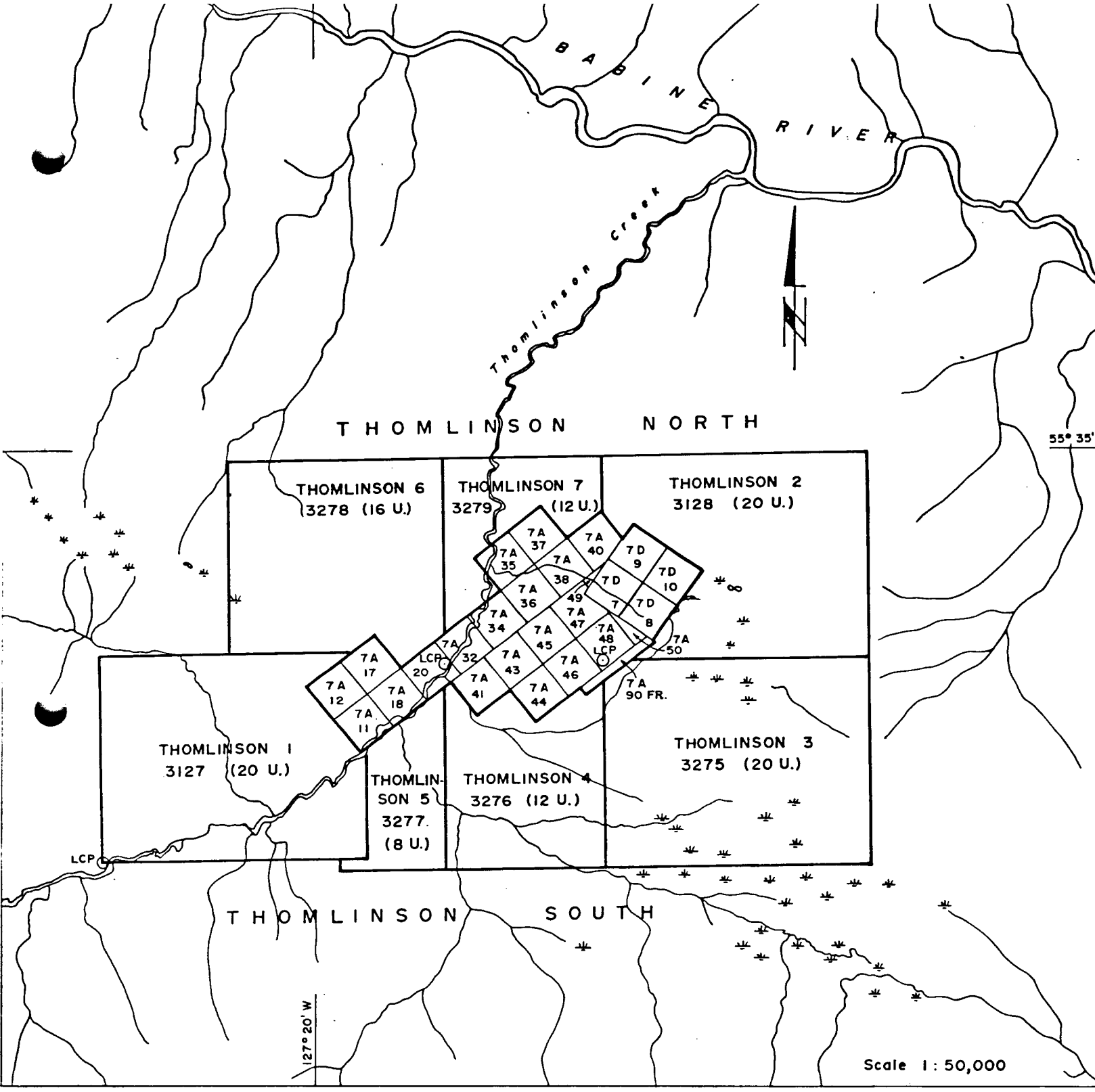


Figure 2

CLAIM SKETCH

Property: Thomlinson Creek, 93M/11

Claims: Thomlinson 1-7, 7A, 7D
(Total 134 units)

Owner: Noranda Exploration Company, Limited
(No Personal Liability)

Date: November, 1981

Signature of author: _____

GROUP NAME	CLAIM NAME	RECORD NO.	DATE RECORDED	RENEWAL DATE
Thomlinson South	Thomlinson 1 (20)	3127	August 29, 1980	August, 1987
	Thomlinson 3 (20)	3275	October 6, 1980	October, 1987
	Thomlinson 4 (12)	3276	October 6, 1980	October, 1987
	Thomlinson 5 (8)	3277	October 6, 1980	October, 1987
	7A-11	87958	June 5, 1970	June, 1991
	7A-12	87959	June 5, 1970	June, 1991
	7A-17	99255	June 9, 1970	June, 1991
	7A-18	99256	June 9, 1970	June, 1991
	7A-20	99258	June 9, 1970	June, 1991
	7A-41	106098	October 8, 1971	October, 1990
	7A-43	106100	October 8, 1971	October, 1990
	7A-44	106101	October 8, 1971	October, 1990
	7A-45	106102	October 8, 1971	October, 1990
	7A-46	106103	October 8, 1971	October, 1990
	7A-48	106105	October 8, 1971	October, 1990
	7A-90 (Fr)	116651	September 27, 1972	September, 1990

The Statement of Exploration and Development concerning the above renewal dates was submitted to the Gold Commissioner's office in Smithers October 5, 1981, and recorded under MR Number SUSP889414G.

All claims are owned by Noranda Exploration Company, Limited (No Personal Liability), P.O. Box 2380, Vancouver, B.C. V6B 3T5.

3. PREVIOUS WORK

The original claims (7A-1 to 8, 7A-11 to 16) were staked by Granby Mining Corporation in 1970 to protect the center of a prominent aeromagnetic anomaly suggestive of an intrusive structure. Preliminary examination indicated anomalous geochemical and induced polarization results and confirmed the existence of a copper/molybdenum mineralized granitoid rock. Subsequent investigations in 1980 by Noranda Exploration Company, Limited included brief prospecting and 612.6 meters of diamond drilling which outlined an area of very low grade copper and molybdenum porphyry type mineralization in intrusives and adjacent hornfels. Information regarding assay results may be obtained from the Diamond Drill Report submitted for assessment by M.W. Leahey and M. Savell in 1980.

4. LINECUTTING, TOPOGRAPHIC AND PHOTOGRAMMETRIC MAPPING

A total of 35.18 kilometers of lines was cut, chained and slope corrected by Talisman Resources Limited, of 23080 Dyke Road, Richmond, B.C. Linecutting was commenced on May 21, 1981 and completed June 4, 1981. Twenty-three lines were cut at 122 meter spacings and picketed every 30.5 meters in order to coincide with a pre-existing grid established by Granby in the early 1970's. This was preceded by topographic and photogrammetric mapping compiled by Pacific Survey Limited of Vancouver, B.C. Two 1:5000 photomaps with scribed 20 meter contour intervals were constructed from existing government photography. Total coverage was 26.55 square kilometers (see Fig.11).

This work provided the necessary ground control for exploration surveys described herein.

5. SOIL GEOCHEMISTRY

Two hundred and eighty-two soil samples were collected from grid lines 68E to 104E inclusive. This soil survey provided new information in the gap between previous Granby data from the east and west zones (see Figures 5.1, 5.2 and 5.3).

The samples were taken at 30.5 meter intervals along each line using an iron mattock to dig holes averaging 15 centimeters deep to the "B" soil horizon. Approximately one kilogram of damp soil was extracted and placed in high strength paper sample bags and shipped to Noranda's analytical laboratory in Vancouver. E. van Leeuwen, a geochemist employed by Noranda, analysed the contents for copper, molybdenum, silver, gold, lead and zinc. The technique of analysis for each element is listed as follows:

Copper

A 1.0 gram sample of the -80 mesh grain size fraction was weighed and digested with a mixture of concentrated nitric, hydrochloric, and perchloric acids. The solution was evaporated to perchloric acid fumes, demineralized water added, and the solution was boiled, cooled and diluted with approximately five milliliters of demineralized water.

Concentration of copper was determined by Atomic Absorption.

Molybdenum

A 2.0 gram sample was weighed and digested with a mixture of concentrated nitric, hydrochloric and perchloric acids. The solution was evaporated to perchloric acid fumes, demineralized water added, and the solution boiled for several minutes. Aluminum chloride solution was added, and the solution cooled and diluted with approximately five millilitres of demineralized water.

Concentration of total molybdenum was determined by Atomic Absorption.

Silver

A 1.0 to 2.0 gram sample was weighed and digested in concentrated nitric acid. Hydrochloric acid was added and digestion continued. The solution was evaporated to almost dryness; hydrochloric acid was added and boiled to dissolve the residue. The solution was cooled and diluted with approximately five milliliters of demineralized water.

Silver concentration was determined by Atomic Absorption.

Gold

A 5.0 gram sample was weighed and roasted in a furnace at 600^{o}C for 60 minutes. The sample was then digested with nitric acid; then hydrochloric acid was added, and digestion continued to almost dryness. Additional hydrochloric acid, then demineralized water were added and

boiled into solution. The solution was cooled and diluted with demineralized water and left to settle for approximately 24 hours.

A suitable aliquot of the clear solution was transferred to a volumetric flask to which an organic extractant (Methyl-iso-Butyl-Ketone) was added, and shaken to concentrate the gold into the organic phase.

Determination of gold concentration in the organic phase was determined by Atomic Absorption, and the results expressed in parts per billion.

Lead/Zinc

A 0.5 to 2.0 gram sample was weighed and digested in concentrated nitric and perchloric acids, then evaporated to $HClO_4$ fumes. Additional nitric acid was added and boiled into solution. The solution was cooled and diluted with approximately five milliliters of demineralized water.

Concentrations of lead/zinc were determined by Atomic Absorption, in parts per million.

Copper values ranged from 14 to 820 parts per million, and out of 282 samples analysed, 188 ranged from 0-59 ppm, 53 were in the range 60-99 ppm, and 41 were 100 ppm or greater. Anomalous threshold was established at 60 ppm, and values of 100 ppm and greater were considered significant.

Molybdenum values ranged from less than 2 parts per million to 600 parts per million, and out of 282 samples analysed, 196 ranged from 0 to 14 ppm, 54 were in the range of 15 to 59 ppm, 20 were in the range of 60 to 69 ppm, and 12 were 110 ppm or greater. Anomalous threshold was established at 60 ppm, and values of 100 ppm and greater were considered clearly anomalous.

Results for lead, zinc, silver and gold were low. Silver ranged from 0.2 ppm to 1.6 ppm, and all gold values were 10 parts per billion with the exception of one sample located at L68 + 00E, 132 + 00N which analysed 120 ppb.

The contoured data for copper and molybdenum correlates very well with pre-existing geochemical data from the east and west zones (Fig. 5.1). The 1981 soil survey indicates a small area anomalous in copper centered on L72 + 00E, 133 + 00N and a second area anomalous in molybdenum centered on L96 + 00E, 128 + 00N. These are on opposite sides of Thomlinson Creek, where most outcrops are extensively obscured by deep overburden.

6. GEOPHYSICAL SURVEYS

VLF-EM, magnetic and induced polarization surveys were completed over the Thomlinson grid to aid in geological interpretation of the areas of interest. Each survey is described as follows:

6.1 VLF-EM Method

An electromagnetic survey over 35.18 kilometers of grid lines was carried out employing the Radem and Sabre hand-held VLF-EM receiver units. Measurements of the horizontal field strength component and dip angles of the resultant field were recorded at 30.5 meter intervals along the Thomlinson grid lines. The VLF communication station used for this survey was located at Laulualei, Hawaii broadcasting at 23.4 KHz. This station was selected so that the direction of the transmitting signal was roughly perpendicular to the direction of the grid survey lines.

Field data has been presented in Figures 6, 7 and 8 as dip angle profiles and as filtered contoured values (ref: Geophysics, Volume 34,

No. 6, December 1969: Contouring of VLF-EM Data by D.C. Fraser) and horizontal field strength measurements.

Although interpretation of the dip angle data is somewhat difficult, the majority of anomalous profiles suggests that causative factors include swamps, faults and surface lineaments. Most anomalies outlined by the Fraser Filter Contour Method are due to subcrop features reflected by the present topography.

6.2 Magnetometer Survey

A magnetic survey consisting of 38.18 kilometers was completed over the Thomlinson grid using a hand-held Fluxgate MF-2 magnetometer manufactured by Scintrex. Readings were displayed on a standard analog meter and recorded at 30.5 meter intervals along each grid line. These are presented as relative values of the total magnetic field intensity using a datum of 52,000 gammas. A base station of 170 gammas was established at the 1981 camp location (see 1:4800 geological plan), and check stations every 122 meters were located along all base lines for additional drift control. If necessary, readings were corrected for diurnal variation. The readings were plotted on a 1:4800 plan map and contoured at 100 gamma intervals (Fig. 9).

The survey indicates anomalously high magnetic relief in the western zone. Lines 44E through 80E have values as high as 1550 gammas contrasting to readings averaging 250 gammas in the eastern zone, where the best copper/molybdenum mineralization appears in outcrop. The magnetic anomaly over the western grid area is probably due to higher concentrations of pyrrhotite and magnetite in both quartz diorite and associated hornfelsed rocks. In the same area, a sharp distortion in the local magnetic field suggests the existence of a prominent

fault extending east-west from L44 + 00E to L80 + 00E, midway between BL150N and BL121N. A less obvious lineament strikes 015° and extends from L72 + 00E - BL150N through to L56 + 00E - 131 + 00N.

6.3 Induced Polarization and Resistivity Survey (written by M.W. Leahey)

An induced polarization and resistivity survey was carried out by Noranda personnel between L44E and L112E, covering 25.18 kilometers of grid lines. The survey was undertaken using "frequency domain" IP equipment manufactured by Sabre Electronics of Vancouver and designed to Noranda specifications.

The dipole-dipole array was used for the survey. With this array the current electrodes C_1 and C_2 and the two potential electrodes P_1 and P_2 were moved in unison along the survey lines. At each "set-up" the grid location of each electrode (C_1, C_2, P_1, P_2) was recorded and the following electrical measurements were read and recorded:

1. Transmitter current on frequency 5 Hz (current recorded in milliamperes);
2. Receiver measures the developed voltage (voltage recorded in millivolts);
3. Transmitter current maintained constant, frequency change to 0.3 Hz; and
4. Receiver measures voltage change as a per cent deviation caused solely by the change in frequency (per cent deviation of voltage recorded as Percent Frequency Effect).

By definition, Percent Frequency Effect is the per cent change of resistivity caused by a change in the frequency of the current. Since resistivity is directly proportioned to voltage, if the current is constant at each frequency, the per cent change of resistivity equals per cent change of voltage.

The resistivity value for each "set-up" was calculated from the recorded current and voltage measurements and the array dimension in meters. The equation is:

$$\text{Apparent Resistivity (ohm-meters)} = \frac{V}{L} 2\pi XK$$

where V = millivolts
L = milliamperes
X = dipole length (meters)
K = array constant

The separation between the electrodes was 91.46 meters (300 feet), and measurements of per cent frequency effects and apparent resistivity were made for the first electrode configuration (n = 1). The results of the surveys are plotted on Figure 10.1 (PFE), and Figure 10.2 (apparent resistivity). In addition to these results time-domain IP results from a previous Granby survey are plotted on L116E through to L132E.

A pole-dipole array was used for Granby's IP survey. With this array the current electrode C_1 and the two potential electrodes P_1 and P_2 were moved in unison along the lines surveyed. The second electrode was grounded an "infinite" distance away, about ten times the distance between C_1 and P_1.

The lines were surveyed with a dipole length equal to 60.96 meters (200 feet), and measurements of apparent chargeability and apparent resistivity were made.

The original Granby chargeability readings were divided by a factor of four to determine a corresponding per cent frequency effect. The four factor was determined by inspection of coincident time-domain vs. frequency-domain readings on L108E and L112E. The apparent linearity of this relationship breaks down with the higher chargeabilities.

The IP results are consistent with the pattern of mineralization associated with porphyry deposits. The highest PFE values (15-20) are within the "pyrite halo" on the southeast edge of the grid. Consistent, but low grade, copper values occur within the area outlined by the 5% frequency effect contours north of TL121N from L112E to L132E. Similar intermediate PFE values were located between L60E to L64E on Thomlinson Creek and from L92E and L100E crossing the creek.

The IP and resistivity also aid geological and structural inferences such as contact zone hornfels >500 ohm-meters, intrusives 500-3000 ohm-meters, dykes 3000-4000, and mineralized quartz diorite range from less than 100 ohm-meters up to 2000 ohm-meters.

The apparent resistivity also suggests a north to northeast discontinuity between L112E and Thomlinson Creek. In the grid area from L76E to L104E the apparent resistivity is anomalously low.

7. REGIONAL GEOLOGY

The Thomlinson Creek project area lies within the Intermontane Tectonic belt of the Canadian Cordillera. It comprises part of the Babine Range and is locally underlain by Bowser Group sediments which include carbonaceous sandstone, siltstone, shale and conglomerate. These rocks have been intruded by a small body of Babine (T.A. Richards, 1980) intrusive rocks which include granodiorite, quartz monzonite and quartz diorite of Tertiary age.

On Thomlinson Mountain, 9 kilometers to the west of Thomlinson Creek, a number of small granodiorite and quartz monzonite stocks have been intruded by Late Cretaceous Bulkley and Eocene Nanika intrusions. Several

of these intrusives are mineralized with important amounts of copper, molybdenum and tungsten.

7.1 Local Geology and Mineralization

A total of 35.18 kilometers of grid-controlled surface mapping was conducted on the property at a scale of 1:4800.

Outcrops are sparsely distributed and occur only in areas adjacent to very steep cliffs, usually in excess of 100% topographical grade. The best exposed rocks are found on the eastern and western extremities of the grid. The central grid area provides information of little geological value because of its extensive overburden cover.

Local geology consists of a long, narrow, multi-phase intrusive body of medium-grained biotite-hornblende quartz diorite, quartz monzonite and granodiorite intruding hornfelsed sandstone, siltstone and conglomerate. The intrusive has the characteristic shape of a stock, and is at least four kilometers long and 600 meters wide. Extensive faulting and subsequent weathering have produced at least three separate tightly-spaced and unsilicified fracture directions, and up to 200 limonitic fractures per cubic meter have been observed within several outcrops on the grid. At least 40% of all fractures observed in outcrop on the eastern grid area are mineralized with thin discontinuous sheets of pyrrhotite, pyrite and chalcopyrite. Molybdenite occurrences are less common but are sometimes found along tight chloritic fractures and as rims peripheral to quartz veins. The majority of these mineralized fractures appear to be within the quartz diorite phase of the intrusion.

The above rocks have intruded fine-grained shale, siltstone, sandstone and conglomerate, and have resulted in a prominent limonite-

fractured aphanitic hornfelsed zone extending for at least 300 meters beyond the contact. Within the hornfels, abundant quartz veins containing greater than one per cent disseminated chalcopyrite and molybdenite are common, especially on the eastern section of the grid near its contact with quartz diorite. Many of these veins reach 10 to 50 centimeters in width, similar to those recorded near L114 + 00W - 120 + 00N. These mineralized veins and fractures remain prominent within hornfels, but most become tighter and less silicified away from the contact.

Biotite-feldspar porphyry and quartz-feldspar porphyry dike rocks intrude the hornfels and quartz diorite in several localities, however sparse outcrop exposure and mapping at 1:4800 scale do not permit these units to be traced. Lesser amounts of fracture controlled pyrite, pyrrhotite, chalcopyrite and molybdenite have been observed in these dike rocks.

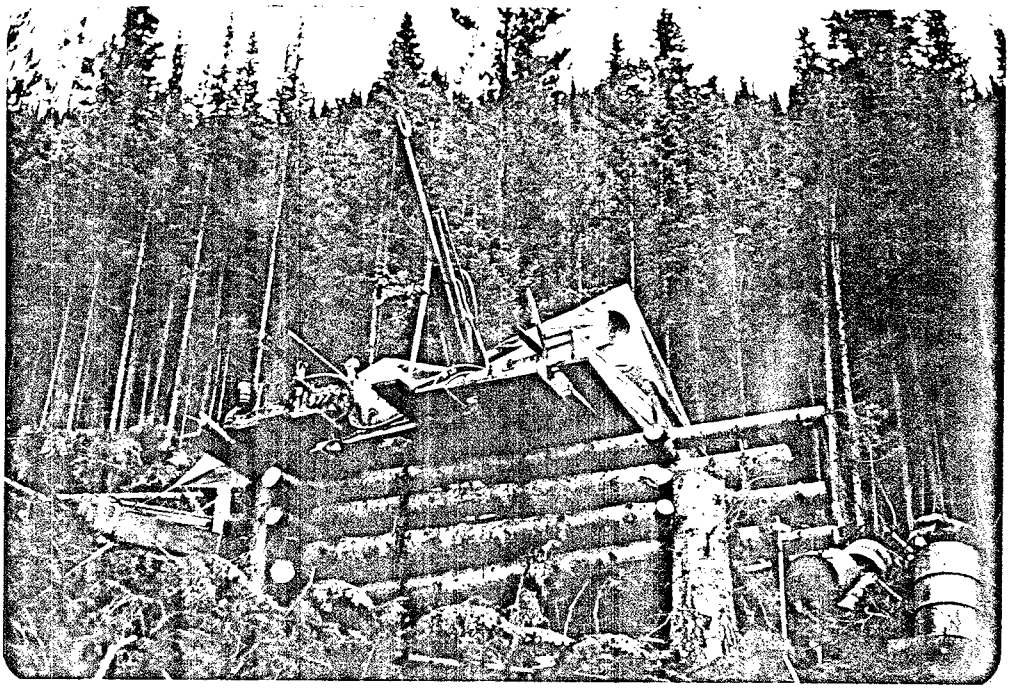
Biotization of mafics and locallized sericite with weak carbonate alteration have been observed in some areas on the eastern and western portions of the grid. The limits of the grid lines and lack of outcrop in key areas have not permitted a typical porphyry-type pyritic halo and its associated alteration pattern to be located during the course of this survey.

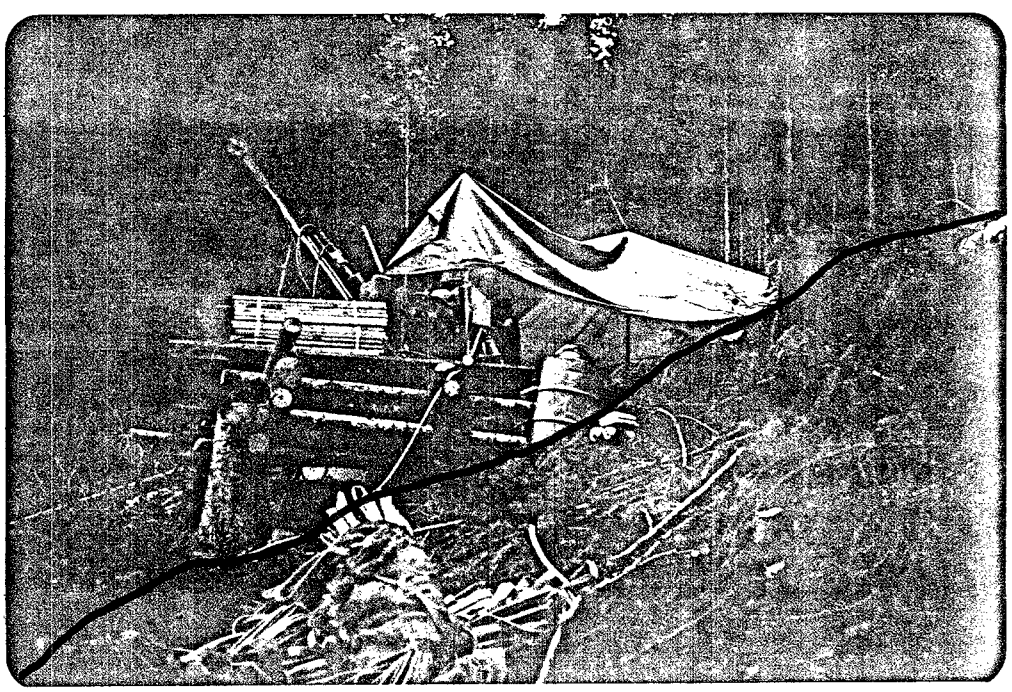
The mineralization outlined by surface mapping (Fig. 12) to date does appear to be of the porphyry variety with copper grades from weathered granodiorite grab samples as high as 8900 parts per million.

8. DIAMOND DRILLING

Five inclined BQ diamond drill holes totalling 411.24 meters were drilled on the Thomlinson Creek property from September 25th through

D.D.H. TC-81-7 L116 + 15E - 124 + 00N





October 20th, 1981. The drilling was designed to test the depth, grade, and lateral extent of copper/molybdenum occurrences within quartz diorite rocks. (A 1971 soil survey indicated geochemical results greater than 500 parts per million copper and greater than 150 parts per million molybdenum within the drill area.) The drilling was contracted to Drilcor Industries Limited of #18 - 12871 Bathgate Way, Richmond, B.C.

The core was placed in labelled wooden boxes and stored on racks at the 1981 drill camp location as indicated on Figure 12. The diamond drill sections are located in Figure 4, and log records in Appendix III at the back of this report. A complete list of assay results follows in Section 9.

8.1 D.D.H. TC-81-6

Diamond drill hole TC-81-6 was collared on Line 108 + 00E at 125 + 45N, inclined -50° at azimuth 125°, and drilled to a depth of 90.2 meters (Fig. 4.1).

This hole intersected light-grey medium-grained equigranular hornblende-biotite quartz diorite through its entirety. Locallized and weak porphyritic sections showing some biotization of hornblende and chloritization of mafics were also intersected. The quartz diorite characteristically contains abundant random tight fractures, most of which are coated with limonite to a depth of at least 90 meters. Fine sheets of fracture-controlled pyrite, pyrrhotite, chalcopyrite and molybdenite occur together with traces of disseminated scheelite. Throughout the intersection a very weak quartz stockwork is shown by one 0.5 centimeter quartz vein continuous with every 20 centimeters of core. This could be suggestive of a weak phyllic alteration zone.

Twenty-four three-meter sections were split and analysed for copper, molybdenum, silver, gold and tungsten. These 24 samples from 18.0 to 90.0 meters averaged 0.10% copper and 0.03% molybdenum over a 72 meter section. The best three-meter interval assayed 0.22% copper and 0.368% molybdenum from 81.0 to 84.0 meters. A complete list of assay results is included in Section 9.

8.2 D.D.H. TC-81-7

Diamond drill hole TC-81-7 was located on Line 116 + 15E at 124 + 00N, and drilled to a depth of 121.00 meters. The hole was inclined to -50° at an azimuth of 145° (Fig. 4.2).

Moderately fractured hornblende-biotite quartz diorite and its clay-altered equivalent were recognized in the hole. The hornblende-biotite quartz diorite contained thin discontinuous sheets of pyrite, pyrrhotite, chalcopyrite, and less commonly molybdenite and scheelite along 40% of all fractures. From 95.10 to 121.00 meters, the original texture of silicified quartz diorite is almost completely obliterated by intense sericite and kaolinite overprinting. Very weak pyrite, chalcopyrite, and molybdenite were noted along tightly spaced fractures.

Eight three-meter sections of core were split and analysed for copper, molybdenum, silver, gold and tungsten. The best two samples assayed 0.10% copper (75.0-78.0 meters) and 0.041% molybdenum (96.0-99.0 meters). A complete list of assay results is referred to in Section 9.

8.3 D.D.H. TC-81-8

This hole was located on Line 119 + 90E at 120 + 00N, and was drilled to a depth of 128.01 meters, with a dip of -50° and an azimuth of 125° (Fig. 4.3).

The intersection comprised a series of hornblende-biotite quartz diorite, biotite-feldspar porphyry, and hornfelsed siltstone units. The quartz diorite was medium-grained and equigranular, and contained thick limonite coatings on 60% of all fractures, as well as very weak dark green chlorite on the remaining 40%. Variable amounts of pyrrhotite, pyrite, chalcopyrite, and molybdenite were regarded as thin sheets and veinlets on tighter fracture planes. Trace amounts of disseminated scheelite were also observed throughout all quartz diorite units. Younger and well-fractured biotite-feldspar porphyry dike units contain much weaker sulphide mineralization.

The hornfelsed siltstone is a highly fractured aphanitic rock with characteristic and pervasive quartz veining. It commonly contains molybdenite and traces of chalcopyrite along its fractures. Twelve three-meter core samples of fracture controlled mineralization were split, and one grab sample containing prominent scheelite were sent for assay. The best individual sample indicated 0.21% copper from 33.0 to 36.0 meters, and the best molybdenite section indicated 0.068% molybdenum from 9.0-12.0 meters. A section from 6.0 to 36.0 meters averaged 0.13% copper and 0.020% molybdenum over 30 meters.

8.4 D.D.H. TC-81-9A and TC-81-9B

Diamond drill holes TC-81-9A and 9B were collared on Line 128 + 10E at 123 + 00N (Fig. 4.4).

Hole 9A was inclined -50° at azimuth 145° and drilled to 24.38 meters where it was abandoned due to a bend in the hole track which caused the rods to break at 5.61 meters.

D.D.H. TC-81-9B was re-set at the same grid co-ordinates and inclined -50° at azimuth 130° and drilled to 47.85 meters. This hole

was also abandoned when cementing failed to strengthen walls adjacent to several prominent faults.

Geology of both drill holes consisted of moderately faulted and partly clay-altered hornblende-biotite quartz diorite. Only weak pyrite, pyrrhotite, chalcopyrite and molybdenite mineralization was observed along intermittent fractures.

One portion of the best mineralization was selected from 2.0 to 5.0 meters and assayed 0.18% copper and 0.025% molybdenum.

9. ASSAY RESULTS

Forty-seven split core samples and seventeen surface grab samples were analysed for copper, molybdenum, gold, silver, lead, zinc and tungsten, or portions thereof. The commercial assays listed below were performed by Rossbacher Laboratory Limited of Burnaby, B.C., and all other geochemical analyses were performed by Noranda Exploration in Vancouver. Techniques for analysis of the above elements, with the exception of tungsten, are explained in Section 5. Tungsten values were derived by initially digesting a 1.0 to 4.0 gram sample with concentrated hydrochloric acid. This solution was allowed to settle overnight after cooling and diluting with demineralized water. A suitable aliquot was transferred to a flask and the tungsten was reduced by addition of stannous chloride. Potassium thiocyanate was added to develop a colored complex with the tungsten in solution.

Determination of tungsten concentration was made by comparing the color of the sample solution with prepared standards using a spectrophotometer.

Results are listed on pages 18 and 19.

SPLIT CORE SAMPLES

SAMPLE NO.	LOCATION	COMMERCIAL ASSAY % Cu	COMMERCIAL ASSAY % Mo	GEOCHEMICAL ASSAY ppb Au	GEOCHEMICAL ASSAY ppm Ag	GEOCHEMICAL ASSAY WO_3
	DDH TC-81-6 ↓					
P-3001	18.0-21.0	0.10	0.016			
P-3002	21.0-24.0	0.06	0.012			
P-3003	24.0-27.0	0.06	0.016			0.05%
P-3004	27.0-30.0	0.07	0.016			
P-3005	30.0-33.0	0.11	0.010			
P-3006	33.0-36.0	0.10	0.009			
P-3007	36.0-39.0	0.08	0.017			
P-3008	39.0-42.0	0.10	0.024			
P-3009	42.0-45.0	0.18	0.008			
P-3010	45.0-48.0	0.07	0.004			
P-3011	48.0-51.0	0.08	0.014			
P-3012	51.0-54.0	0.12	0.010			
P-3013	54.0-57.0	0.08	0.016			
P-3014	57.0-60.0	0.06	0.012			
P-3015	60.0-63.0	0.09	0.014			
P-3016	63.0-66.0	0.10	0.010			
P-3017	66.0-69.0	0.10	0.018			
P-3018	69.0-72.0	0.11	0.016			
P-3019	72.0-75.0	0.08	0.013			
P-3020	75.0-78.0	0.12	0.013			
P-3021	78.0-81.0	0.08	0.021			
P-3022	81.0-84.0	0.12	0.034			0.05%
P-3023	84.0-87.0	0.22	0.368			
P-3024	87.0-90.0	0.12	0.104			
	DDH TC-81-7 ↓					
P-3026	6.0-9.0	0.10	0.013	10	1.0	200**
P-3027	15.0-18.0	0.05	0.015	10	0.6	90 ↓
P-3028	18.0-21.0	0.06	0.010	10	0.6	50
P-3029	27.0-30.0	0.08	0.005	10	0.8	160
P-3030	30.0-33.0	0.07	0.013	40	0.6	160
P-3031	75.0-78.0	0.10	0.014	10	1.0	140
P-3032	45.0-48.0	0.04	0.002	10	0.4	40
P-3033	96.0-99.0	0.03	0.041	10	0.2	70
	DDH TC-81-8 ↓					
P-3051	6.0-9.0	0.10	0.010			140
P-3052	9.0-12.0	0.07	0.068			140
P-3053	12.0-15.0	0.12	0.020			140
P-3054	15.0-18.0	0.18	0.018			240
P-3055	18.0-21.0	0.10	0.010			100
P-3056	21.0-24.0	0.13	0.010			140
P-3057	24.0-27.0	0.09	0.008			160
P-3058	27.0-30.0	0.16	0.106			360
P-3059	30.0-33.0	0.13	0.018			180
P-3060	33.0-36.0	0.21	0.010			210
P-3061	44.0-47.0	0.12	0.038			270
P-3062	69.0-72.0	0.04	0.043			400
P-3063	113.4-113.9	0.15	0.003			360
P-3064	110.33-110.40			10		1600
	DDH TC-81-9B ↓					
P-3076	2.0-5.0	0.18	0.025	0.001 oz/t	0.06 oz/t	0.01%

**ppm W

DIAMOND DRILL SUMMARY, 1981

FIGURE 3

THOMLINSON CREEK, B.C.

Hole Designation	Grid Location	Inclination	Direction	Overburden (metres)	Individual Hole Depth (metres)	Cumulative Depth (metres)	Collar Elevation (metres)
TC-81-6	L108 + 00E L125 + 45N	-50°	AZ 125°	17.37	90.20	90.20	790
TC-81-7	L116 + 15E L124 + 00N	-50°	AZ 145°	4.2	121.00	211.00	850
TC-81-8	L119 + 90E L120 + 00N	-50°	AZ 125°	1.83	128.01	339.01	950
TC-81-9A	L128 + 10E L123 + 00N	-50°	AZ 145°	1.52	24.38 (abandoned)	363.39	940
TC-81-9B	L128 + 10E L123 + 00N	-50°	AZ 130°	1.52	47.85 (abandoned)	411.24	940

Drilling completed on the property: 1980 - 5 holes 612.7 metres
1981 - 4 holes 411.2
Total: 9 holes 1023.9 metres

SURFACE GRAB SAMPLES

SAMPLE NO.	LOCATION	Cu ppm	Mo ppm	Au ppb	Ag ppm
Y-6823	L116+00E-125+00N	1870	120	30	2.6
Y-6824	L132+00E-96+00N	306	3	10	0.2
Y-6825	L128+00E-96+50N	1420	1	10	0.6
Y-6826	L76+00E-148+00N	38	1	10	0.2
Y-6827	L80+00E-132+00N	190	1	10	0.2
Y-6828	L96+00E-126+00N	100	3	10	0.2
Y-6829	L72+00E-135+00N	168	180	10	0.2
Y-6830	L72+00E-135+00N	1040	20	10	1.2
Y-6831	L72+00E-132+00N	1640	23	10	1.6
Y-6832	L72+00E-135+00N	8900	441	60	9.6
Y-6833	L72+00E-135+00N	4400	370	70	6.8
Y-6834	L59+50E-BL150N	1060	130	10	0.6
Y-6835	L59+50E-BL150N	2260	110	10	1.0
Y-6836	L120+00E-121+00N	1820	160	10	2.6
Y-6837	L120+00E-121+00N	710	380	10	1.0
Y-6651	L104+00E-109+00N	3000	10	10	0.2
Y-6652	L104+00E-109+00N	3900	10	10	0.4

10. CONCLUSIONS AND RECOMMENDATIONS

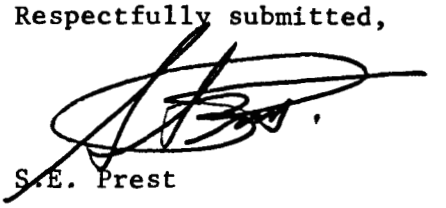
Low grade copper/molybdenum mineralization located on the Thomlinson North and South claims occurs within intrusive rocks and hornfelsed sediments over an extensive area.

Although the 1981 drill results produced substantially better copper, molybdenum and tungsten values than did the 1980 drill program, the results are of insufficient grade to warrant further work on the existing grid at the present time.

The possibility still exists for higher grade fracture type sulphide mineralization to occur to the north, east and west of the drill area (Fig. 12) in regions adjacent to untested and inferred intrusive/hornfels

contacts. Particular attention should be given to the unclaimed area east of the Thomlinson 2 and 3 claims, where higher concentrations of sulphides were observed in porphyritic rocks, during a brief reconnaissance investigation.

Respectfully submitted,



S.E. Prest

Project Geologist

APPENDIX I

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

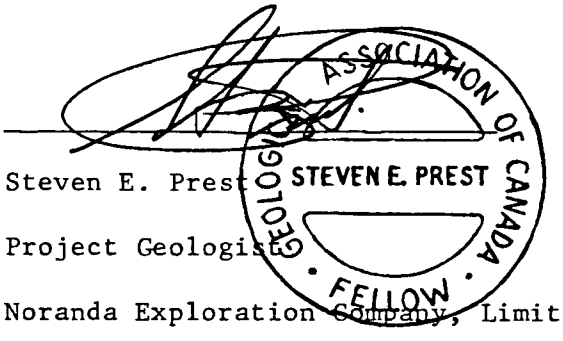
I, Steven E. Prest, of the town of Smithers, Province of British Columbia, do hereby certify that the following are true statements:

I I have been an employee of Noranda Exploration Company, Limited since April 1976, and intermittently since April 1974.

II I am a member of the Canadian Institute of Mining and Metallurgy, the Prospectors and Developers Association, and the Canadian Remote Sensing Society, and a Fellow of the Geological Association of Canada.

III I am a graduate of Acadia University, Wolfville, Nova Scotia with a Bachelor of Science Degree in Geology (1976).

Dated at Smithers
this twentieth day of November, 1981



Steven E. Prest
Project Geologist
Noranda Exploration Company, Limited
(No Personal Liability)

APPENDIX II

STATEMENT OF COSTS

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT THOMLINSON DATE November 23, 1981

TYPE OF REPORT GEOLOGY, GEOCHEM, GEOPHYSICS & DIAMOND DRILLING

a) Wages:

No. of Days 525

Rate per Day $ 82.7126

Dates From: October 1, 1980 - October 1, 1981

Total Wages 525 x $ 82.7126 43,424.13

b) Food and Accomodation:

No of days 525

Rate per day $ 18.6478

Dates From: October 1, 1980 - October 1, 1981

Total Cost 525 x $ 18.6478 9,790.11

c) Transportation:

No of days 525

Rate per day $ 55.9346

Dates From: October 1, 1980 - October 1, 1981

Total Cost 525 X $ 55.9346 29,365.67

d) Instrument Rental:

Type of Instrument

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 (See attached schedule)	2,552.40
g)	Cost of preparation of Report	
	Author	413.56
	Drafting	5,255.86
	Typing	413.56
h)	Other:	
	Camp & Field Supplies	16,819.25
	Contractors	27,495.00
	Total Cost	$135,529.54

e) Unit costs for Geology

No of days	525			
No of units				
Unit costs	81.7219	/ day		
Total Cost	525	x	81.7219	42,904.02

Unit Costs for Geophysics		
No. of Units	91.61 Line Km	
Unit Costs	397.0618/Line Km	
Total Cost	91.61 X $397.0618	36,374.83
Unit Costs for Geochem		
No. of Units	304 Samples	
Unit Costs	35.9695 / Sample	
Total Cost	304 X 35.9695	10,934.73
Unit Costs for Drilling		
No. of Units	411.2 Meters	
Unit Costs	110.204 / Meter	
Total Cost	411.2 X 110.204	45,315.96
Total Cost		$135,529.54

NORANDA EXPLORATION COMPANY, LIMITED
(WESTERN DIVISION)

DETAILS OF ANALYSIS COSTS

PROJECT: THOMLINSON

ELEMENT	NUMBER OF DETERMINATIONS	COST PER DETERMINATIONS	TOTAL
304	Cu	1.50	456.00
304	Pb	.60	182.40
304	Zn	.60	182.40
304	Mo	..60	182.40
304	Mn	.60	182.40
304	Fe	.60	182.40
304	Ag	.60	182.40
304	Au/As	3.00	912.00
15 Assays	Au	6.00	90.00

$ 2,552.40

APPENDIX III

DIAMOND DRILL LOGS

NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property	Project No	NTS No.
Sept. 25/81	Oct. 2/81	BQ	THOMLINSON	1041	93M/11W

FIELD COORDINATES			SURVEYED COORDINATES			Sheet
Lat. 108+00E	Elev. 790 m	Dip -50°	Lat.	Elev.	Dip	1 of 5
Dep. 125+45N	Depth 90.2 m	Bearing AZ 125°	Dep.	Depth	Bearing	Hole No. TC-81-6

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.
0-17.37	10%		OVERBURDEN; consists of granitic and sedimentary boulders. Hole was cased to 12.80 m only due to inability of drill to turn the BQ casing beyond 12.80 m.				
17.37-90.20	95%		HORNBLENDE-BIOTITE QUARTZ DIORITE; medium grained, light grey with weak porphyritic sections; some biotization of hornblende as evidenced by black, brown and bronze sub-hedral biotite; weak chloritization of mafics; most fractures are limonitic due to sulphide oxidization; unit contains abundant but subtle hairline fractures randomly distributed and frequently containing thin, sometimes discontinuous sheets of Py, Po, Cpy, malachite and, less commonly, molybdenite. 80% of fractures are 70°-85° to C.A. with 20% 30° to 50° to C.A.; very subtle quartz stockwork discernable throughout entire intersection with one 0.5 cm quartz vein continuous with every 20 cm of core, possibly				

DATE October 2, 1981 LOGGED BY S.E. Prest

NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property THOMLINSON		Project No 1041	NTS No.
FIELD COORDINATES			SURVEYED COORDINATES			Sheet 2 of 5
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No.
Dep.	Depth	Bearing	Dep.	Depth	Bearing	TC-81-6

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.	Cu %	Mo %	Au oz/ton	Ag oz/ton	WO_3 %
			suggesting a weak phyllic alteration zone; blue, white and									
			yellow fluorescent specks of unidentified material is dis-									
			seminated periodically throughout entire section.									
			18.00-21.00 - Hb-bi quartz diorite, as above.			P-3001	3 m	0.10	0.016	---	---	---
			21.00-24.0 - Hb-bi quartz diorite, as above.			P-3002	3 m	0.06	0.012	---	---	---
			23.47-23.80 - weakly porphyritic qtz. diorite with small									
			2 mm chlorite veinlets 60° to C.A.									
			24.0 - two dominant oppositely orientated fractures 50°									
			and 45° to C.A.									
			24.0-27.0 - Hb-bi qtz. diorite as described above.			P-3003	3 m	0.06	0.016	.001	0.04	0.05
			27.0-30.0 - Hb-bi qtz. diorite as described above.			P-3004	3 m	0.07	0.016	---	---	---
			30.0-33.0 - Hb-bi qtz. diorite as described above.			P-3005	3 m	0.11	0.010	---	---	---
			33.0-36.0 - Hb-bi qtz. diorite as described above.			P-3006	3 m	0.10	0.009	---	---	---
			36.0-39.0 - Hb-bi qtz. diorite as described above.			P-3007	3 m	0.08	0.017	---	---	---
			38.70 - 1 mm coating <u>molybdenite</u> on shear plane 30° to C.A.									

DATE LOGGED BY

NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property THOMLINSON	Project No 1041	NTS No.
FIELD COORDINATES			SURVEYED COORDINATES		Sheet 3 of 5
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No.
Dep.	Depth	Bearing	Dep.	Depth	Bearing	TC-81-6

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.	Cu %	Mo %	Au	Ag	WO_3
			39.0-42.0 - Hb-bi qtz. diorite as described above.			P-3008	3 m	0.10	0.024	---	---	---
			42.0-45.0 - Hb-bi qtz. diorite as described above.			P-3009	3 m	0.18	0.008	---	---	--
			45.0-48.0 - Hb-bi qtz. diorite as described above.			P-3010	3 m	0.07	0.004	---	---	---
			48.0-51.0 - Hb-bi qtz. diorite as described above.			P-3011	3 m	0.08	0.014	---	---	---
			51.0-54.0 - Hb-bi qtz. diorite as described above.			P-3012	3 m	0.12	0.010	---	---	---
			55.47-55.90 - Pervasive quartz veining; no significant sulphides									
			except for 2-5% chalcopyrite and 5% Po above upper contact									
			for 10 cm interval.									
			54.0-57.0 - Hb-bi qtz. diorite, as described above.			P-3013	3 m	0.08	0.016	---	---	--
			57.0-60.0 - Hb-bi qtz. diorite, as described above.			P-3014	3 m	0.06	0.012	---	---	---
			60.0-63.0 - Hb-bi qtz. diorite, as described above.			P-3015	3 m	0.09	0.014	---	---	---
			63.0 - 10 cm barren qtz. vein 45° to C.A.									
			64.61 - 10 cm weak pyritic quartz vein 45° to C.A.									
			63.0-66.0 - Hb-bi qtz. diorite, as described above.			P-3016	3 m	0.10	0.010	---	---	---
			66.0-69.0 - Hb-bi qtz. diorite, as described above.			P-3017	3 m	0.10	0.018	---	---	---

DATE _____ LOGGED BY _____

NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property THOMLINSON		Project No 1041	NTS No.
FIELD COORDINATES			SURVEYED COORDINATES			Sheet 4 of 5
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No. TC-81-6
Dep.	Depth	Bearing	Dep.	Depth	Bearing	

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.	Cu %	Mo %	Au	Ag	WO_3
			67.00 - 3 cm band of porphyritic diorite 40° to C.A.									
			69.0-72.0 - Hb-bi qtz. diorite, as described above.			P-3018	3 m	0.11	0.016	---	---	---
			70.25-71.78 - strongly hematized and sericitized quartz									
			diorite; core strongly fractured and broken; weakly chloritic.									
			72.0-75.0 - Hb-bi qtz. diorite, as described above.			P-3019	3 m	0.08	0.013	---	---	---
			72.24-90.20 - Most veinlets are becoming significantly									
			more mineralized with chalcopyrite and molybdenite as ef-									
			fects of weathering dissipate with increasing depth.									
			73.46 - Kaolinization of feldspars at upper and lower con-									
			tacts near fine grained sericitized diorite dike.									
			75.0-78.0 - Hb-bi qtz. diorite, as described above.			P-3020	3 m	0.12	0.013	---	---	---
			76.20 - ~5% disseminated chalcopyrite and 1% diss't.									
			molybdenite over 60 cm.									
			78.0-81.0 - Hb-bi qtz. diorite as described above.			P-3021	3 m	0.08	0.021	---	---	---
			79.0-79.70 - intensely altered fractures containing thick									

DATE LOGGED BY

NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property THOMLINSON		Project No 1041	NTS No.
FIELD COORDINATES			SURVEYED COORDINATES			Sheet 5 of 5
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No. TC-81-6
Dep.	Depth	Bearing	Dep.	Depth	Bearing	

	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.	Cu %	Mo %	Au oz/ton	Ag oz/ton	WO_3 %
			limonite coatings.									
			81.0 - 10 cm qtz. vein 40° to C.A. with strongly limonitic									
			and hematitic fractures above upper contact; kaolinization of									
			feldspars over 5 cm band on lower contact.									
			81.0-84.0 - Hb-bi qtz. diorite as described above.			P-3022	3 m	0.12	0.034	.001	0.04	0.05
			84.0-87.0 - Hb-bi qtz. diorite as described above.			P-3023	3 m	0.22	0.368	---	---	---
			86.0-89.0 - Prominent qtz-molybdenite-chalcopyrite-hematite									
			shear parallel to C.A. shear contains 1 cm wide qtz. vein									
			with sulphide rims; unit contains green subhedral feldspars									
			altering to sericite.									
			87.0-90.0 - Hb-bi qtz. diorite as described above.			P-3024	3 m	0.12	0.104	---	---	---
90.2			E.O.H. Casing left in place and hole terminated due to									
			caving and drill platform instability. Core stored on									
			racks at 1981 Thomlinson drill camp, as indicated on									
			1:4800 Geological Plan.									

DATE LOGGED BY

NORANDA EXPLORATION COMPANY, LIMITED

Collared Oct. 3, 1981	Completed Oct. 8/81	Core Size BQ	Property THOMLINSON	Project No 1041	NTS No. 93M/11W
FIELD COORDINATES			SURVEYED COORDINATES		Sheet 1 of 5
Lat. 116 + 15E	Elev. 850 m	Dip -50°	Lat.	Elev.	Dip	Hole No. TC-81-7
Dep. 124 + 00N	Depth 121.00 m	Bearing 145°	Dep.	Depth	Bearing	

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.	Cu %	Mo %	Au ppb	Ag ppm	W ppm
0-4.20			OVERBURDEN; casing to 4.57 m.									
4.20-44.60	95%		HORNBLENDE-BIOTITE QUARTZ DIORITE; medium grained, light grey, equigranular with <10% subhedral 3mm black biotite grains and >10% bladed dark green chlorite crystals. Unit is occasionally porphyritic and contains weak and sparsely distributed bronze colored biotized hornblende. Fracturing density is moderate and most surfaces are limonitic and frequently contain weak malachite; 40% of hairline fractures are seen only when core is broken and frequently contain thin coatings of Py, Po, Cpy and less commonly Mo.									
			5.80 - 2 cm barren qtz. vein 70-80° to C.A.									
			6.0-9.0 - Hb-bi qtz. diorite as described above			P-3026	3 m	0.10	0.013	10	1.0	200
			6.80 - 2 cm barren qtz. vein 70° to C.A.									
			7.20 - 2 cm barren qtz. vein 80° to C.A.									
			9.00-9.75 - numerous tightly spaced fractures containing									

DATE October 8, 1981 LOGGED BY S.E. Prest

NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property THOMLINSON		Project No 1041	NTS No. 93M/11W
FIELD COORDINATES			SURVEYED COORDINATES			Sheet 2 of 5
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No.
Dep.	Depth	Bearing	Dep.	Depth	Bearing	TC-81-7

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.	Cu %	Mo %	Au ppb	Ag ppm	W ppm
			fine disseminations and thin sheets of Cpy, Mo, Py and Po.									
			15.00-18.00 - Hb-bi qtz. diorite, as above.			P-3027	3 m	0.05	0.015	10	0.6	90
			18.00-21.00 - Hb-bi qtz. diorite, as above.			P-3028	3 m	0.06	0.010	10	0.6	50
			20.60 - heavy pyrite along fractures.									
			21.00 - abundant dark green bladed chlorite.									
			21.00-25.00 - chlorite quartz diorite; some euhedral brown-									
			bronze biotite after hornblende; this interval contains									
			less fracturing and sulphides than previous sections.									
			Trace molybdenite along small quartz veins.									
			22.90 - 10 cm wide tectonic breccia with qtz diorite									
			fragments recemented with silica.									
			27.00-30.00 - Hb-bi qtz. diorite, as above.			P-3029	3 m	0.08	0.005	10	0.8	160
			30.00-33.00 - Hb-bi qtz. diorite, as above.			P-3030	3 m	0.07	0.013	40	0.6	160
44.60-57.00	90%		CLAY-ALTERED BIOTITE FELDSPAR PORPHYRY; grey, medium-									
			grained; upper contact ~70% clay altered to 45.0 m.									

DATE _____ LOGGED BY _____

NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property THOMLINSON		Project No	NTS No. 93M/11W
FIELD COORDINATES			SURVEYED COORDINATES			Sheet 3 of 5
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No.
Dep.	Depth	Bearing	Dep.	Depth	Bearing	TC-81-7

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.	Cu %	Mo %	Au	Ag	W
			45.00-48.00 - clay-altered B.F.P.			P-3032	3 m	0.04	0.002	---	---	---
			48.60-53.10 - most subhedral feldspar phenocrysts are altered to white kaolinite									
			Entire unit is moderately fractured in all directions with some fractures containing thin sheets of limonite, Py, Po anc Cpy. Very weak silicification noticeable as subtle quartz veining throughout unit; lower contact is 80% clay altered and shows locallized tectonic brecciation.									
57.00-95.10	95%		HORNBLENDE-BIOTITE QUARTZ DIORITE; as previously described; upper contact is moderately brecciated to 58.0 with silica acting as matrix to the fragments.									
			52.58-53.00 - this interval resembles granodiorite due to increase in K-spar content. Quartz veins at: 61.60 (3 cm wide 30° to C.A.), 63.60 (15 cm wide 40° to C.A.), 65.8 (8 cm wide 20° to C.A.); core is 50% clay altered and imparts a									

DATE _____ LOGGED BY _____

NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property THOMLINSON		Project No 1041	NTS No. 93M/11W
FIELD COORDINATES			SURVEYED COORDINATES			Sheet 4 of 5
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No.
Dep.	Depth	Bearing	Dep.	Depth	Bearing	TC-81-7

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.	Cu %	Mo %	Au ppb	Ag ppm	W ppm
			grey-green color to rock.									
			66.60 - 3 cm QFP dike 45° to C.A.									
			66.70 - 3 cm QFP dike 45° to C.A.									
			Weak silicification throughout section as indicated by									
			subtle but continuous 2 mm to 1 cm quartz veins									
			75.0-78.00 - Hb-bi qtz. diorite, as above.			P-3031	3 m	0.10	0.014	10	1.0	140
			85.00 - 3 cm grey-black diorite dike 85° to C.A.									
95.10-121.00	90%		CLAY-ALTERED ROCK; grey-green, fine to medium grained, original									
			lithology obliterated but probably qtz. diorite; unit is									
			partially altered to Kaolinite and sericite with some									
			silicification; frequent fracturing.									
			96.00-99.00 - clay altered rock.			P-3033	3 m	0.03	0.041	10	0.2	70
			98.50 - qtz. vein containing 1 mm vein of molybdenite									
			with pyrite and trace chalcopyrite; several fine, thin									
			molybdenite veinlets are minor, but do occur along									

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NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property THOMLINSON	Project No 1041	NTS No. 93M/11W
FIELD COORDINATES			SURVEYED COORDINATES		Sheet 5 of 5
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No. TC-81-7
Dep.	Depth	Bearing	Dep.	Depth	Bearing	

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.
			fractures throughout clay section.				
			107.29 - 15 cm band of pure gray clay; entire unit is ex-				
			tensively sheared and contains thin sheets of pyrite on				
			30% of the shear planes.				
121.00			E.O.H. Casing removed and core stored on racks at 1981				
			Thomlinson Creek drill camp as indicated on 1:4800				
			Geological Plan.				

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NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property	Project No	NTS No.
Oct. 9/81	Oct. 14/81	BQ	THOMLINSON	1041	93M/11W

FIELD COORDINATES			SURVEYED COORDINATES			Sheet
Lat. 119 + 90E	Elev. 950 m	Dip -50°	Lat.	Elev.	Dip	1 of 6
Dep. 120 + 00N	Depth 128.01	Bearing AZ 125°	Dep.	Depth	Bearing	Hole No. TC-81-8

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.	Cu %	Mo %	Au	Ag	W ppm
0-1.83			OVERBURDEN.									
1.83-48.20	95%		HORNBLENDE-BIOTITE QUARTZ DIORITE; medium grained, light grey, equigranular; 1 mm thick limonite coatings are characteristic of 60% of all fracture planes especially near the top of the section; very weak dark green chlorite occurs along <50% of all irregular fractures; unit contains small locallized malachite occurrences along <10% of all limonitic fractures; frequent tighter unoxidized fractures commonly contain Po, Py, chalcopyrite and molybdenite in thin, discontinuous sheets.									
			6.0-9.0 Hb-bi qtz diorite; beginning at 8.07 m; 1 hairline fracture every 3 cm of core contains thin sheets of chalcopyrite.			P-3051	3 m	0.10	0.010	---	---	140
			9.0-12.0 H b-bi qtz. diorite; as above; several prominent cpy-Mo veinlets.			P-3052	3 m	0.07	0.068	---	---	140

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NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property THOMLINSON		Project No 1041	NTS No.
FIELD COORDINATES			SURVEYED COORDINATES			Sheet 2 of 6
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No. TC-81-8
Dep.	Depth	Bearing	Dep.	Depth	Bearing	

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.	Cu %	Mo %	Au	Ag	W ppm
			10.20 1 cm qtz. vein 45° to C.A. rimmed by 1mm molybdenite									
			veinlet.									
			12.0-15.0 Hb-bi qtz. diorite, as above; locallized porphy-			P-3053	3 m	0.12	0.020	---	---	140
			ritic sections with abundant quartz veining at 15.0 m.									
			15.0-18.0 Hb-bi qtz. diorite.			P-3054	3 m	0.18	0.018	---	---	240
			18.0-21.0 Hb-bi qtz. diorite.			P-3055	3 m	0.10	0.010	---	---	100
			21.0-24.0 Hb-bi qtz. diorite.			P-3056	3 m	0.13	0.010	---	---	140
			21.94 Prominent fault with qtz. diorite fragments re-									
			cemented with silica.									
			24.0-27.0 Hb-bi qtz. diorite.			P-3057	3 m	0.09	0.008	---	---	160
			27.0-30.0 Hb-bi qtz. diorite.			P-3058	3 m	0.16	0.016	---	---	360
			30.0-33.0 Hb-bi qtz. diorite.			P-3059	3 m	0.13	0.018	---	---	180
			33.0-36.0 Hb-bi qtz. diorite. 40.2 Weak fault.			P-3060	3 m	0.21	0.010	---	---	210
			44.0-47.0 Hb-bi qtz. diorite, as previously described.			P-3061	3 m	0.12	0.038	---	---	270
48.20-51.30	95%		HORNFELSED SILTSTONE; aphanitic grey-black abundant 1mm									

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NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property THOMLINSON		Project No 1041	NTS No.
FIELD COORDINATES			SURVEYED COORDINATES			Sheet 3 of 6
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No.
Dep.	Depth	Bearing	Dep.	Depth	Bearing	TC-81-8

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.
			to 1 cm pervasive quartz vein system developed throughout				
			section with average core intersections at 55-70°; unit				
			has a characteristic high and random fracture density.				
			48.9-49.0 Molybdenite veinlets occupying 1 mm opposite				
			qtz. veins 40° and 20° to C.A.				
51.30-52.10	95%		HORNBLENDE-BIOTITE-QUARTZ DIORITE; as previously described				
			with weakly developed hair-line fractures 50% coated with				
			limonite; original sulphides not discernible.				
52.10-60.50	95%		HORNFELSED SILTSTONE; fine grained, grey black as above;				
			high fracture density; prominent silicification; lower				
			contact extensively clay-altered over 12 cm.				
60.50-63.30	95%		HORNBLENDE-BIOTITE-QUARTZ DIORITE, as described above with				
			weakly porphyritic sections; anhedral to subhedral biotite				
			and feldspar phenocrysts; weak kaolinization along 60% of				
			all fractures.				

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NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property THOMLINSON		Project No 1041	NTS No.
FIELD COORDINATES			SURVEYED COORDINATES			Sheet 4 of 6
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No.
Dep.	Depth	Bearing	Dep.	Depth	Bearing	TC-81-8

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.	Cu	Mo	Au	Ag	W
63.30-65.00	95%		HORNFELSED SILTSTONE; as described above; extensively clay altered imparting a "mottling" textural appearance; well developed sericite alteration along 30% of all fractures; unit is weakly sheared.					%	%			ppm
65.00-66.80	95%		HORNBLENDE-BIOTITE QUARTZ DIORITE; as described above; weak sulphides including Py-Po, Cpy, Mo along some fractures.									
66.80-69.20	95%		BIOTITE-FELDSPAR PORPHYRY DIKE ROCK; medium-grained, dark grey-black; very fine grained biotite with weakly developed quartz stockwork throughout section; unit is not well fractured, and contains traces of sulphides only.									
69.20-79.60	95%		ARGILLACEOUS HORNFELS; as described above; some siltstone sections.									
			69.0-72.0 Hornfels, as described above.			P-3062	3 m	0.04	0.043	---	---	400
			70.71 Small fault breccia with graphite-molybdenite occupying matrix over 5 cm width; pervasive quartz veining.									

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NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property THOMLINSON		Project No 1041	NTS No.
FIELD COORDINATES			SURVEYED COORDINATES			Sheet 5 of 6
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No.
Dep.	Depth	Bearing	Dep.	Depth	Bearing	TC-81-8

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.				
79.60-102.50	95%		QUARTZ-BIOTITE-FELDSPAR PORPHYRY (qtz. diorite porphyry); medium grained, grey-white; well developed euhedral biotite and feldspar phenocrysts throughout 60% of the core; remaining 40% shows subhedral biotite, qtz. and feldspar; unit is not well mineralized with sulphides; prominent white speckled kaolinite and green sericite alteration of 80% of all feldspars; some locallized biotization of hornblende.								
102.50-106.00	95%		HORNFLESED SILTSTONE; as previously described, with fine grained clay alteration; weak molybdenite along some fractures, especially noticeable at 102.72 and 104.80.								
106.00-116.93	95%		HORNBLENDE-BIOTITE QUARTZ DIORITE; as described above; weakly fractured with subtle quartz stockwork; extensively clay altered especially near upper and lower contacts. (40% of core at upper contact to 108.80 is sericite altered.)								

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NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property THOMLINSON	Project No 1041	NTS No.
FIELD COORDINATES			SURVEYED COORDINATES		Sheet 6 of 6
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No.
Dep.	Depth	Bearing	Dep.	Depth	Bearing	TC-81-8

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.	Cu	Mo	Au	Ag	W
								%	%	oz/ton	oz/ton	
			110.33-110.40 <1% scheelite (?) along qtz. vein parallel			P-3064	0.07m	---	---	0.001	0.10	0.16 (WO_3)
			to C.A.									
			113.4-113.9 Hb-bi qtz. diorite; prominent fracture-		0.3%	P-3063	0.5m	0.15	0.003	---	---	360pp
			type Cpy.									
116.93-125.80	95%		HORNFELSED SILTSTONE; as previously described; light grey-									
			brown; very small but continuous qtz. veining developed									
			throughout section.									
			124.65-125.00 Qtz. vein 15° to C.A.									
125.80-128.01	95%		HORNBLENDE-BIOTITE QUARTZ DIORITE; as previously described;									
			~10% clay altered; well fractured; trace Py, Po, Cpy and									
			Mo along tight fracture planes; sulphides usually seen on									
			broken core fragments only.									
128.01			E.O.H. Casing pulled, and core stored on racks at 1981									
			Thomlinson drill camp location as indicated on 1:4800									
			Geological Plan. All above units have been scanned with a short wave ultraviolet lamp.									

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NORANDA EXPLORATION COMPANY, LIMITED

Collared Oct. 15/81	Completed Oct. 16/81	Core Size BQ	Property THOMLINSON		Project No 1041	NTS No. 93M/11W
FIELD COORDINATES			SURVEYED COORDINATES			Sheet 1 of 2
Lat. 128 + 10E	Elev. 940 m	Dip -50°	Lat.	Elev.	Dip	Hole No. TC-81-9A
Dep. 123 + 00N	Depth 24.38 m	Bearing AZ 145°	Dep.	Depth	Bearing	

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.
0-1.52			OVERBURDEN; casing to 5.18 m.				
1.52-24.38	95%		HORNBLENDE-BIOTITE QUARTZ DIORITE; medium to coarse grained; light grey, equigranular; moderate fracture density with 80% of larger fractures containing 1 mm thick coatings of limonite. Dominant fracture/joint direction 30° to C.A. 10% of all tighter fractures and joints contain very thin sheets of Py, Po, chalcopyrite and less commonly molybdenite. Some chloritization of mafics especially at 15.9 m and biotization of hornblende at 22.0 m; very weakly porphyritic at 7.0 and 21.33 m.				
			6.69 5 cm soft clay shear.				
			18.28 weakly broken core used as evidence for minor fault.				
			19.81 weak fault.				
			22.86 weak fault.				
24.38			E.O.H. Hole abandoned due to bend on hole track at 5.61 m				

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NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property THOMLINSON	Project No 1041	NTS No.
FIELD COORDINATES			SURVEYED COORDINATES		Sheet 2 of 2
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No.
Dep.	Depth	Bearing	Dep.	Depth	Bearing	TC-81-9A

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.
			which caused rods to seize and break off. Materials left				
			in hole unable to be retrieved are:				
			1. 13.20 m BQ rods.				
			2. Complete BQ core barrel assembly.				
			3. LaMage BQ diamond bit.				
			4. BQ rod tap.				
			Core is stored at 1981 Thomlinson Creek drill camp. All				
			units were scanned with a short wave ultraviolet lamp.				

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NORANDA EXPLORATION COMPANY, LIMITED

Collared Oct. 17/81	Completed Oct. 20/81	Core Size BQ	Property THOMLINSON	Project No 1041	NTS No. 93M/11W
FIELD COORDINATES			SURVEYED COORDINATES		Sheet 1 of 2
Lat. 128 + 10E	Elev. 940 m	Dip -50°	Lat.	Elev.	Dip	Hole No. TC-81-9B
Dep. 123 + 00N	Depth 47.85	Bearing 130°	Dep.	Depth	Bearing	

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.	Cu %	Mo %	Au oz/ton	Ag oz/ton	WO_3 %
0-1.52			OVERBURDEN; casing to 5.18 m.									
1.52-45.90	85%		HORNBLENDE-BIOTITE QUARTZ DIORITE; medium grained, light grey and equigranular with <5% euhedral black biotite grains; unit is moderately fractured with 1-2 mm limonite-hematite oxidization products along 80% of all fractures; unit has a very weak, locallized and "whispy" quartz vein system throughout; very minor Py, Po, Cpy and Mo along <10% of tight fractures.									
			2.0-5.0 Hb-bi qtz. diorite, as above with best chalcopyrite and molybdenite mineralization, throughout section.			P-3076	3 m	0.18	0.025	.001	0.06	.0
			6.71-6.90 Intensely fractured core.									
			17.60-20.42 Weakly porphyritic section.									
			17.80-18.0 Moderately broken core. Probable fault.									
			20.42-20.60 Moderately broken core. Probable fault.									
			23.47-34.14 Intense clay alteration (white-grey kaolinite)									

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NORANDA EXPLORATION COMPANY, LIMITED

Collared	Completed	Core Size	Property THOMLINSON	Project No 1041	NTS No.
FIELD COORDINATES			SURVEYED COORDINATES		Sheet 2 of 2
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No. TC-81-9B
Dep.	Depth	Bearing	Dep.	Depth	Bearing	

metres	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.
			with occasional red-brown, strongly limonitic sections.				
			25.0 10 cm band of red-brown clay/mud as a result of shearing.				
			24.99-34.00 Probable fault; core is intensely fractured				
			and broken. Diamond drill indicated several small "cav-				
			ities" occur throughout this zone. Core along this inter-				
			val has probably been disrupted by reaming.				
45.90-47.85	90%		CLAY-ALTERED QUARTZ DIORITE; very fine grained, grey-				
			white; original lithology almost completely obliterated				
			and overprinted by clay; intense hematite/limonite alter-				
			ation, especially along shear planes from 47.30 to end of				
			hole; section is moderately fractured with only trace sulphides.				
47.85			E.O.H. Hole was aborted when cementing failed to streng-				
			then walls adjacent to several prominent fault intersections.				
			Core is located on racks at the 1981 Thomlinson Creek				
			drill camp.				

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