

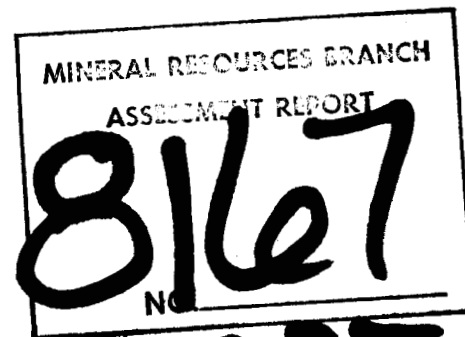
1979

Diamond Drilling, Geological and Geochemical

Report on the

Mount Butters Property

Noranda - Amax Joint Venture



PART
1 of 2

B. B. Hughes

Noranda Exploration Co., Ltd. (NPL)

Kamloops

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Introduction

During the 1979 field season the accessible areas of the Pequod 1 - 6 mineral claims were mapped and one diamond drill hole was completed to a depth of 882.7 meters.

Two possibly connected zones of quartz-pyrite-molybdenite veining were discovered, one below the Moby Dick Glacier the other on the cliff faces between White Jacket and Moby Dick Mountains.

Geochemistry delineated known mineralized areas and shows possible extensions below surrounding ice sheets.

A diamond drill was set up in the Butters Creek cirque with two objectives: (i) To intersect the source of the mineralized breccia found in float below the west glacier, (Plate I), (ii) To intersect any down dip extensions of MoS_2 mineralization found in outcrop on the face between the east and west glaciers.

The drill cored approximately 510 meters of Battle Porphyry before intersecting a younger intrusive called the Butters Stock.

A 200 meter section within the Battle Porphyry hosts a zone of sericite-quartz-pyrite alteration and minor silicification. MoS_2 mineralization is found as fine dustings within the silicified zones and as widely spaced narrow quartz- MoS_2 veinlets within less altered Battle Porphyry.

Claims

The original Noranda and Amax claims were abandoned and relocated with the Pequod 1 - 4 mineral claims.

Pequod 5 and 6 were added to the south of the Pequod 1 - 4 group to cover the south vein zone.

The OBS 1 mineral claim was also added to cover possible extensions of the north and south vein zones.

Pequod 1
NB-1



PLATE I. Looking southeast from the drill camp
at the drill setup below the west glacier.

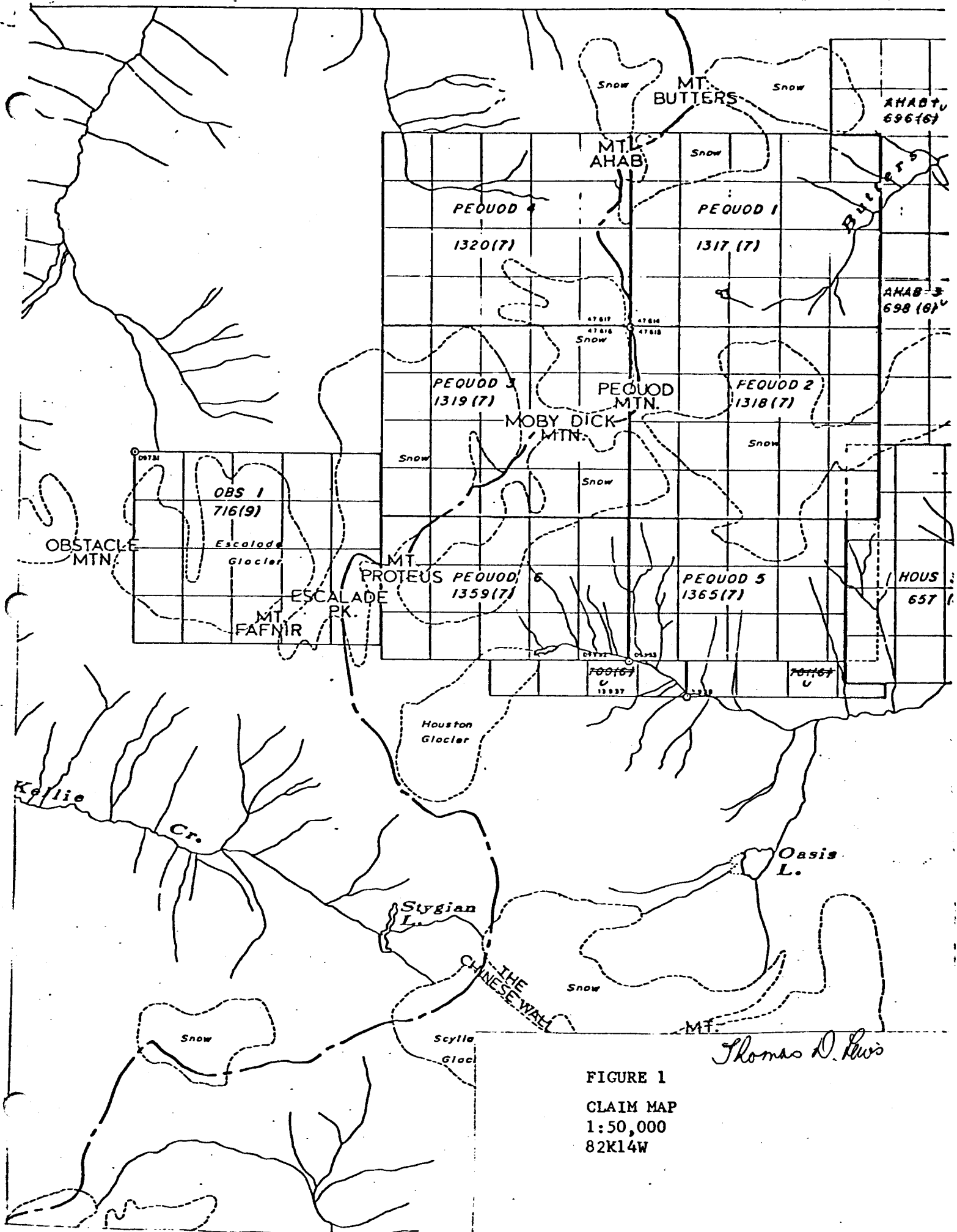


FIGURE 1
 CLAIM MAP
 1:50,000
 82K14W

Thomas D. Lewis

Quartz-Pyrite-MoS₂ Veining

Prospecting discovered two zones of quartz-pyrite-MoS₂ veining, the south vein zone and the north vein zone. Page 6

The south vein zone found on the scoured rock face immediately below the Moby Dick Glacier is exposed over a distance of approximately 1800 meters. (Plate II). Veins vary in width from 1 cm. to 20 cm. with local pinching and swelling, striking 125° to 135° and dipping 20° to 25° to the northeast. The main part of the vein is comprised of smokey grey quartz with feldspar, pyrite, MoS₂ and minor tourmaline occurring along vein borders. (Plate III). Alteration haloes associated with veins are generally narrow 3 - 5 cm. and locally contain disseminated MoS₂ and pyrite. (Plate IV).

Pyrite occurs as irregular angular masses along vein borders and less commonly within the vein quartz. MoS₂ occurs along vein borders as fine disseminations, rosettes and irregular masses. Tourmaline is less common and also occurs along vein borders in masses of matted fine crystals.

The north vein zone has been tentatively identified from the helicopter on the cliff faces between White Jacket and Moby Dick Mountains. Mineralized veins cutting Battle Porphyry found in float below this zone are of similar character to that seen in outcrop on the south vein zone. (Plate V). The north vein zone is comprised of iron stained shallow northeast dipping veins seen cutting the cliff faces from below the 2600 meter elevation to the ridge tops at over 3050 meters. (Plate VI). Page 3

Vein density in both zones is less than one vein per 2 to 3 meters. MoS₂ mineralization on the south vein zone is



PLATE II. View of the south vein zone looking west.



PLATE III. Quartz-feldspar-pyrite-MoS₂ vein
from the south vein zone.



PLATE IV. Mineralized vein alteration haloes
from the south vein zone.



PLATE V. Quartz-feldspar-MoS₂-pyrite vein from the north vein zone. Float.



PLATE VI.
View of north
vein zone from
helicopter.

discontinuous along the quartz veins and locally in small higher grade pods. Mineralized float from the north vein zone appears more continuous and is higher grade than we have seen on the south zone. These two zones are separated by approximately 800 meters of the Moby Dick Glacier and are probably parts of the same zone.

Silt Geochemistry

Silts taken below glaciers on the Mount Butters Property show anomalous results draining known mineralized areas such as the Butters Creek cirque, north vein zone and the south vein zone.

Values as high as 74 ppm Mo are found in silts directly below the quartz-pyrite-MoS₂ veining of the south zone. Silts taken below the adjacent glacier to the east between Forecastle and Typpe Mountains ran several times background levels. Quartz-pyrite-MoS₂ veining in float was found in one location and suggests an easterly continuation of the south vein zone. Several silts below the next ice sheet to the east, southeast of Typpe Mountain also show above background ppm Mo. No mineralization was found but it may identify a further easterly extension of the south vein zone.

Anomalous silts in creeks flowing north through the rock glacier on Pequod 4 reflect the presence of mineralized float below the north vein zone.

Several silts with above background Mo values were found in the creek north of Obstacle Mountain west of the Pequod claims. This may indicate a possible westerly extension of the north vein zone. This area is also covered by an ice sheet and is within the OBS 1 mineral claim.

Diamond Drill Hole NB-1

Diamond drill hole NB - 1 was collared on August 12, 1979 and completed on September 24, 1979. HQ casing was driven in glacial moraine to a depth of 11 meters. NQ casing was driven passed the HQ casing to bedrock at 50.09 meters. Coring was started with NQ equipment and continued to a depth of 723.29 meters. BQ equipment was brought in to deepen the hole to 882.7 meters, at which point the hole was stopped.

The drilling was done by Connors Drilling using a Longyear Super 38 drill which was at its limit for NQ at 723 meters and for BQ at 882 meters.

Hole deflection was measured using a Sperry Sun Single Shot down hole instrument designed for NQ equipment. Vertical hole deflection after the conversion to BQ equipment was measured using the acid tube method.

The hole was collared at a bearing of 216° at -50° from the horizontal and had a gradual swing to the west and decrease in dip.

The Battle Porphyry and Butters Stock cored well with recoveries generally 95 to 100%.

Rock Description

Diamond drill hole NB - 1 intersected 508.47 meters of Battle Porphyry, a leucocratic, coarse grained quartz-feldspar porphyritic biotite granite and 252.40 meters of Butters Stock, a medium grained granular quartz-feldspar porphyry. (Plates VII, VIII, IX).

From 270 m. to 450 m. the Battle Porphyry is cut by a series of greater than 1 m. to 10 m. wide feldspar dikes and breccia-like zones.



PLATE VII. Battle Porphyry from outcrop.



PLATE VIII. Battle Porphyry in core.

The feldspar porphyry dikes have fine to medium grained feldspar and quartz phenocrysts within an aplitic groundmass. The breccia-like zones are comprised of irregular fragments of Battle Porphyry within a grey, intensely altered matrix. The matrix is comprised of irregular quartz grains and nearly completely sericitized feldspar fragments.

Several zones of pegmatite are also noted within this section of the hole. The pegmatites are comprised of 60% to 80% large 1 - 3 cm. K-feldspar phenocrysts within a coarse grained quartz-feldspar matrix. Rock textures similar to the pegmatite have been examined in outcrop and appear to be related to mineral segregation, part of the crystallization history of the Battle Porphyry.

The contact zone between the coarse grained Battle Porphyry and the medium grained granular feldspar porphyry Butters Stock is 70.93 m. wide from 559.37 m. to 630.30 m. The contact zone is comprised of interfingering Battle Porphyry and Butters Stock, simple breccias and younger aplite dikes. The Butters Stock cored from 630.30 m. to the bottom of the hole at 882.7 m. becomes slightly coarser grained away from the contact zone. The Butters Stock has not been seen in outcrop but occurs as float boulders in the rubble below the west glacier, and locally as fragments and as matrix in some of the complex breccia float. (Plate X).

Alteration

The major alteration sequence progressing upwards and outwards from the deepest intersection within the Butters Stock consists of an extensive zone of propylitic alteration, an argillic zone, a sericite-quartz-pyrite zone including several

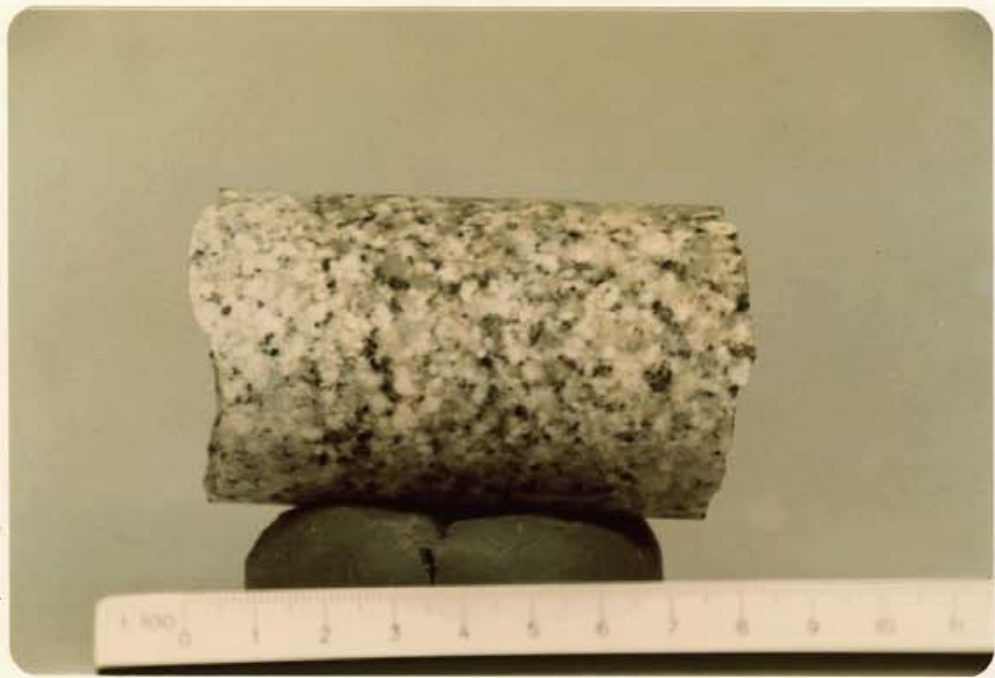


PLATE IX. Butters Stock in core.



PLATE X. Mineralized Butters Stock in float below west glacier.

narrow silicified zones, back through an argillic zone and a propylitic zone to surface.

Propylitic alteration increases slightly up through the Butters Stock consisting of weak alteration of biotite to chlorite and epidote, and minor plagioclase alteration. Pink feldspar alteration haloes associated with fractures are common throughout the Butters Stock and up into the Battle Porphyry. Fractures locally contain smeared chlorite and sericite suggesting some shear movement along them.

Propylitic alteration continues up through the contact zone into Battle Porphyry. Alteration increases slightly towards 457 m. where feldspar alteration to clay becomes more evident.

From 457 m. to near surface an alteration zone which increases in intensity towards its center has an overall weak to moderate argillic alteration. Within the central section of the argillic zone are several sericite-quartz-pyrite alteration zones. Some silicification is present locally within the sericite-quartz-pyrite zone and often has associated fine MoS₂ mineralization.

The top 60 m. of the core has a weak argillic to propylitic alteration.

Mineralization

Pyrite is generally associated with alteration, increasing with increase in intensity of alteration. Pyrite content ranges from 0 to greater than 2% in the propylitic and argillic zones and a sharp increase in pyrite content within the sericite-quartz-pyrite zones. Pyrite occurs as fine disseminated euhedral grains

throughout the core to irregular blebs up to 1 cm. in diameter in the intensely altered zones. Several irregular 2 - 3 cm. masses of pyrite-magnetite-chalcopyrite occur around 347 m. associated with sericite-quartz-pyrite alteration of the Battle Porphyry.

MoS₂ mineralization occurs as fine dustings and disseminations in narrow silicified sections within the sericite-quartz-pyrite alteration zones. (Plates XI, XII). Minor amounts of purple fluorite are also present.

Widely spaced narrow 2 - 3 mm. quartz-MoS₂ ± fluorite and pyrite veinlets are found cutting the deepest 65 m. of Battle Porphyry cored. (Plate XIII). Veins cut core at varying angles and do not have any associated alteration haloes.

Very minor amounts of MoS₂ found as isolated flakes have been seen within the Butters Stock, probably primary mineralization associated with the crystallization of the stock.

Discussion

Drill hole NB - 1 has intersected a zone of diking and intense alteration associated with minor MoS₂ mineralization. This zone is totally within the Battle Porphyry and does not appear to be related to the emplacement of the Butters Stock but rather from a separate source.

This zone appears to extend up through the section to the area of altered and mineralized Battle Porphyry found in outcrop between the east and west glaciers. This would give the zone a steep northerly dip which is reflected on surface by a major set of east - west striking northerly dipping fractures



PLATE XI. Sericite-quartz-pyrite alteration of
Battle Porphyry.



PLATE XII. Disseminated MoS₂ in siliceous section
of sericite-quartz-pyrite altered Battle
Porphyry.

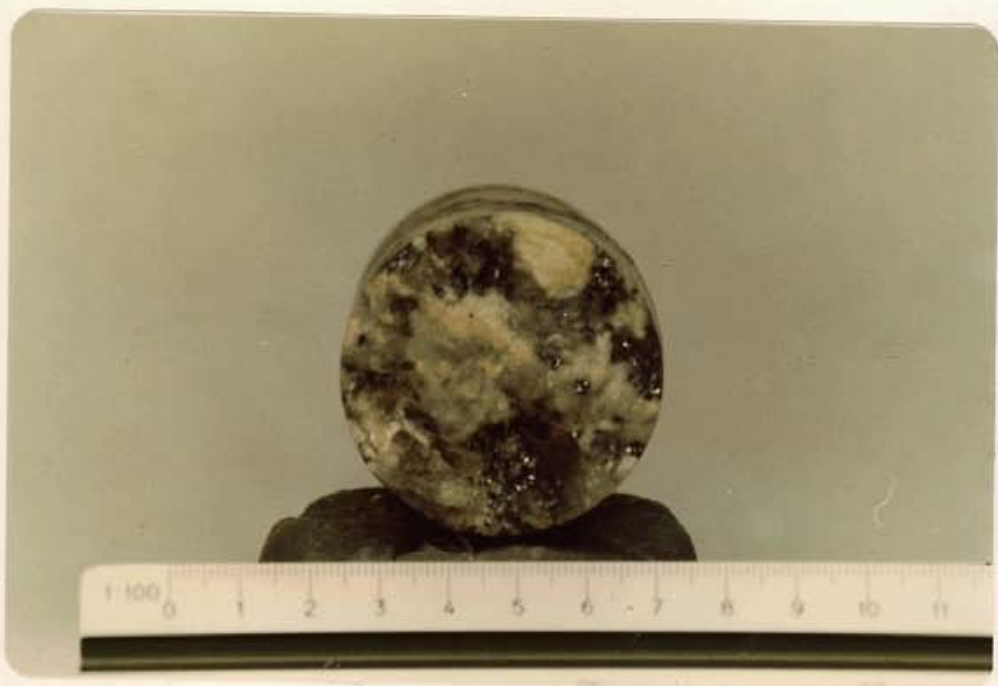


PLATE XIII. Quartz-MoS₂-fluorite veinlet cutting Battle Porphyry.



PLATE XIV. Mineralized siliceous sericite-quartz-pyrite altered Battle Porphyry from face between east and west glaciers.

that are sporadically mineralized and have controlled the
emplacement of an aplite dike.

Before another attempt at drilling the property a
detailed geological mapping program will be undertaken. With
mountaineer trained geologists the ridges between the many
glaciers on the property will be mapped and sampled. In many
cases this will involve working off ropes and in dangerous
situations. Mapping will help to solve the location of the
mineralized breccia and other mineralized float found below
the east and west glaciers. As well a good section will be
mapped and sampled to define the north and south vein zones
and their relationship to the rest of the system.

A 1.5 m. section out of every core box plus the intensely
altered and silicified sections have been brought out of the
property. The core is in the process of being detail mapped
and split and selected sections sent out for assay. Some
petrographic work will be done on the core to better identify
the alteration and mineralized zones.

NORANDA EXPLORATION COMPANY, LIMITED

Collared Aug 12/79		Completed Sept 24/79		Core Size NQ & BQ		Property Butters Creek			Project No 38		NTS No. 82K/14W		
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 1 of 24	
Lat. 50° 58'N		Elev. 2135 m		Dip -50° SW		Lat.		Elev.		Dip		Hole No.	
Dep. 117° 23'W		Depth 882.7 m		Bearing 216°		Dep.		Depth		Bearing		NB 1	
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.	Angle		
0.00-50.90m			<u>Overburden:</u> - casing in rock talus								to core		
50.90-52.97m	100%		<u>Battle Porphyry:</u> - leucocratic, coarse grained, quartz-feldspar porphyritic granite locally termed "Battle Porphyry". The feldspars are dominantly pink K-feldspar up to 3cm long, and have been partly altered to chalky clay. - minor epidote and chlorite alteration - mafic content about 10% of whole - 52.97m - sharp contact with pegmatite								30°		
52.97-57.61m	100%		<u>Quartz-feldspar pegmatite:</u> - large (up to 3cm) pink, zoned, phenocrysts dominantly - with lesser quartz - minor epidote, chlorite and muscovite - feldspars occasionally altered to kaolin - 58.7m - disseminated speck of pyrite										
57.61-96.1m	100%		<u>Battle Porphyry:</u> - 57.61-61.9 m - mottled chlorite and epidote and minor disseminated pyrite - 60.0 m - thin quartz veinlet and minor pyrite 61.9-66.24 m - gradual decrease in chlorite and epidote feldspars altered to kaolin - 66.24-67.7 m - strong chlorite and epidote alteration										

DATE Sept 24, 1979

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Collared		Completed		Core Size		Property				Project No		NTS No.		
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 2 of		
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.		
Dep.		Depth		Bearing		Dep.		Depth		Bearing				
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.				
			- 68.14-68.88 m - kaolin and clay alteration, minor disseminated pyrite											
			- 68.88 - 73.15 m - chlorite, epidote plus minor disseminated pyrite - feldspars partly altered to clay											
			- 73.15 - 74.25 m - somewhat fractured with associated increase in epidote and chlorite											
			- 84.0 - minor muscovite											
			- 84.05 - 96.1 - see (68.88 - 73.15)											
96.1-96.22m	100%		<u>Quartz porphyry dyke:</u> - centimeter of pyrite and minor magnetite											
96.22-165.74m	100%		<u>Battle Porphyry:</u> - 96.65 - 96.85 - disseminated blebs of pyrite in quartz											
			- 96.1 - 101.47 - strong chlorite - epidote alteration											
			- 101.47 - 101.55 - disseminated pyrite in quartz											
			- 101.55-120.4 - mottled epidote and chlorite and disseminated pyrite - feldspar altered to clay											
			- epidote and chlorite associated with fractures, while mafics (biotite) unaltered											
			- 120.4 - 124.65 - K-feldspar mainly pink - mafics slightly altered to chlorite and epidote											
			- 124.65 - 125.68 - clay-rich fractures											
			- 125.68 - 127.8 - mottled epidote and chlorite											
			- 127.8 - 131.0 - minor fracturing with associated											

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Collared		Completed		Core Size		Property			Project No		NTS No.		
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 3 of	
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.	
Dep.		Depth		Bearing		Dep.		Depth		Bearing			
Meters	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.	Angle to core		
			clay, chlorite, and epidote - 131.0-138.77 - unaltered K-feldspar, some of the mafics altered to epidote and chlorite - occasional bleb of pyrite and hairlike pyrite veinlet										
			- 134.95-135.4 - weakly silicified porphyry with strong epidote and chlorite alteration, and pyrite -135.4-140 - minor epidote and chlorite, some feldspars partly altered to clay										
			- 140-147.4 - epidote and chlorite alteration plus pyrite										
			- 148.1-154.33 - as above plus K-feldspar altered to clay - 153.73-154.33 - muscovite alteration plus disseminated pyrite										
			- 154.33-159.45 - (see 135.4-140)										
			- 159.45-164.4 - strong chlorite and epidote alteration - 164.4-164.9 - pyrite blebs in quartz				2-3% py						
165.74- 166.24	100%		<u>Quartz - feldspar pegmatite:</u> - see 52.97 - 57.61 minor pyrite				<1%						
166.24- 181.6			<u>Battle Porphyry:</u> - 174.01 - 174.6 2-1cm. quartz vein trending almost parallel to core axis - 174.8 - 175.2 - sheer zone with associated chlorite, epidote and muscovite. - 177m - 177.6 -silicified porphyry with blebs of pyrite and muscovite. Mottled epidote and chlorite alteration				5%py				5-10°		
			- 179.16 - 179.36 - quartz - muscovite vein containing mainly pyrite, with minor molybdenite. - 179.86 - 180.43 - vuggy quartz containing blebs of pyrite and muscovite.				<1MoS ₂						

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Collared		Completed	Core Size	Property			Project No	NTS No.			
FIELD COORDINATES				SURVEYED COORDINATES				Sheet 4 of			
Lat.		Elev.	Dip	Lat.		Elev.	Dip		Hole No.		
Dep.		Depth	Bearing	Dep.		Depth	Bearing				
Meters	Rec'y	Graphic Log	Description			% Sulp.	Est. Grade	Sample No.	Lt.	Angle	
			- 181.16 - 181.36 - 1cm quartz-pyrite vein. - quartz vein nearly parallel to core axis			4%py				to core 20°	
181.64- 188.6	100%		<u>Zone of quartz-muscovite-pyrite alteration:</u> - vuggy quartz-muscovite with disseminated and blebs of pyrite. - remnants of feldspar phenocrysts visible			2-4% py					
			- minor disseminated molybdenite - 185. - 185.2 - altered Battle Porphyry			1%MoS ₂					
188.6- 196.0			<u>Altered Battle Porphyry</u> - Fractured porphyry with strongly developed clay-sericite alteration - Disseminated pyrite common. - epidote and chlorite has replaced most of the mafics.								
			- 193.5 - 193.68 - quartz - muscovite containing blebs of pyrite.			4%py					
196.0- 196.7	100%		<u>Mottled Battle Porphyry:</u> caused by strongly developed chlorite and epidote alteration.								
196.7- 247.0			<u>Battle Porphyry:</u> with lesser degree of chlorite and epidote alteration. Minor disseminated pyrite			5%py					
			- 197.5 - 196.6 - quartz - muscovite with blebs of pyrite - 198.45 - 198.7 - vuggy quartz - muscovite, with pyrite blebs.			2%py					
			- 199.7m - 199.85m - quartz - muscovite - py			2%py					
			- 202.8-202.95 - quartz - musc. - py			2%py					
			- 204.2 - 204.27 - quartz - musc. - py			2%py					
			- 211.3 - 211.35 - quartz - musc. - py.								
			- 220. - 220.15 - quartz - sericite - py. blebs - 221.28 - 221.38 - silicified porphyry and pyrite			3%py 1%py					
			- 222.44m - 222.69m - quartz - musc. py. - 242.08 - 242.57 - zone of quartz - musc. py. alteration			3%py 4%py					

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Collared		Completed		Core Size		Property			Project No		NTS No.			
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 5 of		
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.		
Dep.		Depth		Bearing		Dep.		Depth		Bearing				
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.				
247-0 249.83	100%		<u>Altered Battle Porphyry</u> : exhibiting a mottled chlorite,- epidote-clay alteration.											
			-247.2m - 247.5m - fractured porphyry with associated clay alteration.											
			- 248.35m - 248.8m - quartz, with blebs of pyrite, and minor magnetite and molybdenite				Py2%							
			- 249.14m - 249.24m - quartz with diss. molybdenite.				MoS ₂ .1%							
249.83m- 250.39m	100%		<u>Vuggy Silicified Zone</u> - containing quartz veins, muscovite, pyrite, pyrite blebs, and minor molybdenite.				2%Py .1%							
250.39m- 253.16m	100%		<u>Battle Porphyry</u> : with minor alteration of the mafics to epidote and chlorite.											
253.16m- 255.41m	100%		<u>Vuggy Silicified - Sericitized Zone</u> with remnant feldspar barely visible. Blebs of pyrite throughout.											
			- 253.86m - 254.2m - Battle Porphyry											
			- 254.2m - 254.6m - silicified-sericitized zone with pyrite blebs and disseminated molybdenite				.1% MoS ₂							
255.41m- 266.8			<u>Battle Porphyry</u> : - with noted silicified zones. Mafics look relatively fresh and biotite can be identified.											
			Feldspars are slightly altered to clay. Disseminated pyrite throughout.				-½%Py							

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Collared		Completed		Core Size		Property			Project No		NTS No.			
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 6 of		
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.		
Dep.		Depth		Bearing		Dep.		Depth		Bearing				
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.				
			- 255.94m - 256.02m - quartz-musc. & pyrite vein											
			- 256.98m - 257.10m - silicified-sericitized zone. - 257.86m - 258.16m - quartz vein with large (up to 1cm											
			across) blebs of pyrite. Vein is trending nearly parallel to core axis.											
			- 260.9m - minor pyrite stringers and associated muscovite, - biotites and feldspars unaltered.											
			- 265m - 265.9m - zone of silicification and sericitization of porphyry. Blebs of pyrite throughout. Minor brecciation				2%							
266.8m- 267.3m	100%		<u>Silicification, Sericitization and Minor Brecciation of Porphyry</u> - pyrite blebs throughout and some minor molybdenite				<05%							
267.3m- 277.3m	100%		<u>Battle Porphyry:</u> - minor epidote associated with fractures but mafics unaltered - recognise biotite. Disseminated pyrite throughout (<.5%)											
			- 272.93m - 273.7m - zone of quartz-sericite and pyrite. - 275.47m - 275.72m - quartz-feldspar porphyry dyke with pyrite blebs. Zones noted previous called silicified-sericitized zones are probably similar to this dyke.				2%Py							

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Collared		Completed		Core Size		Property			Project No		NTS No.				
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 7 of			
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.			
Dep.		Depth		Bearing		Dep.		Depth		Bearing					
Footage	Rec'y	Graphic Log	Description					% Sulp.	Est. Grade	Sample No.	Lt.				
277.3m- 280.13m	100%		Medium grained, grey porphyritic dyke containing occasional fragments of Battle Porphyry. Diss. pyrite throughout. Occasional pyritic stringers.					2-3% Py							
280.13m- 286.3m	100%		Battle Porphyry; - Feldspars show some clay (argillic) alteration, but mafics unaltered, except in areas noted below: Diss. Py. common. - 282.24m-283.04m - mottled epidote and chlorite alteration.												
286.3m 286.83m	100%		Brecciated Battle Porphyry: in a silicified medium grained, grey feldspar porphyry.												
283.83m- 289.25m	100%		Battle Porphyry: moderate alteration of feldspars to clay, mafics unaltered except some biotites appear to have been replaced by pyrite? - 288.14m - mottled epi. & chl. alteration.												
289.25m- 289.71m	100%		Brecciated Battle Porphyry: - in a grey siliceous matrix - blebs of pyrite common					2%Py							
289.71m- 293.07m			Battle Porphyry: shows clay alteration of K-feldspar phenocrysts, and moderate epidote and chlorite alteration. - 291.39m-291.97m - silicified-sericitized.												

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Collared		Completed		Core Size		Property			Project No		NTS No.		
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 8 of	
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.	
Dep.		Depth		Bearing		Dep.		Depth		Bearing			
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.	Angle to core		
			Battle Porphyry: evidence of K-feldspars being altered to sericite pseudomorphs. Pyritic blebs				2%py						
			- 292.07m - 292.57m - mottled epidote-chlorite alteration associated with a chlorite coated fracture										
293.07m- 295.01m	100%		Brecciated Battle Porphyry: in a mottled grey, medium grained silicified feldspar porphyry. Sections of the medium grained porphyry are void of fragments. Quartz-pyrite veins intruded the medium grained porphyry at 30° to core axis. Possibly this rock is a porphyritic dyke with granite fragments.								30°		
295.01m- 299.5m	100%		Mottled grey, medium grained, silicified feldspar porphyry. Diss. pyrite throughout.				1%Py						
			- 298.11m - 2cm of pyrite in a small quartz vein.										
299.5m- 300.82m	100%		Mottled Brecciated, Battle Porphyry - (minor molybdenite at top of unit). Alteration minerals seen include chlorite, epidote, sericite, and -feldspar clay.										
300.82m- 306.22m	100%		Battle Porphyry: with silicified-sericitized zones, minor epidote associated with fractures, and K-feldspar partially altered to clay. Diss py present.				1/2%Py						
			- 303.5m - 304.1m - silicified porphyry, with accompanying muscovite, epidote and pyrite.				2%Py						
			- 305.32m - 305.47m - silicified porphyry.										

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Collared		Completed		Core Size		Property			Project No		NTS No.			
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 9 of		
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.		
Dep.		Depth		Bearing		Dep.		Depth		Bearing				
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.				
306.22m 334.10m	100%		Altered, Battle Porphyry: silicification and sericitization has replaced most of feldspars. Porphyritic textures remain but most of the feldspars are completely altered to sericite. Disseminated pyrite present.				3% Py							
			- 311.3m-312m - mottled pale green epidote and chlorite alteration. K-feldspars when present have also been partially altered to clay.				5%Py							
			- 322.48-324.40m - mottled Battle Porphyry caused by chl. & epi. alteration, and partial alteration of K-spar to clay.											
			- 324.5m-237.78m - silicification and sericitization of porphyry. Large blebs of pyrite throughout (2cm across).				3-5% Py							
			- 327.78m-334.10m - sericite alteration continues, but is not as strong as above. Blebs of pyrite throughout.				1% Py							
334.10m 354.29m	100%		Mottled Battle Porphyry: showing mottled epidote and chlorite alteration. Rock is fractured and feldspars are altered partially to clay. Blebs of pyrite prominent.				3% Py							
			- 337.3m-337.4m - sericitic alteration of feldspars.											
			- 337.6m-337.75m - sericitic alteration of feldspars.											
			- 338.5m-338.65 - sericitic alteration of feldspars.											
			- 338.8m-338.95 - aplitic dyke? -feldspars altered clay.											
			- 339.78m-340m - aplitic dyke? see above.											
			- 340.15m-340.40m - quartz-sericite alteration.											
	99%		- 342.3m-247.15m - weakly developed quartz and sericite alteration - (346.75m-347.15m - large blebs of pyrite)				5% Py							
			- 347.9m-349.3m - sericite and quartz alteration & a 5cm quartz vein @ 348.3m.											

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Collared		Completed		Core Size		Property			Project No		NTS No.			
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 10 of		
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.		
Dep.		Depth		Bearing		Dep.		Depth		Bearing				
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.				
			- 350.1m-350.5m - sericite and quartz alteration. - 351.05m-354.29m - strongly developed sericite and quartz											
			alteration giving the rock a brecciated appearance, with the "fragments" being unaltered remnants of the porphyry				2-4% Py							
			Blebs of pyrite associated with the alteration.											
354.29m- 363.94			Mottled, medium grained, grey silicified <u>feldspar porphyry dyke</u> . Tiny black biotite throughout and diss. py. Some											
			blotches of chloritic alteration. - 361.69m-362.09m - white aplitic dyke.				1%Py							
363.94m- 379.11m	100%		<u>Battle Porphyry</u> : sharp contact with unit above. - weak chill margin - dyke younger.											
			-363.94m-365.04m - porphyry has been brecciated by dyke intrusions.											
			- blebs of pyrite throughout - 369.2m-369.5m - few flecks of purple fluorite?				1-2% py							
			& minor diss. molybdenite. - 370.63m-370.93m - flecks of purple fluorite.											
			- 369.2m-279.11m - increase in mafic portion of rock (mainly biotite and diss. py. and weak epidote and chl. alteration.											
379.11m- 379.88m	100%		Coarse grained feldspar-quartz <u>pegmatite dyke</u> - sharp contact with granite above. - 379.78-379.88m - sericite and quartz alteration obscures lower contact.											
379.88m- 386.07m	100%		<u>Altered Battle Porphyry</u> : - brecciated texture due to quartz and sericite alteration.											
			-periodic masses of pyrite and associated chloritic alteration @381.6m, 383.42m →384.65m-few specks of purple fluorite.											

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Collared		Completed		Core Size		Property			Project No		NTS No.		
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 11 of	
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.	
Dep.		Depth		Bearing		Dep.		Depth		Bearing		NB - 1	
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.	Angle to core		
386.77- 388.2	100%		<u>Battle Porphyry</u> - minor epidote and chlorite alteration and diss. pyrite.				½%py.				45% upper contact		
388.2- 388.87	100%		<u>Silicified, Feldspar Porphyry Dyke</u> - sharp contact - diss py throughout				½%py.				10°		
388.87- 403.0	100%		<u>Battle Porphyry</u> : minor epidote and chlorite alteration - diss. pyrite throughout - feldspar bleached white (clay alteration). - 392.99m - fleck of purple fluorite				½%py.						
			- 395.17m - 395.54m - sericite and quartz alteration + minor molybdenite				1%MoS ₂						
			- 400.57m - 401.22m - sericitic and quartz alteration + minor molybdenite associated with quartz				1%MoS ₂						
403.0- 406.91	100%		<u>Silicification and sericitic alteration</u> - with minor molybdenite throughout. Blebs of pyrite.				1%MoS ₂ 2%py.						
406.91- 409.96	100%		<u>Altered Battle Porphyry</u> : argillic + minor epidote and chlorite - diss. py.				½%py						
409.96- 411.16	100%		Mottled, grey, medium grained silicified <u>feldspar porphyry dyke</u> .										
411.16- 415.58	100%		<u>Battle Porphyry</u> - minor epidote and chlorite alteration + disseminated pyrite.				½%py.						
415.58- 416.35	100%		<u>Pegmatite dyke</u>										
416.35- 416.85	100%		<u>Battle Porphyry</u>										
416.85- 418.	100%		<u>Pegmatite Dyke</u>										
418. 430.8	100%		<u>Battle Porphyry</u> : with an increase in the mafic constituent zones of mottled alteration (epi. + ser.) - 418m - 422.9m - mottled chlorite - epidote - sericite alteration.										

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Collared		Completed		Core Size		Property			Project No		NTS No.			
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 12 of		
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.		
Dep.		Depth		Bearing		Dep.		Depth		Bearing				
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.				
			- 423.15m - 423.65m - mottled sericite-epi-alteration											
430.8 - 431.24m			Silicified, grey, medium grained, <u>feldspar porphyry dyke.</u>											
431.24- 431.89			<u>Altered Battle Porphyry</u> : bordering dyke - mottled epidote, & chlorite											
431.89- 433.84	100%		<u>Battle Porphyry</u> - relative increase in mafics & diss. pyrite				1/2% Py							
			- 434m - 434.28m - medium grained grey feldspar porphyry dyke.											
433.84 - 439.57	100%		Grey, medium grained, <u>feldspar porphyry dyke.</u> - diss. Py throughout.				1/2% Py							
439.57 - 445.38			Battle Porphyry: - diss. py. throughout - 439.57 - 440.34 strong alteration near the dyke contact → & minor diss. molybdenite.				1/2% Py <.05% MoS ₂							
445.38- 446.93			<u>AS ABOVE</u> : - altered zone consisting of sericitic & sili- cification - totally mottled - diss. pyrite.				3% Py							

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FIELD COORDINATES						SURVEYED COORDINATES						Sheet 13 of		
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.		
Dep.		Depth		Bearing		Dep.		Depth		Bearing				
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.				
446.93- 451.7m	100%		Battle Porphyry: - 446.93m - 449.36 - altered porphyry - mainly sericite & minor epi. - 450.18m - 451.5m -											
451.7m-			mottled granite - chl. + clay + sericite-quartz - diss. Py				1%Py							
457.4m			- 451.7m-457.4m - mottled granite & quartz-sericite alteration - diss. Py - remnants of unaltered porphyry throughout.				2%							
457.4m- 498.30m	100%		Battle Porphyry: - relatively unaltered - minor diss. pyrite				½% Py							
			- 460.2m-460.4m - silicification + sericitic alteration - quartz vein 1-2cm across											
			- 469.m-472.7m - minor argillic alteration of feldspars.											
			- 472.7m-475m - small pyrite - magnetite-quartz fracture.											
			- 475.m-484.7m decrease in amount of disseminated pyrite											
			- 484.7m-487.77m - 1cm quartz vein trending parallel to core axis. pyrite-epidote and chlorite associated with quartz.				2% Py							
			- 491.40m - 491.9m - epi-chl-py associated with small quartz vein.											
			- 494m-494.3m - silicified zone & associated increase in pyrite.											
498.30- 504.6	100%		Battle Porphyry: - As Above				.5%							
			- 498.80: 1cm quartz vein with minor MoS ₂ mineralization, vein @ 55° to C.A.											
			- minor alteration halo associated with vein.											
			- 499.30m: Quartz vein @ 10° to C.A. Alteration halo											

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Collared		Completed		Core Size		Property			Project No		NTS No.			
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 14 of		
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.		
Dep.		Depth		Bearing		Dep.		Depth		Bearing				
Footage	Rec'y	Graphic Log	Description				% Suip.	Est. Grade	Sample No.	Lt.				
			contains up to 10% pyrite, minor magnetite and minor MoS ₂ .											
			- vein cored for approx. 140cm - fracturing at 40° to C.A. with salmon pink alteration haloes.											
			- fine grained grey aplite cuts Battle @ 10° to C.A., slightly breccia-like along contacts.											
			- up to .5% Pyrite, disseminated and also noted within feldspar phenocrysts.											
504.60 ?			<u>Gouge:</u>											
504.90			- chloritized & clay altered fault gouge.											
			- approx. 40° to C.A.											
504.9	100%		<u>Battle Porphyry:</u>											
513.00			- salmon pink feldspars and clay alteration				<.5% Py							
			- 1m section of sericitic alteration associated with silicified fracture at 10° to C.A. (506.70m)											
			- alteration haloes contain pyrite, magnetite and possibly minor MoS ₂ .											
			- same type of alteration & silicified zones locally at 40° to C.A., at 506.25 & 509.20m.											
			- 511.30, another sericitized & silicified zone at <10° to C.A.				<.5% Py							
			- containing mainly pyrite and magnetite plus some carbonate fracture filling.											
			- alteration zones usually 2-3cm wide.				.01% MoS ₂							
			- minor MoS ₂ in altered porphyry adjacent to alteration halo.											

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Collared		Completed		Core Size		Property			Project No		NTS No.			
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 15 of		
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.		
Dep.		Depth		Bearing		Dep.		Depth		Bearing				
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.				
			- fractures at 25-30° to C.A. - overall alteration decreasing towards end of section.											
513.00-			- gradation contact with: <u>As Above:</u>											
519.90m			- fresher Battle Porphyry - minor biotite to chlorite & epidote				<.1% Py							
			- several 2-3 cm wide sections of granular granodiorite cutting core at 5°-8° to C.A., minor biotite to epidote and chlorite. - several quartz veinlets 1-2cm wide cutting core @ 50-60°											
			to C.A., minor alteration haloes. - sericitized & silicified veinlets cut core @ 60-70°											
			to C.A. plus narrow alteration haloes, containing pyrite, magnetite and epidote.											
519.90-			<u>As Above:</u> - minor biotite to chlorite alteration.				<<.1% Py							
529.50			- minor quartz, sericite, pyrite veinlets at 70-80° to C.A. ~1/1m											
			- minor fracturing with pink feldspar alteration haloes at 40° to C.A.				Tr MoS ₂							
			- at 527.60m: 3mm quartz feldspar (F.G.) vein containing 5-10% MoS ₂											
			- at 527.74m: 5mm quartz feldspar vein at 35° to C.A. containing up to 5% MoS ₂ & minor pyrite.											
529.50			<u>As Above:</u>											
535.00	100%		- 529.75: 3cm feldspar porphyry dacite dyke @ 50° to C.A.				<<.1%							
			- 531.50: 10cm feldspar porphyry dacite dyke @ 70° to C.A.				Py							

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Collared		Completed	Core Size	Property			Project No	NTS No.		
FIELD COORDINATES				SURVEYED COORDINATES				Sheet 16 of		
Lat.	Elev.	Dip	Lat.	Elev.	Dip	Hole No.				
Dep.	Depth	Bearing	Dep.	Depth	Bearing					
Footage	Rec'y	Graphic Log	Description	% Sulp.	Est. Grade	Sample No.	Lt.			
			- minor silicified & sericitized zones 1-2cm wide cutting core @ 45° to C.A., containing pyrite and minor chalc-							
			pyrite zones ~1/1m.							
			- fine grained aplite dyke at 530.00m, 8cm wide @ 45° to C.A. (quartz monzonite?)							
			- at 532.70m 2mm wide quartz, pyrite, MoS ₂ , fluorite veinlet cutting core at 40° to C.A.	Tr MoS ₂						
			- core relatively fresh, only minor biotite to chlorite alteration.							
535.0			<u>As Above:</u>	Tr						
544.25	100%		- several medium grained quartz feldspar dykes @ 535.6m	MoS ₂						
			- 2mm wide quartz MoS ₂ vein @ 536.10m @ 45° to C.A.	.5%						
			- 538.65m 3mm quartz, pyrite, MoS ₂ vein @ 50° to C.A.	Py						
			- 538.03m 3mm quartz, fluorite, feldspar MoS ₂ vein @ 90° to C.A.							
			- minor biotite to chlorite & epidote,							
			- at 538.80m: 2mm quartz, fluorite, pyrite, minor MoS ₂ vein @ 40° to C.A.							
			- narrow quartz (fluorite) veins one per 0.5 to 1m, locally several contain MoS ₂ .							
			- at 538.50: 1mm wide quartz, feldspar, pyrite vein with							
			minor MoS ₂ @ 30° to C.A.							
			- at 539.90: quartz, feldspar, fluorite, plus minor pyrite							
			& MoS ₂ vein @ 25° to C.A.							
			- at 543.46 minor MoS ₂ found around feldspar phenocrysts,							
			over ~ 1cm.							

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Coiled		Completed		Core Size		Property			Project No.		NTS No.		
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 17 of	
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.	
Dep.		Depth		Bearing		Dep.		Depth		Bearing			
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.	angle to core		
			- at 543.56: quartz, feldspar, MoS ₂ vein ~ 1mm wide. 50% TR MoS ₂ .										
			- general increase in biotite to chlorite and epidote towards end of section.										
544.25	100%		Battle Porphyry: very little diss. py				1/2%						
559.37			- 547.71m - fracture at 45°								45°		
			- 551.32m - 1cm quartz vein								85°		
			- 552.1m - fracture at ~ 10° to core								10°		
			- 558.92m - 2cm quartz vein								80°		
559.37m	100%		Quartz Monzonite										
567.00			- chilled contact - younger rock is a medium grained grey quartz-feldspar-biotite monzonite.										
			- numerous fractures at 1meter intervals with a pink associated alteration.								60°		
			- 564.5m-566.1m - fractures and resulting clay and pink (K-feldspar?) alteration has bleached monzonite to a salmon pink colour										
			- minor diss. pyrite associated with fractures.				1% Py						
			- 548.70 - 1mm thick - feldspar-quartz veinlet with diss. molybdenite								45°		
			- 549.50 - 2mm - wide - quartz, feldspar veinlet & minor diss. molybdenite								45°		
567.00	100%		Quartz Monzonite:										
571.15			- medium grained 2-4mm dia. grains.				<.2 Py						

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Collared		Completed		Core Size		Property			Project No.		NTS No.			
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 18 of		
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.		
Dep.		Depth		Bearing		Dep.		Depth		Bearing				
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.				
			- 10-15% black biotite. - minor biotite to chlorite.											
			- non-porphyrific. - <.2% disseminated pyrite.											
			- fractures ~1/.5m @ 45° to C.A. - often associated with salmon pink feldspar alteration											
			haloes up to 2cm wide. - slightly magnetic.											
			- minor 1-2mm wide quartz, feldspar veinlets - minor biotite laths and locally pyrite masses @ 45° to C.A.											
			- veinlets cuts contact. - contact quite sharp @ 70° to C.A.											
571.15			<u>Granodiorite:</u>				<.1%							
573.74	100%		- fine to medium grained, becoming coarser grained away from contact.				Py							
			- 10-15% black biotite grains 1-2mm in diameter and 5-8% fine grained biotite throughout core.											
			- minor pyrite <.1%.											
			- feldspar phenocryst 1-2mm by 10-20mm comprise up to 10-15% of rock.											
			- locally trachytic-like texture											
			- one 2cm coarse grained quartz feldspar vein @ 45° to C.A.											
573.74			<u>Hybrid Granodiorite-Battle Porphyry Breccia:</u>				<.1%							
586.95	100%		- Graondiorite as above.				Py							
			- sub-rounded torounded coarse grained Battle Porphyry fragments 3-5cm in diameter within granodiorite.											
			- locally quartz-feldspar veining associated with small pyrite masses.											

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Collared		Completed		Core Size		Property			Project No		NTS No.				
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 19 of			
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.			
Dep.		Depth		Bearing		Dep.		Depth		Bearing					
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.					
			<ul style="list-style-type: none"> - Several narrow < 2mm wide quartz veinlets @ 10° to C.A. & cutting everything. Large 2-3cm feldspar phenocrysts common towards end of section. - 576.00m: 45cm section of pink quartz-feldspar aplite with the first 15cm pegmatitic (quartz, feldspar muscovite). - contacts @ 40° to C.A. - towards end of section several fractures with salmon pink feldspar alteration haloes @ 45° to C.A. some sericite development locally as well. 												
586.95			<u>Battle Porphyry:</u>												
589.00	100%		<ul style="list-style-type: none"> - coarse grained feldspar porphyry biotite granite as before - contact @ 20° to C.A. - no alteration noted. - minor pyrite associated with mafics. - non-magnetic - gradational to: 				1%								
			<ul style="list-style-type: none"> - gradational to: <u>Hybrid Battle Porphyry - Granodiorite Zone</u> 												
589.00			<ul style="list-style-type: none"> - inter-mixed Battle Porphyry & granodiorite. - Battle Porphyry 60-70% of core. - feldspar phenocryst pink colour. 												
595.19															
595.19	100%		<ul style="list-style-type: none"> - beginning of section waxy green feldspars, biotite to chlorite & sericite, 50/50. - becoming more intense towards 596.00m. 												

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Collared		Completed		Core Size		Property			Project No.		NTS No.			
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 20 of		
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.		
Dep.		Depth		Bearing		Dep.		Depth		Bearing				
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.				
			- biotite gone to chlorite & epidote. - plag altered to epidote.				Py 5%							
			- up to 5% pyrite locally in center 20cm of section. - fractured @ 40° to C.A. - minor salmon pink alteration haloes. - alteration weakens towards end of section to fresh Battle Porphyry.											
598.75 608.05	100%		<u>Hybrid Battle Porphyry - Qtz. Monzonite to Granodiorite</u> - porphyritic granite and medium grained quartz monzonite to granodiorite. - as before - magnetic				1% Py							
			- intensily altered zone for 45 cm @ 604.50m. zone of epidote, sericite & chloritization & feldspars to clay biot. to chl. & mag. - fractures with narrow pink alteration haloes at 45° to C.A. (Locally). - minor pyrite associated with fractures. gradational contact with:											
608.05 609.90	100%		<u>Biotite Quartz Monzonite:</u> - 20-25% black biotite. - medium grained & becoming fine grained towards end of section. Magnetic. - minor shearing in section 600 to C.A. - gradational contact with:				1% Py							
609.90 612.90	100%		<u>Aplite:</u> - mottled texture with mafics.				0.5% Py							

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Collared		Completed		Core Size		Property			Project No		NTS No.			
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 21 of		
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.		
Dep.		Depth		Bearing		Dep.		Depth		Bearing				
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.				
			<ul style="list-style-type: none"> - mafic comprised of biotite, magnetite and pyrite. - pink quartz-feldspar aplite. 				mag.							
			<ul style="list-style-type: none"> - fine grained. - mafics ~15-20%. 											
			<ul style="list-style-type: none"> - fractures @ 45° to C.A. - gradation contact with: 											
612.90			<u>As Above. Pink colour</u>											
617.50			<ul style="list-style-type: none"> - mafics less than 5% of rock - weakly magnetic - fracturing at 35-40° to C.A. 											
			<ul style="list-style-type: none"> - minor carbonate fracture filling, - 613.60 - 614.60m medium grained leucocratic quartz eye monzonite. - feldspar alteration, epidote, sericite: 											
			<ul style="list-style-type: none"> associated with fractures and shears at 35-40° to C.A. - 1.5cm of massive pyrite at 616.25m - gradation contact with: 											
617.50			<u>As Above: White colour</u>											
630.30			<ul style="list-style-type: none"> - fine to medium grained - aplite to leucocratic quartz eye monzonite - locally mottled mafics - biotite & magnetite - becoming a quartz eye aplite to monzonite. - no pyrite 				0% Py							
			<ul style="list-style-type: none"> - gradational contact with: 											
630.30	100%		<u>Quartz Monzonite:</u>											
642.00			<ul style="list-style-type: none"> - mottled granular texture. 				<1% Py							

NORANDA EXPLORATION COMPANY, LIMITED

Collared		Completed		Core Size		Property			Project No		NTS No.			
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 22 of		
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.		
Dep.		Depth		Bearing		Dep.		Depth		Bearing				
Footage	Rec'y	Graphic Log	Description					% Sulp.	Est. Grade	Sample No.	Lt.			
			- biotite quartz monzonite. - feldspars euhedral, 1-2mm long in Qtz. matrix, grains & dustings of black biotite throughout. - weakly magnetic.											
			- locally 1-2% pyrite avg. 1% py - two sets of fractures with pink alteration haloes, both @ 45° to C.A. - minor propylite alteration - waxy feldspars. - minor biotite to chlorite.											
642.00			<u>As Above:</u>											
660.20	100%		- 642.00 to 645.50m epidote alteration of feldspars & biotite to chlorite. - 646.50m; 30cm of pegmatite, some graphic textures noted. - up to 1.5% pyrite. - 20cm of pegmatite @ 654.93m - minor biotite to epidote throughout section. - fractures with alteration haloes less common & @ 40° to C.A.					1.5%						
660.20	100%		<u>As Above:</u>											
678.50			- white, salt & pepper texture. - rarely fractured. - .5% pyrite. - 30 cm of argillic alteration @ 669.00m. - gradation to:					5%						
678.50			<u>As Above:</u>											
690.00	100%		- pink colour. - slightly more feldspar alteration. - fracturing more common and at 40-45° to C.A.					5%						

DATE _____ LOGGED BY _____

NORANDA EXPLORATION COMPANY, LIMITED

Collared		Completed	Core Size	Property			Project No.	NTS No.	
FIELD COORDINATES				SURVEYED COORDINATES				Sheet 23 of	
Lat.		Elev.	Dip	Lat.		Elev.	Dip	Hole No.	
Dep.		Depth	Bearing	Dep.		Depth	Bearing		
Footage	Rec'y	Graphic Log	Description			% Sulp.	Est. Grade	Sample No.	Lt.
			<ul style="list-style-type: none"> - pink feldspar haloes common along with minor epidote. - locally shearing along fractures. 						
			<ul style="list-style-type: none"> - intense argillic alteration in area of intense fracturing, 685.m. 						
690.00			As Above:						
707.50	100%		<ul style="list-style-type: none"> - minor disseminated molybdenite @ 691.60m 			.5%			
			<ul style="list-style-type: none"> - .5% disseminated pyrite. - pyrite intergrown with biotite 			Py			
			<ul style="list-style-type: none"> - minor biotite to chlorite. - locally minor fracturing @ 40% to C.A. 			MoS ₂			
			<ul style="list-style-type: none"> - minor disseminated molybdenite at 702.00m 						
707.50			As Above:			.75%			
721.50	100%		<ul style="list-style-type: none"> - zone of more intense fracturing and accompanying argillic alteration. - pink zones around fractures. 			Py			
			<ul style="list-style-type: none"> - fractures at 45-50° to C.A. - carbonate fracture filling common. 						
			<ul style="list-style-type: none"> - biotite completely to chlorite & epidote. - .5 to 1% pyrite. 						
			<u>CHANGED TO B.Q. CORE AT 723.29 METERS.</u>						
721.50			As Above:						
728.00	100%		<ul style="list-style-type: none"> - 1% pyrite disseminated through rock. 						
			<ul style="list-style-type: none"> - minor fracturing. - biotite to chlorite. 						
			<ul style="list-style-type: none"> - weakly magnetic. 						

DATE _____ LOGGED BY _____

NORANDA EXPLORATION COMPANY, LIMITED

Collared		Completed		Core Size		Property			Project No.		NTS No.			
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 24 of		
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.		
Dep.		Depth		Bearing		Dep.		Depth		Bearing				
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.				
728.00 739.40	90%		<u>As Above:</u> - zones of fracturing ~1/.5m. - argillic alteration, as before. - some blocky core at 729 to 731m.				1%							
			- fractures at 40° to C.A. - weakly magnetic.											
			- argillic alteration associated with fractures, often zones between fractures are weakly altered.											
739.40 745.10	100%		<u>As Above:</u> - rarely fractured biotite quartz monzonite. - 1cm wide quartz vein at 743.60, at 10° to C.A. - minor chalcopyrite and pyrite within quartz.				1%							
745.10 759.10	100%		<u>As Above:</u> - .5% pyrite. - biotite to chlorite.											
759.10 783.00	100%		<u>As Above:</u> - becoming slightly coarser grained. - .5% disseminated pyrite. - minor biotite to chlorite alteration.											
			- fractured at 45° to C.A. but very little associated alteration.											
783.00 796.20	90%		<u>As Above:</u> - fracturing & argillic alteration. - less altered between fractures. - approx. 30-40% altered pink zones.				1%							

NORANDA EXPLORATION COMPANY, LIMITED

Collared		Completed		Core Size		Property			Project No		NTS No.			
FIELD COORDINATES						SURVEYED COORDINATES						Sheet 25 of		
Lat.		Elev.		Dip		Lat.		Elev.		Dip		Hole No.		
Dep.		Depth		Bearing		Dep.		Depth		Bearing				
Footage	Rec'y	Graphic Log	Description				% Sulp.	Est. Grade	Sample No.	Lt.				
			<ul style="list-style-type: none"> - <.1% disseminated pyrite. - several areas of blocky core around 795m. 											
796.20			<u>As Above:</u> <ul style="list-style-type: none"> - overall weak argillic alteration - core has a light pink colour. - pyrite content decreasing, <.1% pyrite. 				<.1%							
846.00							Py							
846.00			<u>As Above:</u> very weak feldspar alteration.				.1%							
870.70	100%		<ul style="list-style-type: none"> - very weak argillic - locally minor fracturing @ 50° to C.A. - biotite to chlorite - Minor, 5% chlorite. - <<.1% disseminated pyrite. 				Py							
870.70			<u>As Above:</u> <ul style="list-style-type: none"> - very minor fracturing at 45° to C.A. - very minor feldspar alteration. - locally minor disseminated pyrite. - minor biotite to chlorite. 											
882.70			EOH 882.70											

DATE _____ LOGGED BY *Thomas P. Lewis*

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT Butters J.V.

DATE March 1980

TYPE OF REPORT Diamond Drilling

a) Wages:

No. of Days 110

Rate per Day \$ 124.65

Dates: from July 31, 1979 to October 4, 1979

Total Wages 110 x \$ 124.65 13,711.24

b) Food and Accomodation:

No of days 110

Rate per day \$17.3328

Dates: from July 31, 1979 to October 4, 1979

Total Cost 110 x \$ 17.3328 1,906.61

c) Transportation:

No of days 110

Rate per day \$416.17036

Dates: from July 31, 1979 to October 4, 1979

Total Cost 110 X \$ 416.17036 45,778.74

d) Instrument Rental:

Type of Instrument Magnetic Single - Shot Instrument

No of days 110

Rate per day \$ 13.01

Dates: from July 31, 1979 to October 4, 1979

Total Cost 110 X \$13.01 1,431.10

Type of Instrument

No of days

Rate per day \$

Dates: from to

Total Cost X \$

f) Analysis (See attached schedule)		Nil
g) Cost of preparation of Report		
Author	124.65	
Drafting	112.35	
Typing	373.95	<u>610.95</u>
h) Other:		
Camp & Field Supervision	54.98	
Diamond Drilling Contractors	102,780.49	
Supervision	4,000.00	
Communications	469,94	
Total Cost		<u>107,305.41</u>

e) Unit costs for Other		
No of days	110	
No of units	882.7 Metres	
Unit costs	121.56498 / Metre	
Total Cost	121.56498 x 882.7 metres	<u>107,305.41</u>

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT Butters J.V.

DATE June 1980

TYPE OF REPORT Geology - Rock Geochem

a) Wages:

No. of Days 69

Rate per Day \$ 85.2707

Month Of: June 1979 to May 31, 1980

Total Wages 69 x \$ 85.2707 5,883.68

b) Food and Accomodation:

No of days 69

Rate per day \$ 13.4511

Month of: June 1979 to May 31, 1980

Total Cost 69 x \$ 13.4511 928.13

c) Transportation:

No of days 69

Rate per day \$ 50.1017

Mohth of: June 1979 to May 31, 1980

Total Cost 69 X \$ 50.1017 3,457.02

d) Instrument Rental:

Type of Instrument

No of days

Rate per day \$

Month of:

Total Cost X \$

Type of Instrument

No of days

Rate per day \$

Month of:

Total Cost X \$

f) Analysis 3,302.00
(See attached schedule)

g) Cost of preparation of Report

Author	3 Days	255.81	
Drafting		392.21	
Typing	2 X 100	200.00	848.02

h) Other:

Total Cost \$14,418.85

e) Unit costs for

No of days

No of units

Unit costs /

Total Cost x

NORANDA EXPLORATION COMPANY, LIMITED
(WESTERN DIVISION)

DETAILS OF ANALYSES COSTS

PROJECT: BUTTERS J.V.

June 1980

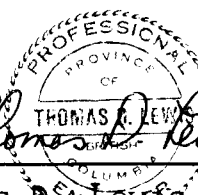
<u>ELEMENT</u>	<u>NO. OF DETERMINATIONS</u>	<u>COST PER DETERMINATION</u>	<u>TOTAL</u>
6 ele.	156	3.00	468.00
W	203	2.00	406.00
Au	156	2.50	390.00
F	156	3.25	507.00
S	156	3.00	468.00
Si	27	3.75	101.25
Ca	27	3.75	101.25
Na	27	3.75	101.25
K	27	3.75	101.25
Sn	47	2.00	94.00
SiO ₂	22	15.00	330.00
CaO			
K ₂ O			
Na ₂ O			
Prep.	156	1.50	234.00

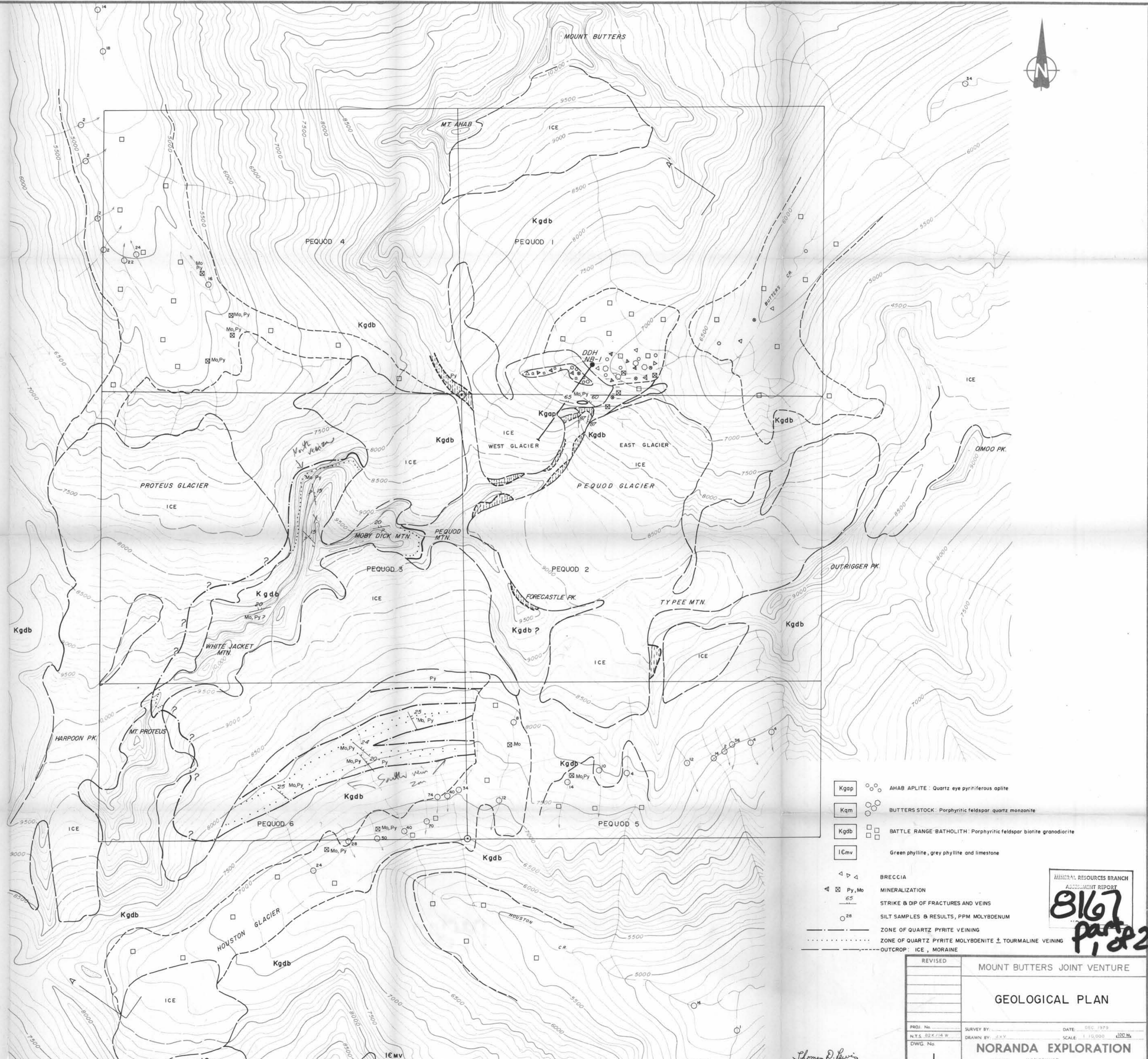
\$3,302.00

STATEMENT OF QUALIFICATIONS

I, Thomas D. Lewis of the City of Kamloops, Province of British Columbia, do certify that:

1. I have been employed as a geologist by Noranda Exploration Company, Limited since April, 1979.
2. I am a graduate of Queen's University with a Bachelor of Applied Science in Geology (1975).
3. I am a member of the Association of Professional Engineers of the Province of British Columbia.
4. I am a member of the Canadian Institute of Mining and Metallurgy.


Thomas D. Lewis
Thomas D. Lewis, P.Eng.,
Geologist,
Noranda Exploration Company, Limited
(No Personal Liability)



- Kgap ○○ AHAB APLITE: Quartz eye pyritiferous opelite
- Kqm ○○○ BUTTERS STOCK: Porphyritic feldspar quartz monzonite
- Kgdb □□ BATTLE RANGE BATHOLITH: Porphyritic feldspar biotite granodiorite
- IEmv Green phyllite, grey phyllite and limestone
- △△ BRECCIA
- ▣ Py, Mo MINERALIZATION
- 65° STRIKE & DIP OF FRACTURES AND VEINS
- 28 SILT SAMPLES & RESULTS, PPM MOLYBDENUM
- ZONE OF QUARTZ PYRITE VEINING
- ZONE OF QUARTZ PYRITE MOLYBDENITE ± TOURMALINE VEINING
- OUTCROP: ICE, MORaine

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT

8167

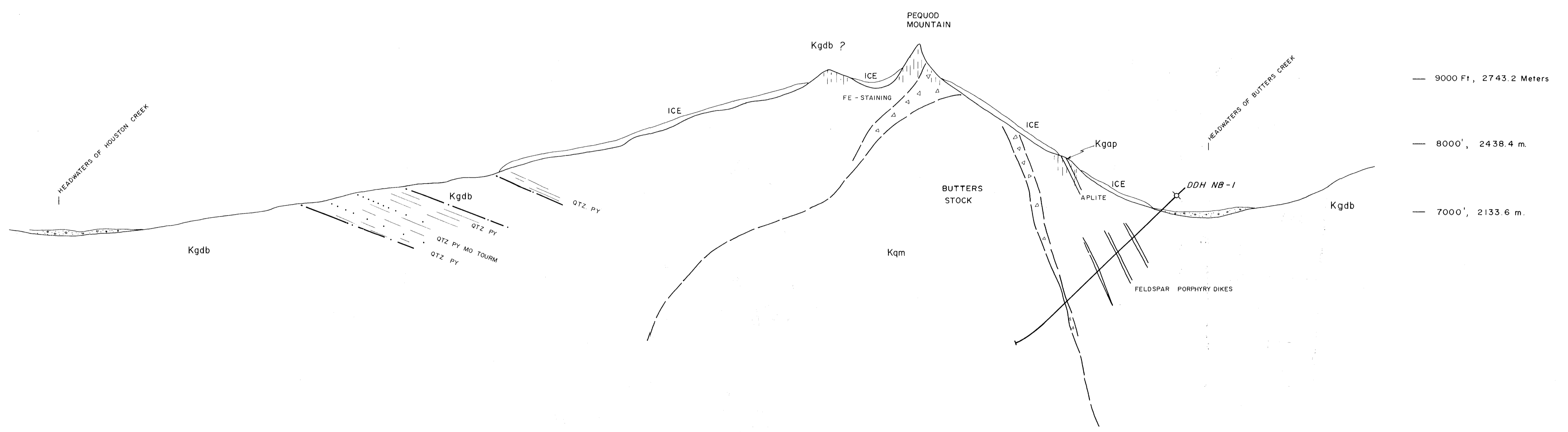
part 1 of 2

REVISED	MOUNT BUTTERS JOINT VENTURE	
GEOLOGICAL PLAN		
PROJ. No.	SURVEY BY:	DATE: DEC. 1975
N.T.S. 82x114 W	DRAWN BY: J.V.V.	SCALE: 1:10,000 100 M
DWG. No.	NORANDA EXPLORATION	
1	OFFICE: VANCOUVER	

Thomas D. Lewis

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MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8167
NO.
part 1 of 2
Thomas D. Lewis

REVISED	MOUNT BUTTERS JOINT VENTURE	
	<i>SECTION</i>	
PROJ. No.	SURVEY BY: B.B.H.	DATE: DEC. 1979
N.T.S. 82K/14	DRAWN BY: J.V.V.	SCALE: 1:10,000 100M
DWG. No.	NORANDA EXPLORATION	
2	OFFICE:	OFFICE:



- LEGEND**
- ROCK TYPES:**
- BATTLE PORPHYRY
 - BUTTERS STOCK
 - FELDSPAR PORPHYRY DYKE
 - QUARTZ - FELDSPAR PEGMATITE
 - BRECCIA
 - APLITE DYKE
- ALTERATION:**
- QUARTZ - SERICITE - PYRITE
 - CHLORITE - EPIDOTE

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8167
NO. **part 1**
POF 2

Steve D. Lewis

SECTION OF DIAMOND DRILL HOLE NB-1

ELEVATION IN METERS

REVISED	MOUNT BUTTERS JOINT VENTURE	
	SECTION LOOKING WESTWARD	
PROJ. No.	SURVEY BY: T. LEWIS, B. HUGHES	DATE: OCT 1979
N.T.S. 82K/14 W	DRAWN BY: J. V.	SCALE: 1:2500
DWG. No.	NORANDA EXPLORATION	
3	OFFICE: VANCOUVER	