GEOLOGY AND DIAMOND DRILL REPORT

on the

"J" CLAIM GROUP

LIARD MINING DIVISION

MT. REED OPTION

for

CANADIAN SUPERIOR EXPLORATION LIMITED

by

John J. Watkins, M.Sc.

Property Name : "J" Claim Group

Location: Lat. 59° 19', 129° 27' (NTS 104P/6)

Date Started: June 1, 1981

Date Completed: August 31, 1981

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SUMMARY

The "J" Claim Group is located on the southwest slopes of Mt. Reed, 25 km east of Cassiar, B. C. in the Liard Mining Division.

The claim group covers a sequence of shallow water marine carbonate and fine-grained clastic rocks of the Lower Cambrian Atan Group. An Early Tertiary granite porphyry stock, measuring 1,000 by 225 metres, conformably intrudes a 250 metre thick limestone unit. Stock related magmatic hydrothermal fluids were responsible for the formation of two skarn types, one located at the stock's contact and produced as a consequence of replacing massive limestone, and another located at the upper and lower contacts of the limestone unit formed as a result of hydrothermal fluids replacing intercalated limestone-pelite.

As a consequence of the 1981 program the skarn zones were found to lack the continuity, and thus the size, to accommodate the relatively low tungsten and molybdenum grades to warrant further work.

1. INTRODUCTION

The Mt. Reed Option is a W-Mo prospect associated with skarn zones marginal to the Mt. Reed granite porphyry stock, located in northern British Columbia. From June 1 to August 31, 1981, field work consisting of diamond drilling and geological mapping was carried out over the property.

The 1981 program was under the direction of Susan Barnhill, an M.Sc. student at Queen's University, and supervised by J. Watkins.

Results of the work are discussed in the following report.

1.1 Location and Access

The Mt. Reed Option is located in the Liard Mining Division, approximately 25 km east of Cassiar, B.C. (Figure 1). The claims are located on the southwest slopes of Mt. Reed and centered on latitude 59° 19' and longitude 129° 27'.

Access to the property is gained from the Della Mines road which turns off the Cassiar Highway just east of the Hot Creek crossing.

1.2 Topography

The claim group is located on the southeast slope of Mt. Reed (summit elevation 1,990 metres). The claims cover a ridge which emanates from the summit of Mt. Reed. Elevation on the claim group ranges from 1,150 metres to 1,900 metres, with the tree line at approximately 1,365 metres.

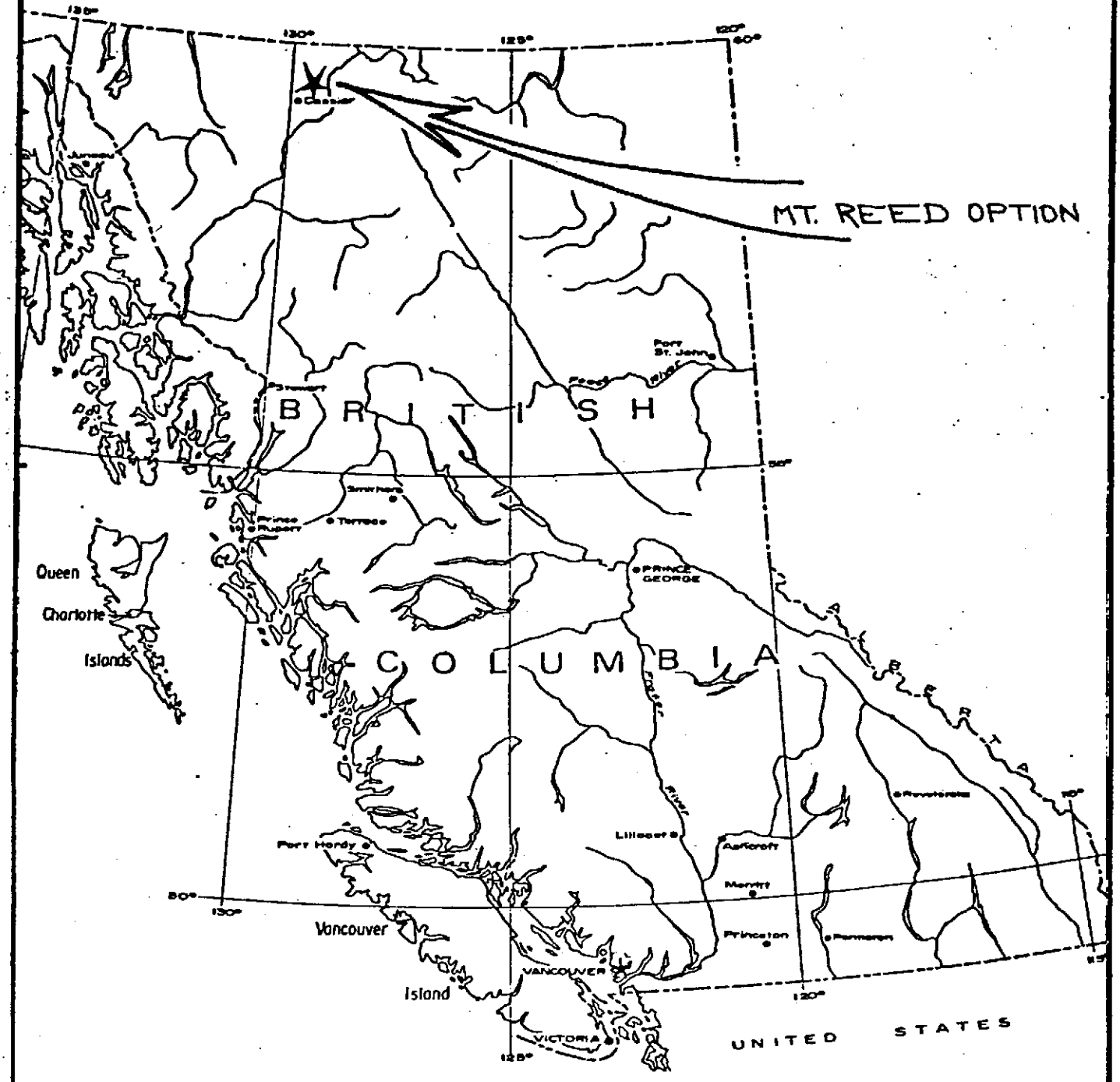

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FIGURE 1
LOCATION MAP
MT. REED OPTION

DRAUGHTSMAN JW	SCALE:	DATE: Oct. /81

1.3 Claim Status

The Mt. Reed Option currently consists of one claim block ("J" claim) consisting of 12 units (record number 247). Sufficient work has been done on the "J" claims to maintain them in good standing until November 25, 1989.

1.4 History and Previous Work

In 1947 the Joe Reed Ag-Pb-Zn vein was staked.

In 1949 the property was optioned to Yukon Ranges Exploration Ltd. Work consisted of trenching and sampling the Joe Reed vein.

During 1955-1956 Cominco optioned the property and drilled 5 holes (totalling 455 metres) on the Joe Reed vein.

In 1968 the claim block was extended to the northwest to cover the Mt. Reed granite porphyry stock.

In 1969 the property was optioned to Brettland Mines Ltd. and Glen Copper Mines Ltd. Work consisted of geological, geochemical, magnetic and I.P. surveys.

In 1970 Pacific Petroleum Ltd. optioned the property from Brettland Mines Ltd. and Glen Copper Mines Ltd. and drilled 13 holes (totalling 1,075 metres).

In 1971 Brettland Mines Ltd. and Glen Copper Mines Ltd. drilled 6 holes (totalling 735 metres).

1.4 History and Previous Work (cont)

In 1978 Canadian Superior Exploration Ltd. optioned the property from J. Ashton and A. Macdonald, and carried out a bedrock geochemical survey and drilled 3 holes (totalling 153 metres).

In 1979 Canadian Superior Exploration Ltd. drilled 4 holes (totalling 406 metres).

In 1980 Canadian Superior Exploration Ltd. mapped the geology in the immediate area of the Mt. Reed granite porphyry stock and drilled 7 holes (totalling 863 metres).

1.5 Work in 1981

Field work commenced on June 1 and continued until August 31. During this period the following work was completed.

1. The construction of access roads and diamond drill pads.

2. The drilling and logging of 18 holes totalling 2,668.2 metres.

3. The geological mapping of the skarn types marginal to the Mt. Reed stock.

4. The geological mapping in the area of Mt. Reed.

2. GEOLOGY

2.1 Regional Geology

Bedded rocks in the Cassiar area range in age from Proterozoic to Devono/Mississippian, and have been described by Gabrielse (1963) as the Good Hope, Atan, Kechika, Sandpile, McDame, and Sylvester groups. The Proterozoic Good Hope Group has since been reclassified and named the Ingenika Group (Mansy and Gabrielse, 1978). Except for the stratigraphically highest Sylvester Group, which has been interpreted to be an allochthonous volcanic terrain (Monger, et al, 1972), the rocks are a shelf assemblage of fine-grained quartzites, shales and carbonates.

The intrusive rocks in the Cassiar area include ultramafic rocks of post-Devono/Mississippian age, the main Cassiar Batholith dated at 102±3 my. (Christopher, et al, 1972), Cretaceous quartz-monzonite stocks emplaced marginal to the batholith, and Early Tertiary porphyritic granite stocks, of which the Mt. Reed stock is one, dated at 50 my. (Christopher, et al, 1972), emplaced into lower stratigraphic units east of the Cassiar Batholith.

The Cassiar Batholith occupies a regionally extensive north-northwest trending anticlinal zone with its eastern contact at a slight angle to the regional trend of the

2.1 Regional Geology (cont)

bordering bedded rocks. East of the Batholith (Figure 2) Proterozoic to Devono/Mississippian rocks form a broad northwest plunging synclinorium, the McDame Synclinorium, cored with Sylvester Group volcanic rocks. Northwest trending lineaments within rocks of the McDame Synclinorium reflect the presence of major longitudinal faults which represent southwest dipping thrusts (H. Gabrielse pers comm.).

2.2 Local Geology

The surficial geology in the area of Mt. Reed is summarized on the accompanying map (Figure 3). The chrono-stratigraphic units are detailed below:

EARLY TERTIARY

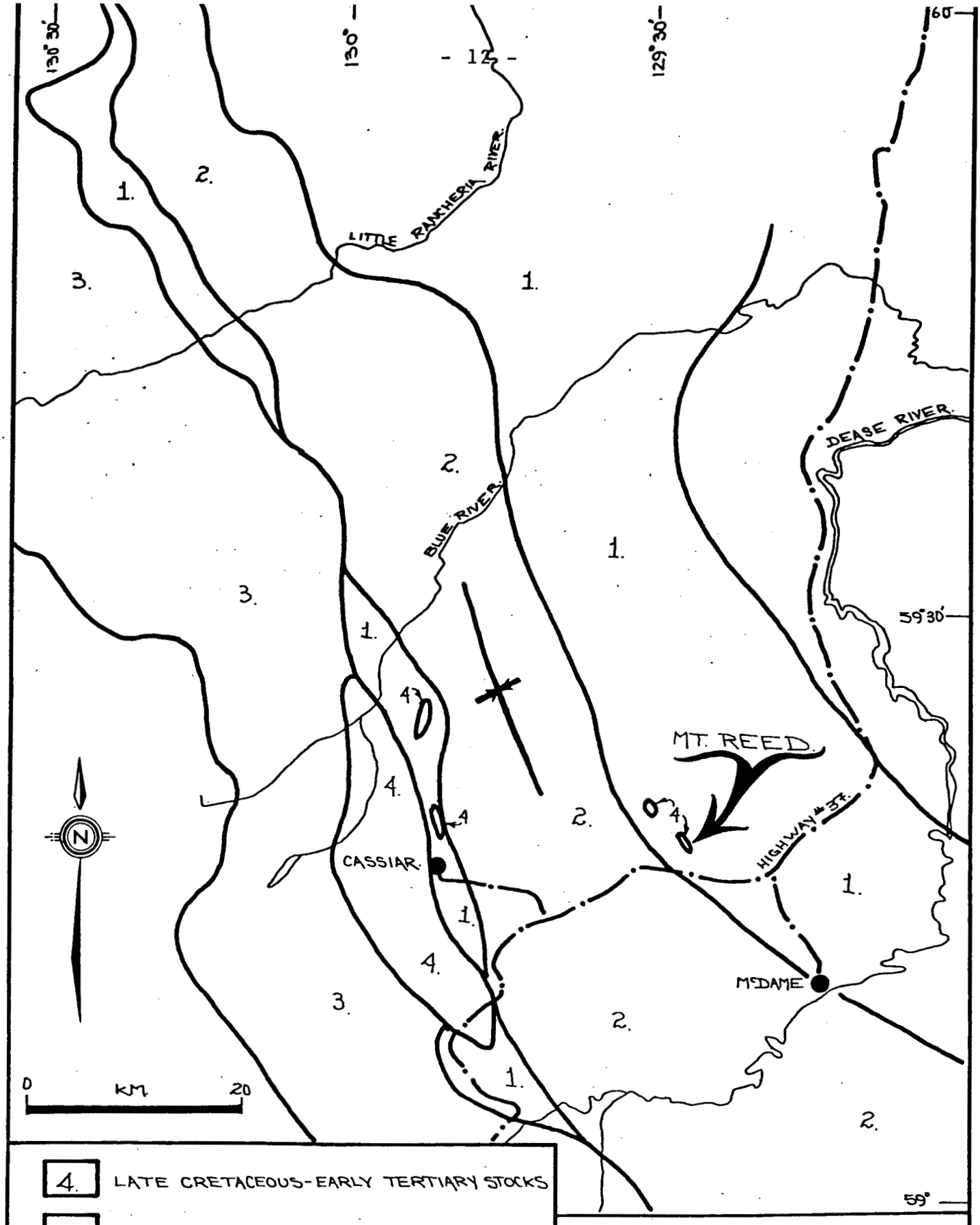
5. Granite porphyry stocks

LOWER CAMBRIAN (ATAN GROUP)

- shallow water intertidal environment

4. Limestone-dolostone

   a) massive to platey, fossiliferous (archeo-cyathid, trilobites), sometimes oolitic or containing silty layers, flaser textures in places.
   b) fossiliferous limestone interbedded with fissile grey or brown shale, approximately 8 cm thick layers



4.	LATE CRETACEOUS-EARLY TERTIARY STOCKS
3.	CASSIAR BATHOLITH
2.	SYLVESTER GROUP – Volcanic Rocks
1	U. PROTEROZOIC–L. PALEOZOIC – Sedimentary Rocks

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FIGURE 2.
REGIONAL GEOLOGY MAP
MT. REED AREA

DRAUGHTSMAN: JW	SCALE:	DATE: OCT./81.

LOWER CAMBRIAN (ATAN GROUP) (cont)

3. Clastic Sediments

a) green, brown or maroon quartzitic sandstone, massive
b) clean white, medium grained quartzite
c) shale or slate, brown to black, cross bedded

UPPER PROTEROZOIC (INGENIKA GROUP)

- shallow water clastic and carbonate rocks previously called the Good Hope Group.

2. a) Red beds-
Distinctive red calcareous-argillaceous units. Red, finely laminated shale or sandy red limestone. Common chip breccia texture comprising angular red sandy or silty fragments in a grey or pink limestone. Appears to be near the top of the calcareous sequence and may represent oxidizing depositional conditions.

b) Dolomitic limestone-
Coarse grained with buff coloured weathering, often found in irregular patches around faults or close to contacts.

c) Undifferentiated massive grey limestone-
Usually massive, or thin to thickly bedded, euhedral, buff coloured dolomite crystals give a spotted appearance to some beds, occassionally pisolitic, one black (organic rich) limestone bed seen.

1. a) Argillaceous unit-
shale, slate or siltstone, brown to black, micaceous sediment, fissile

b) Shale with platey limestone-
2 to 3 metre thick shaley beds within a darker grey thinly bedded limestone

c) Pelite/limestone-
Approximately 10 cm thick alternating pelite and limestone, may be schistose.

2.2 Local Geology (cont)

The sediments generally have a 120° to 140° strike. Several northerly to north-easterly trending faults cut the area. Slickensides, where seen, plunge consistently at 25° to the south. Calcite stockwork veins or dolomitic breccias are common in the vicinity of faults.

Northwest trending synclines and anticlines repeat the section, however overall the stratigraphic sequence youngs to the southwest. Atan Group limestone is found only south of the Mt. Reed summit. Small folds parallel large folds trending 135° and plunging 20° NW.

The following criteria were used to distinguish Atan Group rocks from Ingenika Group rocks (pers. comm. H. Gabrielse, 1981).

1. euhedral dolomite crystals in Ingenika Group limestones
2. red beds in Ingenika Group limestones
3. pisolites in Ingenika Group rocks versus oolites in Atan Group rocks
4. fossils found only in Atan Group rocks

2.3 Property Geology

The surficial geology in the area of the Mt. Reed stock is detailed on Figure 4.

2.3 Property Geology (cont)

A limestone unit, averaging 250 metres thick, of the Atan Group (unit 4a, Figure 3) strikes southeast across the property. Off the property the unit dips 45° to 60° southeast, however on the property the unit has a steep dip to the southwest. A composite granite stock, with a surface dimension 1,000 metres by 225 metres, has intruded the limestone unit. The stock's long axis parallels the trend of the limestone unit.

The stock is composed of two granite types; a leucogranite and a biotite granite. The biotite granite is characterized by containing up to 5% biotite, has a dark grey colour, and is rarely cut by veins. In contrast the leucogranite contains little or no biotite, has a light green colour, and contains carbonate veins and shear zones. Gradational contacts between the two granite types suggest that the leucogranite was formed as a consequence of alteration of the biotite granite. Clay alteration is more intense in the leucogranite (up to 20%) and appears to decrease in intensity away from the outer contact of the stock. A portion of the stock, at higher elevations, is rimmed by a granular quartz-rich aplite. Dikes originating from the stock are rare. The apparent necking down of the stock in plan view correlates with the topographic ridge emanating from the

2.3 Property Geology (cont)

summit of Mt. Reed, suggesting that the stock pinches out at higher elevations.

Skarn is present within and marginal to the limestone unit in proximity to the granite stock. The skarn has been subdivided into two broad types based on primary pre-skarn limestone lithology:

Original lithology	Skarn lithology
1. Massive limestone	a) weak skarn stockwork b) intense skarn stockwork c) wrigglite d) massive magnetite
2. Banded limestone/pelite	a) diopside hornfels b) banded diopside hornfels and garnet pyroxene skarn c) garnet-pyroxene d) garnet-wollastonite e) grossularite-vesuvianite skarn f) amphibole-biotite

It is postulated by Barnhill that the first sequence formed by metasomatism of a massive carbonate unit, while the second developed from an originally platey limestone and an interbedded limestone/pelite unit.

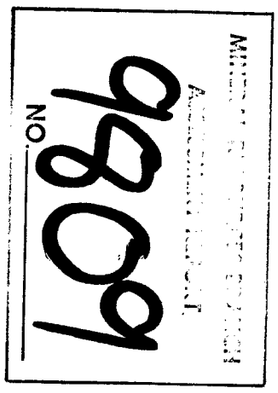
Original stratigraphy appears to have played an important role in the distribution of skarn types at Mt. Reed. The unaltered equivalents of the skarn sequences are well exposed on the cirque ridge southeast of the Mt. Reed stock (Figure 5). On the ridge a predominately massive

2.3 Property Geology (cont)

limestone-(dolomite) unit is bordered by, and in part intercalated with, argillaceous sediments. The contacts between argillaceous sediments and the massive carbonate unit is characterized by a clastic-carbonate transition zone. This transition comprises a banded, argillaceous limestone which grades into an interbedded limestone-pelite.

The Mt. Reed stock when intruded into this sequence was responsible for the formation of skarn sequence 1 from the massive limestone, and skarn sequence 2 from the transition, intercalated limestone-argillaceous sediments. Textures within the skarn therefore reflect the original textures in the sediments. Skarns characterizing sequence 1, formed in massive carbonates as a result of metasomatic fluids being introduced along fractures producing skarn stockwork. As the interaction between the metasomatic fluids and the host rock evolved, fracture controlled skarn minerals coalesce forming swirly magnetite skarn ("wrigglite"). Sequence 2, banded skarn, formed as a consequence of metasomatic fluids being channeled along bedding planes in the interbedded limestone-argillaceous sediments. For example:

1. silty layers in limestone → green garnet
   pure limestone layers → wollastonite
   → banded garnet-wollastonite skarn



SILTSTONE AND SANDSTONE

interbedded siltstone and sandstone, crossbedded, younging to the south.

SLATE

strongly schistose in brown to black slate.

47m

Fault.

CLASTIC-CARBONATE TRANSITION

interbedded siltstone and fossiliferous grey limestone, abundant small isoclinal folds trending 170° plunging 70° south.

33m

MASSIVE LIMESTONE AND DOLOSTONE

predominately massive grey, finely crystalline limestone, occassional fossiliferous fragments, some flaser bedding.
pods and beds of buff weathered dolomitic limestone in sharp contact with grey limestone.
coarsely crystalline red dolostone at top of section with 0.5 to 1.0 cm flaser structures argillaceous beds.
schistose limestone (140/30°N) at top of section cut by numerous calcite veins.

170m

INTERBEDDED LIMESTONE AND SHALE

thin bedded fossiliferous (trilobites) grey and brown shales and thin bedded rusty weathered limestone.
0.5m coquina beds, unidentified fossil fragments plus small stromatolites.
massive grey limestone with 5cm archeocyathids, contains dolomitic pods.
flaser beds at limestone-shale contact.

79m

MASSIVE LIMESTONE

grey thinly bedded limestone with occassional dolomitic bed.
occassionally fossiliferous.
alternating oolitic and 1cm buff to black layers.

112m

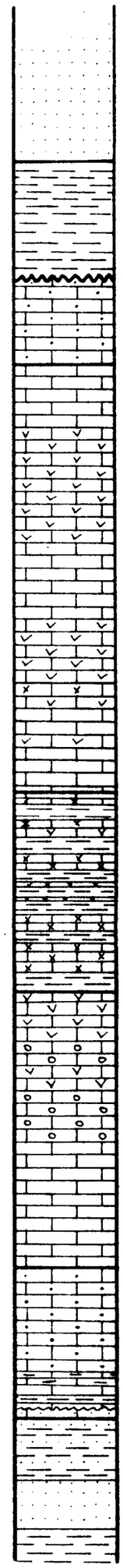
CLASTIC-CARBONATE TRANSITION

grey platey limestone with silty layers and flaser structures grading to interbedded 'swiss cheese' textured siltstone and limestone.
fault at 065°/±90°.

59m

ARGILLACEOUS SILT-SANDSTONE

interbedded shale, siltstone, sandstone with well developed cross bedding, younging to the south.
overlies a predomindlely quartzite unit.




massive limestone


interlayed limestone - siltstone


shale, slate


siltstone, sandstone


limestone, oolitic


limestone, dolomitic


limestone, fossiliferous

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FIGURE 5.
COLUMNAR SECTION
ATAN GROUP
EAST RIDGE, MT. REED CIRQUE

DRAUGHTSMAN: JW | SCALE 1:2000 | DATE OCT./81

2.3 Property Geology (cont)

2. biotite hornfels ⟶ diopside hornfels
pelite layers

limestone ⟶ garnet ⟶ banded garnet-pyroxene skarn

A skarn type of restricted distribution, vesuvianite-grossularite skarn, is found as dike-like bodies cross cutting sequence 1 and 2 skarns. It is developed only at the contact of the stock or adjacent to granite dikes.

Dark green amphibole selvages are developed marginal to quartz veinlets in hornfels. Coarse black biotite was found adjacent to calcite veins in banded skarn. Textures suggest that the biotite and amphibole form as a result of retrograde metasomatism of pre-existing pyroxene. These secondary skarn minerals are limited in their distribution, but do contain high concentrations of scheelite relative to other skarn minerals.

The distribution of the various skarn types that formed marginal to the Mt. Reed stock are shown on Figure 6. There detailed description are:

1. Diopside Hornfels - This is a light green and creamy white coloured skarn that is usually found marking the contact between biotite hornfels and biotite skarn. It is very fine grained with a cherty appearance. Scheelite may be present if the diopside

2.3 Property Geology (cont)

hornfels is cut by a network of dark green amphibole veins (ex. Hole 81-14), however this skarn type is seldom mineralized.

2. Banded Diopside Hornfels and Garnet Pyroxene Skarn - Light green cherty diopside hornfels alternates with garnet pyroxene skarn (1 cm to 15 cm bands). The garnet content in the skarn bands generally increases away from the hornfels contact. Red garnets form euhedral to subhedral (1 mm to 2 cm) crystals within the dark green pyroxene layers. Garnets often show skeletal textures or contain fluorite cores. Skarn bands contain yellow fluorescent scheelite.

3. Garnet Pyroxene Skarn - This skarn type is usually roughly banded but at times has a massive texture. Garnets are red brown, andradite rich while pyroxene is up to 60% hedenbergite. Garnet layers alternate with pyroxene layers with an overall increase in garnet content toward the granite. Near monomineralic vuggy garnet skarn or sugary massive pyroxene is included in this division.

When garnet pryoxene skarn is found immediately adjacent to the granite it is usually cut by an intense parallel quartz vein system. Here the skarn is notably dense and dark coloured.

2.3 Property Geology (cont)

4. Wollastonite Skarn - The appearance of wollastonite marks a skarn subdivision. This skarn type has a soft pale colour due to the dominant minerals: white bladed wollastonite and light green anhedral garnet. Up to 80% wollastonite crystals form an interlocking texture with subhedral garnets growing along fractures.

   When pyroxene is present it is found finely disseminated in a white wollastonite groundmass.

5. Grossularite Vesuvianite Skarn - This skarn type is characterized by approximately 1 cm crystals of vesuvianite arranged in a radiating form. The grass green colour of the vesuvianite and the texture formed by the interlocking spheres gives the skarn a unique appearance. Grossularite garnets are red to yellow brown and exhibit well developed zoning and sector twinning. Calcite, scheelite, quartz and chlorite are interstitial to coarse euhedral crystals of garnet and vesuvianite.

6. Weak Skarn Stockwork - Fine (<1 mm) black, ludwigite-magnetite veins with bleached selvages cut recrystallized buff to grey limestone. Ludwigite and magnetite are also found as euhedral crystals, up to 5 mm, within the limestone. Light green to yellow veins (up to 2 mm wide) cut the finer black veins. These larger veins contain

2.3 Property Geology (cont)

serpentine, chondrodite and minor diopside. Late calcite-serpentine veins cut the prevously described stockwork.

7. Intense Skarn Stockwork - With an increase in vein size (up to 10 cm) diopside and garnet become the predominant minerals. The greenish veins are often laminated parallel to the vein walls. Overall zoning within the veins is:

Garnet → Diopside → Serpentine → Chondrodite → Ludwigite, Magnetite
Vein Center ——————————————————————→ Limestone

8. Wrigglite - This skarn type has a swirly layered texture. Concentric bands of magnetite alternate with diopside, quartz, chondrodite and fluorite. Pipe-like and sphere-like structures varying in size from 20 cm to 1 cm are believed to have developed by metasomatic diffusion from fractures (Kwak & Askins, 1981).

Scheelite is present in minor amounts and tin is slightly anomalous.

9. Massive Magnetite Skarn - Irregularly shaped masses of massive magnetite appears to be the most evolved phase of skarn formation, in massive carbonate rocks.

3. DIAMOND DRILLING

Core is stored on the property.

Eighteen diamond drill holes, totalling 2668.2 metres, were drilled by J.T. Thomas Diamond Drilling (1980) Ltd. of Smithers, B.C. between the period June 4 to July 28. Hole locations are shown on Figure 4 and their locations are summarized below:

Hole No.	Location		Azimuth	Dip	Length (metres)
81-1	18+50	NW	045°	-45°	65.8
	12+13.1	SW			
81-2	20+00	NW	045°	-45°	127.1
	11+70.1	SW			
81-3	20+00	NW	045°	-60°	123.5
	11+70.1	SW			
81-4	20+00	NW	045°	-45°	249.0
	9+29.3	SW			
81-5	20+00	NW	045°	-60°	249.0
	9+29.3				
81-6	13+50	NW	045°	-45°	135.9
	10+14.9	SW			
81-7	13+50	NW	-	-90°	32.6
	9+27	SW			
81-8	13+86	NW	073°	-45°	32.5
	12+13.6	SW			
81-9	14+50	NW	-45°	-45°	120.5
	11+99.2	SW			
81-10	14+50	NW	045°	-60°	163.0
	11+99.2	SW			
81-11	13+86.8	NW	073°	-45°	218.6
	12+13.6	SW			
81-12	13+86.8	NW	073°	-60°	273.5
	12+13.6	SW			
81-13	13+90	SW	045°	-45°	155.5
	12+13.6	SW			
81-14	15+50	NW	045°	-45°	187.5
	9+64.8	SW			
81-15	14+50	NW	045°	-45°	156.0
	10+00	SW			
81-16	16+50	NW	270°	-60°	127.0
	8+10	SW			
81-17	15+50	NW	045°	-45°	94.2
	12+18.7	SW			
81-18	17+07	NW	045°	-60°	157.0
	12+16	SW			

3. DIAMOND DRILLING (cont)

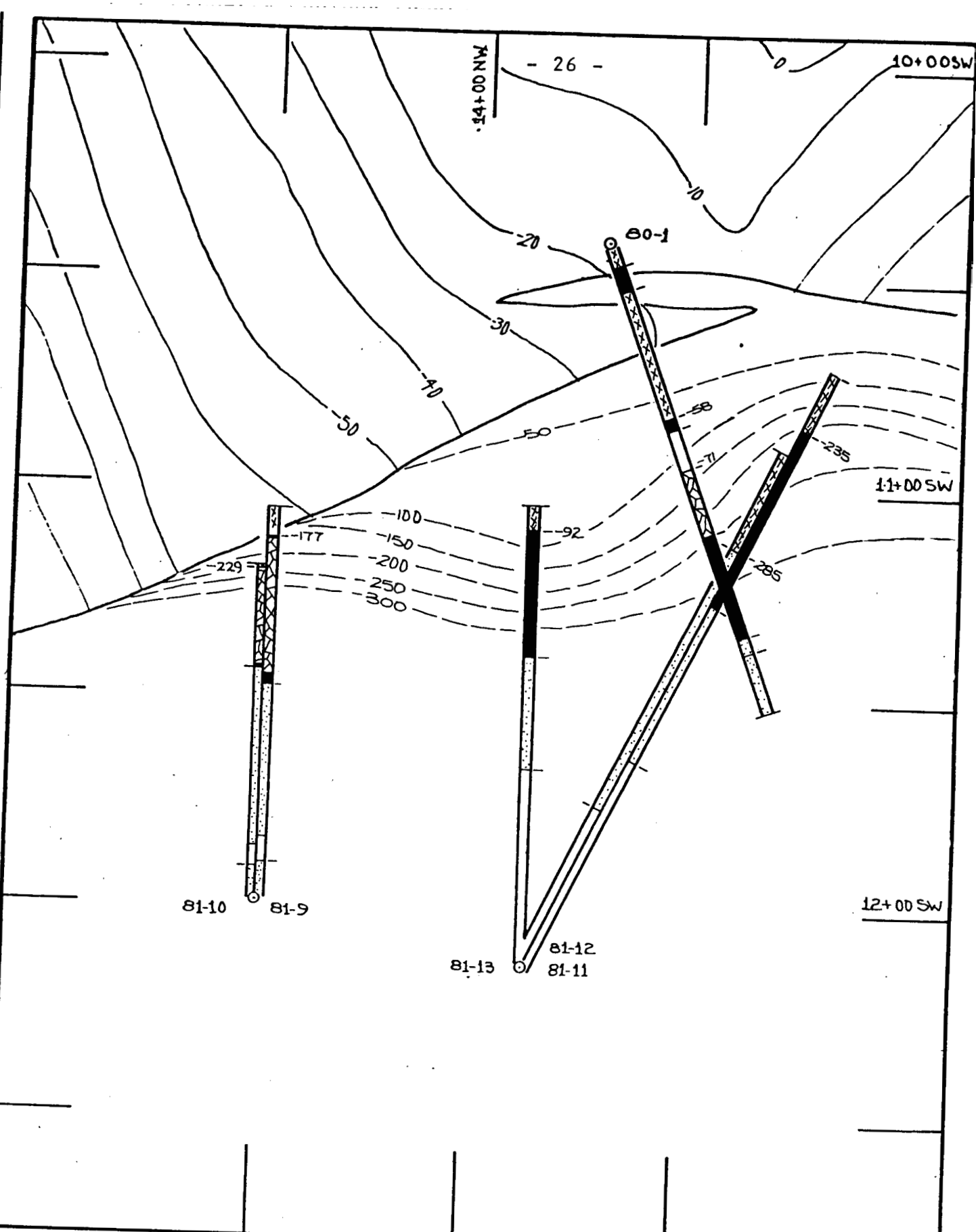
The purpose of the drilling was to test for possible extensions of skarn zones encountered in previous drill programs.

3.1 Results

The results of the 1981 diamond drill program are represented on 1:1250 scale sections (Appendice 1). Drill logs can be found in Appendice II.

The diamond drilling did not encounter a continuous zone of skarn developed marginal to the total strike length of the Mt. Reed granite stock. The skarn zones encountered occur as isolated lenses formed within limestone-skarn embayments at the granite stock contact. Skarn zones are best developed at the stratigraphic upper and lower transition zone of the limestone member, but lack continuity due to the variability in the attitude of the contact of the granite stock. The variability of the granite contact results in the skarn zones being cut-off by the granite.

This phenomenon is best illustrated on Figure 7. Diamond drill holes 80-1 and 81-11 intersected significant widths of skarn, as did 81-13. Hole 81-12 drilled below the skarn zone intersected in 80-1 and 81-11 passed directly from hornfels into granite without encountering skarn or limestone. The subsurface topography of the granite contact



GRANITE DRILL HOLE INTERSECTION.

SKARN STOCKWORK DRILL HOLE INTERSECTION.

MASSIVE/BANDED SKARN DRILL HOLE INTERSECTION.

HORNFELS DRILL HOLE INTERSECTION.

HORIZONTAL PROJECTION OF DRILL HOLE.

ELEVATION, GRANITE CONTACT.

0 — GRANITE TOPOGRAPHIC CONTOURS IN METRES.
-10
-20

-50 — GRANITE CONTACT
-100 — SUBSURFACE TOPOGRAPHY IN METRES.
-150

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FIGURE 7

SOUTHEAST SKARN ZONE

DRAUGHTSMAN: JTW | SCALE: 1:1250 | DATE: OCT./81

3.1 Results (cont)

(Figure 7) changes from nearly vertical in the area west of section 14+50 NW to a flattening and south dipping surface which appears to dike-out the skarn zone at depth.

The skarn zone lying along the northeast contact of the granite stock between section lines 13+00 NW and 16+00 NW is, like the skarn zone lying along the south granite contact, limited in its depth dimension due to a north dipping, and relatively flat lying, granite contact.

4. MINERALIZATION

Mineralization at Mt. Reed is associated in space and time with the Mt. Reed granite stock. Scheelite, molybdenite, and sphalerite are concentrated predominately in the skarn zones discussed in this report and to a lesser degree in the granite and hornfels. Unskarned limestone is free of mineralization.

The distribution of mineralized sections from the 1981 diamond drill program are summarized in Appendices I. Descriptions of styles of mineralization are summarized from each drill hole in Appendices III.

4.1 Mineralization in Skarn

Within the skarn zones yellow fluorescent scheelite (powellite) is concentrated in cross-cutting hairline quartz

4.1 Mineralization in Skarn (cont)

veins and as fine disseminations concentrated, to a greater degree, as diffuse haloes up to 1 cm wide marginal to individual quartz veins. In skarn free of quartz veins disseminated scheelite is concentrated to a greater degree in the garnet rich layers and pods. In skarn stockwork scheelite content increases with intensity of stockwork development occurring as disseminated trails usually in the garnet rich bands paralleling the vein walls.

Erratic concentrations of coarse grained sphalerite associated with varying amounts of pyrite and pyrrhotite, and in association with magnetite, occurs as irregular cross-cutting veins and pods in massive and banded skarn (ex. drill holes 79-4 and 80-2). Concentrations of sphalerite, pyrite and pyrrhotite are present as a distal halo to the main skarn zones. The concentrations lack continuity.

4.2 Mineralization in Hornfels

In hornfels blue fluorescent scheelite and/or molybdenite occurs with or without pyrite in narrow (up to 2 mm) widely spaced (5 to 10 cm) parallel quartz veins. Such concentrations rarely exceed 3 metres in drill width. Rare occurrences of coarse euhedral scheelite crystals are found as patches within biotite-quartz veins in hornfels.

Isolated pods of massive to semi-massive pyrrhotite and/or pyrite with associated biotite, occurs in hornfels

4.2 Mineralization in Hornfels (cont)

(drill holes 81-9 and 81-10). Blue fluorescent scheelite is found associated with biotite. Minor sphalerite and chalcopyrite occurs as fracture fillings in pyrite and pyrrhotite.

4.3 Mineralization in Granite

Scattered occurrences of molybdenite with or without minor scheelite is reported from the granite stock. Mineralization is contained in widely spaced, parallel 1 to 2 mm quartz veins that appear to lack continuity.

5. SURVEYING

Tim Liverton of Tarmachan Exploration Services, Watson Lake, leveled the base line, selected lines, and surveyed many of the diamond drill holes. All reduced levels are with respect to the top of a wooden peg placed where the base line crosses the ridge crest at 1325.7 NW and taken as zero metres elevation.

Lines levelled:

Line	From	To
Base line	10+00 NW	23+00 NW
10+00 NW	7+50 SW	11+50 SW
11+00 NW	7+50 SW	12+00 SW
12+00 NW	7+50 SW	13+00 SW
13+00 NW	7+50 SW	13+00 SW
13+50 NW	8+50 SW	12+00 SW
14+00 NW	7+50 SW	12+80 SW
14+50 NW	8+50 SW	13+00 SW
15+00 NW	7+50 SW	12+50 SW
15+50 NW	7+50 SW	12+50 SW
16+00 NW	7+50 SW	13+60 SW

5. SURVEYING (cont)

Lines levelled: (cont)

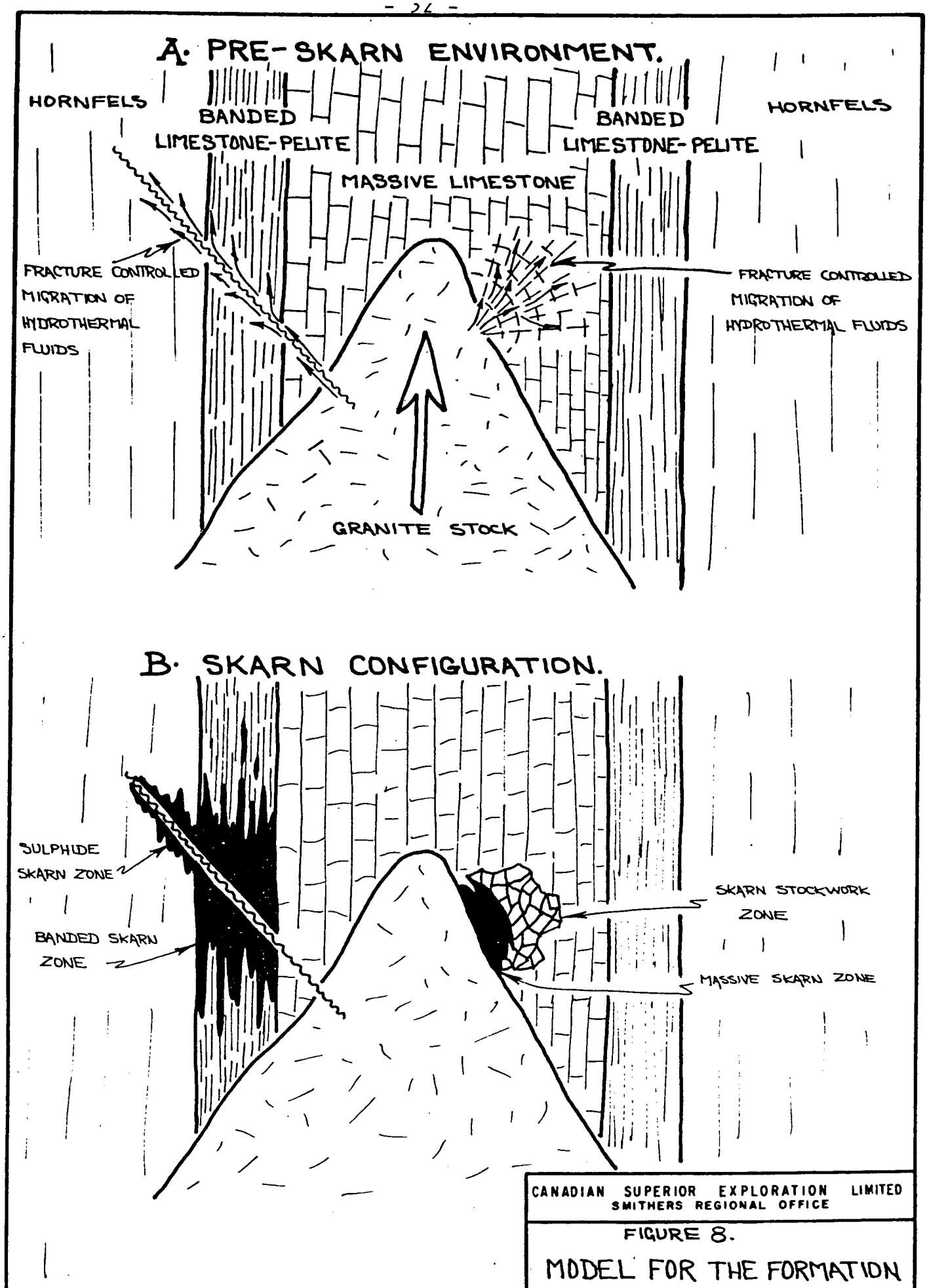
Line	From	To
17+00 NW	7+50 SW	12+75 SW
18+00 NW	7+50 SW	13+00 SW
18+50 NW	10+00 SW	13+50 SW
19+00 NW	8+00 SW	13+00 SW
19+50 NW	10+00 SW	11+50 SW
20+00 NW	8+00 SW	13+00 SW
21+00 NW	7+50 SW	13+00 SW
22+00 NW	7+50 SW	13+00 SW
23+00 NW	7+50 SW	12+50 SW

6. DISCUSSION AND CONCLUSIONS

In the preceding sections of this report the geological setting, skarn mineralogy and ore element distribution have been described. Here, the genetic significance of the features described will be considered within an economic framework.

Two main types of skarn have been described based on primary, pre-skarn lithology (altered massive limestone and altered intercalated limestone-pelite). Volumetrically, and therefore economically, the most significant of the two types is the altered limestone-pelite.

The environment of formation for the two skarn types is summarized diagrammatically on Figure 8. Altered limestone-pelite appears to have formed, at least in part, as a result of metasomatic fluids being channeled along east dipping fractures. Associated with the southeast skarn zone (Figure 4) an east 35° dipping fracture zone, with no apparent off-set, cuts banded skarn at surface. Where the fracture zone was intersected in drill holes 81-9 and 81-10 (Figure 7 and 13) massive to semi-massive sulphides were encountered marginal to the fracture zone. Scattered shears occur within banded skarn intersected in holes 81-11, 81-12, 81-13 and 80-1, and probably represent a continuation of, and wider distribution of fractures encountered at surface.



CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

FIGURE 8.

MODEL FOR THE FORMATION OF SKARNS AT MT. REED

DRAUGHTSMAN: J.W.	SCALE: NOT TO SCALE	DATE: OCT./81

6. DISCUSSION AND CONCLUSIONS (cont)

Altered massive limestone, with a high magnetite component, occurs in direct contact with the stock and has spatially associated skarn stockwork. Control on its distribution appears to have been locallized zones of fracturing within massive limestone formed at the stock's contact.

The model proposed here is one of selective replacement of favourable lithologies by hydrothermal solutions emanating from the Mt. Reed stock. The primary control on skarn formation is fracture zones in contact with the stock, and probably formed at the time of the stock's emplacement, which provide channelways for magmatic solutions.

The lack of continuity of skarn zones marginal to the Mt. Reed stock may reflect the lack of such channelways. The emplacement of an elongated prolate magma body into high crustal rocks will induce into the host rocks a fracture pattern that will have its greatest concentration within the apex zone directly above the intrusive. At Mt. Reed the apex zone has been removed by erosion except for a small area along the ridge emanating from the summit of Mt. Reed. In this area the widest skarn zones exist as probable remnants of a much larger zone of skarn development.

6. DISCUSSION AND CONCLUSIONS(cont)

Scheelite concentration at Mt. Reed is not concentrated in any one skarn type or associated with any single skarn mineral. The introduction of tungsten-rich (and molybdenum-rich) solutions appears to have occurred after the main skarn zones had formed. Evidence for this is:

1. scheelite is concentrated in fractures cutting all skarn types and the concentration of scheelite decreases away from the fractures, and

2. high scheelite concentrations occur in biotite rich veins. The biotite, a retrograde product of pre-existing skarn minerals, indicates a hydrothermal fluid, that was out of equilibrium with the earlier formed skarn minerals, passed through the system.

There is a wide variation in the abundance of pyrrhotite and pyrite in peripheral or fringe zones to the main silicate skarns. Sphalerite with minor chalcopyrite is concentrated in an erratic manner within this fringe zone.

Concentrations of molybdenite are erratically distributed in the granite stock, the skarn zones and in the hornfels. The possibility of economic concentration of molybdenite within the Mt. Reed stock are low. Features characteristic of granite molybdenite systems, mainly significant changes in the mineralogy of the source pluton as a result of hydrothermal

6. DISCUSSION AND CONCLUSIONS(cont)

alteration, are lacking. No potassic or silicic assemblage has been idenitified. Only rare, widely spaced quartz-sericite veins and discontinuous areas of clay alteration exist within the margin zone of the stock. The probability exists that the Mt. Reed and Mt. Haskin stocks represent cylindrical cupolas above a batholithic chamber. The lack of favourable criteria (Mutschler et al, 1981) within the stocks is discouraging for a molybdenite deposit at depth.

In conclusion:

1. Skarn zones, associated with the Mt. Reed stock, are limited in size and therefore have a low economic potential.
2. Scheelite mineralization post-dates the formation of the skarn zones.
3. The potential for an economic concentration of molybdenite is low.
4. No further work is recommended on the Mt. Reed option.

REFERENCES

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5. Monger, J.W.H., Souther, J.G., and Gabrielse, H., 1972, Evolution of Canadian Cordillera: A plate tectonic model, Amer., Jour. Sci., 272, pp. 577 - 602.

6. Mutschler, F.E., Wright, E.G., Ludington, S., and Keith, S.B., 1981, Granite molybdenite system, Econ. Geol., 76, pp. 874 - 897.

APPENDICES I

GEOLOGY SECTIONS

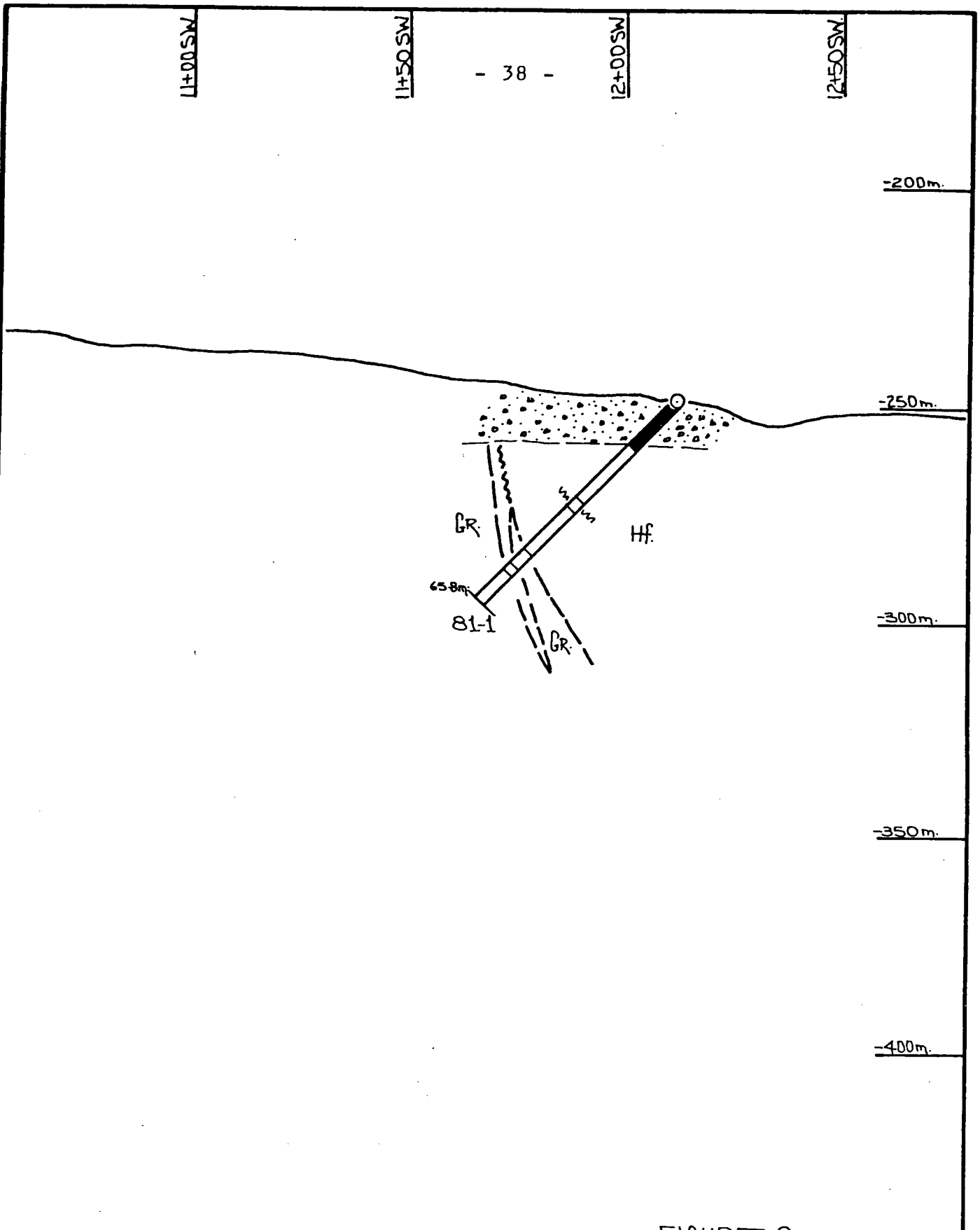


FIGURE 9.

CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

GEOLOGY SECTION
18+50 NW

DRAUGHTSMAN: JJW	SCALE: 1:1250	DATE: Sept/81

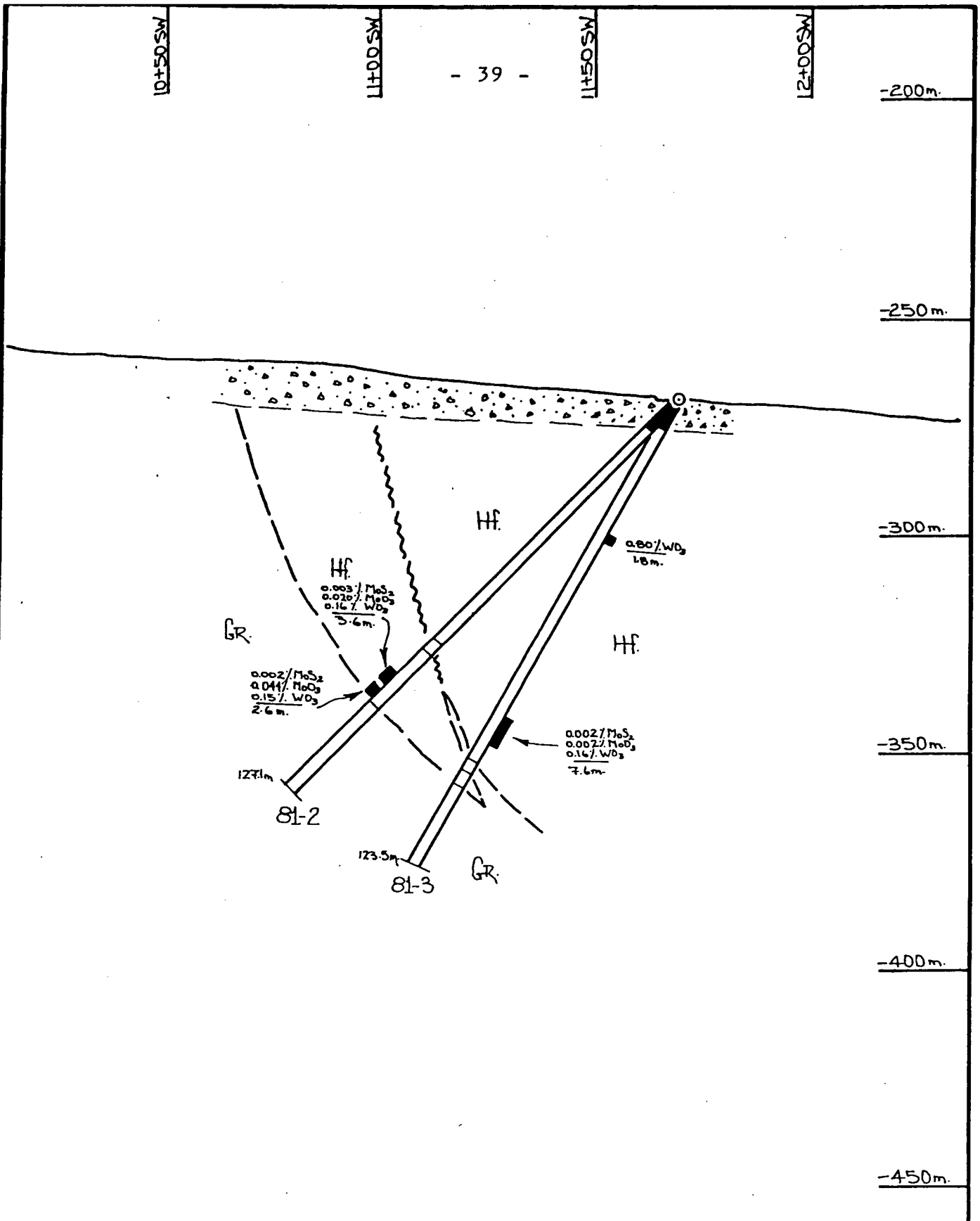


FIGURE 10

CANADIAN SUPERIOR EXPLORATION LIMITED SMITHERS REGIONAL OFFICE		
GEOLOGY SECTION 20+00 NW		
DRAUGHTSMAN: JJR	SCALE: 1:1250	DATE: Sept./81

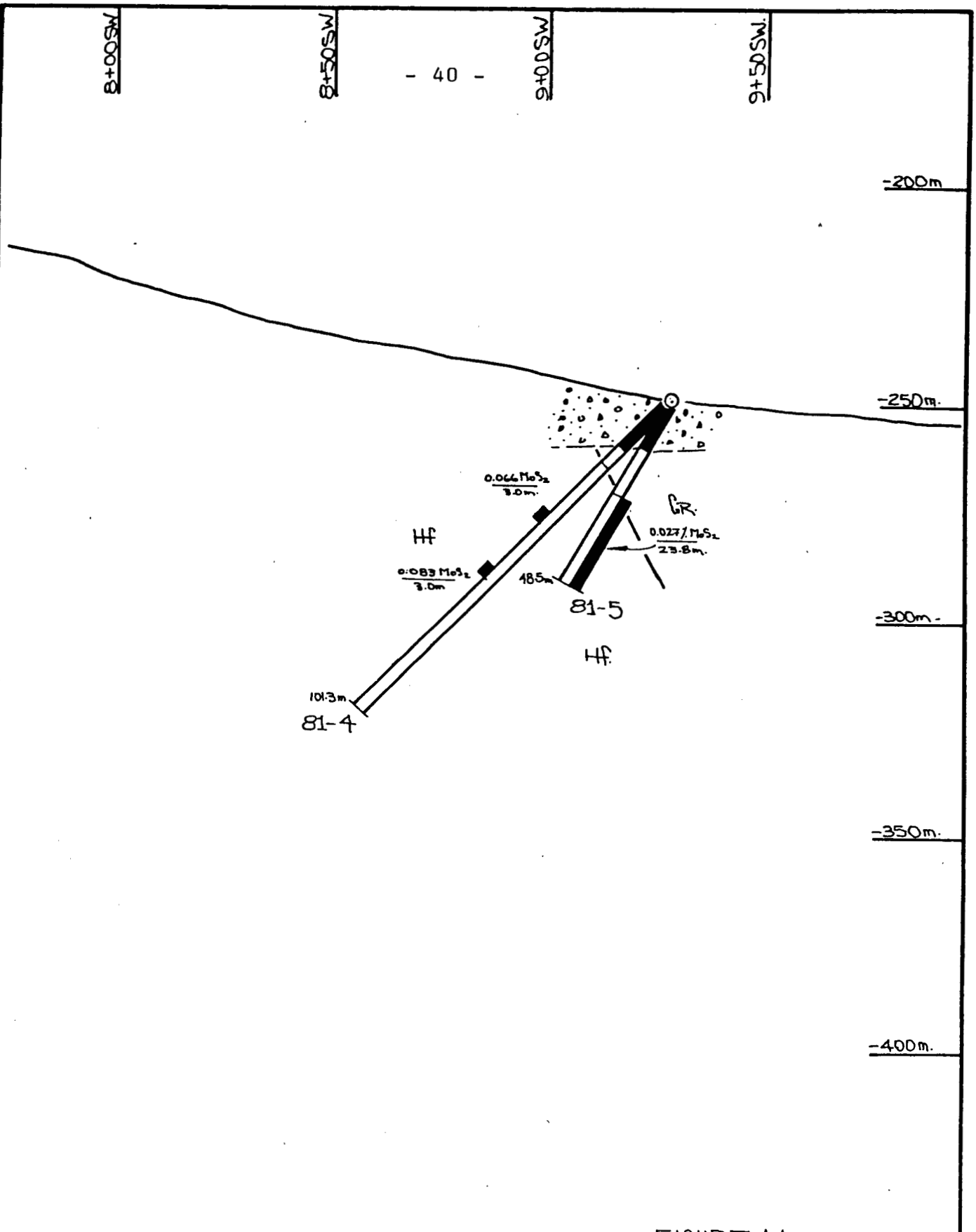


FIGURE 11.

CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

GEOLOGY SECTION
20+00 NW

DRAUGHTSMAN: JJW	SCALE: 1:1250	DATE: Sept./81

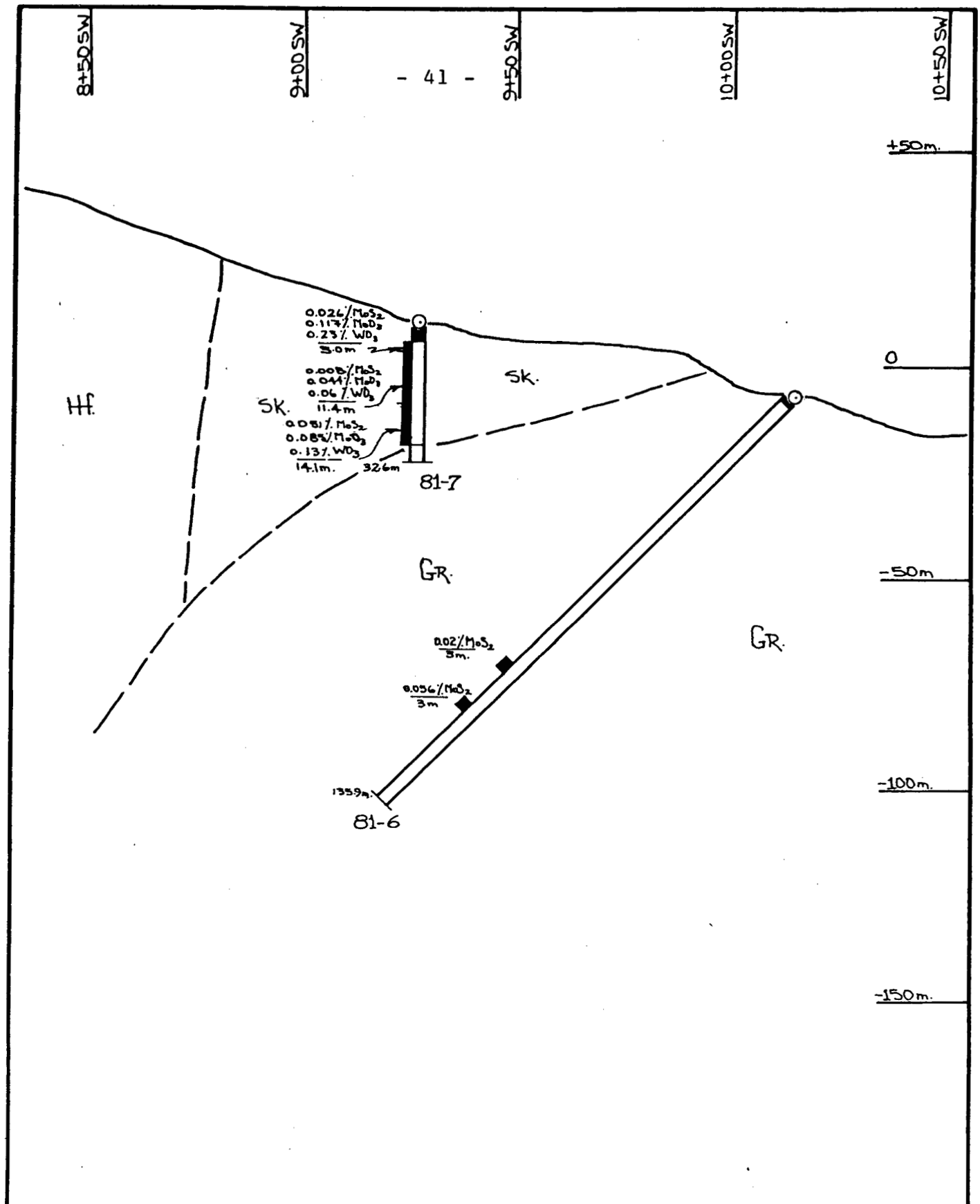


FIGURE 12.

CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

GEOLOGY SECTION
13+50 NW

DRAUGHTSMAN: JJW	SCALE: 1:1250	DATE: Sept. /81

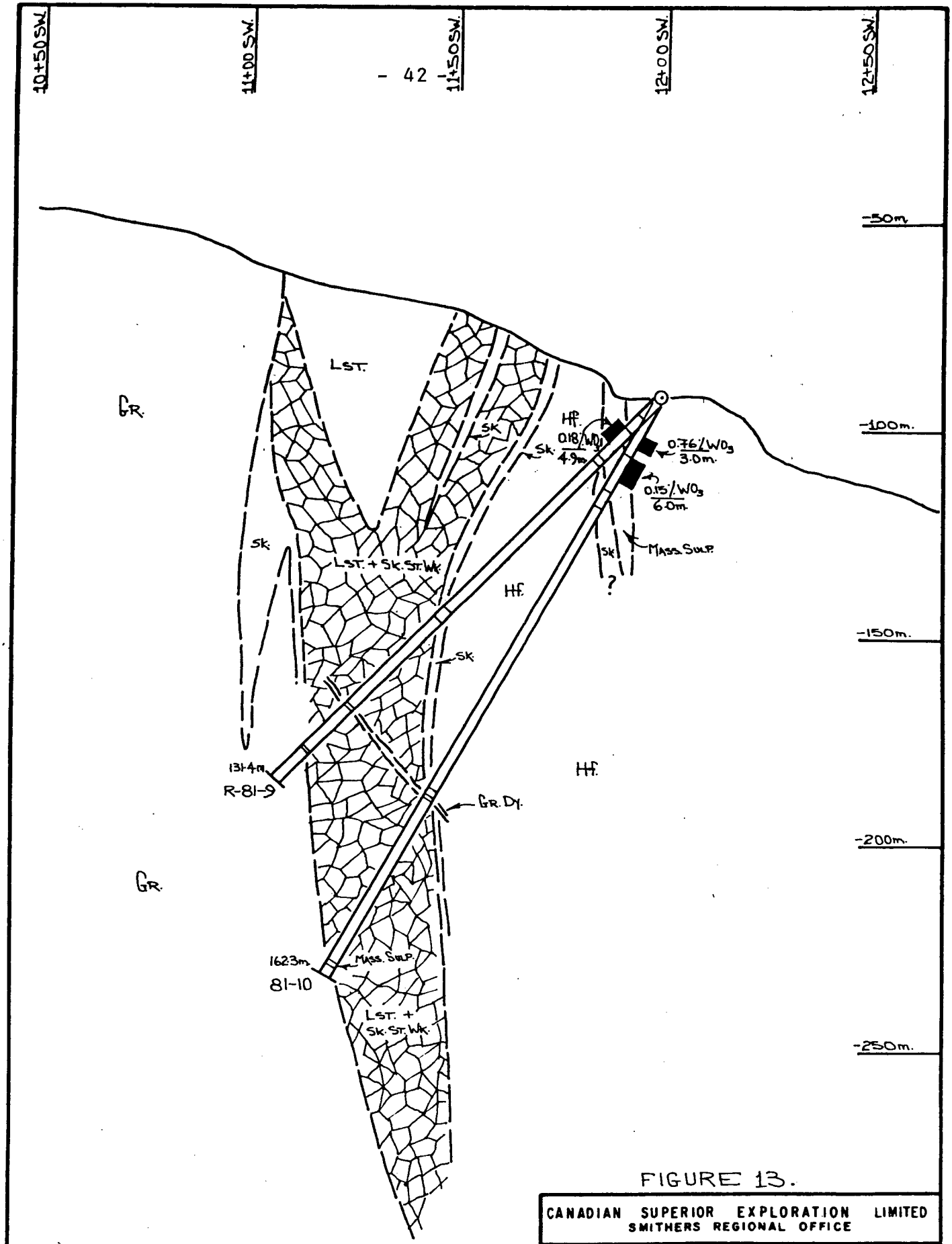


FIGURE 13.

CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

GEOLOGY SECTION
14+50NW

DRAUGHTSMAN: JJW | SCALE: 1:1250 | DATE: Sept./81.

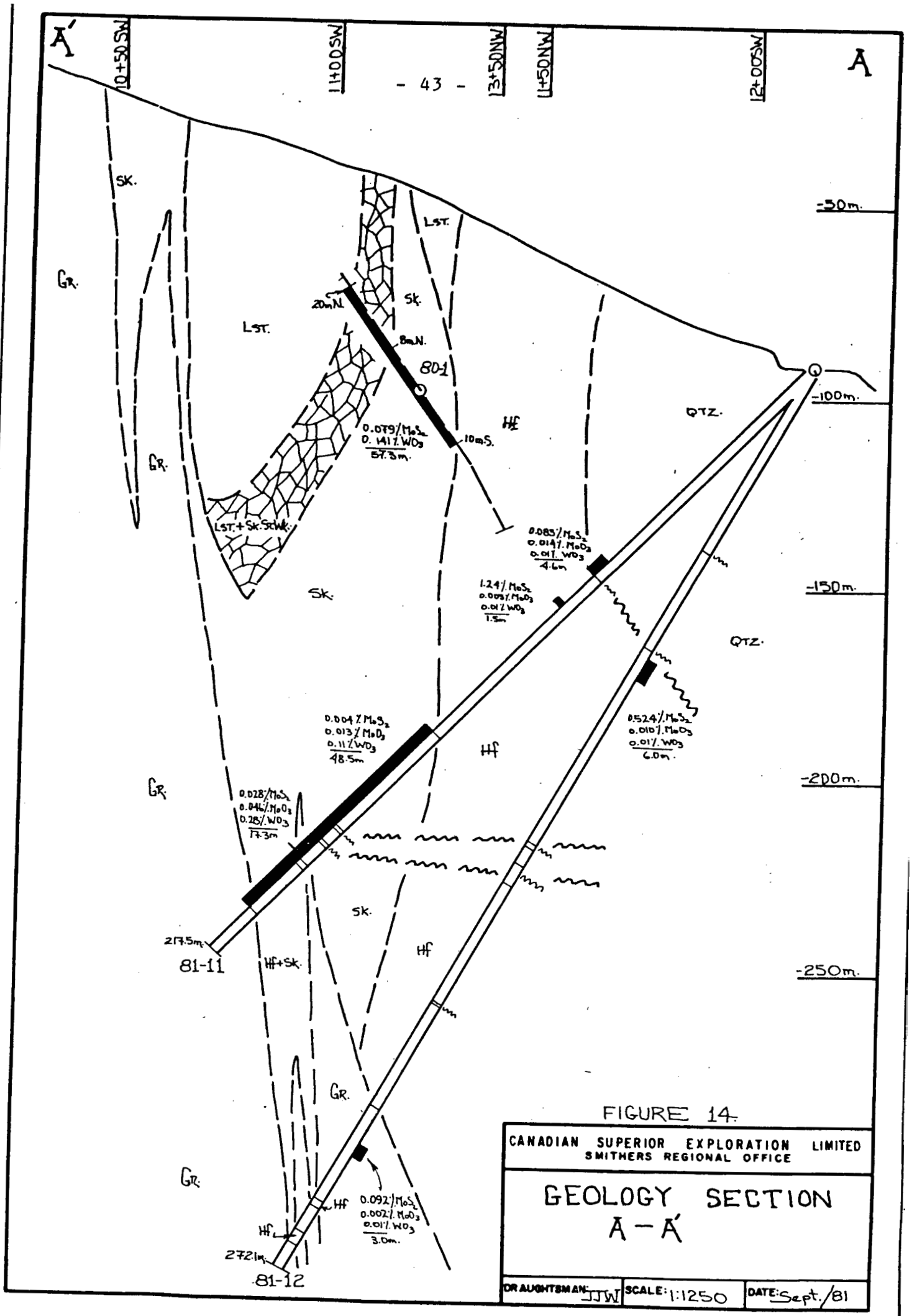


FIGURE 14.

CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

GEOLOGY SECTION A – A'

DR AUGHTSMAN: JJW	SCALE: 1:1250	DATE: Sept./81

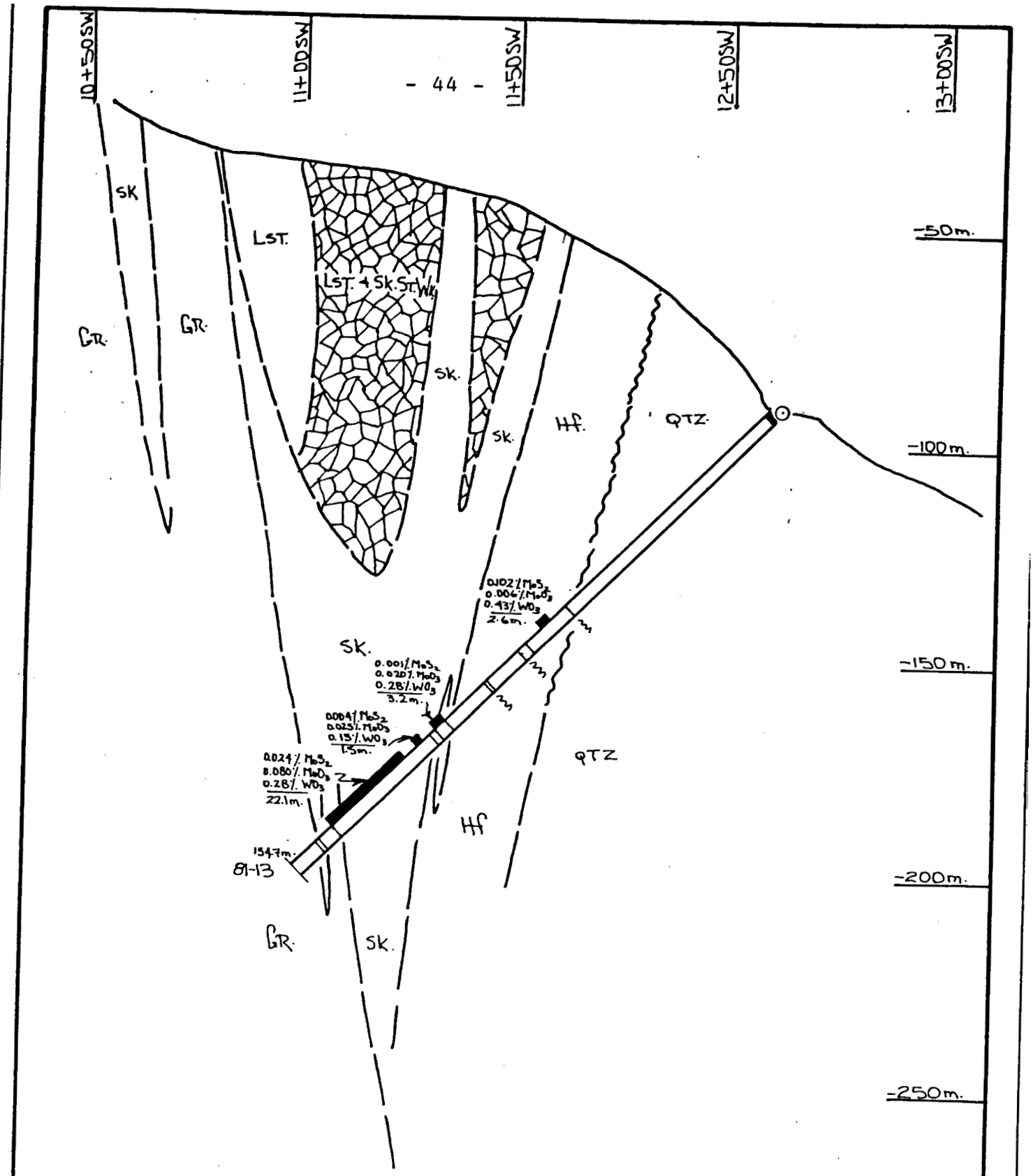


FIGURE 15.

CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

GEOLOGY SECTION
14+00 NW

DRAUGHTSMAN: JW	SCALE: 1:1250	DATE: Sept. /81

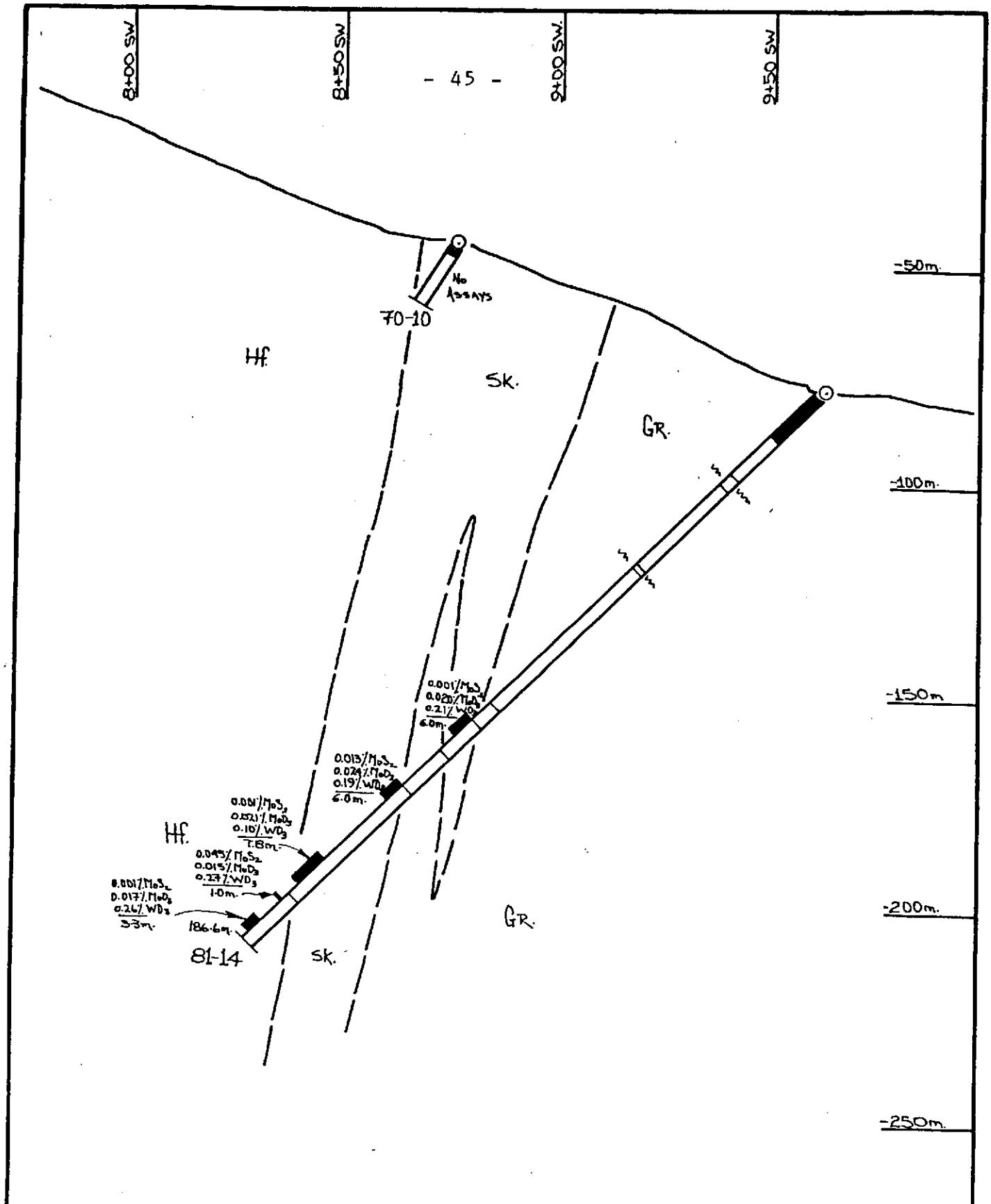


FIGURE 16.

CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

GEOLOGY SECTION
15+50 NW

DRAUGHTSMAN: JW.	SCALE: 1:1250	DATE: Sept. /81

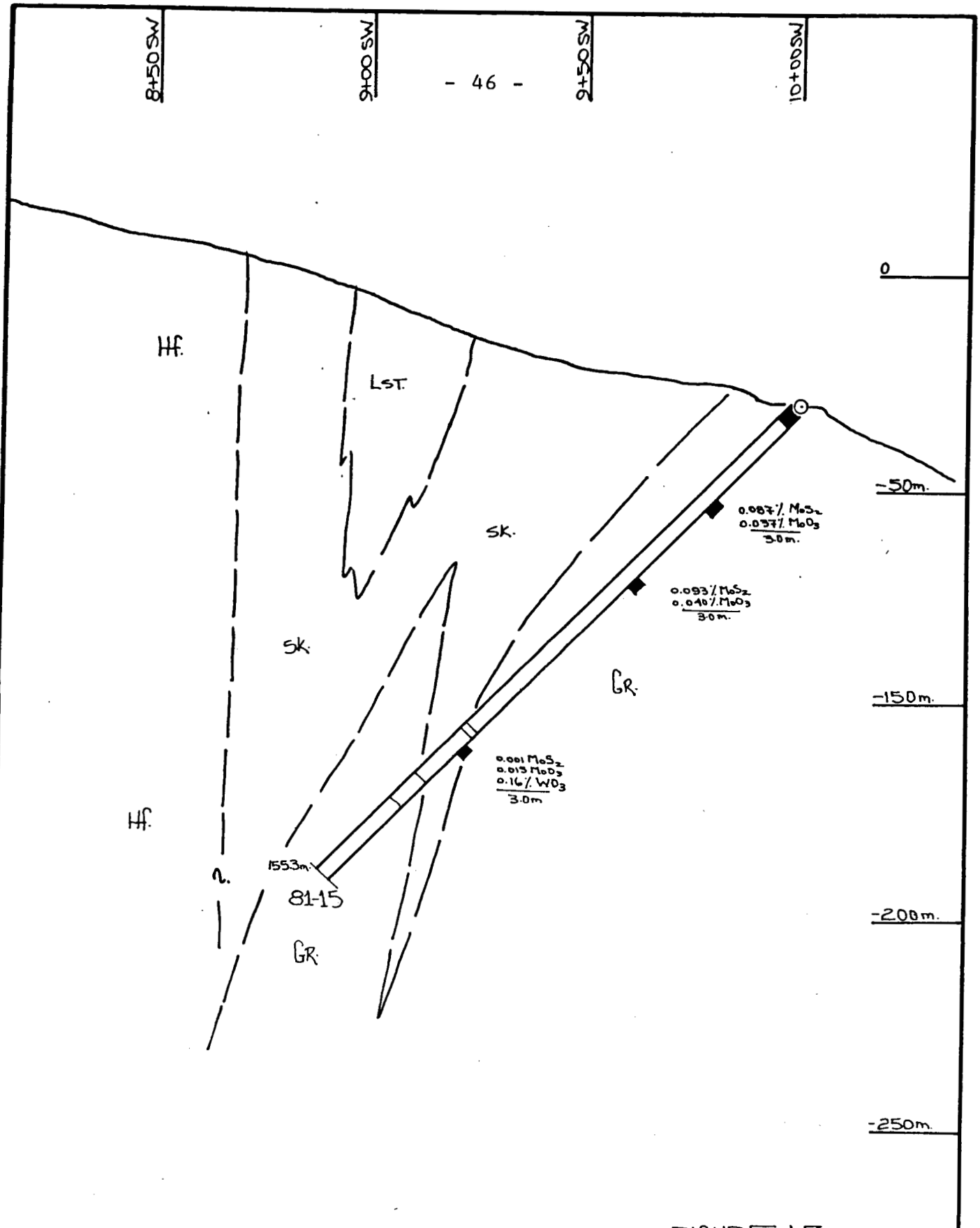


FIGURE 17

CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

GEOLOGY SECTION
14+50 NW

DRAUGHTSMAN: JJW	SCALE: 1:250	DATE: Sept. /81

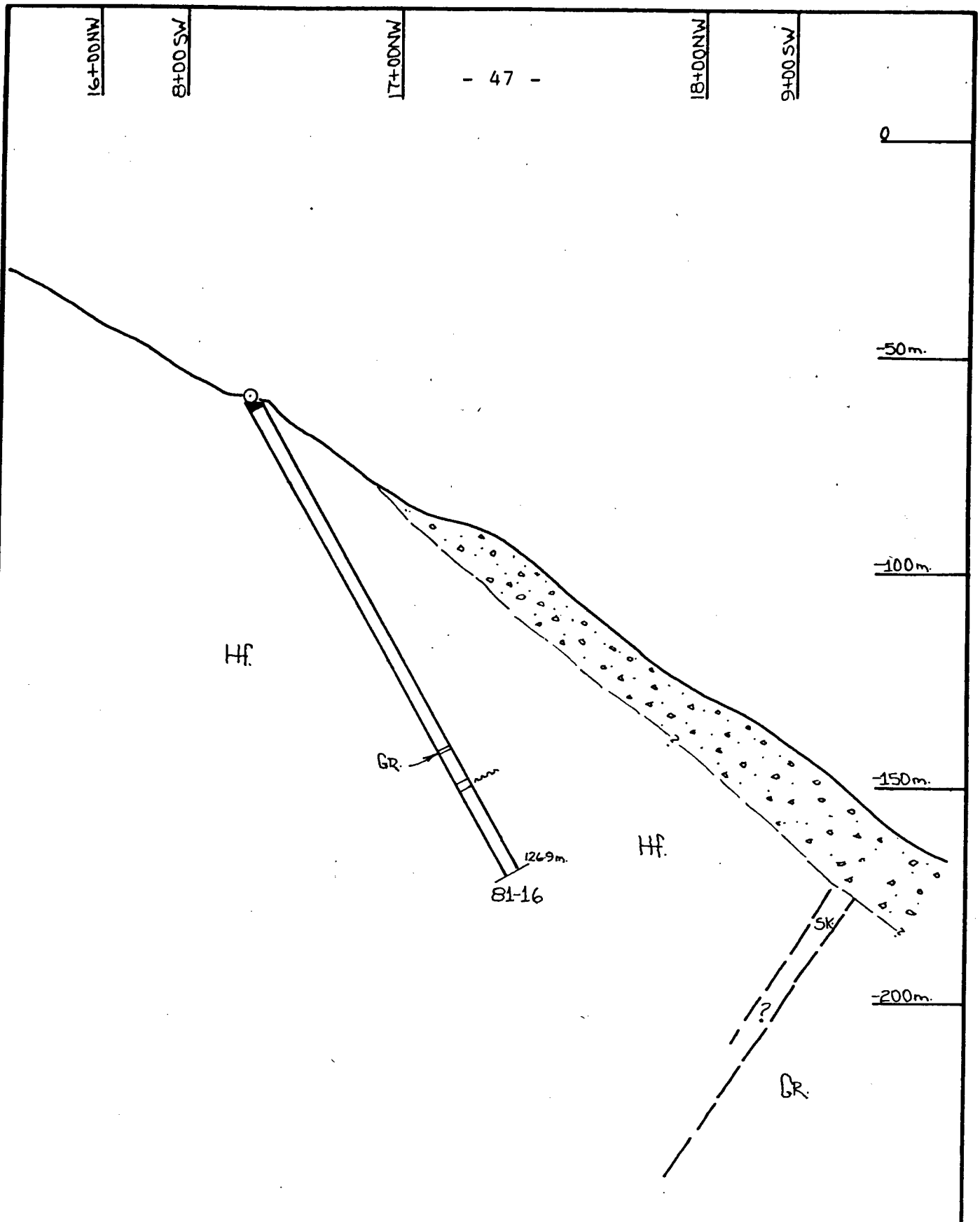


FIGURE 18.

CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

GEOLOGY SECTION
HOLE 81-16

DRAUGHTSMAN: JW	SCALE: 1:1250	DATE: Sept./81

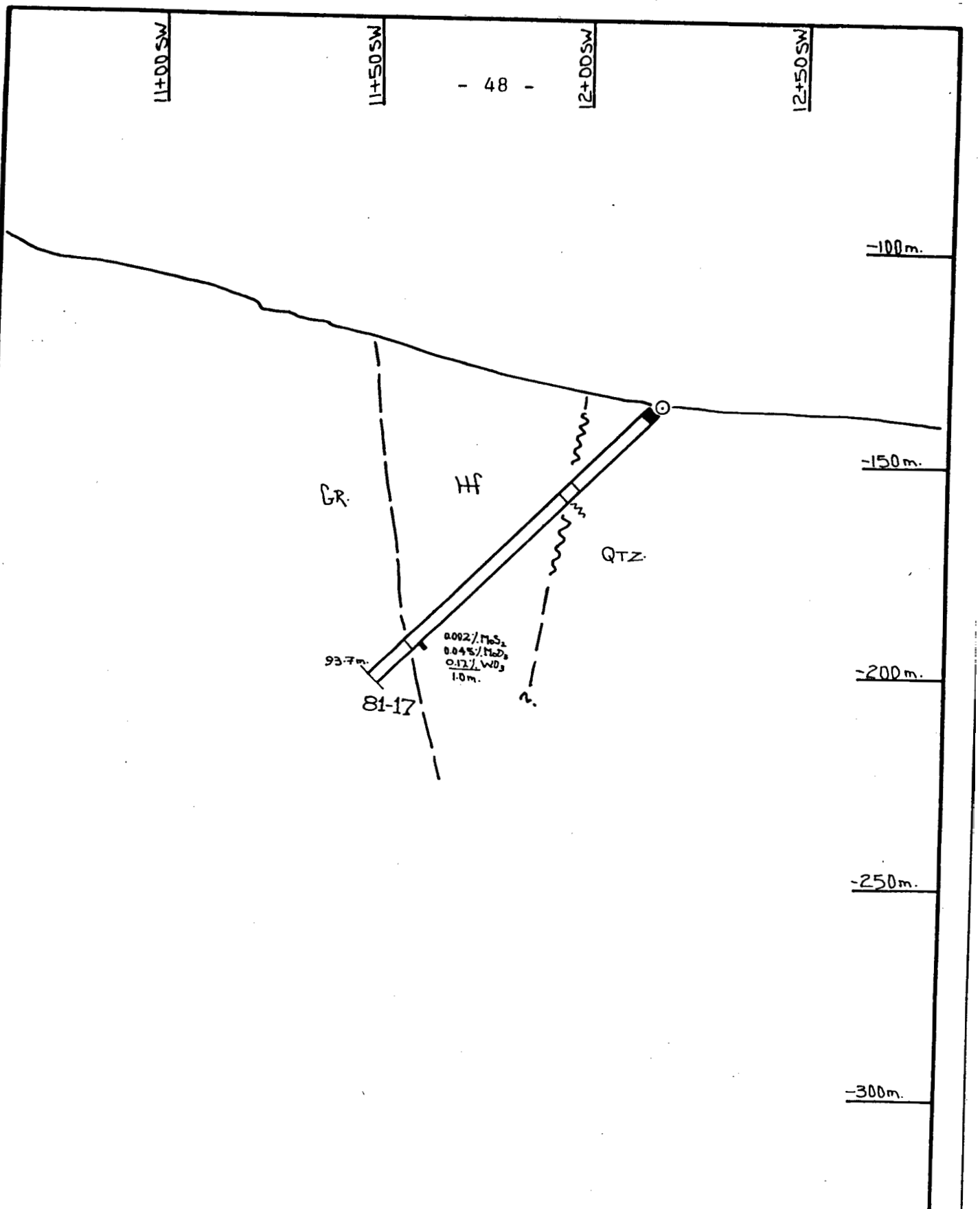


FIGURE 19.

CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

GEOLOGY SECTION
15+50 NW

DRAUGHTSMAN: JW	SCALE: 1:1250	DATE: Sept./81

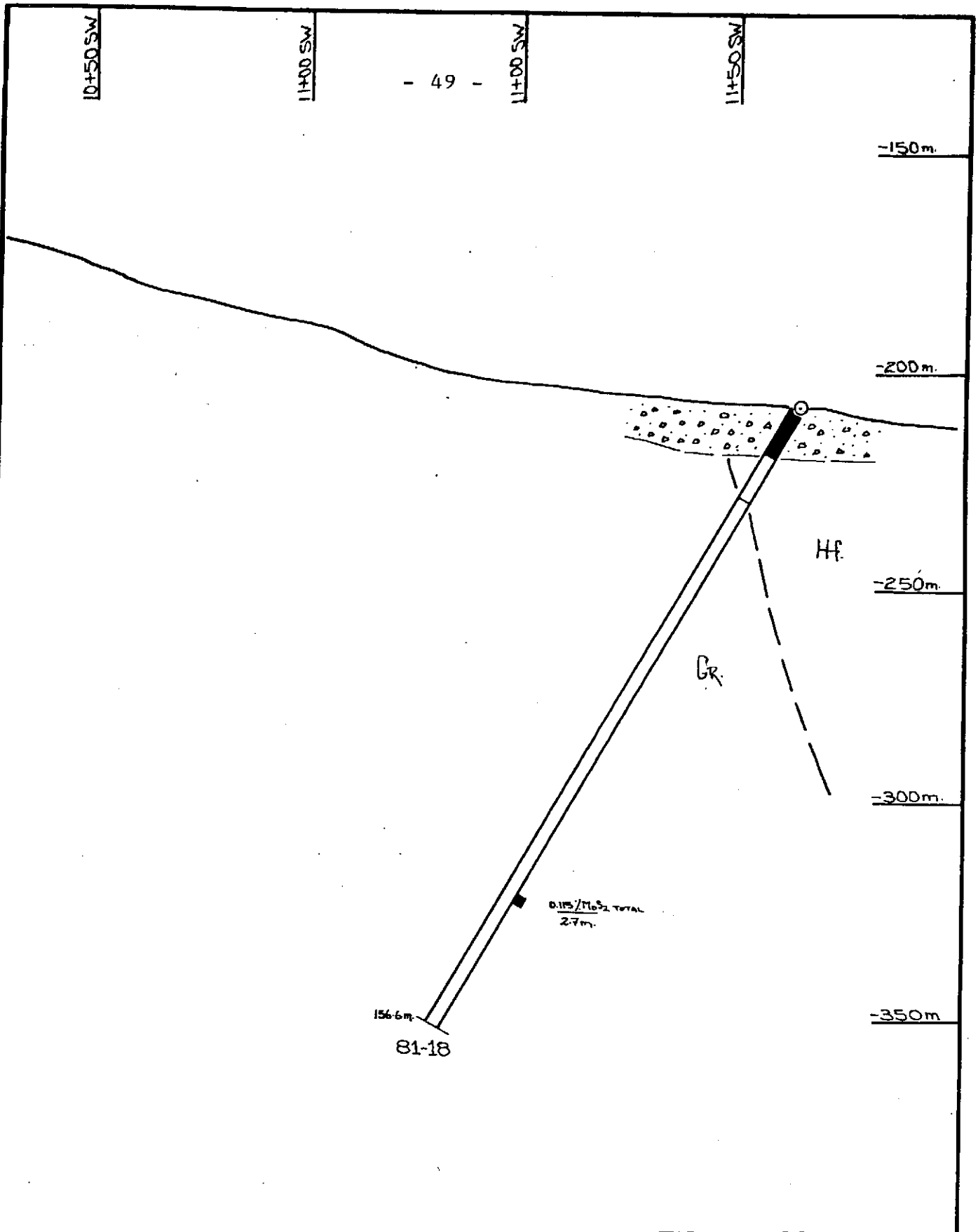


FIGURE 20.

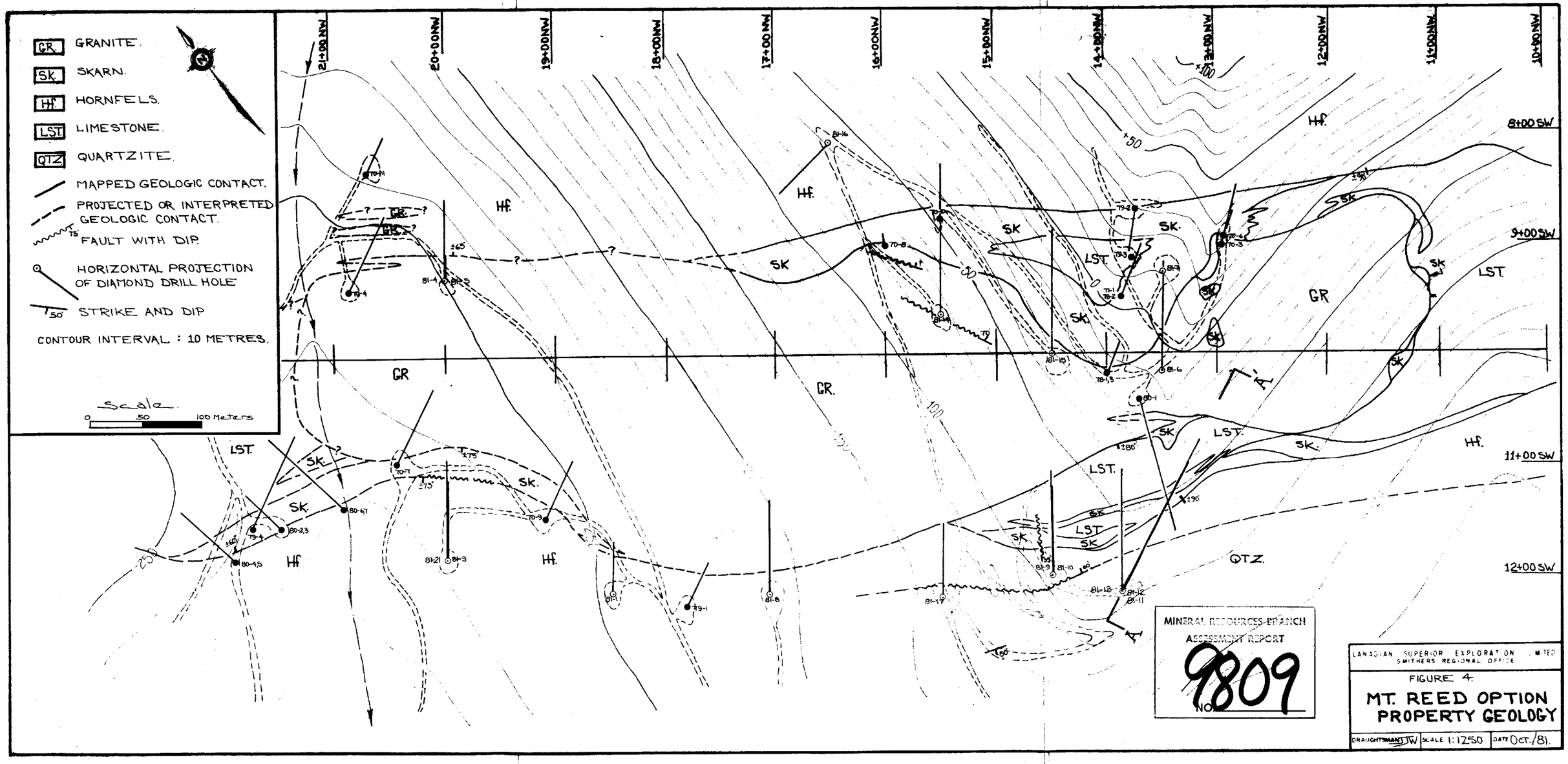
CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

GEOLOGY SECTION
17+00 NW

DRAUGHTSMAN: JJW | SCALE: 1:1250 | DATE: Sept./81

APPENDICES II

DRILL LOGS


GR. GRANITE.
SK. SKARN.
Hf. HORNFELS.
LST. LIMESTONE.
QTZ. QUARTZITE.
MAPPED GEOLOGIC CONTACT.
PROJECTED OR INTERPRETED GEOLOGIC CONTACT.
FAULT WITH DIP.
HORIZONTAL PROJECTION OF DIAMOND DRILL HOLE
STRIKE AND DIP
CONTOUR INTERVAL : 10 METRES.
Scale
0 50 100 Meters
21+00NW
20+00NW
19+00NW
18+00NW
17+00NW
16+00NW
15+00NW
14+00NW
13+00NW
12+00NW
11+00NW
10+00NW
8+00SW
9+00SW
11+00SW
12+00SW
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 9809
CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE
FIGURE 4.
MT. REED OPTION
PROPERTY GEOLOGY
DRAUGHTSMAN JW
SCALE 1:1250
DATE Oct./81.

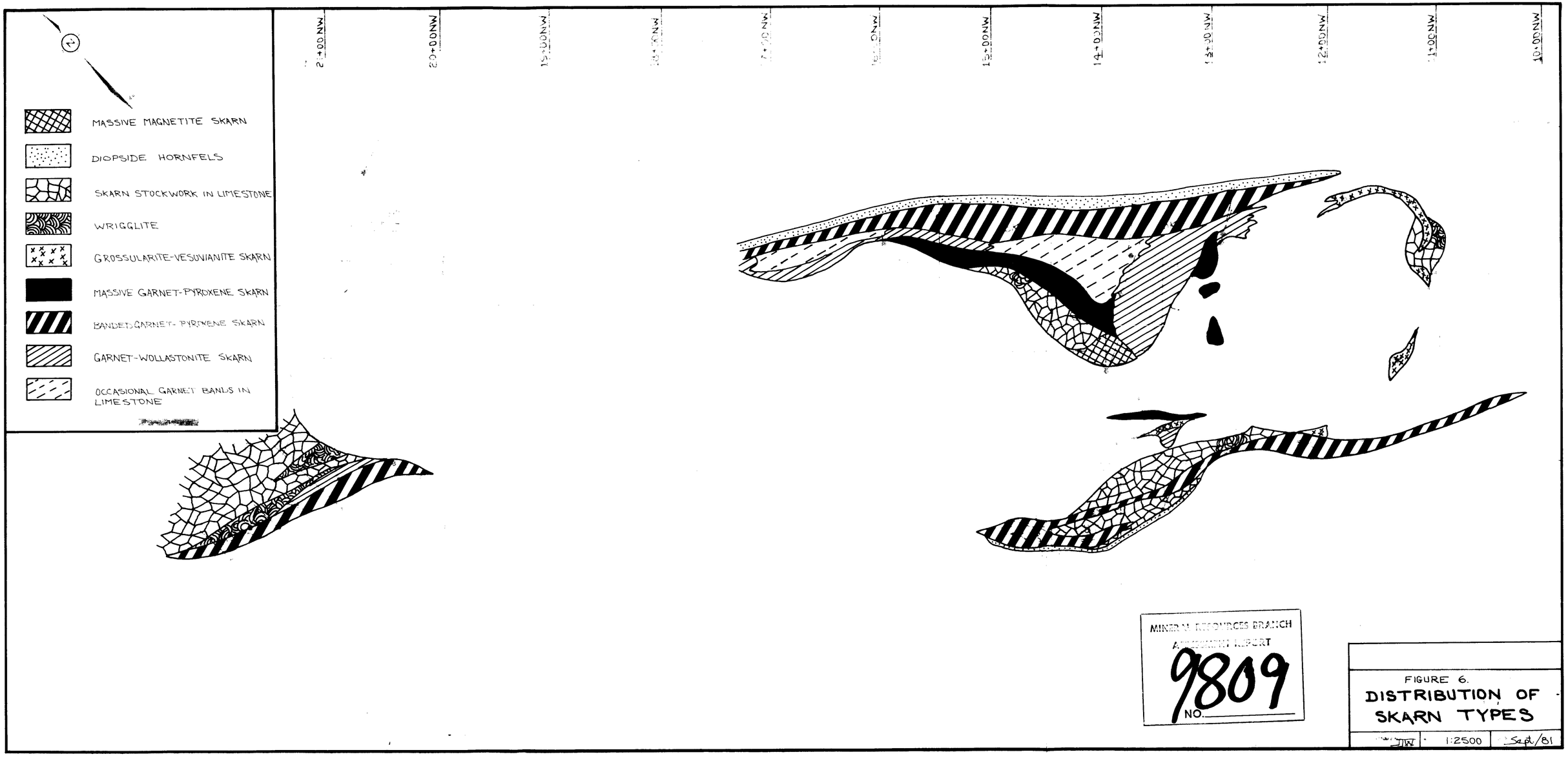


FIGURE 6.
DISTRIBUTION OF SKARN TYPES

JW	1:2500	Sept/81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-1	TOTAL DEPTH: 217' (65.8m)	SHEET Nº: 1
HOLE LOCATION: 18+50NW, 1213.1SW. / AZIMUTH: 045°	DIP: -45° / COLLAR ELEVATION: -248.54m.	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
						casing						
Hornfels		50		Massive to Spotted Hornfels	grey	quartz, biotite, cordierite	fine	massive	light + dark bands	90° to 70° to C.A.	gradual	spotted appearance due to oval cordierite
		73		Siliceous Hornfels	purple brown to grey	" " "	"					massive
		106		fault gouge	green grey	clay, chlorite, hornfels fragments	"					gouge
		117		Spotted Biotite Hornfels	brown to grey	quartz biotite cordierite	"					
		134		Hornfels Breccia	red-brown	" " " chlorite	coarse breccia					Breccia, angular hornfels in a qtz, clay matrix
				Clarge qtz vein Biotite Hornfels	light purple red brown	" "	fine					stockwork qtz veining

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-1	TOTAL DEPTH:	SHEET Nº: 2
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Granite		161.5 (49.2)	90%	Altered Biotite Granite	light green	biotite 3 % plagioclase 35 % K-feldspar 35 % quartz 30 %	med				sharp 90° to C.A.	Megacrystic
		176.5 (53.8)	100%	Hornfels	dark brown	quartz, biotite	fine				90° sharp	spotted, cut by qtz veins
		183 (55.8)	98%	Altered Biotite Granite	light green	(as above)	med.				chill contact	Megacrystic
		217 (66.2)				End of Hole						

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-1	CORE SIZE: NQ	DIP TESTS: 217' = 49°
OBJECTIVE: test continuity of southwest skarn	STARTED: June 4 / 81	COMPLETED: June 5 / 81	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
rusty fractures			py. sc.	fractures veins	<1%	qtz, chlorite	veins	1%	50-60	.001	.001	.02	.01		veins 1cm to <1mm hairline veins of scheelite within quartz
									60-70	"	"	.02	"		
Silicified (bleached) cordierite	spots		po. . . . . Zn. . . . . Py Sc	blebs vein + stockwork		qtz, chlorite	"	"	70-80	"	"	"	"		- fine, hard hornfels, siliceous in places - cordierite spots + biotite spots
									80-90	"	"	"	"		
									90-100	"	"	"	"		
									100-107	"	"	.05	"		
chlorite, clay	fractures		—						107-117	"	"	.01	"		fault, rounded fragments of hornfels in a clay matrix
cordierite chlorite	fractures	20% 5%	py	veins	minor	quartz, calcite chlorite	veins	3-5%	117-127	"	"	"	"		
									127-134	"	"	"	"		
clay			mo py	veins	1%	quartz	veins + matrix	10%	134-142	.003	"	"	"		
clay	adjacent to qtz veins	3%	mo. py.	qtz veins	1%	quartz diopside	veins	15%	142-145	.009	"	"	"		cut by qtz veins and granite dikes
									145-150	.013	"	"	"		
									150-155	.007	"	"	"		
									155-161.5	.010	"	"	"		

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE: R-81-1	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	WO_3	MoS_2	MoO_3	Sn		
clay alteration weakly consolidated	feldspars	50%	mo. py.	rosettes along fractures	trace				161.5-171	.01	.002	.001	.01		most of the core is unconsolidated
									171-176.5	"	.022	"	"		
clay + chlorite	fractures		py	stringers	<1%	qtz.	veins	5%	176.5-183.5	"	.01	"	"		
extreme clay alteration	feldspars + fractures	50-80%	py mo	diss. qtz vein	trace trace	"	"	minor	183.5 - 193.5	"	.005	"	"		minor hornfels inclusions extremely altered.
									193.5-203.5	"	.001	"	"		
									203.5-213.5	"	.003	"	"		
			End of Hole												

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-2	TOTAL DEPTH: 419' (127.1m)	SHEET Nº: 1
HOLE LOCATION: 20+00N.W., 11+70.1SW. / AZIMUTH: 045°	DIP: -45° / COLLAR ELEVATION: -268.08 m	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
						casing						
Hornfels		30' (9.15)		Spotted Hornfels	grey	quartz, biotite, cordierite	fine with 1cm spots					spotted
		42' (12.8)		Hornfels Breccia	dark brown to red green	" "	coarse breccia					stockwork quartz brecciated
				Biotite Hornfels	dark brown to grey	" " "	fine					massive to spotted hornfels
		99' (30.2)		Siliceous Hornfels	med brown to green	" " "	"					
		108' (32.9)		Biotite Hornfels	red brown to grey	" " "	"					spotted sections
		145 (44.2)		Siliceous Hornfels	purple to brown	" " "	"		fine black laminations	25° to C.A.		

PAGE ..... OF ..... Nº .....

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt Reed P-172	DRILL HOLE Nº: 81-2	CORE SIZE: NQ	DIP TESTS: 100' = 44° 419' = 47°
OBJECTIVE: test continuity of southwest skarn	STARTED: June 6 /1981	COMPLETED: June 8 1981	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	WO_3	MoS_2	MoO_3	Zn	Sn	
bleached along fractures		1%	py	fractures	<1%	quartz calcite	veins		32-42	.01	.002	.001		.01	
fault gouge			mo., py.	stockwork	<1%	quartz veins	2 cm stockwork	5%	42-52	.03	.002	"		"	
bleached (siliceous) particularly around carbonate veins			mo, py sc, ZnS, magnetite	fractures + quartz veins	(2% py.) minor sc.	calcite chlorite quartz			52-62	.01	.001	"	.02	"	biotite rims cordierite spots. ie. Biotite appears to replace cordieri
									62-72	"	.003	"	"	"	
									72-82	"	.002	"	.06	"	
									82-90	"	.003	"	.02	"	
									90-99	.03	.005	"	.08	"	
bleached sections		70%	ZnS, sc.	fractures	minor				99-108	.01	.004	"	.02	"	
amphibole along fractures			sc.	qtz. veins	"	quartz veining	1mm-1cm	1%	108-118	.03	.003	"	.1	"	fractures contain a dark mineral, hornblende
			py.		1%	calcite	up to 5cm	.5%	118-128	.02	.005	"	.02	"	
bleached around carbonate veins									128-138	.02	.004	"		"	
									138-145	.03	.004	"		"	
amphibole selvages to quartz veins			sc. py. ZnS.	fractures	minor	quartz + calcite	veins		145-155	.02	.002	"	.04	"	calcite-py veins cut quartz veins

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 2
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
hornfels		165 (50.3)										
				Biotite Hornfels	dark brown to purple	quartz, biotite, cordierite	fine		spotted layers + fine black lamination	variable 10°-70° to C.A.	gradual	spotted to massive bleached toward breccia
		207 (63.1)										
				Hornfels Breccia	purple	" " "	"		" "	30°-60° to C.A.		Angular hornfels fragments in a carbonate matrix
		216 (65.9)										
				Biotite Hornfels	"	" " "	"		" "	60°-80° to C.A.	sharp	15 cm. spotted bands in predominately massive hornfels 1mm cordierite and biotite porphyroblasts
		264.5 (80.6)										
				Biotite Spotted Hornfels	brown	" " dolomite	fine with 1mm spots				fault	distinct 1mm intense biotite porphyroblast altered + veined toward fault
		288 (87.8)										
				fault gouge	white + light green	clay, dolomite, calcite, chlorite, graphite, quartz	coarse				sharp, fault	cataclastic
		300 (91.5)										
Limestone				Magnetite - Diopside Skarn Breccia	yellow green + red	diopside 60% magnetite hemeatite, dolomite, calcite	coarse breccia				gradual	intense veining + brecciation
		312 (95.1)										
				Chlorite shear zone	dark green	chlorite, clay, diopside	coarse				sharp 35° to C.A.	sheared
		317.5 (96.8)										

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CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-2	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	WO_3	MoS_2	MoO_3	Zn	Sn	
									155-165	.01	.003	.001	.02	.01	
bleached in areas of calcite veining			py.	fractures	trace	galena is found in one, 9cm calcite vein	open space filling	5% calcite	165-175	.01	.004	"	.02	"	
									175-185	.02	.002	"		"	
			galena, py, sc, mo.	calcite + quartz veins	trace	quartz-mo	1mm veins	<5%	185-195	"	.003	"		"	
									195-207	"	.002	"		"	
siliceous (bleached)			py sc	calcite quartz		calcite veining	stockwork + breccia	20%	207-216	.01	.002	"		"	
			" "	quartz amphibole veins	trace	quartz veins with amphibole selvages			216-226	"	.008	"		1	
									226-236	"	.002	"		2	
									236-246	"	.001	"		2	
									246-256	"	"	"		1	
									256-264.5	"	"	"		3	
chlorite along fractures			py	with calcite and stockwork	<1%	calcite - chlorite	veins		264.5-276.5	"	.006	"		1	
									276.5-283	"	.001	"		1	
									283-288	"	.005	.006		1	
fault breccia chlorite + clay		90%	mo	stringers	trace	"	stockwork	3%	288-300	.02	.013	.003		3	
metasomatism	skarn	100%	py, magnetite sc. (yellow fluor)	veins + diss	<.5%	calcite-hemeatite skarn	veins to stockwork	15%	300-305	.18	.002	.024		75	brecciated texture
									305-312	.15	.003	.017		300	
chlorite shear zone		100%							312-317.5	.06	.005	.007		24	fault zone

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-2	TOTAL DEPTH:	SHEET Nº: 3
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
		326 (99.4)	13%	(wrigglite) Magnetite-Diopside Skarn	green + black	Diopside Magnetite						swirly banding
Granite		329 (100.3)	40%	clay Leucogranite		Leucogranite up to 1% biotite, often none	med				gradual	megacrystic
		339 (103.4)		Biotite Granite		quartz phenocrysts	.5 cm					
		341 (104)		Leucogranite		K-feldspar phenocrysts	up to 3 cm.					
						plagioclase (altered to a green chlorite mineral)	2 mm					
						groundmass of quartz + feldspar						
		365.5		Biotite Granite		2-4 % biotite					gradual	
		379		Leucogranite		0% biotite					distinct	
				Biotite Granite		Biotite Granite	med					megacrystic
						3 % biotite						
						35 % plagioclase						
				Leucogranite		35 % K-feldspar						
						30 % quartz						
		419 (127.7)				End of Hole						

PAGE OF Nº

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-2	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	WO_3	MoS_2	MoO_3	Sn		
metasomatism		60%	sc. (yellow fluor)	diss	<.5%	diopside, magnetite	swirly skarn	60%	317.5-326	.15	.002	.044	200		
clay gouge	fault	70%													
no biotite green clay mineral replaces plagioclase disintegrates easily			mo. py.	with quartz vein	minor	quartz + calcite veins		1%	329-339	.04	.001	.001	10		leucogranite is the altered equivilent of biotite granite. It is cut by carbonate veins and contains minor mo.
									351-361	.01	"	"	12		
clay green clay mineral replaces plagioclase			py	diss		occasional calcite vein.			370-379	.01	"	"	1		changes in granite alteration is gradual.
									387-397	.01	"	"	1		
						End of Hole									

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-3	TOTAL DEPTH: 407' (123.5m)	SHEET Nº: 1
HOLE LOCATION: 20+00NW, 11+70 SW. / AZIMUTH: 045°	DIP: -60° / COLLAR ELEVATION: -268.08m	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
				casing								
Hornfels		25 (7.6)	100%	Biotite Hornfels	red brown	qtz, biot, cordierite	fine		—	—	gradual	massive + spotted
		31 (9.45)	100%	Brecciated Hornfels + fault gouge	purple + green	qtz, biot, clay					gradual	brecciated, sheared
		42 (12.8)	100%	Biotite Hornfels	brown to grey	qtz, biot, cordierite	fine				indistinct	Interbedded cordierite and massive 6" to 12" layers
		82 (25)	100%	Black Mica Hornfels	Black + light brown	qtz, biot, serpentine along fractures	¼ to med				distinct	mottled + cut by veins
		90 (27.4)	100%	Biotite-Cordierite Hornfels	grey-purple to black	qtz, biot, cordierite	fine w ½ cm spots		cordierite layers	60° to C.A.	gradual	cordierite + biotite spots Some sections massive
		116 (35.4)	100%	Black Mica Hornfels	Black + light brown	qtz, biotite	fine to med		color changes	90° to C.A.	distinct	patches of black, coarse biotite, cut by qtz veins
		128.5 (39.2)	100%	Biotite-Cordierite Hornfels	purple-grey	qtz, biotite, cordierite, muscovite	fine		cordierite layers	45° to 60° to C.A.	indistinct gradual	spotted + massive intb.

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed.	DRILL HOLE Nº: 81-3	CORE SIZE: N.Q	DIP TESTS: 100' = 59° 407' = 59°
OBJECTIVE:	STARTED: June 8/81	COMPLETED: June 10/81	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS					COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	% MoS_2	% MoO_3	% WO_3	ppm Sn	
			py.						25-31	.002	.001	.01	1	calcite veins cut qtz veins
clay, chlorite	fracture to gouge	up to 25% clay	py, sc	w̄ qz. cal veins	1% py. trace sc.	calcite qtz-chlorite	<1mm up to 4cm	2% <.5%						
chlorite, calcite	fracture	2%	py, trace mo	py stK + vein	<1%	qtz, calcite	veins	1%	42-52	"	"	"	"	
									52-62	.001	"	"	"	
cordierite spots				mo in one shear	trace				62-72	"	"	"	"	
									72-82	"	"	"	"	
biot rims to veins	patches + rimming veins	20%	sc. py	py → cal.V. sc.→qtz V.	1% <1%	qtz, calcite	.5 to 1cm V.	1% qz. .5% cal.	82-90	"	"	.07	"	calcite-py veins cut qtz-sc veins.
cordierite spots			po py sc.	vein	minor	" "		1% qtz. .5% cal.	90-104	"	"	.01	"	
									104-110	"	"	.04	"	
									110-116	.003	"	.03	"	
biot rims to qtz. veins	"	5%	sc (blue fluorescence)	euhedral crystals w̄ qtz-biot V.	1% of veins	qtz-biotite veins	up to 4" biot clusters	10%	116-122	.001	"	.8	2	qtz veins are rimmed w̄ coarse black biot. and sc
									122-128.5	"	"	.02	1	
cordierite spots			py	fractures stringers.		calcite qtz	veins	2%	128.5-138	.004	"	.01	"	
									138-148	.001	"	"	"	
									148-158	"	"	"	"	

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-3	TOTAL DEPTH: 407'	SHEET Nº: 2
HOLE LOCATION:	AZIMUTH: 045°	DIP: 60°	COLLAR ELEVATION:
SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill		

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
				carbonate veining					cordierite layers + fine laminated biot beds	60% to C.A.		Alternating spotted and massive intervals bleached intervals are cut by calcite veins
				carbonate veining bleached hornfels						30° to C.A. 50% to C.A.		
		264.5 (80.6)	100%	Biotite spotted Hornfels	grey w̄ black specks	qtz, biot	fine w̄ 1mm spots	evenly spotted	Biot	50° to C.A.	sheared	uniform biot spotting
		289 (88.1)	100%	Chlorite Stockwork Hornfels	light green cut by dark green to black veins	qtz, chlorite, calcite	coarse chlorite shears in fine Hornfels				lost clay zone	stockwork, brecciated
		314 (95.7)	100%	Granite Porphyry Dike	light green	qtz					sheared	megacrystic

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-3	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
cordierite spots bleaching in sections cut by carbonate veins			py	vein stk at 203		carbonate + quartz veins		1%	158-168	.001	.001	.01	1		Intense carbonate veining in sections 188.5'-200' 242'-264.5'
									178-188.5	.002	"	"	1		
									188.5-200	.001	"	"	"		calcite veins cut quartz veins
									200-210	"	"	"	"		
									210-220	"	"	"	2		biotite often rims cordierite spots
									220-230	"	"	"	"		
									230-242	"	"	"	"		
									242-252	"	"	"	"		
						Intense carbonate veining		5%	252-264.5	.002	"	"	.01		
Biotite porphyroblasts	1mm spots	30%	py	fractures	trace	carbonate - chlorite	fracture to stk.		264.5-274	"	"	"	"		
									274-289	"	.002	.19	"		
chlorite	veining to massive	25%	sc (blue Fluor)	diss + hairline fractures	<.5%	chlorite + calcite	vein stk.	25%	289-299	.001	.001	.12	"		calcite veins cut sc. fractures
						qtz			299-307	.002	"	.06	.02		
									307-314	.001	"	.01	.01		
			py	diss, vein											
clay	fractures					qtz	veins	<1%	314-324	.002	.015	.07	.02		highly altered

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt Reed P-172	DRILL HOLE Nº: 81-3	TOTAL DEPTH: 407'	SHEET Nº: 3
HOLE LOCATION: / AZIMUTH: 045°	DIP: 60° / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
limestone		324 (98.8) – 335 (102)	100%	Stockwork Skarn + Serpentine, Magnetite, Diop. Skarn	wh w Blk.+Grn veins + Blk + Grn.	calcite, diopside, magnetite, ludwigite, garnet, serpentine, hematite	med		—	—	distinct, altered	recrystallized Lmst. with Stockwork veining
Granite		335 (102) – 399.5 (122)		Leucogranite	light green	K-feld s 35%; qtz 30%; muscovite (occasional) <1%; plagioclase (altered to clay) 35%	med; phenocrysts up to 2 cm				distinct	megacrystic
		399.5 (122) – 407 (124.1)		Biotite Granite	grey	K-feldspar 35%, plagioclase 35%, qtz 30%, biotite 2%	med.					megacrystic
		407 (124.1)				End of Hole						

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-3	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_2	WO_3	Sn		
metasomatism	veins to massive skarn	20-100%	magnetite scheelite	massive diss	30% .5%	Skarn Scheelite is most abundant in garnet	massive to vein		330.5-335	.001	.001	.01	.04	.6	Diop veins cut smaller black tourmaline veins, calcite veins cut all skarn. Minor sc. in Stk.
-highly altered up to 337' ie. clay gouge - soft green clay mineral replaces feldspar		20-60%	mo. py. sc	diss + Fracture smears diss + stringer diss	<1%	carbonate veins contain mo + py (dolomite, qtz, musc)	2 cm	<1%	335-340	.01	.001	"	.02		massive skarn (327-328, 330.5-333.5) note absense of biotite
									340-350	.009	.001	"	.01		
									350-360	.002	.001	"	.01		
									360-370	.001	.001	"	.01		
clay alteration	feldspars	15%													

CSE-MTR '84

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CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-4	TOTAL DEPTH: 334′ (101.8m)	SHEET Nº: 1
HOLE LOCATION: 20+00NW, 929.30SW / AZIMUTH: 045°	DIP: −45° / COLLAR ELEVATION: −249.02 m	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnh. II

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
						casing						
Granite		52 (15.9)	100%	fine Biotite Granite	grey	quartz 25% biotite 3% plagioclase 25% K-feldspar 50%	fine				altered, clay contact	equigranular
Hornfels		70 (21.3)	100%	Biotite Hornfels	dark purple black to grey	biotite, quartz, muscovite cordierite	fine with ½ cm spots		biot lamination	45° to C.A.	distinct	spotted
		104 (31.7)	100%	Diopside Hornfels	light green	quartz diopside	fine		color changes	40° to C.A.	gradual	
		108 (32.9)	100%	Biotite Hornfels	purple black	quartz, biotite, cordierite, muscovite	fine with ½ cm spots		biot laminations	35° to 60° to C.A.	altered contact	
		133 (40.5)	100%	Siliceous Hornfels	light grey-white to light brown	quartz, minor biotite	fine		"	45° to C.A.	lost	sugary texture broken + fractured

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-4	CORE SIZE: N.Q	DIP TESTS: 100' = 42.5°
OBJECTIVE: test continuity of N.W. skarn	STARTED: June 10 / 81	COMPLETED: June 12 / 81	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	WO_3	MoS_2	MoO_3	Sn		
rusty clay (green feldspar)	feldspar + gouge	50%	py.	diss.	minor	calcite vein	5 cm	one vein							
cordierite spots			mo.	rimming qtz. veins	up to .5% of vein	qtz-muscovite-mo	veins 1mm-1cm	2 %	70-80	.01	.007	.001	.01		
						granite veins	5"		80-90	.02	.01	"	"		
			py	diss	minor	calcite along fractures		minor	90-100	.01	.001	"	"		
diopside						calcite veining	1/2 cm	2%	104-108	.01	.001	"	"		
			mo. sc.	qtz veins	1% of vein	qtz.-musc.-sc. mo.	up to 1 cm	1%	108-118	.06	.006	"	"		qtz vein at 114.5' has 20% blue fluorescing scheelite.
			py.						118-128	.01	.066	.002	"		
									128-133	.01	.018	.001	"		
rusty weakly consolidated			mo. sc	"	"	" " " "	"	<1%	133-143	.02	.003	"	"		
			py			occasional fluorite			143-153	.08	.009	"	"		
						calcite veins	up to 14 cm	3 veins	153-168.5	.01	.004	.003	"		

CSE-WTP-194

PROJECT:	DRILL HOLE Nº: 81-4	TOTAL DEPTH:	SHEET Nº: 2
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Hornfels												
		168.5(51.4)		Biotite Hornfels (cut by granite dikes)	purple black	quartz, biotite	fine (1mm spots)		fine black lamination	30° to C.A.		fine lamination biotite porphyroblasts
		237(72.3)										
		242(73.8)		Diopside Hornfels	green	quartz, diopside, biotite	"		"	40° to C.A.	distinct	massive cut by veins
		273(83.2)		Biotite Hornfels (veined)	purple black	quartz biotite	"		"	40° to C.A.	gradual	spotted to massive (broken)
		281(85.7)										
		310.5(94.7)		Diopside Hornfels	light green + purple	quartz diopside biotite	"		"	45°-50° to C.A.	sheared	broken, brecciated texture
				Biotite Hornfels	black + grey	quartz, biotite	"		"	50° to C.A.		massive.

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-4	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	WO_3	MoS_2	MoO_3	Sn		
blue coating on fractures			py. mo.	quartz veins	5% of vein	qtz.-muscovite-fluorite -mo	1.5 cm	1%	168.5-178	.02	.019	.001	.01		
						calcite-dolomite	stockwork at 184'	<1%	178-188	.02	.004	"	"		
									188-198	.01	.083	"	"		
						granite veins	4 cm - 18 cm	2%	198-208	"	.011	"	"		
									208-218	"	.004	"	"		
diopside alteration			py.			qtz dolomite	15 cm 2 mm	3%							
(bleached)			py. mo.	"	minor	qtz-muscovite calcite		1% <1%							
diopside alteration	adjacent to calcite veins		py. mo	" + fractures	"	calcite-dolomite qtz-muscovite	stockwork vein	1% <1%							
			"	"		"		<1%							

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-4	TOTAL DEPTH:	SHEET Nº: 3
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
		334 (101.8)										
						End of Hole						

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-4	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER						
						End of Hole.									

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: D.D.H. 81-5	TOTAL DEPTH: 160' (48.5m)	SHEET Nº: 1
HOLE LOCATION: 20+00NW, 929.30SW. / AZIMUTH: 045°	DIP: -60° / COLLAR ELEVATION: -249.02m	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
						casing						
Granite		42 (12.8)	44%	Megacrystic Biotite Granite	grey	3-5 % biotite 30% quartz 35% Kfeldspar 30% plagioclase	fine				lost in core	megacrystic.
Hornfels		81 (24.7) 93 (28.4) 112 (34) 153 (46.6) 160 (48.5)	100%	spotted Biotite Hornfels cut by Granite Dikes (diopside band) (foliated hornfels)	dark purple	biotite, quartz	fine		biot rich layers	30° to C.A.		even spotted texture. (1/2 cm spots)

End of Hole

PAGE ..... OF ..... Nº .....

CSE-MTR '81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-5	CORE SIZE: N. Q	DIP TESTS: 160' = -65°
OBJECTIVE: Locate granite contact	STARTED: June 12	COMPLETED: June 13	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	WO_3	MoS_2	MoO_3	Sn		
clay	fractures + feldspars	minor	mo, py	shears					71-81	.01	.006	.001	.01		Breccia at contact, granite and hornfels fragments
Biotite areas of carbonate veining have a lighter green color	spots	up to 80%	mo, py	rimming quartz veins + granite dikes	2% of vein	quartz granite veins carbonate veins at 136'-142', 120'-126' qtz, muscovite, serpentine	1mm-1cm 1.5' maximum 1cm vein	1% 10%	81-85	"	.053	"	"		quartz veins cut granite veins
									85-93	"	.031	"	"		
									94.5-105	"	.009	"	"		
									105-112	"	.03	"	"		
									114-124	"	.011	"	"		
									124-134	"	.043	"	"		
									134-144	"	.02	"	"		
									144-153	"	.018	"	"		
									153-160	"	.054	"	"		

End of Hole

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-6	TOTAL DEPTH: 448' (135.9m)	SHEET Nº: 1
HOLE LOCATION: 13+50 NW 10+14.9 S.W / AZIMUTH: 045°	DIP: -45° / COLLAR ELEVATION: -7.02	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
						casing						
Granite		10 (3.05)	100%	Aplite	white with rusty brown weathering	0 - biotite 20% quartz 75% K-feldspar 5% plagioclase	fine	aplitic	quartz bands	30° to C.A.	gradual	
		28 (8.54)	100%	Quartz-Feldspar Porphyry + (Brainrock)	light grey	1% biotite 20% quartz 60% K-feldspar 20% plagioclase	2 mm qtz. phenos in an aphanitic groundmass		quartz bands	35° to C.A.	contact lost. however sharp change	concentric swirly quartz segregations (brainrock) porphyritic
		65 (19.8)	90%	fine Biotite Granite	grey + rusty	3% biotite 20% quartz 70% K-feldspar 10% plagioclase	fine				contact lost, sharp change in texture.	- mottled, biotite and coarse quartz-feldspar patches. - sugary texture
		105 (32.0)	100%	Megacrystic Biotite Granite (weathered zones)	grey	3% biotite 30% quartz 30% plagioclase 40% K-feldspar	med range in size					megacrystic (1-2 cm) gouge in sections seriated texture
		135 (40.7)	50%									
			70%									
		152 (46.3)										

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-6	CORE SIZE: N.Q	DIP TESTS: 200'=45° 448'=47°
OBJECTIVE: test north west skarn at depth	STARTED: June 14 / 81	COMPLETED: June 17 / 81	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER						
rusty	fracture control					qtz vein	1mm	<1%							
"	" "		mo.	qtz vein	rare	qtz veins	2mm up to 1.5cm	<1%							aplite bands cut porphyry
"	" "	10%	py.	stringers											bands of aplite
- sericite along fractures - clay alteration of feldspars	fracture	10%	occasional mo	qtz veins		quartz sericite	veins 1mm-1cm fracture	<1% 1%							- occasional biotite patch - aplite bands
extensive clay alteration	gouge	50%													
extensive clay															

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt Reed P-172	DRILL HOLE Nº: 81-6	TOTAL DEPTH: 448'	SHEET Nº: 2
HOLE LOCATION: / AZIMUTH: 045°	DIP: 45° / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Granite		197 (60.1)		(granite gouge) → weak qtz-mo. stockwork								
		206 (62.8)										
		235.5 (71.8)										
		242.5 (73.9)										
		297 (90.5)		(Fresh) Megacrystic Biotite Granite	grey	3% biotite 30% quartz 30% plagioclase 35% K-feldspar	fine to coarse					megacrystic - seriated texture. zoned feldspars

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-6	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn.		
frequently broken core - red hemeatite spots along fractures															one aplite dike
intense clay alteration															
			mo py	weak qtz stockwork		quartz veins	1 cm	41%							
intense clay alteration															
minor clay alteration along fractures but generally fresh.									300-310	.02	.001	.02	1		

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 3
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Granite												
		448(136.6)				End of Hole						

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-6	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
no apparent alteration adjacent to quartz veins			mo	rimming quartz veins + fractures	1% of vein	quartz + sericite (only some have sericite)	veins 1/2 cm	1% 1 vein per 5"-8"							weak qtz-mo stockwork
			py	stringers		minor calcite in center of quartz veins or cutting quartz veins.			344-354	.056	.001	.03	3		
			sc.	diss in veins	minor										
						End of Hole.									

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-7	TOTAL DEPTH: 107' (32.6m)	SHEET Nº: 1
HOLE LOCATION: 13+50NW, ≈927SW. AZIMUTH: —	DIP: -90° COLLAR ELEVATION: ≈ +10.0m	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
						casing						
Limestone		12 (3.66)	92%	Garnet Wollastonite Skarn	white with green to red garnets	Skarn: wollastonite, garnet, pyroxene; late veins: quartz, calcite, hemeatite	1-5 mm				distinct, uneven	subhedral garnet network in an interlocking wollastonite groundmass
		30.5 (9.3)	33%	Garnet Pyroxene Skarn	green + red	pyroxene, garnet, fluorite	1-2 mm				lost	garnet, pyroxene massive bands
		40 (12.2)	73%	Garnet Magnetite Pyroxene Skarn	green, black red	pyroxene 60%, magnetite 25%, garnet 15%	fine		banding	45° to C.A.	gradual increase in wollastonite	swirly diopside, magnetite, garnet layers. (crude wrigglite texture)
		67.5 (20.6)	63%	Wollastonite Diopside Skarn	green + white-pink	pyroxene, wollastonite, hemeatite, fluorite	1-2 mm					
		87 (26.5)	100%	Biotite ? Skarn	dark brown + green	Biotite ? (fine dark brown) 60%, Pyroxene 15%, garnet 5%, calcite 20%	fine					
Granite		93.5 (28.5)	57%	Aplite	white	quartz, feldspar; veins: magnetite, iron oxide minerals, calcite, lime green mineral ?	fine	aplitic				
		107 (32.6)				End of Hole						

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-7	CORE SIZE: N.Q	DIP TESTS:
OBJECTIVE: Locate Granite contact	STARTED: June 19	COMPLETED: June 20	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	% WO_3	% MoS_2	% MoO_3	ppm Sn		
Skarn (metasomatism)	massive	100%	sc. (yellow fluorescing)	disseminated + vein	<.5%	garnet + other skarn minerals barren calcite, hem veins			12-18	.23	.04	.138	4		- pyroxene bands are rimmed by red-brown garnet. - garnets found with wollastonite are green
									18-22	.24	.005	.085	8		
									22-27	.05	.005	.072	7		
									27-31	.08	.004	.052	10		
" " broken	"	"	sc. (Y.F.)	" "		" " "			31-40	.06	.006	.03	24		
" " broken	"	"	mo. sc. PY	fracture diss	trace <.2%	sc. is concentrated with garnet. calcite veins are barren			40-45	.08	.012	.042	3		
									45-60	.06	.011	.041	6		
									60-67.5	.12	.043	.087	2		
" "	"	"	mo. sc. (Y.F)	diss in qtz veins + skarn		late quartz and calcite-hemealite veins			67.5-72.5	.12	.073	.127	10		
									72.5-77	.15	.096	.094	5		
									77-82	.16	.142	.158	15		
									82-87	.15	.101	.139	8		
" "	"	"	sc (Y.F)			garnet			87-93.5	.09	.007	.076	7		
iron oxide veins		5%							93.5-107	.12	.001	.024	14		poor recovery

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt Reed P-172	DRILL HOLE Nº: 81-8	TOTAL DEPTH: 107' (32.5m)	SHEET Nº: 1
HOLE LOCATION ≈13+86.8NW, ≈12+13.65W; AZIMUTH: 073°	DIP: -45° COLLAR ELEVATION: ≈ -100m	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
						casing						
Quartzite		7'		Quartzite (biot. rich layer)	white to light pink	quartz > 80% feldspar occasional small beds contain biotite, andalusite porphyroblasts	<.5mm medium	well sorted	1-10cm beds containing porphyroblasts biot rich layers	90°-80° to C.A.		massive with a few spotted beds cut by fractures
		107'				End of Hole (hole lost due to drill pad being washed away)						

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-8	CORE SIZE: NQ	DIP TESTS: —
OBJECTIVE: determine grade + thickness of SW skarn	STARTED: June 21 / 81	COMPLETED: June 22 / 81	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER						
recrystallized rusty fractures manganese coating			none			occasional quartz vein	.5 cm	minor							
						End of Hole									

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-9	TOTAL DEPTH: 433' (120.5m)	SHEET Nº: 1
HOLE LOCATION: 14+50NW, 11+99.25W; AZIMUTH: 045°	DIP: -45° ; COLLAR ELEVATION: -91.34	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
						casing						
Hornfels		12 (3.66) – 21 (6.4)	55%	Spotted Hornfels	light purple to grey	quartz, biotite, cordierite	1mm spots				fault	
		21 (6.4) – 37 (11.3)	31%	fault zone (broken hornfels + gouge)	rusty brown	" " "					fault	
		37 (11.3) – 53 (16.2)	100%	Massive Sulfide pyrrhotite	brown + white	quartz, amphibole, pyrrhotite, fluorite	med				gradual	
		53 (16.2) – 68 (20.7)	100%	Hornfels with sub-massive pyrrhotite	purple-brown to green + white	quartz, amphibole, pyrrhotite, zinc, biotite, fluorite			color banding	45° to C.A.	fault	
		68 (20.7) – 74 (22.6)	14%	fault gouge	purple to green	quartz, biotite, cordierite	fine			40° to C.A.	gradual	qtz. fragments, brecciation shear plane?
		74 (22.6) – 8 (25.9)	100%	Hornfels with Diopside Hornfels bands								
		8 (25.9) – 130 (39.6)	100%	Spotted Biotite Hornfels	brown-red to grey spotted	" " "	" 1-3mm spots		cordierite + biotite spotted bands	45° to C.A.	gradual	- alternating massive to spotted sections - qtz fragments at 85'-86'
		130 (39.6) – 146 (44.5)		minor green diopside hornfels								

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-9	CORE SIZE: N.Q	DIP TESTS: 433' = -47°
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	WO_3	MoS_2	MoO_3	Zn	Cu	
rusty fractures			barren						12-37	.01	.001	.005	.02	.01	
highly broken clay	fault gouge	50%	"												
amphibole	metasomatism	20%	Po chalcopyrite ZnS	massive stringers massive	70% .5% 5%	amphibole, quartz			37-42 42-47 47-53	.26 .13 .17	" " "	.001 " "	.02 .02 .36	.18 .2 .12	Zn is more abundant toward the end of sulfide zone, where there is less pyrrhotite
diopside and amphibole biotite around sulfide			po Zns py + CuS	massive " diss	20% 10% minor	" " biotite			53-58 58-63 63-68	.04 .03 .06	" " "	" " "	.52 1.06 1.78	.02 .03 .08	amphibole sulfide veins have bleached, siliceous selvages
rusty fractures			py	qtz-biotite veins	<1%	quartz, diopside	2" to 3" bands	20%	75-85	.02	"	"	.02	.01	*(Pb is .02% throughout sulfide section)
" "		<1%	py. po. veins	stringer w qtz. with diopside bands	minor minor	- quartz veins with biotite-amphibole selvages. - diopside altered sections - occasional barren calcite vein.		1%	85-95 95-105	.01 .02	" "	" "	.02 .02	.01 .01	

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-9	TOTAL DEPTH: 433'	SHEET Nº: 2
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Hornfels		194 (59.1)		possible fault						55° to 60° to C.A.		
		237 (72.3)		(abundant carbonate veining)								
Limestone		248 (75.6)	100%	Diopside Magnetite Skarn	Black + Green	Diopside, chondrodite, Magnetite 50%, serpentine	fine				sharp, uneven	concentric skarn bands i.e. wrigglite texture
			100%	Skarn Stockwork in Limestone	grey to buff lmst. / veins are red, blue-green, black, light green, white	limestone (calcite, dolomite) / vein minerals: 1) ludwigite 2) hemeatite-magnetite diopside, garnet 3) chondrodite 4) calcite	up to mm					- cross cutting skarn veins. - the limestone has a spotted texture due to the growth of magnetite or ludwigite crystals and the development of periclase

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-9	CORE SIZE: NQ.	DIP TESTS: 433' = 47°
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	WO_3	MoS_2	MoO_3	Zn	Sn	
									227-237	.04	.008	.004	.02	1	
Skarn	massive	100%	magnetite zinc sc. (Yellow fluor)	massive diss	50%	-skarn - late calcite + serpentine veins	veins	5%	237-242	.11	.001	.011	.02	46	
									242-248	.04	"	.006	.04	58	
from 310' the limestone has a spotted texture			magnetite pyrrhotite sc (yellow fluor.)	diss	minor	garnet, the larger veins contain diss sc. magnetite is found in veins and as spots in lmst.			248-253	.01	"	.002	.26	250	1)-ludwigite occurs as independent black veins and rimming serpentine veins.
									253-263	.01	.002	.001	.02	14	
									263-273	"	.001	"	"	18	2)- ludwigite + magnetite veins are cut by chondrodite, serpentine, magnetite veins
									273-283	"	"	"	"	12	
									283-293	"	"	"	"	12	3) serpentine, calcite veins cut all other vein types
									293-303	"	"	.003	"	12	4) toward granite (contact or dike) the skarn veining found in the limestone becomes more intense. Eventually forming massive skarn
									303-313	"	.01	.004	.04	6	
									313-323	"	.001	.003		5	

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-9	TOTAL DEPTH: 433'	SHEET Nº: 3
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Limestone												
		358 (109) 361 (110) 366 (111.6)		Serpentine Diopside skarn around a granite dike	green + black	Diopside, Chondrodite, Serpentine, Garnet, Magnetite	fine				sharp	concentric swirly skarn layers
				Skarn Stockwork in limestone		(as above)						
		393 (120) 315 (120.5)		Diopside Magnetite Skarn	green + black	Diopside, Magnetite, Serpentine, Chondrodite, Garnet	fine				lost	swirly banding vague wrigglite texture
Granite				Fine Biotite Granite	grey	Biotite, quartz, feldspar	very fine				sharp	equigranular
				Diopside Magnetite Skarn	green + black		fine				altered	wrigglite texture
				Fine Biotite Granite	grey	3% biotite, quartz, feldspar	fine to med		banding	75° to C.A.	gradual	banded - alternating fine to coarse layers
				Megacrystic Biot. Granite	grey	biotite 5% K-feldspar 35% quartz 30% Plag 30%	med					Megacrysts up to 2cm
						End of Hole						

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-9	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	WO_3	MoS_2	MoO_3	Zn	Sn	
skarn veining									323-333	.02	.001	.004		6	
									333-343	.01	"	.003	.04	5	
									343-353	"	"	.001	.02	18	
									353-361	"	.004	.002	.04	12	
			ZnS Sc.	diss	minor										skarn has developed adjacent to granite vein.
skarn veining			mo	diss in vein	minor	calcite + serpentine	veins		363.5-373	"	.001	.003	.04	6	
									373-383	"	.004	.006	.04	8	
									383-390	.02	.001	.005	.04	12	
skarn		100%	sc.	diss	4.5%	garnet biotite	swirly layers		390-395	.09	"	.008	.1	4	
clay	fractures + feldspars	30%	magnetite	diss	4.2%				395-405	.02	"	.001		2	
									405-415	.01	"	.001		4	
skarn		100%	py, sc, magnetite		.5%	biotite vein		1%	415-417	.26	"	.04	.04	150	
clay	" "	30%	ZnS py magnetite	fractures	1%				417-427	.03	"	.002		2	
"	" "	20%	py	"	minor										
			End of Hole												

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-10	TOTAL DEPTH: 535' (163 m)	SHEET Nº: 1
HOLE LOCATION: 14+50 NW 11+99.2 SW AZIMUTH: 045°	DIP: -60° COLLAR ELEVATION: -91.34	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
						casing						
Hornfels		10 (30)	100%	Siliceous spotted Hornfels	white to rusty brown	quartz, biotite, muscovite	fine			50° to C.A.	gradual	sugary texture, 1mm spots
		53' (16.2)	100%	Massive sulfides	yellow	quartz, pyrite, biotite	fine with coarse pyrite + biotite		sulfide banding	40° to C.A.	sharp rusty, clay gouge at contact	massive sulfide to intense sulfide veining
		86' (26)	100%	Diopside Skarn	green	diopside 40%, quartz 30% amphibole + biotite	med		skarn banding	25° to C.A.	distinct	
		101 (30.8)	100%	Brecciated Hornfels	light purple	quartz, biotite	coarse		schistosity	0° to C.A.	distinct	angular, elongated pebbles
		105 (32)	100%	Spotted Biotite Hornfels cut by Diopside bands	purple to grey + green	quartz, biotite, diopside, cordierite, muscovite	fine with 1mm spots		spotted layers	25° to C.A.	gradual	spotted
		138 (42)	100%	Spotted Biotite Hornfels	brown-red to grey	quartz, biotite, cordierite, muscovite	fine, spotted		" "	"		spotted to massive.

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172 | DRILL HOLE Nº: 81-10 | CORE SIZE: N. Q | DIP TESTS: 535' = 57°

OBJECTIVE: delineate skarn zone | STARTED: June 24 1981 | COMPLETED: June 26 1981 | LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
-very rusty, bleached siliceous appearance			py	fractures	minor	quartz veins	2 mm	1%							weathered horefels ?
-highly broken with clay sections			W (toward end of section)	fractures		biotite alteration around fractures		<1%	23-33	.001	.003	.01	1		
									33-43	"	.006	.76	1		
									43-53	"	.004	.09	1		
58' clay gouge			W (blue fluorescing) py	diss.	<1%	quartz, biotite host rock + vein	50%		53-58	"	.001	.23	2		
									58-63	"	.019	.13	6		
						late biotite-py veins			63-68	"	.001	.14	4		
									68-73	.009	.002	.12	6		
			Zn py po		60%	quartz diopside-po.			73-78	.001	.001	.07	1		
									78-82	"	.010	.05	3		
									82-86	"	.002	.06	14		
Skarn	massive	100%	W (blue fluorescing)	diss + hairline	.5%	amphibole skarn contains the most sc.	skarn + fractures	10% amphibole	86-91	"	.001	.02	1		
			py	stringers					91-96	"	"	.15	1		
									96-101	"	"	.33	1		
brecciated	parallel CA.		py	fractures	<5%	biotite	veins + lenses	1%	101-105	"	"	.01	1		well indurated
bands of diopside and biotite alteration	bands up to 10 cm	10%	py	altered areas	.5%	diopside biotite	cross cutting sections or veins	5%	105-115	"	"	"	1		
									115-125	"	"	"	1		
biotite spotting		40%				rare quartz vein									

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-10	TOTAL DEPTH: 535'	SHEET Nº: 2
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Hornfels		170										
		196.5 (59.9)	100%	Spotted Biotite Hornfels with Diopside bands	brown-red to purple	biotite, quartz, cordierite, muscovite	fine		cord bands	45° to C.A.	gradual	212'-219' - shear zone parallel to C.A.
		230 (70.1)	100%	Spotted Biotite Hornfels	brown-red to dark grey	biotite, quartz, muscovite, cordierite	fine 1mm spots		fine biot lamination	10° to C.A.	gradual	even, dense, biotite spotting
		252 (76.8)								30° to C.A.		

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-10	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
			PY sc. (blue fluor)	stringers diss in diop-amph	1% minor	qtz-biot veins 211'-226' diop-biot-amph stockwork with siliceous selvage	veins	1 cm 2%							
									225-230	.001	.001	.01	1		
biotite spotting		40%	PY	stringers + carbonate veins	<.5%	carbonate veins qtz-musc veins	1mm-1cm	1%							

CSE-MTR '81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 3
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
				(hornfels with carbonate + qtz veins)								
		342' (104.3)	100%	Interlayered Biotite and Diopside Hornfels	gr en + purple brown	quartz, biotite, diopside	fine		skarn bands	40°-50° to C.A.	sharp	
		358.5 (109.6)	100%	Diopside Magnetite Skarn	black + green	magnetite 50% diopside + quartz 50%	fine					swirly (wrigglite) texture
Limestone		365 (111.3)		(fine Granite dike) 1% biot		limestone (calcite, dolomite, periclase)	med				gradual	stockwork veining cutting recrystallized lmst.
		369 (112.5)	100%	Stockwork Skarn in Limestone	grey lmst. veins: red black green white	veins 1) finely layered diopside-magnetite-chondrodite rimmed by calcite + ludwigite, up to 10 cm 2) fine black ludwigite and or magnetite veins 1mm 3) late serpentine-calcite veins (average 1 cm)						
		445 (135.7)	100%	Spotted Limestone (occasional stockwork vein)	grey to faint pink	limestone ludwigite 3% magnetite 5%	med. lmst. ludwigite up to 5mm magnetite 3mm				gradual	euhedral ludwigite and magnetite spots in recrystallized limestone. fine black veins.
		470 (143)										

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-10	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
clay at 337'	gouge		mo	vein	up to 5% of vein	qtz - musc veins	2 + 3 mm veins								
			py			calcite - py veins			332-342	.022	.004	.01	2		
									342-352	.002	.003	"	1		
diopside	bands	60%	w (yellow fluor)	diss		amphibole biot - qtz veins		5%	352-359.5	.02	.006	.07	1		
skarn	massive	100%	w (yellow fluor)	diss	.5%	skarn		50%	359.5-365	.02	.026	.10	68		
clay															
									368-375	.001	.004	.01	28		
skarn	veins	10%	w	diss in veins	up to .5% of veins	skarn veins			375-385	.01	.041	.07	40		stockwork veins are most abundant near the top of this section
			mo.	" "	minor										
bleached selvages adjacent to ludwigite veins	3 mm wide								455-465	.001	.005	.01	3		

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 4
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Lmst.		510 (155.5)										
				(intense carbonate veining) to brecciated w̄ py.								
		521' (159)										
		526.5' (160.5)		Massive Sulfide + Biotite	black	biotite 40%, pyrite 40%, carbonate 20%	med				lost	brecciated
Granite				Megacrystic Biotite Granite	grey	biotite 5% plagioclase 30% quartz 30% K-feldspar 35%	med					megacrystic
		535' (163)										
						End of Hole						

CSE-MTR. '81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-10	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
carbonate veining			py	veins	.5%	carbonate veins chlorite	cross cutting euhedral crystals	5%	511-521	.006	.002	.01	19		
skarn (biot)	massive	80%	py	massive	40%	biotite	massive	40%	521-5265	.01	.003	.01	300		
clay	feldspar fractures	30%													
						End of Hole									

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172 | DRILL HOLE Nº: 81-11 | TOTAL DEPTH: 717' (218.6m) | SHEET Nº: 1

HOLE LOCATION: 13+86.8 NW 12+13.6 SW | AZIMUTH: 073° | DIP: -45° | COLLAR ELEVATION: -91.31 | SCALE OF GRAPHIC LOG: 1:1000 | LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Quartzite			100%	Quartzite	white to rusty brown	Quartz 80% Feldspar 15% Biotite andalusite 5%	med up to 1mm qtz. grains	well sorted	2 cm wide biot and or andalusite beds	65°-80° to C.A.	fault	sugary texture

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-11	CORE SIZE: N.Q.	DIP TESTS: 360'=44° 717'=43°
OBJECTIVE: test for skarn	STARTED: June 26 / 81	COMPLETED: June 29 / 81	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
rusty fractures • feldspars		10%	SC.	adjacent to fractures	trace	qtzite. fractures qtz. veins	2 cm	.5%							
recrystallized									24-29	.001	.002	.01	2		
									49-54	"	.003	"	1		
									79-84	"	.005	"	1		
									109-114	"	"	.02	1		
									141-146	"	.004	.01	1		

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-11	TOTAL DEPTH: 717'	SHEET Nº: 2
HOLE LOCATION: / AZIMUTH:	DIP: -45° / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Quartzite				(highly broken (fault?))								
		210'		(visible Mo in qtz veins)								
		237' (72.3)		Interbedded Biotite Hornfels + Quartzite	dark grey	Quartz andalusite biotite diopside at 241'	fine	well sorted	andalusite bands	80° to C.A.	fault	
Hornfels		257' (78.3)		Spotted to Massive Biotite Hornfels	brown red to purple	quartz biotite diopside bands at 286' + 320'	"	" "		40°-30° to C.A.		- spotted to massive - shear zone at 995', contains qtz fragments
		295 (90)										

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-11	CORE SIZE: N. Q	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
									180-185	.002	.012	.01	1		
			Mo. W. (blue fluor)	qtz veins	<.5%	qtz veins	up to 3 cm		207-217	.013	.03	"	1		
									217-227	.016	.046	"	1		
									227-237	.001	.019	.03	1		
rusty diopside	fractures bands		mo	lenses within veins	up to 20% of vein	qtz, fluorite veins	up to 5 cm	<5%	237-242	.003	.051	.11	1		
									242-247	.092	.012	.02	1		
									247-252	.046	.012	.01	1		
									252-257	.112	.024	"	1		
diopside	bands	1%	mo	fractures, rimming qtz veins	20% of qtz veins	qtz. veins	2 cm to 1mm	3%	257-267	.007	.037	"	1		
									267-277	.007	.06	"	1		
			py	veins + fractures	1%				277-282	.006	.002	"	1		
									282-287	031	.004	"	1		
									287-292	.003	.001	"	2		
			sc. (yellow fluor)	rare speck along fractures	minor				292-297	1.24	.005	"	3		
									297-307	.01	.001	"	1		
									307-317	.013	.001	"	1		

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 3
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Hornfels												
		352 (107.3)										
		356.5 (108.7)	100%	Diopside Hornfels	light green	Diopside, Quartz, Calcite	fine				gradual	fractured
			100%	Spotted + Massive Hornfels	brown red	Biotite, Quartz, Diopside	fine		cordierite beds	30° to C.A.		spotted to massive
		413 (126)		(diopside + biotite hornfels)								
		421 (128)										
		427	100%	Diopside Breccia Hornfels	green + light purple	Diopside, Quartz, Calcite, Biotite	fine		banding	30° to 40° to C.A.	gradual	brecciated appearance due to carbonate veining
			100%	Biotite Hornfels	Brown red.	Biotite, Quartz, occasional diopside band.	fine				sharp 30° to C.A.	
		448 (137)		diopside + Biotite Hornfels	white + green	Diopside, Quarts, occasional biotite hornfels	fine		color bands	30° to C.A.	gradual	cherty streaked appearance
		452 (138)										
Limestone				Banded Diopside Hornfels + Garnet Pyroxene Skarn	dark to light green	Diopside Hornfels 35% Skarn – Pyroxene 50% Garnet 10% fluorite 10% Late Biot - Calcite veining	med to coarse 1-2mm garnet		Skarn bands	30° to C.A.	gradual	banded

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CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-11	CORE SIZE: N.Q.	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER						
serpentine calcite	fracture coating					calcite-serpentine-py (abundant calcite veining)	veins + fracture	1%	337-342	.01	.001	.01	1		
Diopside	skarn	50%	py	calcite veins	10% of veins	calcite-serpentine	veins	5%	353-356.5	.028	"	"	1		
			sc. mo.	diss diss qtz vein.	trace <.5%	Diopside bands qtz veins. mo. on fracture surfaces			387-397	.01	"	.02	1		
									397-407	.007	"	.06	1		
Diopside	patchy	50%	py	calcite v. fracture		calcite qtz	breccia veins	10-15%	421-431	.009	"	.01	3		possible fault Breccia
			sc. hairline fractures	qtz vein	.5% of vein	qtz veins (mo)	2 cm	1%							
			mo			py-calcite veins	1mm	1%	438-448	.003	"	"	1		
Diopside	lenses	50%	sc. (yellow fluor)	diss		qtz veins	1mm	3%	448-453	.001	.006	.08	2		transition Hornfels → Skarn
Metasomatism Diopside, Fluorite, Garnet	Skarn bands	65%	sc. (yellow fluor)	diss	.5%	in skarn late qtz veins		40% 3%	453-458	.001	.011	.13	3		1mm euhedral garnet garnet cores contain fluorite
									458-463	.002	.012	.13	1		
									463-468	.002	.011	.12	1		
									468-473	.002	.005	.08	1		
									473-478	.004	.007	.11	1		

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-11	TOTAL DEPTH: 717'	SHEET Nº: 4
HOLE LOCATION:	AZIMUTH:	DIP:	COLLAR ELEVATION:
SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill		

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Limestone												
		499 (152)										
		505 (154)		Biotite, Garnet, Pyroxene Skarn	Grn., red Black	pyroxene (40%), Garnet (20%), Quartz (20%), Biotite (10%), fluorite (10%)	coarse		skarn bands	20° to C.A.	gradual	banded, 4MM garnets
			100%	Banded Diop. Hornfels . . . . + Pyroxene Garnet Skarn . . .	light green / red + dark Grn.	. . . qtz diop > 30% . . . . . / . . . . garnet 30% - . . . . . pyroxene 30% fluorite 10%	fine / coarse		≈ 6cm skarn bands	30° to C.A.	fault	- skeletal garnet growth in diopside, cores of garnet often contain fluorite - euhedral garnets up to 2cm
		563 (172)		(fault zone)		(serpentine, clay gouge)						
		583 (172)	100%	Fault Breccia	grey + green	serpentine, clay, calcite, py, hornfels	coarse				fault	gouge + brecciated, sulfide matrix
		585 (178)	100%	Pyroxene - Garnet Skarn	dark red + Grn. + buff	garnet 70% (andradite + grossular) pyroxene 30%	coarse 1mm-1cm garnet		changes in mineralogy	30° to C.A.		rough banding of skarn mineralogy
		605.2 (184.5)										
			100%	Banded Diop Hornfels . . . . + Garnet Pyroxene Skarn	light green / dark green + red	. . . qtz, diop 30% . . . . . / . . . . pyroxene 35% . . . . . garnet 25% biotite + fluorite	fine / coarse		skarn bands	35° to C.A.		skarn xenoliths in granite dikes (fine biotite granite)

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS					COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn	
									478-483	.002	.003	.07	1	
									483-488	.004	.006	.08	1	
									488-493	.006	.014	.17	1	
									493-499	.003	.01	.11	2	
skarn, biot. selvages	banded	60%	sc. (yellow fluor. + blue)	diss	<.5%	skarn qtz veins	bands	50%	499-505	.004	.008	.11	2	Biotite is found adjacent to late calcite veins, replacing diopside
									505-510	.003	.006	.05	4	
skarn	banded alternating with diop. hornfels	60%	sc. (yellow fluor)	diss + qtz vein (up to 1mm crystals)	<.5%	garnet diopside skarn fluorite pods			510-515	"	.008	.08	3	subhedral garnets rim pyroxene bands
									515-520	"	.007	.05	9	
									520-525	"	.013	.14	1	
									525-530	.005	.013	.12	1	
									530-535	.005	.013	.13	1	
									535-540	.003	.017	.11	2	
									540-545	"	.025	.22	2	
									545-550	.001	.014	.12	1	
									550-556	.002	.016	.13	34	
									556-563	"	.028	.16	3	
									563-567	"	.0	.16	80	
									567-572	.001	.016	.11	4	
		70° to 90° % skarn							572-577	"	.01	.1	2	
									577-581	.003	.013	.11	3	
fault gouge			py, sc.	py - matrix sc. - rare		calcite biot veins			581-585	.048	.032	.06	100	Black biotite replaces Diop on either side of fault gouge.
									585-590	.005	.013	.09	7	
skarn	massive	100%	py sc.	diss		skarn			590-595	.003	.013	.08	1	
									595-599	.001	.02	.12	1	
									599-602.5	"	.019	.13	3	
									602.5-608	.002	.04	.06	2	
skarn	banded	70%	py - - - - - - po w - - - - - - mo - - - -	stringer diss fractures qtz veins	.5%	qtz veins later calcite-biotite garnet pyroxene skarn + with quartz in skarn	veins	<.5% minor	608-613	.001	.014	.1	1	
									613-618	.022	.046	.27	1	
									618-623	.006	.017	.11	1	
									623-628	.028	.052	.33	1	
									628-633	.07	.054	.32	1	
									633-638	.02	.031	.15	2	

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-11	TOTAL DEPTH: 717'	SHEET Nº: 5
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Limestone												
		647 (197)		Wollastonite, Garnet, Pyroxene Skarn		Wollastonite 10% Fluorite Garnet 30% Pyroxene 35%	coarse				gradual	banded skarn + hornfels
		662.5 (203) 665 (203)		Biot. Diop Skarn	BlK + Grn	Biotite Quartz, Pyroxene Garnet	med			s	sharp	rough banding
Granite				fine biotite granite (sericite)	light grey	Quartz 25% Plagioclase 30% K-feldspar 40% Sericite 2-5% Biotite 3%	fine 1mm		banded	50° to C.A.		equigranular hypidiomorphic
		717 (218.6)		End of Hole								

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CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
									638-643	.034	.031	.16	2		
									643-648	.036	.04	.22	2		
									648-653	.024	.057	.31	2		Wollastonite found as pods within Pyroxene
									653-658	.036	.08	.44	4		
			py, Po, Mo, W (Yellow)	diss	5% sulfides	Biotite			658-665	.024	.082	.52	2		Pyroxene skarn is found adjacent to granite
sericite	fractures	5-20%	mo. py. cp.	veins, fractures		sericite fractures qtz veins	fractures minor	5-20%	665-670	.015	.001	.1	2		
									670-675	.009	.003	.01	2		
									675-685	.013	.001	.01	2		

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CANADIAN SUPERIOR EXPLORATION LIMITED

* Casing left in.

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-12	TOTAL DEPTH: 897' (273.5m)	SHEET Nº: 1
HOLE LOCATION: 13+86.8 NW 12+13.6 SW / AZIMUTH: 073°	DIP: -60° / COLLAR ELEVATION: -91.31	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
						casing						
Quartzite	Q Q Q	27 (8.2)	100%	Quartzite	white to rusty brown	Quartz Feldspar Biot - andalusite in some bands	med to coarse up to 3mm grains	good	spotted or biotite bands	60° to C.A.	gradual	mottled white with rusty fractures and occasionally purplish biotite around fractures
	Q Q Q Q Q Q Q	76 (23)										
	Q Q Q Q Q Q Q	128' (39)										
	Q Q Q											

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CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-12	CORE SIZE: N. Q	DIP TESTS: 430'=59° 897'=61°
OBJECTIVE: test for skarn continuity at depth	STARTED: June 29 / 81	COMPLETED: July 4 / 81	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER						
rusty some spotted sections occasional purplish biotite or green diopside altered fractures			mo + sc. (yellow fluor) (observed from 215'-239')	veins	minor	quartz veins	≈1cm	<1%							

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 2
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Quartzite		215 (65.5)		fault gouge qtz veining								minor biotite adjacent to fractures has dendritic texture
		239 (72.9)	100%	Quartzite with biotite altered sections	white to purple	quartz, biotite, feldspar	fine	good	spotted layers + diopside layers	60° to 70° to C.A.	fault	mottled dark biotite sections alternate with white quartzite. dendritic biotite along fractures
Hornfels		277 (84.5) 306 (93.3)	(.5ft lost in fit. 100%	Siliceous Hornfels	purple	quartz, biotite (occasional andalusite spots or pyroxene band)	fine	good	occasional spotted layer, fine black lamination	60° to C.A.		massive with occasional small spotted layer. – quartzite layers and diopside bands. – dendritic biotite texture

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	WO_3	MoS_2	MoO_3	Sn		
									195-205	.01	.001	.009			
									205-215	"	"	.01			
			sc. (yellow fluor) 227' on	qtz veins	5% of veins	qtz veins	xl cm	1%	215-225	"	"	.017			
									225-234	.03	"	.037			
									234-239	.01	.004	.03			
Biotite altered	sections		mo. sc.	veins		" "	" "	"	239-249	.05	.012	.02			
									249-259	.01	.004	.01			
									259-264	"	.053	.006			
									264-269	"	.019	.019			
									269-278	"	.027	.025			
" "			mo.	fractures qtz-veins	up to 10% of vein	qtz. veins	usually 1 cm up to 15cm at 296'		279-287	"	.022	.006			large quartz vein at 296' contains 10% coarse molybdenum
									287-292	"	.049	.003			
			sc. (blue fluor)	qtz veins	1.5% of vein				292-297	.02	1.94	.036			
									297-302	"	.028	.001			
						serpentine-calcite on fractures			302-307	"	.08	.002			
									307-312	"	.02	"			
									317-322	.02	.02	.001			

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 3
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Hornfels												
	Q Q Q	347 (106.8)		quartzite layer								
		378 (115)		Massive Biotite Hornfels	dark purple to green	biotite, quartz, pyrite, diopside	fine		cordierite bands	60° to C.A.	gradual	sections of massive diopside sulfide lenses.
		390 (118.9)		Siliceous Biotite Hornfels	pale purple to green	" " " " (light brown calc-silicate mineral around fractures sphene?)	"				"	– mottled, altered appearance – variable degrees of shattering and calc-silicate alteration.
				(diopside layers)								
		430 (131)		Massive Biotite Hornfels								
		445 (137.7										
		453 (137.9)		Siliceous Biotite Hornfels								
		471 (143.6)		Fault Breccia		dolomite, clay, quartz	coarse			60° to C.A.	sharp	

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CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
									322-327	.023	.001	.01			
									327-332	.003	.001	.01			
									332-337	.04	"	"			
									337-347	.024	"	"			
									347-357	.009	.007	"			
									357-367	.007	.008	"			
									367-376	.004	.007	"			
diopside + biotite	patches		py	diss + lenses	5%	quartz veins	2 mm	<1%	376-386	.003	.003	"			
diopside calc-silicate alteration around fractures sphene?		5-10%	mo	coarse flecks in qtz veins	.5%	py + calcite veins	stockwork		386-396	.009	.001	"			
						quartz-sericite-mo	veins		396-406	.011	"	"			
			py	lenses diss. stringer	3%	fractures are coated with serpentine-calcite			406-416	.012	"	.02			
									416-426	.015	"	.02			
									426-436	.006	"	.01			
									436-446	.006	"	.02			
									446-456	.003	"	.03			
									456-466	.002	"	.01			
			py	diss	1%	carbonate + qtz	veins	5%	466-476	.007	"	"			
									476-486	.003	"	"			

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-14	CORE SIZE: NQ	DIP TESTS: 300' = 44° 615' = 45°
OBJECTIVE: test northwest skarn.	STARTED: July 9 /1981	COMPLETED: July 13 /1981	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3			
- occasional sericite alteration	fractures		mo-py	stringer	minor	barren qtz	veins <1cm	1%	57-67	.001	.009	.01			
- hematite and pyrite	fractures														
fault gouge	clay														
- hematite spots and rusty pyrite cubes	fractures					rare qtz vein.									
- clay alteration	feldspars														
- sericite	fractures								147-157	"	.01	"			

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt Reed P-172	DRILL HOLE Nº: 81-14	TOTAL DEPTH: 615' (187.5m)	SHEET Nº: 1
HOLE LOCATION: 15+50 NW 9+64.8 SW / AZIMUTH: 045°	DIP: -45° / COLLAR ELEVATION: -77.79	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
				casing								
Granite		53 (16.2)	84%	fine Biotite Granite (porphyry)	grey	biotite 2% feldspar phenocrysts quartz eyes fine groundmass	fine 1mm with phenocrysts up to 1cm				fault	porphyritic
		96 (29.3)	46%	(fault gouge)								
		109 (33.2)	90%	(highly broken)								
		119 (36.3)		med. Biotite Granite	grey (rusty)	biotite 4% quartz 20% feldspar 75%	med 2-4mm				fault	-granitic -equigranular with an occasional large feldspar
			100%									

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3			
minor clay			magnetite	bands	1%				481-491	.001	.001	.001			
									491-501	.001	.001	.001			
fresh			py, po	veins		py-calcite-quartz	veins .5mm	minor							
						End of Hole.									

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 4
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Granite		481 (146.6)		Fine Biotite Granite	grey	biotite 5-7% quartz 25% plagioclase 30% K-feldspar 40%	fine to coarse		banded biot-content + grain size	30° to c.A.	distinct	- texturally variable - pegmetite - aplite sections - biotite - magnetite rich layers
		504 (153.6)		Megacrystic Biotite Granite	grey	quartz 30%, K-feldspar 40, biotite 3% plagioclase 30%	coarse					megacrystic - seriated
		510 (155.5)				End of Hole						

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CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3			
									325-335	.01	.001	.01			
									335-341	.006	.002	"			
									341-347	.009	.002	"			
metasomatism	skarn	100%	sc (Yellow + blue fluor)	diss + hairline	1%	garnet-pyroxene skarn quartz veins	.5cm		347-352	.001	.018	.036			
									352-357.5	"	.021	.2			
diopside alteration		100%	—						357.5-362	"	.008	.06			
									362-367	"	.007	.07			
metasomatism	skarn bands	70-100%	sc. (yellow fluorescent)	diss up to 1mm euhedral crystals	<.5%	usually with pyroxene			367-372	"	.009	.06			The diopside hornfels layer decreases with depth
									372-377	.004	.025	.15			
									377-382	.003	.012	.07			
									382-387	.001	.01	.06			
									387-392	.002	.008	.05			
									392-398	.004	.031	.1			
									398-402	.014	.086	.24			
"	"	"	mo.	diss		skarn + late veins			402-407	.016	.044	.15			
			sc. (yellow fluorescent	"	<1%				407-412	.022	.09	.32			
									412-417	.02	.064	.19			
									417-422	.042	.132	.44			
									422-426	.028	.047	.31			
"		100%	mo.	"		calcite-serpentine veining biotite garnet skarn.			426-431	.019	.043	.15			
			sc. (" ")						431-436	.024	.084	.32			
									436-441	.024	.108	.44			
"		100%	mo.	"		quartz veins	10 cm at 451'		441-446	.026	.086	.12			
			sc. (" ")						446-451	.014	.110	.24			
									451-456	.01	.078	.28			
									456-461	.038	.096	.38			
			sc. (Yellow fluor)	vein + diss					461-465	.064	.106	.64			
clay alteration	fractures	1%	sc. (" ")	fractures	minor	calcite, py veins fine biotite along fractures			465-475	.011	.005	.01			
skarn		100%	" " "	diss	1%	pyroxene skarn			475-481	.001	.008	.02			

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-13	TOTAL DEPTH:	SHEET Nº: 3
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Hornfels												
Limestone		347 (106)		Garnet-Pyroxene Skarn	red + dark green	garnet 30% fluorite + quartz 30% pyroxene 40%	coarse	poor	rough banding	45°-50° to C.A.	sharp	anhedral garnet network in coarse pyroxene
		357 (109)		Diopside Hornfels		quartz, diopside, feldspar	fine		banding	65° to C.A.	gradual	creamy white background cut by light green diopside network
		362 (110.4)		Banded Diopside-Hornfels + Pyroxene-Garnet Skarn	light green red + dark green	quartz, diopside, feldspar garnet (andradite) 40% pyroxene 35% fluorite + quartz 25%	fine coarse		skarn layers alternating with hornfels	20° to 60°	gradual	Subhedral garnets (up to 1 cm) often skeletal in a pyroxene groundmass fluorite cores in garnets
		398 (121)		Wollastonite-Garnet-Pyroxene Skarn	white to green + red	wollastonite 5-40% garnet 20-40% pyroxene 20-50% fluorite 20% (variable skarn composition, occasional diopside hornfels band.)	coarse		"	45° to 20° to C.A.	sharp	fibrous, white wollastonite in pyroxene skarn subhedral red garnet
		426 (129.9)		Biotite-Garnet-Pyroxene Skarn	black, red green	biotite pyroxene serpentine garnet diopside hornfels	"		"	20° to C.A.	gradual	
				Garnet, Pyroxene, Wollastonite Skarn (large quartz vein)	white, red + green	garnet 15% pyroxene 20-50% wollastonite 20-40% (section 443-448 is garnet wollastonite skarn)	"		roughly banded	50° to C.A.	distinct	rougly banded, anhedral garnets in wollastonite ground mass
		461 (140)		Garnet Pyroxene Skarn	green	pyroxene 80% garnet 20%	"				sharp 45°	
Granite		465 (141.8)		Med. Biotite Granite	grey	biotite 10% K-feldspar 45% plagioclase 30% quartz 25%	med 2 mm				sharp	equigranular
		478 (145.7)		Skarn Inclusion	green	pyroxene	med				sharp	massive

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CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn	Au	
									187-193					10	
biotite alteration	along fractures	30%	W (blue fluorescent scheelite) Mo	quartz veins	10% of veins	quartz veins	up to 1 cm	1%	203-213					10	Intensity of shattering + biotite alteration increases toward the fault.
									213-220					10	
rusty fractures			Sc. Mo	quartz veins	up to 40% Mo in qtz veins	quartz veins with black biotite selvages	.5 cm	2%	220-230	.011	.012	.01			
									230-239.5	.041	.008	.04			
skarn (metasomatism)		100%	Mo Sc (Blue fluorescent) po	qtz vein diss + hairline Frac	up to 1%	amphibole skarn contains the most scheelite qtz veins	skarn	90%	239.5-244	.175	.007	.54	5	10	amphibole skarn is superimposed on diopside-garnet skarn
									244-248	.021	.006	.31			
skarn	pods	20%	Sc. (Yellow fluorescent)	diss in skarn	<1%	garnet pyroxene	skarn	20%	248-255	.006	.003	.04			
									255-262	.002	.002	.02			
fault gouge			" " "	quartz veins					262-270	.003	.006	.11			
shattered			mo.	quartz veins	up to 10% of veins	quartz - mo - po	veins .5 cm	<1%	270-280	.009	.003	.02			
						calcite - pyrite, serpentine	2 veins to stockwork	<1%	280-290	.002	.001	.02			
									290-301	.006	.001	.02			
(fault gouge)									301-305	.008	"	.01			
									305-315	.006	"	"			
									315-325	.026	"	"			

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CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-13	TOTAL DEPTH: 510'	SHEET Nº: 2
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Quartzite	Q Q Q Q											
	Q Q Q	193 (58.8)		Biotite Altered Quartzite (shattered)	grey to purple	quartz feldspar biotite diopside	med		spotted layers	80° to C.A.	fault	network of altered fractures; shattered appearance; dendritic biotite texture
Hornfels		220 (67)		Biotite Hornfels	dark purple	biotite quartz cordierite	fine		" "	40° to 50° to C.A.	distict, black biot. at contact	spotted to massive
		239.5 (73)		Garnet-Amphibole-Diopside Skarn	dark + light green with minor red	garnet 10% pyroxene 50% amphibole 20% quartz 20%	med		" "	45° to C.A.	sharp, 45° to C.A.	subhedral garnet up to 1 cm bands of diopside hornfels
		249 (75.9)		Diopside + Biotite Hornfels	brown to red + green	hornfels — biotite quartz (diopside + garnet layers)	fine		—		distinct	massive hornfels with diopside pods (siliceous selvages around diopside)
		262 (79.9)		Hornfels Breccia (fault)	yellow, green grey	clay	fine		—		sharp	
		270 (82.3)		Spotted to Massive Biotite Hornfels	purple to grey	biotite quartz clay	fine			45° to C.A.	sharp. small layer of diopside hornfels at contact	
		295 (89.9) 301 (91.8)		(Hornfels Breccia)								
		320										

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172

DRILL HOLE Nº: 81-13

CORE SIZE: N Q

DIP TESTS: 250'=47° 510'=45°

OBJECTIVE: test for skarn continuity

STARTED: July 5 /81

COMPLETED: July 8 /81

LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Au		
occasional diopside or biotite alteration	adjacent to fractures or qtz-veins					qtz veins	≈1 cm	<1%							
rusty fractures															
spotting															
						occasional qtz vein (barren)			117-122	.001	.003		10		
						" " "									

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-13	TOTAL DEPTH: 510' (155.5m)	SHEET Nº: 1
HOLE LOCATION: 13+90 NW 12+13.6 SW / AZIMUTH: 045°	DIP: -45° / COLLAR ELEVATION: -91.31	SCALE OF GRAPHIC LOG:	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
						Casing						
Quartzite	Q Q Q Q Q Q Q Q Q Q Q Q Q Q	4 (1.2) 51 (15.5)	100%	Quartzite	white rusty	quartz 85% feldspar 15% minor biotite, andalusite			spotted sections	70° to 90° to C.A.	gradual	
	Q Q Q Q	110 (33.5)	100%	Biotite Altered Quartzite	rusty buff to purple	biotite quartz feldspar andalusite	med to coarse up to (1cm qtz) fragments	well sorted	Biotite + Aluminum silicate rich layers	75° to 90° to C.A.	gradual	dendritic biotite development along fractures and quartz veins
	Q Q	147 (44.8)		Quartzite		(as above)						

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3			
sericite	fractures	.5%	mo	. .	5% of vein	qtz	1mm	1 per 20 cm.	799-805.5	.007	.002	.01			pegmetite - aplite.
			py						805.5-813.5	.028	"	"			
"	"	"	po, py	specks	-	sericite	2 cm	2%	813.5-823	.009	"	"			
clay	feldspars		mo	qtz vein	minor	quartz - mo	1 cm	1 per 40 cm	823-828	.025					
diopside alteration	patchy	20%	mo, sc	"	"	granite veins	1mm-2cm	5%	828-833	.014					
sericite	1 cm veins w .5 cm white selvages (feldspar)	minor	ZnS, py	. . .	-	sericite			833-843	.001					The granite is biotite rich near the hornfels contacts. and has variable grain size.
			Mo			quartz	1-5mm	minor	843-853	.012					
									853-858	.012					
diopside - biotite alteration			Sc(blue fluor) + py	sericite		" "	1mm		858-868	.053					sc.- sericite veins cut quartz veins
			mo	qtz		qtz	1 cm								
clay sericite	fractures	<.5%				rare quartz vein	1mm	minor	868-878	.002					
									878-887	.002					
									887-897	.001					

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 6
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Granite				alternating coarse + Fine Granite	grey	biotite 3 % quartz 25 % K-feldspar 40 % Plagioclase 30 % sericite 2 %	fine + coarse	variable grain size	bands	50° to C.A.	sharp 45° to C.A.	- granitic texture - alternating fine to coarse
		828 (252)		Biotite Hornfels	brown to green	biot, qtz, diopside	fine				sharp	spotted to massive
		833 (254)		banded aplite and fine Porphry Granite		biotite 5% quartz phenocrysts 10 % feldspar " 15 % fine groundmass	fine to med 3-5 mm phenc.		banding	15°-20° to C.A.	Sharp 75° to C.A.	
		858 (261.6)		Biotite Hornfels		biotite, qtz, diopside	fine		color banding	40° to C.A.	sharp 20° to C.A.	
		868 (265)		(coarse Biot. Granite)		biotite 2-3 % quartz 20 % K-feldspar 50 % plagioclase 30 %	variable, fine groundmass				gradual	Porphyritic with aplite bands.
		873 (266)		Coarse + Fine Porphry Granite								
		887 (270)		Megacrystic Biotite Granite		biotite 2-3 % plagioclase 30% K-feldspar 35 % Quartz 30%	med coarse					seriated texture
		897 (273.5)				End of Hole						

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn	Au	
									642-652	.022	.001	.01			
			py.	w̄ calcite veins		calcite-py veins with diopside selvages		3 %	652-662	.011	.002	"			
			mo.	w̄ qtz + granite veins	trace	quartz - fluorite - biotite		2 %	662-672	.015	.002	"			
			sc.			granite dikes			672-682	.013	"	"			
									682-692	.009	"	"			
									692-702	.009	.001	"			
									702-712	.001	.003	.05			
									712-722	.017	.002	.01			
									722-733	.03	"	"			
sericite	fractures + diss		mo						733-740	.036	"	.02			aplite
"	fractures + greisen pods		mo	qtz vein		quartz-mo	veins 1mm	1 per 30 cm.	740-750	.013	.001	.01	4		mo-qtz veins cut sericite pyrite veins.
			py	diss + with sericite		sericite-py-calcite	2 mm		750-760	.014	.002	"	6		
									760-769	.003	.001	"			
"	"		mo	// "		quartz-mo	veins up to 3mm	1 per 20 cm.	769-779	.03	"	.02			" "
			py			sericite veins		1 per 30 cm	779-789	.092	.002	.01			
									789-799	.009	"	"			

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 5
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Hornfels		652 (198.8)										
		733 (223.5)		Massive Biotite Hornfels (granite dikes)	dark purple	Biotite, Quartz	fine		fine black lamination	25° to C.A.	sharp with inclusions of hornfels in granite	
Granite		740 (225.6)		fine Feldspar Porphyry	grey	.5 biotite, quartz 20%, Kfeldspar 75%, sericite, Plag 5%	fine				gradual	porphyritic plumose feldspars
		769 (234.5)		fine Biotite Granite	grey to green	5% biotite 25% quartz 40% K-feldspar 30% plagioclase	fine				gradual	plumose feldspars occasionally coarse
				med Biotite Granite	grey	< 2 % biotite 40 % K-feldspar 30 % plagioclase 30 % quartz	1-2 mm med		rough banding	60° to C.A.	sharp, inclusion of fine in coarse	equigranular, banded occasionally fine or containing quartz eyes

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	WO_3	MoS_2	MoO_3			
fault gouge, clay		20%	py						486-496	.01	.002	.002			
									496-50	"	"	"			
									502-512	"	.001	.005			
diopside pods rimmed with coarse biotite			sc. (blue fluor.)	qtz-biot veins		calcite-serpentine-biotite pyrite veins		1%	512-522	"	.007	.001			
									522-532	"	.003	.005			
			mo.	qtz-sericite		quartz-sericite-sc-mo	veins < 1mm	minor	532-542	.02	.003	.002			
			py.	diss + in siliceous areas.	3%				542-552	.01	.001	.001			
									552-562	"	.004	"			
									562-572	"	"	"			
spotted diopside + biotite lenses			py.	diss, stringer		serpentine, py, calcite			572-582	"	"	"			
			mo.			fluorite, quartz, sericite, mo	veins		582-592	"	.008	"			
									592-602	"	.004	"			
									602-612	"	.01	"			
									612-622	.02	.021	"			
									622-632	.01	.002	.003			
									632-642	.01	.008	.001			

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 4
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Hornfels				Siliceous Biotite Hornfels								
		488 (148.8)		Fault Breccia	white, green + pink	clay, dolomite, quartz	coarse breccia fr.	poor			fault	Brecciated to fault gouge
		512 (156)		(Massive Biotite Hornfels)								
		525 (160)		Siliceous Biotite Hornfels	light purple	quartz, biotite, diopside	fine		biotite + cordierite bands	40° to C.A.	gradual	mottled, shattered appearance quartz fragments. 15 cm fold with axis parallel to C.A.
		566 (172.6)										
		582 (177.4)		Massive to Spotted Biotite Hornfels	dark purple to light grey	quartz, biotite, diopside, cordierite	fine w/ 1mm spots				gradual	spotted texture
		616 (187.8)		(granite dikes)								granite veins are cut by quartz sericite veins.
		625 (192)		(fault breccia)								

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172 | DRILL HOLE Nº: 81-14 | TOTAL DEPTH: 615' | SHEET Nº: 2

HOLE LOCATION: 15+50 NW 9+64 SW | AZIMUTH: 045° | DIP: -45° | COLLAR ELEVATION: 78m | SCALE OF GRAPHIC LOG: 1:1000 | LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Granite												
		175 (53.3)	100%	Megacrystic Biotite Granite	grey	biotite 3 % K-feldspar 40 % quartz 30 % Plagioclase 30 %	2mm up to 3 cm phenocrys				contact is a 2 cm fine chill margin at 45° to the C.A.	large, white, zoned, feldspars in a seriated groundmass
		209 (63.7		(broken + altered)								
		228 (69.5)		(fault breccia)								
		238 (72.6)		(fine Biot Granite)								
			20%	(unconsolidated gouge)								
		280 (85.4)	57%	monzonite inclusion (xenoliths)	dark grey	biotite 10% K-feldspar 35% Plagioclase 40% Quartz 15% occasional feldspar phenocrysts and quartz eyes	1mm med up to 1cm				lost in core, sharp change.	- ophitic textured euhedral plagioclase and biotite. - phenocrysts of rounded quartz + feldspar.
		315 (95)		Coarse Biotite Granite + monzonite xenoliths	light to dark grey	K-feldspar 40 % Plagioclase 30 % Quartz 30 % Biotite 3 %	coarse up to 2.5 cm					

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-14	CORE SIZE: N.Q.	DIP TESTS: 300' = 44° 615' = 45°
OBJECTIVE:	STARTED: July 9 1981	COMPLETED:	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER						
hem. spots on fractures sericity-py veins with rusty selvages	fractures	.5%	mo-py stringers at 190'		minor	quartz veins		<1%	185-195	.007	.005	.01			
Intense clay alteration sericite-clay alteration			mo + w at 246'		minor	associated with carbonate quartz-py	veins	<1%	236-246 246-256	.001 .009	" .006	" "			
fault gouge			w - magnetite	stringers	<.5%										
			magnetite mo	stringers w̄ quartz veins	specks	quartz-magnetite quartz pyrite carbonate			306-311	.002	.003	"			
						quartz veins	.5 cm	1%							quartz veins cut both granite types

PAGE 4 OF 8 Nº 81-14

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº:
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Granite		326 (99.4)	40%			xenolith composition biotite 7 % K-feldspar 3 % Quartz 20 % Plagioclase 40 %	fine to med grained xenoliths				lost. in core.	- sharp, curved, contacts between finer monzonite and coarse granite. - contacts trend in all directions
		344 (105)	93%									
		348.5 (106.3)	100%	Aplite	white	<.5 % biotite fine quartz and feldspar occasional tiny red garnet or magnetite crystal	fine	sugary			lost in core	
Limestone		369 (112.5)	100%	Amphibole Garnet Pyroxene Skarn	light to dark green	garnet 35 % pyroxene 35 % Amphibole Magnetite 25 %	coarse				lost in core	- quartz veins with dark green selvages cut highly fractured light green skarn. - euhedral yellow green to red garnet - pods of serpentine
		405' (122.9)	80%									
Granite		427' (130.2)	67%	Megacrystic Biotite Granite	grey	biotite 3 % Quartz 30 % K-feldspar 40 % Plagioclase 30 %	coarse				lost in core	
			100%	fine Biotite Granite (clay rusty zone)	grey	biotite 3 %	fine				chill contact granite contains amph + magnetite	biotite and magnetite patches
Limestone		442 (134.8)	100%	Amphibole - Pyroxene - Garnet Skarn	dark green + light green brown	Garnet 35 % Diopside 30 % Amphibole 25 %	coarse		rough banding	65° to C.A.	vague	light green + white matrix with euhedral 1mm-1cm garnets
		452 (137.8)		Pyroxene - Garnet - Wollastonite Skarn	light greens and browns with white + pink wollastonite	Wollastonite 30 % Garnet 30 % Pyroxene 20 % Amphibole - biotite - dolomite - magnetite - hemeatite	coarse		rough banding	45° to 60° to C.A.	vague contact	euhedral, zoned, brown-red to green garnets (2mm) in a light green + white matrix - amphibole forms matrix in places.

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
clay	gouge	10%				qtz. veins									- One pegmetite dike at 334.5' has graphic texture + aplitic core. - coarse granite has an irregular distribution of biotite
sericite + clay	intense at contacts	10%	Sc. (yellow fluor.)	diss	rare	qtz veins (sometimes rimmed by magnetite)	parallel 80° to C.A. .2 to .4 cm	2%	359-369	.001	.003	.03			- one qtz vein per 3 cm veins have bleached selvages
sKarn		100%	Sc. (yellow fluor)	diss.		- sc. is concentrated in qtz veins with amphibole - magnetite selvages - late calcite veins - sKarn	parallel 70° to C.A. 3mm to 5mm	4%	369-374 374-379 379-384 384-389 389-397 397-403	" " .002 .001 " "	.031 .016 .016 .016 .015 .017	.43 .16 .12 .13 .08 .06	20		- euhedral garnets - one qtz vein per 3cm
clay	trace	80%													
clay			sc. magnetite	qtz veins		qtz - sc - py	vein	<.5%	432-437	.007	.002	.01			
sKarn	massive	100%	sc.	diss.	<1%	parallel 1-3mm wide qtz veins rimmed by amphibole amphibole veins	60° to C.A. 5+K.		442-447 447-452	.004 .001	.003 .013	.22 .05	8 10		- garnets are red at granite contacts + adjacent to qtz veins
"	"	"	sc. mo. bright yellow green fluorescent mineral	diss + hairline diss veins (470-484)	<.5% minor .5%	late barren calcite V. sKarn qtz-amph. veins		minor 1%	452-457 457-462 462-467 467-472 472-477	.038 .01 .004 .007 .009	.044 .036 .016 .025 .035	.1 .17 .07 .07 .1	14 34 14 4 10		- wollastonite has a pink color - sections of massive green garnet. - some sections contain more garnet than wollastonite

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-14	TOTAL DEPTH:	SHEET Nº: 4
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Limestone												
		487 (148.5)	100%	Garnet Pyroxene Skarn	light green + brown red	Garnet 35% (andradite) Pyroxene 60% Qtz Amphibole > 5%	coarse		weak garnet pyroxene banding	45°-60° to C.A.	vague, absence of garnet	-.5 cm. subhedral garnet, massive diopside, not vuggy - rough mineral banding - cut by quartz - amphibole veins
		507.5 (154.7)	100%	Pyroxene Skarn	light green	Pyroxene 85% Hornfels fragments, Phlogopite, Dolomite 15%	coarse		occasional hornfels layer	40° to C.A.	distinct, appearance of garnet	massive green pyroxene with some lenses of biotite hornfels.
		523.5 (159.6)	100%	Amphibole Pyroxene Garnet Skarn	green + red	Garnet 30% Pyroxene 25% Amphibole 10% Wollastonite 5% calcite, quartz + fluorite 20%	coarse		weak mineral banding	50° to C.A.	appearance of wollastonite gradual	- fluorite, amphibole, quartz, and scheelite are interstitial to garnet-pyroxene - vuggy
		548 (167)	100%	Garnet Wollastonite Skarn.	brown, red white	wollastonite 40% Pyroxene 15% Garnet 25% Amphibole 10%	"		"	"	gradual, loss of woll.	
		555 (169.2)	100%	Garnet Skarn	red + light green	Garnet 90% Hornfels 10%	"		Diopside Hornfels layers	45° to C.A	less garnet gradual	bands of diopside hornfels
		562 (171.3)	100%	Diopside Hornfels	light green	(Diop) Pyroxene, Quartz, Feldspar?, Garnet	fine		Garnet bands	50° to C.A	abrupt	
		568 (173)	100%	Hornfels Skarn Stockwork (Garnet Skarn 578'-581') (Diopside Hornfels)	dark brown purple	Hornfels (Biotite, Quartz) Stockwork Skarn (diopside, quartz, garnet wollastonite) late veins (quartz, fluorite, amphibole, pyrite	fine hornfels, coarse skarn		Diopside Hornfels + Skarn bands	"	abrupt, color change	- skarn layers are parallel i.e. follow original bedding. - late veins are cross cutting - massive hornfels
		592 (180.6)										
		596 (181.7)	100%	Garnet Skarn	red brown	Garnet 70% Pyroxene 10% Amphibole 15%	coarse			55° to C.A.	gradual	massive, vuggy garnet skarn
		604 (184)										
Hornfels		612 (186.6)	100%	Diopside Hornfels (Granite Dike) (Biotite Hornfels)	light green to cream	Hornfels - (Diopside, Quartz, Feldspar) 80% Garnet 20% wollastonite (minor	fine		garnet bands	45° to C.A.	lost in core	red, zoned euhedral garnet bands in creamy diopside hornfels.
		615 (187.5)				End of Hole						

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
									~~473-482~~	~~.004~~	~~.02~~	~~.04~~			
									482-487	.002	.016	.05	8		
Skarn	massive	100%	sc. (yellow fluor.)	diss + qtz veins	<.5%	gar-py skarn qtz-veins with amphibole selvages	.5 cm	1 per 20 cm	487-492	.002	.007	.02	12		
									492-497	.001	.014	.05	6		
									497-502	.001	.015	.06	6		
									502-507.5	"	.007	.02	8		
"	"	100%	massive magnetite 512' sc (Y. F.)	"	<.5%	late calcite quartz-amphibole	veins "	occasional	507.5-513	"	.012	.02	10		
									513-517	"	.007	"	12		
									517-522	"	.01	.04	8		
"	"	"	sc. (Yellow + Blue fluor) mo.	diss	minor	sc. is found in areas of interstitial quartz and fluorite and with qtz-amph veins			522-527	"	.013	.06	14		
									527-532	"	.014	.05	10		
									532-537	"	.025	.09	8		
									537-542	"	.025	.13	6		
									542-548	"	.013	.04	12		
"	"	"	mo. sc	diss + qtz veins	<.5%	qtz-amphibole veins			548-553	"	.017	.12	16		
									553-558	"	.023	.11	10		
"	"	"	mo. sc.	" "	<.5%	" " "			558-563	.034	.014	.09	6		
Diopside alteration		"		" "		" " "			563-568	.003	.006	.03	20		
									568-573	.012	.004	.06	12		larger skarn layers comprise garnet and wollastonite rimmed by diopside hornfels.
" "	some beds have been altered	20%	mo. sc. (yellow fluor)	" "	<.5%	" " " qtz, fluorite			573-578	.001	.005	.03	8		
									578-581	.045	.015	.27	8		
									581-586	.048	.008	.02	6		
									586-591	.001	.005	.02	6		
									591-596	"	.006	.06	6		
Skarn		100%	" " "	" "	<5%	late calcite veins qtz-amphibole "			596-601	"	.006	.06	10		
									601-607	"	.012	.12	4		
Diopside alteration of Biotite Hornfels		100%	" " "	qtz-amph veins		" " dark green amphibole stockwork		2%	607-612	.001	.023	.42	2		
									~~612-615~~	~~.004~~	~~.003~~	~~.02~~	~~18~~		

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-15	TOTAL DEPTH: 512' (156m)	SHEET Nº: 1
HOLE LOCATION: ≈14+50NW, ≈10+00SW / AZIMUTH: 045	DIP: -45° / COLLAR ELEVATION: ≈ -40m	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
						casing						
Granite		17 (5.18)		Megacrystic Biotite Granite	grey to rusty	K-feldspar 40% plagioclase 30-35% quartz 25-30% biotite 2-3% (quartz monzonite composition)	megacrysts up to 2 cm				lost in core	quartz eyes, plagioclase crystals and megacrysts of potash feldspar occur in a matrix of fine plag, qtz + K-feldspar cut by a weak quartz stockwork
		73 (22.26)		(unconsolidated clay)								
		79 (24)										
		127 (38.7)		(unconsolidated clay)								
		139 (42.3)										

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-15	CORE SIZE: HQ 17'-372' NQ 372'-512'	DIP TESTS: 43° at 512'
OBJECTIVE: test northwest skarn	STARTED: July 13 1981	COMPLETED: July 17 1981	LOGGED BY: S. Barnhill

ALTERATION TYPE	ALTERATION STYLE	ALTERATION %	MINERALIZATION ORE MINERALOGY	ORE STYLE	ORE %	GANGUE MINERALOGY	GANGUE STYLE	GANGUE %	ASSAYS INTERVAL & NUMBER	WO_3	MoS_2	MoO_3			COMMENTS
			casing												
sericite clay alteration of feldspar, rusty adjacent to fractures no apparent alteration around quartz-mo veins	fracture control	2%	py. stringers mo.	qtz veins	up to 20% of veins	py-calcite-sericite quartz	late fractures vein 1mm to 1.5cm	minor	22-27		.001	.006			-py-calcite veins cut mo-qtz veins some sections have a fine groundmass with 5 mm phenocrysts i.e. good porphyritic texture. other sections have a seriated texture.
									67-73		"	.015			
clay alteration		70%													
									92-97		.008	.084			
									97-102		.025	.027			
									102-107		.15	.048			
									107-112		.002	.059			
									117-122		.01	.028			
intense clay alteration									122-132		.017	.048			

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 2
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Granite				aplite band								
				good porphyry texture								
				pegmetite-aplite dike (3cm)								
		254 (77.4)										
				Fine Biotite Granite	grey	biotite 4% magnetite 1-2% quartz 30% plagioclase 30% K-feldspar 40%	med		banded	60° to C.A.	lost in core	banded irregular biotite distribution occasional megacryst
		267 (81.4)										
				Monzonite inclusion	dark grey	biotite 7% plagioclase 50% quartz 10% K-feldspar 30%	med				sharp 90° to C.A.	ophitic texture biotite and plagioclase laths
		279 (85.1)										
				med. Biotite Granite	grey	biotite 7% K-feldspar 30% quartz 30% plagioclase 30%					indistinct	
		286 (87.2)										
				Monzonite inclusion	dark grey	(as above)					distinct	
		317 (96.6)										

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	WO_3	MoS_2	MoO_3			
			less mo + qtz veining						162-172		.001	.034			
									182-187		.027	.048			
									187-192		.16	.032			
									192-197		.001	.032			
									207-212		.001	.022			
									247-254		.026	.005			
									254-259		.001	.017			
clay		5%							259-263		.001	.008			
									263-267		.001	.007			
									267-272		.001	.007			
sericite	fractures	.5%	py	fractures		barren pegmetite dike									
clay + sericite															
(intense clay		70%													
. . . . .	. . .	. . .													
									312-317		.001	.002			

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 3
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Granite		324 (98.8) 327 (99.7) 332.6 (101.4) 340 (103.7)		alternating Granite and Monzonite inclusions	dark grey	compositions as previously described	coarse granite medium monzonite				sharp 40° to C.A.	- ophitic texture in Monzonite - megacrystic granite - chill boundary in granite adjacent to monzonite xenoliths
			100%	Monzonite Porphyry inclusion	dark grey	7-10 % biotite 35% K-feldspar 40% plagioclase 15% quartz	1 cm. phenocrysts				coarse granite at contact	15% phenocrysts in a lath like groundmass
		349 (106.4)	100%	Aplite	white	<. 5 % biotite 50% K-feldspar 25% quartz 25% plagioclase	fine-med		banded	70° to C.A.	sharp 40° to C.A.	banded (coarse to fine)
Limestone		355 (108.4) 396 (120.7)	100%	(amphibole) Pyroxene - Garnet Skarn	dark green + red brown	garnet 45% pyroxene 30% amphibole / magnetite 15% occasional biotite + wollastonite	coarse				gradual appearance of wollastonite	- fine, closely spaced parallel quartz veins cut massive garnet pyroxene skarn - occasionally these veins are rimmed by amphibole + magnetite
			100%	Pyroxene - Wollastonite - Garnet Skarn	pale green + white	garnet 35% pyroxene 20% wollastonite 25% fluorite 10%	(5 mm)		mineral banding	30° to C.A.	90° to C.A. sharp	euhedral green garnet in wollastonite matrix
Granite		403 (122.9)	100% 33%	Aplite	grey	quartz 25% K-feldspar 45-50% plagioclase 30% biotite <1%	fine				chill in granite lost	fine equigranular
		430 (131.1) 479 (146)	50% 100%	Megacrystic Biotite Granite	grey	K-feldspar 40% plagioclase 35% quartz 25% biotite 2-3%	coarse				lost	megacrystic - seriated texture

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	WO_3	MoS_2	MoO_3			
sericite	fracture	minor				sericite - pyrite quartz veins	veins cutting both rock types	1%							
"	"	"				quartz veins	1mm	.5%	342-349		.005	.004			
"	"	"				sericite - py quartz			349-355.5	.01	.001	.003			
metasomatism	massive skarn	100%	SC. (yellow fluorescent)	fine diss. qtz vein	<.5%	fine closely spaced quartz veins oriented from 90° to 0° but usually parallel	<1mm to 5mm	5-15%	355.5-360	.09	.002	.011			well developed (barren) sheeted quartz vein system
									360-365	.08	.002	.004			
									365-370	.16	.001	.022			
									370-375	.16	"	.008			
									375-380	.04	"	.003			
									380-386	.02	"	.001			
						quartz-calcite-fluorite veins with amphibole magnetite scheelite selvages	5mm	<1%	386-391	.02	"	.001			
									391-397	.01	.002	.001			
									397-403	.06	.006	.019			
"	massive		" " "	finely diss hairline F.	<.5%				403-408	.02	.003	.004			granite contains biotite amphibole and a skarn inclusion at the contact (fine + hard contact)
rusty sericite	fractures		" " "	with quartz veins	trace	qtz-py-sc-calcite		rare	408-418	.02	.002	.004			
clay	intense	25%													

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 4
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Granite ↓			100%	Porphyritic Biotite Granite	grey with pinkish phenocrysts	K-feldspar phenocrysts 15% Quartz eyes 10% biotite 2% fine groundmass	1 cm .5cm 2mm		occasional aplite band	40° to C.A.		porphyritic
		512' (156)				End of Hole						

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-15	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER						
clay	along fractures to gouge	20%	mo	quartz veins	minor	quartz veins	1mm	<.5%							
			End of Hole												

CSE-MTR. '81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-16	TOTAL DEPTH: 417' (127m)	SHEET Nº: 1
HOLE LOCATION: ≈ 16+50NW, ≈8+10SW; AZIMUTH: 270°	DIP: -60°; COLLAR ELEVATION: ≈ -58 m	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
						casing						
Hornfels		10 (3.05)	100%	Biotite Hornfels	grey to dark purple	quartz, biotite, andalusite	fine with spots 1-3mm		biotite + spotted layers. green bands	30° to C.A.		massive with spotted + banded sections
		69 (21)	0%	no recovery try cored								
		82 (25)										
		118 (36)	100%	Siliceous Hornfels	light purple with green bands	quartz, biotite, diopside	fine with 3mm spots		biotite lamination	40° to C.A		faint spotting
		138 (42)	100%	Biotite Hornfels		" " " andalusite	fine		spotted layers	50° to C.A		spotted + massive

PAGE 1 OF 6 Nº 81-16

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-16	CORE SIZE: HQ (10'-62') NQ (62'-417')	DIP TESTS:
OBJECTIVE: test continuity of northwest skarn	STARTED: July 18 1981	COMPLETED: July 22 1981	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER						
rusty fractures, highly broken up to 84', rounded pebble recovery			sc.	fractures	trace	quartz veins with light brown selvages	1 mm to 2 cm	1%							
			mo	one qtz vein at 107'	trace										
			py	diss		diopside veins with bleached siliceous selvages	2 mm to 3 cm	1%							
						sericite-calcite-py	fractures								
			at 91' yellow fluor. sc. with diopside pod		.5% of pod										
Diopside	bands		sc	diss	rare trace	-biotite rimmed quartz veins. -pyroxene blebs with siliceous selvages -late calcite veins									
rusty fractures			py mo.	diss qtz vein	minor	qtz veins									

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 2
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Hornfels		169 (51.5)										
		217 (66)	100%	Biotite Spotted Hornfels	black spots in a grey background	biotite, quartz, diopside	coarse 3 mm spots in a fine matrix		occasional banded layer	40° to C.A.	distinct 30° to C.A.	spotted with dense, even, 3mm biotite
		268 (81.7)	100%	Biotite Hornfels	grey to dark purple black	quartz, biotite, andalusite, sericite	fine with occasional coarse fragments (up to 1cm)		.5mm biotite layers + spotted layers	30°-35° to C.A.	gradual	usually massive with occasional laminated or spotted layers
		281 (85.7)		Siliceous Hornfels	light purple to buff	quartz, biotite	fine		fine banding	40° to C.A.	gradual	
		305 (93	95%	Finely laminated Biotite Hornfels (Granite Dike)	alternating light + dark bands purple to buff	quartz, biotite, diopside	fine to med		light + dark laminations <1mm	50° to C.A.		finely laminated bleached appearance minor spotting

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-16	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3			
rusty	fractures	1%				quartz - sericite	veins up to 1 cm usually 1mm	1%							
clay gouge from 243 highly fractured 239-264			mo.	qtz vein	trace	diopside band. quartz sericite	one band 1mm to 1cm vein	<1%							
rusty						" "	up to 4 cm	2%							more intense veining, lighter color.
rusty fractures			mo.	" "	.5% of one vein	quartz diopside veins	1mm-1cm vein to stockwork	3%	285-295	.01	.007	.01			buff colored siliceous selvages adjacent to quartz-sericite-mo veins

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-16	TOTAL DEPTH:	SHEET Nº: 3
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Hornfels												
		337.5 (102.9)		(fault zone)		(clay)						
		343 (104.6)		Biotite Hornfels	black to purple	biotite, quartz	fine with 3 mm spots		fine black lamination	35° to C.A.	gradual	spotted to massive
		384 (117)		Biotite spotted Hornfels	" "	biotite, quartz, diopside	3 mm spots		"	40° to 45° to C.A.		massive with 3mm spots
		417 (127)				End of Hole (lost)						

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER						
(fault gouge)		100%													
highly broken, pebble recovery						occasional quartz	vein up to 2cm								
rusty occasional diopside band	fractures	5%				" "	" 1mm								
						End of Hole									

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-17	TOTAL DEPTH: 309' (94.2m)	SHEET Nº: 1
HOLE LOCATION: 15 +50 NW 12+18.75W / AZIMUTH: 045°	DIP: -45° / COLLAR ELEVATION: -135.46	SCALE OF GRAPHIC LOG: 1:1000	LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
						casing						
Quartzite	Q	15 (4.57)	100%	Quartzite	white + pinkish	quartz, feldspar minor biotite + andalusite	med	well sorted	spotted layers	85° to C.A.	fault contact lost	massive with occasional spotted layers
Hornfels	~	90 (27.4)	23%	(fault)								
		103 (31.4)	100%	Biotite spotted Hornfels	grey-black	biotite quartz	fine with 3mm spots		massive and spotted layers	35° 40° to C.A.	gradual	Biotite spots with massive sections
			50%									

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-17	CORE SIZE: N.Q.	DIP TESTS: 309' = 40°
OBJECTIVE: test continuity of southwest skarn	STARTED: July 24 1981	COMPLETED: July 25 1981	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
rusty biotite along fracture			mo. sc. (yellow fluor.)	vein	rare	qtz. veins	up to 4 cm	1%							
									53-63	.012	.005	.01			
rusty hornfels	fractures		pyi	stringers + pods	<1%	quartz veins	≈.5cm veins	1%							

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 2
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Hornfels				fault gouge								
		198 (60.4)	100%	Massive Biotite Hornfels	black to purplish or grey	quartz, biotite, diopside	fine	good	spotted layers	40° to 60° to C.A.	lost	massive with occasional spotted layers, cut by granite veins
		227 (69.2)										
		237 (72.2)										
		241 (73.5)										
		245 (74.7)										
Granite		253 (77.1)		fine Granite, quartz veins + magnetite gouge		mostly clay, quartz, biotite 1-2 % 263.5 to 266.5 (hemeatite, carbonate, magnetite chlorite)	fine to med				lost	large quartz veins inclusions of hornfels
		261 (79.6)										
		274 (83.5		Megacrystic Biotite Granite	green + grey	biotite 3 % k-feldspar 35 % plagioclase 35 % quartz 30 %	med to coarse					megacrystic
		309 (94.2)				End of Hole						

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
			Py > Po	lenses stringers	2%	quartz lenses			204-214	.003	.001	.01	3		fine grained granite veins contain 1% biotite
			sc. (yellow fluorescent)	with quartz veins	1% of vein	granite veins and stockwork quartz veins from 227' to 253'	stockwork	4%							
									227-237	.003	.001	.01	1		
									246-253	.005	.001	.1	1		
clay unconsolidated	gouge	60%	sc. (yellow fluorescent)	diss in massive magnetite qtz veins	<5%	large quartz veins 258', to 241' 263'			253-263.5	.001	.001	.01	1		magnetite section has a 45° contact with the granite
									263.5-266.5	.002	.045	.12	58		
clay (green plagioclase)		30%							274-284	.001	.004	.01	1		
						End of Hole									

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172 | DRILL HOLE Nº: 81-18 | TOTAL DEPTH: 516' (157m). | SHEET Nº: 1

HOLE LOCATION: ≈17+07NW, ≈12+65SW. | AZIMUTH: 045° | DIP: -60° | COLLAR ELEVATION: ≈ -210 m | SCALE OF GRAPHIC LOG: 1:1000 | LOGGED BY: S. Barnhill

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
						casing						
Hornfels ↓		41 (12.5)	62%	Hornfels	dark purple to black	quartz, biotite	fine				lost	faint spotted texture
Granite ↓		62 (18.9)	71%	(hornfels inclusions) Fine Leucogranite	white + light green	quartz eyes K feldspar plagioclase	fine to med (mm)				lost	rounded hornfels inclusions
		80 (24.4)	75%	unconsolidated – altered Biotite Granite	light grey green	biotite 3% plagioclase 35% (altered to green clay) K-feldspar 35% quartz 30%	.5cm				gradual	unconsolidated clay gouge

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT: Mt. Reed P-172	DRILL HOLE Nº: 81-18	CORE SIZE: N. Q.	DIP TESTS: 516' = 60°
OBJECTIVE: test for Mo in granite	STARTED: June 26 1981	COMPLETED: June 28 1981	LOGGED BY: S. Barnhill

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	MoS_2	MoO_3	WO_3	Sn		
very fractured			mo.	fractures	minor	quartz and carbonate	veins 1mm	minor							
									49-62	.005	.003	.01			
clay	extreme	50%	mo.	diss.	minor	dolomite	stockwork	3%	62-67.5	.013	.001	.01			
									67.5-80	.007	.001	.01			
soft, green clay mineral has replaced plagioclase mainly unconsolidated	extreme	50%				dolomite	1mm to 2cm veins								
									142-152	.003	.001	.01			

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 2
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Granite		206 (62.8)										
				Megacrystic Biotite Granite (altered)	light green + grey	biotite 3% quartz 30% K-feldspar 35% plagioclase 35%	med .5-2cm megacrysts				gradual	megacrystic
		2 (7:.7)		(rusty clay zone)								
		272 (82.9)										

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	Mo as MoS₂					
clay alteration green feldspars	feldspars fractures	35%	py, mo,	diss (315'-330'	minor	calcite	veins								as above but less altered, usually consolidated
						qtz-sericite-py	" 1.5cm	minor							
green coating on fractures						one aplite vein	2 cm								
gouge															
some sericite									315-325	.009					

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº:	TOTAL DEPTH:	SHEET Nº: 3
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Granite												
		352 (102.3)	100%	(altered + veined) Biotite Granite	dark green + pink	clay, serpentine, pink dolomite remnant granite	med				gradual	schistosity in clay mineral
		366 (111.6)	100%	Megacrystic Biotite Granite	grey green	biotite 3% quartz 30% K feldspar 35% plagioclase 35% minor - calcite pyrite sericite	" 2 cm megacrysts				sharp 30° to C.A.	
		391 (119)		Aplite Dikes	white	< .5% biotite	fine				30° to C.A.	4 dikes cutting granite
		394.5 (120)	30%	altered Megacrystic Biotite Granite	light green to white	biotite 1-2% (as above)	med				gradual	
		418 (127.5)	100%	(altered and veined) Leucogranite	light to dark green + white	no biotite 35% dark green clay mineral 30% quartz 35% K feldspar	"				gradual	highly altered and veined
		460 (140)	100%	Megacrystic Biotite Granite	grey	as above	med-coarse				gradual	
		477 (145)										

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-18	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	total Mo as MoS_2					
									325-335	.013					
clay	extreme	80%	py. mo.	calcite	<.5%	dolomite veins calcite veins	2 cm 1-3 mm	10% 1%	355-365	.007					
"			py Cu. Mo	diss + stringers diss	.5% very rare	calcite - sericite veins	vein + interstitial in granite vugs	1%							mariolitic
sericite			mo, py	fractures diss	minor				388-394	.012					
clay		25%	mo, py	" "	"				408-418	.003					
"	extreme	50%	mo. py.	veins diss, breccia + veins	<.5%	quartz - carbonate - mo - graphite quartz - mo	veins veins		418-423 423-428 428-433 433-438 438-442 442-448 448-458	.028 .005 .002 .075 .164 .01					sheared graphite + carbonate coating along fractures slickensides? 30° to C.A. carbonate breccia textures
"		10%	py.	diss + stringer	1%				458-468 468-478	.005 .003					

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-18	CORE SIZE:	DIP TESTS:
OBJECTIVE:	STARTED:	COMPLETED:	LOGGED BY:

ALTERATION			MINERALIZATION						ASSAYS						COMMENTS
TYPE	STYLE	%	ORE MINERALOGY	STYLE	%	GANGUE MINERALOGY	STYLE	%	INTERVAL & NUMBER	total Mo as MoS_2					
sericite clay	patches feldspar	5% 45%	mo, py	veins	1%	calcite, sericite, quartz graphite	up to 3 cm veins	5%	478-488	.034					
sericite	diss. + fractures	3%	py	fractures diss	1%				408-498	.005					
clay	fractures + feldspars	10%							498-508	.001					

CSE-MTR.'81

CANADIAN SUPERIOR EXPLORATION LIMITED

PROJECT:	DRILL HOLE Nº: 81-18	TOTAL DEPTH:	SHEET Nº: 4
HOLE LOCATION: / AZIMUTH:	DIP: / COLLAR ELEVATION:	SCALE OF GRAPHIC LOG:	LOGGED BY:

FORMATION OR MEMBER	GRAPH. LOG.	DEPTH TO SCALE	% REC.	ROCK TYPE	COLOUR	MINERAL / PARTICLE COMPOSITION	TEXTURE: GRAIN SIZE	TEXTURE: SORTING FABRIC	BEDDING: TYPE	BEDDING: ATTITUDE	BASAL CONTACT	STRUCTURE
Granite		489(149)		altered Leucogranite	green	<1% biotite 5% sericite 25% quartz 35% green clay	med				gradual	sericite patches + stockwork veining
		516(157)	100%	Megacrystic Biotite Granite	grey	1% biotite 35% K-feldspar 1% sericite 30% quartz 30% plagioclase	med					occasional megacryst up to 2 cm, K-feldspar + rounded quartz eyes in a fine feldspar matrix
						End of Hole						

CSE-MTR.'81

APPENDICES III

DRILL HOLE SUMMARIES

SUMMARY D.D.H. No. 81-1

Casing	0 - 50
Hornfels	50 - 168
Granite	168 - 217

Hornfels Description

Fine, hard hornfels varies in colour from grey to red brown. Bedding (75° to 90° to the core axis) is marked by changes in composition, colour and cordierite content. Quartz and biotite are the major components. Some purplish quartz rich sections resemble quartzite. Fault gouge, core loss and rounded hornfels pebbles found at 107 feet suggest a fault.

As the granite is approached quartz veins become more frequent. When this veining becomes intense it gives a brecciated texture, angular hornfels fragments are found in a quartz matrix. Chlorite and clay alteration along fractures has occurred near granite and quartz veins.

Granite Description

Medium grained quartz feldspar porphyry with 5% biotite.

The granite is extremely altered. It has a light green colour and is weakly consolidated. Some sections are completely altered to clay.

Mineralization

Traces of scheelite and pyrite are found in hairline fractures in the top 106 feet of hornfels. Quartz veins also contain these minerals. Pyrrhotite, sphalerite and pyrite are found at 83 feet and 105 feet where quartz veins are larger and more abundant.

Molybdenite and pyrite are found within quartz veins in the hornfels section closer to the granite (117 to 183 feet). Molybdenite rosettes along fractures and minor pyrite stringers are also found in the altered granite.

SUMMARY D.D.H. No. 81-2 & 81-3

D.D.H. No. 81-2

Casing	0 - 30
Granite	30 - 123
Skarn	123 - 149
Hornfels	149 - 419

D.D.H. No. 81-3

Casing	0 - 25
Granite	25 - 107
Skarn	107 - 118
Hornfels	118 - 407

SUMMARY D.D.H. No. 81-2 & 81-3 (cont)

Hornfels Description

Dark, red brown hornfels is cut by quartz pyrite veins. Intermittent sections have a spotted texture due to cordierite and/or biotite porphyroblasts. The spots are generally cordierite (½ cm) at the first of the hole and biotite 1 mm in size toward the end of the hole. Biotite rims cordierite spots suggesting that biotite replaces cordierite. In both holes there is a distinctive, even spotted, hornfels found near the granite. This section, containing only 1 mm biotite porphyroblasts, can be correlated between holes. It parallels the granite contact.

Fault gouge is found in an 11 foot section in the upper parts of both holes (D.D.H. No. 81-2 42' - 44' and D.D.H. No. 81-3 31' - 42').

Silicification (ie. lack of biotite) in the hornfels appears to correlate with calcite veining. Large, euhedral calcite crystals found in D.D.H. No. 81-2 are associated with galena and pyrite. Pyrite and calcite veins don't contain MoS_2 or WO_3 and are usually found as coatings on fractures. Calcite veining cuts mineralized quartz veins and is likely a late, fracture controlled stage. A soapy, soft, light green mineral (serpentine?) and a blue coating is also found on fractures and in shear zones.

D.D.H. No. 81-3 contains unique "Mica Hornfels" unit. A distinctively darker hornfels is cut by quartz biotite veins up to 9 cm in width. Black biotite is found;

(1) as coarse blebs and veins within the large quartz veins (30% of vein) and
(2) as rims along smaller quartz veins.

Chlorite stockwork hornfels (289' - 314') contains a network of massive dark green chlorite veins.

Granite Description

Two types of granite are present. These have been called leuco-granite and biotite granite. The leuco-granite is found close to the skarn contact. Gradational contact relationships between the two granite types suggests that the leuco-granite was formed by an alteration of the biotite granite.

SUMMARY D.D.H. No. 81-2 & 81-3 (cont)

Biotite Granite	1.	contains up to 5% biotite
	2.	has a dark grey colour
	3.	is rarely cut by veins
Leuco-granite	1.	contains very little to no biotite
	2.	has a light green colour
	3.	large feldspar phenocrysts
	4.	contains several carbonate veins and shear zones

Both granites contain a soft, light green, mineral (up to 20%). This appears to be an alteration of feldspar. The abundance decreases away from the contact. Clay alteration is more intense in the leuco-granite. D.D.H. No. 81-2 changes granite types several times while 81-3 changes from leuco-granite to biotite granite only once, at 64.5 feet from the contact.

Skarn Description

Diopside and Magnetite are the major components in skarn intersected in both D.D.H. No. 81-2 and D.D.H. No. 81-3, (Magnetite Diopside skarn). D.D.H. No. 81-2 has a breccia texture due to intense calcite and hematite veining. This veining gives the skarn a red and green colour. From 317.5 to 326 the skarn alteration is not as great. Here, pods of limestone are cut by alternating magnetite and diopside swirly layers. Chlorite is found in a shear zone at 312'.

In D.D.H. No. 81-3, skarn veins cut coarse recrystallized limestone. In sections (327' - 328', 330.5' - 333.5') the skarn is massive. The stockwork skarn contains 1 mm diopside veins which cut fine black ludwigite veins. Late calcite stockwork cuts all skarn types. Massive skarn contains magnetite, diopside, serpentine and occasionally garnet.

Mineralization

In D. D.H. No. 81-2 blue fluorescent scheelite is found with quartz-pyrite veins. Large quartz veins sometimes contain sphalerite. Stockwork quartz veining contains molybdenite. Molybdenite is also associated with carbonate veins within the altered leuco-granite. Molybdenite was not identified in biotite granite.

In D.D.H. No. 81-3 coarse (up to 3 mm) euhedral scheelite crystals are found in the "Mica Hornfels" unit, in patches within the large biotite-quartz veins. Euhedral crystals are also plentiful in smaller quartz veins. Pyrite-calcite veins are barren of scheelite but galena was identified in one vein.

SUMMARY D.D.H. No. 81-2 & 81-3 (cont)

Scheelite found in skarn is yellow fluorescent in contrast to the blue colour found in quartz cutting hornfels. It is most abundant in garnet layers. However it is disseminated throughout both massive and veined skarns.

SUMMARY D.D.H. No. 81-4

Casing	0 - 52
Granite	52 - 70
Hornfels	70 - 339

Granite Description

Fine-grained with only rare feldspar phenocrysts. Only occasional feldspars have been altered to the soft, light green mineral (fine sericite) that was ubiquitous in the granites found in D.D.H. No. 2 and 3 (SW side of granite). The granite contains 5% biotite and is rusty and weakly consolidated in places due to clay alteration. Biotite, muscovite granitic veins cut hornfels near the granite contact and in the section from 168.5' to 237'.

Hornfels Description

Dark biotite hornfels has thin biotite beds at 30° to 60° to the core axis. Some sections are massive or spotted with cordierite or biotite. Several intervals are cut by calcite stockwork or pink dolomite veins. These sections have a light green colour which may be due to diopside alteration.

At 133' to 168.5' the sediment has a lighter colour and a sugary texture. It appears to have a higher quartz-biotite ratio than the surrounding hornfels.

Mineralization

Quartz-muscovite veins are rimmed by molybdenite and pyrite specks. These veins are the most abundant and mineral rich near the small granite dikes and the granite contact. Fluorite and blue fluorescent scheelite were also identified in these veins.

SUMMARY D.D.H. No. 81-5

Casing	0 - 42
Granite	42 - 81
Hornfels with granite dikes	81 - 170

SUMMARY D.D.H. No. 81-5

Granite

Fine, biotite, granite with quartz and feldspar phenocrysts. The contact with the hornfels is a clay and breccia zone. Granite veins contain biotite and muscovite (along fractures).

Hornfels

Most of the section is spotted hornfels (½ cm biotite spots). Some sections are massive or lighter in colour. The lighter sections contain carbonate veining.

At 153' the hornfels shows fine bedding at 45° to the C.A. A strong foliation (0° to C.A.) and sheared rock suggest a fault at the end of the hole.

Mineralization

Mineralization is found in 1 mm to 2 cm quartz muscovite veins. Molybdenite and pyrite usually rim the veins. Granite dikes contain minor specks of molybdenite and are cut by the mineralized quartz veins. Fluorite was also identified in these veins.

Sheared zones contain molybdenite specks and fracture coatings.

SUMMARY D.D.H. No. 81-6

Casing	0 - 10
Fine Granite	10 - 105
Megacrystic Granite	105 - 448

Fine Granite

This unit varies from aplite (10' - 28') to a banded porphyry (28' - 65') to a fine biotite granite (65' - 105').

The porphyry section of this unit has 2 mm euhedral quartz crystals as well as feldspar and biotite phenocrysts. The banded appearance is caused by changes in grain size. Quartz crystals grow in bands that cut the core at 35° to the axis. The groundmass is aphanitic.

An irregular (mottled) texture in the fine granite is caused by variations in biotite content and grain size.

The aplite unit has a sugary texture and contains little biotite.

SUMMARY D.D.H. No. 81-6 (cont)

Megacrystic Granite

The megacrystic granite unit has been subdivided on the basis of alteration. The first 192' of this unit is rusty, weakly consolidated and frequently broken. Sericite has developed along fractures and feldspars have undergone clay alteration.

The bottom section of the hole (297' - 448') has fresh granite. The feldspars range up to 2 cm in size, are zoned, and have euhedral shapes. This medium to coarse grained granite has a seriate texture and contains 5% biotite.

Mineralization

Molybdenite bearing quartz veins cut the granite in D.D.H. No. 81-6. Scheelite and pyrite are also found in these veins. The veins range in size from 1 mm to 2 cm. From 206' to the end of the hole (448') the veins have an average density of one vein every 8" (weak quartz vein stockwork).

SUMMARY D.D.H. No. 81-7

Casing	0	-	12
Skarn	12	-	93.5
Granite	93.5	-	107

Skarn

The predominant skarn forming minerals found are:

1) pyroxene
2) wollastonite
3) garnet

Further skarn subdivisions are based on the relative abundance of these minerals and varying textures.

Garnet-Wollastonite Skarn comprises 80% wollastonite crystals with subhedral garnet growth along fractures. This gives it an overall light colour and network appearance.

Magnetite-Diopside Skarn has a swirly appearance due to alternating garnet, magnetite and diopside layers. Pyroxene skarn veins cut the Garnet-Wollastonite Skarn and the contact between the two types is distinct.

SUMMARY D.D.H. No. 81-7 (cont)

Wollastonite Diopside Skarn has a mottled patchy appearance. Garnet, fluorite, feldspar and hematite are also present.

An unusual skarn type, found near the aplite contact, comprises a soft, dark brown, coloured mineral. It also contains pyroxene bands and garnet.

Aplite

Very fine grained, quartz rich rock which is cut by veins of calcite, limonite and an unknown bright yellow-green mineral. Due to extremely difficult drilling this hole was not continued to completely confirm the presence of granite.

Mineralization

Finely disseminated, yellow fluorescing, scheelite is found throughout the skarn. However, garnet appears to have a higher concentration of scheelite than other skarn minerals. Scheelite is also found in hairline fractures.

Molybdenite was observed within quartz veins and filling fractures.

SUMMARY D.D.H. No. 81-9 & 81-10

D.D.H. No. 81-9

Casing	0 - 12
Hornfels (31' massive sulphide)	12 - 237
Limestone (21' skarn)	237 - 395
Granite	395 - 433

D.D.H. No. 81-10

Casing	0 - 10
Hornfels (33' massive sulphide)	10 - 359.5
Limestone (55' skarn)	359.5- 526.5
Granite	526.5- 535

Hornfels

This unit comprises alternating massive, biotite hornfels and biotite, cordierite, spotted hornfels. Areas containing sulfides are a light green colour (diopside). Green diopside veins have bleached (siliceous?) selvages. These altered areas are located in faulted areas. Shear zones may have channeled Ca and sulphide bearing fluids into the hornfels.

SUMMARY D.D.H. No. 81-9 & 81-10 (cont)

"Brecciated Hornfels" is found in D.D.H. No. 81-10 (101' - 105'). Well indurated hornfels fragments are elongated parallel to the core axis. This texture suggests a compressive fault zone.

As the limestone unit is approached carbonate veins become abundant.

Limestone

The limestone is grey to buff coloured. This colour change may be due to the conversion of dolomite (buff) to limestone and periclase (grey). $Ca\ Mg\ (CO_3)_2 \rightarrow MgO + Ca\ CO_3 + CO_2$. The pseudobreccia texture found in sections of the core can be explained by the above reaction not going to completion. Angular dolomite patches are found in a periclase calcite matrix.

The limestone is cut by skarn veins giving it a stockwork texture. The earliest veins, also the only veins found in the least altered limestone, are ludwigite and/or magnetite. A bleached selvage is frequently observed around these <1 mm black veins. The minerals ludwigite and magnetite also developed as euhedral crystals (up to 5 mm) within the limestone.

Large, colourful skarn veins cut the small black veins. The minerals found in the later veins include chondrodite, serpentine, diopside, garnet, hematite and magnetite. Coarse, white calcite and ludwigite-magnetite selvages are almost always present.

Calcite - serpentine veins cut all previously described stockwork. Euhedral calcite crystals suggest open space filling in at least some veins.

Stockwork veining is most abundant - 1) near the hornfels contact, 2) the granite contact, 3) or adjacent to a granite dike. When stockwork becomes intense, massive skarn is formed. That is, massive skarn is complete replacement of limestone while stockwork is partial replacement along fractures.

Granite

The granite contact between the two holes was found to be vertical. The granite in D.D.H. No. 81-9 has a 10 m banded, fine border phase which was not present in the deeper hole D.D.H. No. 81-10. The banded appearance is due to changes in grain size and composition. Some bands contain 10% magnetite or abundant biotite.

The main granite is porphyritic and contains 5% biotite.

SUMMARY D.D.H. No. 81-9 & 81-10 (cont)

Mineralization

Sixteen feet of massive sulfide (pyrrhotite) and fifteen feet of sub-massive sulfides was intersected in D.D.H. No. 81-9. This zone appears to be bounded by faults. Outside of this area, only minor pyrite stringers were found. Quartz fluorite and amphibole are the associated gangue minerals. In D.D.H. No. 81-9 the massive zone comprises up to 70% pyrrhotite with minor cross cutting chalcopyrite stringers or disseminated spots. The sub-massive sulphides have up to 20% sphalerite intergrown with the pyrrhotite. Remnants of the original hornfels host can be found in altered green calc-silicate hornfels. Calc-silicate hornfels, in turn appears to be replaced by massive sulphides.

D.D.H. No. 81-10 also intersected the massive sulphide zone within the hornfels (33'). Euhedral pyrite and massive coarse biotite are abundant at the top of this mineralized zone. The bottom section of this zone, however, contains massive pyrrhotite and sphalerite similar in appearance to the sulphide zone in D.D.H. No. 81-9. Pyrite-biotite veins cut pyrrhotite-amphibole sections. Blue fluorescing scheelite is frequently found in the biotite altered fractures. D.D.H. No. 81-10 also contains scheelite in 15' of Garnet-Amphibole-Diopside Skarn. The scheelite is most concentrated in amphibole patches. Molybdenite was noted in some quartz-muscovite veins which cut the hornfels.

Minor scheelite and molybdenite are found disseminated within limestone stockwork veins. The largest veins contain the most scheelite, usually concentrated in garnet bearing vein cores. The scheelite within the limestone is yellow fluorescing in contrast to the blue colour found in the hornfels unit.

Massive, magnetite-diopside skarn, found:

1) at the hornfels-limestone contact
2) adjacent to the granite dike in D.D.H. No. 81-9 and
3) adjacent to the granite in D.D.H. No. 81-9 contains approximately .5% disseminated yellow fluorescing scheelite. Unfortunately, the total thickness of this possible ore type is 21' in D.D.H. No. 81-9 and only 5.5' in D.D.H. No. 81-10. The texture of the skarn can be described as coarse "wrigglite". Alternating bands of diopside, magnetite, and chondrodite create a swirly texture sometimes with a concentric ring structure.

The granite limestone contact in D.D.H. No. 81-10 appears to be barren. Instead of magnetite diopside skarn, a biotite-pyrite assemblage is present.

SUMMARY D.D.H. No. 81-11

Casing	0 - 5
Quartzite	5 - 257
Hornfels	257 - 448
Skarn	448 - 665
Granite	665 - 717

Quartzite

Rusty, white quartzite comprises recrystallized quartz grains, up to 1 mm in size, with minor feldspar grains. Occasional andalusite or biotite porphyroblasts cut the core in bands trending 60° to 80° to the axis.

The quartzite is in fault contact with the hornfels unit. However, the biotite content in the quartzite increases near the fault, indicating that a gradational facies change is not out of the question. Molybdenite bearing quartz veins are abundant near the basal contact of this unit.

Hornfels

Hornfels texture alternates from massive to spotted. Green (diopside) bearing hornfels is usually found in areas of calcite veining i.e. fractured areas or in the vicinity of a shear zone. Calcite, pyrite and serpentine coat fractures and form late veins.

Skarn

Garnet and Pyroxene are the main skarn minerals. Fluorite and quartz are also present and wollastonite has developed close to the granite. Biotite forms selvages to calcite veins. The biotite apparently replaces pyroxene in the skarn layers.

The skarn-hornfels contact is marked by 4' of "diopside hornfels". This light green, cherty rock type alternates with "garnet-pyroxene skarn" layers throughout the skarn section. The bands range from a few cm to 15 cm.

The garnet content of the skarn bands increases away from the hornfels contact. Red-garnets form euhedral to subhedral (1 mm to 2 cm) crystals within the dark-green pyroxene layers. Garnets often show skeletal growth or contain fluorite cores.

Massive skarn has formed in the section 585' to 605.2'. Buff coloured grossularite garnets as well as the usual red andradite garnets are found. Massive pyroxene skarn is in contact with the granite.

Two faults cut the skarn (563' and 581') (Sulfide, serpentine and clay breccias).

SUMMARY D.D.H. No. 81-11 (cont)

Granite

- Fine biotite granite
- No megacrysts
- intense sericite alteration
- contains molybdenite and pyrite

Mineralization

Scheelite is in quartz veins which cut the quartzite, hornfels skarn and granite. Molybdenite rims the quartz veins or forms massive lenses within the veins. Fractures, in all rock types, can be coated with molybdenite.

Skarn contains up to .5% disseminated and vein scheelite in <1 mm crystals which fluoresce yellow.

Scheelite content increases toward the granite. Molybdenite is most abundant in the hornfels unit.

SUMMARY D.D.H. No. 81-12

Casing	0 - 7
Quartzite	7 - 239
Transitional Quartzite-Hornfels	239 - 566
Hornfels	566 - 733
Granite	733 - 897

Quartzite

Rust stained, medium grained white quartzite occasionally contains spotted beds (andalusite or biotite spots) trending at 60° to the core axis. Biotite alteration is sometimes present, in a branching, dendritic pattern around fractures.

Biotite altered sections become abundant at 239', forming a purplish mottled quartz rich sediment. It is difficult to distinguish biotite altered quartzite from hornfels, however small sections of light quartzite and dendritic biotite texture suggests that the transitional unit is an alteration of white quartzite. Biotite has apparently been introduced along bedding planes and fractures of the Quartzite Unit to form a purplish mottled rock type.

Hornfels

Spotted to massive hornfels is the rock type found in contact with the intrusion. This unit is cut by calcite-serpentine-pyrite veins and quartz-molybdenite-(fluorite?) veins. Quartz veins occasionally have biotite selvages.

SUMMARY D.D.H. No. 81-12 (cont)

Transitional Zone

Dark purple hornfels is interbedded with the light purple biotite altered quartzite. Disseminated pyrite is abundant in this zone and variable degrees of shattering and calc-silicate alteration has occurred. A light brown mineral, found around fractures, may be sphene.

A large fault breccia (23') marks a change in banding from 60° to 30° to the core axis. A small fold observed in this section of the core (525') suggests structural complexity in this area. A similar change in banding orientation is found in D.D.H. No. 81-12 and D.D.H. No. 81-11, where a fault separates biotite hornfels from quartzite.

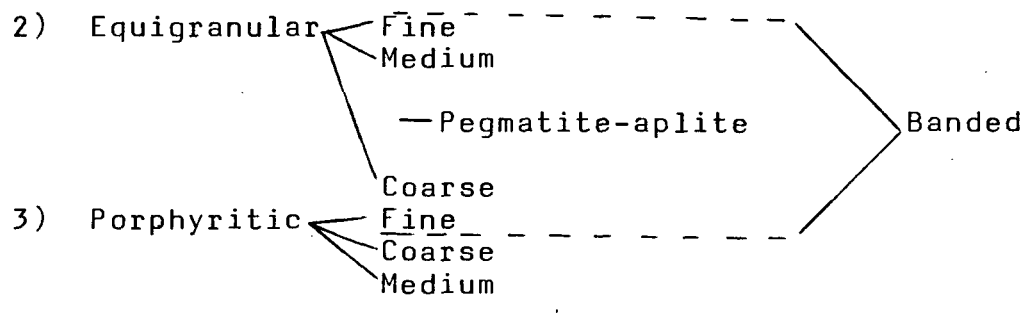
Granite

The granite is highly variable in texture. The immediate granite contact is aplitic with plumose feldspar porphyry appearance. The next section is a fine granitic rock with 5% biotite and occasional coarse pods. Plumose feldspars are also present here. This unit is followed by a medium grained granite with less biotite (2%). It is generally equigranular and has a banding at 60° to the core axis.

The transition to coarse equigranular granite is marked by alternating coarse and fine granite (pegmatite to aplite). Hornfels inclusions (5' and 10' in size) are found at 828' and 858'. The contacts to these hornfels sections have an increased biotite content and a variable grain size (i.e. alternating pegmatite aplite).

The next section of granite is distinctly porphyritic. Phenocrysts, up to 3 cm but usually .5 cm, are found in a fine groundmass. This unit grades into a seriate textured granite, containing only occasional feldspar megacrysts. Sericite alteration decreases down hole, i.e. fine and medium equigranular granite is the most altered.

1) Aplite (Plumose Feldspars)



4) Seriate

SUMMARY D.D.H. No. 81-12 (cont)

Mineralization

Mineralized quartz veins in the quartzite unit have a strong correlation with biotite alteration. They first appear at 215', where they contain "yellow-fluorescent"-scheelite. High scheelite concentration, up to 5% in quartz veins, continues to 240' where quartz-molybdenite veins become abundant. Molybdenite forms 10% of the veins. The abundance and percent molybdenite in the veins decreases down the hole.

The granite, however, contains an interesting amount of molybdenite. It is found in quartz veins that have an average density of one per thirty cm. The molybdenite forms up to 40% of these veins. However, the density and percent molybdenite in these veins rapidly decreases with depth.

Sericite pyrite veins occasionally contain sphalerite or molybdenite. Molybdenite quartz veins generally cut pyrite-sericite veins. Sericite alteration and molybdenite quartz veins are most abundant in the fine and medium grained granite sections.

Hornfels inclusions contain blue fluorescent scheelite and molybdenite.

SUMMARY D.D.H. No. 81-13

Casing	0	-	10
Quartzite	10	-	226
Hornfels	226	-	343.5
Skarn	343.5	-	471
Granite	471	-	516

Quartzite

Quartzite is similar to that described in D.D.H. No. 81-11 and D.D.H. No. 81-12. Once again this unit is in fault contact with the hornfels unit. Biotite alteration in the quartzite increases toward this contact. The biotite alteration begins adjacent to fractures and eventually gives the quartzite a homogeneous purplish colour. All mineralized quartz veins, found in the quartzite unit, are located in biotite altered sections.

Hornfels

Dark purple, massive to spotted hornfels is cut by occasional molybdenite or scheelite bearing quartz veins. Brecciated clay zones, located at 262' and 295', probably represent fault zones. In contrast to the banding in the quartzite, (70° to 90° to the C.A.) banding in the hornfels unit trends at 45° to the core axis.

SUMMARY D.D.H. No. 81-13 (cont)

Skarn

First appears in a ten meter section within the hornfels unit. Light green and creamy white "Diopside Hornfels" marks the contact between biotite hornfels and skarn. It is also found as bands throughout the section. The bands probably have a feldspar, quartz and diopside composition. Coarse green pyroxene and subhedral red garnets (up to 1 cm) form the bulk of the skarn. However, most of the scheelite is found in a massive dark green amphibole section. The scheelite is blue fluorescent and forms up to 5% of amphibole skarn. Cross cutting amphibole skarn and amphibole rims on quartz veins, suggests that this skarn mineral is later than the diopside and garnet.

A section of molybdenite bearing quartz veins followed by near massive pyrrhotite mineralization is found at 240'.

Main Skarn Section

The contact with hornfels is marked by a band of diopside hornfels. A section of roughly banded Garnet Pyroxene skarn is followed by a five meter section of scheelite barren diopside hornfels. Diopside hornfels, cherty light green as previously described, continues to be present throughout the first skarn unit ("banded unit"). Diopside hornfels content however, decreases with depth while garnet becomes plentiful. Light red garnet forms one layer (previously diopside hornfels layer) while red garnet becomes increasingly abundant in the diopside skarn layer. Near massive garnet skarn is found at the end of this banded section.

The next major skarn subdivision is marked by the appearance of wollastonite (398'). Dark green pyroxene, usually the predominant skarn mineral, is spotted with bladed wollastonite clusters and occasional anhedral garnet. Two sections, however, have large white wollastonite crystals as the groundmass with minor red to light green garnets along fractures and bands (412' - 416', 443' - 448').

A third common texture is <5 mm green diopside disseminated in white wollastonite or diopside as thin parallel stringers in wollastonite.

Biotite bearing skarn has developed adjacent to intense calcite veining at 426'. The biotite appears to have replaced pyroxene. This skarn type is also mineralized with scheelite.

SUMMARY D.D.H. No. 81-13 (cont)

Large barren quartz veins cut the skarn at 448'. The skarn type found immediately adjacent to the granite is pyroxene with minor garnet.

A skarn inclusion, found thirteen feet from the granite contact, comprises dark green pyroxene. It is less than 1' of the core and contains approximately 2% disseminated yellow fluorescent scheelite.

Wollastonite skarn contains disseminated molybdenite. Scheelite is most concentrated at the granite and hornfels contact. It is found in quartz veins and hairline fractures but is predominately found disseminated in skarn layers.

Granite

This granite differs from that in neighboring D.D.H. No. 81-11, 81-12 by its lack of sericite alteration and molybdenite mineralization. The contact with skarn is 45° to the core axis and is fine-grained. A medium grained, 2% biotite granite forms the first subdivision. Minor amounts of scheelite were noted in black (biotite?) hairline fractures.

The second granite type has been described as fine, texturally variable biotite granite. Here, the biotite content is at least 5% and bands of aplite or pegmatite pods are present. Magnetite and porphyritic feldspars are other variations found within this section.

The last part of this hole cuts coarse, biotite granite.

SUMMARY D.D.H. No. 81-14

Casing	0 - 53
Granite	53 - 408
Skarn	408 - 588
Hornfels	588 - 615

Granite

The drill hole collared in a fine porphyritic biotite granite. Feldspar (up to 1 cm) and quartz eyes form phenocrysts in a fine groundmass. Biotite content is 2% and the granite is cut by barren quartz veins. Loss of core and fault gouge indicate a fault from 96' to 119'.

This fault separates the porphyry from a biotite rich (up to 4%) medium grained granite. It is usually equigranular but contains occasional large feldspar phenocrysts. A rusty clay zone at 175' - 179' may also be a fault.

SUMMARY D.D.H. No. 81-14(cont)

At 179' the rock type comprises a coarse megacrystic biotite granite (2 - 3% biotite). This "main granite" has large white zoned feldspars (up to 3 cm), and minor sericite alteration.

Toward the end of this section (270'), the megacrystic, coarse, granite is broken and very rusty. It contains magnetite-scheelite veins which appear to cut quartz veins.

A sharp, fine (chill?) contact separates this unit from an unusual granodiorite. Recovery is poor in this section. The rock comprises 7 to 10% biotite and has a fine to medium grained, interlocking lath, texture. Some sections contain 1 cm plagioclase, quartz, and biotite (3 mm) phenocrysts.

The next unit contains alternating sections of coarse granite and fine granodiorite. Contacts are irregular in orientation, sometimes rounded, and distinct. It is suggested that the granodiorite is found as xenoliths in the "main" coarse granite. This conclusion is based on evidence found in sub-outcrop in the vicinity of this hole. Here granodiorite inclusions are found within the coarse granite. The coarse granite contains pegmatite-aplite bands and biotite rich sections. Quartz veins cut both granite and granodiorite.

It is possible that the granodiorite inclusions do not represent an earlier granite but are sedimentary inclusions. The occurrence of quartz eyes and feldspar phenocrysts, however, would support an early granite origin, for the granodiorite.

A twenty foot section of aplite is found at the skarn contact. It is cut by a parallel quartz vein system (sheeted veining). The veins are .5 mm wide and trend at 80° to the core axis. They are spaced 3 cm apart and contain the odd speck of yellow fluorescent scheelite. Sometimes they are rimmed by magnetite.

A dike? or apophysis of megacrystic biotite granite followed by fine biotite granite cuts the skarn from 403' to 442'. The coarse granite is extremely altered to clay. The fine granite is in contact with skarn at a 60° angle to the core axis. The granite is very fine and contains amphibole and magnetite at this location.

Skarn Description

Most skarn changes are distinct mineralogy changes. Banding throughout the section varies from 45° to 60° to the core axis. This layering probably represents replacement along original bedding planes.

SUMMARY D.D.H. No. 81-14 (cont)

Amphibole - Garnet - Diopside Skarn

Skarn found at the granite contact is notably dark, heavy and fractured. The main skarn minerals are garnet and pyroxene arranged in a massive-blocky manner. Secondary skarn minerals are amphibole and magnetite. These minerals form dark green selvages around quartz and have replaced sections of the lighter garnet pyroxene skarn. The quartz veins are arranged in a fashion similar to quartz veins in the aplite, that is 70° to the core axis, and approximately 3 cm apart. This gives the skarn a banded appearance. The dark green mineral which has been labeled amphibole could possibly be iron rich pyroxene.

The amount of quartz veining and the amphibole content decreases away from the granite or granite dike. Garnets have a dark red colour (higher Fe content) adjacent to quartz veins and granite contacts. Elsewhere euhedral 1 cm garnets are light brown-green and frequently zoned. The diopside matrix sometimes contains quartz and is cut by a fine dark green amphibole stockwork.

Garnet Pyroxene Banded Skarn

Lighter garnet-pyroxene skarn is found from 442' - 452', 487' - 507.5' and 523.5' - 548'. Amphibole is present but not as plentiful as found in the previously described skarn type. Bands of sugary textured light green amphibole alternate with dark red garnet bands. Where these bands are cut by quartz veins or fractures, green amphibole, quartz and scheelite have preferentially replaced garnet layers. The section 523.5' to 548' contains more garnet than pyroxene and has a vuggy texture. When pyroxene becomes the abundant mineral the skarn type changes to massive pyroxene skarn. With increasing garnet content the skarn is in contact with "Garnet Wollastonite" skarn.

In vuggy skarn interstitial spaces are filled by calcite, quartz, amphibole, pyroxene, scheelite and fluorite.

Pyroxene Skarn 507.5' to 523.5'

Light green, sugary textured, pyroxene skarn contains remnant brown hornfels lenses. It contains little scheelite but has a section of massive magnetite. The mineral phlogopite is unique to this skarn type.

Garnet Wollastonite Skarn 452' - 487', 548' - 555'

White to pink, bladed wollastonite is the most abundant mineral. It contains euhedral brown red to yellow garnets and lenses of pyroxene. Darker amphibole to biotite bands trend at 45° to 60° to the core axis or parallel late quartz veins. Some sections contain more garnet and pyroxene than wollastonite. Late calcite-dolomite veins cut the skarn.

SUMMARY D.D.H. No. 81-14 (cont)

Garnet Skarn

Garnet skarn is found at the (diopside altered) hornfels contact. It is massive brown-red garnet and has a vuggy texture of euhedral grains. Amphibole and quartz are the predominant interstitial minerals.

HORNFELS

Diopside Hornfels

This fine grained rock type has a creamy light green colour. It is found in contact with garnet skarn and contains beds of garnet skarn. Some sections contain a network of dark green amphibole veinlets or amphibole rimming quartz veins.

Hornfels Stockwork Skarn

Massive, dark brown hornfels is cut by layers of diopside hornfels and skarn. The layering parallels original bedding. From the rim of a layer the following mineralogical sequence was observed, quartz-feldspar-diopside, quartz, feldspar-diopside-garnet-wollastonite. If the veins are small they are coarse pyroxene rimmed by quartz-feldspar white selvages. These skarn layers contain very little scheelite. The scheelite is found in late veins along with quartz, fluorite, pyrite and amphibole.

Hornfels

Three feet of massive biotite hornfels cut by quartz. Amphibole veins are found at the end of the hole.

MINERALIZATION

Scheelite

Basic skarn mineralogy (wollastonite, garnet pyroxene) has little direct effect on the abundance of scheelite. Scheelite is concentrated with late quartz (amphibole rimmed) veins which cut all skarn types as well as hornfels. Dark green (retrograde?) amphibole and biotite skarn minerals, therefore show a direct correlation with the amount of scheelite present.

The mineralogy and presence of the original skarn is important as it provides a porous medium for later scheelite deposition. Euhedral garnet-type skarn is the most porous and contains the most interstitial quartz, scheelite and fluorite. Sugary textured pyroxene or lath-like wollastonite crystals form skarn that only contains scheelite around quartz veins. Scheelite is yellow fluorescent.

SUMMARY D.D.H. No. 81-14 (cont)

Molybdenite

Molybdenite was observed in wollastonite skarn and in the large quartz amphibole veins.

Malayaite $CaSnSiO_5$

Possible malayaite was observed in late calcite veins. It is a white fibrous mineral which fluoresces bright green-yellow under long wave ultraviolet light. Assay results should check this (Section ≃470')

SUMMARY D.D.H. No. 81-15

Casing	0 - 17
Granite	17 - 464.5
Skarn	464.5 - 512

Granite

The hole was collared in typical megacrystic biotite granite. The texture varies from porphyritic to seriate. The large megacrysts, up to 2 cm, are K-feldspar. Feldspar staining shows that this granitic rock has approximately equal amounts of orthoclase and plagioclase. Other textural variations include small patches of fine biotite and one 3 cm pegmatite-aplite dike.

Pyrite-sericite alteration is found along fractures and intense clay alteration has developed in some zones (possible shear zones?). The granite is cut by a weak quartz stockwork containing up to 20% molybdenite in sections. The density of the stockwork averages one vein per 20 cm.

The unit labeled "mottled biotite granite" is texturally variable and contains up to 2% magnetite. It shows banding at 60° to the core axis.

The "monzonite" unit contains more plagioclase than orthoclase. It has an ophitic texture caused by lath shaped plagioclase and biotite. Biotite content is high (7%) and quartz content is low (15%). Some sections are porphyritic with up to 5% quartz eyes, 5% K-feldspar and 10% plagioclase phenocrysts. Only rarely is this unit cut by quartz veins and no molybdenite was observed. The granodiorite has sharp, curved contacts with the granite and it has been interpreted as inclusions within the main megacrystic unit.

The drill hole intersects a small section of skarn at 355.5', but then apparently cuts back into the granitic body (403'). Contacts with the skarn are fine-grained (aplite). They contain little biotite and have banding at 70° to the contact. Grain size varies from fine to medium.

SUMMARY D.D.H. No. 81-15 (cont)

The contact relationships suggest that the granite has a 50° dip near surface but that this angle flattens with depth. The hole was stopped in coarse megacrystic biotite granite.

Skarn

Pyroxene Garnet

Dense, massive, dark, green-brown skarn is cut by an intense quartz stockwork. The veins are parallel but their orientation throughout the section varies from 90° near the granite to 0° toward the end of the section. The veins are approximately 1 cm apart and vary in size from 1 mm to 1 cm forming 15% of the rock. They are generally barren.

Skarn is nearly monomineralic, comprising red-brown garnet near the granite contact. Garnet colour is red adjacent to quartz veins or the intrusion. Pyroxene content increases with depth. Amphibole, magnetite and fluorite are found as interstitial minerals and occasionally rimming quartz veins.

Wollastonite

Wollastonite is found in the section 396' to 403'. Garnet has a light green colour and bands of fluorite were observed. A rough mineralogical banding trends at 30° to the core axis.

SUMMARY D.D.H. No. 81-16

The hole was collared in hornfels and drilled at a 255° azimuth. Drilling was very difficult as the hole was directed down the topographic slope. After many problems the hole was eventually lost at 417'. Core recovery was poor and much of what was recovered was broken pebbles.

The hornfels alternates from massive to spotted or finely laminated.

Occasional quartz veins have bleached selvages and may contain molybdenite. The section of core from 268' to 337.5' is cut by the most quartz veins and a granite dike. It is generally bleached having a light purple to buff colour.

Clay gouge indicated a fault at 337.5'.

SUMMARY D.D.H. No. 81-17

Casing	0 - 15
Quartzite	15 - 90
Hornfels	90 - 253
Granite	253 - 309

1) Core recovery is poor (23%) at the quartzite-hornfels contact. The change in bedding attitude from 85° to 40° suggests a fault contact.

2) Yellow fluorescent scheelite was observed in quartz veins cutting the hornfels near the granite (227' to 253') and cutting the granite.

3) A three foot section of massive magnetite gouge within the granite contains fine disseminated scheelite (Y.F.).

4) Megacrystic biotite granite has a light greenish colour due to altered plagioclase.

SUMMARY D.D.H. No 81-18

The purpose of this hole was to test the granite for disseminated, porphyry type molybdenite as well as to test for skarn. The granite is widest at this location and has a megacrystic texture. The finer and banded textures, found at a higher elevation are interpreted as the top of the cupola while this location in the valley has probably been eroded to greater depth.

The hole was collared in hornfels, hit granite at 62' and was continued in granite until 516'. The granite contains hornfels inclusions at the contact. These hornfels fragments have biotite rich, granitic borders. Such gradational granite-sediment contacts indicate that biotite rich granitic inclusions, previously interpreted as an earlier granite, may alternatively be granitized sedimentary inclusions (see D.D.H. No. 81-14).

The granite is highly weathered and altered. It has a light green to white colour, and is generally unconsolidated up to 206'.

The granite type is consistent throughout the hole. It has a quartz monzonite composition and is cut by aplite dikes at 391'.

The degree of alteration and related carbonate veining however, is variable and this change has been logged. A dark green greasy mineral replaces plagioclase and coats fractures in the most altered sections. Slickenside textures found in graphite and carbonate coated fractures may indicate that these areas are shear zones. The molybdenite mineralization is found in these altered areas within quartz and/or carbonate veins. Breccia texture is present with intense veining.

SUMMARY D.D.H. No. 81-18 (cont)

Less altered sections have a lighter green mineral replacing plagioclase as well as sericite alteration. The biotite content decreases with depth. Some sections have mariolitic cavities filled with calcite, pyrite and sericite. Disseminated pyrite is common throughout the granite and rare specks of disseminated molybdenite and chalcopyrite were also observed.

APPENDICES IV

ASSAYS

Hole No. 81-1

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1201	50 - 60	10	0.001	0.001	0.02	0.01	
1202	60 - 70	10	0.001	0.001	0.02	0.01	
1203	70 - 80	10	0.001	0.001	0.02	0.01	
1204	80 - 90	10	0.001	0.001	0.02	0.01	
1205	90 - 100	10	0.001	0.001	0.02	0.01	
1206	100 - 107	7	0.001	0.001	0.05	0.01	
1207	107 - 117	10	0.001	0.001	0.01	0.01	
1208	117 - 127	10	0.001	0.001	0.01	0.01	
1209	127 - 134	7	0.001	0.001	0.01	0.01	
1210	134 - 142	8	0.003	0.001	0.01	0.01	
1211	142 - 145	3	0.009	0.001	0.01	0.01	
1212	145 - 150	5	0.013	0.001	0.01	0.01	
1213	150 - 155	5	0.007	0.001	0.01	0.01	
1214	155 - 161.5	6.5	0.010	0.001	0.01	0.01	
1215	161.5-171	9.5	0.002	0.001	0.01	0.01	
1216	171 -176.5	5.5	0.022	0.001	0.01	0.01	
1217	176.5-183.5	7	0.010	0.001	0.01	0.01	
1218	183.5-193.5	10	0.005	0.001	0.01	0.01	
1219	193.5-203.5	10	0.001	0.001	0.01	0.01	
1220	203.5-213.5	10	0.003	0.001	0.01	0.01	

Hole No. 81-2

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1221	32 - 42	10	0.002	0.001	0.01	0.01	
1222	42 - 52	10	0.002	0.001	0.03	0.01	
1223	52 - 62	10	0.001	0.001	0.01	0.01	0.02
1224	62 - 72	10	0.003	0.001	0.01	0.01	0.02
1225	72 - 82	10	0.002	0.001	0.01	0.01	0.06
1226	82 - 90	8	0.003	0.001	0.01	0.01	0.02
1227	90 - 99	9	0.005	0.001	0.03	0.01	0.08
1228	99 - 108	9	0.004	0.001	0.01	0.01	0.02
1229	108 - 118	10	0.003	0.001	0.03	0.01	0.10
1230	118 - 128	10	0.005	0.001	0.02	0.01	0.02
1231	128 - 138	10	0.004	0.001	0.02	0.01	
1232	138 - 145	7	0.004	0.001	0.03	0.01	
1233	145 - 155	5	0.002	0.001	0.02	0.01	0.04
1234	155 - 165	10	0.003	0.001	0.01	0.01	0.02
1235	165 - 175	10	0.004	0.001	0.01	0.01	0.02
1236	175 - 185	10	0.002	0.001	0.02	0.01	
1237	185 - 195	10	0.003	0.001	0.02	0.01	
1238	195 - 207	12	0.002	0.001	0.02	0.01	
1239	207 - 216	9	0.002	0.001	0.01	0.01	
1240	216 - 226	10	0.008	0.001	0.01	1	
1241	226 - 236	10	0.002	0.001	0.01	2	
1242	236 - 246	10	0.001	0.001	0.01	2	
1243	246 - 256	10	0.001	0.001	0.01	1	
1244	256 - 264.5	8.5	0.001	0.001	0.01	3	
1245	264.5-276.5	12	0.006	0.001	0.01	1	

Hole No. 81-2 (cont.)- 2

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1246	276.5-283	6.5	0.001	0.001	0.01	1	
1247	283 - 288	5	0.005	0.006	0.01	1	
1248	288 - 300	12	0.013	0.003	0.02	3	
1249	300 - 305	5	0.002	0.024	0.18	75	
1250	305 - 312	7	0.003	0.017	0.15	300	
1251	312 - 317.5	5.5	0.005	0.007	0.06	24	
1252	317.5-326	8.5	0.002	0.044	0.15	200	
1253	329 - 339	10	0.001	0.001	0.04	10	
1254	351 - 361	10	0.001	0.001	0.01	12	
1255	370 - 379	9	0.001	0.001	0.01	1	
1256	387 - 397	10	0.001	0.001	0.01	1	

Hole No. 81-3

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1257	25 - 31	6	0.002	0.001	0.01	1	
1258	42 - 52	10	0.002	0.001	0.01	1	
1259	52 - 62	10	0.001	0.001	0.01	1	
1260	62 - 72	10	0.001	0.001	0.01	1	
1261	72 - 82	10	0.001	0.001	0.01	1	
1262	82 - 90	8	0.001	0.001	0.07	1	
1263	90 - 104	14	0.001	0.001	0.01	1	
1264	104 - 110	6	0.001	0.001	0.04	1	
1265	110 - 116	6	0.003	0.001	0.03	1	
1266	116 - 122	6	0.001	0.001	0.80	2	
1267	122 - 128.5	6.5	0.001	0.001	0.02	1	
1268	128.5-138	9.5	0.004	0.001	0.01	1	
1269	138 - 148	10	0.001	0.001	0.01	1	
1270	148 - 158	10	0.001	0.001	0.01	1	
1271	158 - 168	10	0.001	0.001	0.01	1	
1272	178 - 188.5	10.5	0.002	0.001	0.01	1	
1273	188.5-200	11.5	0.001	0.001	0.01	1	
1274	200 - 210	10	0.001	0.001	0.01	1	
1275	210 - 220	10	0.001	0.001	0.01	2	
1276	220 - 230	10	0.001	0.001	0.01	1	
1277	230 - 242	12	0.001	0.001	0.01	1	
1278	242 - 252	10	0.001	0.001	0.01	1	
1279	252 - 264.5	12.5	0.002	0.001	0.01	.01	
1280	264.5-274	9.5	0.002	0.001	0.01	.01	
1281	274 - 289	15	0.002	0.002	0.19	.01	

Hole No. 81-3 (cont.) - 2

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1282	289 - 299	10	0.001	0.001	0.12	0.01	
1283	299 - 307	8	0.002	0.001	0.06	0.02	
1284	307 - 314	7	0.001	0.001	0.01	0.01	
1285	314 - 324	10	0.002	0.015	0.07	0.02	
1286	330.5-335	4.5	0.001	0.001	0.01	0.04	
1287	335 - 340	5	0.010	0.001	0.01	0.02	
1288	340 - 350	10	0.009	0.001	0.01	0.01	
1289	350 - 360	10	0.002	0.001	0.01	0.01	
1290	360 - 370	10	0.001	0.001	0.01	0.01	

Hole No. 81-4

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1291	70 - 80	10	0.007	0.001	0.01	0.01	
1292	80 - 90	10	0.010	0.001	0.02	0.01	
1293	90 -100	10	0.001	0.001	0.01	0.01	
1294	104-108	4	0.001	0.001	0.01	0.01	
1295	108-118	10	0.006	0.001	0.06	0.02	
1296	118-128	10	0.066	0.002	0.01	0.01	
1297	128-133	5	0.018	0.001	0.01	0.02	
1298	133-143	10	0.003	0.001	0.02	0.04	
1299	143-153	10	0.009	0.001	0.08	0.02	
1300	153-168.5	15.5	0.004	0.003	0.01	0.01	
1301	168.5-178	9.5	0.019	0.001	0.02	0.01	
1302	178 - 188	10	0.004	0.001	0.02	0.01	
1303	188 - 198	10	0.083	0.001	0.01	0.01	
1304	198 - 208	10	0.011	0.001	0.01	0.01	
1305	208 - 218	10	0.004	0.001	0.01	0.01	

Hole No. 81-5

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1306	71 - 81	10	0.006	0.001	0.01	0.01	
1307	81 - 85	4	0.053	0.001	0.01	0.01	
1308	85 - 93	8	0.031	0.001	0.01	0.01	
1309	94.5-105	10.5	0.009	0.001	0.01	0.01	
1310	105 - 112	7	0.030	0.001	0.01	0.01	
1311	114 - 124	10	0.011	0.001	0.01	0.01	
1312	124 - 134	10	0.043	0.001	0.01	0.01	
1313	134 - 144	10	0.020	0.001	0.01	0.01	
1314	144 - 153	9	0.018	0.001	0.01	0.01	
1315	153 - 160	7	0.054	0.001	0.01	0.01	

Hole No. 81-6

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1316	300 - 310	10	0.020	0.001	0.02	1	
1317	344 - 354	10	0.056	0.001	0.03	3	

Hole No. 81-7

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1318	12 - 18	6	0.040	0.138	0.23	4	
1319	18 - 22	4	0.005	0.085	0.24	8	
1320	22 - 27	5	0.005	0.072	0.05	7	
1321	27 - 31	4	0.004	0.052	0.08	10	
1322	31 - 40	9	0.006	0.030	0.06	24	
1323	40 - 45	5	0.012	0.042	0.08	3	
1324	45 - 60	15	0.011	0.041	0.06	6	
1325	60 - 67.5	7.5	0.043	0.087	0.12	2	
1326	67.5-72.5	5	0.073	0.127	0.12	10	
1327	72.5- 77	4.5	0.096	0.094	0.15	5	
1328	77 - 82	5	0.142	0.158	0.16	15	
1329	82 - 87	5	0.101	0.139	0.15	8	
1330	87 - 93.5	6.5	0.007	0.076	0.09	7	
1331	93.5-107	13.5	0.001	0.024	0.12	14	

Hole No. 81-9

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1332	12 - 37	25	0.001	0.005	0.01	2	0.02
1333	37 - 42	5	0.001	0.001	0.26	7	0.02
1334	42 - 47	5	0.001	0.001	0.13	8	0.02
1335	47 - 53	6	0.001	0.001	0.17	6	0.36
1336	53 - 58	5	0.001	0.001	0.04	4	0.52
1337	58 - 63	5	0.001	0.001	0.03	1	1.06
1338	63 - 68	5	0.001	0.001	0.06	1	1.78
1339	75 - 85	10	0.001	0.001	0.02	1	0.02
1340	85 - 95	10	0.001	0.001	0.01	1	0.02
1341	95 -105	10	0.001	0.001	0.02	2	0.02
1342	227-237	10	0.008	0.004	0.04	1	0.02
1343	237-242	5	0.001	0.011	0.11	46	0.02
1344	242-248	6	0.001	0.006	0.04	58	0.04
1345	248-253	5	0.001	0.002	0.01	250	0.26
1346	253-263	10	0.002	0.001	0.01	14	0.02
1347	263-273	10	0.001	0.001	0.01	18	0.02
1348	273-283	10	0.001	0.001	0.01	12	0.02
1349	283-293	10	0.001	0.001	0.01	12	0.02
1350	293-203	10	0.001	0.003	0.01	12	0.02
1501	303-313	10	0.001	0.004	0.01	6	0.04
1502	313-323	10	0.001	0.003	0.01	5	
1503	323-333	10	0.001	0.004	0.02	6	
1504	333-343	10	0.001	0.003	0.01	5	0.04
1505	343-353	10	0.001	0.001	0.01	18	0.02
1506	353-361	8	0.004	0.002	0.01	12	0.04

Hole No. 81-9 (cont) - 2

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1507	363.5 - 373	9.5	0.001	0.003	0.01	6	0.04
1508	373 - 383	10	0.004	0.006	0.01	8	0.04
1509	383 - 390	7	0.001	0.005	0.02	12	0.04
1510	390 - 395	5	0.001	0.008	0.09	4	0.10
1511	395 - 405	10	0.001	0.001	0.02	2	
1512	405 - 415	10	0.001	0.001	0.01	4	
1513	415 - 417	2	0.001	0.040	0.26	150	0.04
1514	417 - 427	10	0.001	0.040	0.03	2	

Hole No. 81-9 (cont) - 3

Sample No.	Assay Interval (feet)	Interval Length (feet)	oz/t Ag	oz/t Au	% Pb	% Cu	
1332	12 - 37	25	0.02	0.006	0.02	0.01	
1333	37 - 42	5	0.04	0.006	0.02	0.18	
1334	42 - 47	5	0.04	0.002	0.02	0.20	
1335	47 - 53	6	0.02	0.001	0.02	0.12	
1336	53 - 58	5	0.02	0.001	0.02	0.02	
1337	58 - 63	5	0.02	0.001	0.02	0.03	
1338	63 - 68	5	0.02	0.001	0.02	0.08	
1339	75 - 85	10	0.02	0.001	0.02	0.01	
1340	85 -95	10	0.02	0.001	0.02	0.01	
1341	95 - 105	10	0.02	0.001	0.02	0.01	

Hole No. 81-10

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn	oz/t Au
1515	23 - 33	10	0.001	0.003	0.01	1	0.02	.001
1516	33 - 43	10	0.001	0.006	0.76	1		.001
1517	43 - 53	10	0.001	0.004	0.09	1	0.02	.001
1518	53 - 58	5	0.001	0.001	0.23	2	1.32	.002
1519	58 - 63	5	0.001	0.019	0.13	6	0.60	.009
1520	63 - 68	5	0.001	0.001	0.14	4	0.08	.004
1521	68 - 73	5	0.009	0.002	0.12	6	0.70	.006
1522	73 - 78	5	0.001	0.001	0.07	1	0.04	.005
1523	78 - 82	4	0.001	0.010	0.05	3	0.04	.002
1524	82 - 86	4	0.001	0.002	0.06	14	0.04	.002
1525	86 - 91	5	0.001	0.001	0.02	1	0.06	.001
1526	91 - 96	5	0.001	0.001	0.15	1	0.02	.002
1527	96 -101	5	0.001	0.001	0.33	1	0.04	.002
1528	101 - 105	4	0.001	0.001	0.01	1	0.02	.001
1529	105 - 115	10	0.001	0.001	0.01	1	0.02	.001
1530	115 - 125	10	0.001	0.001	0.01	1	0.02	.001
1531	225 - 230	5	0.001	0.001	0.01	1	0.02	.001
1532	332 - 342	10	0.022	0.004	0.01	2		
1533	342 - 352	10	0.002	0.003	0.01	1	0.02	
1534	352 - 359.5	7.5	0.020	0.006	0.07	1	0.02	
1535	359.5-365	5.5	0.020	0.026	0.10	68	0.02	
1536	368 - 375	7	0.001	0.004	0.01	28	0.02	
1537	375 - 385	10	0.010	0.041	0.07	40	0.14	
1538	455 - 465	10	0.001	0.005	0.01	3		
1539	511 - 521	10	0.006	0.002	0.01	19	0.02	
1540	521 - 526.5	5.5	0.010	0.003	0.01	300	1.20	

Hole No. 81-11

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1541	24 - 29	5	0.001	0.002	0.01	2	
1542	49 - 54	5	0.001	0.003	0.01	1	
1543	79 - 84	5	0.001	0.005	0.01	1	
1544	109 - 114	5	0.001	0.005	0.02	1	
1545	141 - 146	5	0.001	0.004	0.01	1	
1546	180 -185	5	0.002	0.012	0.01	1	
1547	207 - 217	10	0.013	0.030	0.01	1	
1548	217 - 227	10	0.016	0.046	0.01	1	
1549	227 - 237	10	0.001	0.019	0.03	1	
1550	237 - 242	5	0.003	0.051	0.03	1	
1551	242 - 247	5	0.092	0.012	0.02	1	
1552	247 - 252	5	0.046	0.012	0.01	1	
1553	252 - 257	5	0.112	0.024	0.01	1	
1554	257 - 267	10	0.007	0.037	0.01	1	
1555	267 - 277	10	0.007	0.060	0.01	1	
1556	277 - 282	5	0.006	0.002	0.01	1	
1557	282 - 287	5	0.031	0.004	0.01	1	
1558	287 - 292	5	0.003	0.001	0.01	2	
1559	292 - 297	5	1.24	0.005	0.01	3	
1560	297 - 307	10	0.010	0.001	0.01	1	
1561	307 - 317	10	0.013	0.001	0.01	1	
1562	337 - 342	5	0.010	0.001	0.01	1	
1563	353 - 356.5	3.5	0.028	0.001	0.01	1	
1564	387 - 397	10	0.010	0.001	0.02	1	
1565	397 - 407	10	0.007	0.001	0.06	1	

Hole No. 81-11 (cont) - 2

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1566	421 - 431	10	0.009	0.001	0.01	3	
1567	438 - 448	10	0.003	0.001	0.01	1	
1568	448 - 453	5	0.001	0.006	0.08	2	
1569	453 - 458	5	0.001	0.011	0.13	3	
1570	458 - 463	5	0.002	0.012	0.13	1	
1571	463 - 468	5	0.002	0.011	0.12	1	
1572	468 - 473	5	0.002	0.005	0.08	1	
1573	473 - 478	5	0.004	0.007	0.11	1	
1574	478 - 483	5	0.002	0.003	0.07	1	
1575	483 - 488	5	0.004	0.006	0.08	1	
1576	488 - 493	5	0.006	0.014	0.17	1	
1577	493 - 499	6	0.003	0.010	0.11	2	
1578	499 - 505	6	0.004	0.008	0.66	2	
1579	505 - 510	5	0.003	0.006	0.25	4	
1580	510 - 515	5	0.003	0.008	0.40	3	
1581	515 - 520	5	0.003	0.002	0.25	9	
1582	520 - 525	5	0.003	0.017	0.70	1	
1583	525 - 530	5	0.005	0.013	0.60	1	
1584	530 - 535	5	0.005	0.013	0.65	1	
1585	535 - 540	5	0.003	0.011	0.55	2	
1586	540 - 545	5	0.003	0.025	0.22	2	
1587	545 - 550	5	0.001	0.014	0.12	1	
1588	550 - 556	6	0.002	0.016	0.13	34	
1589	556 - 563	7	0.002	0.018	0.16	3	
1590	563 - 567	4	0.002	0.020	0.16	80	

Hole No. 81-11 (cont) - 3

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1591	567 - 572	5	0.001	0.016	0.11	4	
1592	572 - 577	5	0.001	0.010	0.10	2	
1593	577 - 581	4	0.003	0.017	0.11	3	
1594	581 - 585	4	0.048	0.032	0.06	100	
1595	585 - 590	5	0.005	0.013	0.09	7	
1596	590 - 595	5	0.003	0.013	0.08	1	
1597	595 - 599	4	0.001	0.020	0.12	1	
1598	599 - 602.5	3.5	0.001	0.019	0.13	3	
1599	602.5-608	5.5	0.002	0.010	0.06	2	
1600	608 - 613	5	0.001	0.014	0.10	1	
1601	613 - 618	5	0.022	0.046	0.27	1	
1602	618 - 623	5	0.006	0.017	0.11	1	
1603	623 - 628	5	0.028	0.052	0.33	1	
1604	628 - 633	5	0.070	0.054	0.32	1	
1605	633 - 638	5	0.020	0.031	0.15	2	
1606	638 - 643	5	0.034	0.031	0.16	2	
1607	643 - 648	5	0.036	0.040	0.22	2	
1608	648 - 653	5	0.024	0.057	0.31	2	
1609	653 - 658	5	0.036	0.080	0.44	4	
1610	658 - 665	7	0.024	0.082	0.52	2	
1611	665 - 670	5	0.015	0.001	0.10	2	
1612	670 - 675	5	0.009	0.003	0.01	2	
1613	675 - 685	10	0.013	0.001	0.01	2	

Hole No. 81-12

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1614	195 - 205	10	0.001	0.009	0.01		
1615	205 - 215	10	0.001	0.010	0.01		
1616	215 - 225	10	0.001	0.017	0.01		
1617	225 - 234	9	0.001	0.037	0.03		
1618	234 - 239	5	0.004	0.030	0.01	1	
1619	239 - 249	10	0.012	0.020	0.05		
1620	249 - 259	10	0.004	0.010	0.01		
1621	259 - 264	5	0.053	0.006	0.01		
1622	No sample						
1623	264 - 269	5	0.019	0.019	0.01		
1624	269 - 278	9	0.027	0.025	0.01		
1625	279 - 287	8	0.022	0.006	0.01		
1626	287 - 292	5	0.049	0.003	0.01		
1627	292 - 297	5	1.94	0.036	0.02	1	
1628	297 - 302	5	0.028	0.001	0.01		
1629	302 - 307	5	0.080	0.002	0.01		
1630	307 - 312	5	0.020	0.002	0.01		
1631	317 - 322	5	0.020	0.001	0.01		
1632	322 - 327	5	0.023	0.001	0.01		
1633	327 - 332	5	0.003	0.001	0.01		
1634	332 - 337	5	0.040	0.001	0.01	1	
1635	337 - 347	10	0.024	0.007	0.01		
1636	347 - 357	10	0.009	0.008	0.01		
1637	357 - 367	10	0.007	0.007	0.01		
1638	367 - 376	9	0.004	0.003	0.01		

Hole No. 81-12 (cont) - 2

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1639	376 - 386	10	0.003	0.001	0.01		
1640	386 - 396	10	0.009	0.001	0.01		
1641	396 - 406	10	0.011	0.001	0.01		
1642	406 - 416	10	0.012	0.001	0.02		
1643	416 - 426	10	0.015	0.001	0.02		
1644	426 - 436	10	0.006	0.001	0.01		
1645	436 - 446	10	0.006	0.001	0.02		
1646	446 - 456	10	0.003	0.001	0.03		
1647	456 - 466	10	0.002	0.001	0.01		
1648	466 - 476	10	0.007	0.001	0.01		
1649	476 - 486	10	0.003	0.001	0.01		
1650	486 - 496	10	0.002	0.002	0.01		
1651	496 - 502	6	0.002	0.002	0.01		
1652	502 - 512	10	0.001	0.005	0.01		
1653	512 - 522	10	0.007	0.001	0.01		
1654	522 - 532	10	0.003	0.005	0.01		
1655	532 - 542	10	0.003	0.002	0.02		
1656	542 - 552	10	0.001	0.001	0.01		
1657	552 - 562	10	0.004	0.001	0.01		
1658	562 - 572	10	0.004	0.001	0.01		
1659	572 - 582	10	0.004	0.001	0.01		
1660	582 - 592	10	0.008	0.001	0.01		
1661	592 - 602	10	0.004	0.001	0.01		
1662	602 - 612	10	0.010	0.001	0.01		
1663	612 - 622	10	0.021	0.001	0.02		

Hole No. 81-12 (cont) - 3

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1664	622 - 632	10	0.002	0.003	0.01		
1665	632 - 642	10	0.008	0.001	0.01		
1666	642 - 652	10	0.022	0.001	0.01		
1667	652 - 662	10	0.011	0.002	0.01		
1668	662 - 672	10	0.015	0.002	0.01		
1669	672 - 682	10	0.013	0.002	0.01		
1670	682 - 692	10	0.009	0.002	0.01		
1671	692 - 702	10	0.009	0.001	0.01		
1672	702 - 712	10	0.001	0.003	0.05		
1673	712 - 722	10	0.017	0.002	0.01		
1674	722 - 733	11	0.030	0.002	0.01		
1675	733 - 740	7	0.036	0.002	0.02		
1676	740 - 750	10	0.013	0.001	0.01	4	
1677	750 - 760	10	0.014	0.002	0.01	6	
1678	760 - 769	9	0.003	0.001	0.01		
1679	769 - 779	10	0.030	0.001	0.02		
1680	779 - 789	10	0.092	0.002	0.01		
1681	789 - 799	10	0.009	0.002	0.01		
1682	799 - 805.5	6.5	0.007	0.002	0.01		
1683	805.5-813.5	8	0.028	0.002	0.01		
1684	813.5-823	9.5	0.009	0.002	0.01		
			% T. Mo as MoS_2				
1685	823 - 828	5	0.025				
1686	828 - 833	5	0.014				
1687	833 - 843	10	0.001				

~~Hole~~ No. ~~81~~-12 (cont.) - 4

Sample No.	Assay Interval (feet)	Interval Length (feet)	% T. Mo as MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1688	843 - 853	10	0.012				
1689	853 - 858	5	0.012				
1690	858 - 868	10	0.053				
1691	868 - 878	10	0.002				
1692	878 - 887	9	0.002				
1693	887 - 897	10	0.001				

Hole No. 81-13

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn	Au
1694	117 - 122	5	0.001	0.003				10
1695	187 - 193	6						10
1696	203 - 213	10						10
1697	213 - 220	7						10
1698	220 - 230	10	0.011	0.012	0.01			
1699	230 - 239.5	9.5	0.041	0.008	0.04			
1700	239.5-244	4.5	0.175	0.007	0.54		5	10
1701	244 - 248	4	0.021	0.006	0.31			
1702	248 - 255	7	0.006	0.003	0.04			
1703	255 - 262	7	0.002	0.002	0.02			
1704	262 - 270	8	0.003	0.006	0.11			
1705	270 - 280	10	0.009	0.003	0.02			
1706	280 - 290	10	0.002	0.001	0.02			
1707	290 - 301	11	0.006	0.001	0.02			
1708	301 - 305	4	0.008	0.001	0.01			
1709	305 - 315	10	0.006	0.001	0.01			
1710	315 - 325	10	0.026	0.001	0.01			
1711	325 - 335	10	0.010	0.001	0.01			
1712	335 - 341	6	0.006	0.002	0.01			
1713	341 - 347	6	0.009	0.002	0.01			
1714	347 - 352	5	0.001	0.018	0.36			
1715	352 - 357.5	5.5	0.001	0.021	0.20			
1716	357.5-362	4.5	0.001	0.008	0.06			
1717	362 - 367	5	0.001	0.007	0.07			
1718	367 - 372	5	0.001	0.009	0.06			
1719	372 - 377	5	0.004	0.025	0.15			

Hole No. 81-13 (cont) - 2

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1720	377 - 382	5	0.003	0.012	0.07		
1721	382 - 387	5	0.001	0.010	0.06		
1722	387 - 392	5	0.002	0.008	0.05		
1723	392 - 398	6	0.004	0.031	0.10		
1724	398 - 402	4	0.014	0.086	0.24		
1725	402 - 407	5	0.016	0.044	0.15		
1726	407 - 412	5	0.022	0.090	0.32		
1727	412 - 417	5	0.020	0.064	0.19		
1728	417 - 422	5	0.042	0.132	0.44		
1729	422 - 426	4	0.028	0.047	0.31		
1730	426 - 431	5	0.019	0.043	0.15		
1731	431 - 436	5	0.024	0.084	0.32		
1732	436 - 441	5	0.024	0.108	0.44		
1733	441 - 446	5	0.026	0.086	0.12		
1734	446 - 451	5	0.014	0.110	0.24		
1735	451 - 456	5	0.010	0.078	0.28		
1736	456 - 461	5	0.038	0.096	0.38		
1737	461 - 465	4	0.064	0.106	0.64		
1738	465 - 475	10	0.001	0.005	0.01		
1739	475 - 481	6	0.001	0.008	0.02		
1740	481 - 491	10	0.001	0.001	0.01		
1741	491 - 501	10	0.001	0.001	0.01		

Hole No. 81-14

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1742	57 - 67	10	0.001	0.009	0.01		
1743	147 - 157	10	0.001	0.010	0.01		
1744	185 - 195	10	0.007	0.005	0.01		
1745	236 - 246	10	0.001	0.005	0.01		
1746	246 - 256	10	0.009	0.006	0.01		
1747	306 - 311	5	0.002	0.003	0.01		
1748	359 - 369	10	0.001	0.003	0.03		
1749	369 - 374	5	0.001	0.031	0.43	20	
1750	374 - 379	5	0.001	0.016	0.16		
1751	379 - 384	5	0.002	0.016	0.12		
1752	384 - 389	5	0.001	0.016	0.13		
1753	389 - 397	8	0.001	0.015	0.08		
1754	397 - 403	6	0.001	0.017	0.06		
1755	432 - 437	5	0.007	0.002	0.01		
1756	442 - 447	5	0.004	0.003	0.22	8	
1757	447 - 452	5	0.001	0.013	0.05	10	
1758	452 - 457	5	0.038	0.044	0.10	14	
1759	457 - 462	5	0.010	0.036	0.17	34	
1760	462 - 467	5	0.004	0.016	0.07	14	
1761	467 - 472	5	0.007	0.025	0.07	4	
1762	472 - 477	5	0.009	0.035	0.10	10	
1763	477 - 482	5	0.004	0.020	0.04	12	
1764	482 - 487	5	0.002	0.016	0.05	8	
1765	487 - 492	5	0.002	0.007	0.02	12	
1766	492 - 497	5	0.001	0.014	0.05	6	

Hole No. 81-14 (cont) - 2

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1767	497 - 502	5	0.001	0.015	0.06	6	
1768	502 - 507.5	5.5	0.001	0.007	0.02	8	
1769	507.5 - 513	5.5	0.001	0.012	0.02	10	
1770	513 - 517	4	0.001	0.007	0.02	12	
1771	517 - 522	5	0.001	0.010	0.04	8	
1772	522 - 527	5	0.001	0.013	0.06	14	
1773	527 - 532	5	0.001	0.014	0.05	10	
1774	532 - 537	5	0.001	0.025	0.09	8	
1775	537 - 542	5	0.001	0.025	0.13	6	
1776	542 - 548	6	0.001	0.013	0.04	12	
1777	548 - 553	5	0.001	0.017	0.12	16	
1778	553 - 558	5	0.001	0.023	0.11	10	
1779	558 - 563	5	0.034	0.014	0.09	6	
1780	563 - 568	5	0.003	0.006	0.03	20	
1781	568 - 573	5	0.012	0.004	0.06	12	
1782	573 - 578	5	0.001	0.005	0.03	8	
1783	578 - 581	3	0.045	0.015	0.27	8	
1784	581 - 586	5	0.048	0.008	0.02	6	
1785	586 - 591	5	0.001	0.005	0.02	6	
1786	591 - 596	5	0.001	0.006	0.06	6	
1787	596 - 601	5	0.001	0.006	0.06	10	
1788	601 - 607	6	0.001	0.012	0.12	4	
1789	607 - 612	5	0.001	0.023	0.42	2	
1790	612 - 615	3	0.004	0.003	0.02	18	

Hole No. 81-15

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1791	22 - 27	5	0.001	0.006			
1792	67 - 73	6	0.001	0.015			
1793	92 - 97	5	0.008	0.084			
1794	97 - 102	5	0.025	0.027			
1795	102 - 107	5	0.150	0.048			
1796	107 - 112	5	0.002	0.059			
1797	117 - 122	5	0.01	0.028			
1798	122 - 132	10	0.017	0.048			
1799	162 - 172	10	0.001	0.034			
1800	182 - 187	5	0.027	0.048			
1801	187 - 192	5	0.160	0.032			
1802	192 - 197	5	0.001	0.032			
1803	207 - 212	5	0.001	0.022			
1804	247 - 254	7	0.026	0.005			
1805	254 - 259	5	0.001	0.017			
1806	259 - 263	4	0.001	0.008			
1807	263 - 267	4	0.001	0.007			
1808	267 - 272	5	0.001	0.007			
1809	312 - 317	5	0.001	0.002			
1810	342 - 349	7	0.005	0.004			
1811	349 - 355.5	6.5	0.001	0.003	0.01		
1812	355.5-360	4.5	0.002	0.011	0.09		
1813	360 - 365	5	0.002	0.004	0.08		
1814	365 - 370	5	0.001	0.022	0.16		
1815	370 - 375	5	0.001	0.008	0.16		

Hole No. 81-15 (cont) - 2

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1816	375 - 380	5	0.001	0.003	0.04		
1817	380 - 386	6	0.001	0.001	0.02		
1818	386 - 391	5	0.001	0.001	0.02		
1819	391 - 397	6	0.002	0.001	0.01		
1820	397 - 403	6	0.006	0.019	0.06		
1821	403 - 408	5	0.003	0.004	0.02		
1822	408 - 418	10	0.002	0.004	0.02		

Hole No. 81-16

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1823	285 - 295	10	0.01	0.007	0.01		

Hole No. 81-17

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1824	53 - 63	10	0.012	0.005	0.01		
1825	204 - 214	10	0.003	0.001	0.01	3	
1826	227 - 237	10	0.003	0.001	0.01	1	
1827	246 - 253	7	0.005	0.001	0.1	1	
1828	253 - 263.5	10.5	0.001	0.001	0.01	1	
1829	263.5-266.5	3	0.002	0.045	0.12	58	
1830	274 - 284	10	0.001	0.004	0.01	1	

Hole No. 81-18

Sample No.	Assay Interval (feet)	Interval Length (feet)	% MoS_2	% MoO_3 as MoS_2	% WO_3	%(ppm) Sn	% Zn
1831	49 - 62	13	0.005	0.003	0.01		
1832	62 - 67.5	5.5	0.013	0.001	0.01		
1833	67.5-80	12.5	0.007	0.001	0.01		
1834	142 - 152	10	0.003	0.001	0.01		
			Total Mo as MoS_2				
1835	315 - 325	10	0.009				
1836	325 - 335	10	0.013				
1837	355 - 365	10	0.007				
1838	388 - 394.5	6.5	0.012				
1839	408 - 418	10	0.003			1	
1840	418 - 423	5	0.028			1	
1841	423 - 428	5	0.005			2	
1842	428 - 433	5	0.002			1	
1843	433 - 438	5	0.075			1	
1844	438 - 442	4	0.164				
1845	442 - 448	6					
1846	448 - 458	10	0.01				
1847	458 - 468	10	0.005				
1848	468 - 478	10	0.003				
1849	478 - 488	10	0.034				
1850	488 - 498	10	0.005				
1851	498 - 508	10	0.001				

APPENDICES V

COST STATEMENT

COST STATEMENT

1.	Diamond Drilling	
	J.T. Thomas Diamond Drilling (1980) Ltd.	298,606.00
2.	Road Repair and Drill Site Preparation	
	Grant Stewart Construction Ltd.	24,578.20
	Joe Corcoran Construction Ltd.	420.00
3.	Project Personnel	
	J. Watkins, Supervision	2,500.00
	S. Barnhill, Geologist	9,000.00
	J. Hemelspeck, Camp Maintenance	13,241.31
	J. Kloss, Cook May 30 to July 10	5,740.00
	D. Dirk, Cook July 10 to July 28	2,520.00
4.	Surveying	
	Tarmachan Exploration Services Ltd.	2,805.00
5.	Assaying	
	Rossbacher Laboratory Ltd.	10,615.00
6.	Operation Supplies	8,584.19
7.	Groceries	
	Watson Lake Foods Ltd.	9,719.30
8.	Drafting	430.81
9.	Expediting Services	
	Yukon Expediting	470.00
		$389,229.81

APPENDICES VI

STATEMENT OF QUALIFICATIONS

Statement of Qualifications:

I, John Joseph Watkins, of Smithers, British Columbia, do hereby certify that:

1. I am a graduate of Queen's University with a B.Sc. degree in Honours Geology (1972) and an M.Sc.Eng. in Economic Geology (1980).

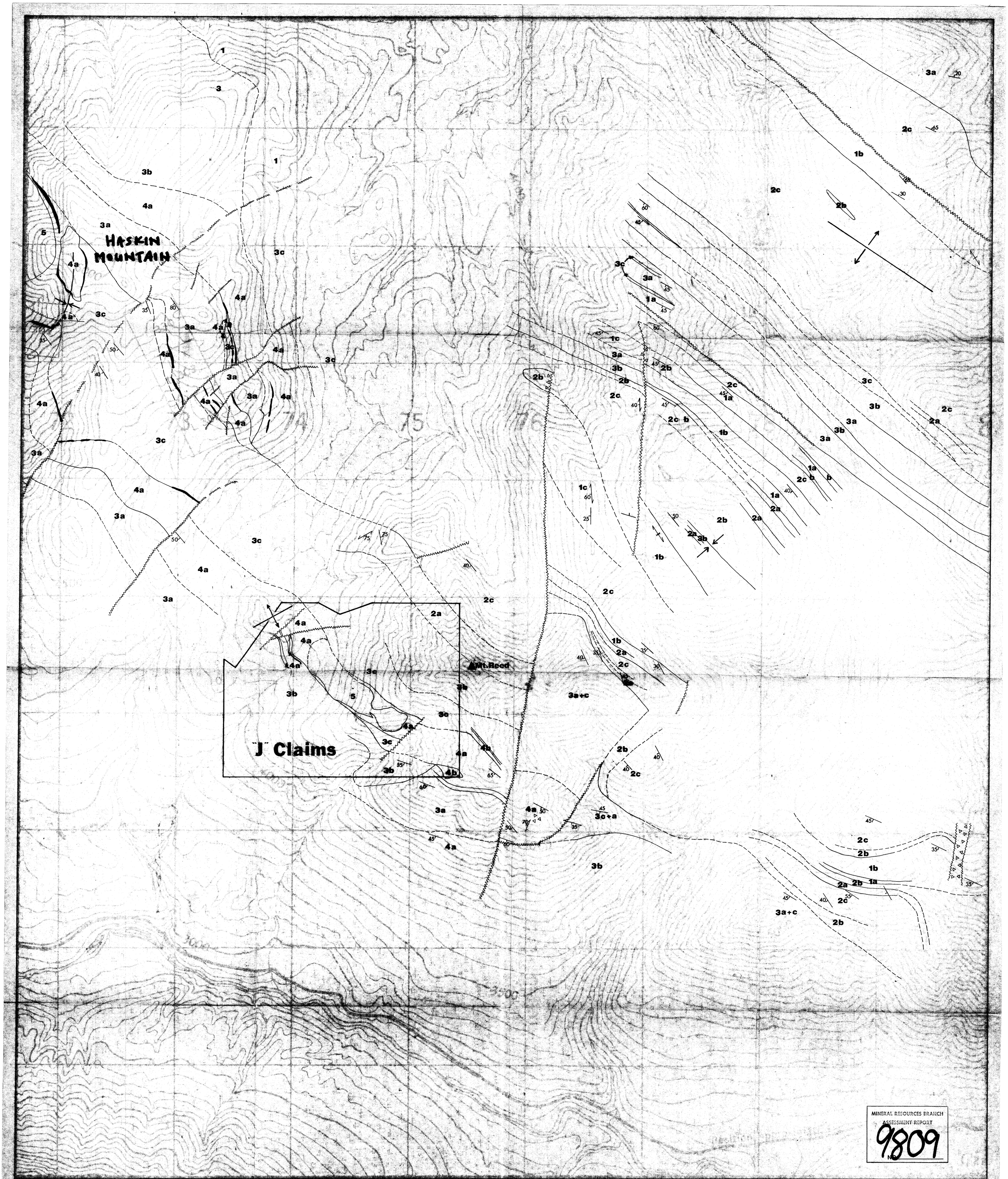
2. I have practiced my profession continuously since graduation, for Texasgulf Inc., Falconbridge Copper Mines Ltd. and Canadian Superior Exploration Ltd.

3. I personally supervised the work on the "J" Claim Group for the period indicated in this report.

November 5, 1981

Smithers, B. C.

J. J. Watkins



LEGEND

Upper Cretaceous
- 5) Granite

Lower Cambrian
- Atan Group
  - 4 a) Limestone-dolostone
  - b) Pelitic Limestone
  - 3 a) Quartz Sandstone
  - b) Quartzite
  - c) Shale and slate
  - Massive Sulphides

Proterozoic
- Ingenika Group
  - 2 a) Argillaceous/Calcareous Red Beds
  - b) Dolomitic Limestone
  - c) Limestone
  - 1 a) Shale and slate
  - b) Shale and limestone
  - c) Pelitic Limestone

Breccia texture
Fault
Syncline, anticline
Foliation

Contour Interval 100 feet

0 200 400 600 800 1000
METRES

CANADIAN SUPERIOR EXPLORATION LIMITED

Mt. Reed
BRITISH COLUMBIA
Regional Geology

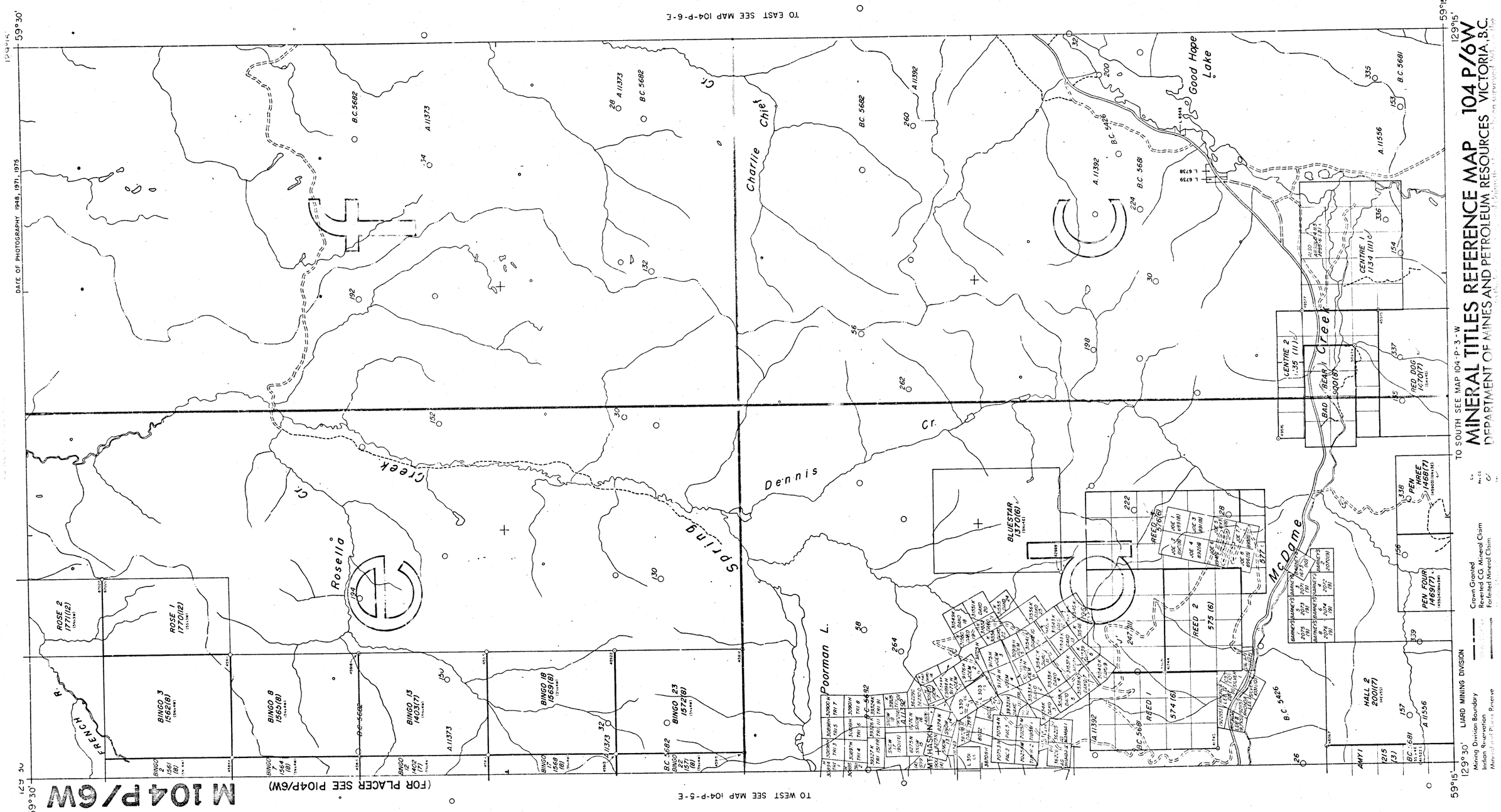
MLA Oct. 1981 1:12000 104P6W Figure 3

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 9809

M 104 P/6W

(FOR PLACER SEE P104P/6W)

TO WEST SEE MAP 104-P-5-E



TO EAST SEE MAP 104-P-6-E

TO SOUTH SEE MAP 104-P-3-W

DATE OF PHOTOGRAPHY 1948, 1971, 1975

Mining Division Boundary
Indian Reservation
Mineral and Placer Reserve

Crown Granted
Reverted C.G. Mineral Claim
Forfeited Mineral Claim

MINERAL TITLES REFERENCE MAP 104 P/6W

DEPARTMENT OF MINES AND PETROLEUM RESOURCES VICTORIA, B.C.

LEGEND

CROWN-GRANTED MINERAL CLAIM
REVERTED C.G. MINERAL CLAIM
FORFEITED MINERAL CLAIM
VERIFIED LEGAL CORNER POST
LEGAL SURVEY
LEGAL CORNER POST & TAG NUMBER

Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources

Miles 1 .5 0 1 2 Miles
Metres 1000 500 0 1000 2000 3000 Metres
Kilometres 1 .5 0 1 2 3 Kilometres

UNLESS VERIFIED OR SURVEYED, THE MAP POSITION OF A LEGAL CORNER POST IS BASED ON THE LOCATOR'S SKETCH. FOR FURTHER INFORMATION, APPLY TO THE OFFICE OF THE MINING DIVISION CONCERNED.

DATE OF MICROFILM: 82.01.21.

M 104