REPORT ON

DIAMOND DRILLING PROGRAM, CHU PROSPECT

June 2 - August 18, 1981

AA GROUP OF MINERAL CLAIMS

(Chu 28-36, 41-52, Nech, AA #1, #2, #3)

Located 6.5km West of West End of Chutanli Lake

OMINECA MINING DIVISION, B. C.

(53° 21' N, 124° 37' W)

(93F/7E)

E. A. Ostensoe, Geologist

October, 1981

Claims owned by:
Asarco Incorporated and
Armco Mineral Exploration Ltd.

C O N T E N T S

Introduction

In the period June 2 to August 18, 1981, Armco Mineral Exploration Limited continued exploration of the Chu mineral property, Omineca Mining Division, B.C. by means of diamond drilling. A tent camp, and core storage facilities were built and 2,396 metres of drilling were completed. Expenditures exceeded $50,000.

A previously discovered molybdenite-bearing zone was extended by 1981 drilling. Additional exploration work is required in order to determine the geological characteristics, size and tenor of the mineral deposit.

Location

The Chu molybdenite prospect is located between elevations 1220 and 1400 metres at the south end of the Nechako Range, Central British Columbia. It is 170km southwest of the city of Prince George and about 6.5km west of the west end of Chutanli Lake (Figures 1 and 2).

The surrounding terrain is typical of the central portion of the intermontane physiographic belt: heavily wooded slopes, subdued topography, extensive unconsolidated glacio-fluvial deposits and limited bedrock exposures.

Climate is moderate: summer conditions are warm with dry or showery weather; winters are cold with only one to two metres of snowfall.

The town of Vanderhoof, located on Highway 16 125km by road north of the Chu property, is the nearest population center and provides all support services required in mineral exploration work.

Access

The Kluskus Forestry road provides convenient all weather access to the Chu property area. It starts at Engen on Highway 16, about 19km west of Vanderhoof, and passes 3km south of the Chu campsite. A rough four-wheel drive bush road was constructed to connect the camp and drilling areas to km 106.5 of the Kluskus road.

Camp and Core Processing Facilities

A five structure tent camp was built during first half of June 1981

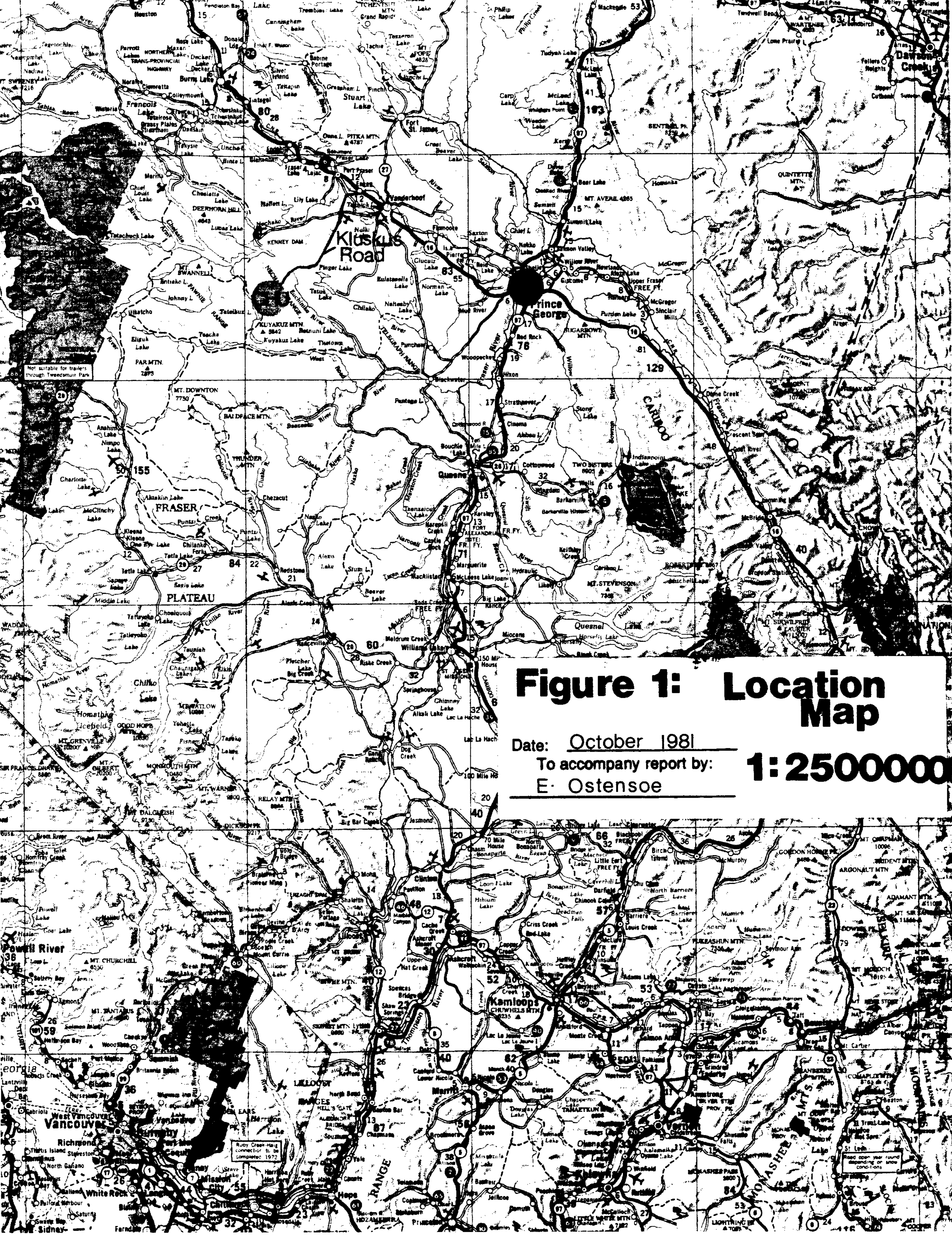

Figure 1: Location Map

Date: October 1981

To accompany report by: E. Ostensoe

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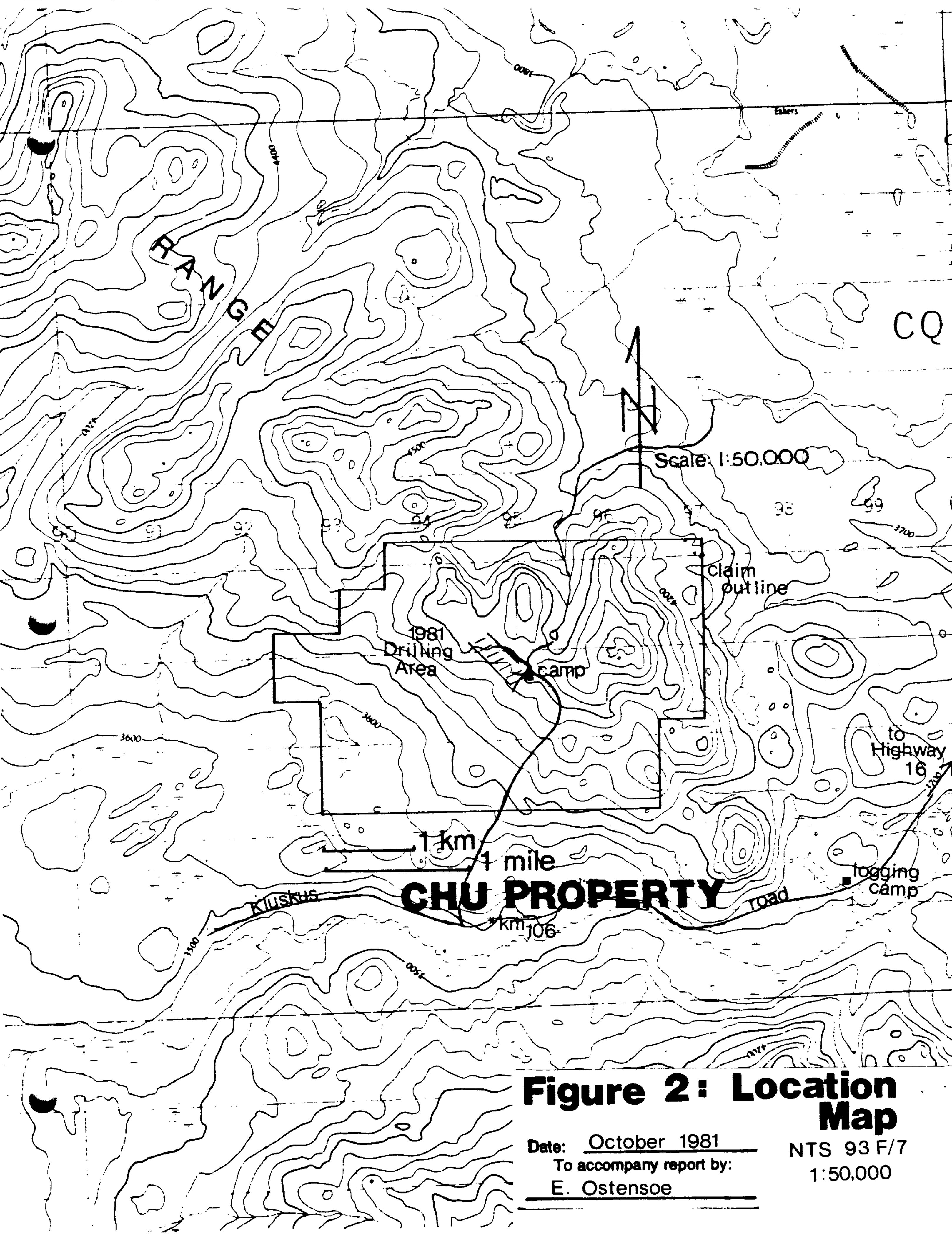

Figure 2: Location Map

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Date: October 1981

To accompany report by:

E. Ostensoe

to accommodate personnel employed in the drilling program. The camp consisted of two "bunk house" tents, a "dry", an office tent and a cookery. A diesel plant provided power for lighting and appliances. A 500 litre tank stored water that was pumped from "Portnoy Lake" a distance of 400 metres.

Diamond drill core was geologically logged and then stored for future reference. A tent frame sheltered the core processing area and core trays were stored in covered racks constructed of timbers, dimension lumber and steel reinforcing rods. The racks enable semi-permanent safe, accessible storage of core.

History

The Chu mineral property was discovered in 1969 by prospecting and regional scale geochemical sampling. Programs of prospecting, geological mapping, soil sampling, test pitting, geophysical surveys and shallow diamond drill holes explored the area in the ensuing year. Following building of the Kluskus road in the mid-1970's, Asarco Incorporated acquired all of the main area of exploration interest. Armco Mineral Exploration Ltd. joined with Asarco in 1979 and initiated road building and diamond drilling work. To date Armco has drilled ten holes with aggregate length of 3400 metres.

1981 Drilling Program

Seven NQ-size diamond drill holes totalling 2396 metres in length were cored in the period June 19 to August 18, 1981. A Longyear Super 38 drill and a Case Model 1150 crawler-type tractor were provided by the contractor, G. and D. Diamond Drilling Co. Ltd., of Surrey, B.C.

The drilling program was planned and supervised by Philip I. Conley, P. Eng. and Erik Ostensoe, geologist, of Armco's staff. Field management and core logging duties were contracted to Edward R. Kruchkowski, geologist, on a *per diem* basis. Camp maintenance, core handling and storage and expediting chores were performed by Pieter Kos.

The purpose of the 1981 drilling program was to explore extensions of a previously indicated molybdenite zone with emphasis on testing it at greater depths and determination of geological parameters that govern distribution of the molybdenite mineralization.

Discussion of 1981 Drilling Program

As mentioned above, the 1981 diamond drilling program further explored the Chu molybdenite prospect. The initial three holes, totalling 1,000 metres, drilled by Armco during the 1980 field season revealed quartz stockwork molybdenite mineralization hosted by biotite hornfelsed siltstone. The mineralized zone appeared to be related in some fashion to the presence of granodiorite dykes. One drill hole, number 80-2, intersected unmineralized granodiorite that was believed to be part of the Nechako Intrusions.

The 1981 drilling extended the mineralized zone to 850m length. Deepest holes reached 300m below surface. The contact between overlying pyroclastic andesite was traced a further 300m westerly and a previously unknown zone of faulting related to granodiorite dykes was revealed, particularly in drill holes 81-3, 81-4 and 81-5.

Newly acquired subsurface information may enable re-evaluation of geophysical surveys performed in 1970 by previous operators.

Conclusions

Although the exploration model of a mineral zone in a hornfelsed siltstone unit sandwiched between pyroclastic andesite and Nechacko Intrusions was substantiated by the recent drilling, disruption by dykes and faulting is more severe than previously suspected. Additional drilling is required to determine limits of the zone and provide more detailed information about the relationship of the molybdenite mineralization to its host rocks.

A P P E N D I X   I

SUMMARIZED GEOLOGICAL LOGS

DIAMOND DRILL HOLES 81-1 to 81-7

Prepared by: E. R. Kruchkowski, geologist
For: Armco Mineral Exploration Ltd.,

June - August, 1981.

CHU PROJECT - NECHAKO RANGE, B.C.

DIAMOND DRILL HOLE 81-1

Start: June 20/81
Finish: July 1, 1981
Core Size: NQ
Core Recovery: 99.3%
Sample: Split Core

Coordinates: 10,184.045 N
9,774.094 E
Elevation: 1380.88m (4530.45 ft.)
Inclination: -52^{o}
Bearing: 210^{o}
Length: 478.2m (1569 ft.)

Directional Survey:

	Bearing	Inclination
Collar	210^{o} 43' (by survey)	-52^{o} (by compass)
132.6m	435' NA	-50^{o} 45' (by acid bottle etch)
187.8m	616' NA	-49^{o} " " "
254.8m	836' NA	-46^{o} 30' " " "
318.8m	1046' NA	-46^{o} " " "
379.8m	1246' NA	-43^{o} 45' " " "
478.2m	1569' NA	-44^{o} 30' " " "

Geology

0 - 3.66 (1 - 12')	Overburden
3.66 - 27.4 (12 - 90')	Andesite

The andesite intersected in the upper portion of DH 81-1 consists of a highly fractured porphyrite rock that is variably mottled due to alteration along fractures. It contains up to 40% anhedral and subhedral feldspar crystals in a purple to grey green ground mass. Hornblende phenocrysts altered to chlorite form up to 15% of the rock. Abundant pyrite and weakly magnetic pyrrhotite occur along fractures and may comprise up to 10% of the rock. Garnet with minor epidote occurs as coarse blebs and stringers.

27.4 - 478.2 (90' - 1569') Siltstone

The siltstone consists of a dense siliceous fine grained rock with minor argillite and sandstone beds. The unit has been variably altered to a weakly foliated rock with biotite banding and cut by a molybdenite bearing, generally fine, quartz stockwork. At least two separate ages of molybdenite mineralization are indicated, cut by later and wider quartz veins. These later veins are generally barren except for the mineralization incorporated from the pre-existing veins. The strongest and best mineralized stockwork occurs from approximately 97.5 - 274.3 (320 - 900') Pyrite and pyrrhotite, present throughout the entire section, occur as fracture fillings and along the quartz veins.

The siltstone is cut by narrow porphyrite granodiorite dykes that consist of coarse feldspar crystals in a medium grained grey equigranular ground mass. Hornblende is present in amounts up to 5%. The dykes contain 3 - 5% disseminated pyrite and rare fine ground disseminated molybdenite. The intrusive is cut by molybdenite bearing quartz veinlets but also cuts molybdenite bearing fractures and quartz veinlets.

Rare narrow basalt dykes were also intersected within the siltstone. The basalt is dark grey fine grained with approximately 30% mafic minerals. Green pyroxene occurring as subhedral phenocrysts forms 10% of the mafic content. The unit is moderately magnetic and contains minor late $CaCo_3$ veinlets.

445 - 451.7 (1460 - 1482') Skarn

A skarn zone intersected within the siltstone consists of coarse seams of garnet and epidote up to 3cm wide that form up to 25% of the rock. Magnetite and calcite are also present. The zone may represent a calcareous sandstone unit as the rock between the skarn seams is a highly siliceous white rock, possibly quartzite.

Faulting is prevalent from 402.3 - 478.2 (1320 - 1569') as evidenced by highly fractured zones and numerous narrow fault gouge intersections. Very little displacement is observed in the fractured rock.

CHU PROJECT - NECHAKO RANGE, B.C.
DIAMOND DRILL HOLE 81-2

Start: July 2, 1981	Co-ordinates - 10,287.5 N 9,663.2 E
Finish: July 13, 1981	survey station 6
Core Size: NQ	Elevation - 1384.4m (4542')
Core Recovery: 99.3%	Inclination - -50°
Sample: Split core	Bearing - 210° az.
	Length - 1516' 462m

Directional Survey:

	Bearing		Inclination
Collar	210° (by compass)		-50° (by compass)
316'	96.3m		-52° (by acid bottle etch)
530'	161.5m		-50° " " "
736'	224.3m		-46° 30' " " "
1000'	305.0m		-45° 30' " " "
1250	381.0m		-44° " " "
1516	462.0m		-41° 15' " " "

Geology

0 - 16' (0.0 - 4.9)	Overburden
16 - 22 (4.9 - 6.7)	Black argillite
22 - 24 (6.7 - 7.3)	Basalt - basalt is fine grained, dense with approximately 40% mafics. Medium grained euhedral pyroxene form 5% of the rock.
24 - 25 (7.3 - 7.6)	Black argillite
25 - 30 (7.6 - 9.1)	Basalt
30 - 156 (9.1 - 47.5)	Siltstone (altered Black argillite). The black argillite is progressively stronger altered down section until a brown biotite hornfels unit is encountered. An increase in a quartz vein - molybdenite stockwork is correlated with an increase in biotite alteration. Bedding measurements indicate dips of 33 - 52° to the core axis.
156 - 157 (47.5 - 47.9)	Granodiorite dyke.
157 - 177.5 (47.9 - 54.1)	Siltstone - this section consists of a tan altered argillite with a stronger quartz vein stockwork.
177.5 - 178.5 (54.1 - 54.4)	Granodiorite dyke. This dyke cuts off molybdenite mineralized quartz veins.

178.5 - 330.5 (54.4 - 100.7)	Siltstone. At 210 feet a strong fine quartz veinlet carrying good molybdenite mineralization was intersected. Strong biotite banding and abundant pyrite and pyrrhotite are present with the stockwork.
330.5 - 332.5 (100.7 - 101.3)	Granodiorite dyke.
332.5 - 390.1 (101.3 - 118.9)	Siltstone. The core contains abundant biotite with a strong fine quartz vein stockwork mineralized with molybdenite cut by a later barren quartz vein system.
390.1 - 390.7 (118.9 - 119.1)	Granodiorite.
390.7 - 420.1 (119.1 - 128.0)	Siltstone
420.1 - 420.4 (128.0 - 128.1)	Granodiorite
420.4 - 421.4 (128.1 - 128.4)	Siltstone
421.4 - 424.5 (128.4 - 129.4)	Granodiorite
424.5 - 434.5 (129.4 - 132.4)	Siltstone
434.5 - 436 (132.4 - 132.9)	Granodiorite
436 - 469.0 (132.9 - 143.0)	Siltstone
469.0 - 472.5 (143.0 - 144.0)	Granodiorite
472.5 - 519.8 (144.0 - 158.4)	Siltstone
519.8 - 521 (158.4 - 158.8)	Granodiorite
521 - 577 (158.8 - 175.9)	Siltstone
577 - 586 (175.9 - 178.6)	Granodiorite
586 - 768.5 (178.6 - 234.2)	Siltstone - The strong prominent quartz vein - molybdenite stockwork ends at approximately 680'. The siltstone contains abundant disseminated and vein pyrite with less amounts of pyrrhotite and chalcopyrite. Sulphides form up to 7% of the rock.
768.5 - 772.5 (234.2 - 235.5)	Granodiorite
772.5 - 800 (235.5 - 243.8)	Siltstone
800 - 802 (243.8 - 244.4)	Granodiorite
802 - 1143.5 (244.4 - 348.5)	Siltstone - Between 947 and 1107' rock is a strongly brecciated siltstone with little if any displacement along fractures. This unit may correspond to the "crackle" breccia described over short sections in DDH 80-3. This section contains local fine quartz veinlets with very fine grained molybdenite.
1143.5 - 1145.5 (348.5 - 349.1)	Granodiorite
1145.5 - 1149 (349.1 - 350.2)	Siltstone
1149 - 1152.5 (350.2 - 351.3)	Granodiorte

1152.5 - 1259.5 (351.3 - 383.9)	Siltstone
1259.5 - 1260 (383.9 - 384.0)	Granodiorite
1260 - 1301.5 (384.0 - 396.7)	Siltstone. At 1270' the fine quartz stockwork increases in intensity and contains very fine grained molybdenite.
1301.5 - 1310 (396.7 - 399.3)	Granodiorite
1310 - 1480 (399.3 - 451.1)	Siltstone - The intensity of quartz veins decreases at 1350'.
1480 - 1516 (451.1 - 462.1)	Granodiorite. The granodiorite is grey unaltered with no quartz veining present. This is in contrast to the short dykes intersect with were cut by the late barren and wide quartz veins.

SUMMARY OF SEQUENCE IN FORMATION OF PRESENT ZONE

1. Thermal metamorphism of shale to form argillite and narrow sections of ptygmatically crumpled quartz veinlets.
2. Two stages of fracturing, biotite alteration with MoS_2 mineralization. The MoS_2 is usually associated with pyrite, pyrrhotite and cholcopyrite either with quartz veinlets or along tight fractures. Evidence in the core suggests minor displacement along with the second stage of mineralization.
3. Granodiorite dyke intrusion. It is unclear whether the dykes are emplaced after the first stage of fracturing or after the second. Mineralized siltstone fragments are common in the dykes with veinlets cut off by the intrusive. However the dyke itself occassionally is cut by mineralized fractures.
4. Widespread formation of a late and wide (2 - 4 cm) barren quartz stockwork. This stockwork cuts both the previous mineralized fractures and granodiorite. Commonly the quartz is emplaced along previous MoS_2 fractures leaving the mineralization along the walls as selvages. This quartz is generally sparsely mineralized by coarse blebs of pyrite, pyrrhotite and occassionally chalcopyrites. It is believed that this mineralization has been incorporated during emplacement.
5. A third stage of fracturing with pyrite-pyrrhotite and epidote, $CaCO_3$ - pyrite and $CaCO_3$ filling the fractures. It is possible that the first fracture lining mineralization is earlier than the last two. However no clear evidence has been discovered to indicate the relationship.
6. Basalt dyke intrusion possibly shortly after emplacement of the main granodiorite body. Both are cut by late $CaCO_3$ veinlets.
7. Faulting. During this stage shearing in the rocks results in smearing of MoS_2 along the shear planes.

CHU PROJECT - NECHAKO RANGE, B.C.
DIAMOND DRILL HOLE 81-3

Start: July 13, 1981
Finish: July 17, 1981
Core size: NQ
Core Recovery: 98.9%
Sample: Split core

Co-ordinates - 10,426.0 N 9,593.4 E
Elevation: 1416m (4646 feet)
Inclination -50°
Bearing - collar 210° 44' (by survey)
Length 956 feet. 291.4m

Directional Survey:		Bearing	Inclination
		Collar 210° 44' (by survey)	-50° (by compass)
108.5m	356'	NA	-50° 30' (by acid bottle etch)
182m	596'	NA	-50° " " "
239.6m	786'	NA	-48° " " "
288.3m	946'	NA	-49° 30' " " "

Geology

(feet)	(metres)	
0 - 28	0.0 - 8.5	over burden
28 - 59.8	8.5 - 18.2	interbedded tuff and pyroclastic andesite
59.8 - 63	18.2 - 19.2	Basalt
63 - 77.5	19.2 - 23.6	interbedded tuff and pyroclastic andesite
77.5 - 83	23.6 - 25.3	Basalt
83 - 100	25.3 - 30.5	black argillite
100 - 106.5	30.5 - 32.5	Basalt
106.5 - 109.5	32.5 - 33.4	Argillite
109.5 - 110.5	33.4 - 33.7	Basalt
110.5 - 265.5	33.7 - 80.9	Siltstone (altered argillite)
265.5 - 281.5	80.9 - 85.8	Granodiorite
281.5 - 352.5	85.8 - 107.4	Siltstone
352.5 - 355	107.4 - 108.2	Granodiorite
355 - 383	108.2 - 116.7	Siltstone
383 - 385.5	116.7 - 117.5	Granodiorte
385.5 - 405.8	117.5 - 123.7	Siltstone
405.8 - 408.3	123.7 - 124.4	Granodiorite
408.3 - 413	124.4 - 125.9	Siltstone
413 - 417	125.9 - 127.1	Granodiorite
417 - 491	127.1 - 149.7	Siltstone

491 - 643	149.7 - 196.0	Granodiorite
643 - 647	196.0 - 197.2	Siltstone
647 - 650	197.2 - 198.1	Granodiorite
650 - 672	198.1 - 204.8	Siltstone
672 - 677	204.8 - 206.3	Granodiorite
677 - 677.5	206.3 - 206.5	Siltstone
677.5 - 678	206.5 - 206.7	Granodiorite
678 - 682	206.7 - 207.8	Siltstone
682 - 740	207.8 - 225.6	Granodiorite
740 - 743	225.6 - 226.4	Siltstone
743 - 785	226.4 - 239.2	Granodiorite
785 - 791	239.2 - 241.0	Siltstone
791 - 796	241.0 - 242.6	Granodiorite
796 - 797	242.6 - 242.9	Siltstone
797 - 800.5	242.9 - 244.0	Granodiorite
800.5 - 805	244.0 - 245.4	Siltstone
805 - 814	245.4 - 248.1	Granodiorite
814 - 815	248.1 - 248.4	Siltstone
815 - 825	248.1 - 251.5	Granodiorite
825 - 827	251.5 - 252.1	Siltstone
827 - 830.0	252.1 - 253.0	Granodiorite
830.0 - 830.5	253.0 - 253.1	Siltstone
830.5 - 839	253.1 - 255.7	Granodiorite
839 - 840.5	255.7 - 256.2	Siltstone
840.5 - 851.5	256.2 - 259.5	Granodiorite
851.5 - 852.5	259.5 - 259.8	Siltstone
852.5 - 855	259.8 - 260.6	Granodiorite
855 - 858.5	260.6 - 261.7	Siltstone
858.5 - 861	261.7 - 262.4	Granodiorite
861 - 861.5	262.4 - 262.6	Siltstone
861.5 - 867	262.6 - 264.3	Granodiorite
867 - 868	264.3 - 264.6	Siltstone
868 - 897	264.6 - 273.4	Granodiorite
897 - 900	273.4 - 274.3	Siltstone
900 - 914.5	274.3 - 278.7	Granodiorite

914.5 - 919.7	278.7 - 280.3	Siltstone
919.7 - 923	280.3 - 281.3	Granodiorite
923 - 924	281.3 - 281.6	Siltstone
924 - 940.5	281.6 - 286.7	Granodiorite
940.5 - 942.5	286.7 - 287.3	Siltstone
942.5 - 946	287.3 - 288.3	Granodiorite
946 - 950.5	288.3 - 289.7	Siltstone
950.5 - 956	289.7 - 291.4	Granodiorite
956 feet - E. O.H.	291.4 - E. O.H.	

The siltstone unit defined in DDH 81-3 appears to consist of a variably boitite hornfelsed argillite. At the top of the hole a dense black argillite, thinly bedded with individual beds having a thickness of 5 - 10 mm was intersected, Narrow sections of very fine quartz veinlets, some ptygmatically crumpled were noted. No apparent biotite or molybdenite mineralization were observed within these sections. As the hole got deeper, narrow sections of biotite alteration were noted, generally parallel to sub-parallel to the bedding planes. Total biotite alteration occurs by 340 feet and a strong quartz-molybdenite stockwork was intersected at 420 - 490 feet. Molybdenite mieralization was first noted at 170 - 180 feet and increases in direct proportion to biotite alteration and quartz veining intensity.

Basalt dykes were intersected only near the fragmental andesite-siltstone contact as in DDH 81-1 and DDH 81-2. The dykes consisting of dense, fine grained mafic rocks with minor coarser pyroxene phenocrysts appear to parallel the contact.

The fragmental andesite unit appears to consist of coarse porphyritic medium grained andesite gragments in a fine grained metrix interbedded with narrow lithic tuff beds. The unit is mottled green to purple-grey dut to alteration along fractures, obscuring the general fragment of nature of the rocks. Pyrite and pyrrhotite form up to 5% of the unit.

The granodiorite varies from a green chloritic variety to a grey unaltered rock. The chloritic rock appears to have assimilated and recrystallized the siltstone into which it has intruded. Numerous siltstone fragments and relict outlines of fragments were observed. The unit is cut by numerous late barren quartz veins generally from 2 - 4 cm wide. Some of the veins have garnet, magnetite and epidote associated with them, either as massive blebs or fine stringers. Molybdenite is associated with the green chlorite variety either disseminated along the edges of the wide quartz veins, disseminated with the crystalline ground mass, occas ionally as veinlets from 1 - 2 mm or commonly as veinlets with quartz in the included siltstone fragments.

The granodiorite appears to be a dyke that parallels the drill hole: the hole intersects mixed siltstone and intrusive zones.

CHU PROJECT - NECHAKO RANGE, B.C.
DIAMOND DRILL HOLE 81-4

Start: July 19, 1981
Finish: July 22, 1981
Core Size: NQ
Core Recovery: 97.5%
Sample: Split core

Co-ordinate: 10,339.8 N 9,543.6 E
Elevation: 1412.1m (4633 feet)
Inclination: -52^{o}
Bearing: 210^{o} az.
Length: (706 feet) 215.2m

Directional Survey:

		Bearing		Inclination
	Collar	210^{o}	(by compass)	-52^{o} (by compass)
16.5m	54'	NA		-56^{o} 10' (by acid bottle etch)
59.7m	196'	NA		-51^{o} 15' " " "
126.8m	416'	NA		-51^{o}
203.0m	666'	NA		-50^{o}
215.2m	706'	NA		-48^{o} 30'

Geology

(feet)	(metres)	
0 - 33	0.0 - 10.6	Over burden
33 - 84.5	10.6 - 25.8	Siltstone
84.5 - 88.5	25.8 - 27.0	Granodiorite
88.5 - 114	27.0 - 34.7	Siltstone
114 - 115	34.7 - 35.1	Granodiorite
115 - 117	35.1 - 35.7	Siltstone
117 - 125.5	35.7 - 38.3	Granodiorite
125.5 - 132	38.3 - 40.2	Siltstone
132 - 159	40.2 - 48.5	Granodiorite
159 - 160	48.5 - 48.8	Siltstone
160 - 165	48.8 - 50.3	Granodiorite
165 - 167	50.3 - 50.9	Siltstone
167 - 170	50.9 - 51.8	Granodiorite
170 - 181	51.8 - 55.2	Siltstone
181 - 336	55.2 - 102.4	Granodiorite
336 - 339	102.4 - 103.3	Siltstone
339 - 340	103.3 - 103.6	Granodiorite
340 - 341	103.6 - 103.9	Siltstone
341 - 342	103.9 - 104.2	Granodiorite
342 - 348	104.2 - 106.1	Siltstone
348 - 377	106.1 - 114.9	Granodiorite

377 - 380	114.9 - 115.8	Siltstone
380 - 389	115.8 - 118.6	Granodiorite
389 - 395	118.6 - 120.4	Siltstone
395 - 396	120.4 - 120.7	Granodiorite
396 - 397	120.7 - 121.0	Siltstone
397 - 402	121.0 - 122.5	Granodiorite
402 - 403	122.5 - 122.8	Siltstone
403 - 418.5	122.8 - 127.6	Granodiorite
418.5 - 421	127.6 - 128.3	Siltstone
421 - 427	128.3 - 130.1	Granodiorite
427 - 431.5	130.1 - 131.5	Siltstone
431.5 - 438.5	131.5 - 133.7	Granodiorite
438.5 - 440.5	133.7 - 134.3	Siltstone
440.5 - 452	134.3 - 137.8	Granodiorite
452 - 454	137.8 - 138.4	Siltstone
454 - 460	138.4 - 140.2	Granodiorite
460 - 464	140.2 - 141.4	Siltstone
464 - 474.5	141.4 - 144.6	Granodiorite
474.5 - 476	144.6 - 145.1	Siltstone
476 - 537.5	145.1 - 163.8	Granodiorite
537.5 - 538.5	163.8 - 164.1	Siltstone
538.5 - 562	164.1 - 171.3	Granodiorite
562 - 564	171.3 - 171.9	Siltstone
564 - 571	171.9 - 174.0	Granodiorite
571 - 575	174.0 - 175.3	Siltstone
575 - 576	175.3 - 175.6	Granodiorite
576 - 577	175.6 - 175.9	Siltstone
577 - 579	175.9 - 176.5	Granodiorite
579 - 584.5	176.5 - 178.2	Siltstone
584.5 - 620	178.2 - 189.0	Granodiorite
(616 - 620)	(187.8 - 189.0)	Fault zone
620 - 706	189.0 - 215.1	Granodiorite (Main Batholith?)

The top of DDH 81-4 was collared near an outcrop exposure of argillite with weak biotite alteration and minor quartz-molybdenite mineralization. The hole intersected siltstone from 33 to 114 feet with an increase in stockwork intensity from 33 feet to a prominent stockwork at 110 feet. From 114 feet to its final depth at 706 feet the hole intersected granodiorite with siltstone inclusions. The granodiorite varied from green chloritic to a grey unaltered. The green chlorite variety is due to assimilation of the siltstone and numerous relict fragment outlines were noted. At 616 - 620 feet, a strongly faulted zone was encountered. Below this fault, the hole intersected a monotonous, unmineralized fine grained green to grey granodiorite, possibly the main Batholith. The fault and crackle breccia associated with it are correlated with a zone present from 937 to 1107 feet in DDH 81-2.

The granodiorite is cut by a late quartz veining stage that is almost barren of mineralization except for that assimilated from the surrounding rock. Abandant garnet, epidote with minor tremolite and magnetite are associated with the intrusive. The siltstone inclusions generally contain a strong quartz vein stockwork with varying amounts of molybdenite. Most of the biotite in these inclusions occurs either as rims on quartz veins or as bands that are altered to chlorite. Numerous vuggy quartz-calcite veins with crystalline pyrite are present.

CHU PROJECT - NECHAKO RANGE, B.C.

DIAMOND DRILL HOLE 81-5

Start: July 23, 1981
Finish: July 26, 1981
Core Size: NQ
Core Recovery: 85.9%
Sample: Not sampled

Coordinates: 10,458.9 N
9,465.3 E
Elevation: 1411.3m (4630 feet)
Inclination: -50°
Bearing: 75m (246')
Length: 271'

Directional Survey:	Bearing	Inclination
Collar	210° (by compass)	-50° (by compass)
75m (246')	NA	-51° " "

Geology

0 - 50' (0 - 15.2)	Overburden
50 - 80.5' (15.2 - 24.5)	Argillite. The Argillite is a black, thinly bedded rock that is highly brecciated; exhibiting a mortar texture and containing narrow fault gouge zones.
80.5 - 256' (24.5 - 78)	Granodiorite. The granodiorite is a brown-to-tan, fine grained equigranular to porphyritic rock. It is highly kaolinitized with abundant dendritin manganese along fractures. No sulphides or quartz was observed within this unit. This unit is separated from the above argillite by a narrow 6" fault.
256 - 271' (78 - 82.6)	Argillite. The argillite is thinly bedded at 45° to the core axis with narrow, rare biotite altered zones. Traces of molybdenite were observed on a shear plane at 260'. The rock is highly broken with abundant fine calcite veinlets along fractures. Only a very narrow (< 6") chill zone was observed on the granodiorite/argillite contact.

The granodiorite is correlated with that intersected in the bottom of DDH 81-4 and DDH 81-2. This is a very distinct unit and indicates that there are at least two stages of granodiorite intrusive. (The first stage contains abundant siltstone inclusions as well as barren late quartz veining and abundant sulphides).

NOTE: The hole was abandoned after two attempts at cementing caving material at 261' (79.6) - 268 (81.7) was unsuccessful. This was becoming a very expensive hole as cementing had also been completed successfully to seal off cave at 96 (29.3) - 110 (33.5).

As a result another hole was collared 100' at 270° azimuth in order to miss the interpreted fault passing at 21° and dipping 45° SE. through the area of DDH 81-5.

The new location was to collar the hole in the footwall side of the above mentioned fault.

CHU PROJECT - NECHAKO RANGE, B.C.

DIAMOND DRILL HOLE 81-6

Start: July 26, 1981
Finish: Aug. 7, 1981
Core Size: NQ
Core Recovery: 98.8%
Sample: split core

Coordinates: 10,461.9 N
9,430.2 E
Elevation: 1413.7m (4638 feet)
Inclination: -50°
Bearing: 210° azimuth
Length: 410.3m (1346 feet)

Directional Survey:

		Bearing	Inclination
	Collar	210° (by compass)	-50° (by compass)
92.3m	303'	N.A.	-49° 30' (by acid bottle etch)
152.4	500'	N.A.	-46° 10' " " "
212.0	696'	N.A.	-39° 45' " " "
340.0	1116'	N.A.	-34° 15' " " "
395.0	1296'	N.A.	-27° " " "
410.3	1346'	N.A.	-24° 30' " " "

Geology

(feet)	(metres)	
0.0 - 32.0	0.0 - 9.8	Overburden
32.0 - 254.0	9.8 - 77.4	Argillite
254.0 - 255.5	77.4 - 77.9	Granodiorite
255.5 - 309.7	77.9 - 94.4	Siltstone
309.7 - 316.5	94.4 - 96.5	Granodiorite
316.5 - 334.0	96.5 - 101.8	Siltstone
334.0 - 335.5	101.8 - 102.3	Granodiorite
335.5 - 375.8	102.3 - 114.5	Siltstone
375.8 - 377.3	114.5 - 115.0	Granodiorite
377.3 - 426.2	115.0 - 129.9	Siltstone
426.2 - 432.0	129.9 - 131.7	Granodiorite
432.0 - 433.0	131.7 - 132.0	Siltstone
433.0 - 455.5	132.0 - 138.8	Granodiorite
455.5 - 471.0	138.8 - 143.6	Siltstone
471.0 - 474.0	143.6 - 144.5	Granodiorite
474.0 - 479.0	144.5 - 146.0	Siltstone
479.0 - 479.5	146.0 - 146.1	Granodiorite
479.5 - 484.0	146.1 - 147.5	Siltstone
484.0 - 487.0	147.5 - 148.4	Granodiorite
487.0 - 497.0	148.4 - 151.5	Siltstone
497.0 - 516.5	151.5 - 157.4	Granodiorite
516.5 - 526.0	157.4 - 160.3	Siltstone
526.0 - 534.0	160.3 - 162.8	Mylonite c̄ minor Cataclasite
534.0 - 542.5	162.8 - 165.4	Granodiorite
542.5 - 557.0	165.4 - 169.8	Siltstone
557.0 - 560.0	169.8 - 170.7	Granodiorite
560.0 - 577.0	170.7 - 175.9	Siltstone
577.0 - 581.0	175.9 - 177.1	Granodiorite
581.0 - 584.0	177.1 - 178.0	Siltstone
584.0 - 594.0	178.0 - 181.1	Granodiorite
594.0 - 597.0	181.1 - 182.1	Siltstone
597.0 - 599.8	182.1 - 182.8	Granodiorite
599.8 - 639.5	182.8 - 194.9	Siltstone
639.5 - 645.5	194.9 - 196.7	Granodiorite

645.5 - 655.0	196.7 - 199.6	Siltstone
655.0 - 656.5	199.6 - 200.1	Granodiorite
656.5 - 674.0	200.1 - 205.4	Siltstone
674.0 - 703.5	205.4 - 214.4	Granodiorite
703.5 - 726.0	214.4 - 221.3	Siltstone
726.0 - 727.0	221.3 - 221.6	Granodiorite
727.0 - 728.0	221.6 - 221.9	Siltstone
728.0 - 729.8	221.9 - 222.4	Granodiorite
729.8 - 736.0	222.4 - 224.3	Siltstone
736.0 - 737.0	224.3 - 224.6	Granodiorite
737.0 - 771.5	224.6 - 235.2	Siltstone
771.5 - 774.5	235.2 - 236.1	Granodiorite
774.5 - 779.5	236.1 - 237.6	Siltstone
779.5 - 780.5	237.6 - 237.9	Granodiorite
780.5 - 784.0	237.9 - 239.0	Siltstone
784.0 - 812.5	239.0 - 247.7	Granodiorite
812.5 - 818.5	247.7 - 249.4	Siltstone
818.5 - 820.5	249.4 - 250.1	Granodiorite
820.5 - 825.5	250.1 - 251.6	Siltstone
825.5 - 842.0	251.6 - 256.6	Granodiorite
842.0 - 847.0	256.6 - 258.2	Siltstone
847.0 - 850.5	258.2 - 259.2	Granodiorite
850.5 - 855.0	259.2 - 260.6	Siltstone
855.0 - 856.2	260.6 - 261.0	Granodiorite
856.2 - 857.2	261.0 - 261.3	Siltstone
857.2 - 860.0	261.3 - 262.1	Granodiorite
860.0 - 866.5	262.1 - 264.1	Siltstone
866.5 - 882.0	264.1 - 268.8	Granodiorite
882.0 - 883.0	268.8 - 269.1	Siltstone
883.0 - 885.9	269.1 - 270.0	Granodiorite
885.9 - 888.0	270.0 - 270.7	Siltstone
888.0 - 897.0	270.7 - 273.4	Granodiorite
897.0 - 898.0	273.4 - 273.7	Siltstone
898.0 - 902.0	273.7 - 274.9	Granodiorite
982.0 - 904.5	274.9 - 275.7	Siltstone
904.5 - 910.0	275.7 - 277.4	Granodiorite
910.0 - 918.0	277.4 - 279.8	Siltstone
918.0 - 929.0	279.8 - 283.2	Granodiorite
929.0 - 934.5	283.2 - 284.8	Siltstone
934.5 - 935.5	284.8 - 285.1	Granodiorite
935.5 - 937.0	285.1 - 285.6	Siltstone
937.0 - 940.0	285.6 - 286.5	Granodiorite
940.0 - 944.0	286.5 - 287.7	Siltstone
944.0 - 945.0	287.7 - 288.0	Granodiorite
945.0 - 947.5	288.0 - 288.8	Siltstone
947.5 - 949.8	288.8 - 289.5	Granodiorite
949.8 - 957.0	289.5 - 291.7	Siltstone
957.0 - 971.5	291.7 - 296.1	Granodiorite
971.5 - 974.0	296.1 - 296.9	Siltstone
974.0 - 975.0	296.9 - 297.2	Granodiorite
975.0 - 978.5	297.2 - 298.2	Siltstone
978.5 - 981.5	298.2 - 299.2	Granodiorite
981.5 - 984.0	299.2 - 299.9	Siltstone

984.0 - 985.0	299.9 - 300.2	Granodiorite
985.0 - 988.5	300.2 - 301.3	Siltstone
988.5 - 989.8	301.3 - 301.7	Granodiorite
989.8 - 991.0	301.7 - 302.1	Siltstone
991.0 - 992.0	302.1 - 302.4	Granodiorite
992.0 - 1002.0	302.4 - 305.4	Siltstone
1002.0 - 1004.0	305.4 - 306.0	Granodiorite
1004.0 - 1005.0	306.0 - 306.3	Siltstone
1005.0 - 1064.0	306.3 - 324.3	Granodiorite
1064.0 - 1065.0	324.3 - 324.6	Siltstone
1065.0 - 1067.0	324.6 - 325.2	Granodiorite
1067.0 - 1068.5	325.2 - 325.7	Siltstone
1068.5 - 1069.7	325.7 - 326.0	Granodiorite
1069.7 - 1074.5	326.0 - 327.5	Siltstone
1074.5 - 1076.5	327.5 - 328.1	Granodiorite
1076.5 - 1146.0	328.1 - 349.3	Siltstone
1146.0 - 1148.0	349.3 - 349.9	Granodiorite
1148.0 - 1172.0	349.9 - 357.2	Siltstone
1172.0 - 1180.0	357.2 - 359.7	Granodiorite
1180.0 - 1346.0	359.7 - 410.3	Siltstone
1346 END of hole.	(410.3)	

DDH 81-6 was collared 100' W. of DDH 81-5 in order to avoid the fault encountered in the area. The hole intersected variably biotite altered argillite from 33 - 426.2 feet. Rare biotite alteration of the argillite was encountered at the top of the hole with stronger alteration down section until total biotite alteration was encountered at 260'. Closely associated with total biotite alteration is the start of a weak quartz-molybdenite stockwork. A strong prominent quartz-molybdenite stockwork was encountered at 390'.

The argillite intersected consisted of a thinly bedded, black to grey unit with individual beds from 5mm to 1cm. Bedding measurements indicate a dip of 73 - 78° to the NE. The unit contains fine ptymatically crumpled quartz veins as well as 1 - 2% fine pyrite.

Biotite alteration generally appears to parallel or sub-parallel bedding planes near the top of the hole. This indicates that early alteration followed planes of weakness (namely bedding planes) implying a source at depth as the rocks dip steeply to the NE. Quartz veins are closely associated along and parallel to biotite alteration zones near the top of the hole. Where total alteration has occurred, this relationship has been obscured. Also in areas of weak alteration, a peculiar pattern of quartz veining is observed and may be due to pulsating infusion of quartz. The pattern resembles "beads of a necklace" and consists of quartz in "teardrop" shapes along previous fractures. The quartz pushes aside the country rock leaving this irregular pattern. Where a strong quartz vein stockwork is observed, the quartz has opened up more regular veins.

This type of pattern has been observed in other holes, generally at the top and bottom of the holes where the quartz stockworks are weak.

Molybdenite mineralization was first noted at 79' 24m and increases in direct proportion to biotite alteration and quartz veining intensity.

A mixed granodiorite and biotite hornfels (siltstone) was intersected from 426.2 130 - 1069.7' 326. The granodiorite varies from a green chloritic to a grey unaltered, medium grained rock. Numerous biotite hornfels inclusions and relict outlines indicate that the green chloritic granodiorite may have assimilated and recrystalized the siltstone into which it has intruded. As in DDH-81-3, the granodiorite is cut by numerous to weak late barren quartz veins from 2 - 4cm wide containing varying amounts of garnet, calcite, tremolite, epidote and magnetite. Occasionally the above skarn assemblage of minerals occurs as coarse veins up to 1cm. Molybdenite associated with the granodiorite is generally weak and occurs in the following manner: disseminated along the edges of wide late stage quartz veins, disseminated within the crystalline ground mass, occasionally as veinlets 1mm. wide along fractures and along quartz veinlets in the included biotite hornfels fragments.

The granodiorite cuts off two early quartz-molybdenite bearing veinlets within the hornfels but is itself occasionally cut by molybdenite bearing quartz.

Vuggy quartz-calcite veins are common in the intrusive and commonly contain small ($<$ 5mm) crystals of green apatite and/or green fluorite.

DDH 81-6 intersected more biotite hornfels mixed with the granodiorite than DDH's 81-3 and 81-4. The dyke system appears to be approximately 650' 200m wide in DDH 81-6 and contains equal proportions of hornfels to intrusive (50% - 50% respectively) while in DDH 81-3 (dyke system not defined approximately 470' 143m encountered) the intrusive represented 84% of the zone. This would imply a possible "fingering" out of the intrusive towards the north.

It is postulated that the granodiorite is injected under pressure into the surrounding hornfels but probably in a partially cooled state. At 1005' 306m in the hole, coarse angular fragments of hornfels are within a dark grey porphyritic granodiorite. This indicates a crackling of the rock, injection of the intrusive with little assimilation of the hornfels. The porphyritic nature of the intrusive indicates some rapid cooling but no apparent baked or chill margins were noted on the rims of the inclusions. Partial to total assimilation has been noted in the hole (as well as others) and would appear to occur more towards the central portions of the dyke system. This is probably due to a higher heat level in the centre of the intrusive.

Occasionally hornfels inclusions showing no baking or assimilation are noted in intrusion sections which contain assimilated hornfels. This may be due to partial assimilation of the country rock as the dyke is injected, cooling of the intrusive and then further crackling and incorporation of wall rock.

The biotite hornfels (siltstone) inclusions in the dyke system have a strong quartz-molybdenite stockwork and occasionally show pink carbonate and/or feldspar alteration. Rarely, quartz flooding and coarse biotite banding was noted. Where the coarse biotite was observed, fine molybdenite was noted between the biotite bands, generally parallelling the contortions within the bands.

At 1069.7', DDH 81-6 passed out of the granodiorite dyke system into a generally pink to dark brown mottled biotite hornfels with an overall weak to moderately strong quartz-molybdenite stockwork. Abundant green altered zones with associated pyrite and pyrrhotite were noted from 1069.7 to the bottom of the hole. The pink mottling appears to be a later alteration than the brown (biotite hornfels) and is possibly due to K-feldspar and/or carbonate alteration. The green alteration zones are likely epidote-albite alteration and appear to be later than the formation of the biotite hornfels. No obvious relationships between the epidote-albite alteration and K-feldspar and/or carbonate alteration were observed.

The epidote-albite grade of metamorphism would fall between the lower temperature biotite grade and higher temperature garnet grade.

Biotite alteration persists to the bottom of the hole with an associated weak quartz-molybdenite stockwork. The quartz veins exhibit the peculiar "beads on a necklace" configuration noted near the top of the hole.

At 1290 - 1346 (bottom of hole), pyrrhotite replaces pyrite as the most dominant sulphide. This is unusual as pyrite is present throughout all the rocks and may possibly represent a sulphide zoning. The only other intersection where pyrrhotite was more abundant than pyrite was at the top of DDH 81-1, within the andesitic pyroclastics.

Minor amounts of red sphalerite were noted at 1066' and with traces of galena at 1234.5'. At 1234 - 1234.5, a high grade section of molybdenite was noted which would assay in excess of 1%. This was in association with pyrite, pyrrhotite, and minor sphalerite/traces galena. The molybdenite occurred as coarse seams on a quartz/aphanitic intrusive and fine veinlets along coarse biotite bands.

Also late stage $CaCo_3$ fracture fillings have associated marcasite rather than pyrite.

DISCUSSION

Based on the geological observations within DDH 81-6, the sequence of events in the formation of the present zone have been further refined but not changed. It is speculated that regional metamorphism rather than thermal metamorphism is responsible for the formation of the argillite.

The two stages of fracturing with associated biotite alteration and closely related quartz-molybdenite stockwork are probably related to a buried intrusive at depth, either a granodiorite or more acidic variety of intrusive. There is definite but minor displacement of the first stage of mineralization by the second stage.

The granodiorite dyke system in DDH 81-3, 81-4, 81-6, A-3 and A-4 is emplaced after the second stage of mineralization. It is occasionally cut by mineralized fractures and rarely by molybdenite bearing quartz veinlets. The widespread formation of the late, wide (24cm) and barren quartz stockwork is related to the granodiorite intrusive. The occurrence of garnet, tremolite and magnetite with this quartz would substantiate this relationship. The aluminum incorporated from the assimilated hornfels would be used in the formation of the garnet, tremolite and epidote. The numerous quartz-feldspar veinlets observed in the drill core are probably fine pegmatite phases of the granodiorite.

The third stage of fracturing is probably more complex than first postulated with pyrite, pyrrhotite and epidote being an early fracture filling. Calcite with marcasite and a dark blue mineral (possibly a maganese oxide) and calcite alone cut all other fracture fillings.

The next stage would be emplacement of the non quartz or sulphide bearing granodiorite. This intrusive, intersected in DDH 81-4, 81-2, and 81-5, is probably a dyke off the main batholithic phase.

The next stage would be faulting with related shearing and smearing of incorporated MoS_2 along shear planes.

The basalt dykes, possibly related to the oligocene basalt flows in the area, would be the last event.

Reasons for Source of MoS_2 at Depth (buried intrusive):

a) There is little alteration variation laterally along the drill holes. Once total biotite alteration is encountered, the alteration remains the same in spite of drilling towards the main granodiorite mass. It would be expected that the rocks would become more schistose or gneissic as the drill holes approached the source of the alteration.

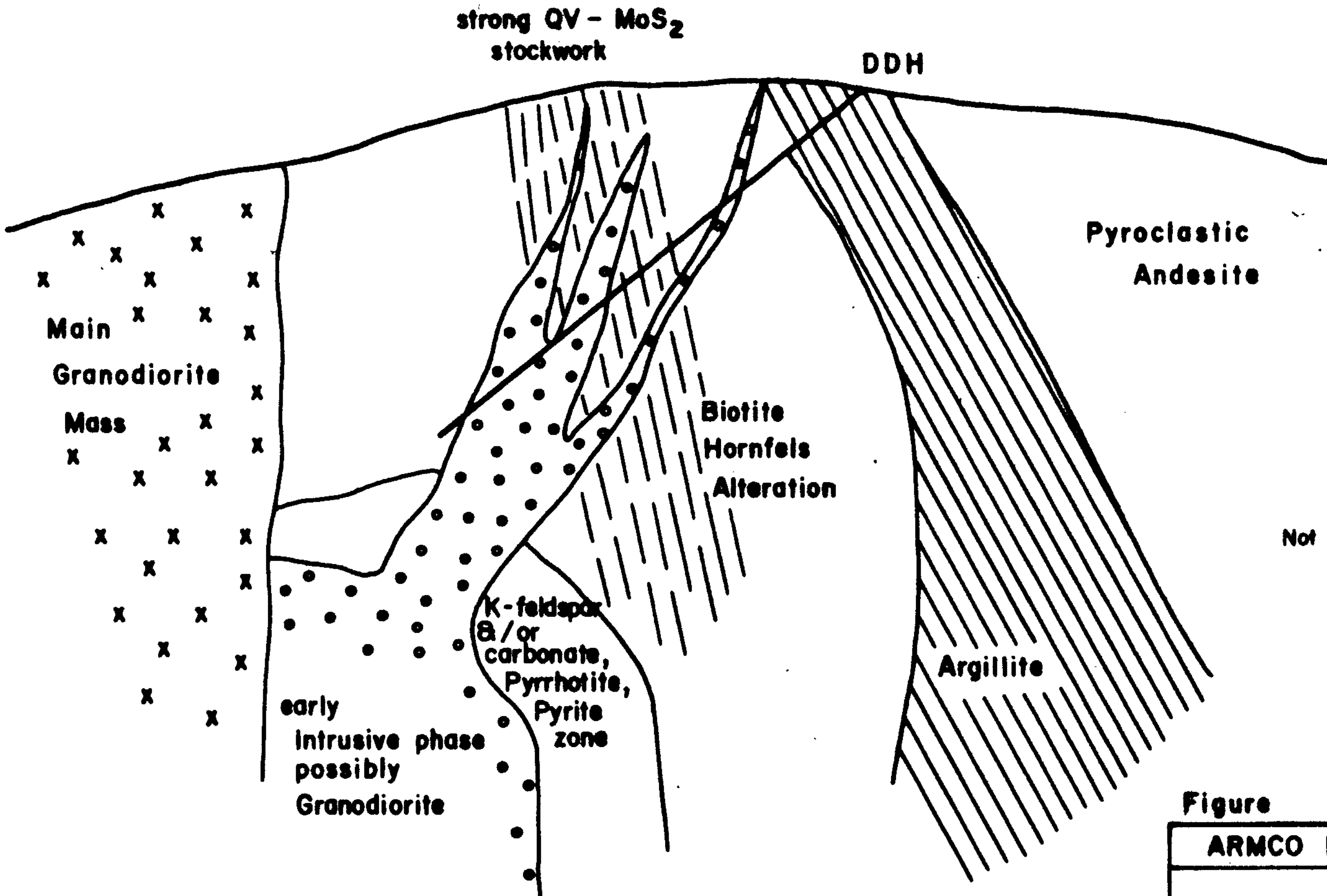
b) Indications in both DDH 81-2 and 81-6 suggest that the holes may be encountering the west side of the linear biotite altered zone. It is tenuous evidence at best and consists mainly of decrease in quartz stockwork.

c) The biotite alteration with paralleling quartz veins along the edges of the alteration zone indicating upward movement of hydrothermal solutions along bedding planes (planes of weakness).

d) Indications of narrow more intense alteration zones as follows: pink K-feldspar and/or carbonate alteration, local coarse biotite bands and rare quartz flooding. Molybdenite mineralization is more abundant with the above zones.

Based on this evidence, it is postulated that the granodiorite mass to the west is emplaced in a post molybdenite mineralization period. Due to the close configuration relationship of the granodiorite/hornfels contact with the zone of best mineralization, the granodiorite has been considered by earlier workers as the source. The source of the mineralization remains unclear and it may well be an early phase of granodiorite that is responsible. Whatever the source, it is most likely deeper as speculated above.

The attached diagram is a possible model for the mineral zone.



Figure

ARMCO MINERAL EXPLORATION LTD.

SECTION TO ACCOMPANY
SUMMARY DESCRIPTION
OF DRILL HOLE 81 - 6

E. Kruchkowski, Geologist, August, 1981

CHU PROJECT

VANCOUVER, BRITISH COLUMBIA

TO ACCOMPANY REPORT BY: [illegible]

Drawn by: C. L. Cory   Date: October 1981

CHU PROJECT - NECHAKO RANGE, B.C.

DIAMOND DRILL HOLE 81-7

Start: Aug. 10/81
Finish: Aug. 19/81
Core Size: NQ
Core Recovery: 98.6
Sample: Split core

Coordinates: 10,498.2 N
9,329.4 E
Elevation: 1419.2m (4656')
Inclination: -50°
Bearing: 210° azimuth
Length: 453m (1487')

Directional Survey:

		Bearing	Inclination
	Collar	210° (by compass)	-50°
51m	167'	N.A.	-54° (by acid bottle etch)
118	387'	N.A.	-49° 30' (by acid bottle etch)
185	607'	N.A.	-47° 10' " " "
239	785'	N.A.	-44° 15'
307	1007	N.A.	-45°
383	1257	N.A.	39° 40'
453	1487	N.A.	36°

Geology

(feet)	(metres)	
0.0 - 10.0	0.0 - 3.1	Overburden
10.0 - 150.0	3.1 - 45.7	Argillite
150.0 - 206.5	45.7 - 62.9	Siltstone
206.5 - 213.0	62.9 - 64.9	Granodiorite - fine grained
213.0 - 240.2	64.9 - 72.2	Granodiorite - medium grained
240.2 - 270.0	72.2 - 82.3	Siltstone
270.0 - 271.5	82.3 - 82.8	Granodiorite
271.5 - 293.0	82.8 - 89.3	Siltstone
293.0 - 294.0	89.3 - 89.6	Granodiorite
294.0 - 299.9	89.6 - 91.4	Siltstone
299.9 - 300.8	91.4 - 91.7	Granodiorite
300.8 - 304.0	91.7 - 92.7	Siltstone
304.0 - 305.0	92.7 - 93.0	Granodiorite
305.0 - 309.5	93.0 - 94.3	Siltstone
309.5 - 326.0	94.3 - 99.4	Granodiorite
326.0 - 369.0	99.4 - 112.5	Siltstone
369.0 - 369.8	112.5 - 112.7	Granodiorite
369.8 - 372.0	112.7 - 113.4	Siltstone
372.0 - 383.5	113.4 - 116.9	Granodiorite
383.5 - 393.0	116.9 - 119.8	Siltstone
393.0 - 401.0	119.8 - 122.2	Granodiorite
401.0 - 405.0	122.2 - 123.4	Siltstone
405.0 - 416.5	123.4 - 126.9	Granodiorite
416.5 - 445.0	126.9 - 135.6	Siltstone
445.0 - 454.0	135.6 - 138.4	Granodiorite
454.0 - 458.2	138.4 - 139.7	Siltstone
458.2 - 459.5	139.7 - 140.1	Granodiorite
459.5 - 496.2	140.1 - 151.2	Siltstone
496.2 - 498.0	151.2 - 151.8	Granodiorite
498.0 - 499.0	151.8 - 152.1	Siltstone
499.0 - 504.5	152.1 - 153.8	Granodiorite

504.5 - 507.5	153.8 - 154.7	Siltstone
507.5 - 513.0	154.7 - 156.4	Granodiorite
513.0 - 520.5	156.4 - 158.6	Siltstone
520.5 - 546.0	158.6 - 166.4	Granodiorite
546.0 - 557.0	166.4 - 169.8	Siltstone
557.0 - 559.5	169.8 - 170.5	Granodiorite
559.5 - 564.0	170.5 - 171.9	Siltstone
564.0 - 573.0	171.9 - 174.7	Granodiorite
573.0 - 583.0	174.7 - 177.7	Siltstone
583.0 - 607.5	177.7 - 185.2	Granodiorite
607.5 - 615.0	185.2 - 187.5	Siltstone
615.0 - 619.0	187.5 - 188.7	Granodiorite
619.0 - 621.0	188.7 - 189.3	Siltstone
621.0 - 624.0	189.3 - 190.2	Granodiorite
624.0 - 625.5	190.2 - 190.7	Siltstone
625.5 - 797.5	190.7 - 243.1	Granodiorite
797.5 - 801.0	243.1 - 244.1	Siltstone
801.0 - 804.0	244.1 - 245.1	Granodiorite
804.0 - 827.2	245.1 - 252.1	Siltstone
827.2 - 829.8	252.1 - 252.9	Granodiorite
829.8 - 836.5	252.9 - 255.0	Siltstone
836.5 - 846.0	255.0 - 257.9	Mylonite
846.0 - 860.0	257.9 - 262.1	Siltstone
860.0 - 862.0	262.1 - 262.7	Granodiorite
862.0 - 877.0	262.7 - 267.3	Siltstone
877.0 - 885.0	267.3 - 269.7	Cataclasite
885.0 - 889.7	269.7 - 271.2	Siltstone
889.7 - 890.5	271.2 - 271.4	Granodiorite
890.5 - 891.5	271.4 - 271.7	Siltstone
891.5 - 894.0	271.7 - 272.5	Granodiorite
894.0 - 915.0	272.5 - 278.9	Siltstone
915.0 - 917.5	278.9 - 279.7	Granodiorite
917.5 - 919.5	279.7 - 280.3	Siltstone
919.5 - 923.0	280.3 - 281.3	Granodiorite
923.0 - 949.8	281.3 - 289.5	Siltstone
949.8 - 956.5	289.5 - 291.5	Granodiorite
956.5 - 971.5	291.5 - 296.1	Siltstone
971.5 - 972.5	296.1 - 296.4	Granodiorite
972.5 - 985.0	296.4 - 300.2	Siltstone
985.0 - 989.5	300.2 - 301.6	Granodiorite
989.5 - 1009.0	301.6 - 307.5	Siltstone
1009.0 - 1016.0	307.5 - 309.7	Granodiorite
1016.0 - 1487.0	309.7 - 453.2	Siltstone

DDH 81-7 was drilled to test a molybdenum geochemical anomaly and to expand the zone of the known quartz-molybdenite stockwork. The geology intersected in the hole is very similar to that in DDH 81-6.

The hole intersected variably biotite altered argillite to 206.5'. Rare biotite alteration with weak quartz was intersected at the top with stronger biotite alteration down section until total biotite alteration was encountered at 150 feet. The start of the granodiorite dyke system was intersected at 206.5 feet where a fine grained dyke cuts both molybdenite bearing "siltstone" and a medium grained granodiorite. The dyke system was encountered at 206.5 to 797.5 feet and consisted of 59% intrusive and 41% "siltstone". It had been believed that the intrusive dykes were "fingering" out to the north based on the intersections in DDH 81-6 and 81-3. However, the intersection of dyke material indicates a great variation in thickness and location of intrusive between the holes although the overall thickness of the dyke remains the same.

A prominent quartz-molybdenite stockwork in the siltstone was noted at 260' and within the dyke system. The stockwork appears to be less intense than those noted in holes to the SE. As well less garnet, tremolite and magnetite were observed in the granodiorite than previous holes. The granodiorite contains weak molybdenite mineralization throughout but has a section at 750 - 800 feet that carries find disseminated molybdenite as well as along veinlets and selvages on quartz veins. The dyke also contains less fine "siltstone" inclusions within the crystalline ground mass.

Only one fault of any consequence was noted at 513 - 534 with fault gouge over narrow sections carrying black mud; possibly molybdenite or crushed pyrite. A mylonite zone and cataclasite zone at 836.5 - 844 and 875 - 884 respectively possibly correlate with the mylonite zone in DDH 81-6.

At 797.5, the hole passes out of the dyke system into a biotite hornfels or "siltstone" with a moderately strong quartz-molybdenite stockwork. The stockwork rapidly decreases to 1220 feet where a weak quartz-molybdenite stockwork was encountered. At 1210 - 1221, strong quartz flooding with fine molybdenite was noted.

At 1130 feet, pyrrhotite becomes the most dominant sulphide along with chalcopyrite; pyrite is rarely observed and molybdenite is present in small amounts. Minor amounts of sphalerite were noted near the granodiorite dyke system. The replacement of pyrite as the dominant sulphide is similar to that in DDH 81-6.

At 1340 - 1380, only weak biotite alteration of a black argillite was noted. The rocks are mottled pink and black similar to the top of the hole. This indicates that the hole was passing out of the biotite altered section; that is, it established both sides of the outer alteration zone.

The hole stopped at 1487' in a pink biotite hornfels or "siltstone" with a weak quartz stockwork, minor molybdenite and abundant pyrrhotite with minor chalcopyrite.

APPENDIX II

STATEMENT

OF

EXPENDITURES

Appendix II - Statement of Expenditures - Chu Prospect, Omineca Mining Division, B.C. in period June 2nd through August 18th, 1981.

1.	Drilling Costs - as invoiced, including mobilization, tractor, footage charges, extra charges for labour, additives and drilling fluids, water supply, equipment used up or lost in drilling operations, stand-by charges for cementing, et al.	$206,698.70
2.	Groceries	7,772.80
3.	Geological Supervision - contract basis	17,085.79
	Total Expenditures claimed	$231,557.29

APPENDIX III

STATEMENTS

OF

QUALIFICATIONS

APPENDIX III - Statement of Qualifications

(a) Edward R. Kruchkowski, B.Sc., Geologist

Education: Completed B.Sc. course at University of Alberta, Edmonton, Alberta in May, 1972.

Work History: Summers 1969, 1971, 1972 - employed by Hecla Operating Company at Schaft Creek porphyry deposit as coresplitter, soil sampler and geologist respectively.

Summer 1970 - employed by geological consultant and assigned to projects in Rocky Mountains of southeastern British Columbia.

May, 1973 to June 1974 - employed by Hecla Operating Company as geologist and assigned to projects at Mess Creek, B.C. and Bute Inlet, B.C. under the direction of P.I. Conley, P.Eng. and Erik Ostensoe, geologist.

July, 1974 to end of 1977 - employed by Granduc Mines, Limited (N.P.L.) as geologist in charge of work in Sulphurets Creek property, Stewart area, B.C.

1978 to May 1981 - employed successively as project geologist, regional geologist and geological supervisor by E & B Exploration Limited and assigned to projects in Northern Saskatchewan, British Columbia and Nevada, U.S.A.

(b) Erik A. Ostensoe, B.Sc., Geologist

Education: Completed B.Sc. (Honours) course at University of British Columbia, Vancouver, B.C. in May, 1960.

Completed course requirements for M.Sc. degree at Queen's University, Kingston, Ontario in 1966. Thesis incomplete.

Professional Associations: Member: Canadian Institute of Mining and Metallurgy; Association of Exploration Geochemists.

Work History: May 1960 through August 1964 - employed by Newmont Mining Corporation of Canada Ltd. as geologist in Granduc Mine area, Stewart, B.C. under the direction of D.M. Cannon, P.Eng., and G.W.H. Norman, Ph.D., P.Eng.

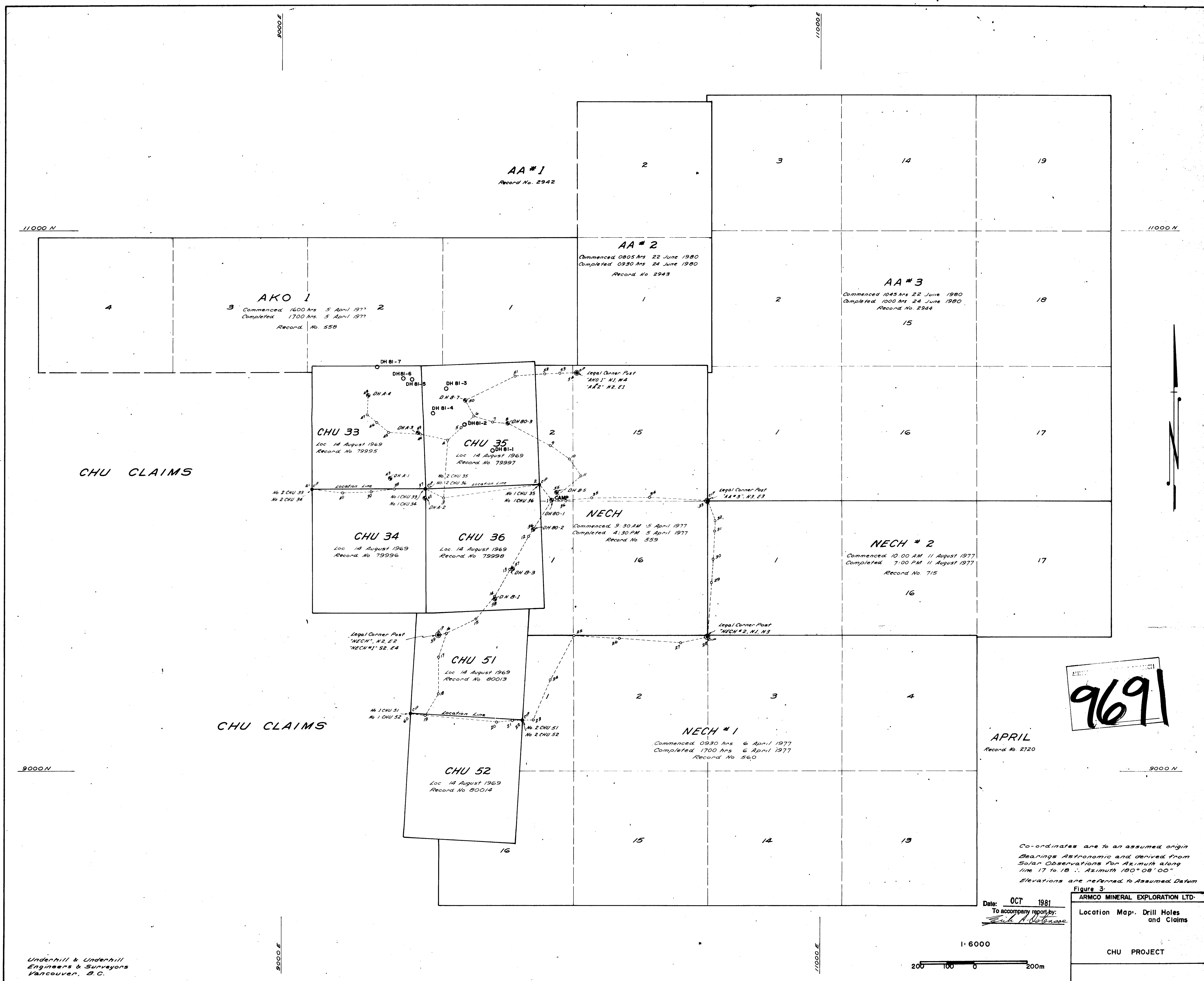
Summer, 1965 - employed as geologist by Mount Billings Venture, a southern Yukon prospecting syndicate.

Summer 1966 - employed as geologist by Scud Venture, a northwestern British Columbia prospecting syndicate.

October, 1966 to June 1978 - employed by Hecla Mining Company of Canada Ltd. and Granduc Mines, Limited (N.P.L.) as exploration supervisor and chief geologist, respectively, under the direction of P.I. Conley, P.Eng.

August to November, 1978 employed on contract basis by Union Oil Company of Canada, Ltd. as geologist in charge of field program at Beaverdell, B.C.

April 1979 to present - employed by Armco Mineral Exploration Limited as geologist, assigned to projects in north-central British Columbia and Yukon under the direction of P.I. Conley, P.Eng.



9000 E
11000 E
11000 N
9000 N
AA # 1
Record No. 2942
AA # 2
Commenced 0805 hrs 22 June 1980
Completed 0930 hrs 24 June 1980
Record No 2943
AA # 3
Commenced 1045 hrs 22 June 1980
Completed 1000 hrs 24 June 1980
Record No. 2944
AKO 1
Commenced 1600 hrs 5 April 1977
Completed 1700 hrs 5 April 1977
Record No. 558
CHU CLAIMS
CHU 33
Loc 14 August 1969
Record No 79995
CHU 35
Loc 14 August 1969
Record No 79997
CHU 34
Loc 14 August 1969
Record No 79996
CHU 36
Loc 14 August 1969
Record No 79998
CHU 51
Loc 14 August 1969
Record No 80013
CHU 52
Loc 14 August 1969
Record No 80014
NECH
Commenced 9:30 AM 5 April 1977
Completed 4:30 PM 5 April 1977
Record No 559
NECH # 1
Commenced 0930 hrs 6 April 1977
Completed 1700 hrs 6 April 1977
Record No 560
NECH # 2
Commenced 10:00 AM 11 August 1977
Completed 7:00 PM 11 August 1977
Record No. 715
APRIL
Record No. 2720
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Legal Corner Post "AA # 3" N3, E3
Legal Corner Post "NECH # 2, N1, N3
Legal Corner Post "NECH", N2, E2 "NECH # 1" S2, E4
DH 81-7
DH 81-6
DH 81-5
DH 81-3
DH 81-4
DH 81-2
DH 81-1
DH 8-7
DH 80-3
DH A-4
DH A-3
DH A-1
DH A-2
DH 8-5
DH 80-1
DH 80-2
DH 8-3
DH 8-1
CAMP
Location Line
No 2 CHU 33
No 2 CHU 34
No 1 CHU 33
No 1 CHU 34
No 2 CHU 35
No 2 CHU 36
No 1 CHU 35
No 1 CHU 36
No 1 CHU 51
No 1 CHU 52
No 2 CHU 51
No 2 CHU 52
9691
Co-ordinates are to an assumed origin
Bearings Astronomic and derived from Solar Observations for Azimuth along line 17 to 18 ∴ Azimuth 180° 08' 00"
Elevations are referred to Assumed Datum
Figure 3
ARMCO MINERAL EXPLORATION LTD.
Location Map: Drill Holes and Claims
CHU PROJECT
Date: OCT 1981
To accompany report by:
1:6000
200 100 0 200m
Underhill & Underhill
Engineers & Surveyors
Vancouver, B.C.

B-302