ARMCO

REPORT OF DIAMOND DRILLING PROGRAM

CHU 25 - 36, 43, 44, 45 - 52,
AKO 1, NECH, NECH 1, NECH 2 Claims,

OMINECA MINING DIVISION,

BRITISH COLUMBIA

NTS 93F/7E
53°21'N, 124°37' W

Owner of claims: Asarco Inc.
Asarco Exploration Company
of Canada Limited.

Operator: Armco Mineral Exploration Ltd.

Author of Report: Erik Ostensoe,
geologist.

Date of Report: September 16, 1980.

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INTRODUCTION

1. Location and Access

The Chu mineral property is located at the southeast end of the Nechako Range in the Intermontane Belt of Central British Columbia. Geographical coordinates are 53°21' North and 124°37' West in NTS Map Sheet 93F/7E (See Maps 1 and 2 of this report).

Access to the Chu property is by Kluskus Forestry Road from Vanderhoof, B. C. The Kluskus road passes close to the south side of Nech #1 claim and an access road leads from km 106.5 to the area of current mineral exploration interest on the property. The access road is suitable for tracked vehicles and may be travelled by four wheel drive equipped trucks during dry conditions.

2. Property

The Chu mineral property is comprised of 24 two-post mineral claims and 7 modified grid system claims that total 34 units. Three of the MGS claims, totalling 15 units, were staked subsequent to the diamond drilling work that is detailed in this report.

3. History

Mineral exploration work in the Chu property area commenced in summer 1969 when crews employed by American Smelting and Refining Company (now ASARCO Inc.) and Rio Tinto Canadian Exploration Company Ltd. located a large number of mineral claims in an area of outcropping copper mineralization and geochemically anomalous stream sediment samples. Each company subsequently carried out extensive evaluation programs that included detailed soil geochemistry surveys, induced polarization surveys, geological surveys and diamond drilling operations. Work ceased in 1970 and Rio Tinto claims were subsequently permitted to lapse. In 1977, encouraged by greatly improved access provided by the Kluskus Forestry Road and by a favourable outlook for molybdenum markets and prices, Asarco acquired by staking much of the former Rio Tinto claims and performed a soil geochemistry survey on parts thereof. A compilation of data generated by past surveys indicated potential for discovery of a "porphyry"-style molybdenum deposit and during 1979 Armco Mineral Exploration Ltd., an affiliate of Armco Canada Ltd., negotiated an option to permit that company to perform exploration work on the Chu property. Work commenced in November 1979 with construction of 1.8 km

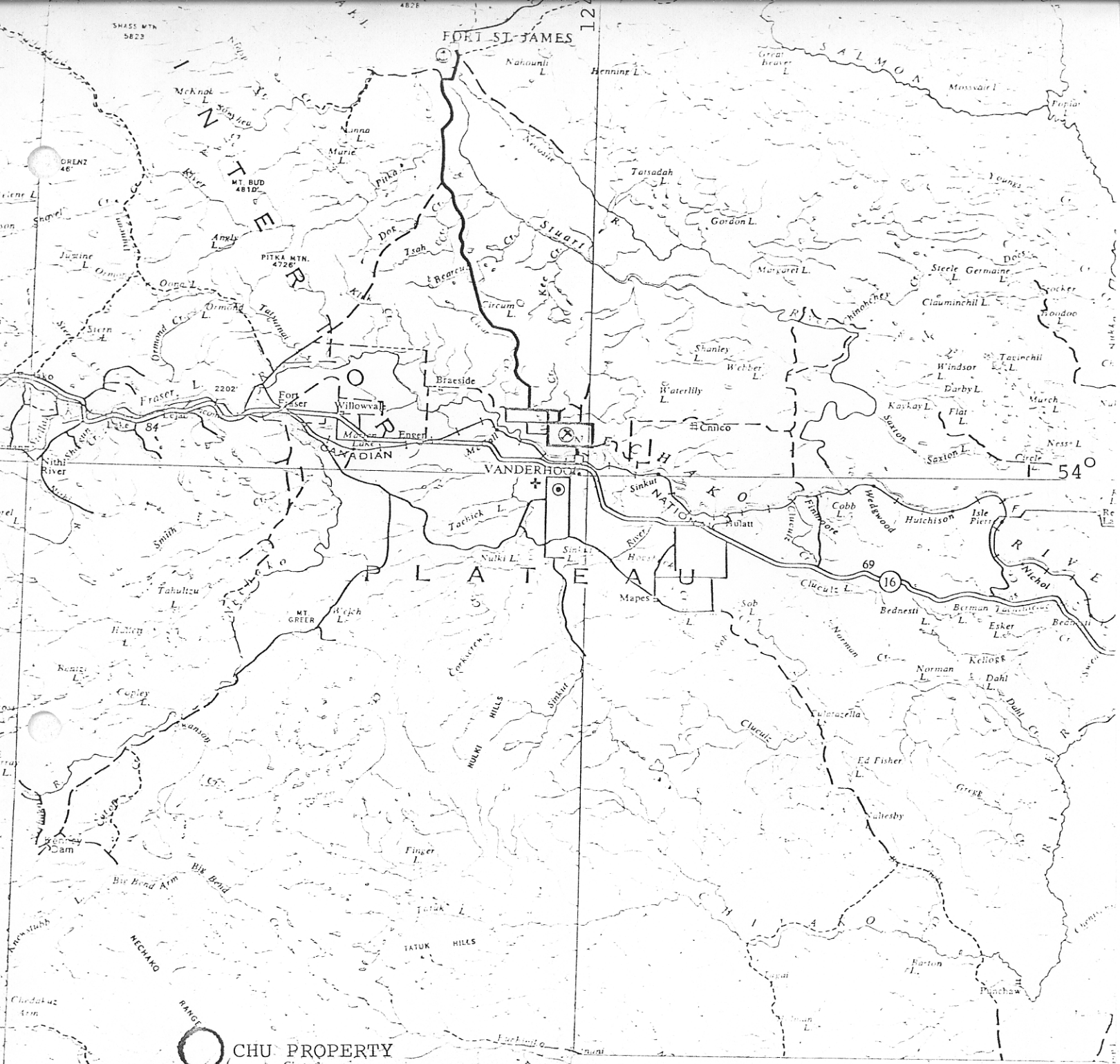

Figure 1. Location Map - Chu Property
Omineca M. D., B. C.

Scale: 10 miles to 1 inch
6.3 km to 1 cm

Date: Sept. 1980

To accompany report by:
E. Ostensoe

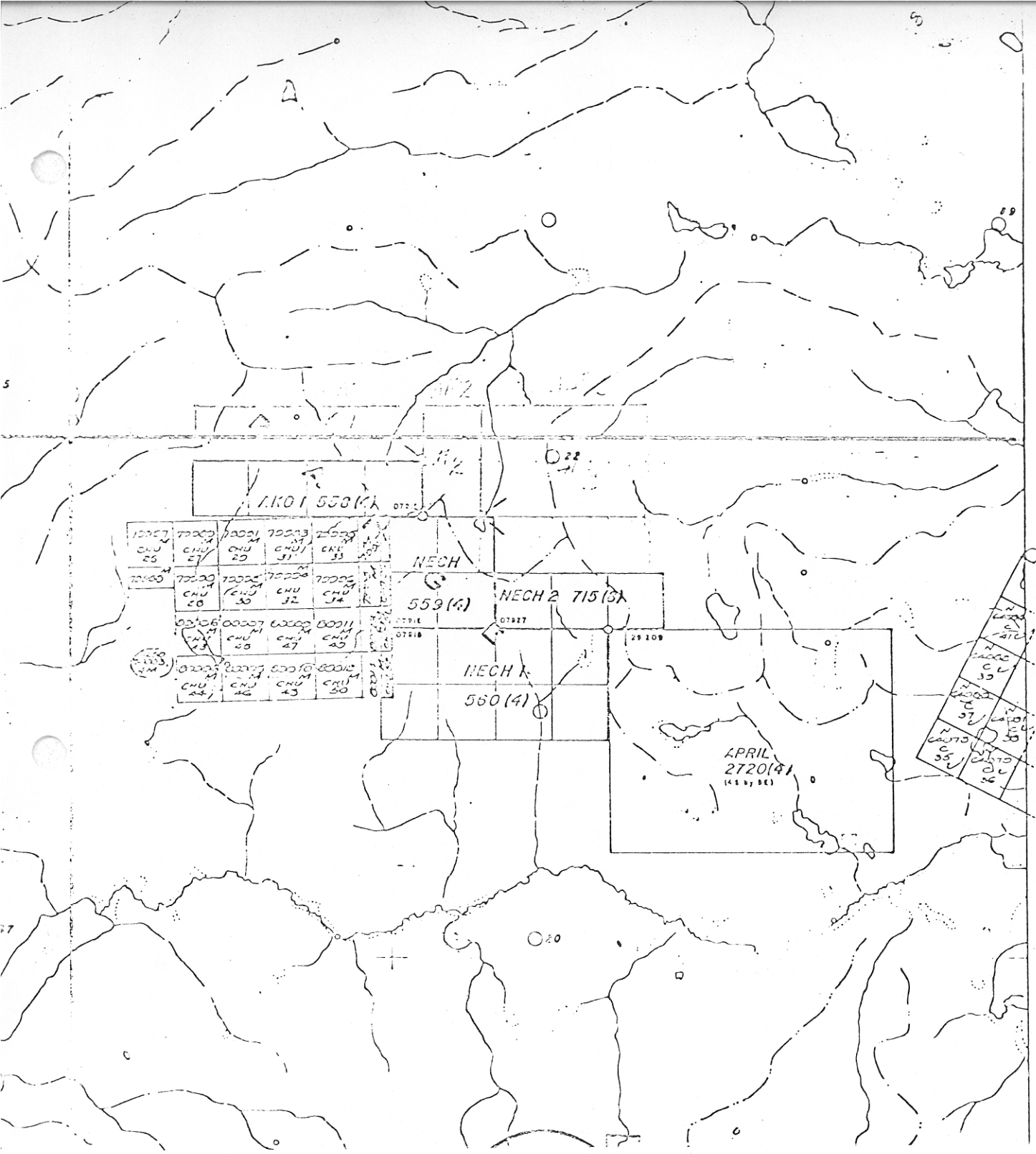

Figure 2. Claim Map - Chu Property -93F/7E
Omineca Mining Division, B. C.

Scale: 1:50,000

To accompany Report by E. Ostensoe, geologist
September 16, 1980.

of tractor road and continued during May and June 1980 with drilling of 1003 m of BQ core in three diamond drill holes.

DIAMOND DRILLING OPERATIONS

Commencing May 12, 1980, J.T. Thomas Diamond Drilling Ltd., of Smithers, B. C. mobilized a Longyear Model "Super 38" diamond drill complete with all necessary equipment, a four-man drill crew and a Case Model 1450 tractor to the Chu property. Armco Mineral Exploration Ltd. arranged camp and cookery accommodation at Kluskus Camp, a logging camp owned by Plateau Mills Ltd. located about 6 km east of the mineral exploration area, and provided a Flextrac Nodwell Model FN 10 tracked vehicle for transportation of drilling crews and small equipment items.

Three drill holes, designated 80-1, 80-2 and 80-3, were bored from three different sites, each to depths of 334 m (1097 feet). Drilling performance averaged 34.5 m (113 feet) per 12 hour drilling shift and core recovery, estimated at 98.5%, was satisfactory. Short roads were constructed to provide access to drill sites and to the water supply source at "Portnoy" Lake.

Drill holes were collared at -45° inclination on bearing 210°. Holes were surveyed for inclination by means of an acid bottle etch technique. Excessive flattening occurred, particularly at depths in excess of 200 m.

Drilling ceased at start of day shift May 31 and demobilization to the load-out point near Kluskus Forestry Road was completed by evening of that day.

Drill core was placed in standard wooden core trays and was visually"logged" by a geologist and then split in 3.281 m (10 foot) continuous intervals for assaying purposes. Core surfaces were then re-examined by the geologist. Core was stored at the property in compact piles located close to the site of drill hole 80-1.

GEOLOGICAL REPORT OF DIAMOND DRILLING OPERATIONS

1. Introduction

The Chu mineral property is being explored as a possible

large tonnage low to medium grade molybdenum deposit. Copper values are present but are consistently low. Geological information is derived from surface outcrops which are sparcely distributed and from drill cores. Parts of approximately 565 m (1856 feet) of core from previous work is stored on the property but is of limited value due to severe deterioration of boxes. Cores from holes 80-1, 80-2 and 80-3 are the principal source of observations recorded in this report.

2. Regional Geology

The Nechako Range area is located within the Nechako Trough. Crystalline intrusive rocks are similar to those of the Coast Plutonic Complex and mixed volcanic and sedimentary rocks of the Hazelton Group are present throughout the area. Volcanic members outcrop in many locations but the sedimentary rocks tend to weather recessively. Tertiary extrusive rocks of andesitic and basaltic composition are present in the Chu property area and are extensive elsewhere in the northern Chilcotin region. They are commonly assigned an Oligocene age.

Unconsolidated glacio-fluvial deposits are present throughout the Nechako Range area and except at higher elevations, consist of thick accumulations of cleanly washed gravels and sands and less abundant boulder and clay layers. Lower slopes at Chu property have extensive unconsolidated cover, including an area of granitic boulders near the south edge of the claims. In the drilling area the depth of overburden varies from 1 to 7 metres.

3. Local Geology

Drill holes 80-1, 80-2 and 80-3 explored a zone of mineral potential located in hornfelsed siltstone of the Hazelton Group that is bordered to the south by Nechako granodiorite and to the north by pyroclastic andesite, also of the Hazelton formation.

At the Chu property, pyroclastic andesite (Unit 1 as shown in the accompanying geologic sections) is a dense inhomogeneous fragmental rock of volcanic origin. Textures are variable and bedding is rarely observed. Metamorphic effects are moderately strongly developed: biotitization is intense and some porphyroblastic textures are present; fragments are distinguished with difficulty. Iron sulphides, pyrite and pyrrhotite, are pervasive and comprise 2% to 5% of total rock

volume. Pyrrhotite is strongly magnetic. Epidote is a common component of the unit but quartz veins are virtually absent. Small quantities of molybdenite and chalcopyrite are present in the core but these minerals are seldom seen in the surface rocks, apparently because of oxidation and leaching actions. Drill hole information suggests that pyroclastic andesite lies stratigraphically above the siltstone member.

The Chu property siltstone (Unit 2) is an homogeneous, fine-grained and finely-bedded sequence of light to medium brown coloured rocks that vary little in appearance between drill holes or within a particular drill hole. The prevailing colour results in part from the original brown colour of silt and clay components and in part from pervasive brown biotitization that has resulted from thermal metamorphism generated by emplacement of granodiorite. Stockworkings of conformable narrow white quartz veins that pervade the siltstone vary in intensity from about 5 per metre to 75 per metre. Vein widths are commonly 2 mm to 4mm, occasionally 0.5 cm. Silica content of the rock is high: some sections are cherty, and it appears that much or all of the vein quartz is derived from the enclosing siltstone.

Several thick dark green andesite dykes (Unit 3) occur in pyroclastic andesite in drill hole 80-1 and similar but much narrower dykes were found in the same host unit in drill hole 80-3 (refer to Figures 4 and 5). The dykes exhibit vaguely dioritic textures and are notably soft. Foliation is strongly developed but shearing is not in evidence.

Similar dykes, logged as Unit 5, occur in siltstone but are characteristically crystalline and porphyritic. The probable equivalence of the two rock types has not been carefully investigated. Differences in appearance may result from contrasting reactions to stress: the siltstones yield by brittle fracture and a minimum development of shearing whereas the pyroclastic andesite deforms plastically with foliation and by evolution of minerals such as chlorite. Where dykes of this type have invaded siltstone and incorporated fragments of the siltstone, they may strongly resemble arkosic sandstone. Phenocrysts of white feldspar are commonly present and may exceed 2 cm in diameter.

A small number of narrow irregular dark coloured basalt dykes were encountered in the 1980 drilling program and are shown on accompanying illustrations as Unit 4. The basalt has a dense texture, is dark brown to black and is weakly amygdaloidal. It was observed only within the pyroclastic andesite unit. Even narrow sections exhibited chilled margins against

that host. It appears likely that the basalt is closely related to similar rock that outcrops closeby on surface and is part of the Oligocene aged extrusive rocks of the northern Chilcotin district.

Although granitic rocks of the Coast Plutonic Complex are present throughout the Chu region, only a very minor section was cored by the 1980 drilling program. In outcrop in the southern part of the Chu property claims the granite is a massive medium grained crystalline type that weathers white. Shiny black biotite flakes are present throughout and comprise about 5 per cent of the rock. In core from drill hole 80-2, 985.3 to 988.3m, the granite (granodiorite) is medium grained with a mosaic appearance of subhedral white feldspar grains to 5mm length in a finer-grained matrix of quartz and chloritized amphibole. Biotite was not identified. Magnetite is present in small quantities.

A distinctive alteration pattern is present in many sections of the hornfelsed siltstone and is less noticeable in the pyroclastic andesite. It consists of a dense concentration of fractures along which feldspathization has penetrated. The resulting rock has a "blotchy" appearance and for convenience in core logging was termed "crackle" (AGI Glossary of Geology - crackle- an incipient breccia having fragments parted by planes of rupture but suffering little or no displacement). The significance of the "crackle" alteration has not been determined but sections in drill holes 80-1 and 80-2 were tentatively correlated on the basis of similar widths and intensities, despite vertical separation of 100m.

Bedding was not recognized in core from the pyroclastic andesite member but is well preserved in much of the hornfelsed siltstone. Where measured close to the contact with pyroclastic andesite, bedding is sub-parallel to that contact. Numerous sheared surfaces were measured in the core but few showed evidence of substantial movement having occurred.

Sulphide minerals are present throughout the pyroclastic andesite in amounts to 10 per cent of the total rock. Pyrite and strongly magnetic pyrrhotite dominate but chalcopyrite is occasionally present. Molybdenite is uncommon and where present is frequently strongly sheared. Magnetite is scarce and occurs as small grains.

Within the hornfelsed siltstone sulphide grains or seams may be "dry" or accompanied by vein quartz. Pyrite frequently

forms very thin layers within the rock, usually conforming to bedding folia and commonly accompanied by chlorite or (?) actinolite. Chalcopyrite is rarely sufficiently coarse-grained to be obvious but is present in trace amounts throughout the siltstone unit. Molybdenite occurs primarily as thin coatings on folia or fractures and as thin layers along the margins of quartz veins; only trace amounts are disseminated in the siltstone.

Geologic logs of drill holes 80-1, 80-2 and 80-3 accompany this report. Drill hole data is also displayed in Figures 4 and 5.

An itemized cost statement accompanies this report.

APPENDICES

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APPENDIX 1.

ITEMIZED COST STATEMENT - to accompany Report of Diamond Drilling Program, Chu, Ako, Nech, Nech 1, Nech 2 claims, Omineca M.D., B. C. dated September 16, 1980.

Drilling charges:	direct footage charges, drill muds, other additives, core boxes, extra labour, tractor charges, acid tests, cook, groceries, as invoiced.....		$79,130
Accommodation:	Kluscus camp - 171 man days @ $30/.. less adjustments		4,993
Transportation:	Air fares - Vancouver to Prince Geo. and return - 3 @ $155.50		466
	Expenses re company owned vehicle... gas + oil - $265.73		
	repairs - 75.22		341
	re rental vehicle	357.59	358
	Flextrac Nodwell FN 10...-.....		
	rental May 16 - June 15		2600
	deliver to Kluskus		190
	return to Pr. George		335
Miscellaneous:	Telephone - $82.29		
	Field equipment, tools, et al. - 94.42		
	Drafting, printing, photos	277.45	
	Rooms, meals while travelling - 199.28		653
Total Cost of Diamond Drilling Program			$89,066

This cost statement is based on invoices and other records that are on file at the office of Armco Mineral Exploration Ltd. Vancouver, B. C. Supervision and geologist costs not included.

Prepared by:

Erik A. Ostensoe

Erik A. Ostensoe, geologist.
September 16, 1980.

APPENDIX 2.

AUTHOR'S QUALIFICATIONS

The professional qualifications of Erik A. Ostensoe are detailed below:

B. Sc. (Hons.) - Univ. of British Columbia, 1960

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

Member - Canadian Institute of Mining and Metallurgy
- Association of Exploration Geochemists

Employed by Newmont Mining Corporation of Canada Ltd. in the period 1960 through 1964 as field geologist in the Granduc Mine area of British Columbia, under direct supervision of GWH Norman, PhD, P. Eng. and D. M. Cannon, P. Eng.

Employed by Mount Billings Venture, a prospecting syndicate, during summer 1965. Area of work was southeastern Yukon

Employed by Scud Venture (Asarco), a prospecting syndicate, during summer 1966. Area of work was Iskut River area of northwestern British Columbia. Work directed by R.H. Seraphim, P. Eng. and W. St. C. Dunn, P. Eng.

Employed by Granduc Mines, Limited (N.P.L.) and Hecla Mining Company of Canada Ltd. in the period October 1966 through August 1978 as Chief Geologist and Exploration Supervisor respectively under the direction of P. I. Conley, P. Eng.

Employed by Armco Mineral Exploration Ltd. as geologist since June 1979. Geologist in charge of diamond drilling and other work at Chu property, Omineca M.D., British Columbia.

APPENDIX 3.

CHU PROJECT - NECHAKO RANGE, B.C.

DIAMOND DRILL HOLE 80-1

Start:	May 15, 1980	Coordinates:	N
Finish:	May 20, 1980		E
Core Size:	BQ	(109' at 209° from D.H.B-5)	
Core Recovery:	98.4%	Elevation:	(assumed)
Sample:	Split core	Inclination:	-45°
		Bearing:	210°
		Length:	1097 feet
			334 metres

Directional survey:

	Bearing	Inclination
Collar	210° (by compass)	-45° (by acid bottle etch)
400'	N.A.	-48°
700'	N.A.	-43°
900'	N.A.	-39°
1097'	N.A.	-36½°

GEOLOGIC LOG

0 - 7.9 - Overburden

7.9-113.4 - Hornfelsed pyroclastic andesite unit - generally purple coloured with mottling due to various types of alteration including capture of iron from silicates with subsequent lodging in sulphide minerals - mainly pyrrhotite. Occasional fine grained andesite dykes and very narrow sections of basalt. Chalcopyrite and molybdenite present erratically and very weakly. Large sections of core have a vague porphyritic texture which may be a primary volcanic flow feature or a porphyroblastic texture due to thermal metamorphism such has affected fine grained siltstone formation closer to granitic intrusive. Occasional quartz veins and veinlets - maximum widths about 3 cm.

109.6 - 110.3 - crushed zone - possible fault

113.4 - - Transition to siltstone formation occurs with carbonate filled shear zone at 25° CA

Siltstone unit is well-bedded, weakly pyritic and cut by numerous tiny QVs. MoS_2 present but weak. Often on shear surfaces. Pyrite up to 8% of rock. Tuff beds common - dust tuff interlaminated with ordinary siltstone and coarser granular tuff - chloritic where sheared

133.2 - 151.9 - siliceous hornfels - a fine grained quartzite - occasional streaks and seams of MoS_2, minor chalcopyrite. Foliation (bedding?) - 47° CA.

151.9 - 153.9 - pale ivory/green alteration - possibly an altered tuff bed - upper contact is sharply defined lower contact is diffused.

Siliceous hornfels persists to 169.5 and possibly could be used as a mappable lithologic unit.

153.9 - - brown biotitic hornfels/mudstone with tiny QVs. MoS_2 present on many fracture surfaces though in trace amounts. Foliation at 181.5 - 55° CA.

185.3 - 187.1 - dark green fine grained andesite dyke.

188.4 - foliation and fracturing 55° CA. MoS_2 present with gouge. Po + py present throughout. Tr. tr. cpy.

199.6 - start of crackled zone - rock has been altered

by a process of fracturing followed by penetration by material that has bleached the original brpwn rck to pale grey-green colour. No indication of significant movement. MoS_2 present but very minor amounts. This zone persists to 202.8...then return to normal brown biotite hornfels siltstone with tiny QVs. At 219.8 foliation 58° CA.
223.1 - 223.9 - Zone of intense shearing with chloritic gouge and bleaching alteration. Main slip is 35° CA.
239.6 - abrupt change to granitic porphyry with very coarse grained white feldspar grains up to 2 cm diameter.
241.2 - 242.1 - brown hornfels
242.1 - 245.9 - granitic porphyry dyke
249 - foliation 54° CA.
271.6 - 284.6 - numerous very narrow feldspar porphyry dykes....also deeper in the drill hole to TD.
295.5 - 297.6 - granitic porphyry dyke
329.8 - shearing - 55° CA.
334 - Total depth of drill hole.

CHU PROJECT - NECHAKO RANGE, B.C.

DIAMOND DRILL HOLE 80-2

Start: May 20, 1980
Finish: May 25, 1980
Core Size: BQ
Core Recovery:
Sample: Split core

Coordinates: N
E
(420' at 207°az.from DH 80-1)
Elevation:
Inclination: -45°
Bearing: 210°
Length: 1096 feet
334 metres

Directional survey:

	Bearing	Inclination
Collar	210° (by compass)	-44°
417'	N.A.	-42° (by acid bottle etch)
707'	N.A.	-40° " " " "
950'	N.A.	-36.5° " " "
1096'	N.A.	-33.5° " " "

Geologic Log

0 - 6.1 - Overburden

8.8 - Hornfelsed siltstone - purple-pink coloured with mottling of green chloritic streaks, clayey seams, tr. py, tr. MoS_2 on fractures, also fine grained disseminated pyrite up to 20% of total rock volume. Fractures: 60° CA, 43° CA.

8.8-12.5 - Occasional QVs with pyrite - up to 0.7 cm wide
Rock is typically a hornfelsed quartzite with v.fine grained biotite

12.5- Rock becomes paler, greener, with much py, tr. MoS_2

14.6 - 15 - angular cherty fragments in breccia; foliation 55° CA

18 - 26.5-"crackle" zone of alteration - unaltered rock is light reddish brown fine gr. hornfels. minor MoS_2 in QVs. At 19.5 - fol'n 60° CA

26.5- strong bleaching and "crackle" with occasional gougy sheared sections. V. pale grey colour where altered, otherwise brown hornfels

27.6- 29.6 - increase in VQ, less "crackle" bleaching at 29.8 - foliation 57° CA. Tr. MoS_2. Minor pyrite.

- 34.4 - As above but with fewer QVs

37 - black finely porphyritic basalt

37.3- 38.7 - dark green chloritic andesite dyke

- 38.9 - dark basalt - could be chilled margin

38.9- - gougy crushed zone on contact

39.1- broken hornfels with VQ, chloritic sheared surfaces 70° CA

39.5- - broken core; also at 41.5, and 41.7 - 42.4

39.6- - strongly banded brown hornfels with 1 to 4 mm quartz veinlets. Minor MoS_2.

42.8- - monotonous light brown/dark brown banded siltstone sequence. Occasional pyrite veinlets, tr. MoS_2. Original rock was a cherty argillic tuff.

43.9- - foliation 57° to 65°

47.8- - 58° CA

50.9- 51.2 - Much VQ with chlorite on bedding planes, tr.tr. MoS_2, tr. pyrite.

51.2- 56.7 - biotitic hornfels, little VQ - a dense v.f. gr. argillite, sparce MoS_2
banding/bedding - 48.5 - 55°CA
50.7 - 58° - MoS_2 present
52.1 - 53°
53.7 - 57° - 2 mm MoS_2
bedding- 62.8 - 52°

57.6- 58.1 - 30% white vein quartz with pyrite, chlorite, tr. ep., tr. MoS_2

60.6- 61 - strong MoS_2
- 60.5 - foliation - 53° CA
62.4 - " 50°

63.3 - start of a "crackled" altered section that persists to 64.1. Strongest crackling/bleaching is at 63.3-63.7. Minor brecciation. MoS_2 present, especially with VQ at 64 - 64.1

64.1- 81.4 - return to brown biotite hornfels with VQ + MoS_2 - some very random QVs
more bleaching/crackling at 65.8 - 67.7 - in part this rock is very broken with comminuted pyrite and MoS_2. Colour varies from brown to light green.
67.7 - brown foliated biottic and siliceous hornfels with QVs, chlorite, pyrite, MoS_2. Colour varies -- brown to green as above - in part dependent upon the grain size of the siltstone
72.2 - foliation 55° CA
75.3 - " 60°
78 - " 56°

81.4- 82 - rock is brown siliceous, biotitic hornfels but up to 40% if VQ with chlorite, pyrite, MoS_2, in tight complex folds and crumples - this is in addition to a weakly developed "web" of QVs.
90.5 - 91.1 - siliceous-chloritic-pyritic-MoS_2-cp-epidote zone developed in brown biotitic hornfels

- 96.2 - no real change from higher in the hole - possible incr. MoS_2

96.2-96.3 - porphyritic granite dyke includes tr. MoS_2, fragments of hornfels

97.5- 97.7 - narrow section of heavy py-po-cp in green chloritic matrix this in not unlike some massive sulphide material - estimate 70% sulphides. Upper contact is indistinct, lower contact is sharply defined. Repeated at 98.5, and at 99 to 99.4. This type of material was not noted in DH 80-1. Numerous short sections (2 cms) occur in this part of the hole. Sulphides are fine to medium grained. MoS_2 present in trace amounts only. Main rock type continues to be a brown fine grained biotite hornfels. Original bedding/banding varies from obscure to prominent.
105.8 - foliation 63° CA.

105.8- 115.8 Increased amounts of MoS_2-no change in rock type

115.8 - 122 - assimilative contact with"granite"porphyry. Chilled edge 8cm. Large feldspar phenocrysts. 5% disseminated pyrite. 10% brown biotite. No free quartz noted. Fractured at 45° CA.

122 - 124.9- dark brown thinly banded biotitic hornfels with Q veinlets. MoS_2 present in small quantities. Q veinlets are very fine with occasional irregular wider sub-pegmatitic QVs. Foliation at 124.3 - 69° CA.

124.9- 125.6- Granitic porphyry dyke

125.6- 128.2- dark brown biotitic hornfels. MoS_2 on fractures.

128.2- 138.6- Granitic porphyry dyke - MoS_2 occurs in crosscutting veinlets, as v. fine disseminations and on hairline fractures. From 133.5 - dyke is a crowded coarse porphyry with a granitic texture. Biotite grains are less prominent

138.6- 141.4- dark brown bio. hornfels with MoS_2. Foliation 140 - 70° CA

141.4- 142.5- coarse granitic porphyry with vein quartz, pyrite, MoS_2 large feldspar grains

142.5- 149.5- fine grained brown hornfels with QV, short sections of Q-chlorite-pyrite-MoS_2. MoS_2 estimated 0.10%.

149.5- 149.6- granitic porphyry - contacts very irregular

149.6- 152.7- biotitic hornfels

152.7- 161.3- granitic porphyry dyke with pyrite, VQ, large feldspar phenocrysts, black biotite grains to 3 mm. Occasional fractures with MoS_2.

161.3- 163.4- breccia zone - black matrix, light coloured cherty-textured fragments. Pyrite mostly in matrix. Mottling in adjacent sections of core.

163.4- 174.2- Very dark coloured hornfelsed siltstone with Q veinlets, minor MoS_2. Cut by numerous granitic porphyry dykes that vary in width from 10 cm to 1 m.

- at 171.5 - very soft gougy section - rock is completely ground up and may originally have been a weakly indurated sandstone layer - consists of feldspar and biotite grains.

174.2- 176.1- fine grained porphyry dyke

176.9- 178.5- chloritic gouge...developed in hornfels which continues...

186.5- 192.3- crackle-bleaching alteration with much talcose material coating fractures. MoS_2 present but weak.

199.9- 200.2- at lower contact of 0.7m dyke - semi-massive type mineralization - pyrite + tr. Cp + Mo + Q + galena + sphalerite (reddish brown colour)(trace amounts)

214 - - foliation 57° CA

215 - - QVs with trace MoS_2

217.8- 218.3- very crushed and bleached hornfels. Pale grey-green colour. Sulphides present and have been crushed also.

218.3- 221.8- crackled hornfelsed sediments (siltstone) with mottled type of crackle alteration and bleaching on myriad fracs.

223 - 223.6- ptygmatic QV parallels CA - numerous vuggy textures.

227.6- 228.1- foliated granitic porphyry dyke. Foliated 45° CA

228.1 - 237.2 - dark brown monotonous hornfelsed siltstone with QVs, MoS_2 present but not abundant.

237.2 - 240.2 - broken, bleached and sheared core - rock is hornfels. Sheared surfaces are"greasy", serpentinous. Sh'g 48 to 70° CA. MoS_2 present and sheared.

240.2 - 241 - white QV with pyrite, traces MoS_2

241 - 246.8 - dense v. fine grained sedimentary rock without much hornfelsing, numerous QVs with coarse pyrite

246.8 - 247.5 - foliated granitic porphyry dyke with prominent white feldspar phenocrysts

247.5 - 255.6 - sheared dense sedimentary rock - part of the siltstone sequence. Shearing strongly developed sub-parallel to CA Minor MoS_2 with VQ.

255.6 - 285.6 - brown hornfelsed siltstone with well developed colour banding at 70° CA. Slight increase in MoS_2.
266 - 267.4 - granitic porphyry dyke - also other narrower dykes of similar character

285.6 - 293.5 - zone of fault brecciation, bleaching and crushing. Rock is strongly chloritic, 5 - 10% pyrite
Shearing + 60° CA. Breccia is also sheared indicating continuation of movement.

293.5 - 300.3 - return to hornfelsed siltstone with MoS_2, occasionally cut by granitic porphyry dykes that are 0.2 to 1 m wide.

300.3 - 301.2 - fresh biotite granite - medium grained with 10% mafic minerals

301.2 - - grey dacite porphyry with glassy quartz particles, tiny green chlorite flakes (chloritized biotite??), feldspar grains to 20 mm and fractures coated with a soft "soapy" mineral - brucite? or talc? Very broken to 304.2 then much more solid and more uniform in colour and texture. Fractures 58° CA.

334 - - Total depth of hole.

CHU PROJECT - NECHAKO RANGE, B.C.

DIAMOND DRILL HOLE 80-3

Start: May 26, 1980
Finish: May 30, 1980
Core Size: BQ
Core Recovery:
Sample: Split core

Coordinates: N
E
(900' West, 400' North of DH. B-5)
Elevation:
Inclination: -45°
Bearing: 210°
Length: 1097 feet
334 metres

Directional Survey:

	Bearing	Inclination
Collar:	210° (by compass)	-45°
400'	N.A.	-47.5°
657'	N.A.	-41°
907'	N.A.	-36.5°
1097'	N.A.	-34°

Geologic Log

0 - 4.9 Overburden
Casing set to 9.1 m

4.9 - 160.4 Purple - green mottled tuff...pyroclastic andesite. Green mottling results from alteration and removal of iron from sili cates into pyrrhotite (1 - 3%). Textures very variable, including sections of porphyry and sections with porphyroblastic textures. Numerous andesite dykes recognized and likely others that have been obscured by alteration.

15m - start of an intrusive feldspar porphyry unit - heterogeneous with variable colour, texture, alter'n, and foliation. Overall a dioritic appearance with occasional pyrite stringers, tr. cpy.
Continues to 86.2m with other dykes i.e. 25.3 - 26.3m
30m - minor cpy + po.
35.7 - 36.6 - carbonate fracture fillings - bluish white
49.4 - 54.1 - strongly porphyritic section
55 - 55.2 - bleached/crushed section
73.5 - 76.8 - coarsely porphyritic granodiorite, feldspar phenocrysts to 3 cm
86.2 - 89.9 - faulting - gouge and broken rock, main fracturing is 65° CA
87.5 - 89.9 broken but not gouged followed by fractured and iron-stained granitic porphyry dyke 65° CA to 90.9m
94.3 - weakly sheared at 50° CA
123.8 - tr. of reddish brown sphalerite, occurs with po
129.8 - veinlet of pyrite with vugs
From 130 - increase in number of quartz veinlets.
130.6 - 132 -silicified and/or feldspathized purple porph'y.
137.5 - 142.2 - as above - contains narrow seams of po with streaks of bright chalcopyrite. Much Qtz 140.8 - 141.7
151.6 - 157.3 - stronger alteration and more sulphides - rock is pale green with po + cp stockworking. About 5% sulphides overall
159.4 - v. narrow streak of basalt

160.3 - purple porphyritic andesite with alteration and sub-granitic texture

160.4 - transition from porphyritic pyroclastic andesite to dark brown hornfelsed siltstone - occurs on a v. narrow tight shear. Contact 55° CA. MoS_2 present.

160.4 - 334.3 - hornfelsed siltstone with quartz veinlets.
160.8 - foliation/bedding 65° CA
162.6 - 162.8 - broken core with iron staining
MoS_2 occurs with vein quartz - veinlets spaced 1 - 2 cm. Amount of Mo independent of width of QV. Most QVs have sharply defined contacts. Po, Cp present in varying but small quantities. Chlorite present.
Siltstone is v. f. grained - varies from soft-siliceous to quartzitic. Bedding is obscured by alteration or may be very prominent - at 189.3 - 60° CA
182.3 - 204.2 - short sections of "crackle" alteration with Q-chl-po-cp. VQ sparce.
204.2 - 218.7 - increase in quartz veining. MoS_2 present. siltstone is darker coloured, more quartzitic. less "crackle". QVs to 3 cm.
218.7 - siltstone with "crackle", bleaching and QV. MoS_2 on veinlets
226.7 - 226.9 - "feldspar porphyry" with lithic clasts and granitic pebble fragment
233.5 - hornfels type alteration much weaker than higher in this hole. Rock is simply a strongly indurated siltstone/sandstone. Numerous QVs of varying sizes and attitudes. Original bedding features not observed.
255.3 - Contact at 35° CA - dark green andesite dyke with incipient fs phenos.
255.6 - lower contact at 45° CA....then brown hornfels with QVs, MoS_2. At 258.7 - dust tuff layer
266.1 - 270.3 - green and brown hornfels siltstone with chl. VQ, py, MoS_2
270.5 - sheared at 58° CA. Heavy gouge, some VQ. Core losses.
272.2 - light green hornfelsed siltstone with numerous fine quartz veinlets. Good preservation of sedimentary textures 74° CA.
273.7 - 274 - strong MoS_2 + Q
274 - dk brown hornfelsic siltstone with weak to moderately strongly developed Q veinlets. MoS_2 sparce. Med. to coarse grained py. disseminated in Q.
276.7 - 276.9 - Q-py-po-minor cp, MoS_2. Increased amounts of quartz in veinlets
288.6 - 289 - broken and moderately strongly sheared siltstone

291 - crushed zone with VQ, calcite, pyrite. Partial bleaching alteration to pale green/pink colours.

291.7 - 293.5 - "crackled" zone, pervasive fracturing 75^{o} CA, 45^{o} CA

298.8 - siltstone with MoS_2 mineralization, abundant VQ

307.8 - banding/bedding 56^{o} CA. Narrow QVs in sub-parallel orientation, wider QVs up to 5 cm. Sulphides present in QVs plus chlorite and minor epidote.

334.3 - total depth of drill hole.

AA 1 M.C.

AA 2 M.C.

AA 3 M.C.

AKO 1 M.C.

lcp

B-10 -55° 505'

B-9 -56° 1505'

B-8 -67° 415'

A-4 -90° 216'

B-7 -68° 223'

CHU 36 M.C.

80-3 -45° 1097'

A-3 -90° 253'

CHU 34 M.C.

+30 milliseconds

Section B (030°)

Section A (030°)

"Portnoy Lake"

pyroclastic andesite

NECH M.C.

A-1 -45° 475'

B-6 -55°

B-5 -50° 1725'

10000 N

A-2 -90° 271'

80-1 -45° 1097'

chargeability

contact

hornfelsed siltstone

B-4 -60° 264'

80-2 -44° 1096'

granite/granodiorite

CHU 35 M.C.

NECH 2 M.C.

Reference line (120°)

CHU 33 M.C.

B-3 -50° 111'

B-2 -50° 120.7'

B-1 -50° 111'

CHU 51 M.C.

NECH 1 M.C.

road (built 1979)

CHU 52 M.C.

10000 E

○ Asarco drill hole
○ Rio Tinto " "
● Armco " "

30 millisecond chargeability IP contour

geologic contact

road

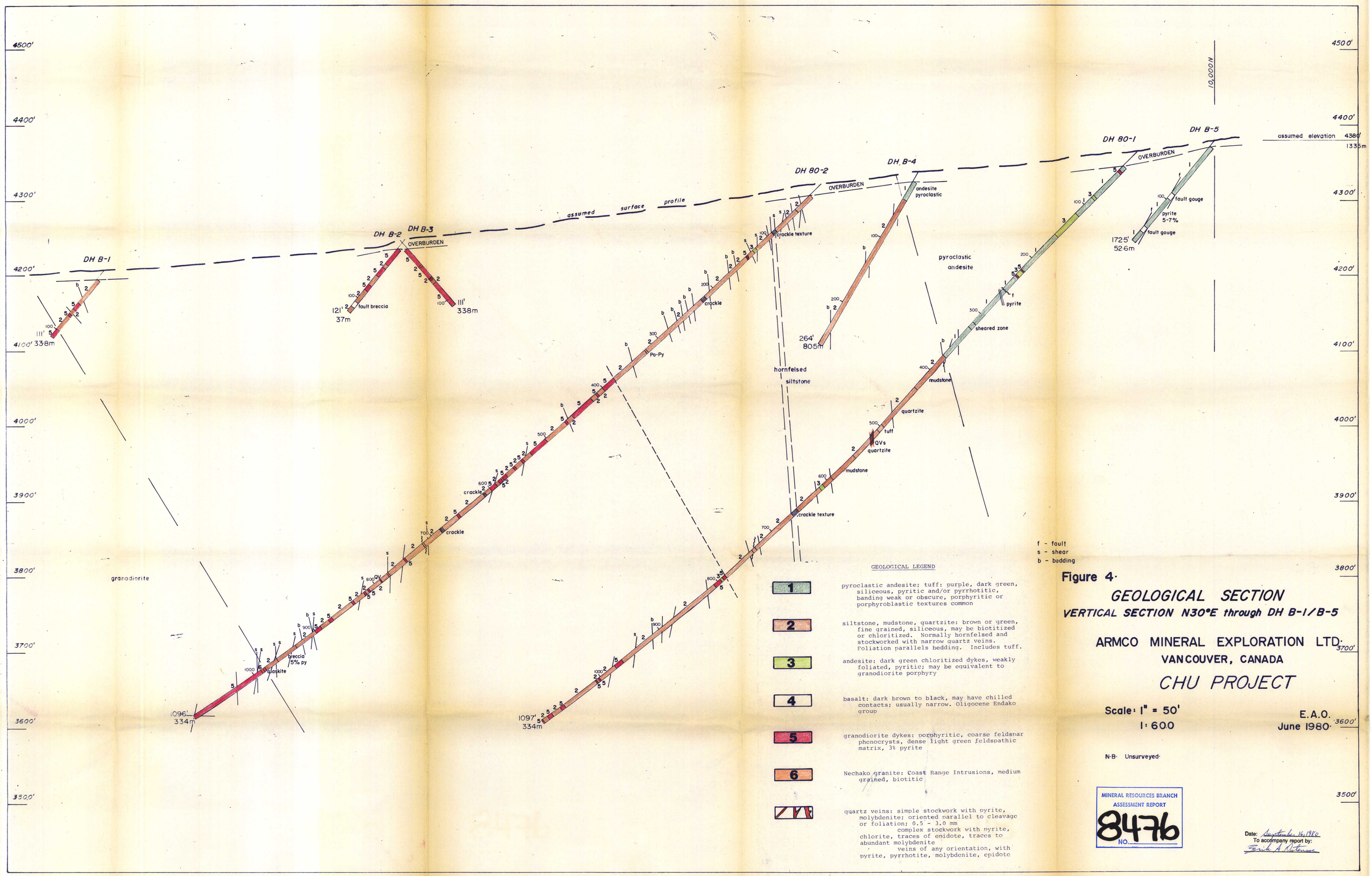
claim post

FIGURE 3. *Sketch to illustrate DDH locations, mineral claims, geologic contacts, induced polarization contour, road and streams*

Scale: 1 inch to 500 feet
1:6000

Date: September 16, 1980
To accompany report by:
Erik A. Ostensoe

BCIL 5451E.



f - fault
s - shear
b - bedding

GEOLOGICAL LEGEND

1	pyroclastic andesite; tuff: purple, dark green, siliceous, pyritic and/or pyrrhotitic, banding weak or obscure, porphyritic or porphyroblastic textures common
2	siltstone, mudstone, quartzite: brown or green, fine grained, siliceous, may be biotitized or chloritized. Normally hornfelsed and stockworked with narrow quartz veins. Foliation parallels bedding. Includes tuff.
3	andesite: dark green chloritized dykes, weakly foliated, pyritic; may be equivalent to granodiorite porphyry
4	basalt: dark brown to black, may have chilled contacts; usually narrow. Oligocene Endako group
5	granodiorite dykes: porphyritic, coarse feldspar phenocrysts, dense light green feldspathic matrix, 3% pyrite
6	Nechako granite: Coast Range Intrusions, medium grained, biotitic
QVs	quartz veins: simple stockwork with pyrite, molybdenite; oriented parallel to cleavage or foliation; 0.5 - 3.0 mm complex stockwork with pyrite, chlorite, traces of epidote, traces to abundant molybdenite veins of any orientation, with pyrite, pyrrhotite, molybdenite, epidote

Figure 4.

GEOLOGICAL SECTION

VERTICAL SECTION N30°E through DH B-1/B-5

ARMCO MINERAL EXPLORATION LTD.
VANCOUVER, CANADA

CHU PROJECT

Scale: 1" = 50'
1:600

E.A.O.
June 1980

N.B. Unsurveyed.

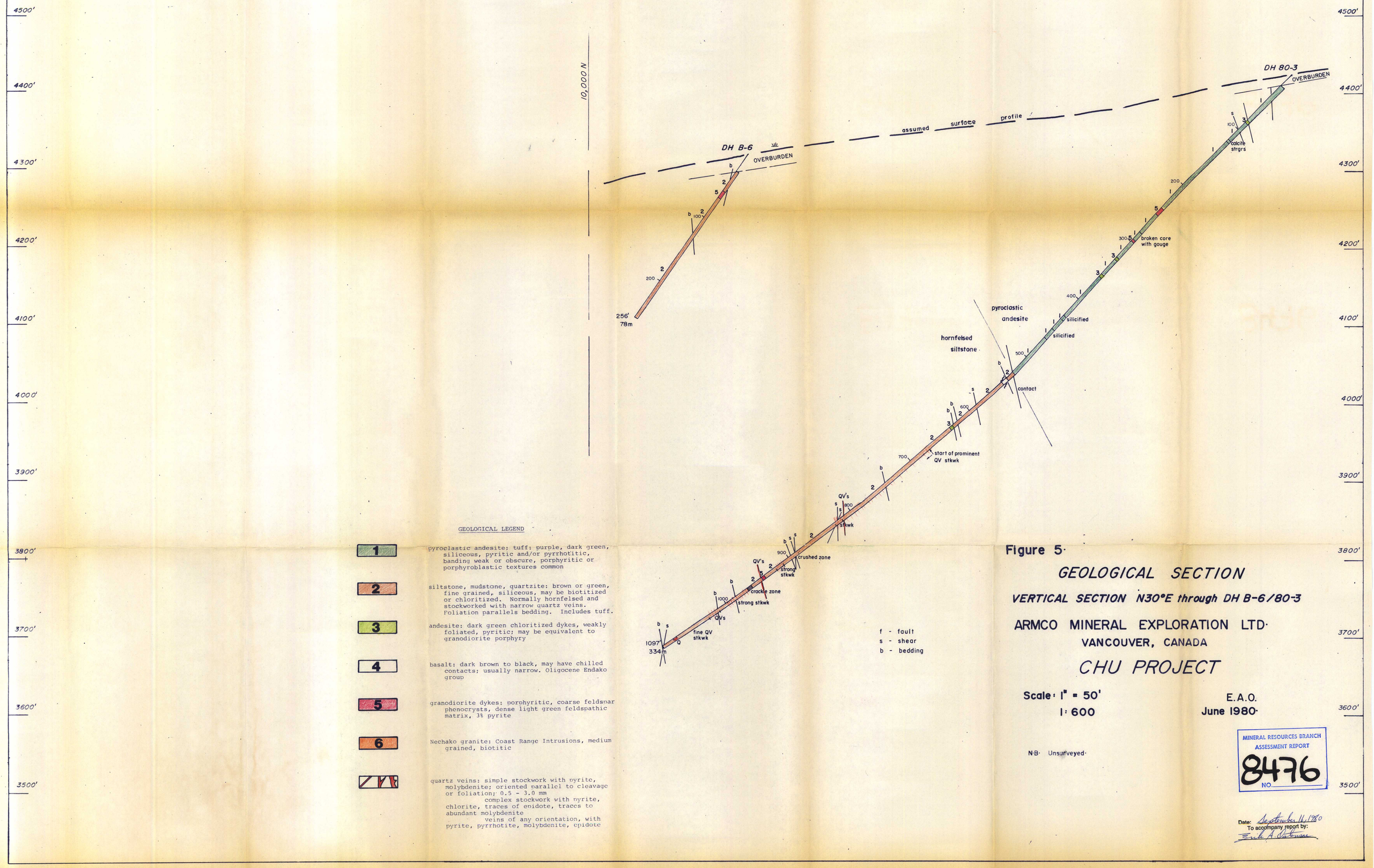


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Figure 5.

GEOLOGICAL SECTION

VERTICAL SECTION N30°E through DH B-6/80-3

ARMCO MINERAL EXPLORATION LTD.
VANCOUVER, CANADA

CHU PROJECT

Scale: 1" = 50'
1:600

E.A.O.
June 1980.

N.B. Unsurveyed.

Date: September 16, 1980
To accompany report by:
Erik A. Ostensø