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1995 SUMMARY REPORT
ON THE
SO LONG CLAIM GROUP

Located in the Shuswap Area
Kamloops Mining Division
NTS 82L/14E

50° 47' North Latitude
119° 03' West Longitude

-prepared for-

EQUITY ENGINEERING LTD.

-prepared by-

Henry J. Awmack, P.Eng.

June, 1996

SUMMARY

The 8-unit So Long property covers 200 hectares of a partially logged ridge six kilometres southwest of Sicamous in south central British Columbia. The property is easily accessible by truck along a network of gravel and dirt logging roads. The Trans-Canada Highway and two rail lines pass within a kilometre of the property.

A stratiform massive pyrrhotite-sphalerite-galena occurrence (the Adit Zone) was discovered on the So Long property in the late 1950's and investigated in the next few years by a 120 metre adit and fourteen short diamond drill holes. In 1977, Granges drilled another 13 short holes on the Adit Zone and a second, parallel, zone of stratiform sulphides (Conductor B); their best intersection graded 8.0% Pb, 1.9% Zn and 100 g/tonne Ag over 1.4 metres. Small geochemical and geophysical surveys were completed by several operators through the 1980's. All claims subsequently lapsed and the NDP 1991-1996, So and Long claims were staked in September 1995 by Equity Engineering Ltd..

The So Long property is underlain by micaceous quartzite and mica schist of the Hadrynian or Lower Paleozoic Silver Creek Formation. Four phases of deformation have produced isoclinal folding whose schistosity and compositional layering trend east-west and dip at 50-65° to the north. The Adit Zone and Conductor B each consist of multiple lenses or sheets of massive pyrrhotite, sphalerite and galena with lesser pyrite, chalcopyrite and quartz-mica or plagioclase augen. These sheets, which conform to schistosity within mica schists, have been drill-tested along 330 metres (Adit Zone) and 350 metres (Conductor B). The Adit Zone, Conductor B and Conductor C, which parallels them to the south, may lie along fold limbs of a single sulphide horizon.

The massive sulphide horizon has a well-defined geophysical and geochemical expression. A ground VLF-EM survey shows strong conductors associated with the Adit Zone and Conductor B, and extends them by 70 and 400 metres, respectively. To the south, a third strong conductor, C, is defined for 400 metres parallel to the Adit Zone and Conductor B. Each of these conductors remains open in both directions. Ground magnetic highs generally accompany the conductors. Soil geochemical anomalies for lead and zinc occur in the vicinity of the conductors, extending the Adit Zone by a further 450 metres, Conductor B by 150 metres and indicating potential for mineralization along Conductor C.

The So Long prospect exhibits many similarities to five Shuswap-style massive sulphide deposits located in a belt from twenty to seventy kilometres east in the Shuswap Metamorphic Complex. These deposits, which contain up to 5 million tonnes grading 7.5% Pb and 2.5% Zn, are characterized by thin, conformable, regionally extensive massive sulphide (mainly pyrrhotite and sphalerite) horizons in platformal successions dominated by marble, schist and quartzite. Potentially economic mineralization is commonly found in the hinge areas of isoclinal folds, where thickening has occurred. On the So Long prospect, the isoclinal fold hinges have not been defined or explored.

Future exploration should consist of systematic grid-based electromagnetic, magnetic and soil geochemical surveys, extending far enough to close off the known anomalies and possibly define fold hinges. This should be accompanied by prospecting along the conductor traces and by detailed geological mapping, leading to definition of diamond drill targets.

1995 SUMMARY REPORT ON THE SO LONG CLAIM GROUP

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1.0 INTRODUCTION

The So Long claim group covers two stratiform massive sulphide occurrences in south-central British Columbia with potential for hosting a Shuswap-type zinc-lead-silver deposit (Figure 1). Eight claims were staked in September 1995 to cover the known showings and their projected strike extensions. This was followed by limited prospecting and geochemical sampling. This report details results from the 1995 program and summarizes all previous data available on the property.

2.0 LIST OF CLAIMS

The So Long property consists of 8 contiguous 2-post mineral claims in the Kamloops Mining Division of British Columbia, as summarized in Table 2.0.1 (Figures 2a and 2b). These claims are oriented at an azimuth of 130° and lie entirely on Crown land of Salmon Arm Provincial Forest. Records of the British Columbia Ministry of Energy, Mines and Petroleum Resources indicate that the claims are owned by the author. Separate documents indicate that they are held in trust for Equity Engineering Ltd..

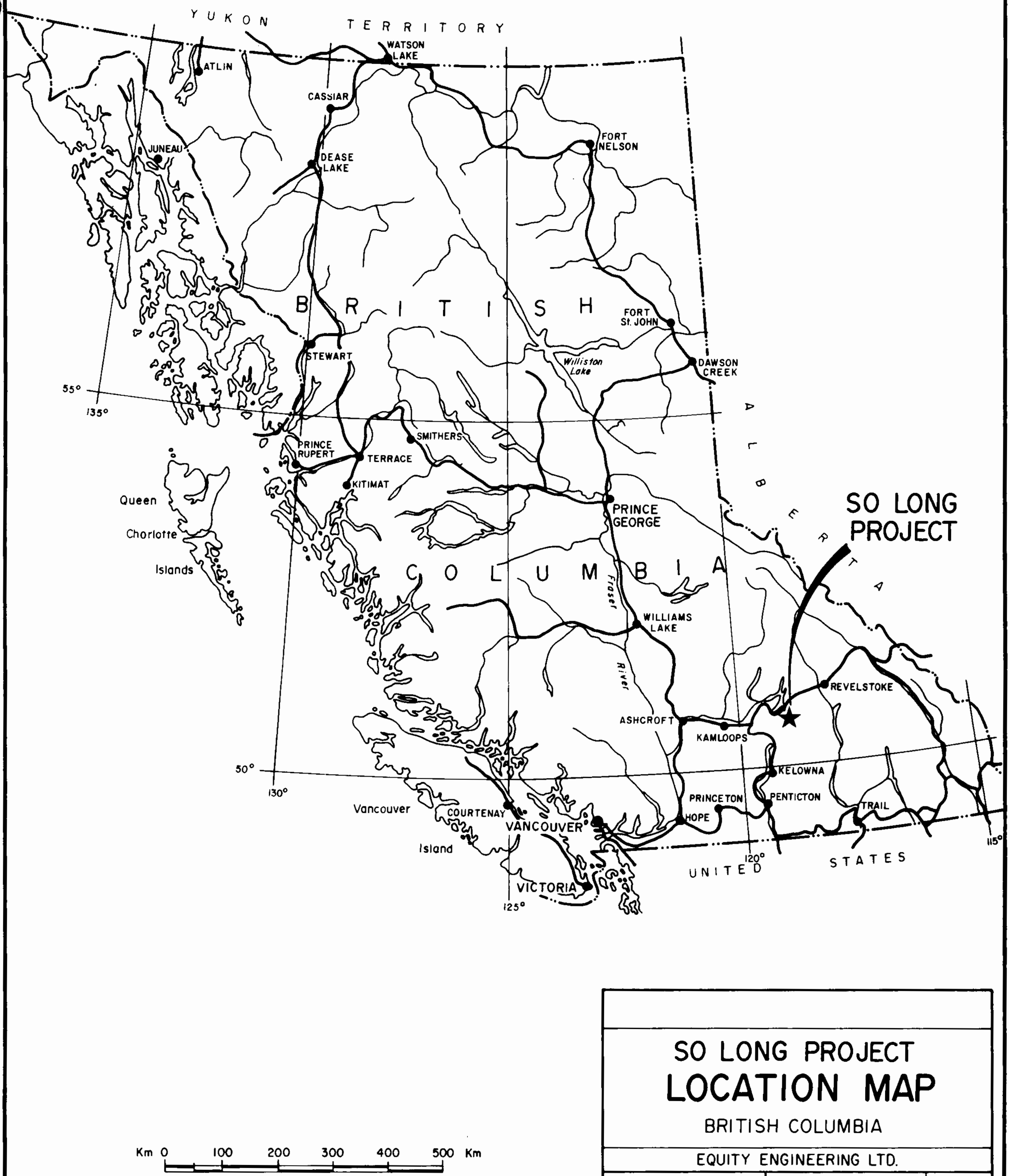
TABLE 2.0.1
CLAIM DATA

Claim Name	*Tenure Number*	*No. of Units*	*Record Date*	*Expiry Year*
NDP 1991	340186	1	Sept. 24, 1995	1996
NDP 1992	340187	1	Sept. 24, 1995	1996
NDP 1993	340188	1	Sept. 24, 1995	1996
NDP 1994	340189	1	Sept. 24, 1995	1996
NDP 1995	340190	1	Sept. 24, 1995	1996
NDP 1996	340191	1	Sept. 24, 1995	1996
So	340192	1	Sept. 25, 1995	1996
Long	340193	1	Sept. 25, 1995	1996
		8		

3.0 LOCATION, ACCESS AND GEOGRAPHY

The So Long property lies between Shuswap and Mara Lakes, six kilometres southwest of Sicamous, British Columbia, centred at 50° 47' north latitude and 119° 03' west longitude. The claims straddle a northeasterly-trending ridge which lies between Mara Lake to the southeast and Salmon Arm of Shuswap Lake to the northwest. Topography is gentle along the ridge top and moderate, with elevations ranging from 900 metres above sea level on the ridge top to approximately 550 metres on the slopes down to the lakes (Figure 2b).

The Trans-Canada Highway and the Canadian Pacific Railway main line follow the shore of Shuswap Lake, less than one kilometre northwest of the NDP 1991-1992 claims. A Canadian Pacific branch line runs along the western shore of Mara Lake, passing within a kilometre southeast of the So and Long claims. An unmaintained logging road, passable by two-wheel drive vehicles, leaves the Trans-Canada Highway eight kilometres west of Sicamous and climbs three kilometres to the So Long property. Branch roads pass through each of the claims. The entire property has been logged at



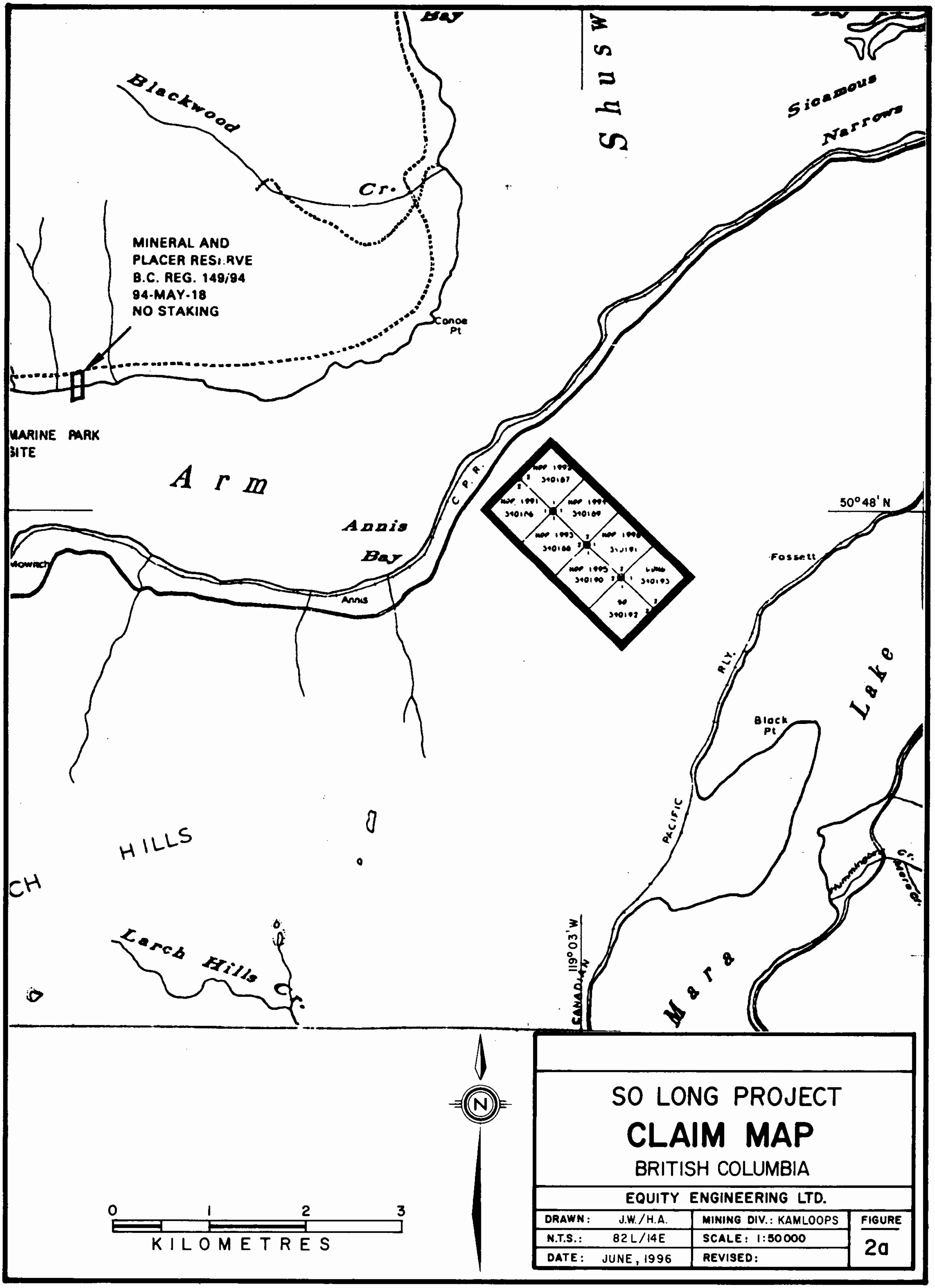
SO LONG PROJECT

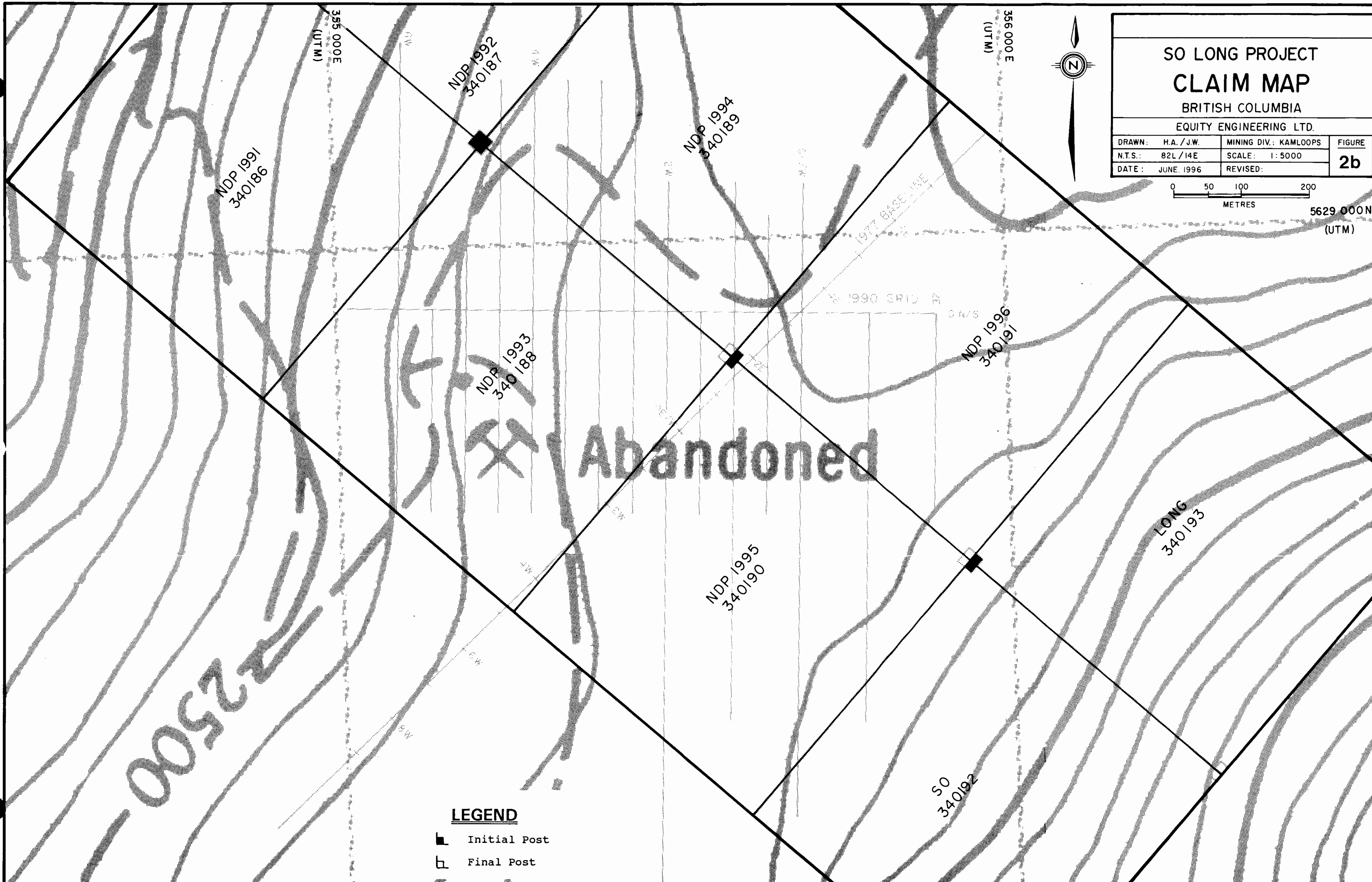
LOCATION MAP

BRITISH COLUMBIA

EQUITY ENGINEERING LTD.

DRAWN: J.W./H.A.	MINING DIV. KAMLOOPS	FIGURE
N.T.S.: 82 L/14 E	SCALE: AS SHOWN	1
DATE: JUNE 1996	REVISED:	


Blackwood Cr.
Shuswap
Sicamous Narrows
MINERAL AND
PLACER RESERVE
B.C. REG. 149/94
94-MAY-18
NO STAKING
Canoe Pt
MARINE PARK
SITE
Arm
C.P.R.
Annis Bay
Annis
50°48' N
Fossett
RLY.
PACIFIC
CANADIAN
Black Pt
Lake
Mara
HILLS
Larch Hills Cr.
119°03' W
N
0
1
2
3
KILOMETRES
SO LONG PROJECT
CLAIM MAP
BRITISH COLUMBIA
EQUITY ENGINEERING LTD.
DRAWN: J.W./H.A.
MINING DIV.: KAMLOOPS
FIGURE
N.T.S.: 82 L/14E
SCALE: 1:50000
2a
DATE: JUNE, 1996
REVISED:



SO LONG PROJECT
CLAIM MAP
BRITISH COLUMBIA
EQUITY ENGINEERING LTD.
DRAWN: H.A./J.W.
MINING DIV.: KAMLOOPS
FIGURE 2b
N.T.S.: 82L/14E
SCALE: 1:5000
DATE: JUNE 1996
REVISED:
0 50 100 200
METRES
N
5629 000N (UTM)
355 000E (UTM)
356 000 E (UTM)
NDP 1991 340186
NDP 1992 340187
NDP 1993 340188
NDP 1994 340189
NDP 1995 340190
NDP 1996 340191
SO 340192
LONG 340193
Abandoned
1990 GRID
1977 BASE LINE
2500
LEGEND
Initial Post
Final Post

least once. The most recent clearcuts are approximately ten years old, covering the majority of the NDP 1995, NDP 1996, So and Long claims on the ridgetop and southern slope; they are revegetating with alder, spruce and lodgepole pine. The remainder of the property was logged thirty to fifty years ago and is covered by second-growth red cedar, Douglas fir and tamarack.

The So Long property is subject to a continental climatic regime, with warm summers and cold winters. Snowfall is moderate with an accumulation of one to two metres during the winter. Fieldwork could be carried out most of the year.

4.0 PROPERTY EXPLORATION HISTORY

4.1 Previous Work

The first reported work in the So Long project area was the driving of a 26 metre adit in 1958 under a logging road exposure of pyrrhotite, sphalerite and galena in micaceous quartzite. Tractor trenching by Annis Mines Ltd. in 1964 exposed this mineralization uphill to the east (BCDM, 1964). In 1965, the adit was lengthened to 38 metres (BCDM, 1965). By the following year, the adit was reported to extend 49 metres and a series of pits had exposed the Adit Zone along a strike length of 120 metres with assays of 1-13% lead and trace to 4.3% zinc across widths of 0.6 to 3.4 metres. Similar mineralization was also reported in trenches 240 metres south of the Adit Zone, along a trend later known as "Conductor B" (BCDM, 1966). In addition, fourteen short diamond drill holes were drilled along 350 metres of the Adit Zone in 1966, but only drill sections with minimal detail are available; collar locations are taken from Leishman and Gruenwald (1990, Fig. 5). Annis Mines carried out minor tractor trenching on their claims in 1967 and 1970, before allowing them to lapse.

In 1973, Sicamous Resources Ltd. carried out geological mapping and cut a grid with lines 61 metres (200') apart. The grid was covered by a VLF-EM survey and 179 soil samples were taken at 61 metre intervals along the grid lines outside of the trenched area. Of the soil samples, 51 exceeded 50 ppm Pb, 57 exceeded 500 ppm Zn and 48 were greater than 1.1 ppm Ag (Black, 1973). In 1976, Sicamous extended their soil grid to the southeast, taking 181 soil samples on 61 metre centres. This showed a continuation of the +500 ppm Zn soil geochemical anomaly identified to the northwest in 1973, with a maximum value of 3520 ppm Zn (Black, 1976).

In 1977, Granges Exploration Aktiebolag cut a 25.2 line-kilometre grid, with a baseline trending 045°. Crosslines, trending 135°, were cut 75 metres apart and labelled 1N, 2N, etc. Granges commissioned a pulse EM survey which defined four strong east-west conductors (Conductors A-D), two of which coincided with massive sulphide mineralization in the Adit Zone and Conductor B (White, 1977). The following year, Granges and Maverick Mountain Mines carried out a soil survey (not in the public record) and drilled 13 shallow holes, totalling 549 metres, on the Adit Zone and nine holes on Conductor B. Partial results are reported by Leishman and Gruenwald (1990) and the author has obtained sketchy drill logs.

In 1982, Caltex Hydrocarbons Inc. carried out a proton magnetometer survey over Granges grid lines south of their baseline. A magnetic high 12,000 nT above background was identified immediately south of Conductor B and attributed to unrecognized magnetite or pyrrhotite mineralization. Sixty-seven soil samples were taken at 25 metre spacings from Granges' lines in the vicinity of Conductors B, C and

D, returning values up to 490 ppm Pb and 860 ppm Zn from Conductor B and 106 ppm Pb from Conductor C (Gruenwald, 1982).

In 1987, 2.15 kilometres of magnetometer/VLF-EM survey was carried out over a new grid with north-south crosslines run from an east-west baseline (Leishman and Gruenwald, 1987). An additional 2.9 kilometres of magnetometer/VLF-EM was run the following year (Leishman, 1989). In 1989, previous data was compiled, 6 rock and 24 soil samples were taken and a further 3.3 kilometres of magnetometer/VLF-EM survey was run (Leishman, 1990).

4.2 1995 Exploration Program

The NDP 1991-1996 claims were staked on September 24, 1995. Staking of the So and Long claims was finished the following day. Prospecting and soil sampling were carried out on September 25 over the NDP 1991-1996 claims, in order to confirm previous work and evaluate the nature of mineralization. All fieldwork and staking was carried out using a magnetic declination of 21.5° east of true north. Eleven samples were taken from mineralized float and outcrop; descriptions are attached in Appendix C. Petrographic descriptions for four polished thin sections were prepared by Dr. Jeff Harris and are included in Appendix D.

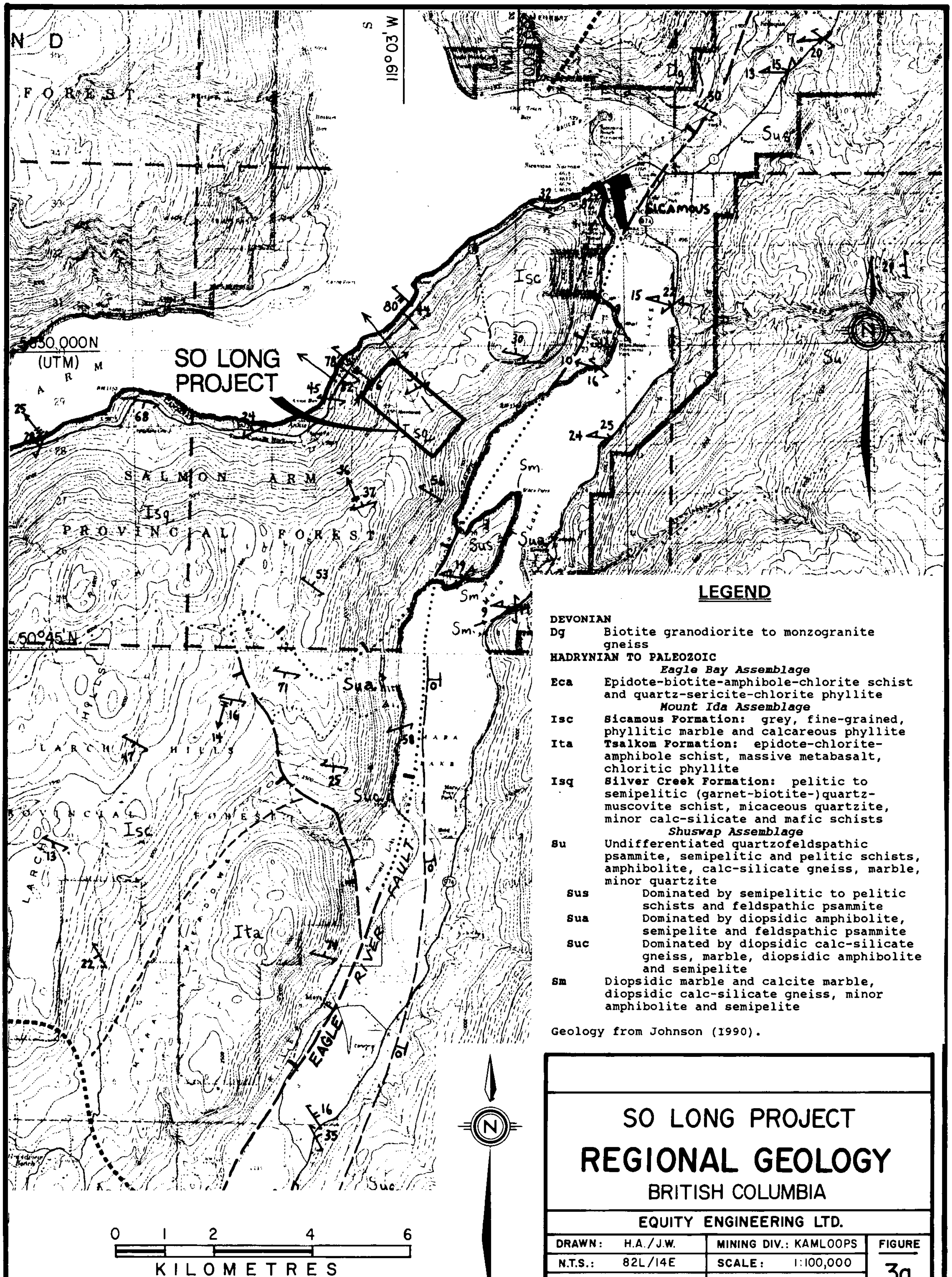
Two soil lines, oriented at 040°, were run from the #1 posts for the NDP 1995-1996, So and Long claims, with 36 samples taken at 50 metre intervals (25 metre intervals across the expected strike of mineralization on line 1500N from 500-700N). Rock and soil samples were analyzed geochemically for gold and by ICP for 32 elements at Chemex Laboratories in North Vancouver. Rock samples were also analyzed geochemically for barium. Five overlimit rock samples were assayed for zinc, three for silver and three for lead. Whole rock XRF analysis was performed on three low-sulphide rock samples. Analytical certificates form Appendix E.

5.0 REGIONAL GEOLOGY

The Sicamous/Salmon Arm area is underlain by three metamorphic assemblages derived from Hadrynian to Paleozoic sedimentary and volcanic rocks (Figure 3a). The Shuswap Assemblage consists of high-grade metamorphic rocks of the Shuswap allochthon that lie structurally beneath the Eagle River detachment fault. Above the detachment are low- to medium-grade metamorphic rocks of the Mount Ida and Eagle Bay assemblages. The nature of formational contacts within the Mount Ida assemblage, and between the Mount Ida and Eagle Bay assemblages, is not clear (Johnson, 1990).

Johnson (1990) divides the Eagle Bay assemblage into a tripartite sedimentary succession consisting of: clean white marble (**Unit Em**); thinly interbedded calc-silicate schist, marble, quartz-sericite-chlorite phyllite, metasiltite, quartzite and mica schist (**Unit Ec**); and a thick succession of micaceous quartzite interbedded with pelitic to semipelitic biotite-quartz-muscovite schist (**Unit Eq**). Epidote-biotite-chlorite-actinolite schists (**Unit Eca**) are abundant within Unit Ec, locally cross-cutting calcareous strata, and are interpreted as mafic metavolcanic extrusives and intrusives. Further north, Schiarrizza and Preto (1984) have mapped felsic volcanics and subvolcanic intrusions in the Eagle Bay Formation, associated with volcanogenic massive sulphide prospects.

The Mount Ida assemblage was divided by Johnson (1990) into three formations. The Sicamous Formation (**Unit Isc**) consists of grey, fine-grained, phyllitic marble and



LEGEND

DEVONIAN

Dg	Biotite granodiorite to monzogranite gneiss

HADRYNIAN TO PALEOZOIC

Eagle Bay Assemblage

Eca	Epidote-biotite-amphibole-chlorite schist and quartz-sericite-chlorite phyllite

Mount Ida Assemblage

Isc	**Sicamous Formation:** grey, fine-grained, phyllitic marble and calcareous phyllite
Ita	**Tsalkom Formation:** epidote-chlorite-amphibole schist, massive metabasalt, chloritic phyllite
Isq	**Silver Creek Formation:** pelitic to semipelitic (garnet-biotite-)quartz-muscovite schist, micaceous quartzite, minor calc-silicate and mafic schists

Shuswap Assemblage

Su	Undifferentiated quartzofeldspathic psammite, semipelitic and pelitic schists, amphibolite, calc-silicate gneiss, marble, minor quartzite
Sus	Dominated by semipelitic to pelitic schists and feldspathic psammite
Sua	Dominated by diopsidic amphibolite, semipelite and feldspathic psammite
Suc	Dominated by diopsidic calc-silicate gneiss, marble, diopsidic amphibolite and semipelite
Sm	Diopsidic marble and calcite marble, diopsidic calc-silicate gneiss, minor amphibolite and semipelite

Geology from Johnson (1990).

SO LONG PROJECT
REGIONAL GEOLOGY
BRITISH COLUMBIA

EQUITY ENGINEERING LTD.

DRAWN:	H.A./J.W.	MINING DIV.: KAMLOOPS		FIGURE
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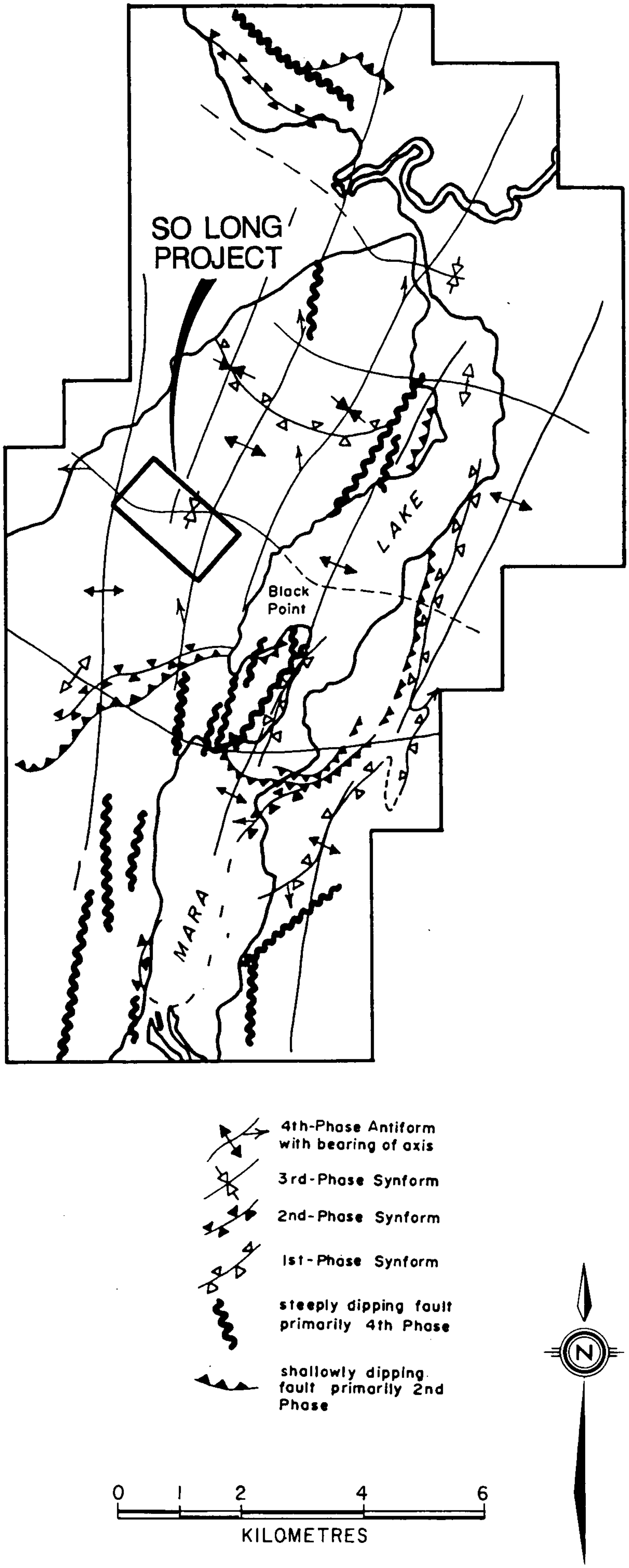
DATE:	JUNE 1996	REVISED:		



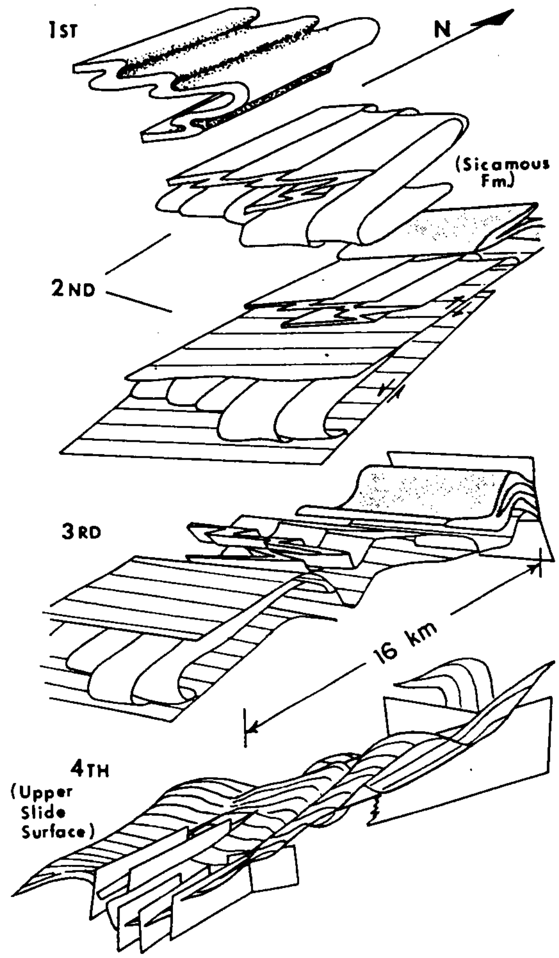


FIG. 19. Sketch of proposed deformational sequence. Units II and V are presented as markers. The upper slide surface is shown to illustrate the fourth-phase folding event. This surface intersects the ground surface only on the west side of the lake and is above ground on the east side.

From Nielsen (1982)

SO LONG PROJECT

REGIONAL STRUCTURE

BRITISH COLUMBIA

EQUITY ENGINEERING LTD.

DRAWN: H.A./J.W.	MINING DIV.: KAMLOOPS	FIGURE
N.T.S.: 82L/14E	SCALE: 1:100,000	3b
DATE: JUNE 1996	REVISED:	

calcareous and carbonaceous phyllites. Johnson (1990) correlates it to Unit Ecm of the Eagle Bay assemblage and Lower Paleozoic strata of the Lardeau Group. The Tsalkom Formation (**Unit Ita**) comprises mafic metavolcanics; they may correlate with the Fennel Group of the Slide Mountain Terrane or the Cambro-Ordovician Jowett Formation in the Kootenay Arc. The Silver Creek Formation (**Unit Isq**), which underlies the So Long claim group, contains semipelitic to pelitic quartz-muscovite and garnet-biotite-quartz-muscovite schists, micaceous and feldspathic quartzites, and minor carbonate and mafic schist. It is extensively intruded by sills and dykes of leucocratic granite, which is absent in overlying formations. Ordovician granodioritic orthogneiss underlies and partially interfingers with the Silver Creek Formation, implying an Ordovician or older age for it (Okulitch, 1989). The Silver Creek, which resembles Unit Eq of the Eagle Bay assemblage and Unit Su of the Shuswap assemblage, may be correlative with the Lower Paleozoic Lardeau Group or Hadrynian to Lower Cambrian strata of the Windermere and Hamill Groups (Johnson, 1990).

In a study of metamorphic and structural relationships on both sides of Mara Lake, Neilsen (1982) described four phases of deformation in the vicinity of the So Long property (Figure 3b). First-phase deformation is penetrative, with the development of a pervasive schistosity, rootless intrafolial folds, and significant transposition of layering. Folds are recumbent and tight to isoclinal; small scale folds trend slightly east of north. Second-phase structures are the most common fold form in the area. Tight to isoclinal folds with rounded hinges and planar limbs trend east-west. On the So Long property, northward vergence suggests the upper limb of a large recumbent antiform. Third-phase folding trends northwesterly, with upright, asymmetrical, open to closed folds. Units dipping gently northeast at the north end of Mara Lake give way to southwesterly dipping units further south; Neilsen places the axial trace of a 16-kilometre wavelength fold passing through the So Long property. The fourth phase consists of symmetric, upright open folds trending north-south.

5.1 Massive Sulphide Deposits

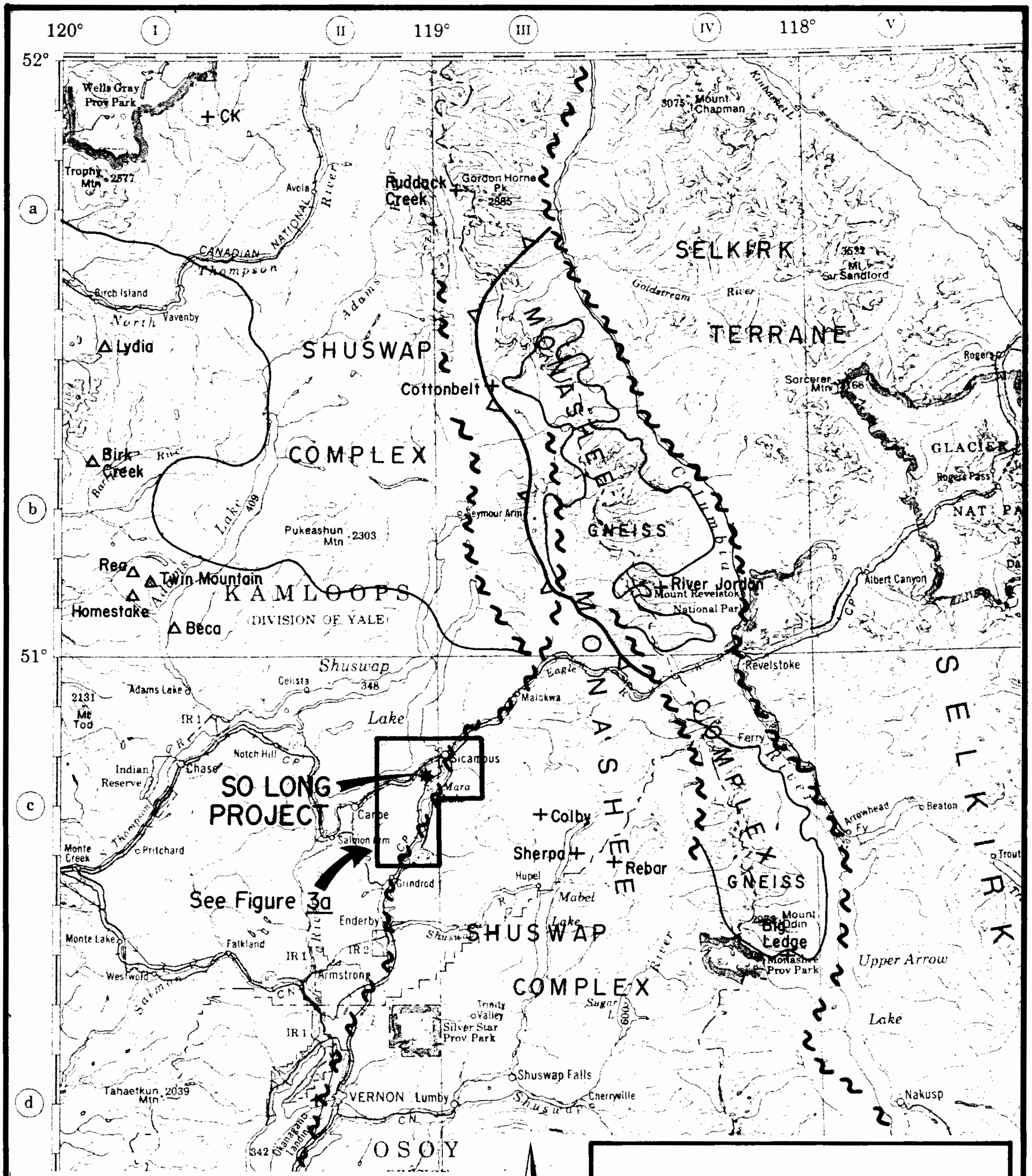
Two groups of massive sulphide deposits have been explored in the vicinity of the So Long property, termed "Shuswap" and "Adams Plateau" types in this report (Figure 4). It is not inconceivable that these have a common volcanogenic origin, changed in mineralogy and form by the high-grade metamorphism and structural deformation of the Shuswap Metamorphic Complex.

<u>Adams Plateau Deposits</u>

Volcanogenic massive sulphide (VMS) prospects have been identified within different stratigraphic sequences within the felsic/mafic/sedimentary Eagle Bay Formation on the Adams Plateau, centred 70 kilometres northwest of the So Long property. These prospects share the following characteristics: (1) they are polymetallic, with high barite and precious metal contents; (2) they are associated with intense sericite-quartz alteration.

The **Rea** deposit (243,000 tonnes grading 2.25% Zn, 2.14% Pb, 0.53% Cu, 6.5 g/tonne Au and 73.3 g/tonne Ag) is composed of three massive sulphide-barite lenses overlying alkali basalt tuffs which have been entirely altered to a silica-sericite assemblage. The lenses are overlain by coarse clastic metasedimentary rocks (Hoy, 1986).

The **Homestake** deposit (1,011,000 tonnes grading 4.0% Zn, 2.5% Pb, 0.55% Cu, 240 g/tonne Ag and 28% barite) consists of massive barite-sulphide lenses near



LEGEND

+ Shuswap-type massive sulphides

△ Adams Plateau-type massive sulphides

Geology adapated from Hoy (1987), Wheeler and McFeely (1991).

0 10 20 40 60
KILOMETRES

N

SO LONG PROJECT

MASSIVE SULPHIDE DEPOSITS

BRITISH COLUMBIA

EQUITY ENGINEERING LTD.

DRAWN:	H.A./J.W.	MINING DIV.:	KAMLOOPS	FIGURE
N.T.S.:	82L/14E	SCALE:	1:1,000,000	4
DATE:	JUNE 1996	REVISED:		

the top of a succession of altered felsic tuffs, which overlie andesite tuffs and are overlain by intercalated clastic sediments and andesite tuffs. The footwall rocks are intensely altered and sheared sericite-quartz schists and chlorite phyllite (Hoy and Goutier, 1986; Hoy, 1986).

Shuswap Deposits

Several stratiform zinc-lead-silver deposits, considered by Hoy (1987) to be of syngenetic exhalative origin, have been explored within the Shuswap and Monashee metamorphic complexes (Figure 4). These prospects, scattered over an area of 40 x 200 kilometres, share the following characteristics: (1) thin, conformable, regionally extensive, massive sulphide(-magnetite) horizons in platformal successions dominated by marble, schist and quartzite; (2) sulphides comprised of pyrrhotite and sphalerite, with minor galena and pyrite; (3) deformed and metamorphosed to amphibolite grade jointly with enclosing strata (Hoy, 1987).

The **River Jordan** deposit (2.6 million tonnes grading 5.1% Pb, 5.6% Zn and 35 g/tonne Ag) consists of a sulphide-rich layer, up to six metres thick, composed of a "fine-grained intimate mixture of sphalerite and pyrrhotite with conspicuous eye-shaped lenses of grey, watery quartz and scattered grains of pyrite and galena. Locally, it is well-layered, and includes minor pods and lenses of calc-silicate gneiss, schist, marble or barite. It is within a calcareous succession of calc-silicate gneiss, micaceous schist, marble and quartzite" (Hoy, 1982).

The **Cottonbelt** deposit (725,000 tonnes grading 6% Pb, 5% Zn and 50 g/tonne Ag) has been traced on surface for 2.5 kilometres and a further two kilometres in drilling, with average widths of 1-2 metres. The most common style of mineralization consists of semi-massive to massive sphalerite, galena and magnetite in olivine-pyroxene-amphibole calc-silicate gneiss. Layers of massive magnetite-sulphides are interlayered with calc-silicate gneiss, sillimanite gneiss, impure marble and amphibolite; immediate hanging wall and footwall rocks are commonly calc-silicate gneiss or impure marble (Hoy, 1987).

The **Ruddock Creek** deposit (5 million tonnes grading 7.5% Zn and 2.5% Pb in the E Zone, where the sulphide-bearing horizon is thickened in the hinge of an isoclinal fold) is in a succession of calcareous schist, quartzite and impure marble. One or more layers of massive sphalerite, pyrrhotite and galena are contained within a sequence of interlayered calcareous quartzite, marble and minor schist which reaches a maximum of 15 metres thickness (Hoy, 1987).

The **Big Ledge** deposit (6.5 million tonnes grading 4% Zn) can be traced for 10 kilometres within a succession of thin-bedded quartzite, marble and calcareous and pelitic schist. At least four layers of massive pyrite or pyrrhotite and dark sphalerite are hosted by a calcareous graphitic schist, interlayered with calcareous quartzite, calc-silicate gneiss and marble. Sulphides are also disseminated through the schist (Hoy, 1987).

The **Colby** deposit (1 million tonnes grading 7% Zn), located twenty kilometres east of the So Long property, has five mineralized zones identified along six kilometres of marble, quartzite and calc-silicate gneiss stratigraphy. Dark sphalerite, pyrrhotite and pyrite are disseminated through a calcite marble which is structurally overlain by calc-silicate gneiss with crude layers of the same sulphides (Hoy, 1987).

6.0 GEOLOGY AND MINERALIZATION

6.1 Geology

Very little geological mapping has been reported on the So Long property and none was done by the author. Regional mapping shows it to be entirely underlain by the Silver Creek Formation of semipelitic to pelitic quartz-muscovite and garnet-biotite-quartz-muscovite schists, micaceous and feldspathic quartzites, with minor carbonate and mafic schist. The most obvious lithology is a thick-bedded micaceous quartzite, with a few percent muscovite along poorly-developed cleavages in a clean quartzite containing traces of cubic pyrite. It forms a series of bluffs running east-west north of Conductor B on the NDP 1996 and Long claims. Closer to the massive sulphide horizon, outcrops are scarce and lithologies are medium-bedded, commonly 5-20 centimetres in thickness. Different protoliths are indicated by variations in muscovite and biotite contents, each of which can range from 0-50% in micaceous quartzites or mica schists. Compositional layering is parallel to foliation, generally trending 260-280° and dipping 45-65° north (Figure 5).

6.2 Mineralization

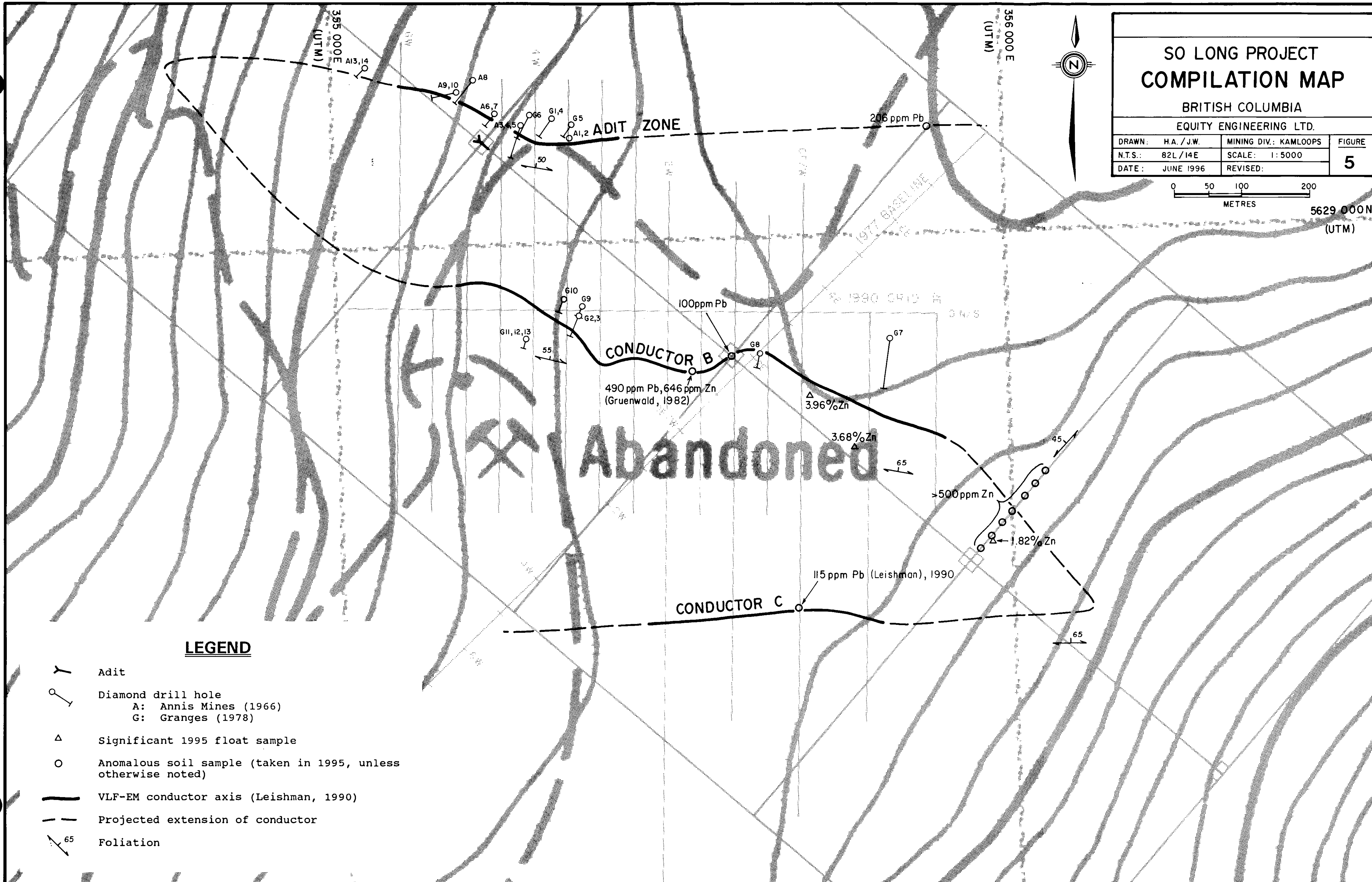
The Adit Zone and Conductor B, the main showings previously reported on the So Long property, were examined by the author; samples 485822-23, 485842-43 and 485847-50 were taken from the adit dump, a road cut above the adit and trenches on Conductor B. Samples 485844-46 were taken from float boulders which extend Conductor B mineralization 300 metres to the east of previous work (Figures 5, 6). Mineralization was examined in outcrop only in the Adit Zone road cut and in one of Granges' trenches on Conductor B.

The Adit Zone road cut exposes at least five metres of micaceous quartzite with biotite-galena-sphalerite forming millimetre-scale bands and lenses parallel to foliation (sample 485848). Structurally above this lies a 50 centimetre band of quartz-biotite schist containing quartz augen in a crenulated biotite matrix with semi-massive galena, pyrite, sphalerite and minor chalcopyrite and pyrrhotite (sample 485847). Samples 485849 and 485850 were taken from mineralized boulders on the adit dump. These are somewhat similar to 485847, with crenulated biotite schist containing quartz augen, but the main sulphide is pyrrhotite and lead-zinc values were much lower. Table 6.2.1 summarizes results for Adit Zone mineralization.

TABLE 6.2.1
ADIT ZONE MINERALIZATION

Sample Number	*Sample Width*	*Au (ppb)*	*Ag (ppm)*	*As (ppm)*	*Ba (ppm)*	*Cu (ppm)*	*Pb (ppm)*	*Zn (ppm)*
485847	Float	25	65.1g/t	22	585	1420	8.27%	8060
485848	Float	<5	6.2	<2	295	694	4760	4190
485849	Float	15	12.4	12	350	3150	4080	3660
485850	Float	20	25.4	28	290	3160	8700	3190

A 25 centimetre wide layer of massive pyrrhotite-galena-sphalerite, conformable to foliation and stratigraphy, is exposed in one of Granges' backhoe trenches on Conductor B. Chip sample 485843 assayed 3.15% Pb and 1.31% Zn across this massive sulphide layer. The structural hanging wall (485844) to this sulphide layer is a muscovite schist with seams of extremely fine-grained pyrite and narrow quartz(-



SO LONG PROJECT
COMPILATION MAP
BRITISH COLUMBIA
EQUITY ENGINEERING LTD.
DRAWN: H.A. / J.W.
MINING DIV.: KAMLOOPS
FIGURE 5
N.T.S.: 82L / 14E
SCALE: 1:5000
DATE: JUNE 1996
REVISED:
0 50 100 200
METRES
355 000 E (UTM)
356 000 E (UTM)
5629 000 N (UTM)
ADIT ZONE
206 ppm Pb
CONDUCTOR B
100ppm Pb
490 ppm Pb, 646 ppm Zn (Gruenwald, 1982)
3.96% Zn
3.68% Zn
>500 ppm Zn
1.82% Zn
CONDUCTOR C
115 ppm Pb (Leishman), 1990
1977 BASELINE
1990 GRID
Abandoned
A13,14
A9,10
A8
A6,7
A3,4,5
G6
G1,4
G5
A1,2
G10
G9
G2,3
G11,12,13
G8
G7
LEGEND
Adit
Diamond drill hole
A: Annis Mines (1966)
G: Granges (1978)
Significant 1995 float sample
Anomalous soil sample (taken in 1995, unless otherwise noted)
VLF-EM conductor axis (Leishman, 1990)
Projected extension of conductor
Foliation

galena-sphalerite) veins parallel to foliation.

Several float boulders of massive pyrrhotite-sphalerite-galena-chalcopyrite were found and sampled in Granges' trenches and further to the east. All were located near the trace of VLF Conductor B or its projected eastward extension. Sample 485846, with 1.82% Zn, was located 300 metres southeast of the easternmost drill hole, along the trend of Conductor B but 200 metres southeast of the limits of geophysical surveying. Table 6.2.2 summarizes rock geochemical results from Conductor B.

TABLE 6.2.2
CONDUCTOR B MINERALIZATION

Sample Number	*Sample Width*	*Au (ppb)*	*Ag (ppm)*	*As (ppm)*	*Ba (ppm)*	*Cu (ppm)*	*Pb (ppm)*	*Zn (ppm)*
485822	Float	10	92.6g/t	<2	155	2680	7.70%	2.64%
485823	Float	<5	4.6	<2	420	107	4990	5300
485842	50 cm	<5	4.0	<2	690	150	2610	1390
485843	25 cm	<5	51.4g/t	<2	210	1680	3.15%	1.31%
485844	Float	<5	8.0	2240	165	3260	2110	3.96%
485845	Float	<5	3.0	8	80	6680	1200	3.68%
485846	Float	<5	3.6	162	70	1200	2240	1.82%

Four polished thin sections from Conductor B mineralization were examined by Dr. J.F. Harris (Appendix D). The massive sulphide mineralization was described as fine-grained pyrrhotite, altering to secondary pyrite and marcasite, and containing tiny grains and clumps of sphalerite and galena. Silicate inclusions within the massive sulphides are composed of individual or aggregated mica flakes and quartz grains. A few inclusions are distinct in composition (for instance, granular plagioclase in section 485822) suggesting that they represent "mechanically incorporated clasts in an original sulfide sediment".

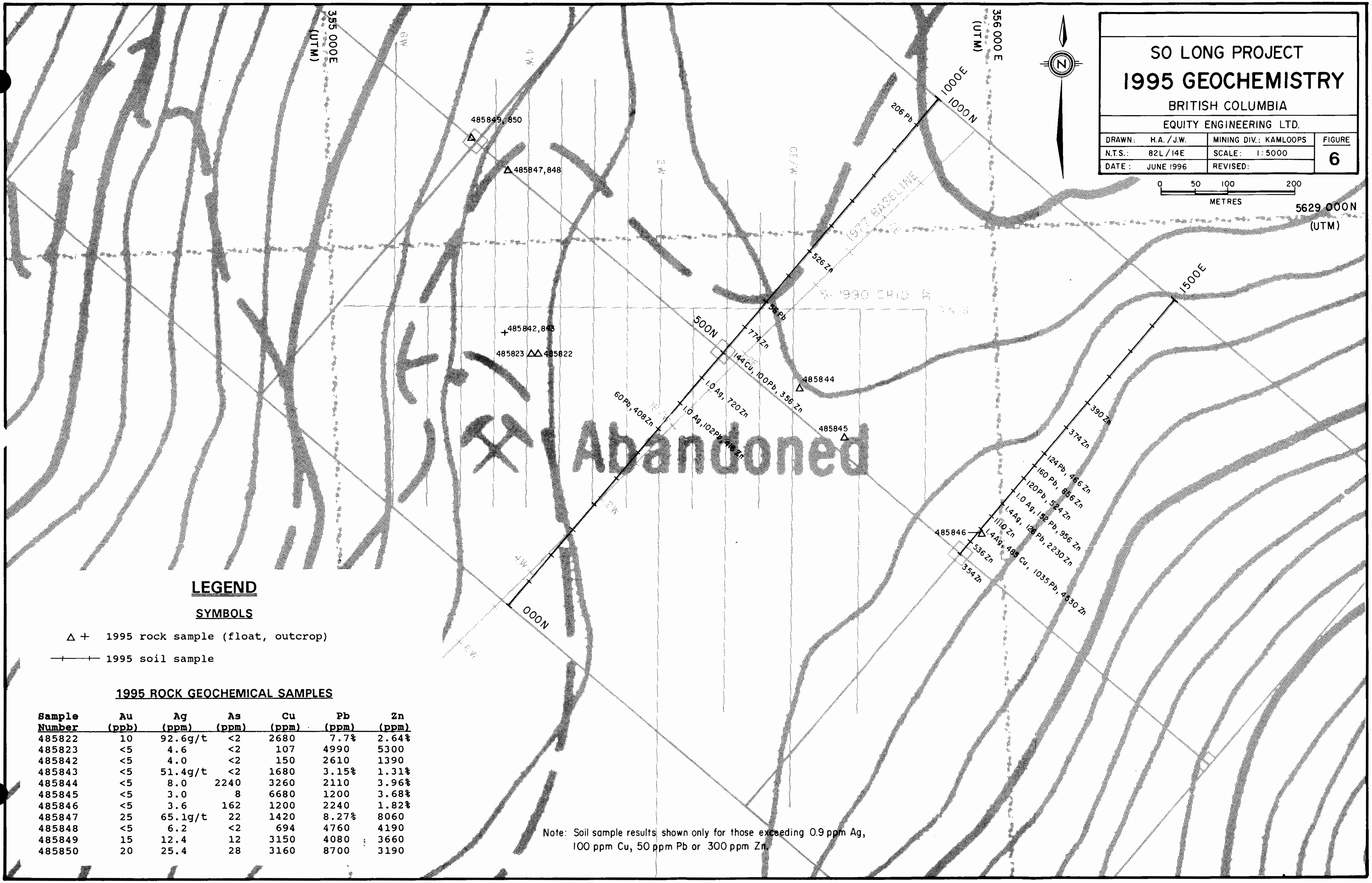
7.0 SOIL GEOCHEMISTRY

7.1 Previous Work

Several campaigns of soil geochemical sampling have been carried out on the So Long property. These surveys are of limited utility, because:

1) The Sicamous Resources grids (1973-76) were not tied into topography and their soil anomalies cannot be accurately located on the ground.
2) Granges never filed their 1978 soil survey for assessment, and it is not publicly available.
3) Caltex (1982) and Gruenwald/Leishman (1989) took only 91 close-spaced soil samples from selected areas in the vicinity of electromagnetic conductors.

In general, however, these soil surveys returned strong anomalies for lead, zinc and silver. In the later surveys, which can be tied into topography, these anomalies are coincident with electromagnetic conductors and massive sulphide mineralization.



SO LONG PROJECT

1995 GEOCHEMISTRY

BRITISH COLUMBIA

EQUITY ENGINEERING LTD.

DRAWN: H.A. / J.W.	MINING DIV.: KAMLOOPS	FIGURE
N.T.S.: 82L / 14E	SCALE: 1:5000	6
DATE: JUNE 1996	REVISED:	

LEGEND

SYMBOLS

△ + 1995 rock sample (float, outcrop)

—+——+— 1995 soil sample

1995 ROCK GEOCHEMICAL SAMPLES

Sample Number	Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
485822	10	92.6g/t	<2	2680	7.7%	2.64%
485823	<5	4.6	<2	107	4990	5300
485842	<5	4.0	<2	150	2610	1390
485843	<5	51.4g/t	<2	1680	3.15%	1.31%
485844	<5	8.0	2240	3260	2110	3.96%
485845	<5	3.0	8	6680	1200	3.68%
485846	<5	3.6	162	1200	2240	1.82%
485847	25	65.1g/t	22	1420	8.27%	8060
485848	<5	6.2	<2	694	4760	4190
485849	15	12.4	12	3150	4080	3660
485850	20	25.4	28	3160	8700	3190

Note: Soil sample results shown only for those exceeding 0.9 ppm Ag, 100 ppm Cu, 50 ppm Pb or 300 ppm Zn.

7.2 1995 Soil Survey

A total of 36 soil samples were taken in 1995 along two lines spaced 500 metres apart (Figures 5 and 6). This survey, with samples generally at 50 metre spacings, was designed to confirm the reported association between geochemical anomalies and electromagnetic conductors, and to search for an eastern extension to Conductor B. Both objectives were realized.

Soil samples were taken at 25 metre intervals between 500N and 700N on line 1500E, to test the projected intersection of Conductor B. Sample 1500E 550N was highly anomalous in lead (1035 ppm), zinc (4530 ppm), copper (485 ppm) and silver (1.4 ppm). Subsequent prospecting revealed a boulder of massive pyrrhotite with sphalerite and chalcopyrite (#485846) within five metres of this sample; it is thought to represent the eastward continuation of Conductor B. Although geochemical values were highest at 550N, all samples from 525N to 675N exceeded 500 ppm Zn, along with up to 160 ppm Pb and 1.4 ppm Ag. This 150 metre wide anomaly could be related to geochemical dispersion from a single massive sulphide zone near 550N, or could indicate a wider zone of mineralization (Figure 5).

Leishman's (1990) VLF-EM survey showed that Conductor B passes through line 1000E near 500N. This soil sample returned 144 ppm Cu, 100 ppm Pb and 356 ppm Zn and is flanked by samples with lower copper and lead values. Sample 1000E 950N returned 206 ppm Pb, the second highest value from the 1995 survey. It lies along the postulated eastward extension of the Adit Zone (Conductor A), 450 metres east of any geophysical surveying or drilling.

Conductor C was not tested by either of the 1995 soil lines. Its projected eastern and western extensions lie immediately south of the 1995 lines (Figure 5).

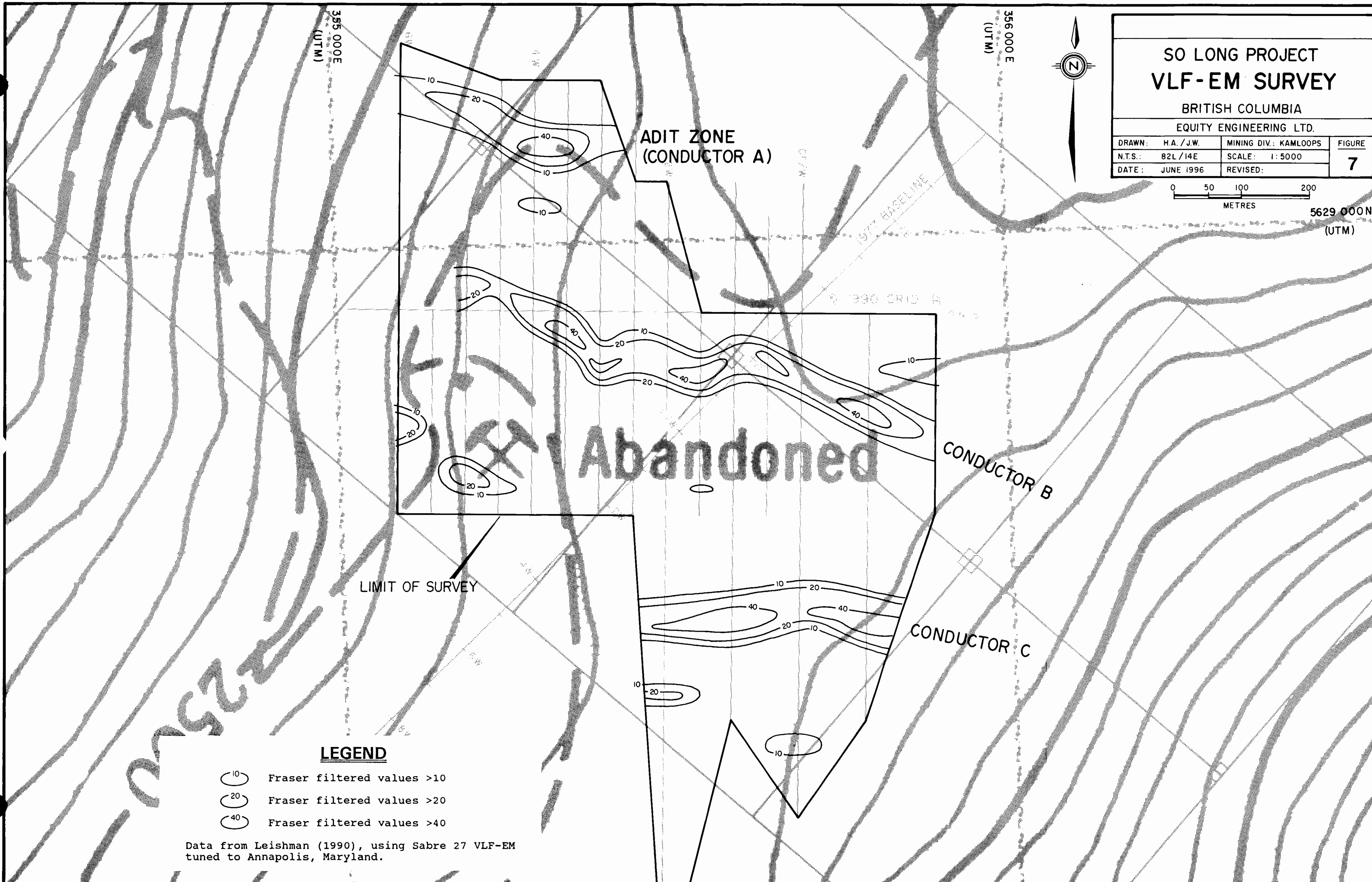
8.0 GEOPHYSICS

8.1 Electromagnetic Surveys

In 1977, Granges commissioned a pulse EM survey over the So Long project area, outlining four east-west conductors (White, 1977). From 1987 to 1989, Gruenwald and Leishman carried out 8.35 kilometres of VLF-EM, confirming and refining the location of Conductors A-C (Figure 7).

Conductors A and B mark the location of massive pyrrhotite-sphalerite(-galena-pyrite) mineralization (Figure 5). Conductor A (the Adit Zone) has been tested by an adit and short diamond drill holes along 180 metres. The conductor axis, as defined by Fraser-filtered contours, lies about 40 metres north of the surface trace of massive sulphides, as exposed in the road cut and adit. The sulphide horizon dips 50° toward the north, so it would pass under the conductor axis at a depth of about 50 metres.

Conductor B has been defined by Leishman (1990) along 800 metres. Four diamond drill holes and several backhoe trenches define northward-dipping massive sulphide mineralization along its western end. Similar to the electromagnetic expression of the Adit Zone, the surface trace of the massive sulphides lies approximately 40 metres south of the conductor axis. The diamond drill holes and trenching on the west end of Conductor B only test 60 metres of its strike length. Hole


SO LONG PROJECT
VLF-EM SURVEY
BRITISH COLUMBIA
EQUITY ENGINEERING LTD.
DRAWN: H.A. / J.W.
MINING DIV.: KAMLOOPS
FIGURE 7
N.T.S.: 82L / 14E
SCALE: 1:5000
DATE: JUNE 1996
REVISED:
0 50 100 200
METRES
N
355 000E (UTM)
356 000 E (UTM)
5629 000N (UTM)
ADIT ZONE
(CONDUCTOR A)
CONDUCTOR B
CONDUCTOR C
LIMIT OF SURVEY
Abandoned
LEGEND
10 Fraser filtered values >10
20 Fraser filtered values >20
40 Fraser filtered values >40
Data from Leishman (1990), using Sabre 27 VLF-EM tuned to Annapolis, Maryland.

G8, located 280 metres further east along this conductor, provides its only other surface or sub-surface exposure; this hole intersected 2.0 metres of massive pyrrhotite-chalcopyrite-galena. Two zinc-bearing massive sulphide boulders were found in 1995 a few tens of metres south of the axis of Conductor B; these are located 100 and 200 metres southeast from hole G8. East of the limits of the VLF survey, a zinc-bearing massive sulphide boulder and highly anomalous soil geochemistry probably mark the eastern extension of the massive sulphide mineralization responsible for Conductor B.

The axis of Conductor B is not linear. This slightly irregular trace could be due to short fault offsets. Equally likely, it could reflect a stratiform massive sulphide horizon which has been folded along with the enclosing lithologies. As such, the irregularities likely represent parasitic folds along the limbs of larger isoclinal folds.

A third strong east-west conductor (C) lies 350 metres south of Conductor B and is defined along 300 metres of strike length. No trenching, drilling or prospecting has been carried out on Conductor C to determine whether it too is caused by massive sulphide mineralization. One positive indication is a soil sample which returned 115 ppm Pb from over the axis of Conductor C (Leishman, 1990).

Although speculative, it appears quite possible that Conductors B and C form two limbs of an isoclinal fold. Conductor A could form a third limb as shown in Figure 5, explaining the strong similarities between mineralization in the Adit Zone and along Conductor B. Neilsen's (1982) structural analysis of the Mara Lake area predicts exactly this sort of east-southeast trending Phase I isoclinal folding (Figure 3b).

8.2 Magnetic Survey

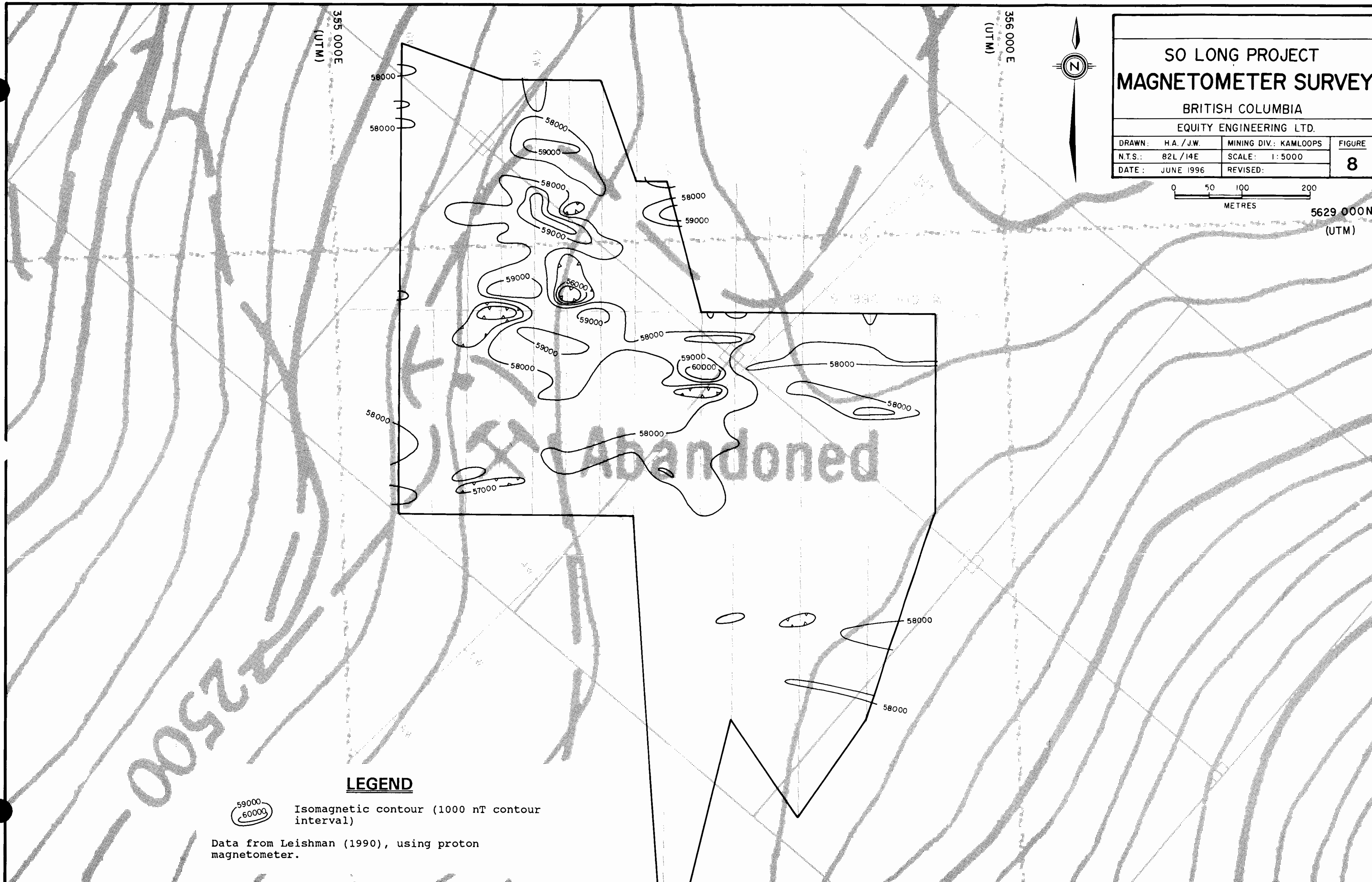
Leishman (1990) reported on a 8.3 kilometre proton magnetometer survey on the So Long property (Figure 8). This showed very high magnetic relief, with values ranging from 46,950 to 68,337 nT. Some of the highest values lie along Conductor B, especially associated with Fraser-filtered values above 40. These magnetic highs are undoubtedly due to pyrrhotite in massive sulphide mineralization. However, some sections of Conductor B (such as 3W 1S) are highly conductive but exhibit only background magnetic values, indicating that pyrrhotite is not an important component of sulphide mineralization there.

Conductor A (the Adit Zone) is partially marked by a magnetic high with a peak value of 59,800 nT. At the adit itself, however, magnetic values are background at 57,800 nT, despite the presence of pyrrhotite in mineralized boulders on the dump.

The magnetic high centred at 4W 1+50N, with three readings above 60,000 nT, remains unexplained. It lies between Conductors A and B, where no mapping, trenching or drilling has been carried out.

9.0 DIAMOND DRILLING

Two programs of diamond drilling have been carried out on the So Long property (Figure 5). Annis Mines drilled fourteen short holes on the Adit Zone in 1966; hand-drawn sections with assays and brief lithological notes are available for holes A66-1 to 5, 8 to 10 and 12-14. In 1978, Granges drilled 13 holes totalling 549 metres on the Adit Zone and Conductor B. Drill logs and partial assay results have been obtained from past operators. Survey data and significant intersections for the Adit Zone and Conductor B are summarized in Tables 9.0.1 and 9.0.2, respectively.



SO LONG PROJECT
MAGNETOMETER SURVEY
BRITISH COLUMBIA
EQUITY ENGINEERING LTD.
DRAWN: H.A. / J.W.
MINING DIV.: KAMLOOPS
FIGURE 8
N.T.S.: 82L / 14E
SCALE: 1:5000
DATE: JUNE 1996
REVISED:
0 50 100 200
METRES
N
355 000E (UTM)
356 000 E (UTM)
5629 000N (UTM)
58000
59000
60000
57000
56000
Abandoned
2500
LEGEND
59000
60000
Isomagnetic contour (1000 nT contour interval)
Data from Leishman (1990), using proton magnetometer.

TABLE 9.0.1
ADIT ZONE DIAMOND DRILLING SUMMARY

Drill Hole	Az. (o)	Dip (o)	Total Depth (m)	Intersection From (m)	Intersection To (m)	Int. Length (m)	Cu (%)	Pb (%)	Zn (%)	Ag (g/t)
A66-1	???	-45?	36.6	10.7	11.3	0.6	0.05	1.07	Tr.	18.9
A66-2	???	-70	30.8	7.6	8.4	0.8	Tr.	1.17	0.08	35.0
				17.1	17.7	0.6	0.11	1.97	1.45	37.7
				23.3	27.0	3.7	0.13	1.38	0.16	24.0
A66-3	???	-45?	76.2	19.8	20.1	0.3	0.18	2.19	3.55	34.3
A66-4	???	-65	46.3	N.S.A.						
A66-5	???	-70	39.3	24.7	25.1	0.4	0.08	2.45	0.09	27.4
A66-8	???	-45?	71.6	N.S.A.						
A66-9	???	-35	50.0	26.2	27.4	1.2	0.12	1.30	0.07	3.4
				31.7	32.2	0.5	0.14	2.58	0.28	10.9
				33.2	35.1	1.9	0.14	1.73	1.73	14.3
				38.7	39.6	0.9	0.20	1.50	2.20	20.6
				41.5	42.4	0.9	0.22	1.60	2.80	12.0
A66-10	???	-60	58.8	No Assays						
A66-12	???	-75	46.2	15.8	16.8	1.0	0.05	1.60	1.20	5.1
				17.7	19.8	2.1	0.15	0.88	2.00	17.9
				31.7	32.3	0.6	0.10	1.70	2.35	8.6
A66-13	???	-45	26.5	N.S.A.						
A66-14	---	-90	25.6	No Assays						
G78-1	205	-45	46.7	11.1	13.1	2.0	0.33	1.18	0.95	12.7
				18.3	18.9	0.6	0.43	4.92	2.54	35.7
				19.4	22.9	3.5	0.25	2.26	1.14	20.6
G78-4	205	-70	36.3	20.2	20.6	0.4	0.45	3.97	1.65	24.3
				22.3	24.5	2.2	0.55	1.09	0.91	18.9
G78-5	205	-45	30.2	No Assays						
G78-6	205	-45	57.3	18.3	19.0	0.7	0.36	1.29	0.20	13.7
				25.2	27.1	1.9	0.12	1.54	4.15	14.7

Note: N.S.A. means No Significant Assays (>1% Cu, Pb or Zn)

TABLE 9.0.2
CONDUCTOR B DIAMOND DRILLING SUMMARY

Drill Hole	Az. (o)	Dip (o)	Total Depth (m)	Intersection From (m)	Intersection To (m)	Int. Length (m)	Cu (%)	Pb (%)	Zn (%)	Ag (g/t)
G78-2	195	-55	57.9	N.S.A.						
G78-3	195	-75	48.9	6.0	6.5	0.5	0.10	9.05	1.30	175.5
G78-7	185	-50	118.0	No Assays						
G78-8	???	-45	28.6	15.1	16.7	1.6	???	???	???	????
G78-9	???	-55	27.7	No Assays						
G78-10	195	???	27.3	No Assays						
G78-11	195	-45	20.4	15.0	18.3	3.3	???	???	???	????
G78-12	195	-70	22.9	17.2	18.6	1.4	0.04	7.96	1.94	100.5
G78-13	----	-90	27.1	22.0	22.6	0.6	0.04	0.37	1.68	8.6
				23.8	25.0	1.2	0.04	1.45	0.84	35.0

Note: N.S.A. means No Significant Assays (>1% Cu, Pb or Zn)

Granges' core descriptions are very brief and not too useful. Their sampling was quite spotty, leaving the following sections unsampled, among others:
G78-2, 32.73-33.43m: "more pyrrhotite, also galena & calco under 1%"
G78-3, 32.15-32.83m: "more sulphides - py & pyrrhotite, discernible galena & calco"
G78-3, 47.85-48.94m: "15% pyrrhotite - some calco, end of hole"
G78-4, 10.64-12.50m: "5 to 10% sulphides, mostly pyrite, minor visible calco"
G78-4, 12.50-13.62m: "5% pyrite, 5% pyrrhotite, low values in copper and lead"
G78-5, 4.26-30.17m: "very minor sulphides with some galena from 7.19 to 7.31, very small blebs elsewhere"
G78-6, 19.35-19.53m: "20 to 30% pyrite and pyrrhotite - visible calco, galena, sphalerite"
G78-6, 19.60-19.96m: "5-10% pyrite, 5% pyrrhotite - visible calco, galena & sphalerite"
G78-6, 20.11-20.88m: "5-10% sulphides, mostly pyrite, some pyrrhotite - visible calco, galena, sphal"
G78-6, 22.71-23.35m: "same as above" (including 23.13-23.35m: "nice sphal. and galena")
G78-6, 28.13-28.25m: "nice galena"
G78-6, 30.90-31.03m: "20% sulphides - nice galena"
G78-7, 20.42-20.57m: "visible sphalerite"
G78-7, 93.72-94.18m: "few narrow seams - visible sphalerite & galena"
G78-7, 104.39-105.00m: "visible calco & galena in narrow fractures in quartz"
G78-9, 20.40-20.57m: "visible calco, galena and sphalerite in streaks and blebs"

The holes directed at the Adit Zone intersected a series of zinc- and lead-bearing sulphide zones over core lengths of up to 16.2 metres (26.2-42.4m) in hole A9. Hole G1, the one which was most thoroughly sampled, intersected 4.6 metres grading 2.36% Pb and 1.20% Zn separated by 5.2 metres from a second 2.0 metre interval grading 2% combined Pb-Zn. The drilling tested 180 metres of strike length of the Adit Zone. It is not clear whether holes A13 and A14, drilled 150 metres further west, hit the zone or not, since sections show sulphide-bearing intervals, but no sampling was done.

Granges tested Conductor B with nine holes. Hole G7, collared well back from Conductor B, stopped short of the projected zone of mineralization. Holes G2, G3, G9 and G10 may also have been stopped short of the best mineralization. The remaining four holes intersected massive sulphides on two sections 350 metres apart, with the best intersection grading 7.96% Pb, 1.94% Zn and 100 g/tonne Ag over 1.4 metres in G12. The zone remains untested between these sections and along strike from them.

10.0 DISCUSSION

The So Long property covers two stratiform massive sulphide occurrences similar to Shuswap-style zinc-lead-silver deposits. Mineralization examined on surface is very similar to the "fine-grained intimate mixture of sphalerite and pyrrhotite with conspicuous eye-shaped lenses of grey, watery quartz" described for the other Shuswap-style deposits, as is the So Long's position within a platformal succession dominated by mica schist and quartzite. Five Shuswap-style massive sulphide deposits have been defined in the area, with reserves up to 5 million tonnes grading 7.5% Zn and 2.5% Pb; none has yet proven economic due to narrow thicknesses and structural complexity. The So Long prospect, which is in slightly less-deformed strata outside the Shuswap Metamorphic Complex, may exhibit less structural complexity.

Two east-trending zones of stratiform pyrrhotite-sphalerite-galena±chalcopyrite mineralization have been recognized on the So Long property: the Adit Zone and Conductor B. Multiple lenses of sulphide mineralization are present over a maximum width of 16 metres core length within each zone. Drill intersections grade up to 7.96% Pb, 1.94% Zn and 100 g/tonne Ag over 1.4 metres (Conductor B) and 1.54% Pb and 4.15% Zn over 1.9 metres (Adit Zone). Mineralization within the two zones is very comparable, with similar host lithologies, textures, widths and grades. Regional structural interpretations suggest that the Adit Zone and Conductor B occur along two limbs of an isoclinal fold; Conductor C, which has never been drilled, could form a third east-west fold limb.

At other Shuswap-type massive sulphide deposits, such as Big Ledge and Ruddock, the sulphide sheets are attenuated along fold limbs and thicken substantially along the hinges of isoclinal folds. Reserves at these two deposits are confined to the hinge areas, where potentially economic thicknesses and grades are present. On the So Long property, the two (assumed) fold hinges between the Adit Zone, Conductor B and Conductor C have not been defined, much less tested by drilling.

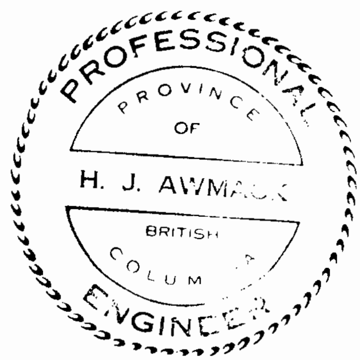
The nature of the So Long massive sulphide occurrences makes them an easy target to explore. The Adit Zone and Conductor B are shown up well by magnetic and electromagnetic surveys, due to the conductive and magnetic properties of the pyrrhotite which comprises the bulk of the massive sulphide sheets. The mineralization is reflected by soil geochemistry, since overburden is not excessively thick. Prospecting has been used successfully to show the presence of pyrrhotite-sphalerite-galena boulders along the trend of geochemical and geophysical anomalies. Outcrop, while not abundant, should be sufficient to determine the stratigraphic and structural setting of mineralization, provide a geological framework for the property and guide interpretation of anomalies in areas of limited outcrop.

The So Long prospect has never received a systematic evaluation. Soil geochemistry and ground geophysics have been carried out on a piecemeal basis without defining the limits of the geochemical and geophysical anomalies. Diamond drilling has been limited to a 330 metre portion of the Adit Zone and two sections across Conductor B, located 350 metres apart. Zinc-bearing massive sulphide boulders have been found up to 450 metres east of the easternmost drilling on Conductor B.

Conductor C has never been drilled or even prospected, despite its anomalous soil geochemistry. All drilling to date has been shallow, averaging 45 metres total length on the Adit Zone and 42 metres on Conductor B. Available drill assays are incomplete and numerous mineralized sections were left unsampled.

The So Long prospect shows excellent potential for discovery of economic zinc-lead-silver massive sulphide mineralization. Work to date has shown the presence of sub-economic mineralization of this type in two areas and has shown the effectiveness of several geophysical and geochemical techniques in extending these along strike. Only 680 metres strike length of the massive sulphide sheet has been drilled, out of a probable strike length in excess of 3,700 metres. The best geological targets, namely the isoclinal fold hinges, have not been evaluated.

Respectfully submitted,



Henry J. Awmack, P.Eng.
EQUITY ENGINEERING LTD.

Vancouver, British Columbia
June, 1996

APPENDIX A

BIBLIOGRAPHY

BIBLIOGRAPHY

Black, J.M. (1973): Geological and Geochemical Report on the Joanne and Mouse Claims; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report #4,453.

Black, J.M. (1976): Geochemical Report on the Bon Claim; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report #5,864.

Gruenwald, W. (1982): Geological, Geophysical and Geochemical Report on the Jeff and Big J#3 Claims; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report #10,745.

Hoy, T. (1982): Stratigraphic and Structural Setting of Stratabound Lead-Zinc Deposits in Southeastern B. C.; CIM Bulletin, No. 840, p. 114-134.

Hoy, T. (1986): Alteration, Chemistry and Tectonic Setting of Volcanogenic Massive Sulphide-Barite Deposits at Rea Gold and Homestake, Southeastern British Columbia (82M/4W), in Exploration in British Columbia; British Columbia Ministry of Energy, Mines and Petroleum Resources, p. B7-B19.

Hoy, T. (1987): Geology of the Cottonbelt Lead-Zinc-Magnetite Layer, Carbonatites and Alkalic Rocks in the Mount Grace Area, Frenchman Cap Dome, Southeastern British Columbia; British Columbia Ministry of Energy, Mines and Petroleum Resources Bulletin 80, 99 pages.

Hoy, T. and F. Goutier (1986): Rea Gold (Hilton) and Homestake Volcanogenic Sulphide-Barite Deposits, Southeastern British Columbia (82M/4W), in Geological Fieldwork 1985; British Columbia Ministry of Energy, Mines and Petroleum Resources Paper 1986-1, p. 59-68.

Johnson, B.J. (1989): Geology of the West Margin of the Shuswap Terrane near Sicamous and Implications for Tertiary Extensional Tectonics, in Geological Fieldwork 1988; British Columbia Ministry of Energy, Mines and Petroleum Resources Paper 1989-1, p. 49-54.

Johnson, B.J. (1990): Geology Adjacent to the Western Margin of the Shuswap Metamorphic Complex (Parts of 82L, M); British Columbia Ministry of Energy, Mines and Petroleum Resources Open File 1990-30.

Leishman, D.A. (1989): Geophysical Report on the LG-1 Mineral Claim; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report #18,701.

Leishman, D.A. (1990): Geochemical and Geophysical Report on the LG-1 Mineral Claim; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report #19,824.

Leishman, D.A. and Gruenwald, W. (1987): Geophysical and Geological Report on the LG-1 Mineral Claim; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report #15,523.

Lukawesky, K.W. (1989): Geophysical Report on the S.J. #1 Mineral Claim; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report #18,903.

Neilsen, K.C. (1982): Structural and Metamorphic Relationships Between the Mount Ida and Monashee Groups at Mara Lake, British Columbia; Canadian Journal of Earth Sciences, Vol. 19, p. 288-307.

Okulitch, A.V. (1979): Lithology, Stratigraphy, Structure and Mineral Occurrences of the Thompson-Shuswap-Okanagan Area, British Columbia; Geological Survey of Canada Open File 637.

Okulitch, A.V. (1989): Revised Stratigraphy and Structure in the Thompson-Shuswap-Okanagan Map Area, Southern British Columbia; Geological Survey of Canada Paper 89-1E, p. 51-60.

Schiarizza, P. and V.A. Preto (1984): Geology of the Adams Plateau - Clearwater Area; British Columbia Ministry of Energy, Mines and Petroleum Resources Preliminary Map 56.

Wheeler, J.O. and P. McFeely (1991): Tectonic Assemblage Map of the Canadian Cordillera and adjacent parts of the United States of America; Geological Survey of Canada Map 1712A, scale 1:2,000,000.

White, G.E. (1977): Geophysical Report on a Pulse Electromagnetometer Survey; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report #6,621.

APPENDIX B

STATEMENT OF EXPENDITURES

STATEMENT OF EXPENDITURES
NDP 1991-1996, SO, LONG CLAIMS
September 25, 1995

PROFESSIONAL FEES AND WAGES:		
Henry J. Awmack, P.Eng. (Field)		
0.5 days @ $425/day	$ 212.50	
Henry J. Awmack, P.Eng. (Report)		
9.25 days @ $425/day	3931.25	
Kelly Owerko, Geologist		
1.0 day @ $350/day	350.00	
Clerical		
2.5 hours @ $25/hr	62.50	$ 4,556.25
EQUIPMENT RENTAL: (Equity Engineering Ltd.)		
4x4 Truck		
1 day @ $80/day		80.00
EXPENSES:		
Chemical Analyses	$ 819.07	
Materials and Supplies	2.13	
Maps and Publications	18.83	
Drafting	612.50	
Printing and Reproductions`	238.07	
Meals	60.17	
Automotive Fuel	61.73	
Tolls	9.35	
Telephone Distance Charges	16.08	
Courier	14.80	
Petrography	619.00	2,471.73
	Subtotal:	$ 7,107.98
GST:		497.56
	TOTAL:	**$ 7,605.54**

APPENDIX C

ROCK SAMPLE DESCRIPTIONS

MINERALS AND ALTERATION TYPES

AZ	azurite	BA	barite	BI	biotite
BO	bornite	CA	calcite	CB	Fe-carbonate
CC	chalcocite	CL	chlorite	CP	chalcopyrite
CU	native copper	CV	covellite	CY	clay
EP	epidote	FM	ferromolybdite	FP	feldspar
GA	garnet	GE	goethite	GL	galena
GR	graphite	HE	earthy hematite	HS	specularite
HZ	hydrozincite	JA	jarosite	KF	K-feldspar
MC	malachite	MG	magnetite	MN	Mn-oxides
MO	molybdenite	MR	mariposite	MS	sericite
MT	marcasite	MU	muscovite	NE	neotocite
PO	pyrrhotite	PX	pyroxene	PY	pyrite
QZ	quartz veining	SI	silica	SP	sphalerite
TA	talc	TO	tourmaline	TT	tetrahedrite

ALTERATION INTENSITIES

m	medium	s	strong	tr	trace
vs	very strong	w	weak		

Property : So Long Project NTS : 82L/14E Date : September 25, 1995

Sample No.	UTM : 5628 830 N	Type : Float	Alteration : sQZ	Au	Ag	Ba	Cu	Pb	Zn
	355 310 E	Strike Length Exp. : m	Metallics : trCP, 80%PO, 2%PY	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485822	Elevation:	Sample Width : m	Secondaries: wHE	10	92.6gt	155	2680	7.77%	2.64%
	Orientation: /	True Width : m	Host : Massive Sulphide ??						

Comments : Very fine-grained pyrrhotite-pyrite-chalcopyrite with 10-15% quartz eyes <1-2mm. Chalcopyrite is on late fractures. Sample taken on road among the trenches southeast of adit.

Sample No.	UTM : 5628 830 N	Type : Float	Alteration : m-sBI, sMS, sQZ	Au	Ag	Ba	Cu	Pb	Zn
	355 300 E	Strike Length Exp. : m	Metallics : trCP, 5%PO, trPY, trSP?	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485823	Elevation:	Sample Width : m	Secondaries:	<5	4.6	420	107	4990	5300
	Orientation: 280 / 40 N	True Width : m	Host : Quartz < sericite schist.						

Comments : Bands of sulphide and biotite subparallel to foliation (280/40N). Very fine-grained disseminated sulpides as well. Collected from waste pile on edge of trench.

Sample No.	UTM : 5628 870 N	Type : Chip	Alteration : sMS, 20%QZ	Au	Ag	Ba	Cu	Pb	Zn
	355 260 E	Strike Length Exp. : 2 m	Metallics : trGL, 10%PY?	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485842	Elevation:	Sample Width : 50 cm	Secondaries: mGE	<5	4.0	690	150	2610	1390
	Foliation : 260 / 45 N	True Width : 50 cm	Host : Hangingwall Muscovite schist						

Comments : Hangingwall to 485843. Green muscovite plates with seams of black extremely fine-grained powdery pyrite. Two 10cm quartz veins parallel foliation with sparse galena (sphalerite?) in late fractures.

Sample No.	UTM : 5628 870 N	Type : Chip	Alteration : sMU	Au	Ag	Ba	Cu	Pb	Zn
	355 260 E	Strike Length Exp. : 2 m	Metallics : trCP, 70%PO	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485843	Elevation:	Sample Width : 25 cm	Secondaries: vsGE, white sulphate	<5	51.4gt	210	1680	3.15%	1.31%
	Foliation : 260 / 45 N	True Width : 25 cm	Host : Massive Sulphide						

Comments : Granges trench. Massive fine-grained pyrrhotite with sparse clusters of very fine-grained chalcopyrite, 20-30% rounded quartz-muscovite fragments (2-5mm).

Sample No.	UTM : 5628 760 N	Type : Float	Alteration :	Au	Ag	Ba	Cu	Pb	Zn
	355 700 E	Strike Length Exp. : m	Metallics : 1%CP,trGL,60%PO,2%PY,trSP	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485844	Elevation:	Sample Width : 60 cm	Secondaries: vsGE, white sulphate	<5	8.0	165	3260	2110	3.96%
	Orientation: /	True Width : m	Host : Massive pyrrhotite						

Comments : 3 60x70x80cm boulders pushed up by cat (or from trench) 100m at 320 degrees from 485845. Fine-grained massive PO with clusters of very fine-grained CP and blebs PY, with subangular QZ-MU fragments (2-15mm). TrGL,CP on fractures in one quartzite fragment.

Sample No.	UTM : 5628 690 N	Type : Float	Alteration :	Au	Ag	Ba	Cu	Pb	Zn
	355 760 E	Strike Length Exp. : m	Metallics : trCP, 50%PO, 20%PY, SP?	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
485845	Elevation:	Sample Width : 15 cm	Secondaries: vsGE	<5	3.0	80	6680	1200	3.68%
	Orientation: /	True Width : m	Host : Pyrrhotite-pyrite massive sulphides						

Comments : 15x20x20cm boulder in logging slash 27m at 320 degrees from 500N 1250E. Very fine-grained massive pyrrhotite-pyrite-sphalerite(?) with rare chalcopyrite. Fragmental-looking with rounded quartz fragments caught up in matrix. Durchbewegen texture?

Sample No. 485846 — UTM : 5628 540 N, 355 970 E — Type : Float — Strike Length Exp. : m — Sample Width : 30 cm — True Width : m — Elevation: — Orientation: /
Alteration : — Metallics : trCP, 30%PY, SP? — Secondaries: sGE — Host : Quartz biotite schist

Au (ppb)	Ag (ppm)	Ba (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	3.6	70	1200	2240	1.82%

Comments : 30x35x35cm boulder in skid road 2m south east of 1500E 550N. Non magnetic. Very fine-grained pyrite brecciating(?) quartz-biotite-muscovite augen.

Sample No. 485847 — UTM : 5629 110 N, 355 270 E — Type : Float — Strike Length Exp. : m — Sample Width : 15 cm — True Width : m — Elevation: — Orientation: /
Alteration : — Metallics : <1%CP,1%GL,1%PO,1%PY,1%SP — Secondaries: wGE, wHE, wJA — Host : Quartz-biotite schist or gneiss

Au (ppb)	Ag (ppm)	Ba (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
25	65.1gt	585	1420	8.27%	8060

Comments : Taken from boulders near hanging wall of 485848 in road cut. Galena-sphalerite-(local pyrrhotite) bands with coarse light red crenulated biotite parallel to foliation. Sulphides 1-2mm. Local pyrite or chalcopyrite on fractures.

Sample No. 485848 — UTM : 5629 110 N, 355 270 E — Type : Float — Strike Length Exp. : m — Sample Width : 20 cm — True Width : m — Elevation: — Foliation : 280 / 50 N
Alteration : — Metallics : trCP, 1%GL, <1%PO, SP? — Secondaries: — Host : Biotite quartzite

Au (ppb)	Ag (ppm)	Ba (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
<5	6.2	295	694	4760	4190

Comments : Creamed-coloured quartzite with bands of biotite-galena-sphalerite along foliations. Fine-grained chalcopyrite on cross-cutting fractures. Spall from road cut above adit. Zone way be >5m wide. Mica schist on hanging wall.

Sample No. 485849 — UTM : 5629 160 N, 355 220 E — Type : — Strike Length Exp. : m — Sample Width : 20 cm — True Width : m — Elevation: — Orientation: /
Alteration : — Metallics : 1%CP, 1%GL, 30%PO — Secondaries: — Host : Biotite schist

Au (ppb)	Ag (ppm)	Ba (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
15	12.4	350	3150	4080	3660

Comments : 20x35x35cm boulder on adit dump. Similar to 485850.

Sample No. 485850 — UTM : 5629 160 N, 355 220 E — Type : — Strike Length Exp. : m — Sample Width : 10 cm — True Width : 10 cm — Elevation: — Orientation: /
Alteration : — Metallics : 1%CP, 1%GL, 50%PO, 1%SP — Secondaries: sGE — Host : Biotite-quartz schist

Au (ppb)	Ag (ppm)	Ba (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
20	25.4	290	3160	8700	3190

Comments : Biotite-pyrrhotite schist: crenulated with clear quartz augen. Coarse (2mm) pyrrhotite, wisps of galena and pyrite. Dump from adit.

APPENDIX D

PETROGRAPHIC DESCRIPTIONS

(Prepared by Dr. Jeff Harris

of Vancouver Petrographics Ltd.)

Harris
EXPLORATION SERVICES
MINERALOGY AND GEOCHEMISTRY

534 ELLIS STREET, NORTH VANCOUVER, B.C., CANADA V7H 2G6 TELEPHONE (604) 929-5867

Report for: Henry Awmack,
Equity Engineering Ltd.,
207 - 675 West Hastings St.,
VANCOUVER, B.C
V6B 1N2

Report 95-98

November 21, 1995

PETROGRAPHIC EXAMINATION OF SAMPLES FROM THE SO LONG PROJECT

Introduction:

4 rock samples, numbered 485822, 485823, 485843 and 485845, were submitted for study. Typical portions of each sample were prepared as polished thin sections (slides 95-376X through 379X respectively).

Summary:

The two massive sulfide samples, 485822 and 485843, are of similar type. They consist of a matrix of evenly fine-grained pyrrhotite, extensively modified to secondary pyrite and minor marcasite. Sphalerite and galena occur as disseminations of tiny grains and grain clumps, 10 - 100 microns in size, throughout the Fe sulfide matrix.

Sphalerite appears dominant over galena in both the thin sections, which is at odds with the given assay data. Presumably the base-metal mineralogy shows compositional differentiation not apparent on the thin section scale.

A little chalcopyrite is also present, particularly in 485822 where it is mainly associated with localized gash veinlets of carbonate.

The minute grain size and intimate admixture of the Pb-Zn sulfides with the pyrrhotite/pyrite may present recovery problems in metallurgical treatment.

A silicate gangue component consisting essentially of quartz and muscovite occurs as clast-like inclusions throughout the massive sulfide. In 485822 these are largely individual flakes of mica or discrete quartz grains (though a few of the latter are polygranular). In 485843 the apparent clasts range up to 1 cm or more in size, and are commonly polygranular. They include aggregates of compact flaky muscovite, and of granular quartz, sometimes with intergrown mica.

The origin of the silicate/sulfide relationship in these rocks is unclear. On the available evidence the most likely possibility is that the silicates are clasts incorporated into a deposit of exhalative sulfide at the time of deposition, either in their present form or since modified by recrystallization along with the sulfide matrix. Minor mobilization of sulfides into fractures and grain boundaries of the clasts is apparent in 485843.

Of the two low-sulfide samples, 485823 is an equigranular quartz-muscovite rock of metamorphic aspect. Its mineralogy is essentially identical to that of the silicate inclusions in the massive sulfide samples. It could be a micaceous quartzite of normal metasedimentary origin, or alternatively could be a metamorphosed impure chert - representing a silicate-facies exhalite intercalated with, and fragmentally incorporated in, bedded sulfides. It includes minor disseminated pyrrhotite, sphalerite and galena.

Sample 485845 is a coarser-grained metamorphic schist in which plagioclase is strongly dominant over quartz, and the accessories are phlogopitic biotite and staurolite. It contains relatively abundant disseminated sulfides (pyrrhotite, pyrite and minor chalcopyrite) which appear to be primary constituents, partially remobilized during metamorphic recrystallization.

This rock does not resemble the silicate assemblage in the massive sulfides. The accessory mineralogy is typical of a pelitic metasediment in which case the high feldspar content may be of felsic igneous derivation (although the presence of staurolite is contra-indicative).

Individual petrographic descriptions, plus a set of illustrative photomicrographs, are attached.

J.F. Harris Ph.D.

SAMPLE 485822 (Slide 95-376X) MASSIVE SULFIDE

Estimated mode

Pyrrhotite	20
Secondary pyrite	40
Marcasite	10
Chalcopyrite	1
Sphalerite	7
Galena	4
Limonite	1
Quartz	10
Plagioclase	2
Muscovite	4
Carbonate	1

This sample consists of massive sulfides rather evenly speckled with small silicate mineral grains (and rare, coarser, polygranular lithic clasts).

The sulfide matrix is a mixture of Fe sulfides - clearly originating by modification of original massive pyrrhotite.

The latter survives as small, locally semi-connected, remnant patches, 0.2 - 0.5 mm in size, but the bulk of it has been converted to a compact, fine-grained aggregate of secondary pyrite and diffusely intergrown marcasite. This exhibits a distinctive, minutely porous "dry-bone" texture.

Accessory sphalerite and galena, plus traces of chalcopyrite, occur in minutely dispersed form throughout the Fe sulfide matrix, as individual tiny flecks, elongate lenticles and strings of grains - typically in the size range 10 - 100 microns. The galena and sphalerite occur both independently and in mutual intergrowth.

The Pb-Zn sulfides are seen in the remnant pyrrhotite patches as well as in the modified (pyrite/marcasite) variant, and appear to be primary, co-deposited phases. Their fine-grained character is consistent with the scale of granularity observed in the remnant host pyrrhotite.

Chalcopyrite is rare in dispersed form, but is locally prominent as grains 30 - 300 microns in size, intergrown with sparry carbonate (probably dolomite), in a couple of small, discordant veniform gashes.

The sectioned area is cut by a few thin limonite-filled veinlets.

The silicate component consists of individual flakes of muscovite,and discrete anhedral grains and polygranular aggregates of strainpolarized quartz and rare plagioclase, 0.05 - 0.2 mm in size. The sectioned area also includes one coarser (5 mm) patch of granular plagioclase with minor intergrown sericite.

Sample 485822 cont.

Except for forming rare marginal selvedges on a few quartz grains, the musocvite occurs as well-formed, discrete flakes, independent of the quartz. These flakes show an imperfect, but distinct, preferred orientation - paralleling the elongation of some of the quartzose "eyes", and of the sphalerite and galena disseminations and pyrrhotite remnants in the sulfide matrix.

The quartz grains and clumps commonly show minutely ragged contacts with the enclosing sulfides.

The origin of the silicate "eyes" is uncertain. They could be either mechanically incorporated clasts in an original sulfide sediment (exhalite), or remnants from wholesale replacement of a (previously disaggregated?) silicate host by pyrrhotite. The discrete outlines of the silicate grains, the striking lack of mutual intergrowth between the mica flakes and quartz, and the absence of sulfides within the silicates tend to favour the first possibility.

A third possibility is that the silicate "clasts" are actually products of metamorphic recrystallization of cherty and clayey accessory constituents co-precipitated with an exhalite sulfide host. This might explain the oriented fabric, but the great disparity in grain size between the silicates and the minutely microgranular sulfide matrix is not what one would expect. Also, the coarsest clast (of granular plagioclase) has the distinct appearance of a plutonic or gneissic clast.

SAMPLE 485823 (Slide 95-377X) MICACEOUS QUARTZITE

Estimated mode

Quartz	87
Plagioclase	1
Muscovite	10
Phlogopite	trace
Rutile	trace
Pyrrhotite	1.5
Sphalerite	0.5
Galena	trace
Limonite	trace

This rock consists predominantly of quartz, as a mosaic aggregate of anhedral grains, 0.2 - 1.0 mm in size.

Muscovite is the principal accessory. It occurs as discrete flakes, 0.1 - 1.0 mm in length, in intergranular relation to the quartz matrix. In part the muscovite flakes coalesce to form slender, through-going schlieren.

The muscovite flakes and schlieren show a strong, locally sinuous parallelism which defines a distinct platy foliation. it is notable, however, that the quartz grain shapes only rarely display any preferred elongation - typically being equant/sub-polygonal, sub-interlocking.

Scattered individual grains of plagioclase are a sparse intergrown accessory to the quartz. A minor component of the mica flakes shows the pale brown pleochroism characteristic of phlogopite.

The rock contains minor disseminated sulfides (mainly pyrrhotite) as sparse individual grains, about 0.2 mm in size; and as lenticular segregations to 1.0 mm or so in length, concordant with the foliation. The sulfides are sometimes mantled by muscovite flakes, and have the appearance of co-recrystallized primary components.

At one end of the sectioned portion there is a local concentration of sulfides, as pockets up to 2.0 mm in size. These include components of sphalerite and galena in simple intergrowth with the pyrrhotite.

The host quartzite in the vicinity of the main sulfide concentration appears to be relatively enriched in plagioclase compared with the rock at large. There is evidence of local replacement of quartz grains marginal to, and incorporated within, the coarsest sulfide pockets. This is probably an effect of metamorphic remobilization.

This rock is clearly a product of metamorphic recrystallization. It may be a quartzite of normal sedimentary origin, or (consistent with the presence of disseminated pyrrhotite and Pb-Zn sulfides) could possibly represent the recrystallization of a sulfide-poor chert of exhalative origin.

SAMPLE 485843 (Slide 95-378X) MASSIVE SULFIDE

Estimated mode

Pyrrhotite	25
Secondary pyrite	30
Marcasite	8
Sphalerite	3
Galena	2.5
Chalcopyrite	0.5
Quartz	22
Plagioclase	0.5
Muscovite) Sericite)	6.5
Pyroxene	trace
Rutile	trace
Limonite	2

The sectioned portion of this sample is of closely similar macroscopic appearance to Sample 485822. The present sample has rather more abundant and evenly distributed quartz eyes, and includes one notably coarse lithic clast (of 1.3 x 0.6 cm).

Thin section examination confirms the similarity, although there are some recognizable differences.

The silicate eyes in this sample are quartz grains and muscovite flakes, typically ranging from 0.2 - 3.0 mm in size. The larger ones are often polygranular (mosaic or crenulate-margined aggregates of quartz, sometimes with a few intergrown flakes of muscovite and/or plagioclase) or, less commonly, essentially monomineralic aggregates of contorted sericite/muscovite. Rare, small, individual clasts of plagioclase are present, and a single clast is composed of fresh orthopyroxene, mantled by sericite.

The mica flakes in this sample tend to be somewhat more blocky than in 485822, and show only a very weak preferred orientation.

The massive sulfide matrix is of similar composition, consisting of partially altered pyrrhotite (converted to fine-grained secondary pyrite and intimately intergrown marcasite), with accessory sphalerite, galena and minor chalcopyrite as minutely disseminated accessories.

The fine granularity of the pyrrhotite protolith (on the scale 20 - 100 microns) is clearly revealed by the brownish-grey tarnish which distinguishes an intermediate stage between primary pyrrhotite and the secondary pyrite/marcasite end-product.

The sphalerite and galena are of similar mode of occurrence (randomly disseminated through the pyrrhotite) to that in 485822, but aresignificantly less abundant and even finer grained - individual

Sample 485843 cont.

grains or intergrown pockets seldom exceeding 50 microns. They also lack the common tendency to parallel elongation seen in the previous sample.

Rare traces of chalcopyrite occur in like manner. This sample lacks the carbonate segregations which host most of the chalcopyrite in 485822.

Another feature not noted in the other massive sulfide sample is the presence of traces of sulfides as intergranular threads, flecks and networks in some of the polygranular silicate clasts.

SAMPLE 485845 (Slide 95-379X) QUARTZO-FELDSPATHIC SCHIST

Estimated mode

Quartz	15
Plagioclase	48
Biotite	17
Chlorite	1
Staurolite	6
Sericite	1
Garnet	trace
Rutile	trace
Pyrite	5
Pyrrhotite	6.5
Chalcopyrite	0.5
Sphalerite	trace

The appearance of the off-cut (strong white etch indicative of abundant plagioclase) clearly differentiates this rock from the other sulfide-poor sample (485823).

In thin section it is found to consist essentially of a varigranular intergrowth of plagioclase, quartz, biotite and staurolite. The quartz and plagioclase form an anhedral aggregate of grain size 0.2 - 2.0 mm. There are also occasional coarser plagioclase grains, to 4.0 mm or so - sometimes showing evidence of accretive crystal growth, and poikiloblastically sieved with granules of quartz and occasional staurolite.

The biotite is a phlogopitic variety, pleochroic from light orange to near colourless. It occurs rather abundantly throughout as sub-oriented flakes up to 1 mm or so in size, and as pockety/lenticular clumps of the same, sometimes crumpled and deformed. Locally the biotite is altered to chlorite.

Staurolite is another accessory, as randomly scattered subhedral grains 0.2 - 1.0 mm in size, often oriented parallel to the general crude foliation. The staurolite sometimes shows marginal alteration to felted sericite.

Sulfides form a prominent disseminated phase. They occur as lenticular pockets up to 5 mm or more in size, generally conformable to the textural grain of the silicate matrix, and in finer-grained form as delicate, semi-connected networks. The fine-grained sulfides clearly occupy an intergranular relation to the silicate aggregate, and locally penetrate and/or marginally replace the silicate grains along cleavages and microfractures. This feature, and the segregation of sulfides as lenticular clumps, are probably the result of remobilization of primary sulfides during metamorphic recrystallization.

Sample 485845 cont.

The sulfides are predominantly pyrrhotite and pyrite. The latter forms subhedral-euhedral grains whilst the pyrrhotite is typically anhedral - mantling pyrite and sometimes cementing fractures in fragmented pyrite.

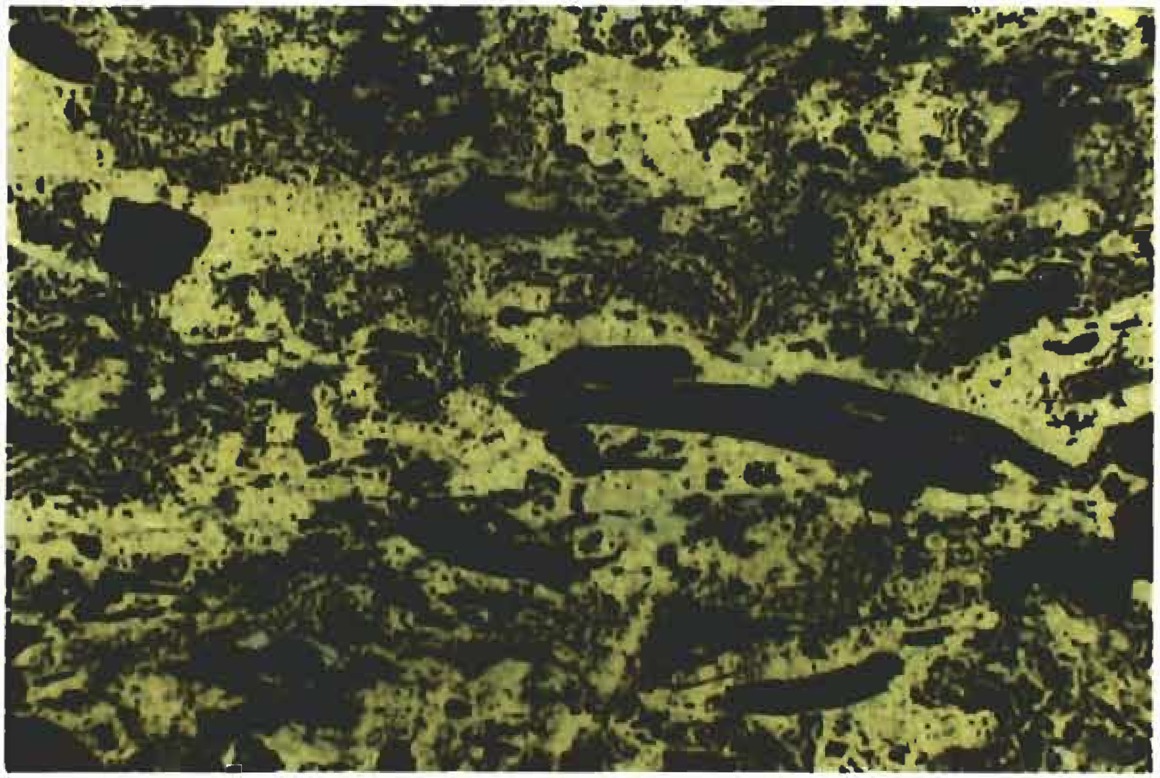
Minor chalcopyrite occurs mainly in fine-grained form as strings of grains apparently controlled by incipient microfracturing normal to the prevalent foliation of the host. It is also seen with pyrrhotite, filling fracture networks in pyrite.

This rock is a high-grade metamorphic of uncertain origin. The assemblage biotite/staurolite is characteristic of a pelitic schist, but the dominance of feldspar over quartz is atypical, and suggests possible felsic igneous affinities.

PHOTOMICROGRAPHS

Photos are by reflected light at a scale of 1cm = 85 microns, except where otherwise stated.

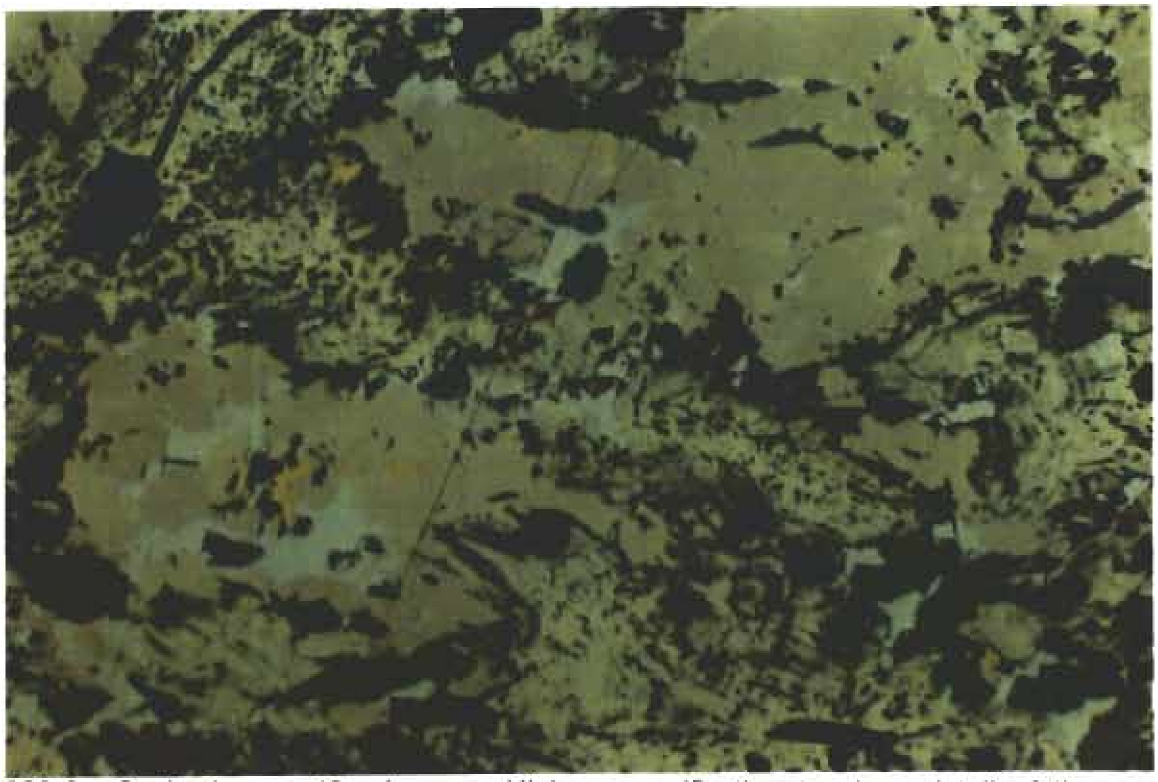
SAMPLE 485822



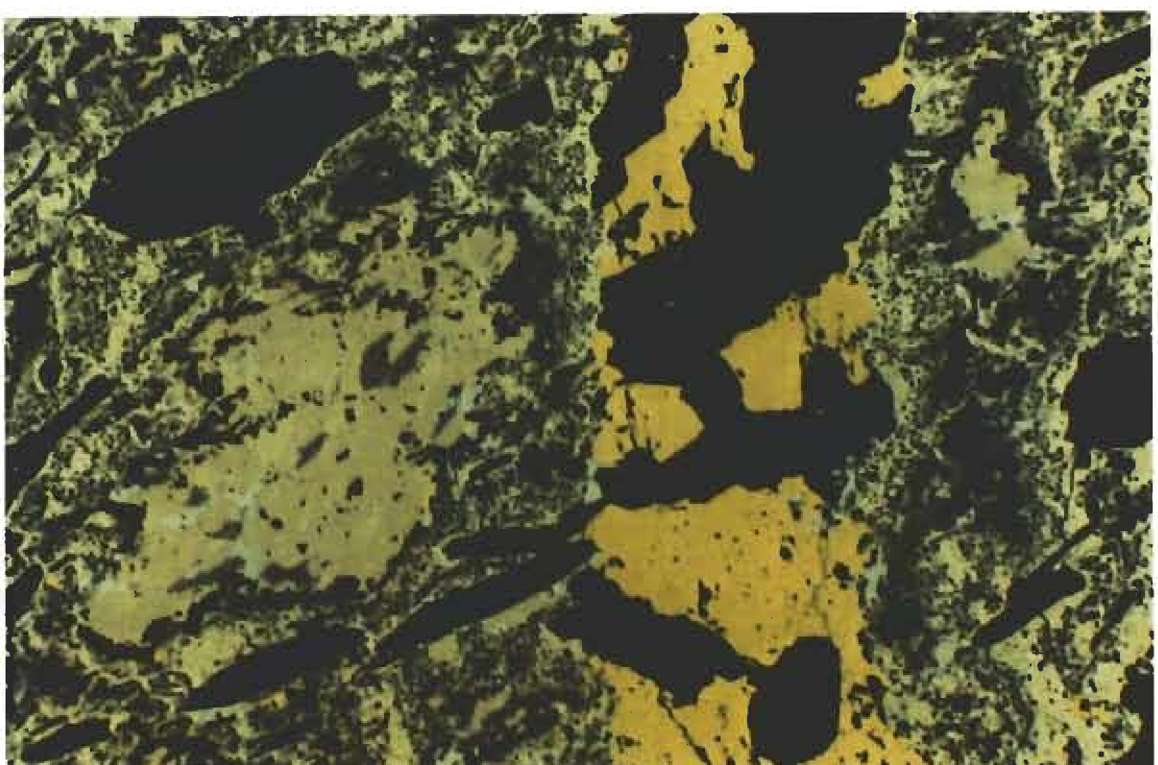
Neg. 383-0: Typical field. Matrix of secondary pyrite/marcasite after pyrrhotite, showing dry-bone texture alternating with patches of better polished, compact, minutely fine-grained Fe sulfides. Dark elongate and equant grains are muscovite flakes and quartz grains. Small battleship-grey grains are muscovite flakes and quartz grains. Small battleship-grey grains are sphalerite. Tiny, light bluish-grey grains (sometimes associated with the sphalerite) are galena.

Neg. 383-2: Another field, showing patches of remnant pyrrhotite (buff colour) in altered matrix of dry-bone secondary pyrite/marcasite. Note small particle size and intimate association of the disseminated sphalerite (battleship-grey) and galena (light bluish grey) with the Fe sulfide matrix.

SAMPLE 485822

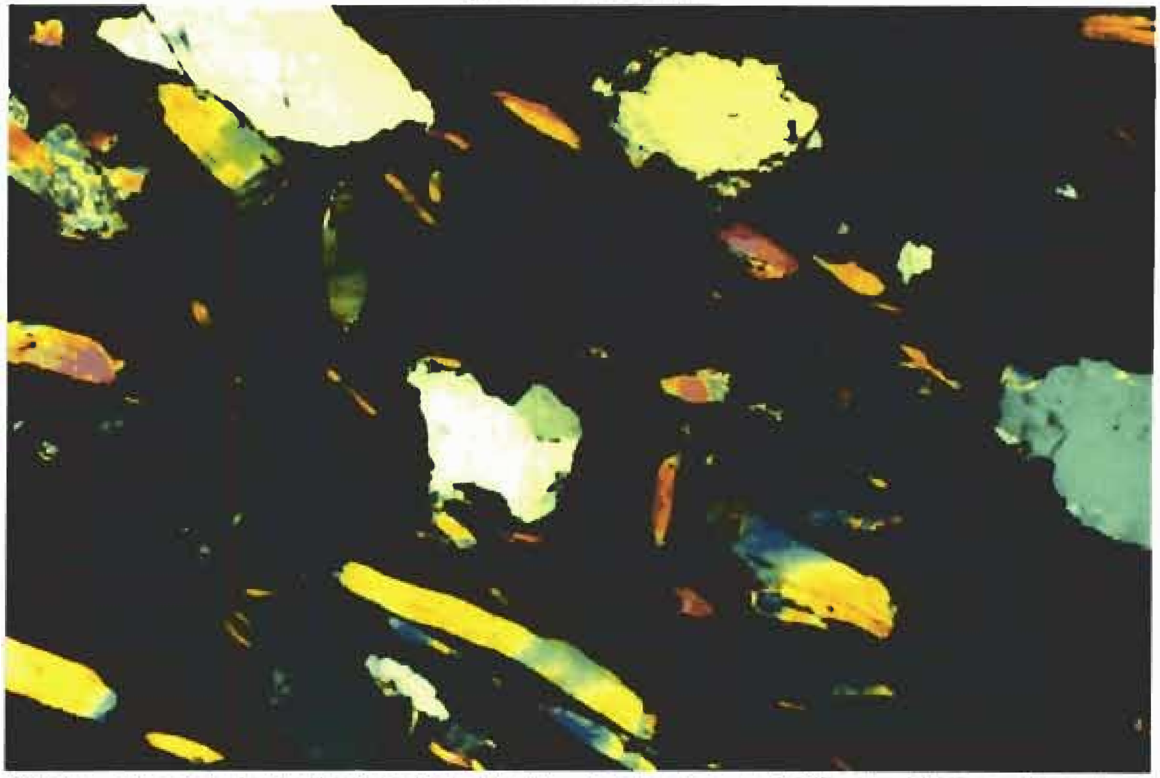


Neg. 383-3: Scale 1cm = 42 microns. Higher magnification to show detail of the mode of occurrence of the Pb-Zn sulfides. Note that galena (light bluish grey) occurs partly intergrown with the sphalerite (grey) and partly independent of it. The intergranular relationship of the galena to the pyrrhotite can best be seen in the unaltered patches (e.g. centre left).



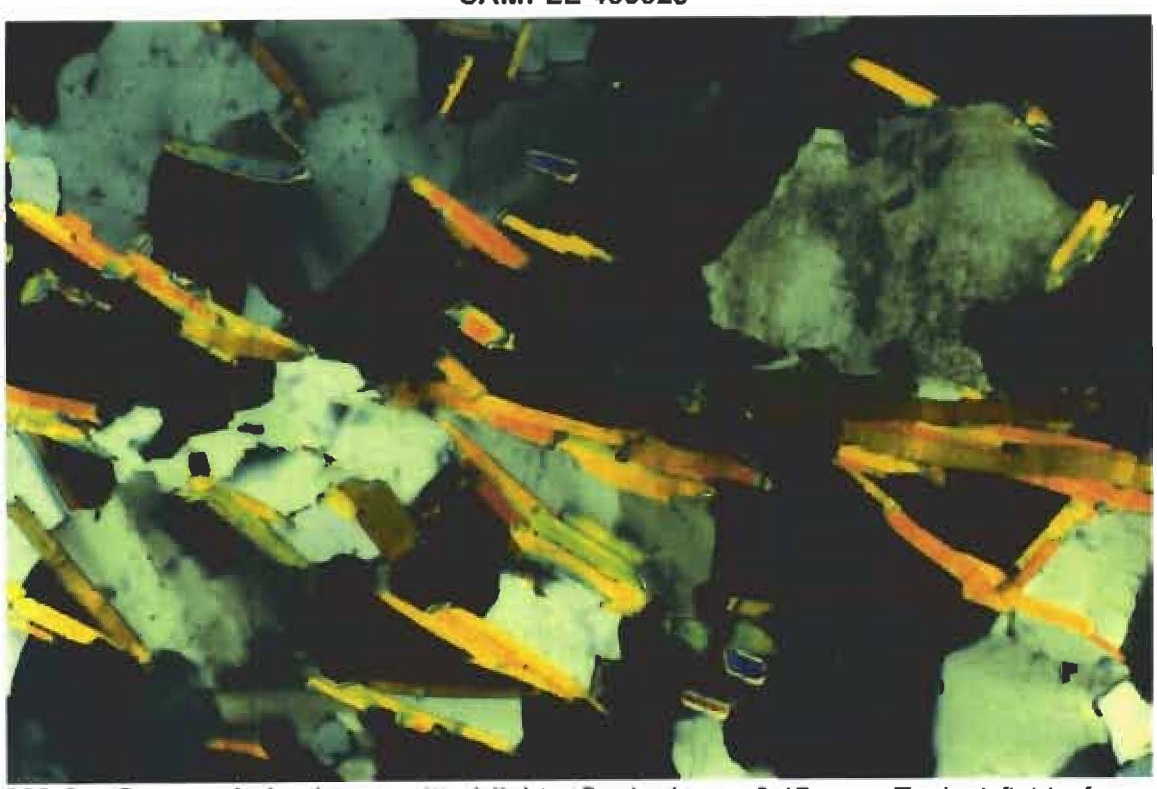
Neg. 383-4: Chalcopyrite (yellow) intergrown with carbonate (dark grey) in a cross-cutting veinlet. The weak overall foliation, defined by the elongation of mica flakes and quartz eyes (dark) is readily apparent in this photo.

SAMPLE 485822



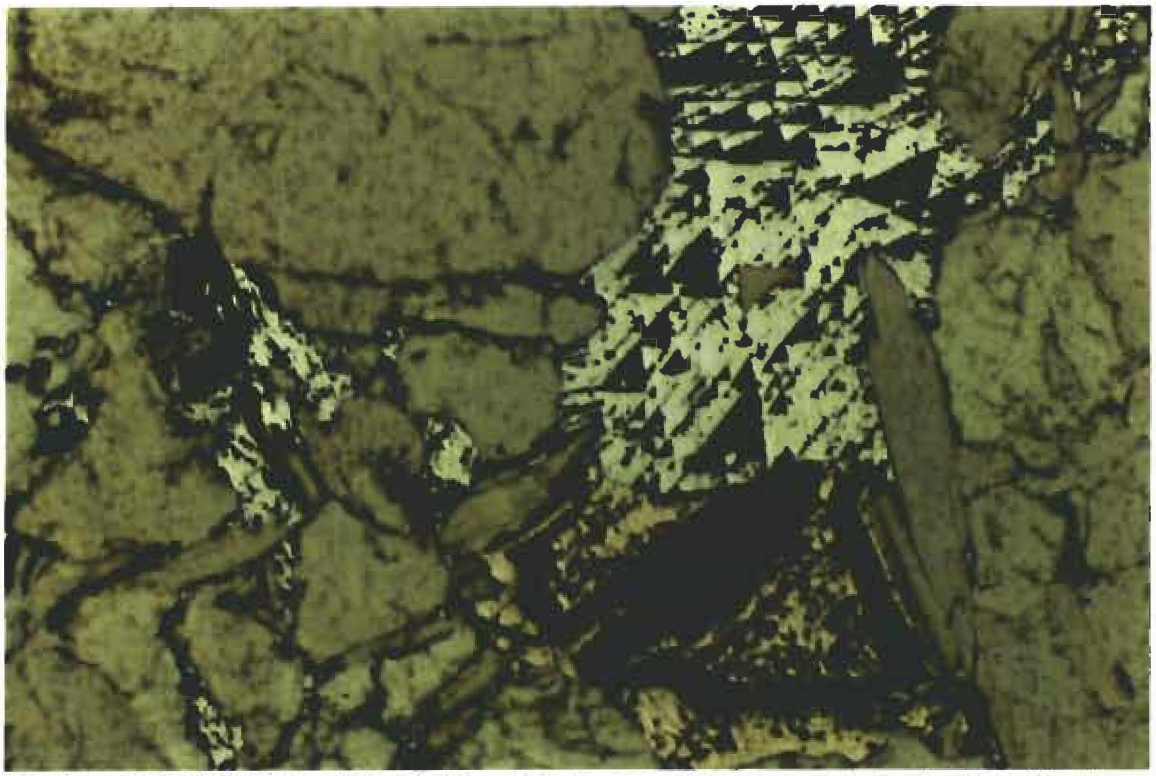
Neg. 383-5: Cross-polarized transmitted light. Scale 1cm = 0.17mm. Shows character of the silicate inclusions in the Fe sulfide matrix (opaque, black). These comprise sub-parallel individual flakes of muscovite (colours) and anhedral grains of quartz (white, grey). Note small-scale raggedness of the quartz outlines.

SAMPLE 485823



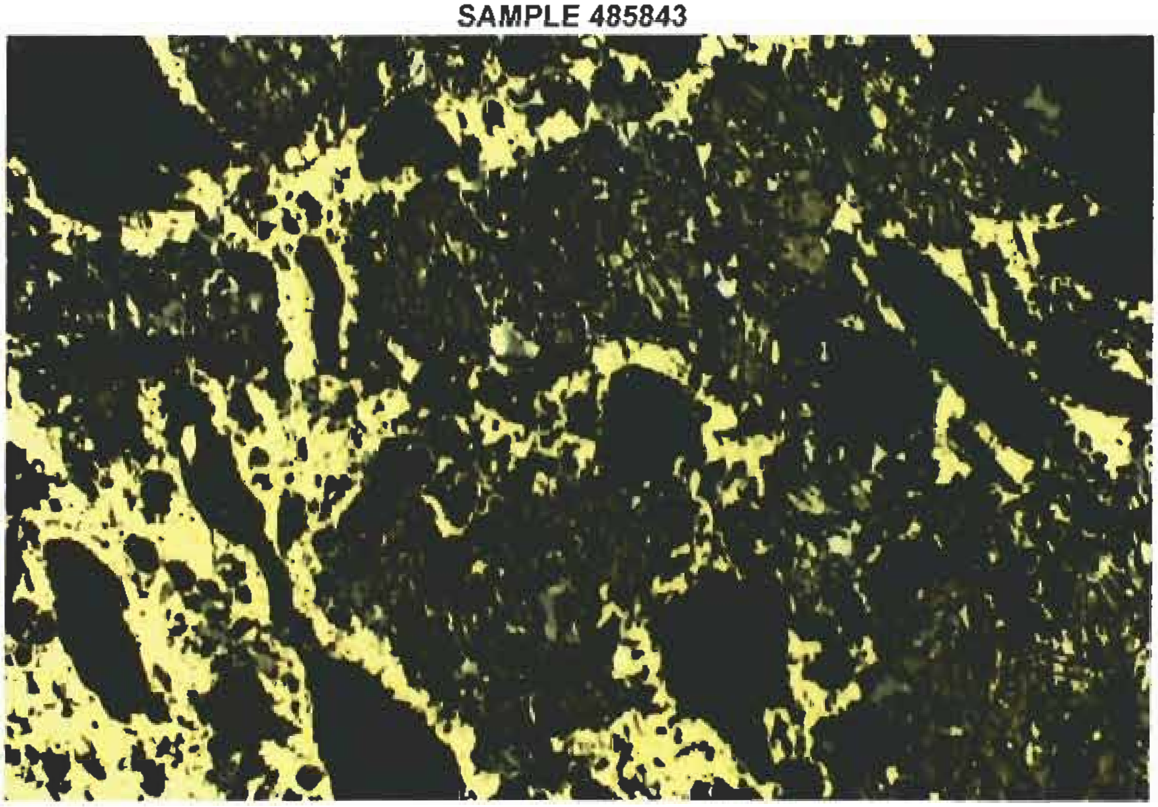
Neg. 383-6: Cross-polarized transmitted light. Scale 1cm - 0.17mm. Typical field of quartzite. Shows slender sub-parallel flakes of muscovite (orange-green) intergranular to a mosaic of quartz (white-grey-black). The patchily turbid area at upper right is intergrown plagioclase. Compare with Neg. 383-5. This rock shows striking similarity to the silicate inclusions in the massive sulfide.

SAMPLE 485823



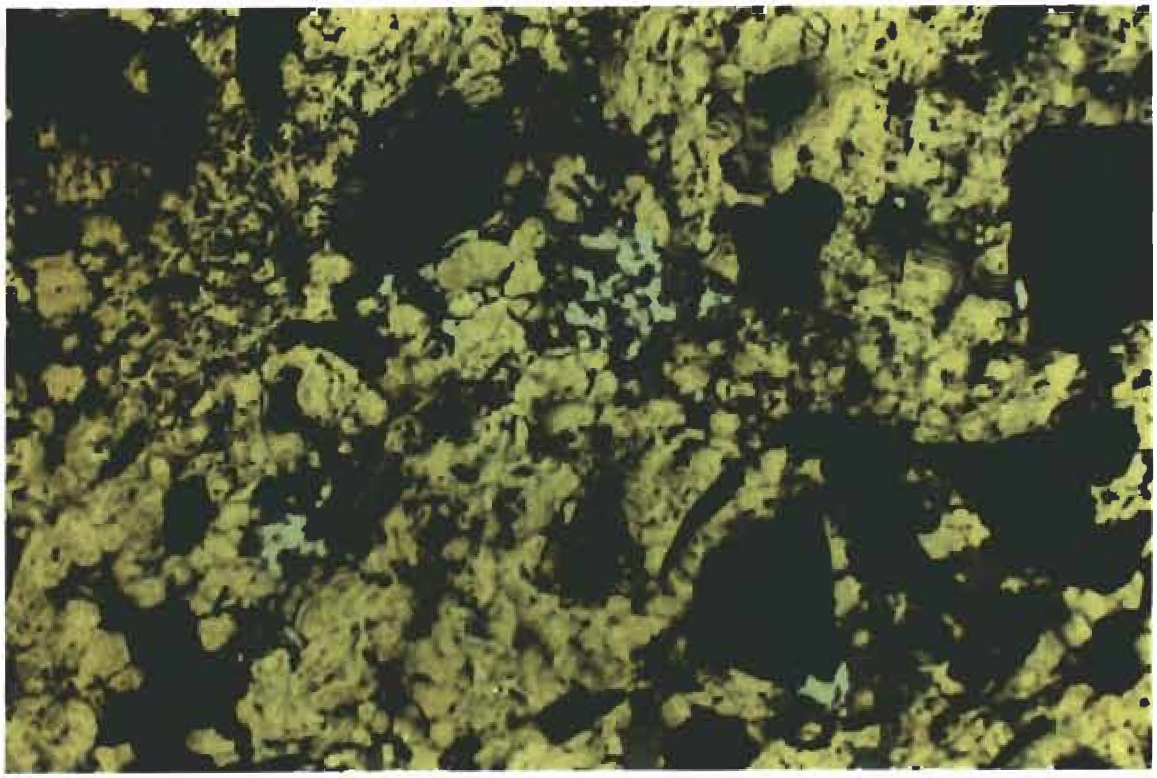
Neg. 383-7: Reflected light. Scale 1cm = 85 microns. Shows a pocket of galena (light grey with triangular black cleavage pits) and adjacent pyrrhotite (buff colour with dark alteration/oxidation; bottom) in quartzite. Note muscovite flake (right) penetrating (or partly enveloped by) the galena. Quartz in contact with the sulfides tends to show rounded outlines (partially replaced?). Sulfides marginal to the main pocket are present as an intergranular network in the quartzite matrix.

SAMPLE 485843

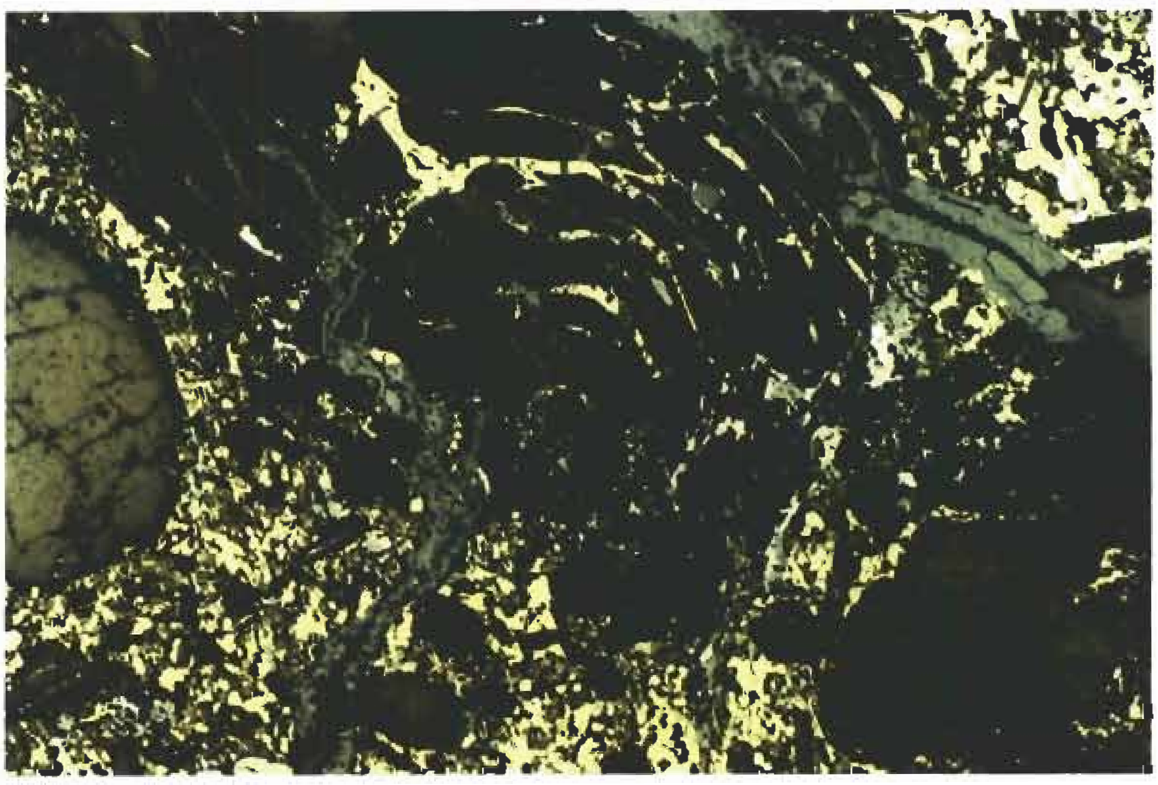


Neg. 383-8 Shows style of alteration in parts of this sample. Dark patches are clumps of partially altered pyrrhotite (with granularity and cleavages emphasized by tarnish). These occur, along with silicate inclusions (dark grey), in a matrix of secondary pyrite/marcasite (cream colour).

SAMPLE 485843

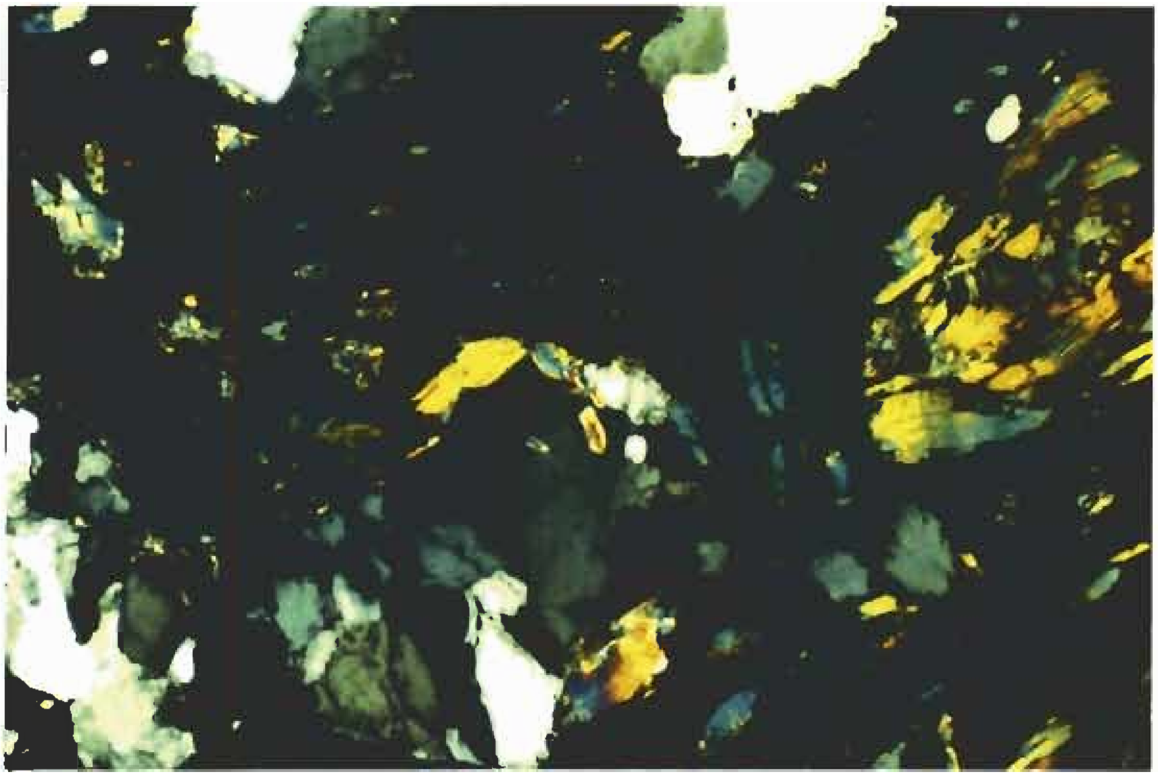


Neg. 383-10: Scale 1cm = 42 microns. Shows textural detail in an area of minutely crustified/pellety secondary pyrite/marcasite. Shows small particle size of disseminated sphalerite/galena intergrowths (e.g. upper centre). Darkest, irregular-shaped clumps are silicates.



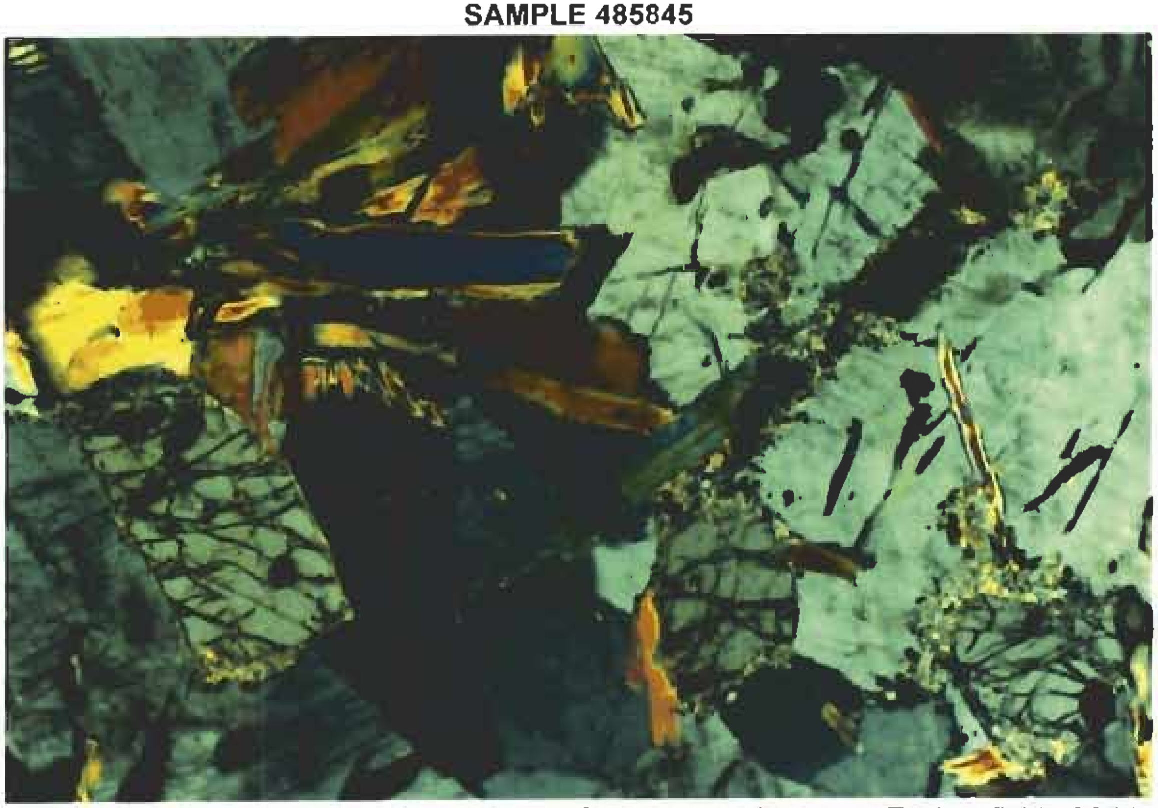
Neg. 383-11: Scale 1cm = 0.17mm. Example of pyrrhotite as intergranular networks in coarse silicate inclusions. That at upper centre is a contorted mass of muscovite; that at bottom right is polygranular quartz. Grey veinlets (upper right; left centre) are limonite.

SAMPLE 485843



Neg. 383-12: Cross-polarized transmitted light. Scale 1cm = 0.17mm. Shows the polygranular character of many of the silicate clasts (?) in this sample. That at lower centre is quartz with intergrown muscovite. That at upper right is a contorted aggregate of muscovite. Others are polygranular quartz. Black background is the massive sulfide matrix.

SAMPLE 485845



Neg. 383-13: Cross-polarized transmitted light. Scale 1cm = 0.17mm. Typical field of feldspathic schist. Shows a cluster of biotite (colours; upper centre) and three subhedral grains of staurolite (cracked; high relief) in an angular mosaic of poorly-twinned plagioclase. The staurolite at bottom right is peripherally altered to felted sericite.

APPENDIX E

ANALYTICAL CERTIFICATES

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

A9529824

Comments:

CERTIFICATE A9529824

(EIA) - EQUITY ENGINEERING LTD.

Project: SO LONG
P.O. # : EQU95-02

Samples submitted to our lab in Vancouver, BC.
This report was printed on 19-OCT-95.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	11	Geochem ring to approx 150 mesh
226	11	0-3 Kg crush and split
3204	11	Save 1 Kg reject for 90 days
229	11	ICP - AQ Digestion charge

* NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
100	11	Au ppb: Fuse 10 g sample	FA-AAS	5	10000
2118	11	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	200
2119	11	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
2120	11	As ppm: 32 element, soil & rock	ICP-AES	2	10000
2121	11	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
2122	11	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2123	11	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
2124	11	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
2125	11	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2126	11	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
2127	11	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
2128	11	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
2150	11	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
2130	11	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
2131	11	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
2132	11	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
2151	11	La ppm: 32 element, soil & rock	ICP-AES	10	10000
2134	11	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
2135	11	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
2136	11	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
2137	11	Na %: 32 element, soil & rock	ICP-AES	0.01	5.00
2138	11	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
2139	11	P ppm: 32 element, soil & rock	ICP-AES	10	10000
2140	11	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
2141	11	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
2142	11	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
2143	11	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
2144	11	Ti %: 32 element, soil & rock	ICP-AES	0.01	5.00
2145	11	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
2146	11	U ppm: 32 element, soil & rock	ICP-AES	10	10000
2147	11	V ppm: 32 element, soil & rock	ICP-AES	1	10000
2148	11	W ppm: 32 element, soil & rock	ICP-AES	10	10000
2149	11	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000
2891	11	Ba ppm: XRF	XRF	5	50000

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To: EQUITY ENGINEERING LTD.

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VANCOUVER, BC
V6B 1N2

Project : SO LONG
Comments:

Page Number : 1-A
Total Pages : 1
Certificate Date: 17-OCT-95
Invoice No. : I9529824
P.O. Number : EQU95-02
Account : EIA

CERTIFICATE OF ANALYSIS A9529824

SAMPLE	PREP CODE		Au ppb FA+AA	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
485822	205	226	10	83.8	0.07	< 2	< 10	< 0.5	238	0.01	>100.0	25	7	2680	>15.00	< 10	< 1	0.02	< 10	0.02	700
485823	205	226	< 5	4.6	0.58	< 2	40	< 0.5	2	0.01	27.0	21	57	107	4.22	< 10	< 1	0.31	< 10	0.49	320
485842	205	226	< 5	4.0	0.29	< 2	10	< 0.5	6	0.01	5.5	1	34	150	3.01	< 10	< 1	0.16	< 10	0.20	115
485843	205	226	< 5	43.8	0.11	< 2	< 10	< 0.5	116	0.02	80.5	26	13	1680	>15.00	< 10	< 1	0.04	< 10	0.01	105
485844	205	226	< 5	8.0	0.03	2240	< 10	< 0.5	38	< 0.01	>100.0	53	6	3260	>15.00	< 10	< 1	0.01	< 10	< 0.01	600
485845	205	226	< 5	3.0	0.14	8	10	< 0.5	8	0.01	>100.0	100	12	6680	>15.00	< 10	< 1	0.03	< 10	< 0.01	675
485846	205	226	< 5	3.6	0.34	162	10	< 0.5	16	< 0.01	80.5	70	32	1200	>15.00	< 10	< 1	0.09	< 10	0.17	325
485847	205	226	25	58.2	2.11	22	10	< 0.5	64	0.01	56.0	35	65	1420	10.25	< 10	< 1	1.17	< 10	1.64	885
485848	205	226	< 5	6.2	1.09	< 2	20	< 0.5	< 2	0.07	19.5	3	52	694	2.17	< 10	< 1	0.31	< 10	1.13	455
485849	205	226	15	12.4	2.51	12	10	< 0.5	32	0.02	16.5	4	71	3150	14.40	< 10	< 1	1.25	< 10	1.66	855
485850	205	226	20	25.4	1.84	28	< 10	< 0.5	86	0.02	19.0	8	30	3160	>15.00	< 10	< 1	0.94	< 10	1.17	690

CERTIFICATION: [signature]

Chemex Labs Ltd.
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To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Project : SO LONG
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Page Number : 1-B
Total Pages : 1
Certificate Date: 17-OCT-95
Invoice No. : I9529824
P.O. Number : EQU95-02
Account : EIA

CERTIFICATE OF ANALYSIS A9529824

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm	Ba ppm
485822	205	226	6	0.01	47	80	>10000	26	< 1	1	< 0.01	< 10	10	3	30	>10000	155
485823	205	226	1	0.01	39	80	4990	2	1	2	0.02	< 10	< 10	11	< 10	5300	420
485842	205	226	1	< 0.01	4	90	2610	< 2	< 1	9	< 0.01	< 10	< 10	4	< 10	1390	690
485843	205	226	2	0.01	39	100	>10000	12	< 1	3	< 0.01	< 10	10	3	< 10	>10000	210
485844	205	226	3	0.01	36	30	2110	8	< 1	< 1	< 0.01	< 10	20	3	130	>10000	165
485845	205	226	1	0.01	26	10	1200	6	< 1	< 1	< 0.01	< 10	20	5	80	>10000	80
485846	205	226	1	< 0.01	71	70	2240	2	1	< 1	< 0.01	< 10	10	12	< 10	>10000	70
485847	205	226	< 1	0.02	22	80	>10000	18	2	3	0.12	< 10	< 10	33	< 10	8060	585
485848	205	226	< 1	< 0.01	5	310	4760	< 2	1	2	0.03	< 10	< 10	13	< 10	4190	295
485849	205	226	1	0.02	38	70	4080	2	4	2	0.09	< 10	< 10	36	< 10	3660	350
485850	205	226	< 1	0.02	52	90	8700	2	3	2	0.08	< 10	10	27	< 10	3190	290

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To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Comments:

CERTIFICATE A9531486

(EIA) - EQUITY ENGINEERING LTD.

Project: SO LONG
P.O. # : EQU95-02

Samples submitted to our lab in Vancouver, BC.
This report was printed on 25-OCT-95.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
244	6	Pulp; prev. prepared at Chemex

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
383	3	Ag oz/T	FA-GRAVIMETRIC	0.1	20.0
312	3	Pb %: Reverse Aqua-Regia digest	AAS	0.01	100.0
316	5	Zn %: Reverse Aqua-Regia digest	AAS	0.01	100.0

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Account : EIA

CERTIFICATE OF ANALYSIS A9531486

SAMPLE	PREP CODE		Ag FA oz/T	Pb %	Zn %
485822	244	--	2.7	7.77	2.64
485843	244	--	1.5	3.15	1.31
485844	244	--	-----	-----	3.96
485845	244	--	-----	-----	3.68
485846	244	--	-----	-----	1.82
485847	244	--	1.9	8.27	-----

CERTIFICATION:

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To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
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A9533186

Comments:

CERTIFICATE A9533186

(EIA) - EQUITY ENGINEERING LTD.

Project: SO LONG
P.O. # : EQU95-02

Samples submitted to our lab in Vancouver, BC.
This report was printed on 13-NOV-95.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
244	3	Pulp; prev. prepared at Chemex

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
902	3	Al2O3 %: XRF	XRF	0.01	100.00
906	3	CaO %: XRF	XRF	0.01	100.00
2590	3	Cr2O3 %: XRF	XRF	0.01	100.00
903	3	Fe2O3 %: XRF	XRF	0.01	100.00
908	3	K2O %: XRF	XRF	0.01	100.00
905	3	MgO %: XRF	XRF	0.01	100.00
1989	3	MnO %: XRF	XRF	0.01	100.00
907	3	Na2O %: XRF	XRF	0.01	100.00
909	3	P2O5 %: XRF	XRF	0.01	100.00
901	3	SiO2 %: XRF	XRF	0.01	100.00
904	3	TiO2 %: XRF	XRF	0.01	100.00
910	3	LOI %: XRF	XRF	0.01	100.00
2540	3	Total %	CALCULATION	0.01	105.00
2891	3	Ba ppm: XRF	XRF	5	50000
2067	3	Rb ppm: XRF	XRF	2	50000
2898	3	Sr ppm: XRF	XRF	2	50000
2973	3	Nb ppm: XRF	XRF	2	50000
2978	3	Zr ppm: XRF	XRF	3	50000
2974	3	Y ppm: XRF	XRF	2	50000

Chemex Labs Ltd.

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VANCOUVER, BC
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Invoice No. : I9533186
P.O. Number : EQU95-02
Account : EIA

CERTIFICATE OF ANALYSIS A9533186

SAMPLE	PREP CODE		Al2O3 % XRF	CaO % XRF	Cr2O3 % XRF	Fe2O3 % XRF	K2O % XRF	MgO % XRF	MnO % XRF	Na2O % XRF	P2O5 % XRF	SiO2 % XRF	TiO2 % XRF	LOI % XRF	TOTAL %	Ba ppm	Rb ppm	Sr ppm	Nb ppm	Zr ppm	Y ppm
485823	244	--	6.13	0.22	0.02	5.89	1.30	0.88	0.04	1.32	0.03	78.95	0.27	3.46	98.51	395	64	146	6	159	14
485842	244	--	10.57	0.09	0.02	4.68	2.81	0.67	0.03	0.75	0.03	74.93	0.50	4.69	99.77	645	112	92	12	150	18
485848	244	--	6.15	0.25	0.05	3.66	1.36	2.00	0.07	0.92	0.10	82.21	0.28	2.20	99.25	315	42	86	8	225	16

CERTIFICATION: [signature]

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
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PHONE: 604-984-0221 FAX: 604-984-0218

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

A9529825

Comments:

CERTIFICATE A9529825

(EIA) - EQUITY ENGINEERING LTD.

Project: SO LONG
P.O. # : EQU95-02

Samples submitted to our lab in Vancouver, BC.
This report was printed on 11-OCT-95.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
201	36	Dry, sieve to -80 mesh
229	36	ICP - AQ Digestion charge

* NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
100	36	Au ppb: Fuse 10 g sample	FA-AAS	5	10000
2118	36	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	200
2119	36	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
2120	36	As ppm: 32 element, soil & rock	ICP-AES	2	10000
2121	36	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
2122	36	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2123	36	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
2124	36	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
2125	36	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2126	36	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
2127	36	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
2128	36	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
2150	36	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
2130	36	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
2131	36	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
2132	36	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
2151	36	La ppm: 32 element, soil & rock	ICP-AES	10	10000
2134	36	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
2135	36	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
2136	36	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
2137	36	Na %: 32 element, soil & rock	ICP-AES	0.01	5.00
2138	36	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
2139	36	P ppm: 32 element, soil & rock	ICP-AES	10	10000
2140	36	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
2141	36	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
2142	36	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
2143	36	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
2144	36	Ti %: 32 element, soil & rock	ICP-AES	0.01	5.00
2145	36	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
2146	36	U ppm: 32 element, soil & rock	ICP-AES	10	10000
2147	36	V ppm: 32 element, soil & rock	ICP-AES	1	10000
2148	36	W ppm: 32 element, soil & rock	ICP-AES	10	10000
2149	36	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

Chemex Labs Ltd.

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To: EQUITY ENGINEERING LTD.

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Project : SO LONG
Comments:

Page Number : 1-A
Total Pages : 1
Certificate Date: 11-OCT-95
Invoice No. : I9529825
P.O. Number : EQU95-02
Account : EIA

CERTIFICATE OF ANALYSIS A9529825

SAMPLE	PREP CODE		Au ppb FA+AA	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
1000E 0000N	201	229	< 5	0.2	1.77	< 2	250	< 0.5	< 2	0.18	< 0.5	6	14	8	1.71	< 10	< 1	0.10	10	0.25	740
1000E 0050N	201	229	< 5	< 0.2	1.72	< 2	190	< 0.5	< 2	0.20	< 0.5	9	21	8	2.07	< 10	< 1	0.10	10	0.42	390
1000E 0100N	201	229	< 5	0.2	3.21	< 2	230	0.5	< 2	0.30	< 0.5	10	26	17	2.55	< 10	< 1	0.18	10	0.41	390
1000E 0150N	201	229	< 5	< 0.2	2.86	< 2	290	0.5	< 2	0.22	< 0.5	10	26	13	2.08	< 10	< 1	0.11	10	0.46	535
1000E 0200N	201	229	< 5	0.2	2.76	< 2	350	0.5	< 2	0.24	< 0.5	8	19	10	2.11	< 10	< 1	0.10	< 10	0.33	1130
1000E 0250N	201	229	< 5	0.2	2.57	2	260	0.5	< 2	0.25	< 0.5	10	21	14	2.38	< 10	< 1	0.13	10	0.38	375
1000E 0300N	201	229	< 5	< 0.2	2.68	< 2	210	0.5	< 2	0.18	< 0.5	13	26	21	2.61	< 10	< 1	0.10	10	0.48	245
1000E 0350N	201	229	< 5	0.4	2.49	< 2	310	0.5	< 2	0.26	0.5	9	20	20	3.05	< 10	< 1	0.11	< 10	0.40	880
1000E 0400N	201	229	< 5	1.0	3.55	2	190	0.5	< 2	0.15	0.5	5	12	14	2.49	< 10	< 1	0.07	< 10	0.23	480
1000E 0450N	201	229	< 5	1.0	3.42	2	200	0.5	< 2	0.19	1.0	7	17	12	2.24	< 10	< 1	0.09	< 10	0.30	660
1000E 0500N	201	229	< 5	0.2	3.14	2	190	0.5	< 2	0.19	1.0	2	17	144	0.90	< 10	< 1	0.06	< 10	0.18	65
1000E 0550N	201	229	< 5	0.4	2.97	< 2	310	0.5	< 2	0.23	1.5	7	17	12	2.41	< 10	< 1	0.09	< 10	0.29	1440
1000E 0600N	201	229	< 5	< 0.2	1.60	< 2	100	0.5	< 2	0.31	0.5	17	25	30	3.02	< 10	< 1	0.14	20	0.45	1405
1000E 0650N	201	229	< 5	0.2	2.78	< 2	180	0.5	< 2	0.20	0.5	8	16	11	2.14	< 10	< 1	0.08	< 10	0.29	385
1000E 0700N	201	229	< 5	0.2	3.11	< 2	310	0.5	< 2	0.29	< 0.5	10	20	10	2.45	< 10	< 1	0.16	10	0.34	420
1000E 0750N	201	229	< 5	0.2	3.28	< 2	220	0.5	< 2	0.22	< 0.5	9	19	14	2.08	< 10	< 1	0.09	10	0.33	325
1000E 0800N	201	229	< 5	< 0.2	3.36	< 2	250	0.5	< 2	0.20	< 0.5	12	29	19	2.65	< 10	< 1	0.10	10	0.49	810
1000E 0850N	201	229	< 5	< 0.2	3.21	< 2	290	0.5	< 2	0.17	< 0.5	10	31	16	2.38	< 10	< 1	0.09	10	0.53	515
1000E 0900N	201	229	< 5	0.2	3.26	< 2	320	0.5	< 2	0.23	< 0.5	8	19	11	2.08	< 10	< 1	0.08	< 10	0.31	1165
1000E 0950N	201	229	< 5	0.2	3.21	< 2	220	1.0	< 2	0.18	< 0.5	17	25	30	3.14	10	< 1	0.07	< 10	0.33	325
1000E 1000N	201	229	< 5	0.2	4.26	< 2	190	0.5	< 2	0.24	< 0.5	8	18	12	2.42	10	< 1	0.09	< 10	0.26	180
1500E 0500N	201	229	< 5	0.4	4.47	2	280	1.0	< 2	0.14	0.5	9	15	14	2.36	10	< 1	0.08	< 10	0.24	555
1500E 0525N	201	229	< 5	0.2	2.82	< 2	140	0.5	< 2	0.15	0.5	9	22	13	2.59	< 10	< 1	0.09	10	0.34	315
1500E 0550N	201	229	< 5	1.4	6.73	2	310	5.5	2	0.40	11.0	28	40	485	5.36	10	1	0.24	10	0.44	2620
1500E 0575N	201	229	< 5	0.2	2.39	< 2	360	0.5	< 2	0.21	5.5	4	12	10	1.65	< 10	< 1	0.08	< 10	0.16	780
1500E 0600N	201	229	< 5	1.4	4.63	< 2	220	1.0	< 2	0.19	4.5	18	22	49	2.70	10	< 1	0.11	< 10	0.33	610
1500E 0625N	201	229	< 5	1.0	3.41	< 2	270	0.5	< 2	0.24	0.5	11	32	36	2.90	10	< 1	0.17	10	0.62	345
1500E 0650N	201	229	< 5	0.6	3.54	< 2	230	0.5	< 2	0.26	0.5	11	26	28	2.67	10	< 1	0.13	10	0.47	380
1500E 0675N	201	229	< 5	0.4	3.82	2	210	0.5	< 2	0.19	1.5	11	16	15	2.25	< 10	< 1	0.08	< 10	0.25	840
1500E 0700N	201	229	< 5	0.2	2.36	< 2	210	0.5	< 2	0.26	0.5	11	31	24	4.12	< 10	< 1	0.16	10	0.42	640
1500E 0750N	201	229	< 5	0.2	3.21	< 2	230	0.5	< 2	0.37	< 0.5	19	29	13	2.82	10	< 1	0.20	10	0.50	1255
1500E 0800N	201	229	< 5	< 0.2	3.10	< 2	390	1.0	< 2	0.35	0.5	10	29	14	2.47	10	< 1	0.19	10	0.45	1105
1500E 0850N	201	229	< 5	< 0.2	2.75	< 2	550	0.5	< 2	0.36	< 0.5	9	17	12	2.25	< 10	< 1	0.15	10	0.28	1415
1500E 0900N	201	229	< 5	0.2	3.81	2	230	1.0	2	0.39	< 0.5	10	26	15	2.47	< 10	< 1	0.16	10	0.42	455
1500E 0950N	201	229	< 5	< 0.2	2.92	< 2	260	1.0	< 2	0.29	< 0.5	14	24	19	3.34	< 10	< 1	0.20	20	0.61	860
1500E 1000N	201	229	< 5	< 0.2	3.70	< 2	220	1.0	< 2	0.15	< 0.5	15	35	26	2.94	10	< 1	0.15	10	0.60	305

CERTIFICATION: ____________

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: EQUITY ENGINEERING LTD.

207 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N2

Project : SO LONG
Comments:

Page Number : 1-B
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P.O. Number : EQU95-02
Account : EIA

CERTIFICATE OF ANALYSIS A9529825

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
1000E 0000N	201	229	< 1	0.03	21	1230	16	< 2	1	22	0.08	< 10	< 10	28	< 10	198
1000E 0050N	201	229	< 1	0.02	23	610	12	< 2	1	18	0.08	< 10	< 10	29	< 10	210
1000E 0100N	201	229	< 1	0.04	62	2020	12	< 2	2	46	0.12	< 10	< 10	32	< 10	208
1000E 0150N	201	229	< 1	0.03	44	950	12	< 2	3	23	0.14	< 10	< 10	33	< 10	166
1000E 0200N	201	229	< 1	0.03	22	4320	14	< 2	2	25	0.10	< 10	< 10	33	< 10	296
1000E 0250N	201	229	< 1	0.03	57	720	26	< 2	2	41	0.12	< 10	< 10	32	< 10	240
1000E 0300N	201	229	< 1	0.01	41	570	26	< 2	2	22	0.12	< 10	< 10	35	< 10	156
1000E 0350N	201	229	< 1	0.02	29	2540	60	< 2	1	40	0.09	< 10	< 10	32	< 10	408
1000E 0400N	201	229	< 1	0.02	20	1370	102	< 2	1	21	0.12	< 10	< 10	30	< 10	416
1000E 0450N	201	229	< 1	0.03	24	1790	42	< 2	2	28	0.12	< 10	< 10	29	< 10	720
1000E 0500N	201	229	< 1	0.02	30	1120	100	< 2	1	41	0.06	< 10	< 10	18	< 10	356
1000E 0550N	201	229	< 1	0.03	20	3860	34	< 2	2	34	0.11	< 10	< 10	31	< 10	774
1000E 0600N	201	229	< 1	0.01	48	700	56	< 2	3	41	0.08	< 10	< 10	34	< 10	282
1000E 0650N	201	229	< 1	0.04	44	660	14	< 2	2	35	0.13	< 10	< 10	37	< 10	274
1000E 0700N	201	229	< 1	0.04	82	350	14	< 2	2	53	0.13	< 10	< 10	36	< 10	526
1000E 0750N	201	229	< 1	0.03	54	700	12	< 2	2	28	0.15	< 10	< 10	33	< 10	152
1000E 0800N	201	229	< 1	0.02	40	650	12	< 2	3	21	0.15	< 10	< 10	42	< 10	138
1000E 0850N	201	229	< 1	0.02	48	640	8	< 2	3	22	0.15	< 10	< 10	39	< 10	122
1000E 0900N	201	229	< 1	0.03	22	2740	44	< 2	2	48	0.13	< 10	< 10	33	< 10	236
1000E 0950N	201	229	< 1	0.02	50	270	206	< 2	2	42	0.12	< 10	< 10	42	< 10	144
1000E 1000N	201	229	< 1	0.03	31	330	12	< 2	2	73	0.16	< 10	< 10	35	< 10	96
1500E 0500N	201	229	< 1	0.03	82	1400	32	< 2	2	25	0.14	< 10	< 10	31	< 10	354
1500E 0525N	201	229	< 1	0.03	42	910	38	< 2	2	21	0.11	< 10	< 10	36	< 10	536
1500E 0550N	201	229	1	0.03	376	1310	1035	< 2	4	93	0.13	< 10	< 10	44	< 10	4530
1500E 0575N	201	229	< 1	0.03	12	4480	42	< 2	1	45	0.09	< 10	< 10	25	< 10	1110
1500E 0600N	201	229	< 1	0.02	128	1790	126	< 2	2	31	0.13	< 10	< 10	35	< 10	2230
1500E 0625N	201	229	< 1	0.03	54	420	152	< 2	2	35	0.14	< 10	< 10	37	< 10	956
1500E 0650N	201	229	< 1	0.03	54	520	120	< 2	2	42	0.15	< 10	< 10	38	< 10	524
1500E 0675N	201	229	< 1	0.03	33	1610	160	< 2	2	36	0.14	< 10	< 10	33	< 10	856
1500E 0700N	201	229	1	0.01	26	980	124	< 2	2	67	0.09	< 10	< 10	39	< 10	466
1500E 0750N	201	229	< 1	0.02	85	1300	14	< 2	2	74	0.13	< 10	< 10	38	< 10	374
1500E 0800N	201	229	< 1	0.03	65	940	10	< 2	3	60	0.13	< 10	< 10	38	< 10	390
1500E 0850N	201	229	< 1	0.03	59	1110	12	< 2	2	84	0.09	< 10	< 10	30	< 10	252
1500E 0900N	201	229	< 1	0.03	48	1020	12	< 2	3	88	0.14	< 10	< 10	34	< 10	162
1500E 0950N	201	229	< 1	0.01	49	510	18	< 2	2	58	0.07	< 10	< 10	37	< 10	142
1500E 1000N	201	229	< 1	0.01	44	590	10	< 2	3	25	0.14	< 10	< 10	43	< 10	120

CERTIFICATION: ____________

APPENDIX F

ENGINEER'S CERTIFICATE

ENGINEER'S CERTIFICATE

I, HENRY J. AWMACK, of 1735 Larch Street, Vancouver, in the Province of British Columbia, DO HEREBY CERTIFY:

1. THAT I am a Consulting Geological Engineer with offices at Suite 207, 675 West Hastings Street, Vancouver, British Columbia.

2. THAT I am a graduate of the University of British Columbia with an honours degree in Geological Engineering.

3. THAT I am a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia.

4. THAT this report is based on fieldwork carried out under my direction during September 1995, on publicly-available reports and on drill logs and sections graciously provided by Doug Leishman and Werner Gruenwald. I have examined the property in the field.

DATED at Vancouver, British Columbia, this 28th day of June, 1996.

Henry J. Awmack, P.Eng.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
H. J. AWMACK