CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

GEOLOGY AND GEOCHEMISTRY
OF THE
PLATE CLAIM GROUP

Claim Sheet Number 104-0/15E and W

Lat.: 59°50'N
Long.: 130°45'W

CLAIMS - Plate 1: 18 units
Plate 2: 18 units
Plate 3: 8 units
Plate 4: 20 units

ATLIN AND LIARD MINING DIVISIONS

BRITISH COLUMBIA

By:

M. J. Crandall, B. Sc.
Work Completed June - August, 1980

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SUMMARY

The PLATE 1 to 4 mineral claims are located at 59°50'N, 130°45'W within N.T.S. map sheets 104 0/15E and W, northern British Columbia. PLATE 1 and 2 were staked on June 28th, 1979 to cover a Geological Survey of Canada stream sediment Cu-Zn-Ag-U anomaly released in o. F. 561 on June 8th, 1979 and a known antimony occurrence, the TAN showing. The PLATE 3 and 4 claims were staked on August 9, 1980 to cover a stream sediment Ag anomaly resulting from a Canadian Occidental survey conducted in June of 1980.

The PLATE claims are underlain by Carboniferous quartzites, graphitic quartzites and pyyllites; these units strike north and northwest and dip 10 to 30° west. The metasediments are locally complexly folded and intruded by dykes, sills and stocks of diorite, quartz-feldspar porpyhritic diorite, quartz monzonite/granodiorite and quartz veins, possibly related to either the Jurassic Plate Creek Stock or Nome Lake Batholith. A post-Pleistocene limonite-cemented breccias outcrop is in the stream beds of the PLATE 3 and 4 claims.

A total of 74 rock, 9 heavy mineral, 75 stream sediment and 519 soil samples were collected and analyzed for Cu, Zn, Ag and a number of other elements. In addition, 33 stream water samples were collected and analyzed in the field for pH and specific conductivity for a total of 1927 determinations.

Of the rock values obtained, four of the metasediments had significant Ag contents in excess of 1.6 ppm and as high as

6.4 ppm.

One quartz vein sample contained 2.6 ppm Ag. Another quartz vein sample contained 23 ppm Sb and a third had 440 ppb Au in it. Significant Cu and Zn values were obtained from limonite cemented breccias (up to 186 ppm Cu and up to 330 ppm Zn). The limonite cemented breccias that were analyzed were low in Ag (less than 1 ppm).

Heavy mineral, stream sediments and soils have coincident localized Ag anomalies in the western area as well as significant Cu and Zn values. Acidic Fe-bearing streams drain the anomalous area, however, whether these are related to the Ag concentration in bedrock is not known. Ag values range up to 4.4 ppm in soils, up to 2.8 ppm in heavy mineral concentrates and up to 0.45 oz/ton Ag in stream sediments.

In the eastern valley a 32 station Ag anomaly covering a 1000 m x 500 m area occurs in soils. Here Ag values range from 1.6 to 7.2 ppm with a coincident spot high of Cu (164 ppm) and Zn (2100 ppm). Another small area of high Ag in this valley is coincident with a local Cu-Zn anomaly.

The source of anomalous Ag, Cu and Zn in soils, stream sediments and heavy minerals is at present unknown. Locally anomalous values and the presence of Fe-bearing metasedimentary rocks suggest a possible local stratigraphic concentration of metals, structurally control (ie. mineralization along faults and/or fractures) is also suggested.

Recommendations for follow-up work on the PLATE claims include determining the relationship between coincident acid-Fe-bearing streams, soil and stream sediment Ag anomalies. Waters and precipitates from orifices of limonitic seeps should be sampled and analyzed in the western area. Systematic soil sampling, excavating soil pits, prospecting, geological mapping and detail rock sampling will possibly determine a source for the multi-media Ag anomaly in both the western and eastern area.

I. INTRODUCTION

The PLATE 1 - 2 Mineral Claims were staked on June 28, 1979 to cover a Cu, Zn, Ag and U stream sediment anomaly outlined by the Geological Survey of Canada-Uranium Reconnaissance Program data released in Open File 561 on June 8th, 1979. During July of 1979, Canadian Occidental conducted reconnaissance geological mapping, prospecting and multi-media geochemical surveys over the PLATE Claims (Sacks, 1979). The first phase follow-up incorporating mapping, soil and stream sediment geochemical surveys were carried out by Canadian Occidental personnel in June of 1980. The PLATE 3-4 Mineral Claims were staked on August 9, 1980 to cover a stream sediment Ag anomaly in the western valley adjacent to the original PLATE Claims. Subsequent detailed geological mapping, soil and stream sediment geochemical surveys were completed in August, 1980. This report describes the geology of the claim area and presents the results of the 1980 geochemical surveys.

II. LOCATION AND ACCESS

The PLATE Claim Group is located at 130°45'W, 59°50'N within N.T.S. map sheets 104 O/15E and 15 W (Figure 1). The claim group comprises 64 units straddling the boundary between the Atlin and Liard Mining Districts, British Columbia (Figure 2).

The claims are situated approximately 24 kilometers south of kilometer 1144 of the Alaska Highway, and 3.2 kilometers south of Plate Lake (Figure 1). Access to the claims is via helicopter from the Alaska Highway.

III. PHYSIOGRAPHY AND VEGETATION

Relief over the PLATE Claims is 793 m (2600 ft.) between elevations of 1951 m (6400 ft.) and 1159 m (3800 ft)). The central portion of the claim group (PLATE 1) consists of a steep, rocky hill grading easterly towards a relatively flat, swampy valley (PLATE 2). The western half of the claim group (PLATE 3-4) consists of steep talus sloping westerly into a low-lying valley. The western claim boundary is adjacent to a north-south-trending chain of lakes. Deeply incised gorges drain the central ridge with streams running north from the central area (PLATE 4). All but the extreme northern and western portions of the claim group are above treeline and vegetation comprises grass, moss and sparse brush. The lowest areas lie below the treeline and are covered by dense spruce forests and swamp.

IV. PREVIOUS WORK

The TAN occurrence (see Appendix IV) is believed to be located somewhere in the northern portion of the PLATE Claims. The claims were staked in 1969 or 1970, by Wye Lake Resources Ltd., Vancouver, B.C. to cover a showing of disseminated stibnite within a quartz vein. Geological mapping and trenching were done during 1970; no evidence, however, of these workings was found and it is still uncertain whether this showing lies within the present PLATE Claims.

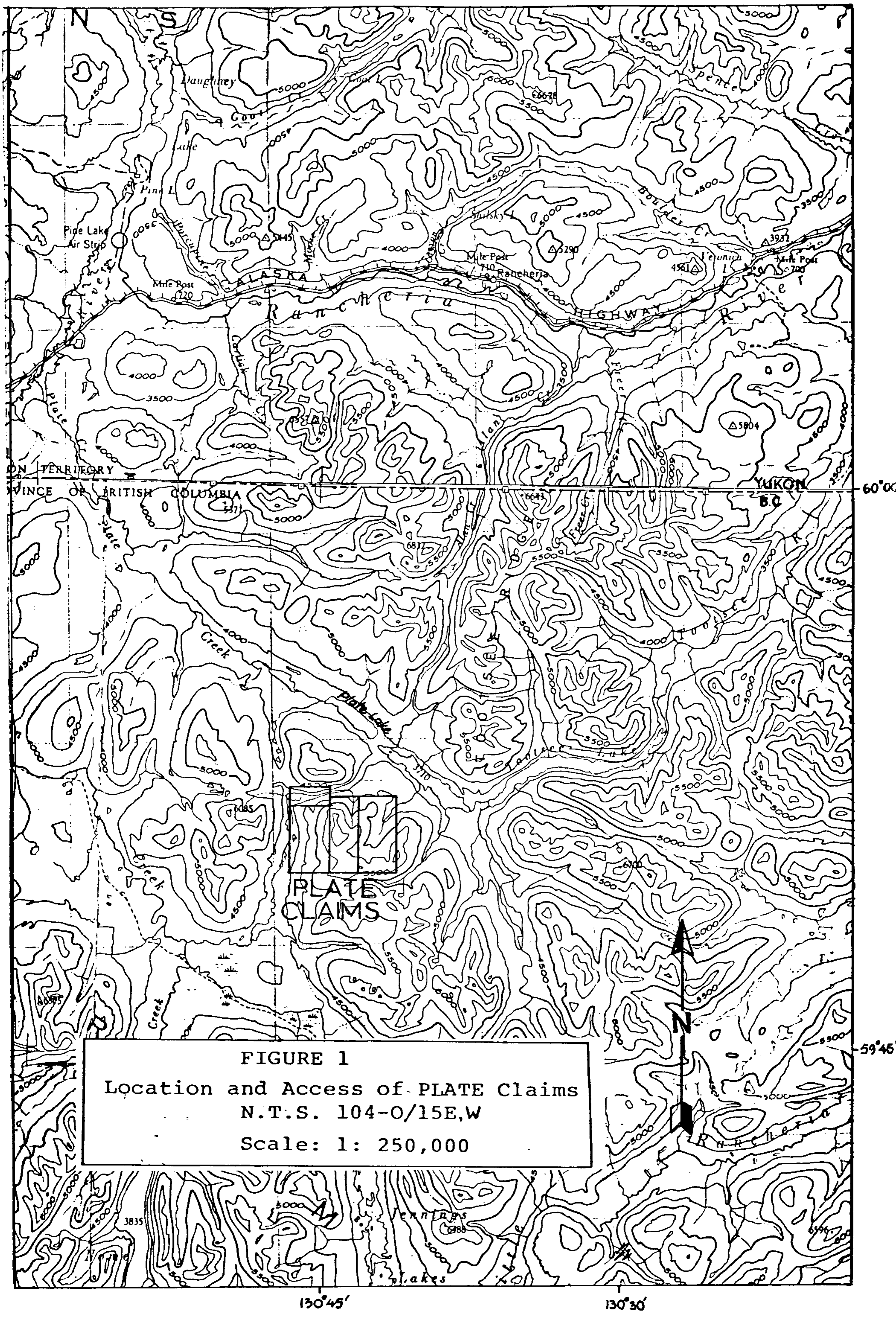


FIGURE 1
Location and Access of PLATE Claims
N.T.S. 104-O/15E,W
Scale: 1: 250,000

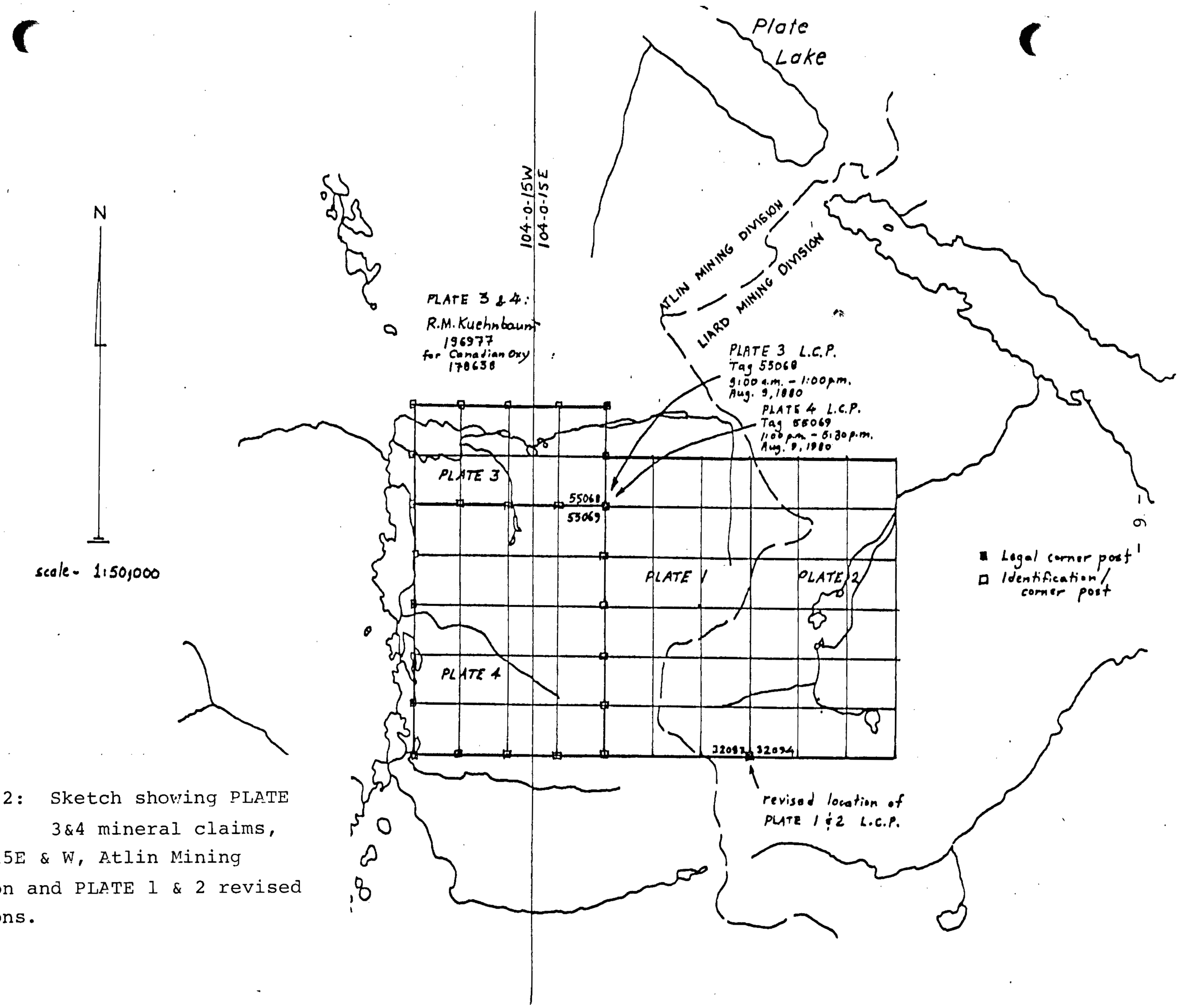


FIGURE 2: Sketch showing PLATE 3&4 mineral claims, 104-0-15E & W, Atlin Mining Division and PLATE 1 & 2 revised locations.

The Jennings River (104-0) sheet was geologically mapped by the Geological Survey of Canada during the period 1944 to 1967 (Gabrielse, 1968). In 1978, the Geological Survey of Canada conducted a reconnaissance stream sediment and water sampling survey over the Jennings River sheet. Results were released in Open File 561 on June 8th, 1979. The PLATE 1-2 Claims were staked on June 28th, 1979 to cover a Cu (162 ppm), Zn (775 ppm), Ag (1 ppm) and U (27.9 ppm) stream sediment anomaly, as well as the TAN occurrence.

In July of 1979, Canadian Occidental conducted reconnaissance geological mapping, prospecting and a geochemical survey of soils, stream sediments, stream waters and heavy minerals over the claim group (Sacks, 1979). A heavy mineral sample from the eastern gulch contained 230 ppm Cu, 315 ppm Zn, 1.0 ppm Ag, 660 ppb Au and 40 ppm W. Stream sediments from the same gulch were high in Cu (62 to 164 ppm), Zn (74 to 260 ppm) and Ag (up to 1.6 ppm).

V. CLAIM STATUS

The work carried out on PLATE 1, 2, 3, 4 in 1980 has not been applied for assessment credit to date. Pending approval for requests made for work done in 1979, the claim status is as follows:

Claim Name	No. Units	Date Staked	Date Recorded	Valid Until
PLATE 1	18	June 28, 1979	July 16, 1979	July 16, 1982?
PLATE 2	18	June 28, 1979	July 16, 1979	July 16, 1982?
PLATE 3	8	August 9, 1980	August 14, 1980	August 14, 1981
PLATE 4	20	August 9, 1980	August 14, 1980	August 14, 1981

VI. WORK COMPLETED - 1980

6.1 Claim Staking

The PLATE 3-4 Claims were staked for the company by R. M. Kuehnbaum of Canadian Occidental on August 9, 1980. A total of 28 units, covering an area of 7 km^2 were staked adjoining the PLATE 1-2 Claim Group. Anniversary date is August 14th.

6.2 Geological Mapping

R.H. Wallis, C.F. Gleeson (Consultant), R.M. Kuehnbaum and G. Tetu visited the PLATE Claims for 1/6 day on an inspection/ geological evaluation trip on June 4, 1980. One June 20 to 22, 1980, T. Warner and M.J. Crandall mapped and prospected the PLATE 1-2 Claim Group. R.M. Kuehnbaum returned to the property on July 4, 1980 for geological mapping on the extreme western boundary of the PLATE 1 Claim.

On August 10 to 20, 1980, R.M. Kuehnbaum and M. J. Crandall mapped and prospected the PLATE 3-4 Claims. R.H. Wallis, R.M. Kuehnbaum, C.J. Richardson and M.J. Crandall revisited the PLATE Claim Group on August 27, 1980 for 1/3 day for geological re-evaluation of the property. 10.4 man days of work was performed on PLATE 1 and 2 and 4.7 man days of work on PLATE 3 & 4 for a total of 15.1 man days of work.

Map bases used for 1980 surveys were 1:5,000 blow-ups from 1:50,000 N.T.S. map sheets 104 0/15E, W; 1:86,000 scale air photos obtained from E.M.R. series A24795-66 to 68 were used for ground coverage and additional control was established from 1:5000 air photo blow-ups of A24795-66.

6.3 Geochemistry

A total of 9 heavy mineral, 75 stream sediment, 33 stream water and 519 soil samples were collected over the

PLATE Claim group by R. Hauseux, B. McNeill, A. Jarvis, M. Mattiacci, M. Oberc, C. Scott, T.L. Warner and M.J. Crandall. In addition, M.J. Crandall, R.M. Kuehnbaum and T.L. Warner collected 74 rock samples during the mapping surveys. A total fo 42.6 man-days of work were performed. All samples, excluding stream waters, were sent to Chemex Labs Ltd., North Vancouver B.C. for geochemical analysis. Analytical results are listed in Appendix I. Stream waters were measured for pH and specific conductivity in the field. Details of geochemical samples are listed in Table 1.

6.4 Radiometrics

Radiometric readings were taken at most soil and stream sediment sample sites in conjunction with the above mentioned geochemical sampling. A total of 503 readings were taken at ground level using URTEC model UG-130 scintillometers set at TC1, at 10 seconds channel. Results are plotted on Plan 7.

6.5 SUMMARY OF WORK COMPLETED - 1980

TABLE 1

PLATE 1 - 2

Type of Work	Man-Days Work	No. Samples	Mo	Cu	Pb	Zn	Ag	Au	Sn	W	Sb	U	Th	No. Determinations
Geological Mapping	10.4													
Geochemistry	16.0													
i) Rock		35	17	33	17	32	35	21	-	1	5	--	-	161
ii) Heavy Mineral		2	2	2	2	2	2	2	2	2	2	2	2	22
iii) Stream Sediment		7	-	7	3	7	7	-	-	-	-	-	-	24
iv) Stream Water		5	-	-	-	-	-	-	-	-	-	-	-	-
v) Soil		342	-	342	-	342	342	-	-	-	-	-	-	726
Radiometric Helicopter Hours Bell 206-B	(10.9)													
Sub Total	26.4	391	19	384	22	383	386	23	2	3	7	2	2	933

PLATE 3-4

Type of Work	Man-Days Work	No. Samples	Mo	Cu	Pb	Zn	Ag	Au	Sn	W	Sb	U	Th	No. Determinations
Geological Mapping	4.7													
Geochemistry	11.5													
i) Rock		39	2	39	39	39	39	8	-	2	-	-	-	168
ii) Heavy Mineral		7	7	7	7	7	7	7	7	7	7	7	7	77
iii) Stream Sediment		68	-	68	14	68	68	-	-	-	-	--	-	218
iv) Stream Waters		28	-	-	-	-	-	-	-	-	-	-	-	--
v) Soil		177	-	177	-	177	177	-	-	-	-	-	-	531
Radiometrics Helicopter Hours Bell 206-B	(9.0)													
Sub Total	16.2	319	9	291	60	291	291	15	7	9	7	7	7	994
TOTAL	42.6	710	28	675	82	674	677	38	9	12	14	9	9	1927

6.6 Names and Addresses of Personnel

Dr. R. H. Wallis Canadian Occidental Petroleum Ltd. Minerals Division Ste. 311 - 215 Carlingview Drive Rexdale, Ontario M9W 5X8	Chief Geologist
R.M. Kuehnbaum, M. Sc. Same address as above	Project Supervisor
G. Tetu, B.Sc. Same address as above	Project Geologist
T. L. Warner, B. Sc. Same address as above	Geologist
M. J. Crandall, B. Sc. Same address as above	Senior Assistant
C. J. Richardson, B. Sc. Same address as above	Senior Assistant
R. Hauseux Same address as above	Junior Assistant
A. Jarvis Same address as above	Junior Assistant
M. Mattiacci Same address as above	Junior Assistant
B. McNeill Same address as above	Junior Assistant
M. Oberc Same address as above	Junior Assistant
C. Scott Same address as above	Junior Assistant
Dr. C. F. Gleeson C. F. Gleeson and Associates 764 Belfast Road Ottawa, Ontario K1G 0Z5	Consulting Geochemist

VII. GEOLOGY

7.1 General Geology (Plan 1,8)

Mapping by Gabrielse (1968) shows the PLATE Claims to be underlain by Carboniferous chert, argillite, slate, quartzite, hornfels and limestones which have been intruded by Jurassic biotite-hornblende quartz diorite, gabbro and granodiorite of the Plate Creek Stock to the north of the claim group and by Jurassic biotite-hornblende granodiorite, minor diorite and quartz monzonite of the Nome Lake Batholith to the south of the claims. Localized volcanic rocks are reported to the east of the claim group.

Mapping by Canadian Occidental personnel shows the claims to be underlain by complexly folded and faulted interbedded quartzite, siltstone, phyllite, graphitic quartzite and graphite-chlorite schists. The metasediments extend accross the valley north of the claim group and include the area previously mapped as the Plate Creek Stock by Gabrielse (1968). These metasediments are intruded by sills and stocks of biotite-(hornblende) quartz monzonite, hornblende-biotite granodiorite/diorite, quartz-feldspar porphyritic diorite as dykes and felsite dykes. The Nome Lake Batholith outcrops in the southeast corner of the claim group. Quartz veining is abundant within the metasediments filling fractures and paralleling foliation.

A post-Pleistocene limonite-cemented breccia outcrops in the stream beds on the PLATE 3-4 claims.

7.2 Table of Formations (Plan 1, 8)

RECENT

3	Limonite cemented breccia and/or talus

JURASSIC

NOME LAKE BATHOLITH

2	Undifferentiated intrusive
2a	Biotite-(hornblende)-quartz monzonite
2b	Hornblende-biotite granodiorite/diorite, quartz-feldspar porphyritic diorite as dykes
2c	Felsite dyke rocks

CARBONIFEROUS

Metasedimentary Rocks

1	Undifferentiated quartzite, siltstone, phyllite, graphitic quartzite, graphite-chlorite schist
1a	Quartzite and siltstone with or without local micaceous laminae
1b	White quartzite with graphitic seams, dark grey (possibly graphitic) quartzite
1c	Phyllitic quartzite and siltstone
1d	Graphite-chlorite schist, biotite-chlorite-quartz-feldspar-graphite schist, graphite phyllite
1e	Phyllite, quartzitic phyllite

7.3 Description of Rock Units (Plan 1, 8)

Descriptions of individual rock samples are listed in Appendix II, along with trace element contents.

1. Unit 1 Undifferentiated quartzite, siltstone, phyllite graphitic quartzite, graphite-chlorite schist.

This unit comprises a complexly intercalated series of quartzites, siltstones, phyllites and schists; graphitic members occur throughout the siliceous and meta-pelitic rock. Bull quartz veins cut the metasediments along fractures and foliation planes. The quartzites range from very pure (90% quartz) to very micaceous (phyllites) and graphitic members. These rocks tend to be thinly laminated and fine-grained.

<u>Unit 1a</u> Quartzite and siltstone with or without local micaceous laminae.

This member is the most prominent rock type found on the claim group and ranges from a pure quartzite (90% quartz) to a thinly laminated quartzitic siltsone (65% quartz). Laminae are generally micaceous or chloritic. Fractures coated with limonite (as in 80CA 12984R). Pyrite cubes and disseminated pyrrhotite were found in one sample of float (80CA 12976R).

<u>Unit 1b</u> White quartzite with graphitic seams, dark grey (possibly graphitic) quartzite.

This graphitic member varies from a white quartzite with thin pelitic graphitic laminations and seams to a silicified graphitic quartzite. Weathered surfaces are generally limonite stained and fractures are limonitized. Few pyrite pits occur in one sample (80CA 12958R) and pyritic seams were noted in a piece of float (80CA 12977R).

<u>Unit 1c</u> Phyllitic quartzite and siltstone

Variation from 1a is indicated by fine micaceous laminae interlayered with white to grey quartzite or siltstone. The mica grains impart a silky sheen to the cleavage surface. This member is generally folded in outcrop and crenulations are noted in handspecimen.

Unit 1d Graphite-chlorite schist, biotite-chlorite-quartz feldspar-graphite schist, graphite phyllite

This is generally a fine to medium grained folded unit made up of graphite, chlorite, quartz and feldspar. Disseminated pyrite occurs in a sample (80 CA 12910R) and crenulations are present on micaceous layers of a graphite phyllite (80 CA 12986R). Limonite occurs on weathered and fracture surfaces.

Unit 1e Phyllite, quartzitic phyllite with micaceous seams.

This is a fine to medium-grained silicified phyllite with micaceous seams. It is distinguished from 1a and 1c by very thin quartzite laminae and abundance of mica.

2. Unit 2 Undifferentiated intrusive.

This unit comprises fine to medium-grained biotite-(hornblende) quartz monzonite, hornblende-biotite granodiorite/diorite, hypabyssal quartz-feldspar porphyritic diorite and felsite. These rocks occur as dykes crosscutting the meta-sediments and as sills paralleling foliation. Coantacts are sharp and chilled margins are less than 1 cm or non-existent.

Unit 2a Biotite-(hornblende) quartz monzonite

This unit outcrops in the southeast corner of the claim group and is part of the Nome Lake Batholith. It is generally medium-grained and contains up to 10-15% biotite ± hornblende. The rock is massive but well jointed in outcrop.

Unit 2b Hornblende-biotite granodiorite/diorite, quartz-feldspar porphyritic diorite as dykes.

This member generally occurs as dykes crosscutting metasediments and sills paralleling foliation. Disseminated pyrite and pyrrhotite occur (as in 80CA 12972 R)).

Unit 2c Felsite dyke rocks

This unit is aphanitic to a fine-grained quartz-feldspar rock usually it is present as dykes up to 1m wide. Weathered and fractured surface are limonitized and a few pyrite pits occur.

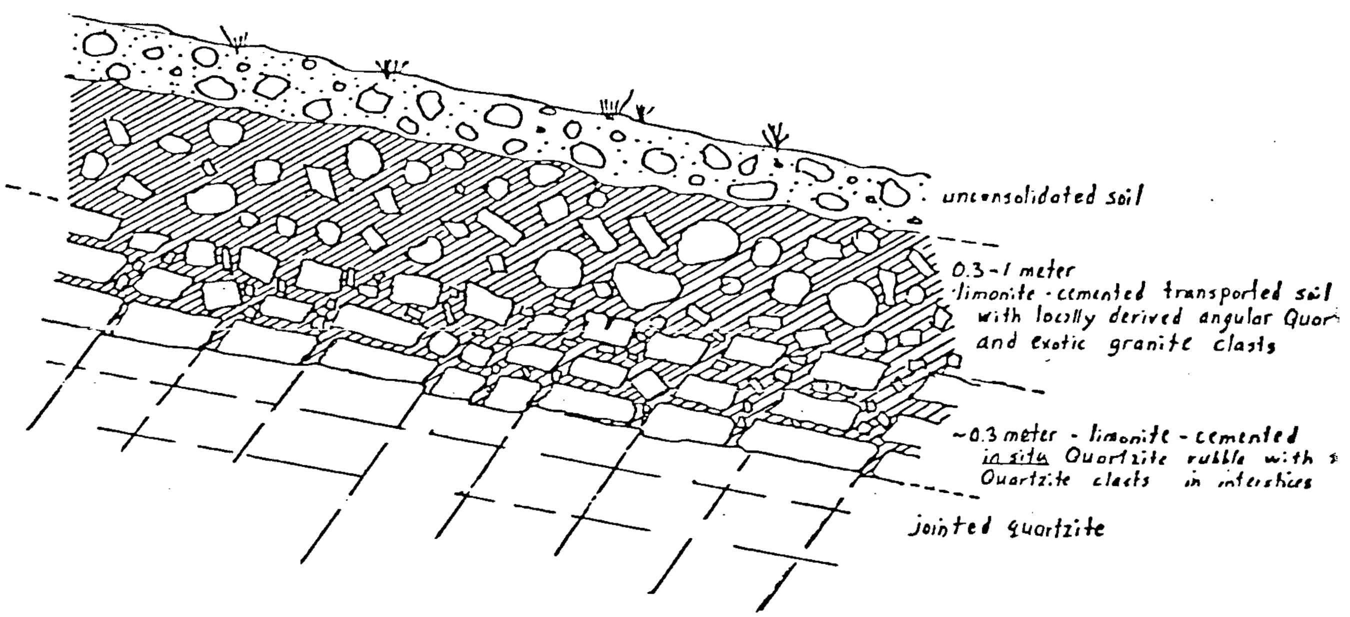
3. Unit 3 Limonite cemented breccia.

This unit occurs in the stream beds on the western side of the claim group. The breccia is a conglomerate of transported granite clasts and residual quartzite fragments cemented by a limonite matrix (Figure 3). Organic molds of roots and mass occur in one sample (RMK PL9). The limonite cement is extremely porous and brittle.

Its occurrence is thought to be developed by the fluctuation of the iron-rich water level and consequential precipitation of limonite (Gleeson and Boyle, 1980). Iron charged groundwater precipitate limonite where they reached surfaces as seeps. As a result, the limonite coats and eventually cements overburden and rock debris.

Active precipitation of limonite occurs on the PLATF Claims on the north and west side of the group. Limonitic ooze and mud is found in the creek beds and lake bottoms. Limonite coatings are found on the rocks and gravel in the stream bottoms. Limonite cemented conglomerates of rock fragments and cobbles are found in the stream beds but are generally located above the active water level. In some stream beds, reactivated streams have eroded channels through the well indurated limonitic rocks thus remobilizing the precipitate. All

FIGURE 3: Sketch showing typical section of soil profile at 'limonite breccia' outcrop. PLATE 3-4 boundary.



of the precipitates, including the limonite cemented conglomerate are referred to as limonite cemented breccias.

7.4 Structure

Gabrielse (1968) indicates the regional structural trend of the Jennings River map area as northwesterly commonly with local deflections particularly near granitic plutons. The structure west of the Cassiar Batholith and including the PLATE Claim group is dominated by a regional northwest trending synclinorium with an axis near Partridge Creek, about 30 km northwest of the claims. The western border of the Cassiar Batholith is marked by an extensive northwest trending shear zone located 3 km east of the PLATE Claims.

On the PLATE Claim group, the bedding of the metasediments generally strikes from 160° to 030° and dips gently to the west at 17 to 35 degrees. However, altitudes of $095^{\circ}/35^{\circ}$SW and $108^{\circ}/76^{\circ}$SW have been noted in quartzites on PLATE 3 and in phyllitic quartzites on PLATE 4, respectively, indicating minor deflection of the sedimentary layers through folding and/or faulting. Strata is intensely folded on a small scale as seen in single outcrips of isoclinally folded quartz veins.

According to Sacks (1979) foliation in the north-south trending creek bed of PLATE 1 strikes from 040° to 120°. Foliation dips vary widely over a few meters. Fracturing is well developed and the steeply incised gorge probably represents a fault trace striking north and dipping subvertical (Sacks, 1979, p. 9). Similar gorges and possible fault zones are located on the western group of claims (PLATE 3 and 4). The drainage network trends north to northwest which complies with the regional structure. Fracturing is evident throughout these creek beds, and diorite and felsite dykes are present. The extent of faulting in the gorges is unknown.

The contact between quartz monzonite and metasediments is discordant but can be traced from air photographs. A crenulation cleavage has been noted on the surrounding phyllites and schists indicating at least two phases of structural deformation within the area.

7.5 Metamorphism

The metapelitic and siliceous metasedimentary rocks in the vicinity of the PLATE Claims have undergone regional metamorphism to amphibolite facies. Gabrielse (1968) notes that regional metamorphism was established by Late Triassic which is confirmed by the presence of unmetamorphosed Jurassic diorite and quartz monzonite intrusives on the property. Brecciation within the quartzite may indicate a cataclastic component in metamorphism. Although the intensity of brecciation appears to increase westwards, its relation to the Plate Creek Stock is unknown as the intrusion was not found in the mapping survey (see section 7.1).

7.6 Alteration

Alteration of the metasediments is primarily attributed to weathering of sulphides, particularly in the pelitic layers. Weathering and fracture surfaces of graphitic and phyllitic members have been limonitized. Leached felsite dykes are partly to intensely kaolinized and hematized. Limonite precipitate coat the debris in the creek beds on the western group of claims and formation of limonite cemented breccias have been previously described in the text (Section 7.3.3).

7.7 Economic Geology

Pyrite and some pyrrhotite occurs in quartzite, graphitic quartzite, quartz veins and diorite dykes. No other visible sulphides have been observed on the property.

An antimony occurrence in a quartz vein was reported on the lapsed TAN property, thought to be located somewhere on the PLATE Claims. No visible stibnite has been seen although an anomalous value of 23 ppm Sb is present in a quartz vein in the north-south trending creek bed on PLATE 1 (80CA 12909R).

A 2-5 cm wide quartz vein in laminated siltstone (#80C 12924R) on the east part of the property contains 440 ppb Au. Potential Au mineralization requires further investigation.

Local anomalous Ag ± Cu ± Zn in soils and stream sediments, limonite precipitates from seeps, and low pH of stream waters implies the presence of unexposed or as yet undiscovered sulphide mineralization which is either structurally or stratigraphically controlled.

VIII. GEOCHEMISTRY

8.1 Statistical Treatment of Data

For stream sediment and soil geochemistry results histograms were constructe for each metal, and a free-hand, arbitrary best-fit curve drawn through the normal population. Values above where this curve intersects the abscissa are considered anomalous. From the normal (non-anomalous) population, cumulative frequency curves were constructed, and the mean (50th percentile) and probably anomalous (97th percentile) values (see Figures 8 to 16, Tables 9 to 14). Data are summarized in Table 3.

Because of the small population for heavy mineral samples, 'anomalous' values were determined by comparing 1980 data with the data of Sacks (1979) for a compilation of all heavy minerals samples taken during the 1979 CanadianOxy Follow-up survey. Sack's probably anomalous' (97th percentile) figures are considered 'anomalous' values for the PLATE 1980 data. Data are summarized in Table 3.

For rocks, anomalous levels were arbitrarily chosen as representing the highest 10% of values for each element, regardless of lithology (see Figures 6-7, Tables 5-8). Data are summarized in Table 3.

TABLE 3

Mean, Probably Anomalous and Anomalous Levels - Rocks, Heavy Minerals, Stream Sediments, Soils

A. ROCK (Anomalous level represents highest 10%)

	Cu	Pb	Zn	Ag (ppm)
mean	30	2	10	0.1
anomalous	+120	+10	+100	+1.4
range	6-120	1-28	1-320	0.1-6.4

B. HEAVY MINERALS (after Sacks, 1979)

	Cu	Pb	Zn	Ag	Au	Sn	W	U	Th
probably anomalous (sacks, 1979)	165	280	440	.95	3150	300	160	120	1200
range (1980)	70-450	1-16	198-530	0.1-28	<10-10	1-4	1-11	4.0-9.0	8-3000

C. STREAM SEDIMENTS

	Cu	Zn	Ag (ppm)
mean	55	65	0.2
probably anomalous	125-140	120-140	1.5-1.6
anomalous	+140	+140	+1.6
range	16-190	22-1100	0.1-15 (0.45 oz/ton)

D. SOILS

	Cu	Zn	Ag (ppm)
mean	40	55	0.1
probably anomalous	115-140	120-140	0.5-0.6
anomalous	+140	+140	+0.6
range	4-460	4-575	0.1-7.2

Note: All values in ppm except Au which is in ppb.

As a check on reproducibility, replicates were taken by making a random split of every 30th soil and stream sediment sample. This does not check laboratory reproducibility but total reproducibility (ie. field and lab.), and only if samples have been homogenized. The results are tabulated in Table 4.

TABLE 4 --Analyses of Replicate Samples

Replicate Nos	Sample Nos	Analyses Cu	Analyses Zn	Analyses Ag	Means Cu	Means Zn	Means Ag	Difference from Mean Cu	Difference from Mean Zn	Difference from Mean Ag	% Difference from Mean Cu	% Difference from Mean Zn	% Difference from Mean Ag
1	12000	78	125	0.1	78	123	0.1	0	3	0	0	2	0
	12031	78	120	0.1									
2	12001	30	30	1.8	31	30	1.9	1	0	0.1	3	0	5
	12058	32	30	2.0									
3	12002	8	10	0.8	10	15	1.0	2	5	0.2	20	33*	20
	12094	12	20	1.2									
4	12003	34	30	0.1	33	30	0.1	1	0	0	3	0	0
	12202	32	30	0.1									
5	12004	310	100	3.0	328	103	2.5	18	2	0.5	5	2	20
	12158	345	105	2.0									
6	12005	80	64	0.1	92	77	0.4	12	13	0.2	13	17	50
	12228	104	90	0.6									

Note: All values in ppm

...(cont'd)

TABLE 4 (cont'd)

Replicate Nos	Sample Nos	Analyses Cu	Analyses Zn	Analyses Ag	Means Cu	Means Zn	Means Ag	Difference from Mean Cu	Difference from Mean Zn	Difference from Mean Ag	% Difference from Mean Cu	% Difference from Mean Zn	% Difference from Mean Ag
7	12006	72	72	2.0	68	68	1.8	4	4	0.2	6	6	11
	12304	64	64	1.6									
8	12007	54	34	0.1	55	35	0.1	1	1	0	2	3	0
	12275	56	36	0.1									
9	12008	86	58	0.1	86	58	0.5	0	0	0.3	0	0	60*
	12345	86	58	0.8									
10	12009	176	72	0.1	181	75	0.1	5	3	0	3	4	0
	12414	186	78	0.1									
11	12010	30	30	0.1	30	30	0.1	0	0	0	0	0	0
	12393	30	30	0.1									
12	12011	16	18	1.4	17	18	1.4	1	0	0	6	0	0
	12438	18	18	1.4									

Note: All values in ppm

...(cont'd)

TABLE 4 (cont'd)

Replicate	Sample	Analyses			Means			Difference from Mean			% Difference from Mean		
Nos	Nos	Cu	Zn	Ag	Cu	Zn	Ag	Cu	Zn	Ag	Cu	Zn	Ag
13	12012	66	58	2.0	67	62	2.0	1	4	0	2	6	0
	12471	68	66	2.0									
14	12013	14	26	1.6	12	22	1.6	2	4	0	17	18	0
	12501	10	18	1.6									
15	12014	168	22	2.2	131	37	1.9	37	15	0.3	28*	41*	16
	12533	94	52	1.6									
16	12015	400	290	1.4	400	280	1.2	0	10	0.2	0	4	17
	12587	400	270	1.0									
17	12444	86	72	0.1	91	84	0.2	5	12	0	6	14	0
	12617	96	96	0.2									

Note: All values in ppm

For the most part the reproducibility for this suite of replicates is within the following acceptable limits:

Cu and Zn:	1 - 10 ppm	= 30%
	10 - 50 ppm	= 20%
	+50 ppm	= 10%
Ag:	0.2 ppm	= 100%
	0.3 - 0.5 ppm	= 50%
	+0.5 ppm	= 30%

Samples in excess of these limits are marked by an asterik (*) in Table 4 and could be a result of sample homogenity and/or a lack of laboratory precision.

8.2 Rock Geochemistry (Plan 1)

A total of 74 rock samples were collected and sent for geochemical analysis for various combinations of Mo, Cu, Pb, Zn, Ag, Au, Sb and W (Table 1). Histograms compiled for Cu, Pb, Zn and Ag are shown in figures 6 and 7 (Appendix V).

The mean value for each rock type are listed in Table 4A. Because of small sample populations for some elements the results are not always meaningful. The values for each sample listed by rock type are presented in Appendix IIA and rock descriptions and analysis are listed numerically in Appendix II. Highest mean values for Cu occur in the limonite breccias (101 ppm), graphitic phyllites (62 ppm), siltstone (55 ppm) and quartzite (53 ppm). Means for Pb are highest in felsite dykes (10 ppm), diorite dykes (6 ppm), quartzite (6 ppm) and limonite breccias (5 ppm). For Zn the highest mean value (121 ppm) is in diorite followed by siltstone (113 ppm), graphitic phyllite (72 ppm) and limonite breccia (68 ppm).

Means for Ag are highest in quartzite (0.8 ppm), graphitic phyllite (0.8 ppm), quartz veins (0.5 ppm), limonite breccias and felsite dykes (0.4 ppm). Quartz veins also have the highest mean values for Mo (4 ppm), Au (36 ppb) and Sb (6.0 ppm).

TABLE 4A

SUMMARY OF MEAN VALUES FOR ROCK SAMPLES

Unit		No. of Samples	Mean Values							
			Cu	Pb	Zn	Ag	Mo	Au	W	Sb
LMBR	(3)	19	101	5	68	0.4	1.5 (2)	<10 (2)	1 (2)	–
QTMN	(2a)	2	14	1 (1)	72 (1)	0.1	1.0	–	1 (1)	–
FLST	(2c)	3	28	10 (2)	13	0.4	1.0 (1)	<10 (1)	–	–
DRTE	(2c)	3	15	6	121	0.1	–	–	–	–
QTZT	(1)	20	53	6 (16)	39	0.8	1 (4)	<10 (6)	1 (1)	–
PHQT	(1)	2	34	–	60	0.1	1 (1)	<10	–	–
PHLL	(1)	1	34	2	36	0.1	–	–	–	–
GRPH	(1)	7	62	4 (4)	72	0.8	1 (1)	<10 (3)	–	–
SLSN	(1)	2	55	–	113	0.3	–	<10 (1)	–	–
QRVN		15	24	3 (10)	16 (13)	0.5	4 (4)	36 (14)	–	6.0 (5

All values in ppm except Au which is in ppb

(2) No. of Samples analyzed if not the same as in Column 2

1. Metasedimentary Rocks

Metasediments contain from 6 to 210 ppm Cu, 1 to 24 ppm Pb, 4 to 250 ppm Zn and 0.1 to 6.4 ppm Ag. The samples with the highest metal content tend to be the graphitic phyllites, quartzite and limonite breccias and precipitates. High copper contents in excess of 120 ppm occur only in 3 of the 32 metasediments. The highest copper value (210 ppm) is from a sample of quartzite float (80 CA 12976R) and is accompanied by an abnormally high Pb content (24 ppm). The sample contains abundant cubic pyrite and fine-grained pyrrhotite. Another high copper value (136 ppm) is from sample 80 CA 12988R, a dark grey silicified graphitic phyllite. Lead content in metasediments is generally less than 5 ppm and only 3 samples contain greater than 10 ppm. Lead enrichments (12 ppm) are present in samples 80-CA-12950R and 80-CA-12966R; both are graphitic quartzites. The highest lead content (24 ppm) in sample 80-CA-12976R was commented on above. Four of the metasediments have zinc contents in excess of 100 ppm. The highest zinc values (250 ppm) is from sample 80-CA-12910R, a biotite-chlorite-quartz-feldspar graphite schist with abundant pyrite. Other high zinc contents (104, 110, 140 ppm, samples 80-CA-12986R, 12912R and 12902R) are from graphitic phyllite to phyllitic quartzite or sitlstone. Silver content varies significantly in the metasediments but only 4 of 32 have values greater than 1.6 ppm. The highest silver content of all rocks taken (6.4 ppm) occurs in a brecciated quartzite with numerous fracture filled veinlets of a dense soft white mineral (possibly barite 80-CA-12953R). Other high silver contents (2.8 and 2.4 ppm) are from smaples 80-CA-12973R and 80-CA 12970R from the north-west area. Yellow staining is prominent in both of these samples of graphitic phyllite and fine grained quartzite, respectively.

2. Quartz Veins

Quartz veins tend to contain low values for Cu, Pb and Zn but one sample (80 CA 12955R) is high in Ag (2.6 ppm Ag). Significant contents for Sb and Au are present in quartz veins from the eastern claims (23 ppm Sb, 80 CA 12909R and; 440 ppb Au, 5.4 ppm Sb, 80 CA 12924R).

3. Quartz monzonite and dyke rocks

Two samples of the quartz monzonite/granodiorite were analyzed. Results indicate very low metal content for Cu, Pb, Zn and Ag.

Of the six dyke rocks sampled, three were felsite and three were diorite. High zinc content (180 ppm) is present in sample 80 CA 12960R from the west central gorge. The rock is a diorite with disseminated pyrrhotite and in addition it contains 10 ppm Pb. A felsite dyke rock (80 CA 12959R) from the same vicinity has a lead content of 16 ppm. Both rocks are sub-parallel to the metasediments.

4. Limonite cemented breccias

Limonite cemented breccias contain from 38 to 186 ppm Cu, 1 to 28 ppm Pb, 14 to 330 ppm Zn and 0.1 to 1.6 ppm Ag. The upper extremes are considered significant especially in the west central streams where such trace elements as Cu and Zn are not as evident in other sample media. High copper contents in excess of 80 ppm occur in 10 of the 20 limonite cemented breccias. The highest value (186 ppm) is from sample 80 CA 12961R from the west central gorge. Other significantly high copper values (174 ppm and 156 ppm) are from samples RMK-PL-6 and RMK-PL-7 from a gossanized band or limonitic cemented fracture in quartzite in the north western area. Sample RMK-PL-6 is accompanied by abnormally high Pb content (24 ppm). Sample RMK-PL-2, a limonitic residual soil, contains 168 ppm Cu. Most of the limonite cemented breccias have lead contents less than 5 ppm and there are only 2 samples containing greater than 10 ppm. The highest value (28 ppm) is from the west central gorge (80 CA 12954R) which in addition has high values of Cu (134 ppm) and Ag (1.0 ppm). The high lead content (24 ppm) in sample RMK-PL-6 has been commented on above. Three of the limonite cemented breccias contain in excess of 140 ppm Zn. The highest values (180 and 320 ppm) are from samples 80 CA 12962R and 80 CA 12964R from the west central gorge. Quartzites and diorite dykes and sills underlie these sample sites. Sample 80 CA 12928R in the north western area contains 150 ppm Zn and significant Cu (108 ppm). The background for silver is less than the detection limit (0.1 ppm) and there are only 3 samples containing greater than 1.0 ppm. The highest value (1.6 ppm) is from sample 80 CA 12990R from the west central gorge. The rocks underlying this area are quartzites containing dykes and sills of diorite.

<u>8.3 Heavy Mineral Geochemistry</u> (Plan 2)

Nine heavy mineral samples were obtained from the streams draining the central gorge of PLATE 1 and the western area of PLATE 3 and 4. All samples were analysed for Mo, Cu, Pb, Zn, Ag, Au, U, Th, Sn and W.

The two heavy mineral samples from the stream draining the central gorge on PLATE 1 claim are anomalous in Cu (370-375 ppm) and Zn (460-530 ppm), the lower sample also contains above normal

Mo (10 ppm) and the sample near the head of the creek contains anomalous Ag (2.2 ppm). The sources of the Cu and Zn are probably in the quartzite which contains up to 250 ppm Zn and 130 ppm Cu. Up to 10 ppm Mo has been found in a quartz vein in the lower part of the stream and above normal Ag values (0.4 to 1.0 ppm) are present in quartz veins and metasediments in the upper portion of the creek. Quartz veins in this area also contain Sb (5.4-23 ppm) and Au (440 ppb).

In the west sector of the property (PLATE 4) heavy mineral samples from streams draining the metasediments and limonite breccias are also anomalous in Cu (230-450 ppm), Zn (260-495 ppm) and Ag (0.8-2.8 ppm). It is interesting to note that Th is also high (940-3000 ppm) in this area. Sources of Ag are probably quartz veins (2.6 ppm in 80 CA 12955R) and breccia zones (6.4 ppm in 80 CA 12953R) in quartzite. Above normal values for Cu, Zn and Ag have been found also in limonite breccia and precipitates on PLATE 3 and 4 claims. The sources of these metals must remain speculative until more follow-up work is completed. High Th values in the heavy mineral concentrates are related to thoriferous resitate minerals that could be derived from felsic dykes and sills which intrude the metasediments.

8.4 <u>Stream Sediment Geochemistry</u> (Plan 2)

A total of 75 stream sediment samples were collected at 200 m intervals from streams draining the western claim group and analysed for Cu, Zn and Ag. Analysis for Pb on the initial June work produced unfavourable results so was not continued in the August follow-up. Histograms and cumulative frequency distribution diagrams for the data are shown in figures 8, 9 and 10, tables 9, 10 and 11 (Appendix V).

Ag anomalies up to 14 ppm are present in stream sediments from streams in the west central part of PLATE 4 claim. Also in the north part of PLATE 4 claim Ag values up to 0.45 oz/ton (approximately 15 ppm) are present. In the north sector of the property on PLATE 3 claim small streams draining north contain up to 7 ppm Ag in their sediments. Maxima Zn (up to 1100 ppm) and Cu (up to 182 ppm) values occur at the mouth of these creeks and in the stream valley. This may be a result of precipitation due to changing pH-Eh of the metal charged waters from a very acid level (3.7) at the headwaters to less acid levels (6.0) in and near the valley bottom. Similar increases in Zn values downstream are evident in the southwest part of the property. Marked cut-offs for Ag in the sediments from the central streams on PLATE 4 claim are evident three quarters of the way up the creek suggesting nearby sources for the Ag. Water pH drops from 6 to 7.3 near the tops of these streams to 4 to 4.1 in the anomalous sections and in the more southerly stream iron precipitates are common. Sediments from the northerly streams are anomalous as far up as the streams have been sampled, waters are very acid (3.5 to 4.5) and specific conductivities are relaitvely high (105 to 148 μ mhos) in the upper reaches of these streams. Iron precipitates are common. All these results suggest a sulphide source for silver in the quartzites and phyllites underlying the drainage basins of these streams.

8.5 Stream Water Geochemistry (Plan 2)

Where possible stream water samples were obtained at 500 m intervals in conjunction with the stream sediment sampling survey. A total of 33 stream waters were collected and analysed for pH and specific conductivity (S.C.) in the field.

The heads of streams draining to the west have pH's in the neutral range (6.0 to 7.3), however, the acidity rapidly increases downstream to pH's ranging from 3.5 to 4.5 and further down there is a tendency to increase again to the 5 to 6.5 range. The low pH's mark the emergence of iron charged ground-waters, subsequent increases in Eh results in a change in iron from the ferrous state to the ferric state and the resulting precipitation of hydroxides of iron. These hydrosols normally carry a postiive charge and can act as a strong adsorbent of negatively charged ions. The Ag ion also carries a positive charge and therefore it will not be adsorbed by the ferric hydroxides unless constituents such as PO_4^{3-}, AsO_4^{3-} etc. are present to give the ferric hydrosol a combined negative character. These then adsorb the postive silver cations. On the other hand, the manganese hydroxides have a negative charge and will strongly adsorb the silver ions. An excellent discussion on the geochemistry of silver can be found in Boyle (1968).

Coincident stream sediment Ag anomalies with Cu-Zn are not common and this is probably due to the high mobility of the Cu and Zn in this acid environment. Cu and Zn anomalies can be found downstream where pH values rise above 5.

Specific conductivities are low (less than 50 μmhos) in the upper reaches of west flowing streams, however, where the pH's are low, specific conductivities generally increase (50-148 μ mhos). Except for pH and specific conductivities the chemistry of the stream and spring waters has not been studied. To better understand the geochemical environment as well as the possible economic significance of the stream anomalies water samples should be analyzed for major anions (SO_4, HCO_3, NO_3, Cl, F, PO_4, SiO_2, and AsO_4) and cations (Ca, Mg, Fe, Mn, Cu, Pb, Zn, Ag, Sb, Al, Na, K).

The eastern claim group was not covered in any detail as Sacks (1979) conducted sufficient surveys over the eastern portion of the property. The waters in this area generally have high pH's (8.1 to 9.4), possible calcareous members of the metasediments being the contributing factor (Sacks, 1979 p. 13). (N.B. These calcareous members have not been located by the author but have been mentioned by Gabrielse (1968) and the TAN occurrence (Appendix IV)).

8.6 Soil Geochemistry (Plan 3, 4, 5, 6 and 9).

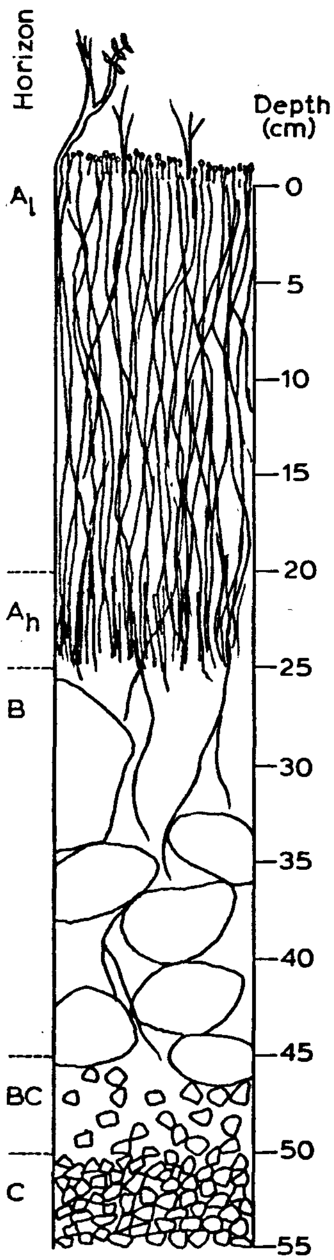
A total of 519 soil samples were obtained over the claim group. Two picketed baselines running N-S were established over the eastern and western valleys. Samples were taken at 250 m x 125 m intervals and follow-up 125 m x 60 m coverage was obtained in the south-eastern area and 125 m x 125 m coverage in the north-western area of the property.

The eastern valley is gently sloping wet, marshy ground with patchy balsam forest and moss. A soil profile (figure 4) showing typical sampling media was obtained from a 55 cm deep soil pit. The profile is covered by a 20 to 25 cm thick

FIGURE 4
Soil Profile of Soil Pit 1

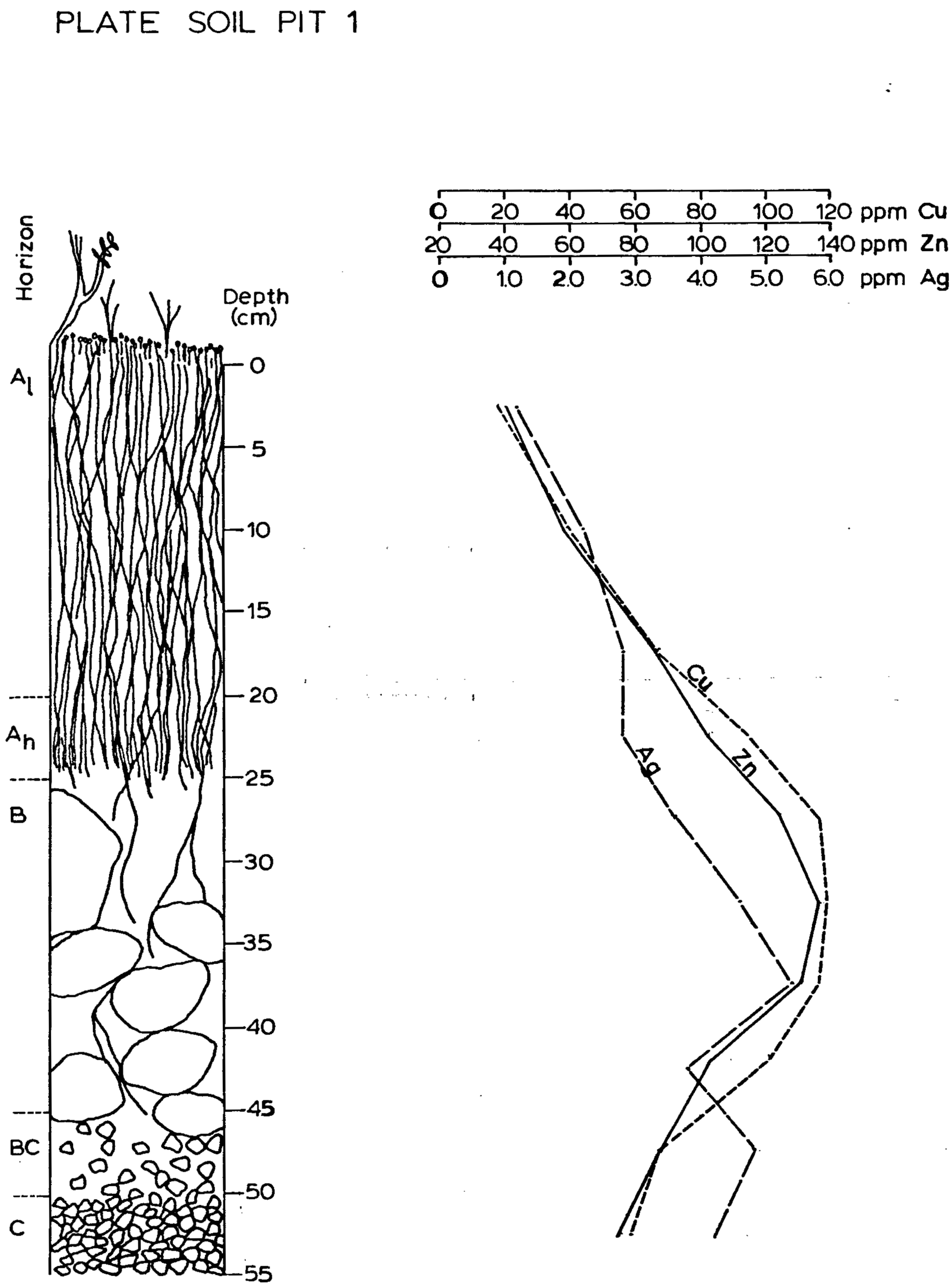
PLATE SOIL PIT 1
L7+50N STN2+50E

Gently sloping 1-2 degrees East. Overgrown with moss, grass and sparse buckbrush. Low area, poorly drained.



Sample Number	Description
80 CA 12570	Organic: H1 moss
80 CA 12569	Organic: H2 not very decomposed dark brown
80 CA 12568	Organic: H3 brown to dark brown
80 CA 12567	Organic: H7 dark brown
80 CA 12566	brown to grey brown, rootlets, cobbles up to 15 cm sand-20%; silt-60%; clay-20%
80 CA 12565	grey brown small roots, cobbles sand-30%; silt-50%; clay-20%
80 CA 12564	
80 CA 12563	grey brown with some red streaks. cobbles, some roots, gravel-5%. sand-30%; silt-40%; clay-30%
80 CA 12562	grey to grey brown with orange-red streaks, gravel-25%. sand-20%; silt-40%; clay-40%
80 CA 12561	grey brown gravel-90% and mud sand-20%; silt-60%; clay-20%

FIGURE 5: Element Distribution within Soil Profile for Cu, Zn, Ag



layer of moss making sampling difficult in this area. The B horizon is comprised mainly of silt, sand and clay but large cobbles and well rounded boulders obstruct sampling. The C horizon, is make up of small chips and fragments of quartzite. The interstices are filled with fine mud as the water table rises to within 45 cm of the surface at this locality. The metal distribution within the pit (figure 5) indicates the B horizon as the best sampling horizon for Cu-Zn-Ag and as much as possible this was the horizon sampled. The highest concentration of Cu, Zn and Ag is at 25 to 35 cm below the surface or in the first 10 cm below the moss layer. The Ag concentration within the profile does not decay as rapidly with depth as Cu and Zn and remains at fairly high concentrations in the C horizon.

Histograms and cumulative frequency curves used to determine mean, probably anomalous and anomalous values for Cu, Zn and Ag are given in figures 11 through 16, tables 12-14 (Appendix V). Individual metal maps have been contoured and are presented on Plans 4, 5 and 6.

Area 'A'

Two northerly trending Ag anomalies (A1 and A2) with coincident Cu-Zn highs extend from 2+50S to 15+00N on the west side of PLATE 2 claim.

Area A1

This anomaly, as outlined by the 1.2 ppm Ag contour, extends from 5N to 15N (1000 m) and varies in width from 100 meters to 300 meters. Ag values vary from 1.2 to 7.2 ppm. The highest values are on L7+50N and coincide with anomalies in

Cu (82-164 ppm) and Zn (128-210 ppm). The area is underlain by quartzites, a sample of which (200 meters east of the anomaly) is high in Cu (210 ppm), the trend of the soil anomaly more or less parallels the strike of the underlying metasediments. Additional prospecting is required to further evaluate this zone.

Area A2

This anomaly lies south of L2+50N, it measures 500 m x 300 m, it is open to the south and east and it also has a northerly trend. The anomaly is dominantly a Cu-Zn one, values range from 90-460 ppm Cu and 120-235 Zn with two single station highs of 1.2 and 2.2 ppm Ag. Quartzite and phyllite underlie the area which is close to a north contact of a quartz monzonite batholith (Nome Lake Batholith). Two quartzite samples, 80 CA 12977R and 12988R from the anomalous area are high in Cu (104 and 136 ppm, respectively) and above normal in Ag (0.8 ppm). To evaluate the economic significance of these anomalies will require additional geological work and prospecting.

AREA B

Trending north through the center and in the northeast corner of PLATE 1 claim there are a series of north trending weak Cu anomalies with and without associated Zn anomalies.

AREA B1

This copper anomaly is located in the northeast corner of PLATE 1 claim and straddles the north flowing stream there. Four values for Cu range from 80 to 162 ppm, the anomaly trends north and it is open to the north. In the northwest corner of the anomaly there is an overlap with above normal zinc values (160-180 ppm). Quartz veins and diorite dykes cut the quartzites and phyllites in the anomalous area and an assumed north trending fault occupies the stream valley. The sources of the anomalies are not known but they could be fault controlled, related to the quartz veins or graphitic metasediments. Upstream is the gulch where quartz veins are known to contain anomalous amounts of Sb (23 ppm), Mo (10 ppm), Zn (250 ppm) and Cu (98 ppm).

Areas B_2-B_5

These consist of a series of weakly anomalous Cu values (80-162 ppm) in soils trending north-south through the center part of PLATE 1 claim. In places (B2 and B5), single station Zn high (170 and 160 ppm) occur in the anomalous Cu zones. For the most part the anomalies are open to the west. The anomalies are underlain by quartzitic units (000T/17-28^{o}W) intruded in places by felsite dykes. The quartzites contain graphitic partings and may be pyritiferous. The sources of the anomalies could be increased metal backgrounds in graphitic, pyritic and schistose phase of the quartzites.

AREA C

Ag anomalies trending north occupy the central and eastern sectors of PLATE 3 and 4 claims. In places, especially to the north, coincident Cu anomalies occur over the Ag zones. Quartzites, phyllites and limonite precipitates are present in the anomalous areas.

AREA C1

This is a soil anomaly containing 6 values ranging from 1.2 to 2.2 ppm Ag. It is located in the south part of PLATE 4 claim and extends from 20+00S to 16+25S (375 m) and averages 300 m in width. In the stream gulches immediately to the north the quartzites are cut by quartz veins as well as dykes and sills of diorite, also limonite precipitates are abundant in these gulches. No geology has been mapped over the soil anomaly, however, it is assumed to be similar to that near the gulches. The source of the Ag could be fault zones in the quartzite, one such breccia zone in the gulch contains up to 6.4 ppm Ag.

AREA C2

This is a north trending anomaly lying between L10+00S and L7+00S containing 3 values ranging from 1.4 to 1.8 ppm Ag. Two single station highs of 2.6 and 1.2 ppm Ag are present on L7+00S west of the main anomaly. Sediments in the stream draining this area contain up to 3.2 ppm Ag and heavy minerals are above normal in Cu (320-385 ppm), Zn (340-420 ppm), Ag (1.2 ppm) and Th (940-1300 ppm). The geology here is similar to area Cl. One sample of quartz vein (80 CA 12981R) material in white quartzite with limonitized and manganese coated fractures in the northeast sector of the soil anomaly contains 1.2 ppm Ag. Hence, north trending fractures and quartz veins in quartzite could be the host to silver mineralization in this area.

AREA C3

This is a Ag-Cu anomaly located near the east boundaries of PLATE 3 and 4 claims and extending northward from L3+75S for some 1200 m. The anomaly is located near the base of a high ridge; it is open to the north and east and encloses 6 Ag values ranging from 1.6 to 4.2 ppm, in the north sector of the zone coincident high Cu values of 140 ppm and 345 ppm are present. The quartzites underlying this area strike west and northwest and dip 25-35°S. The soil anomaly trends north across the strike of the underlying rocks indicating the possibility that north trending fault zones and/or veins and dykes control the distribution of Ag in this area. The anomaly crosses the heads of north flowing stream containing limonite precipitates which are high in Cu (up to 174 ppm) as well as very acid waters (pH 3.7) and anomalous Ag (4-5.4 ppm) and Cu (136 ppm) in stream sediments.

In the main valley north of the soil anomaly stream sediment anomalies in Zn (255-650 ppm) and Cu (128-132 ppm) occur. The presence of such acid waters and limonite precipitates are indicative of a sulphide system in the quartzites, the economic significance of which is not known.

Area C4

This is an east of north trending anomaly just west of C3 and lying between 3+75S and 0+50N (425 m), it averages 150 m width. It encloses 6 anomalous values ranging from 1.4 to 4.4 ppm Ag and one sample of gossanous soil at the north end of the anomaly contains 330 ppm Cu. The geological setting is similar to Area C3. Heavy acid streams (pH 3.5-4.2) containing high Ag values (6 ppm to 0.45 oz/ton) in their sediments drain Area C4. As with other anomalous areas on PLATE 3 and 4 claims, the source of the Ag is thought to be mineralized fault zones in quartzite. On the west side of C4 a rock sample (80 CA 12973R) of limonitized graphitic, phyllitic quartzite is high in Ag (2.8 ppm).

AREA C5

This Cu-Ag soil anomaly is located at the west ends of L2+50N to L3+50N. It encloses 12 Cu values ranging from 88 to 295 ppm and local highs in Ag of 1.4 ppm. The eastern edge of the anomaly trends north. Gently west dipping, north striking quartzites, in part graphitic, are cut by quartz veins, quartz monzonite and felsite dykes in Area C4. Samples of quartzite (80 CA 12966R and 12970R) from the anomalous area contain above normal levels of Ag (1.8 and 2.4 ppm respectively). Both samples contain disseminated pyrite and 12966R is graphitic. The latter also tends to be high in Cu (74 ppm).

IX. RADIOMETRICS (PLAN 7)

Scintillometer readings and contours are shown on Plan 7. Histogram and cumulative frequency diagrams are given in figures 17 and 18, table 15. Readings taken over the property range from 40 cps up to 172 cps. Readings over the metasediments range from 40 to 110 cps and over the quartz monzonite in the southeast corner of the property readings increase and range from 130 to 172 cps. An area of higher scintillometer values (110 to 150 cps) over quartzites near the quartz monzonite in the southeast part of the property in part coincides with geochemical soil anomaly A2. Similarly scintillometer values over Areas B1 and B5 are higher than normal (90-157 cps). In the west sector of the property the radiometric readings are lower (55-107 cps) than those on the east side of the property (61-172 cps) thus reflecting the proximity of felsic intrusive rocks. No significant radiometric anomalies are present in the western area where the anomalies have been found in heavy minerals. This could be related to dykes too small to detect on this low density grid.

X. CONCLUSIONS

1. The PLATE Claims are underlain by quartzites, graphitic quartzites and phyllites. These rocks dip shallowly westward, strike north and are locally complexly folded and intruded by dykes, sills and stocks of diorite, quartz-feldspar porphyritic diorite and quartz monzonite. A major north-south striking fault of unknown displacement cuts the north central claims along a steeply incised gorge. Local faulting and/or brecciation of unknown extent occurs along the western gorges. Bull quartz veining cuts the metasediments. Limonite precipitates from seeps has cemented quartzite fragments and granite boulders in the western gorges.

2. Although no visible mineralization other than small amounts of pyrite and pyrrhotite were found in any of the rock units, significant amounts of Ag are present in graphitic quartzites, phyllites and brecciated quartzites with veinlets (up to 6.4 ppm Ag). One quartz vein sample contains 2.6 ppm Ag. Hence there is evidence to suggest that breccia zones, quartz veins and probably graphitic phases of the quartzites are mineralized with silver.

Limonite-cemented breccias have significant amounts of Cu and Zn and may represent precipitated Fe from groundwater derived from the oxidation of sulphide minerals distributed throughout the metasedimentary rocks and/or vein mineralization. The limonite is being or has been deposited at the point of emergence of very acid ground waters into the drainage system.

3. Western Area

Sediments from streams in the western portion of the property are very anomalous in Ag (up to 0.45 oz/ton) and in places in Cu and Zn. Heavy mineral anomalies in Cu, Zn, Ag and Th also are present. Very acid stream waters mark the emergence at surface of iron charged groundwaters and precipitation of limonite. North trending Ag soil anomalies (C1, C2, C3 and C4) underlie quartzites and phyllites which in part are graphitic and which are cut by quartz veins and felsic to diroite dykes. The presence of the precipitates indicate that groundwaters are leaching a sulphide which may be the source of the Ag, Cu and Zn anomalies.

Possibilities of Mineralization:

a) Cu-Zn-Ag (stratiform) + Fe

Mineralization could be hosted by thick bedded disseminated pyritic metasedimentary rocks. Sulphide precipitation during deposition of the sediments could have developed weakly mineralized layers of Fe and Ag (Cu-Zn). Subsequent leaching, transportation and reprecipitation may cause coincident high Ag and limonite precipitate in acid streams. Lithologically controlled mineralization of this type is not economic unless the mineralization is of considerable grade and confined to a single stratified unit.

b) Cu-Zn-Ag (Structure) + Fe

Structurally controlled mineralization confined to major NE-W systems may be the source for anomalous Ag (Cu-Zn). Possible fault systems are reflected by the drainage pattern and brecciation. Limonite precipitation could form from seepage along fault zones or from groundwater movement along joints through a sulphide bearing host rock.

c) Lithology/Structure (Small-scale)

Anomalous Ag could be derived from lithologically/ structurally controlled small-scale veinlet hosted mineralization independent of E-W structures. High Ag values are present in barite (?) veinlets. Numerous small-scale vein systems over a fairly large area may account for anomalous Ag in soils and stream sediments. A probable source for the Fe is pyritic metasediments.

d) Lithology/Structure (Large-scale)

Large scale fracture/fault systems across the streams (~NNS) could have mineralization of economic significance. The rocks units are similar in type to that of the Keno Hill Pb-Zn-Ag hypogene depostis in fault veins. However, the strata are less well defined on the PLATE Claims. Lack of Pb anomalies on the property indicate veins of different mineralogy than in the Keno Hill area. Massive quartzites would be the favourable host for vein mineralization.

4. Eastern Area

Soils in the eastern valley are locally anomalous in Ag and coincident Cu-Zn values (Area A). An Area (A1) extending 1000 m x 500 m over 32 station has Ag values ranging from 1.6 to 7.2 ppm Ag. A one station spot high of 210 ppm Zn and 164 ppm Cu is coincident with the high Ag anomaly. Another zone (A2) measuring 400 m x 100 m over 6 stations has high Ag content (1.0 to 2.2 ppm) coincident with high Cu content (166 to 460 ppm) and high Zn content (166 to 235 ppm).

The source of anomalous Ag, Cu an Zn in soils, stream sediments and heavy minerals is at present unknown. Locally anomalous values and the presence of Fe-sulphides in metasedimentary rocks suggest a possible local stratigraphic concentration of metals. Structural control (ie. mineralization along faults and/or fractures) is also suggested. Geochemically anomalous Au (440 ppb) and Sb (5.4-23 ppm) in quartz veins indicate that they could host Sb-Au mineralization. The TAN Claims staked in this area in 1969 reportedly contained stibnite in an 8 inch quartz vein.

5. Soil, heavy mineral, stream sediment and rock anomalies indicate adequate coverage of the initial 1979 G.S.C.-U.R.P Cu-Zn-Ag-U high values which led to the staking of the claims.

XI. RECOMMENDATIONS

A) WESTERN AREA

To determine if the source of anomalous Ag is the same as the source of Fe, the following recommendations are proposed:

1. Bulk water samples should be taken from the orifices of Fe-rich seeps and geochemically analyzed for anions ($S0_4$, $HC0_3$, NO_3, Cl, F, PO_4, SiO_2 and AsO_4), cations (Ca, Mg, Fe, Mn, Cu, Pb, Zn, Ag, Sb, Al, Na and K), pH, temperature and specific conductivity. Spring run-off may cause dilution of metals in water samples hence the water sampling should not be carried out early in the summer.

The limonite precipitates (silt size fraction) at the orifices of seeps should also be sampled and analyzed for Fe, Mn, Sb, As, Cu, Pb, Zn, Ag, Si, Al, Ca, Mg, Na and K.

If only clastic material is available, the sample should be dried and sieved to -250 mesh to give an accurate interpretation of the precipitate's content.

2. Soil pits should be dug and sampled on either side of stream sediment anomalies to locate the cut-off of anomalous Ag in the area and to determine the significance of metal dispersion within the profile.

Detailed soil pits should also be sampled across uphill extensions of soil Ag anomalies. Sampling should be spaced at 20-30 m intervals for a detail cross-section of metal dispersion over the area. Pits should be excavated to depths well into the C horizon, if possible (up to 2 m). The results could indicate whether Ag is distributed from groundwater or slump uphill from the anomaly or from possible mineralization below the surface. Rock samples should be taken at the bottom of all pits.

3. Prospecting and detailed, systematic rock sampling and geological mapping in all areas, including seep, headwaters of stream and in talus, is required. Particular attention must be made to sulphides in metasedimentary rocks, to veinlets of any type (quartz, calcite, barite, etc) and to determining the control of vein systems, lithologic versus fault and shear controls.

4. Sample 80 CA 12953R (6.4 ppm Ag) should be analyzed for Ba prior to the 1981 field season. If significant barite is found then the stream sediments and heavy minerals from the 1980 program should also be analyzed for Ba. The results may reveal a possible source area of high Ag in stream sediments.

5. Additional stream sediment and heavy mineral samples should be taken as high as possible in anomalous streams to determine a point of entry of mechanically transported Ag. A mineralogical examination should be made of the anomalous heavy mineral samples in an attempt to identify minerals of economic significance.

6. Chained picketed grids at 125 m or 60 m intervals should be established over the anomalous areas and systematic soil sampling carried out to determine the uphill extent of Ag anomalies in the northwestern area.

7. If detailed rock sampling does not indicate a sedimentary source of anomalous metals, structurally controlled mineralization should be considered. EM surveys would probably be hampered by ubiquitous graphite in the metasedimentary succession, but a VLF test/orientation survey could be run over soil anomalies and nearby suspected fault zones.

B) EASTERN AREA

1. Detailed soil pits should be sampled in the eastern valleys to cover different physiographic settings within the anomalous areas. Pits should be excavated to depths well into the C horizon to determine the significance of metal dispersion from the bedrock. Rock samples should be taken from the bottom of all pits.

2. Systematic soil sampling on chained picketed grids over the anomalous areas should be done to close off open anomalies.

3. Detail prospecting, rock sampling and geological mapping should be completed in the area.

M. Jaccarelli

PROJECT WATSU

1980

Statement of Expenditures

Claims PLATE 1 and 2

Record Numbers 1796-1797

1)	Salaries & Benefits	$ 6,917[1]
2)	Helicopter flying - 10.9 hours @ $305/hour	3,325[2]
3)	Scintillometer rentals (Urtec)	916[3]
4)	Geochemical Analyses - 391	1,383[4]
5)	Other Work	1,254
	Total	$ 13,795

Notes:

[1] Pro-rated on basis of 26.4 man-days worked on claims conducting geological/geochemical/geophyscial surveys out of a total of 511 man-days spent on Project Watsu surveys, unit cost @ $262/man-day.

[2] Helicopter flying completed by Northern Mountain Helicopters Inc., Prince George, B.C., unit cost @ $305/hr.

[3] Pro-rated on basis of 26.4 man-days worked on claims conducting geophysical surveys out of a total of 461 man-days spent on Project Watsu surveys, unit cost @ $34.70/man-day.

[4] Geochemical analyses completed by Chemex Labs of Vancouver, B.C., unit cost @ $ 3.54/sample.

PROJECT WATSU

1980

Statement of Expenditures

Claims PLATE 3 and 4

Record Numbers 1135, 1136

1)	Salaries & Benefits	$	4,245[1]
2)	Helicopter flying - 9 hours @ $305/hour		2,745[2]
3)	Scintillometer rentals (Urtec)		562[3]
4)	Geochemical Analyses - 319		1,130[4]
5)	Other Work		868
	Total	$	9,550

Notes:

[1] Pro-rated on basis of 16.2 man-days worked on claims conducting geological/geochemical/geophyscial surveys out of a total of 511 man-days spent on Project Watsu surveys, unit cost @ $262/man-day.

[2] Helicopter flying completed by Northern Mountain Helicopters Inc., Prince George, B.C., unit cost @ $305/hr.

[3] Pro-rated on basis of 16.2 man-days worked on claims conducting geophysical surveys out of a total of 461 man-days spent on Project Watsu surveys, unit cost @ $34.70/man-day.

[4] Geochemical analyses completed by Chemex Labs of Vancouver, B.C., unit cost @ $ 3.54/sample.

AUTHOR'S QUALIFICATIONS

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M. Jane Crandall graduated from Carleton University, Ottawa, Ontario, with a Bachelor of Science in Geology in 1980.

Since graduation she has worked as a mineral exploration geologist for Canadian Occidental Petroleum Ltd. to the present.

While employed with Canadian Occidental she has carried out and supervised mineral exploration projects in New Brunswick, Saskatchewan, British Columbia and the Yukon.

She is currently a member of the Prospectors' and Developers' Association.

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Boyle, R.W. (1968): The geochemistry of silver and its depostis, G.S.C. Bull. 160.

G.S.C. (1979) : Stream Sediment Reconnaissance Sampling Survey, Jennings River (104-0), British Columbia; G.S.C. O.F. 561.

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Gleeson, C.F. and Boyle, R.W. (1980): The Lithogeochemistry of the Keno Hill District, Yukon Terriotry; G.S.C. Paper 77-31.

Sacks, E.J. (1979): Geology and Geochemistry of the PLATE Claim Group. Atlin & Liard Mining District, B.C., Canadian Occidental Petroleum Ltd., Minerals Division, unpublished report.

APPENDIX I

ANALYTICAL RESULTS

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

O : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010168-001-A
INVOICE # : 38563
DATE : 09-SEP-80

CASSI PLATE SOILPIT1
(see FIGURE 5)

Sample description	Cu ppm	Zn ppm	Ag ppm	
80CA 12561	58	74	4.2	--
80CA 12562	66	86	4.8	--
80CA 12563	100	112	3.8	--
80CA 12564	116	130	5.4	--
80CA 12565	118	136	4.6	--
80CA 12566	116	124	3.6	--
80CA 12567	94	102	2.8	--
80CA 12568	66	86	2.8	--
80CA 12569	40	58	2.2	--
80CA 12570	18	40	1.2	--

MEMBER
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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 53870
INVOICE NO. 36624
RECEIVED June 25/80
ANALYSED July 1/80

TO: Canadian Occidental Petroleum Ltd.,
Minerals Division,
Ste. 311 - 215 Carlingview Dr.,
Rexdale, Ont. M9W 5X8

ATTN: 'Plate-Soils' Cassi Project CC. WAtson Lake, Y.T.

SAMPLE NO. :	PPM Cu	PPM Zn	PPM Ag	
80-CA 12000	78	125	0.1	CONTROL SAMPLES
12001	30	30	1.8	
12002	8	10	0.8	
12003	34	30	0.1	
12004	310	100	3.0	
12016	28	90	0.1	
12017	12	75	0.1	
12018	64	105	0.1	
12019	20	90	0.1	
12020	14	85	0.1	
12021	14	95	0.1	
12022	162	160	1.0	
12023	76	85	0.1	
12024	76	100	0.1	
12025	58	90	0.1	
12026	56	140	0.1	
12027	32	140	0.1	
12028	26	110	0.1	
12029	22	50	0.1	
12030	34	100	0.1	
12031	78	120	0.1	
12032	100	140	0.1	
12033	110	120	0.1	
12034	38	90	0.1	
12035	24	60	0.1	
12036	90	135	0.8	
12037	108	130	1.2	
12038	200	195	0.6	
12039	112	120	0.2	
12040	154	140	0.1	
12041	54	45	0.8	
12042	52	60	0.1	
12043	56	70	0.1	
12044	34	60	0.1	
12045	32	50	0.1	
12046	72	70	0.1	
12047	78	90	0.1	
12049	56	90	0.1	
12050	20	60	0.1	
80-CA12051	460	235	2.2	

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Rexdale, Ont. M9W 5X8

ATTN: 'Plate-Soils' Cassi Project CC. Watson Lake, Y.T.

SAMPLE NO. :	PPM Cu	PPM Zn	PPM Ag
80-CA 12052	130	140	0.1
12053	44	70	0.1
12054	22	40	0.1
12055	28	50	0.1
12056	24	30	0.6
12057	32	35	1.4
12058	32	30	2.0
12059	54	70	0.1
12060	36	55	0.1
12061	52	70	0.1
12062	36	55	0.1
12063	78	45	0.6
12064	52	55	0.1
12065	62	60	0.6
12066	88	80	0.1
12067	76	90	0.1
12068	42	60	0.2
12069	96	80	0.4
12070	78	75	0.8
12071	20	25	2.0
12072	58	70	0.4
12073	34	40	0.6
12074	48	60	0.1
12075	46	60	0.1
12076	154	210	3.6
12077	98	115	4.4
12078	50	80	0.1
12079	68	95	0.2
12080	68	70	0.1
12081	76	60	0.1
12082	28	40	0.1
12083	44	60	0.1
12084	68	80	0.4
12085	40	85	0.2
12086	84	90	0.1
12087	104	190	1.6
12088	66	70	0.2
12089	50	50	0.6
12090	40	45	1.4
80-CA 12091	56	70	0.2

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Ste. 311 - 215 Carlingview Dr.,
Rexdale, Ont. M9W 5X8

ATTN: 'Plate-Soils' Cassi Project CC. Watson Lake, Y.T.

SAMPLE NO. :	PPM Cu	PPM Zn	PPM Ag
80-CA 12092	70	575	0.2
12093	54	90	0.1
12094	12	20	1.2
12097	84	90	0.4
12098	70	80	0.1
12099	36	50	0.1
12100	74	80	0.2
12101	44	50	0.2
12102	48	60	0.4
12103	40	120	1.6
12104	10	20	0.8
12105	24	35	0.1
12106	34	45	0.2
12107	34	10	0.4
12108	16	50	0.6
12109	32	50	1.8
12110	32	80	0.2
12111	32	70	0.1
12112	10	30	0.1
12113	44	50	0.1
12114	28	35	0.1
12115	66	80	0.1
12116	30	45	0.1
12117	28	50	0.1
12118	48	65	0.1
12119	46	55	0.4
12120	94	75	0.6
12121	48	60	0.1
12122	48	50	0.1
12123	48	50	0.4
12124	36	45	0.2
12125	30	35	0.2
12126	42	55	0.1
12127	44	65	0.1
12128	24	55	0.1
12136	58	70	0.1
12137	48	75	0.1
12138	14	25	0.2
12139	30	80	0.1
80-CA12141	36	80	0.1

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TO: Canadian Occidental Petroleum Ltd.,
Minerals Division,
Ste. 311 - 215 Carlingv iew Dr.,
Rexdale, Ont. M9W 5X8
ATTN: 'Plate-Soils' Cassi Project CC. Watson Lake, Y.T.

SAMPLE NO. :	PPM Cu	PPM Zn	PPM Ag
80-CA 12143	42	90	0.1
12144	18	45	0.1
12145	48	60	0.1
12146	18	35	0.1
12147	58	70	0.1
12148	32	60	0.1
12149	44	80	0.1
12156	22	80	0.1
12157	22	35	0.2
12158	345	105	2.0
12159	22	70	0.8
12160	38	85	0.6
12161	42	50	1.0
12162	72	55	0.6
12163	52	40	0.4
12164	64	60	0.8
12165	96	75	0.2
12166	84	90	1.0
12167	34	50	0.1
12169	26	45	0.1
12170	16	35	0.1
12187	16	70	0.1
12188	32	50	0.2
12189	116	90	0.6
12190	48	70	0.1
12191	6	20	0.2
12192	10	40	0.1
12193	28	35	0.1
12194	8	20	0.2
12195	10	70	0.2
12196	10	45	0.1
12197	6	40	0.1
12198	16	60	0.1
12199	24	65	0.1
12200	24	45	1.6
12201	36	80	0.1
12202	32	30	0.1
12203	48	90	0.1
12204	54	70	0.1
80-CA12205	22	80	0.1

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CERTIFICATE OF ANALYSIS

TO: Canadian Occidental Petroleum Ltd.,
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Ste. 311 - 215 Carlingview Dr.,
Rexdale, Ont. M9W 5X8
ATTN: Cassi Project

PLATE-SOILS
CC. Watson Lake, Y.T.

CERTIFICATE NO. A8010023-001-A
INVOICE NO. 38180
RECEIVED Aug. 18/80
ANALYSED Aug. 25/80

SAMPLE NO. :	PPM Cu	PPM Zn	PPM Ag	
80CA 12007	54	34	0.1	CONTROL SAMPLES
12008	86	58	0.1	
12009	176	72	0.1	
12096	28	44	0.1	
12132	34	38	0.1	
12133	26	62	0.1	
12134	28	40	0.1	
12135	32	52	0.1	
12140	18	40	0.1	
12150	34	46	0.2	
12151	16	28	0.1	
12152	38	56	1.6	
12239	18	46	0.1	
12240	28	52	0.1	
12273	18	30	0.1	
12274	16	86	0.1	
12275	56	36	0.1	
12293	20	18	0.1	
12294	12	60	0.1	
12295	16	54	0.1	
12296	14	62	0.1	
12297	20	54	0.1	
12298	22	52	0.1	
12299	26	52	0.1	
12341	40	42	1.6	
12342	20	26	1.0	
12343	46	30	0.1	
12344	28	12	2.8	
12345	86	58	0.8	
12346	134	82	0.1	
12347	54	38	0.2	
12348	10	4	0.1	
12349	22	18	0.1	
12350	140	44	4.2	
12351	72	48	0.2	
12352	30	10	2.0	
12353	64	52	0.4	
12354	38	28	0.8	
12355	96	74	0.1	
80CA 12356	44	28	1.8	

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AREA CODE: 604
TELEX: 04-352597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 54185
INVOICE NO. 36928
RECEIVED July 5/80
ANALYSED July 15/80

TO: Canadian Occidental Petroleum Ltd.,
Minerals Division,
Ste. 311 - 215 Carlingview Dr.,
Rexdale, Ont. M9W 5X8 CC. Watson Lake, Y.T.

ATTN: Plate Claims Soils Cassi Project

SAMPLE NO. :	PPM Cu	PPM Zn	PPM Ag	
12005 80-CA	80	64	0.1	CONTROL SAMPLE
12241	104	82	0.1	
12242	60	62	0.1	
12243	60	56	0.8	
12244	74	74	0.2	
12245	82	74	0.2	
12246	80	68	0.4	
12247	92	64	0.2	
12248	66	52	0.2	
12249	60	44	0.1	
12250	86	68	0.1	
12251	66	62	0.1	
12252	60	64	0.1	
12253	60	74	0.1	
12254	80	76	0.2	
12278	32	58	0.1	
12279	40	44	0.1	
12280	34	38	0.1	
12281	16	36	0.2	
12282	64	64	0.1	
12283	32	54	0.1	
12284	64	56	0.1	
12285	48	44	0.2	
12286	40	20	0.1	
12287	68	58	0.1	
12288	90	62	0.1	
12289	38	48	0.2	
12290	62	44	0.1	
12291	42	34	0.1	
12292 80-CA	330	72	1.6	

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. A8010023-002-A

INVOICE NO. 38180

RECEIVED Aug. 18/80

ANALYSED Aug. 25/80

TO: Canadian Occidental Petroleum Ltd.,
Minerals Division,
Ste. 311 - 215 Carlingview Dr.,
Rexdale, Ont. M9W 5X8

ATTN: Cassi Project

PLATE SOILS

CC. Watson Lake, Y.T.

SAMPLE NO. :	PPM Cu	PPM Zn	PPM Ag
80CA 12357	18	10	2.8
12358	56	50	0.2
12359	14	10	2.2
12360	26	28	1.6
12361	18	16	0.4
12362	58	54	0.6
12363	76	32	4.4
12364	20	22	0.2
12365	54	58	0.2
12366	26	44	1.4
12367	68	56	1.0
12368	86	40	1.0
12369	30	26	2.4
12400	76	48	0.8
12401	88	76	1.4
12402	104	62	0.8
12403	54	26	0.8
12404	36	26	1.0
12405	30	22	1.0
12406	52	44	1.6
12407	98	66	0.6
12408	122	102	1.4
12409	134	76	0.2
12410	72	58	0.1
12411	128	80	1.0
12412	118	64	0.2
12413	295	104	1.4
80CA 12414	186	78	0.1

CTA MEMBER CANADIAN TESTING ASSOCIATION

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CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
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Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010181-001-A
INVOICE # : 38571
DATE : 09-SEP-80

CASSI-PLATE-SOILS

Sample description	Cu ppm	Zn ppm	Ag ppm	
80CA 12142	36	44	0.6	--
80CA 12153	34	48	0.2	--
80CA 12154	38	48	0.4	--
80CA 12155	20	38	0.1	--
80CA 12328	24	62	0.1	--
80CA 12329	18	42	0.4	--
80CA 12370	54	34	0.1	--
80CA 12371	14	18	0.1	--
80CA 12372	52	48	0.1	--
80CA 12373	64	68	0.1	--
80CA 12374	40	46	1.0	--
80CA 12375	26	18	0.6	--
80CA 12376	24	42	0.1	--
80CA 12377	30	44	0.1	--
80CA 12378	26	28	0.4	--
80CA 12379	24	20	0.1	--
80CA 12380	16	28	0.1	--
80CA 12381	52	34	0.4	--
80CA 12382	48	64	0.1	--
80CA 12383	34	30	0.1	--
80CA 12384	26	42	0.1	--
80CA 12385	54	66	0.4	--
80CA 12386	52	58	0.1	--
80CA 12387	56	32	0.2	--
80CA 12388	38	44	0.1	--
80CA 12389	20	36	0.1	--
80CA 12390	44	64	1.8	--
80CA 12391	26	30	1.4	--
80CA 12392	94	80	0.2	--
80CA 12393	30	30	0.1	--
80CA 12394	38	38	0.1	--
80CA 12395	26	44	2.6	--
80CA 12396	22	28	0.1	--
80CA 12397	44	46	1.2	--
80CA 12398	56	96	0.2	--
80CA 12399	38	42	0.2	--
80CA 12415	24	38	0.1	--
80CA 12416	28	48	0.6	--
80CA 12417	46	46	1.0	--
80CA 12418	30	28	0.2	--

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212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010181-002-A
INVOICE # : 38571
DATE : 09-SEP-80

CASSI-PLATE-SOILS

Sample description	Cu ppm	Zn ppm	Ag ppm	
80CA 12419	28	44	1.0	--
80CA 12420	34	38	0.6	--
80CA 12421	24	38	0.2	--
80CA 12422	48	74	0.1	--
80CA 12423	36	42	0.1	--
80CA 12424	56	36	0.2	--
80CA 12425	34	30	0.1	--
80CA 12426	26	42	0.1	--
80CA 12427	18	42	0.1	--
80CA 12428	16	43	0.1	--
80CA 12429	24	48	0.4	--
80CA 12430	18	38	0.1	--
80CA 12431	26	44	0.1	--
80CA 12432	22	22	1.0	--
80CA 12433	64	58	0.2	--
80CA 12434	52	56	0.2	--
80CA 12435	36	42	1.4	--
80CA 12436	10	8	0.2	--
80CA 12437	54	58	0.8	--
80CA 12438	18	18	1.4	--
80CA 12439	34	34	0.2	--
80CA 12440	18	34	0.1	--
80CA 12441	16	44	0.1	--
80CA 12442	24	54	0.1	--
80CA 12443	36	48	0.1	--
80CA 12447	26	48	0.1	--
80CA 12448	14	42	0.8	--
80CA 12449	16	40	0.1	--
80CA 12450	20	34	0.1	--
80CA 12451	24	48	0.1	--
80CA 12452	52	48	0.1	--
80CA 12453	24	30	0.2	--
80CA 12454	24	48	0.4	--
80CA 12455	34	44	1.0	--
80CA 12456	28	24	1.0	--
80CA 12457	32	42	1.0	--
80CA 12458	24	46	1.2	--
80CA 12459	34	34	1.0	--
80CA 12460	22	26	0.2	--
80CA 12461	126	108	0.1	--

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CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010169-001-A
INVOICE # : 38563
DATE : 09-SEP-80

CASSI PLATE SOILS

Sample description	Cu ppm	Zn ppm	Ag ppm	
80CA 12462	42	58	0.1	--
80CA 12463	48	84	2.0	--
80CA 12464	52	60	2.4	--
80CA 12465	30	38	0.2	--
80CA 12466	36	26	0.1	--
80CA 12467	34	54	1.4	--
80CA 12468	30	42	0.1	--
80CA 12469	14	24	0.4	--
80CA 12470	42	56	0.1	--
80CA 12471	68	66	2.0	--
80CA 12472	34	62	1.0	--
80CA 12473	26	50	0.1	--
80CA 12474	22	52	0.2	--
80CA 12475	14	28	0.6	--
80CA 12476	14	30	0.2	--
80CA 12477	48	28	0.8	--
80CA 12478	36	36	2.2	--
80CA 12479	104	62	1.6	--
80CA 12480	58	44	0.4	--
0CA 12481	24	44	0.8	--
CA 12482	56	66	0.8	--
CA 12483	16	40	2.6	--
0CA 12484	16	46	1.8	--
0CA 12485	14	48	1.4	--
80CA 12486	22	34	0.2	--
80CA 12487	16	48	0.1	--
80CA 12488	18	38	0.1	--
80CA 12489	20	40	0.1	--
80CA 12490	22	32	0.1	--
80CA 12491	22	46	0.1	--
0CA 12492	14	26	0.1	--
0CA 12493	18	54	0.1	--
0CA 12494	24	36	0.1	--
80CA 12495	30	52	0.4	--
80CA 12496	24	24	0.1	--
80CA 12497	54	60	0.2	--
80CA 12498	38	36	0.1	--
8 12499	26	36	2.0	--
8. A 12500	46	64	1.2	--
80CA 12501	10	18	1.6	--

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TELEX: 043-52597

CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010169-002-A
INVOICE # : 38563
DATE : 09-SEP-80

CASSI PLATE SOILS

Sample description	Cu ppm	Zn ppm	Ag ppm	
80CA 12502	62	44	0.2	--
80CA 12503	34	50	0.4	--
80CA 12504	30	42	0.4	--
80CA 12505	48	66	0.8	--
80CA 12506	42	44	0.1	--
80CA 12507	54	104	0.1	--
80CA 12508	42	60	0.4	--
80CA 12509	36	44	1.4	--
80CA 12510	24	24	1.2	--
80CA 12511	6	8	0.1	--
80CA 12512	44	46	0.6	--
80CA 12513	42	42	0.4	--
80CA 12514	52	44	1.2	--
80CA 12515	26	44	2.0	--
80CA 12516	28	30	0.6	--
80CA 12517	62	62	2.0	--
80CA 12518	54	60	0.8	--
80CA 12519	68	76	0.4	--
0CA 12521	116	128	2.4	--
CA 12522	56	70	1.0	--
CA 12523	92	38	1.6	--
0CA 12524	34	36	1.4	--
80CA 12525	4	54	1.8	--
80CA 12526	50	48	1.0	--
80CA 12527	52	54	2.2	--
80CA 12528	28	42	0.1	--
80CA 12529	24	48	0.1	--
80CA 12530	70	62	1.6	--
80CA 12531	8	12	0.2	--
80CA 12532	18	24	0.2	--
80CA 12533	94	52	1.6	--
80CA 12534	118	128	7.2	--
80CA 12535	42	48	0.2	--
80CA 12544	36	50	0.6	--
80CA 12545	34	46	1.0	--
80CA 12546	38	44	0.4	--
80CA 12547	40	48	0.1	--
8 12548	28	48	0.1	--
8 A 12549	42	48	0.1	--
80CA 12550	42	48	0.1	--

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CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
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Ste. 311-215 Carlingview Dr.,
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M9W 5X8

CERT. # : A8C10170-001-
INVOICE # : 38563
DATE : 09-SEP-80

CASSI PLATE SOILS

Sample description	Cu ppm	Zn ppm	Ag ppm	
80CA 12551	52	42	0.6	--
80CA 12552	34	48	0.1	--
80CA 12553	22	30	1.6	--
80CA 12554	86	72	0.1	--
80CA 12555	24	30	1.4	--
80CA 12556	46	46	0.2	--
80CA 12557	38	44	1.2	--
80CA 12560	82	56	0.1	--
80CA 12576	44	52	0.2	--
80CA 12577	26	36	0.1	--
80CA 12578	14	22	0.4	--
80CA 12579	76	54	0.1	--
80CA 12580	62	66	0.6	--
80CA 12581	58	64	0.1	--
80CA 12582	22	42	0.1	--
80CA 12583	18	44	0.1	--
80CA 12584	38	36	0.1	--
80CA 12585	26	44	0.1	--
80CA 12586	30	58	0.1	--
80CA 12587	400	270	1.0	--
80CA 12588	32	54	0.1	--
80CA 12589	74	72	0.1	--
80CA 12590	30	46	0.1	--
80CA 12591	56	50	0.1	--
80CA 12592	56	86	0.1	--
80CA 12593	32	46	0.1	--
80CA 12594	40	82	0.1	--
80CA 12595	8	10	0.1	--
80CA 12596	34	64	0.1	--
80CA 12597	18	40	0.1	--
80CA 12598	54	108	0.4	--
80CA 12599	14	66	0.1	--
80CA 12600	18	70	0.1	--
80CA 12601	22	98	0.1	--
80CA 12602	118	136	1.0	--
80CA 12603	166	166	0.6	--
80CA 12604	124	132	0.4	--
8[illegible] 12605	158	146	0.2	--
[illegible]A 12606	140	134	0.1	--
80CA 12607	136	128	1.0	--

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CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010170-002-A
INVOICE # : 38563
DATE : 09-SEP-80

CASSI PLATE SOILS

Sample description	Cu ppm	Zn ppm	Ag ppm	
80CA 12608	86	108	1.0	--
80CA 12609	28	54	0.2	--
80CA 12610	22	38	0.1	--
80CA 12611	36	44	0.1	--
80CA 12612	54	64	0.1	--
80CA 12613	44	58	0.2	--
80CA 12614	74	62	0.1	--
80CA 12615	54	66	0.1	--
80CA 12616	92	90	0.1	--
80CA 12617	96	96	0.2	--
80CA 12618	98	92	0.1	--
80CA 12619	86	68	0.1	--
80CA 12620	66	74	0.1	--
80CA 12621	62	66	0.1	--
80CA 12622	54	66	0.1	--
80CA 12623	42	46	0.4	--
80CA 12624	52	52	0.8	--
80CA 12625	60	58	1.0	--
80CA 12626	36	38	1.2	--
80CA 12627	30	50	1.0	--
80CA 12628	56	60	1.0	--
80CA 12629	32	46	0.8	--
80CA 12630	34	42	0.1	--
80CA 12631	62	58	0.2	--
80CA 12632	108	78	0.2	--
80CA 12633	84	74	0.2	--
80CA 12634	98	86	0.4	--
80CA 12635	96	96	0.4	--
80CA 12636	108	86	0.8	--
80CA 12637	52	44	0.4	--
80CA 12638	40	46	0.2	--
80CA 12639	58	46	0.1	--
80CA 12640	34	50	0.8	--
80CA 12641	56	60	0.2	--
80CA 12642	54	58	0.1	--
80CA 12643	42	44	0.2	--
80CA 12644	54	50	0.1	--
8[illegible] 12010	30	30	0.1	-- CONTROL
8[illegible]A 12011	16	18	1.4	-- SAMPLES
80CA 12012	66	58	2.0	--

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CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010170-003-A
INVOICE # : 38563
DATE : 09-SEP-80

CASSI PLATE SOILS

Sample description	Cu ppm	Zn ppm	Ag ppm	
80CA 12013	14	26	1.6	-- CONTROL
80CA 12014	168	22	2.2	-- SAMPLES
80CA 12015	400	290	1.4	--
80CA 12444	86	72	0.1	--

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TELEX: 043-52597

CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010350-001-A
INVOICE # : 38772
DATE : 15-SEP-80

CASSI PLATE-SOIL

Sample description	Cu ppm	Zn ppm	Ag ppm	
80CA 12993	78	164	1.0	--

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CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 53874
INVOICE NO. 36624
RECEIVED June 25/80
ANALYSED July 1/80

TO: Canadian Occidental Petroleum Ltd.
Minerals Division
Ste. 311 - 215 Carlingview Dr.
Rexdale, Ont. M9W 5X8 'Plate-Stream Sediments'
ATTN: 80-CA 12206-12229 'Plate-Soils' 'Cassi Proj. 80-CA 12902 SS-

SAMPLE NO. :	PPM Cu	PPM Zn	PPM Ag	
80-CA 12206	44	80	0.1	SOILS
12207	16	60	0.1	
12208	34	80	0.1	
12209	58	100	0.1	
12210	32	70	0.1	
12211	22	90	0.1	
12214	40	90	0.1	
12215	82	90	0.1	
12216	36	45	0.2	
12217	162	180	0.1	
12218	72	160	0.1	
12219	76	90	0.1	
12220	102	90	0.1	
12221	64	80	0.2	
12222	122	70	0.4	
12223	132	170	0.1	
12224	106	100	0.8	
12225	76	80	1.0	
12226	90	90	0.1	
12227	70	50	0.4	
12228	104	90	0.6	
80-CA 12229	86	70	0.8	
80-CA 12902 SS	24	460	2.2	STREAM SEDIMENTS
12903	60	60	7.0	
12904	52	60	4.6	
12905	54	100	5.2	
12906	44	255	0.1	
12907	136	80	4.0	
12908	48	55	3.2	
12909	64	85	5.4	
12910	44	145	0.2	
12911	42	95	1.6	
12912	66	140	1.0	
12913	66	70	0.2	
80-CA 12920 SS	74	115	0.2	

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TELEPHONE: (604)984-0221
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010154-001-A
INVOICE # : 38555
DATE : 09-SEP-80

CASSI-PLATE S.S.
STREAM SEDIMENTS

Sample description	Pb ppm			
80-CA-12902	1	--	--	--
80-CA-12903	4	--	--	--
80-CA-12904	2	--	--	--
80-CA-12905	1	--	--	--
80-CA-12906	6	--	--	--
80-CA-12907	4	--	--	--
80-CA-12908	1	--	--	--
80-CA-12909	6	--	--	--
80-CA-12910	1	--	--	--
80-CA-12911	1	--	--	--
80-CA-12912	1	--	--	--
80-CA-12913	6	--	--	--
80-CA-12920	8	--	--	--

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CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 54425
INVOICE NO. 37097
RECEIVED July 10/80
ANALYSED July 18/80

TO: Canadian Occidental Petroleum Ltd.,
Minerals Division,
Ste. 311 - 215 Carlingview Dr.,
Rexdale, Ont. M9W 5X8

ATTN: Cassi - Plate Silts CC. Watson Lake,

SAMPLE NO. :	PPM Cu	PPM Pb	PPM Zn	PPM Ag
12171 80-CA	54	10	48	1.0
12172	142	12	225	1.4
12173	128	14	360	0.8
12174	132	4	650	0.4
12175	182	8	745	0.8
12176	176	12	1100	0.8
12177	72	6	48	10
12178	74	8	34	6.0
12179	52	8	56	7.0
12180	68	6	42	14
12181	80	8	46	7.2
12182	40	4	44	8.4
12183	18	4	22	20
12184	88	12	68	+20
12212	20	4	36	0.1
12213	34	2	56	0.4
12276	30	6	52	0.4
12277 80-CA	34	4	56	0.2

Note: + denotes greater than

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NORTH VANCOUVER, B.C.
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TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. A8010029-001-A
INVOICE NO. 38180
RECEIVED Aug. 18/80
ANALYSED AUg. 25/80

TO: Canadian Occidental Petrolem Ltd.,
Minerals Division,
Ste. 311 - 215 Carlingview Dr.,
Rexdale, Ont. M9W 5X8
ATTN: Cassi Project

CC. Watson Lake, Y.T.

STREAM SEDIMENTS

SAMPLE NO. :	PPM Cu	PPM Zn	PPM Ag
80CA 12006 SS	72	72	2.0
12256	24	66	0.1
12257	32	70	0.1
12258	20	60	0.1
12259	58	122	0.1
12260	36	84	0.1
12261	34	86	0.1
12262	36	94	0.1
12263	48	142	0.6
12264	44	106	0.1
12265	64	106	0.1
12266	42	102	0.1
12267	46	98	0.1
12268	48	108	0.1
12269	52	82	0.1
12270	64	555	0.1
12271	46	156	0.1
12272	16	108	0.1
12301	68	76	0.8
12302	62	66	0.6
12303	56	64	2.2
12304	64	64	1.6
12305	96	104	4.2
12306	102	86	1.0
12307	190	78	0.6
12308	38	62	0.1
12309	34	60	0.1
12310	34	60	0.1
12311	42	64	0.1
12312	102	120	0.1
12313	86	82	1.4
12314	114	60	4.6
12315	98	44	3.2
12316	186	38	6.4
12317	38	60	1.0
12318	24	30	0.2
12319	34	34	0.2
12320	58	66	0.2
12321	74	66	1.4
80CA 12322	56	54	0.8

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CERTIFIED BY: Hart Bichler

CHEMEX LABS LTD.

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NORTH VANCOUVER, B.C.
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TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. A8010029-002-A
INVOICE NO. 38180
RECEIVED Aug. 18/80
ANALYSED Aug. 25/80

TO: Canadian Occidental Petroleum Ltd.,
Minerals Division,
Ste. 311 - 215 Carlingview Dr.,
Rexdale, Ont. M9W 5X8

ATTN: Cassi Project CC. Watson Lake, Y.T.

STREAM SEDIMENTS

SAMPLE NO. :	PPM Cu	PPM Zn	PPM Ag
80CA 12323ss	72	72	1.0
12324	74	62	2.6
12325	96	66	2.4
12326	78	58	3.2
80CA 12327	74	54	1.6

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: [signature]

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648 984-0221
AREA CODE: 604
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 69237
INVOICE NO. 37532
RECEIVED July 22, 1980
ANALYSED August 5, 1980

TO: Canoxy
311 - 215 Carlingview Drive
Rexdale, Ontario M9W 5X8

ATTN: Cassi-Plate Silts c.c. Watson Lake

SAMPLE NO. :	oz/ton Ag
80WA 12184	0.45

MEMBER CANADIAN TESTING ASSOCIATION

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 54203
INVOICE NO. 37710
RECEIVED July 5/80
ANALYSED Aug. 12/80

TO: Canadian Occidental Petroleum Ltd.,
Minerals Division,
Ste. 311 - 215 Carlingview Dr.,
Rexdale, Ont. M9W 5X8
ATTN: Cassi-Plate Claims Heavy Minerals CC. Watson Lake, Y.T.

SAMPLE NO. :	PPM Cu	PPM Mo	PPM Pb	PPM Zn	PPM U	PPM Ag	PPM W	PPM Th
12920	375	4	12	530	9.0	2.2	4	to follow

CERTIFIED BY: Hart Bichler

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1

TELEPHONE: (604)984-0221
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010501-001-A
INVOICE # : 39333
DATE : 07-OCT-80

CASSI PLATE-CLAIMS

HEAVY MINERAL

Sample description	Prep code	Au -(AA) ppb					
80-CA-12920 H.M.	213	10	--	--	--	--	--

Certified by ....J. McKay..........

4004 WESBROOK MALL
UNIVERSITY OF B.C. CAMPUS
VANCOUVER B.C. V6T 2A3
TELEPHONE (604) 224-2388

CERTIFICATE OF ANALYSIS

CERTIFICATE # A8001863

CLIENT : CAN OXY

ATTN. : CASSI - PLATE CLAIMS HEAVY MINERALS

SAMPLES RECEIVED : 14-AUG-80
ANALYSIS COMPLETED : 14-AUG-80
NUMBER OF SAMPLES : 1
CLIENT P.O. NUMBER : 54203-B
INVOICE NO. : 1405
37917

SAMPLE ID	TH PPM
80-CA-12920-HM	8.

CERTIFIED BY .Hart Bichler......

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212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1

TELEPHONE: (604)984-0221
TELEX: 043-52597

CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010014-001-A
INVOICE # : 39887
DATE : 23-OCT-80

Plate Heavy Mins.

****************HEAVY MINERAL SEPS****************

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ag ppm	U ppm
80CA 12180HM	213	450	6	16	495	2.8	7.0
80CA 12255HM	213	370	10	8	460	0.8	8.0
80CA 12260HM	213	70	6	1	198	0.1	4.0
30CA 12302HM	213	230	5	1	265	0.4	4.0
80CA 12323HM	213	385	5	1	420	1.2	5.0
80CA 12327HM	213	320	5	8	340	1.2	6.0

Certified by ....

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1

TELEPHONE: (604)984-0221
TELEX: 043-52597

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78

CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010014-001-B
INVOICE # : 40892
DATE : 29-NOV-80
P.O. # : CASSI
Plate Heavy Mins.

*****************HEAVY MINERAL SEPS****************

Sample description	Prep code	Au -(AA) ppb	W ppm	Sn ppm	Th (NAA) ppm		
80CA 12180HM	213	10	11	2	3000	--	--
80CA 12255HM	213	<10	2	4	1100	--	--
80CA 12260HM	213	<10	1	1	940	--	--
80CA 12302HM	213	<10	1	1	N.S.S.	--	--
80CA 12323HM	213	<10	10	2	940	--	--
80CA 12327HM	213	<10	1	1	1500	--	--

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Certified by Hart Bichler

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CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlinsview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010266-001-A
INVOICE # : 10647
DATE : 21-NOV-80
P.O. # : NONE
CASSI-PLATE 3-4 H.M.

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	As ppm	U ppm
80CA 12313 HM	213	230	2	4	260	0.8	2.5
80CA 12314 HM	213	290	5	1	290	1.8	2.5

Certified by ....

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212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010266-001-B
INVOICE # : 40647
DATE : 21-NOV-80
P.O. # : NONE
CASSI-PLATE 3-4 H.M.

Sample description	Prep code	Au -(AA) ppb	W ppm	Sn ppm	Th (NAA) ppm		
80CA 12313 HM	213	<10	1	1	35	--	--
80CA 12314 HM	213	<10	1	1	7	--	--

MEMBER
CANADIAN TESTING
ASSOCIATION

Certified by ....

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 55383
INVOICE NO. 38079
RECEIVED Aug. 7/80
ANALYSED Aug. 20/80

TO: Canadian Occidental Petroleum Ltd.,
Minerals Division,
STe. 311 - 215 Carlingview Dr.,
Rexdale, Ont. M9W 5X8

ATTN: PLATE - ROCKS

CC. Watson Lake, Y.T.

SAMPLE NO. :	PPB Au	PPM Cu	PPM Mo	PPM Zn	PPM Ag	Orig. Cert. #53897
80-CA-12901R	-10		1			
12902R	-10		1			
12903	-10		5			
12907	-10		1			
12909				28		
12910	-10		1			
12911		6		20		
12912	-10		1			
12913	-10				0.1	
12914	-10				0.1	
12916	-10		1			
12918	-10		1			
12919	-10		1			
12920		14				
80-CA 12925		14		6		
12927	-10					
80-CA 12928R	-10					

Note: - denotes less than

CERTIFIED BY: Hart Bichle

MEMBER CANADIAN TESTING ASSOCIATION

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

CHEMEX LABS LTD.

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 53897
INVOICE NO. 36802
RECEIVED June 25, 1980
ANALYSED July 10, 1980

TO: Canadian Occidental Petroleum Ltd.
Minerals Division
311 - 215 Carlingview Drive
Rexdale, Ontario
ATTN: M9W 5X8

Rocks

SAMPLE NO. :	PPM Cu	PPM Mo	PPM Zn	PPM Ag	PPB Au	PPM Sb	PPM W
80-CA 12901R	36		40	0.1			
12902	54		140	0.1			
12903	14		35	1.0			
12904		1		0.1	-0.1	1.0	
12907			40	0.1			
12909		1		0.1	-10	22	
12910	98		250	0.4			
12911		1		0.6	-10	0.8	
12912	36		110	0.1			
12913		1	10				1
12914	8	2	15				
12916	26		10	0.1			
12918	54		15	0.1			
12919	32		10	0.1			
12920		1		0.1			
12921	56		85	0.4			
80-CA 12924		2		1.0	440	5.4	
12925		10		0.1	-10	1.8	
12926		1					
12927	38	2	75	0.1			1
80-CA 12928	108	1	150	0.2			1

Note: - Denotes less than

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Bichle

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 54202
INVOICE NO. 36980
RECEIVED July 5, 1980
ANALYSED July 17, 1980

TO: Canoxy
311 - 215 Carlingview Drive
Rexdale, Ontario M9W 5X8

ATTN: ROCKS Project CASSI-Plate-Rocks c.c. Watson Lake

SAMPLE NO. :	PPM Cu	PPM Pb	PPM Zn	PPM Ag
RMK-PL-1A	42	4	78	0.1
1B	80	1	68	0.1
2	168	1	90	0.1
3	142	8	46	0.1
4	38	1	8	0.1
6	174	24	72	0.1
7	156	4	44	0.1
8	136	1	82	0.1
9	72	2	28	1.2
RMK-PL-10	114	2	62	0.1

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: [signature]

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 54645
INVOICE NO. 37253
RECEIVED July 16, 1980
ANALYSED July 25, 1980

TO: Canoxy
Minerals Division
311 - 215 Carlingview Drive
Rexdale, Ontario
ATTN: M9W 5X8 'Plate-Rocks' Cassi Project

SAMPLE NO. :	PPM Cu	PPM Mo	PPM Ag	PPM Sb
80CA 12907R	138	1		
80CA 12909R	68			23
80CA 12913R	62		0.2	

From #53897

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Bichler

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 54822

INVOICE NO. 37655

RECEIVED July 22/80

ANALYSED Aug. 8/80

TO: Canadian Occidental Petroleum Ltd.,
Minerals Division,
Ste. 311 - 215 Carlingview Dr.,
Rexdale, Ont. M9W 5X8

ATTN: Plate Rocks - Cassi Project CC. Watson Lake, Y.T.

SAMPLE NO. :	PPM Cu	PPM Pb	PPM Zn	PPM Ag
89-CA 12926R	14	1	72	0.1
12927		1		
80-CA 12928R		1		

CERTIFIED BY: Hart Bichler

[illegible] ANALYSTS LTD.
4004 WESBROOK MALL
UNIVERSITY OF B.C. CAMPUS
VANCOUVER B.C. V6T 2A3
TELEPHONE (604) 224-2388

CERTIFICATE OF ANALYSIS

CERTIFICATE # A8001969

CLIENT : CAN OXY

ATTN. : "Plate-Rocks" "Cassi Project"

1414

SAMPLES RECEIVED : 22-AUG-80
ANALYSIS COMPLETED : 25-AUG-80
NUMBER OF SAMPLES : 1
CLIENT P.O. NUMBER : 69144
INVOICE NO. : 38338

SAMPLE ID	AU PPB
80CA-12924	440.

CERTIFIED BY ....

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010354-001-A
INVOICE # : 38886
DATE : 18-SEP-80

CASSI PLATE ROCKS

Sample description	Cu ppm	Pb ppm	Zn ppm	Ag ppm
80CA 12950 R	14	12	4	0.4
80CA 12951 R	68	14	24	0.2
80CA 12952 R	30	4	4	0.1
80CA 12953 R	46	1	4	6.4
80CA 12954 R	134	28	46	1.0
80CA 12955 R	22	2	2	2.6
80CA 12956 R	34	10	4	1.4
80CA 12957 R	18	4	1	0.4
80CA 12958 R	16	6	4	0.8
80CA 12959 R	40	16	12	0.2
80CA 12960 R	18	10	180	0.1
80CA 12961 R	186	2	48	0.2
80CA 12962 R	54	1	180	0.2
80CA 12963 R	38	1	42	0.1
80CA 12964 R	44	1	320	0.1
80CA 12965 R	6	2	94	0.1
0CA 12966 R	74	6	40	1.8
CA 12967 R	56	12	20	0.2
CA 12968 R	34	2	30	0.6
CA 12969 R	18	4	20	0.8
0CA 12970 R	32	1	48	2.4
80CA 12971 R	34	1	30	0.2
80CA 12972 R	22	6	90	0.1
80CA 12973 R	26	2	12	2.8
80CA 12974 R	10	2	10	0.2
80CA 12975 R	96	1	62	0.1
80CA 12976 R	210	24	44	0.2
80CA 12977 R	104	8	10	0.8
80CA 12978 R	22	1	2	0.1
80CA 12979 R	6	2	10	0.1
80CA 12980 R	8	2	1	0.1
80CA 12981 R	62	8	56	1.2
80CA 12982 R	24	1	18	0.2
80CA 12983 R	14	8	4	0.2
80CA 12984 R	30	6	26	1.6
80CA 12985 R	34	4	12	0.2
80CA 12986 R	68	4	104	0.2
8 12987 R	34	2	36	0.1
8 A 12988 R	136	10	78	0.8
80CA 12989 R	74	1	110	0.4

Certified by ..Hart Bichler..

MEMBER
CANADIAN TESTING
ASSOCIATION

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010354-001-E
INVOICE # : 38886
DATE : 18-SEP-80

CASSI PLATE ROCKS

Sample description	Au -(AA) ppb			
80CA 12950 R	--	--	--	--
80CA 12951 R	10	--	--	--
80CA 12952 R	--	--	--	--
80CA 12953 R	--	--	--	--
80CA 12954 R	--	--	--	--
80CA 12955 R	<10	--	--	--
80CA 12956 R	--	--	--	--
80CA 12957 R	<10	--	--	--
80CA 12958 R	--	--	--	--
80CA 12959 R	--	--	--	--
80CA 12960 R	--	--	--	--
80CA 12961 R	--	--	--	--
80CA 12962 R	--	--	--	--
80CA 12963 R	--	--	--	--
80CA 12964 R	--	--	--	--
80CA 12965 R	--	--	--	--
80CA 12966 R	--	--	--	--
80CA 12967 R	--	--	--	--
80CA 12968 R	--	--	--	--
80CA 12969 R	--	--	--	--
80CA 12970 R	--	--	--	--
80CA 12971 R	<10	--	--	--
80CA 12972 R	--	--	--	--
80CA 12973 R	--	--	--	--
80CA 12974 R	<10	--	--	--
80CA 12975 R	--	--	--	--
80CA 12976 R	--	--	--	--
80CA 12977 R	--	--	--	--
80CA 12978 R	<10	--	--	--
80CA 12979 R	<10	--	--	--
80CA 12980 R	<10	--	--	--
80CA 12981 R	<10	--	--	--
80CA 12982 R	<10	--	--	--
80CA 12983 R	<10	--	--	--
80CA 12984 R	--	--	--	--
80CA 12985 R	--	--	--	--
80CA 12986 R	--	--	--	--
8[illegible] 12987 R	--	--	--	--
8[illegible]A 12988 R	--	--	--	--
80CA 12989 R	--	--	--	--

Certified by ....Hart Bichler..........

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212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

CERTIFICATE OF ANALYSIS

TO : Canadian Occidental Petroleum Ltd.,
Minerals Division
Ste. 311-215 Carlingview Dr.,
Rexdale Ontario
M9W 5X8

CERT. # : A8010354-002-A
INVOICE # : 38886
DATE : 18-SEP-80

CASSI PLATE ROCKS

Sample Description	Cu ppm	Pb ppm	Zn ppm	Ag ppm
80CA 12990 R	110	2	14	1.6
80CA 12991 R	56	4	50	0.2
80CA 12992 R	42	1	38	0.2

Certified by ...Hart Bichler...

APPENDIX II

DESCRIPTIONS OF ROCK SAMPLES,

TRACE ELEMENT CONTENTS

ROCK DESCRIPTIONS

PLATE CLAIM GROUP

Sample No.	Description
80-CA-12901R	Quartzite Limonitic buff grey quartzite; finely laminated, highly fractured.
80-CA-12902R	Siltstone Fine-grained, laminated graphitic siltstone, minor limonite, contains numerous quartz veins.
80-CA-12903R	Graphite-chlorite schist Fine-grained, folded unit with chlorite alteration.
80-CA-12904R	Quartz vein White bull quartz with minor limonite and chlorite alteration in siltstone.

80-CA-12901R:

Mo	Cu	Zn	Ag (ppm)	Au (ppb)
1	36	40	0.1	<10

80-CA-12902R:

Mo	Cu	Zn	Ag (ppm)	Au (ppb)
1	54	140	0.1	<10

80-CA-12903R:

Mo	Cu	Zn	Ag (ppm)	Au (ppb)
5	14	35	1.0	<10

80-CA-12904R:

Mo	Ag	Sb (ppm)	Au
1	0.1	1.0	<10

80-CA-12907R

Quartzite
Limonite-stained, fine-grained laminated quartzite with quartz veining

Mo	Cu	Zn	Ag (ppm)	Au (ppb)
1	38	40	0.1	<10

80-CA-12909R

Quartz vein
Yellow and green staining on weathered surface. Highly fractured in siltstone with thin graphitic laminae.

Cu	Zn	Ag	Sb (ppm)	Au (ppb)
16	28	0.1	23	<10

80-CA-12910R

Biotite-chlorite-quartz-feldspar-graphite schist
Folded unit with abundant pyrite, numerous fractures underlying siltstone.

Mo	Cu	Zn	Ag (ppm)	Au (ppb)
1	98	250	0.4	<10

80-CA-12911R

Quartz vein
60 cm wide white bull quartz vein cutting siltstone. Minor limonite staining chlorite alteration and few vugs.

Mo	Cu	Zn	Ag	Sb (ppm)	Au (ppb)
1	6	20	0.6	0.8	<10

80-CA-12912R

Phyllitic quartzite/siltstone
Finely interlaminated (1-3 mm) grey quartzite/siltstone phyllite heavily fractured and folded with limonite stain.

Mo	Cu	Zn	Ag (ppm)	Au (ppb)
1	36	110	0.1	<10

80-CA-12913R

Quartzite
Medium-grained, massive but jointed. Rusty weathering.

Mo	Cu	Zn	Ag	W (ppm)	Au (ppb)
1	6	10	0.1	1	<10

80-CA-12914R

Quartzite
Medium-grained quartzite with abundant quartz veining. Extremely jointed and fractured.

Mo	Cu	Zn	Ag (ppm)	Au (ppb)
2	8	15	0.1	<10

80-CA-12916R

Felsite dyke rock
Fine-grained, yellowish, highly fractured in situ.

Mo	Cu	Zn	Ag (ppm)	Au (ppb)
1	26	10	0.1	<10

80-CA-12918R

Graphitic siltstone
Laminated, slightly silicified, well jointed, limonite stained.

Mo	Cu	Zn	Ag (ppm)	Au (ppb)
1	54	15	0.1	<10

80-CA-12919R

Phyllitic quartzite
Fine-grained laminated quartzite and mica, well-jointed.

Mo	Cu	Zn	Ag (ppm)	Au (ppb)
1	32	10	0.1	<10

80-CA-12920R

Biotite-hornblende quartz monzonite/granodiorite
Medium crystalline, biotite + hornblende (15%), K-feldspar (5-10%), quartz (15%),. plagioclase (60%).

Mo	Cu	Ag (ppm)
1	14	0.1

80-CA-12921R

Feldspathic siltstone/quartzite
Limonite stained, slightly micaceous.

Cu	Zn	Ag (ppm)
56	85	0.4

80-CA-12924R

Quartz vein
2-5 cm wide limonite stained vein in fine-grained laminated siltstone. Vein is limonite stained with some vugs.

Mo	Ag	Sb (ppm)	Au (ppb)
2	1.0	5.4	<10

80-CA-12925R

Quartz vein
Laminated cherty quartz rock with chloritic seams in quartzite.

Mo	Cu	Zn	Ag	Sb (ppm)	Au (ppb)
10	14	6	0.1	1.8	<10

80-CA-12926R

Quartz monzonite
Highly fractured and granulated, pervasively limonite stained; coated (1 mm thick) with limonite.

Mo	Pb	W	Cu	Pb	Zn	Ag (ppm)
1	1	1	14	1	72	0.1

80-CA-12927R

Limonite cemented breccia
Limonite cemented breccia or soil with quartzite, phyllite and feldspathic fragments.

Mo	Cu	Pb	Zn	Ag	W (ppm)	Au (ppb)
2	38	1	75	0.1	1	<10

80-CA-12928R

Limonite cemented soil
Breccia or soil cemented by limonite to form a brittle rock. Contains granite fragments.

Mo	Cu	Pb	Zn	Ag	W (ppm)	Au (ppb)
1	108	1	150	0.2	1	<10

80-CA-12950R

Graphitic quartzite
Fine-grained, interlayered quartz and graphitic quartzite. Limonite staining occurs on weathered surface and along fractures. Secondary limonite alters weathered surface to a purple-blue-green colour. Pyrite pits are rare. Fresh surface is dark grey.

Cu	Pb	Zn	Ag	(ppm)
14	12	4	0.4	

80-CA-12951R

Quartz vein
5 cm wide quartz vein in a folded quartz porphyritic quartzite. Quartz blebs may be quartz veining caught up in host rock. Quartzite unit has micaceous layering. Quartz vein is limonite stained on weathered surface and along fractures. No visible mineralization.

Cu	Pb	Zn	Ag	(ppm)	Au	(ppb)
68	14	24	0.2		10	

80-CA-12952R

Quartzite
Fine-grained. Weathered surface is limonite stained, has few fractures and limonite coated vugs. Occurs in small fractured outcrop.

Cu	Pb	Zn	Ag	(ppm)
30	4	4	0.1	

80-CA-12953R

Quartzite
Medium-grained "brecciated" quartzite with angular quartzite fragments and fracture filled veinlets of a dense soft white mineral with good cleavage (barite?). Limonite staining occurs in fractures and coats vugs. Unit is about 1 cm wide increasing to 20 cm and is 2 m long.

Cu	Pb	Zn	Ag	(ppm)
46	1	4	6.4	

80-CA-12954R

Limonite cemented breccia
Small pod of limonite cemented breccia ±50 cm wide terminated at graphitic seam (see diagram). Fragments are angular quartz and quartzite up to 4 cm. Slightly vuggy.

Cu	Pb	Zn	Ag	(ppm)
134	28	46	1.0	

80-CA-12955R

Quartz vein
Small pod of limonite stained quartz vein in unit of quartzite to graphitic quartzite. Few pyrite pits and vugs. (See diagram .)

Cu	Pb	Zn	Ag	(ppm)	Au	(ppb)
22	2	2	2.6		<10	

80-CA-12956R

Limonite cemented breccia
Limonite cemented breccia with small fragments of quartzite. Kaolinization occurs along fractures. Few soft, white, well-cleaved minerals.

Cu	Pb	Zn	Ag	(ppm)
34	10	4	1.4	

80-CA-12957R

Quartz vein
10 m long intermittently occupying a fracture 1.5 cm to 5 cm wide. Bull quartz with few fractures and minor rusty weathering. No visible mineralization.

Cu	Pb	Zn	Ag	(ppm)	Au	(ppb)
18	4	1	0.4		<10	

80-CA-12958R

Quartzite

Fine-grained white quartzite with thin pyritic graphitic laminations. Unit is folded and fractures are filled with graphitic quartzite. Weathered surface is limonite stained and has few pyrite pits.

Cu	Pb	Zn	Ag	(ppm)
16	6	4	0.8	

80-CA-12959R

Felsite dyke

Fine-grained rusty weathered fractured dyke. Freshest surface is leached white, possibly kaolinized. Fractured surfaces have concentric weathering rims of limonite.

Cu	Pb	Zn	Ag	(ppm)
40	16	12	0.2	

80-CA-12960R

Diorite Dyke

Parallel dyke to and underlying (?) 12959R and is about 2 m wide. Contains biotite plates up to 3 mm and disseminated pyrrhotite. Fine-grained, light brown on weathered, grey on fresh surface.

Cu	Pb	Zn	Ag	(ppm)
18	10	180	0.1	

80-CA-12961R

Limonite cemented breccia

Thin layer about 1.5 cm to 2 cm wide infilled with limonite cemented quartzite and quartz fragments. Occurs within graphitic quartzite unit, possible bedding plane slip surface.

Cu	Pb	Zn	Ag	(ppm)
186	2	48	0.2	

80-CA-12962R

Limonite cemented polymictic breccia

Limonite cemented angular fragments of quartzite and large rounded boulders of granite up to 30 cm.

Cu	Pb	Zn	Ag	(ppm)
54	1	180	0.2	

80-CA-12963R

Quartzite

Fine-grained white quartzite with thin micaceous seams grading to a phyllitic quartzite.

Cu	Pb	Zn	Ag	(ppm)
38	1	42	0.1	

80-CA-12964R

Limonite cement

Vuggy limonite cement, no fragments.

Cu	Pb	Zn	Ag	(ppm)
44	1	320	0.1	

80-CA-12965R

Diorite dyke

Dyke similar to 12960R - contains disseminated pyrite. Cuts quartzite unit.

Cu	Pb	Zn	Ag	(ppm)
6	2	94	0.1	

80-CA-12966R

Quartzite
Fine-grained quartzite, thinly laminated with graphitic quartzite. Weathered surface is rusty, fresh is grey. Rusty weathering occurs along small fractures.

Cu	Pb	Zn	Ag	(ppm)
74	6	40	1.8	

80-CA-12967R

Graphitic quartzite
Fine-grained graphite phyllite to graphitic quartzite. Iron staining occurs along small fractures.

Cu	Pb	Zn	Ag	(ppm)
56	12	20	0.2	

80-CA-12968R

Quartzite
Fine-grained white quartzite with few graphitic seams and micaceous layers. Rusty weathered surface, light grey on fresh.

Cu	Pb	Zn	Ag	(ppm)
34	2	30	0.6	

80-CA-12969R

Felsite dyke rock
Fine-grained to aphanitic quartz-feldspar dyke rock with rusty weathered pits and fracture surfaces.

Cu	Pb	Zn	Ag	(ppm)
18	4	20	0.8	

80-CA-12970R

Quartzite
Fine-grained quartzite with yellow staining and rusty weathering. Has finely disseminated pyrite and chlorite spots. Zone is about 2 m by 3 m.

Cu	Pb	Zn	Ag (ppm)	Au (ppb)
32	1	48	2.4	<10

80-CA-12971R

Quartz Vein
Quartz vein cutting a graphitic phyllite to graphitic quartzite unit. The weathered surface of the quartz is limonitized and the vein is quite fractured. Chlorite fills some fractures.

Cu	Pb	Zn	Ag (ppm)
34	1	30	0.2

80-CA-12972R

Diorite
Fine-grained. Main constituents are feldspar, quartz, biotite and amphibole. Biotite is platy. Sample contains small garnets. Unit is a massive sill or dyke.

Cu	Pb	Zn	Ag (ppm)
22	6	90	0.1

80-CA-12973R

Graphitic phyllite
Fine-grained foliated graphitic phyllite to graphitic quartzite. Yellow staining, limonite and secondary limonite staining coat the weathered surface.

Cu	Pb	Zn	Ag (ppm)
26	2	12	2.8

80-CA-12974R

Graphitic quartzite (angular float)
Dark grey silicified graphitic quartzite. Sample is cut by numerous quartz veins from 2 mm to 4 cm wide. Few limonite coated vugs. No visible mineralization.

Cu	Pb	Zn	Ag (ppm)	Au (ppb)
10	2	10	0.2	<10

80-CA-12975R

Quartzite
Fine-grained quartzite with disseminated pyrite. Limonite coated vugs and weathered surface.

Cu	Pb	Zn	Ag (ppm)
96	1	62	0.1

80-CA-12976R

Quartzite (angular float)
Medium-grained white quartzite. Limonite stained weathered surface and along fractures. Contains pyrite cubes up to 1 mm and fine pyrrhotite.

Cu	Pb	Zn	Ag (ppm)
210	24	44	0.2

80-CA-12977R

Graphitic quartzite (float)
Dark grey graphitic quartzite. Yellow staining and limonite on weathered surface. Small stringers infilled with pyrite.

Cu	Pb	Zn	Ag (ppm)
104	8	10	0.8

80-CA-12978R

Quartz Vein (float)
Bull white quartz. Limonite stained fractures, some pyrite cubes.

Cu	Pb	Zn	Ag (ppm)	Au (ppb)
22	1	2	0.1	<10

80-CA-12979R

Quartz Vein
Bull white quartz vein. Minor limonite along fractures.

Cu	Pb	Zn	Ag (ppm)	Au (ppb)
6	2	10	0.1	<10

80-CA-12980R

Quartz Vein
Bull white quartz vein. Limonite along small fractures. Minor chloritic alteration.

Cu	Pb	Zn	Ag (ppm)	Au (ppb)
8	2	1	0.1	<10

80-CA-12981R

Quartz Vein
Quartz veining as pods in white quartzite with micaceous lamellae. Limonitized fractures, manganese coating on weathered surface.

Cu	Pb	Zn	Ag (ppm)	Au (ppb)
62	8	56	1.2	<10

80-CA-12982R

Quartz Vein

About 20 cm wide cutting graphitic phyllite to graphitic quartzite unit. Has numerous limonitized fractures.

Cu	Pb	Zn	Ag (ppm)	Au (ppb)
24	1	18	0.2	<10

80-CA-12983R

Quartz Vein

Bull white quartz vein cutting white quartzite with thin micaceous lamellae. Vein has numerous fractures and vugs lined with limonite.

Cu	Pb	Zn	Ag (ppm)	Au (ppb)
14	8	4	0.2	<10

80-CA-12984R

Quartzite

Fine-grained white quartzite with thin micaceous lamellae. Few limonitized fractures.

Cu	Pb	Zn	Ag (ppm)
30	6	26	1.6

80-CA-12985R

Quartzite

Fine-grained white quartzite with silicified graphitic shales. Grey on weathered surface, limonite along fractures.

Cu	Pb	Zn	Ag (ppm)
34	4	12	0.2

80-CA-12986R

Graphitic phyllite
Fine-grained graphitic phyllite, crenulations on micaceous layers. Secondary limonite (blues, greens, purple) on weathered surface.

Cu	Pb	Zn	Ag	(ppm)
68	4	104	0.2	

80-CA-12987R

Phyllite
Medium-grained silicified phyllite with micaceous seams. Limonite stain on weathered surfaces.

Cu	Pb	Zn	Ag	(ppm)
34	2	36	0.1	

80-CA-12988R

Graphitic Phyllite
Fine-grained dark grey silicified graphitic phyllite to quartzite. Limonitic surface weathering.

Cu	Pb	Zn	Ag	(ppm)
136	10	78	0.8	

80-CA-12989R

Limonite cemented breccia
Limonite cemented quartz fragments (up to 3 cm) and granitic cobbles (up to 15 cm).

Cu	Pb	Zn	Ag	(ppm)
74	1	110	0.4	

80-CA-12990R

Limonite cemented breccia
Limonite cemented angular quartzite fragments.

Cu	Pb	Zn	Ag	(ppm)
110	2	14	1.6	

80-CA-12991R

Limonite stain
Limonite coated pebbles in creek bed. Spring 1980 accumulation.

Cu	Pb	Zn	Ag	(ppm)
56	4	50	0.2	

80-CA-12992R

Limonite stain
Limonite coated pebbles in creek bed. Pre-1980 accumulation.

Cu	Pb	Zn	Ag	(ppm)
42	1	38	0.2	

RMK-PL-1A

Limonite cemented breccia
Upper 30 cm of an outcrop of very rusty finely interlaminated phyllitic mudstones and chert. Chert fragments (quartzite) in a limonitic matrix.

Cu	Pb	Zn	Ag	(ppm)
42	4	78	0.1	

RMK-PL-1B

Limonite cemented breccia
Softer and porous limonite cemented chert fragment breccia. Possible recemented fragments from underlying sediment.

Cu	Pb	Zn	Ag	(ppm)
80	1	68	0.1	

RMK-PL-2

Limonitic soil (?)
Reconstituted soil or weathered rock. Limonitic peat or moss.

Cu	Pb	Zn	Ag	(ppm)
168	1	90	0.1	

RMK-PL-3

Limonite cemented breccia
Lens of limonite cemented quartzite breccia about 20 m long, possibly 2 m thick. Vague bedding parallel to bedding of quartzites.

Cu	Pb	Zn	Ag	(ppm)
142	8	46	0.1	

RMK-PL-4

Graphitic phyllitic quartzite
White to rusty weathered, well-laminated graphitic quartzite.

Cu	Pb	Zn	Ag	(ppm)
38	1	8	0.1	

RMK-PL-6

Intensely limonitic cemented breccia gossonized band or limonitic cemented fracture in quartz.
Thin zone about 20 cm thick of limonitic breccia in a trench. This zone and next zone (RMK-PL-7) separated by about 45 cm of quartzite.

Cu	Pb	Zn	Ag	(ppm)
174	24	72	0.1	

RMK-PL-7

Limonite cemented breccia
Thin zone about 30 cm thick of limonite cemented breccia in a trench. This zone underlies 45 cm of quartzite and breccia zone of RMK-PL-6.

Cu	Pb	Zn	Ag	(ppm)
156	4	44	0.1	

RMK-PL-8

Limonite cemented breccia
Composite of coarse sand, gravel from rubble of limonite breccias.

Cu	Pb	Zn	Ag	(ppm)
136	1	82	0.1	

RMK-PL-9

Limonite precipitate
Original (now decomposed) cemented by limonite.
From limonite-stained seep at head of creek.

Cu	Pb	Zn	Ag	(ppm)
72	2	28	1.2	

RMK-PL-10

Limonite cemented breccia.
Composite of hand specimens of limonite brccias. Limonite staining is extensive. Fragments are quartzites.

Cu	Pb	Zn	Ag	(ppm)
114	2	62	0.1	

APPENDIX IIA

Geochemical values listed by Rock Type

Unit 3

Limonite breccia and precipitate (LMBR)

Sample No.	Cu	Pb	Zn	Ag	Mo	Au	W
80CA 12927R	38	1	75	0.1	2	<10	1
12928	108	1	150	0.2	1	<10	1
12954	134	28	46	1.0			
12956	34	10	4	1.4			
12961	186	2	48	0.2			
12962	54	1	180	0.2			
12989	74	1	110	0.4			
12990	110	2	14	1.6			
12991	56	4	50	0.2			
12992	42	1	38	0.2			
RMK-PL-1A	42	4	78	0.1			
1B	80	1	68	0.1			
2	168	1	90	0.1			
3	142	8	46	0.1			
6	174	24	72	0.1			
7	156	4	44	0.1			
8	136	1	82	0.1			
9	72	2	28	1.2			
10	114	2	62	0.1			
MEAN	101	5	68	0.4	1.5	<10	1

Unit 2

Quartz Monzonite (QTMN)

Sample No.	Cu	Pb	Zn	Ag	Mo	Au	W
80CA 12920R	14			0.1	1		
12926	14	1	72	0.1	1		1
MEAN:	14	1	72	0.1	1		1

Unit 2c

Felsite (FLST)

Sample No.	Cu	Pb	Zn	Ag	Mo	Au
80CA 12916R	26		10	0.1	1	<10
12959	40	16	12	0.2		
12969	18	4	20	0.8		
MEAN:	28	10	13	0.4	1	<10

Unit 2c

Diorite dyke (DRTE)

Sample No.	Cu	Pb	Zn	Ag	Mo	Au
80CA 12960R	18	10	180	0.1		
12965	6	2	94	0.1		
12972	22	6	90	0.1		
MEAN:	15	6	121	0.1		

Unit 1

Quartzite

Sample No.	Cu	Pb	Zn	Ag	Mo	Au	W
80CA 12901R	36		40	0.1	1	<10	
12907	138		40	0.1	1	<10	
12913	6		10	0.1	1	<10	1
12914	8		15	0.1	2	<10	
12950	14	12	4	0.4			
12952	30	4	4	0.1			
12953	46	1	4	6.4			
12958	16	6	4	0.8			
12963	38	1	42	0.1			
12964	44	1	320	0.1			
12966	74	6	40	1.8			
12967	56	12	20	0.2			
12968	34	2	30	0.6			
12970	32	1	48	2.4			
12974	10	2	10	0.2		<10	
12975	96	1	62	0.1		<10	
12976	210	24	44	0.2			
12977	104	8	10	0.8			
12984	30	6	26	1.6			
12985	34	4	12	0.2			
MEAN:	53	6	39	0.8	1	<10	1

Unit 1

Phyllitic quartzite (PHQT)

Sample No.	Cu	Pb	Zn	Ag	Mo	Au
80CA 12912R	36		110	0.1		<10
12919	32		10	0.1	1	<10
MEAN:	34		60	0.1	1	<10

Unit 1

Phyllite (PHLL)

Sample No.	Cu	Pb	Zn	Ag	Mo	Au
80CA 12987R	34	2	36	0.1		

Unit

Graphitic phyllite and schist (GRPH)

Sample No.	Cu	Pb	Zn	Ag	Mo	Au
80CA 12903R	14		35	1.0		<10
12910	98		250	0.4		<10
12918	54		15	0.1	1	<10
12973	26	2	12	2.8		
12986	68	4	104	0.2		
12988	136	10	78	0.8		
RMK-PL-4	38	1	8	0.1		
MEAN:	62	4	72	0.8	1	<10

Unit 1

Siltstone (SLSN)

Sample No.	Cu	Pb	Zn	Ag	Mo	Au
80CA 12902R	54		140	0.1		<10
12921	56		85	0.4		
MEAN:	55		113	0.2		<10

QV

Quartz vein (QRVN)

Sample No.	Cu	Pb	Zn	Ag	Au	Sb
80CA 12904R				0.1	<10	1.0
12909	16		28	0.1	<10	23.0
12911	1		20	0.6	<10	0.8
12924				1.0	440	5.4
12925	14		6	0.1	<10	1.8
12951	68	14	24	0.2	10	
12955	22	2	2	2.6	<10	
12957	18	4	1	0.4	<10	
12971	34	1	30	0.2		
12978	22	1	2	0.1	<10	
12979	6	2	10	0.1	<10	
12980	8	2	1	0.1	<10	
12981	62	8	56	1.2	<10	
12982	24	1	18	0.2	<10	
12983	14	8	4	0.2	<10	
MEAN:	24	3	16	0.5	36	6.0

APPENDIX III

SAMPLING AND LABORATORY PROCEDURES

I. SAMPLING PROCEDURES

A) Heavy Minerals

1. A sample site is selected which exhibits maximum sorting of stream bed material. Active (below water) or previously active (dry now but previously below water) sites may be chosen. Leading edges or sides of gravel bars with large boulders are most attracitve. In practice, the ideal case is rare and one chooses the best possible site.

2. Gravel and cobble material is shoveled into a large (18" to 24") gold pan into which 1/4" holes have been drilled. The material is vigourously shaken in still water so that - 1/4 in. material passes the screen into a second, matching pan. Enough -1/4 in. material is collected to fill an 18" x 24" poly bag (usually one large pan or two smaller ones). The -1/4" material is returned to camp.

3. The -1/4 in. material is planned to achieve a concentrate of heavy minerals and aggregates containing heavy minerals. Approximately 80% of the original material (20 - 25 lbs.) is discarded while a 1 - 2 lb. concentrate is obtained. The concentrate is sealed in a plastic or cloth bag (cloth is preferred as it allows the sample to dry, reducing shipping weight) and then sent to the laboratory for geochemical analysis.

B) Stream Sediment

1. A presently or previously active stream site is selected which exhibits minimum sorting ie. quiet water, and accumulation of fine sandy and silty material. If the stream is too active, material can be obtained from bank-moss which acts as a trap, or by digging out the lee of large boulders.

2. Three to four handfuls of material is collected and after squeezing to remove excess water is placed in high wet-strength, heavy duty, prenumbered kraft envelopes. The samples are dried in the field and then sent to the laboratory for geochemical analysis.

C) Stream Water

1. A 4 oz. poly bottle is rinsed with the sample site water at least three times then filled fully and tightly capped. The sample is tested in the field for pH and specific conductivity.

2. Care should be taken to avoid contamination by always collecting waters up-stream from a heavy mineral or sediment sample site.

D) Soil

1. 'B' horizon or talus fine material is sampled.

2. Three to four handfuls of material are collected into

heavy duty, high wet-strength kraft envelopes which are dried in the field and then sent to the laboratory for analysis.

E) Sample Site Information Card

1. At each soil or stream sample site, an 80 column field data card is completed. The sampler records such information as sample number, location and type, depth of stream, sample composition, vegetation, drainage, etc. Separate cards are used for stream and soil samples in order to record pertinent information.

II. Laboratory Procedures

A. Sample Preparation

i) Heavy Minerals

1. Samples dried and weighed.

2. Screen - 10 mesh material from sample and weigh; weigh and retain +10 mesh material left on screen.

3. Use -10 mesh fraction for heavy liquid separation.

4. Transfer -10 mesh (fine) fraction into a 1000 ml. separatory funnel containing 200 mls. of tetrabromoethane (S.G. 2.96).

5. Shake sample gently in heavy liquid. Particles of fines adhering to sides of the separatory funnel can be washed into the heavy liquid by slowly rotating the funnel at an oblique angle. The "heavies" (S.G. >2.96) will slowly settle

to the bottom of the heavy liquid.

6. Drain the "heavies" into a small filter funnel. Drain excess heavy liquid and light materials into a separate filter funnel. Collect all heavy liquid into a waste receiving bottle.

7. Save light minerals (S.G. 2.96). Wash "heavies" fraction with methanol to remove residual tetrabromoethane. Use the same procedure on light minerals fraction. Dry both fractions and weigh. Retain the "lights" in a suitable sealed container. Save 0.5 gm of "heavies" in a plastic vial for visual examination.

8. Pulverize the remaining "heavies" in an agate mortar and pestle and homogenize before weighing for analyses.

9. Analyse the "heavies" powder for appropriate elements. The number of elements analysed for is determined by the amount of "heavy" material obtained in separation.

ii) Stream Sediments

1. Samples are sorted and dried at 50°C for 12 to 16 hours.

2. Dried material is then screened to obtain the -80 mesh (177 micron) fraction. The rest of the material is discarded.

3. -80 mesh fraction material is weighed and analysed for appropriate elements.

iii) Soils

Same procedure as for stream sediments.

iv) Rocks

1. Entire sample is crushed.

2. If necessary (>250 gms.). The sample is split on a Jones splitter, the reject is retained for a short period.

3. The split fraction is pulverized in a ring grinder such that 90% passes a 200 mesh (74 micron) sieve.

4. The -200 mesh material is weighed and analysed for the appropriate elements.

B. Elemental Analyses

i) ppm Copper, Lead, Zinc, Silver, Molybdenum (Atomic Absorption)

1. A 1.0 gm portion of -80 mesh soil or stream sediment or -200 mesh rock flour or pulverized "heavies" is digested in concentrated, hot, perchloric - nitric acid ($HClO_4$-HNO_3) for 2 hours.

2. Digested sample is cooled and made up to 25 mls. with distilled water.

3. Solution is mixed and solids allowed to settle.

4. Cu, Pb, Zn, Ag and Mo are determined by atomic absorption, using background correction for Pb and Ag analyses.

Element	Bkgd. Corr.	Flame Type	Wave Length hm	Detection Limit	Chemex Standard	± 1 Std. Deviation
Cu	No	A	324.7	1 ppm	71 ppm	± 3
Pb	Yes	A	217.0	1 ppm	59 ppm	± 1
Zn	No	A	213.8	1 ppm	52 ppm	± 3
Ag	Yes	A	328.1	0.2 ppm	8.5 ppm	± 0.5
Mo	No	N	313.3	1 ppm	25 ppm	± 1

A = Air acetylene flame. N = Nitrous oxide - acetylene flame.

ii) <u>ppm Tin (Sn) (Atomic Absorption)</u>

1. A 1.0 gm sample of -80 mesh soil or stream sediment -200 mesh rock flour or pulverized "heavies" is scintered with ammonium iodide.

2. The resulting tin-iodide is leached with a dilute HCl ascorbic acic solution.

3. The TOPO complex is then extracted into MIBK (Methyl isbutyl ketone) and analysed via atomic absorption.

4. Detection limit: ~<u>1 ppm Sn</u>

iii) <u>ppm Antimony (Sb) (Atomic Absorption)</u>

1. A 1.0 gm weight of -80 mesh soil or stream sediment, -200 mesh rock flour or pulverized heavy mineral concentrate is digested with concentrated HCl acid in a water bath ($100^{o}C$) for about 2 hours.

2. The sample is then complexed with iodide to form a Sb-iodide complex.

3. The complex is extracted with TOPO MIBK (Methol isobutyl ketone) and analysed by routine atomic absorption using a background correction.

4. Detection limit: 0.2 ppm.

iv) <u>ppm Tungsten (W) (Colourimetric)</u>

1. 0.5 gm of -80 mesh soil or stream sediment,-200 mesh rock flour or pulverized "heavies" is fused with potassium bisulfate and leached with HCl.

2. The reduced form of W is complexed with toluene 3, 4 dithiol and extracted into an organic phase.

3. The resulting colour is visually compared to similarly

prepared standards. (Colourimetric method)

4. Detection limit: 2 ppm W

v) ppb Gold (Au) (Atomic Absorption)

1. A 5 gm sample of -200 mesh rock flour or pulverized "heavies" is ashed at 800°C for 1 hour.

2. Ashed material is digested with aqua regia twice to dryness.

3. Digested material is taken up in 25% HCl.

4. Au is extracted as the bromide into MIBK and analysed via atomic absorption.

5. Detection limit: 10 ppb Au

vi) ppm Thorium (Th) (Neutron Activation)

1. 1 gm of -80 mesh soil or stream sediment, -200 mesh rock flour or pulverized "heavies" is weighed into a polyethelene vial and heat sealed.

2. Samples, along with standards, are then irradiated for sufficient periods to receive a neutron dose of 1-3 X 10^{10} to $10^{15}/cm^2$.

3. Following irradiation, samples are cooled for at least one week and thorium determined by the measurement of its characteristic gamma ray, using a semiconductor (Ge (Li)) detector.

4. Detection limit: 1 ppm Th

vii) Uranium (U) (Fluorimetry)

A) Uranium in soils, stream sediments, "heavies", rocks.

1. 1 gm of -80 mesh soil or stream sediment, -200 mesh

rock flour or pulverized "heavies" is digested with hot, $HClO_4$-HNO_3 to srong fumes of $HClO_4$ for approximately 2 hours.

2. The digest is diluted to volume and mixed.

3. An aliquot is extracted into MIBK with the acid of an aluminum nitrate-tetrapropyl ammonium hydroxide salting solution. (TPAN)

4. Uranium in the MIBK is determined by evaporating a portion of the MIBK in a platinum dish and fusing with a mixture of Na_2CO_3-K_zCO_3-NaF.

5. The fluorescence of the fused flux is measured to determine the uranium content.

6. Detection limit: 0.5 ppm U

viii) pH of Waters

1. pH in waters was determined in the field, using a portable pH meter.

2. The meter was standardized by means of buffer solutions, every 10th sample to minimize meter drift.

ix) Specific Conductivity (S.C.) of Waters

1. S.C. in waters was determined in the field, using a portable S.C. meter.

2. The electrode was washed in a standard water, after each determination, to minimize and standardize contamination.

NOTE: Analytical readings that are less than the detection limit are generally recorded as one-half the detection limit. This applies to all elements except Au, where <10 ppb is listed for values not detected.

APPENDIX IV

DESCRIPTION OF TAN OCCURRENCE

APPENDIX IV

Description of TAN Occurrence

TAN

LOCATION: Lat. 59°51'-52' Long. 130° 42'-44' (104O/15E) ATLIN M.D. Two miles south of Plate Lake and 4 miles west of Tootsee Lake.

CLAIMS: TAN 1 to 12.

ACCESS: By aircraft from the Alaska Highway.

OPERATOR: WYE LAKE RESOURCES LTD., 458, 890 West Pender Street, Vancouver 1.

METAL: Antimony

DESCRIPTION: The claims are underlain by quartzites, argillites, and limestone. On the TAN 3 stibnite occurs disseminated in a quartz vein that has an average thickness of 8 inches. The average grade of four representative samples was 7.6 percent stibnite.

WORK DONE: Geological mapping and trenching were done during 1970.

REFERENCE: Assessment Report 3045.

APPENDIX V

FREQUENCY DISTRIBUTION TABLES

HISTOGRAMS

CUMULATIVE FREQUENCY CURVES

TABLE 5

Frequency Distribution for Cu in rocks

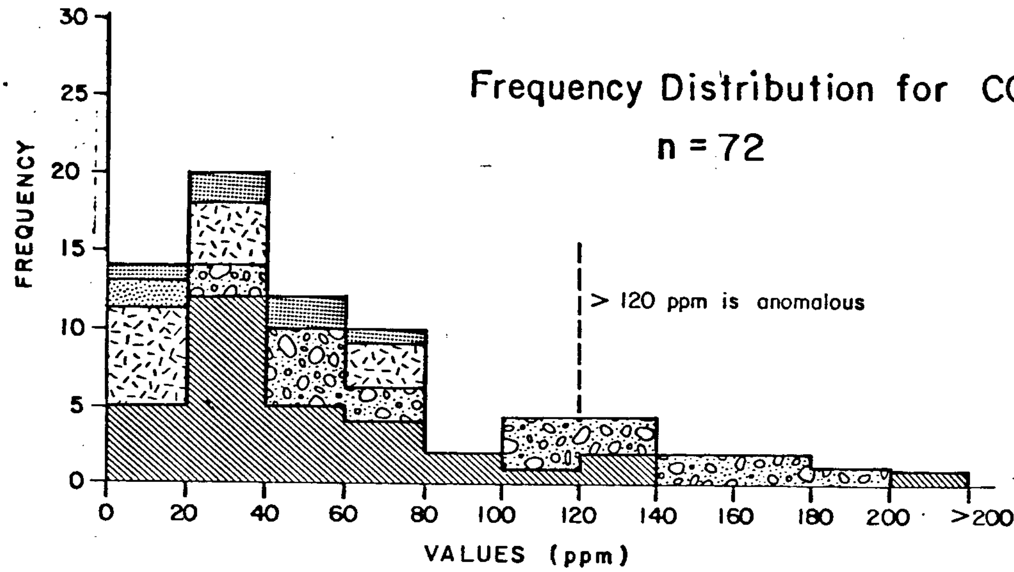
Class Interval (ppm)	Meta-sediments	Limonite cemented breccia	Quartz monzonite	Quartz veins	Dyke rocks	TOTAL FREQUENC
	Rock Type					
0 - 20	5	-	2	6	1	16
21 - 40	12	2		4	2	21
41 - 60	5	5		-	2	10
61 - 80	4	2		3	1	9
81 - 100	2	-				2
101 - 120	1	3				4
121 - 140	2	2				4
141 - 160		2				2
161 - 180		2				2
181 - 200		1				1
> 200	1					1
TOTAL:						72

TABLE 6

FREQUENCY DISTRIBUTION FOR Pb IN ROCKS

	Rock Type					
Class Interval (ppm)	Meta-sediments	Limonite cemented breccia	Quartz monzonite	Quartz veins	Dyke rocks	TOTAL FREQUENCY
0 - 5	12	16	1	7	2	38
6 - 10	5	2		2	2	11
11 - 15	2	-	-	1	-	3
16 - 20	-	-			1	1
21 - 25	1	1				2
26 - 30	-	1				1
31 - 35	-					-
					TOTAL:	56

PROJECT CASSI - Plate Claims
Rock Geochemistry



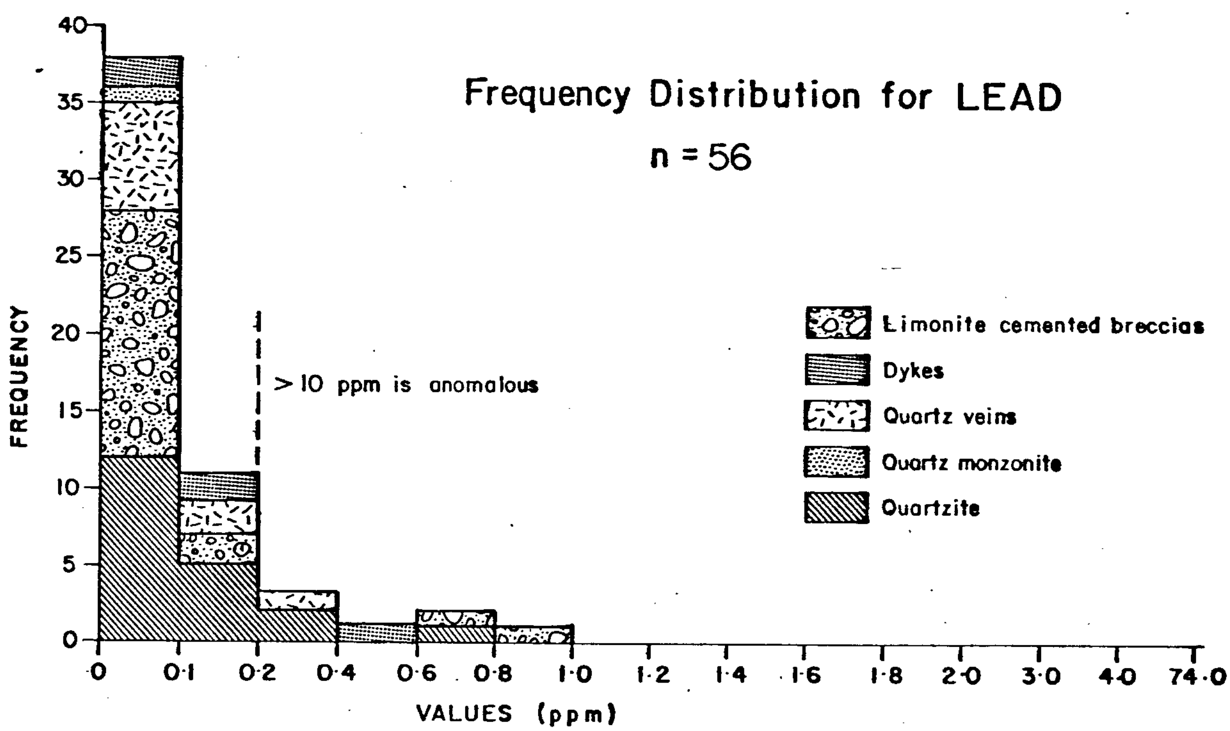


Fig. 6

TABLE 7

Frequency Distribution for Zn in rocks

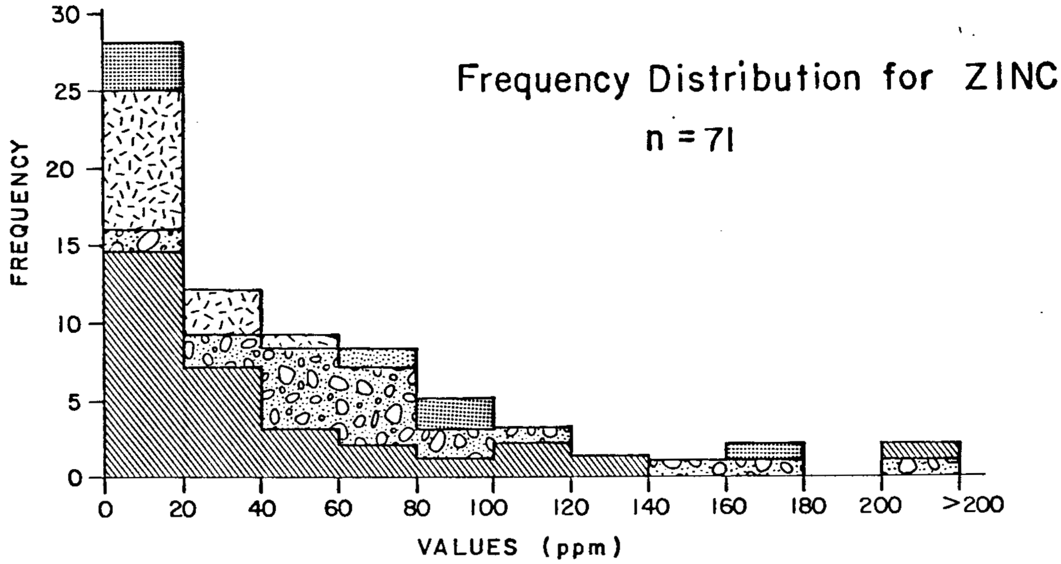
Class Interval (ppm)	Meta-sediments	Limonite cemented breccia	Quartz monzonite	Quartz veins	Dyke rocks	TOTAL FREQUENCY
			Rock Type			
0 - 20	14	2		9	3	28
21 - 40	7	2		3	-	12
41 - 60	3	5		1	-	9
61 - 80	2	5	1		-	8
81 - 100	1	2			2	5
101 - 120	2	1				3
121 - 140	1	-				1
141 - 160	-	1				1
161 - 180	-	1				2
181 - 200	-	-				-
> 200	1	1				2
					TOTAL:	71

TABLE 8

Frequency Distribution for Ag in rocks

	Rock Type					
Class Interval (ppm)	Meta-sediments	Limonite cemented breccia	Quartz monzo-nite	Quartz veins	Dyke rocks	TOTAL FREQUENCY
0-0.1	13	10	1	6	4	34
>0.1-0.2	6	5		4	1	16
>0.2-0.4	3	1		1	-	5
>0.4-0.6	1	-		1	-	2
>0.6-0.8	3	-		-	1	4
>0.8-1.0	1	1		1		3
>1.0-1.2	-	1		1		2
>1.2-1.4	-	1		-		1
>1.4-1.6	1	1		-		2
>1.6-1.8	1			-		1
>1.8-2.0	-			-		-
>2.0-3.0	2			1		3
>3.0-4.0	-					-
>4.0-5.0	-					-
>5.0-6.0	-					-
>6.0-7.0	1					1
				TOTAL:		74

PROJECT CASSI - Plate Claims
Rock Geochemistry



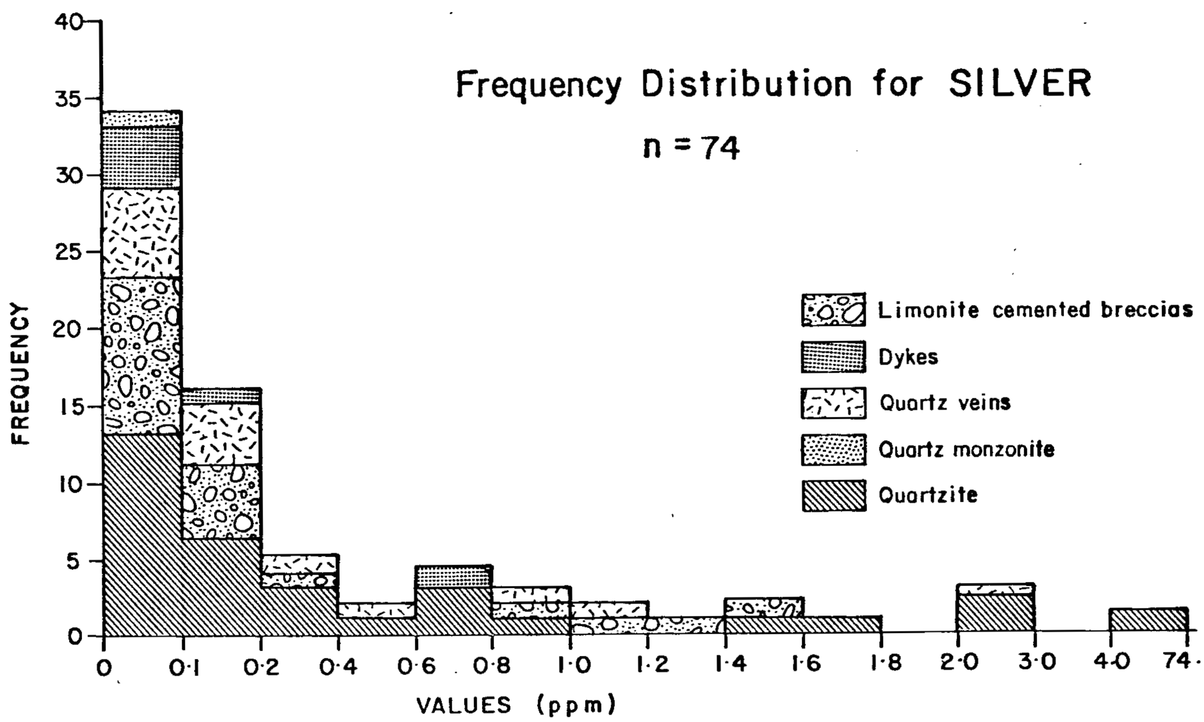


Fig. 7

TABLE 9

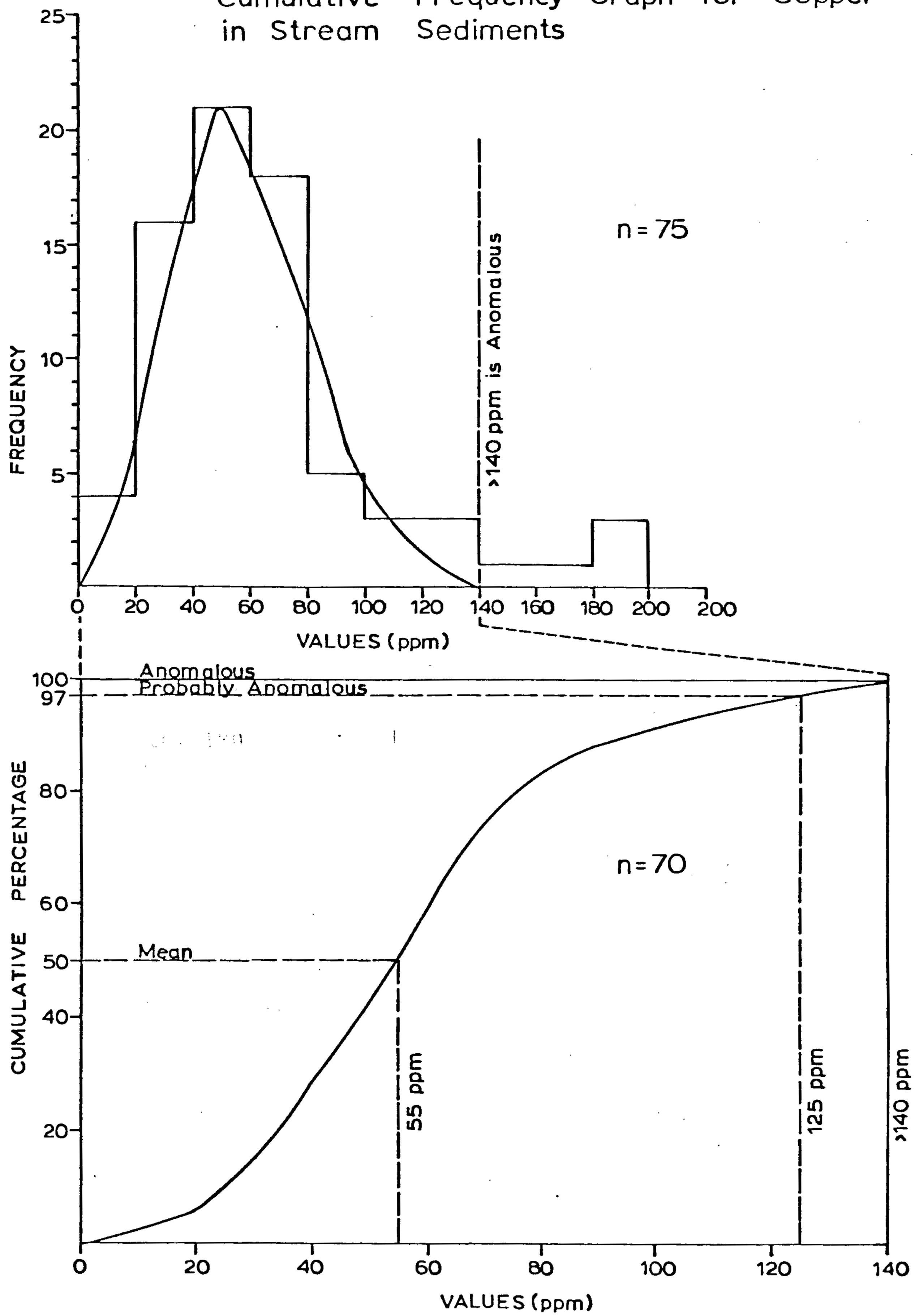
Frequency Distribution for Cu in Stream Sediments

Ceritficates: A8010029-001A, A8010029-002A, 53874, 54425

Class Interval (ppm)	Frequency	Cumulative Frequency	Cumulative Percent
0-20	4	4	5.7
21-40	16	20	28.6
41-60	21	41	58.6
61-80	18	59	84.3
81-100	5	64	91.4
101-120	3	67	95.7
121-140	3	70	100.0
141-160	1		
161-180	1		
181-200	3		
TOTAL:	75		

PROJECT CASSF 134 -PLATE CLAIMS

Frequency Distribution &
Cumulative Frequency Graph for Copper
in Stream Sediments



mjc

Figure 8

TABLE 10

Frequency Distribution for Zn in Stream Sediments

Certificates: A8010029-001A, A8010029-002A, 53874, 54425

Class Interval (ppm)	Frequency	Cumulative Frequency	Cumulative Percent
0-20	-	0	0
21-40	6	6	9.4
41-60	21	27	42.2
61-80	17	44	68.8
81-100	10	54	84.4
101-120	8	62	96.9
121-140	2	64	100.0
141-160	3		
161-180	0		
181-200	0		
>200	8		
TOTAL:	75		

Values >200 = 225, 255, 360, 460, 555, 650, 745, 1100

PROJECT CASSI - PLATE CLAIMS

Frequency Distribution Diagram & Cumulative Frequency Graph for Zinc in Stream Sediments

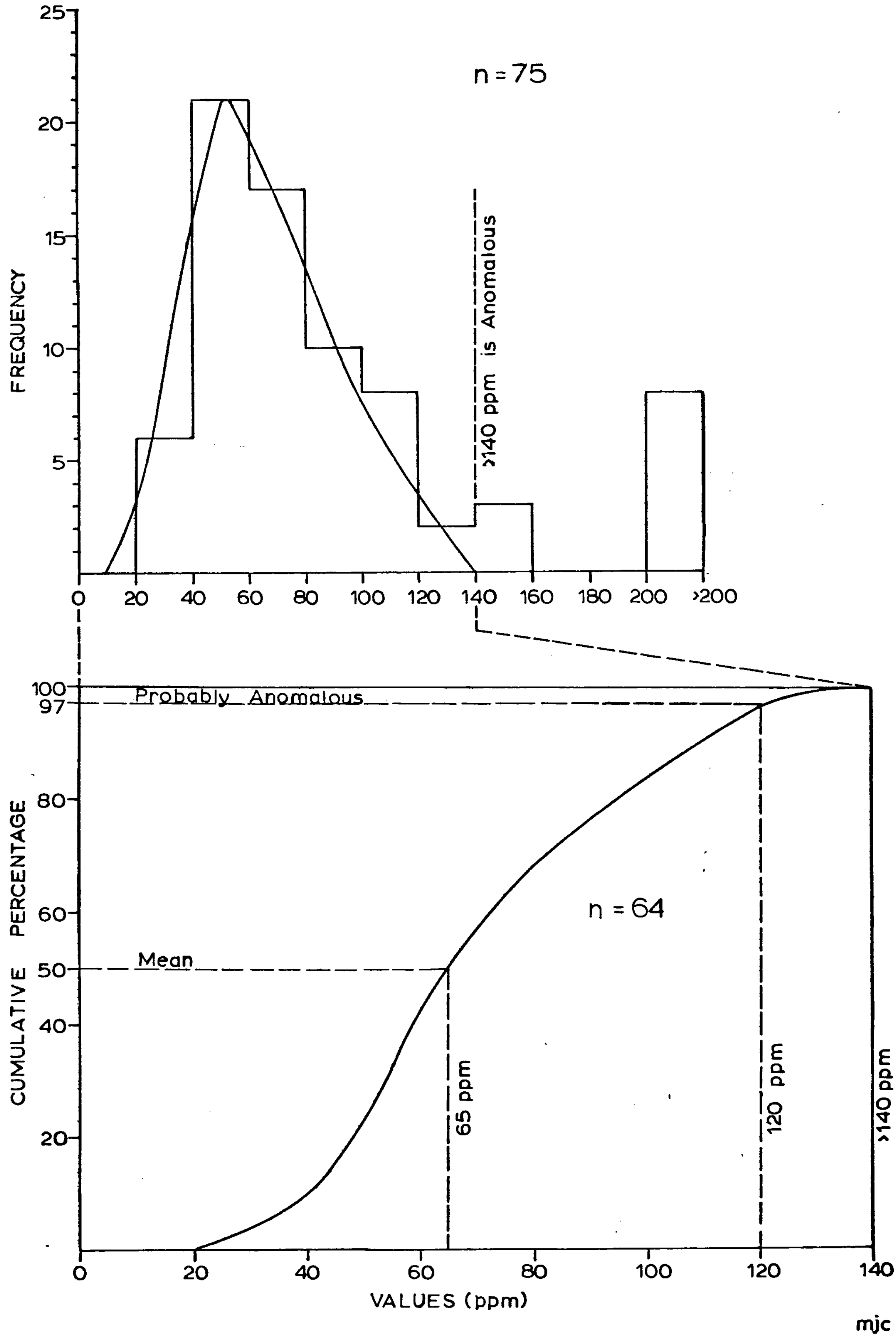


TABLE 11

Frequency Distribution for Ag in Stream Sediments

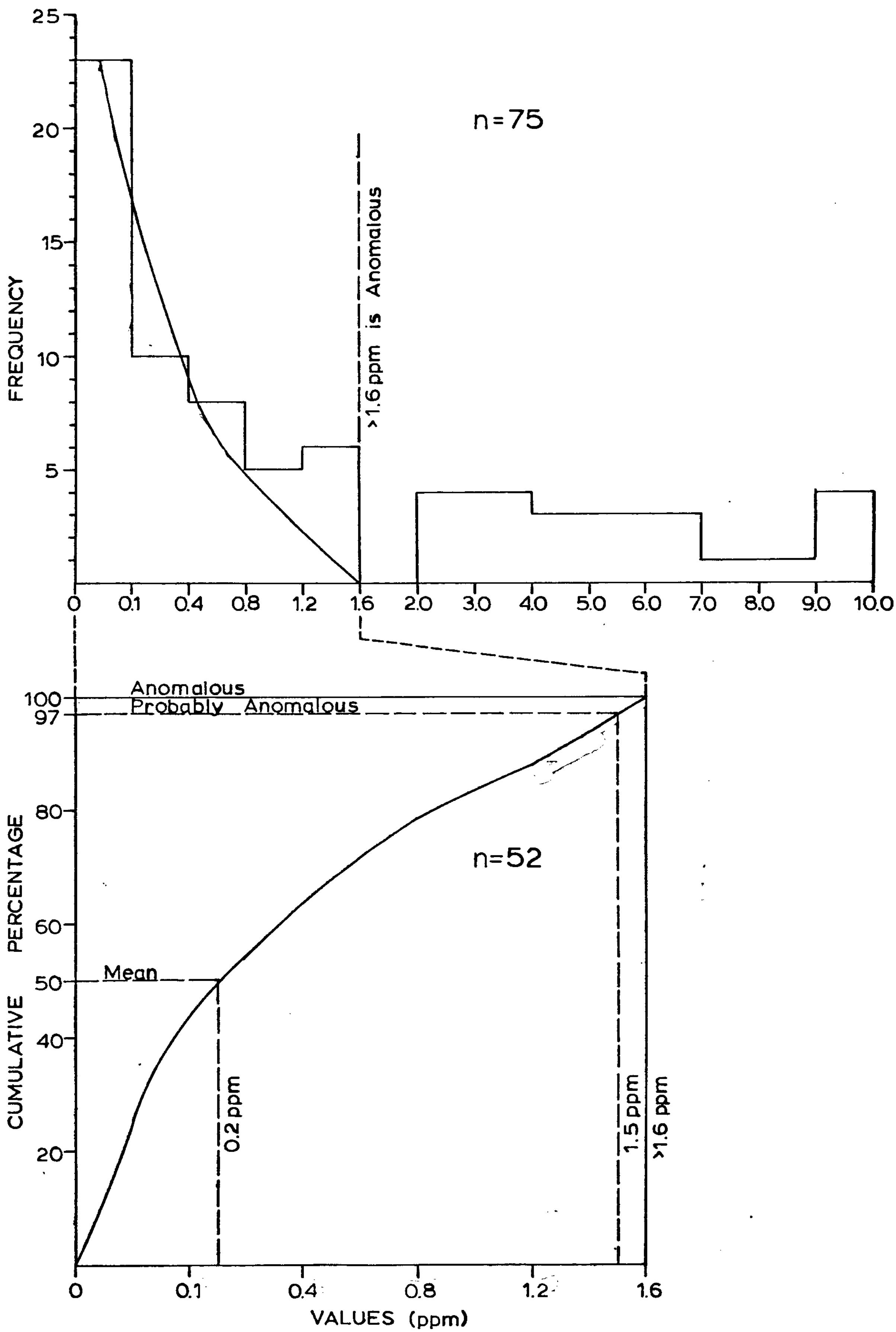
Certificates: A8010029-001-A, A8010029-002-A, 53874, 54425

Class Interval (ppm)	Frequency	Cumulative Frequency	Cumulative Percent
0-0.1	23	23	44.2
>0.1-0.4	10	33	63.5
>0.4-0.8	8	41	78.9
>0.8-1.2	5	46	88.5
>1.2-1.6	6	52	100.0
>1.6-2.0	0		
>2.0-3.0	4		
>3.0-4.0	4		
>4.0-5.0	3		
>5.0-6.0	3		
>6.0-7.0	3		
>7.0-8.0	1		
>8.0-9.0	1		
>9.0-10.0	1		
>10.0	3		
TOTAL:	75		

Values >10 = 14, 20, 0.45 oz/ton

PROJECT CASSI - PLATE CLAIMS

Frequency Distribution Diagram & Cumulative Frequency Graph for Silver in Stream Sediments



mjc

Figure 10

TABLE 12

Frequency Distribution for Cu in Soils

Certificates: 54185, 53870-53874, A8010350-001A, A8020023-001-A, 008010181, A8010168-A8010170

Class Interval (ppm)	June	August	Frequency	Cumulative Frequency	Cumulative Percent
0-20	24	54	78	78	15.4
21-40	61	121	182	260	51.4
41-60	49	70	119	379	74.9
61-80	35	23	58	437	86.4
81-100	17	20	37	474	93.7
101-120	9	11	20	494	97.6
121-140	3	9	12	506	100.0
141-160	2	1	3		
161-180	2	1	3		
181-200	1	1	2		
>200	3	2	5		
	206	313	519		

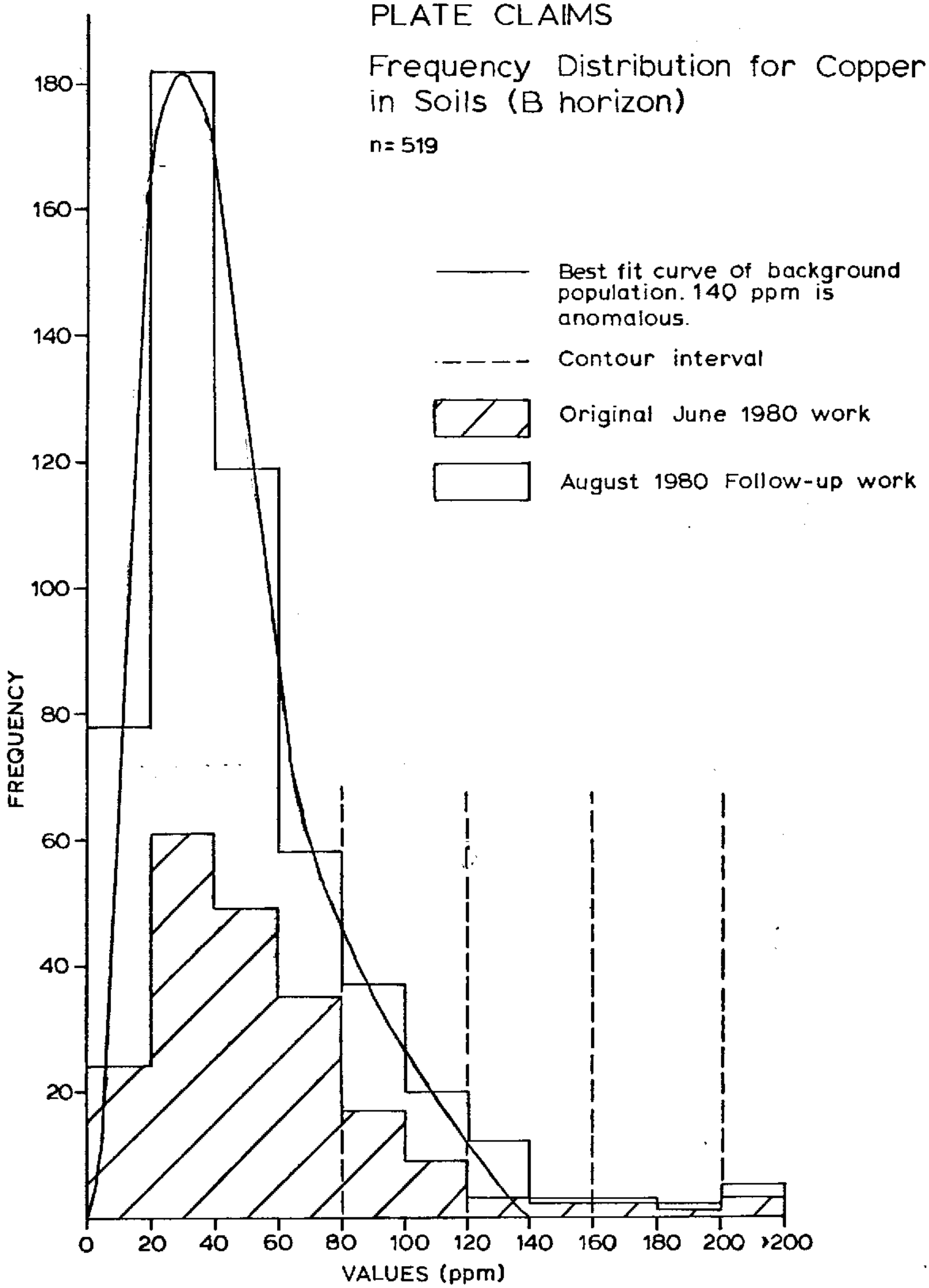
Values >200 = 295, 330, 345, 400, 460

Figure 11

PLATE CLAIMS

Frequency Distribution for Copper in Soils (B horizon)

n= 519

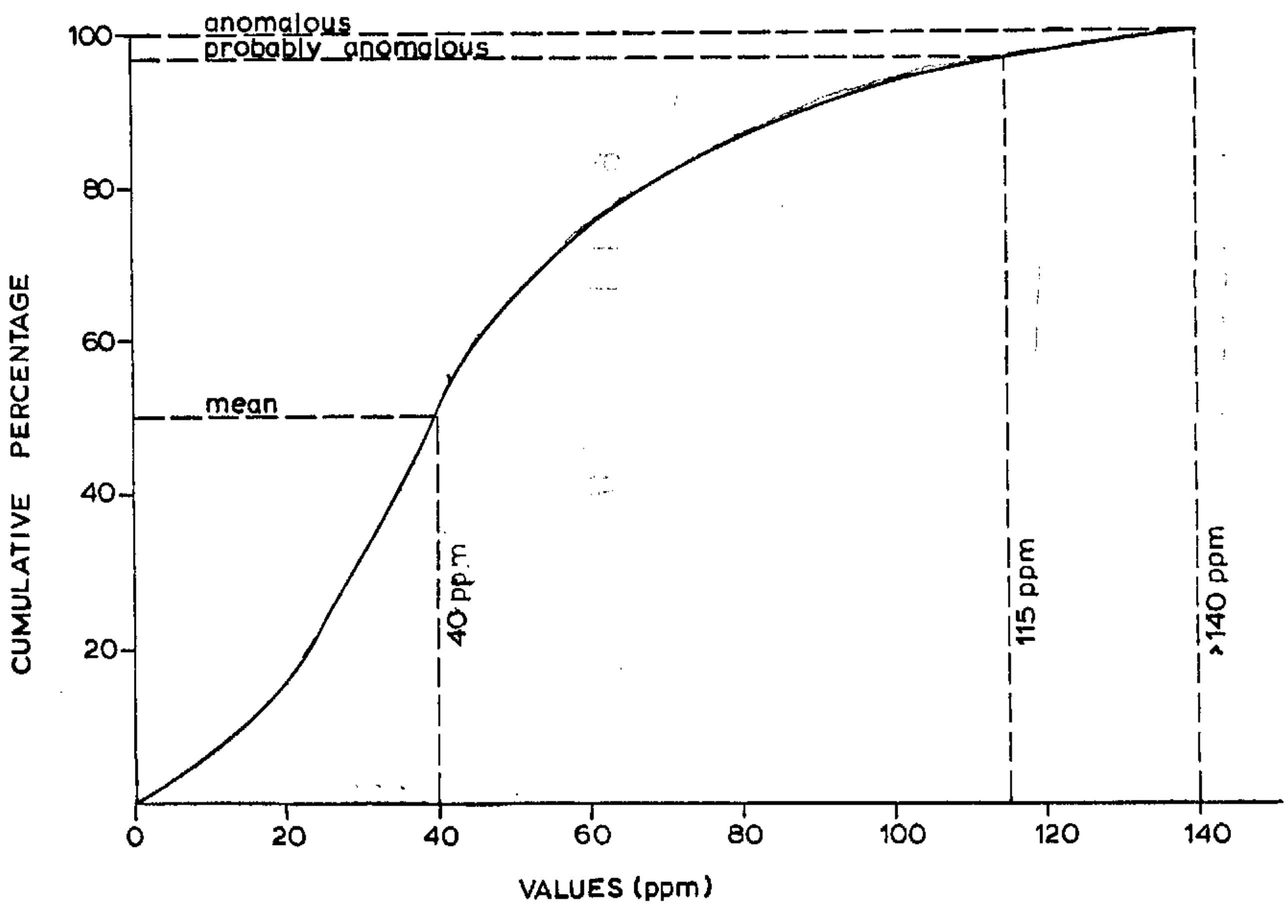


mjc

Figure 12

PROJECT CASSI - PLATE CLAIMS

Cumulative Frequency Graph for Copper in Soils (B horizon)
n=506



mjc

TABLE 13

Frequency Distribution for Zn in Soils

Certificates: 54185, 53870-53874, A8020268-A8010170
A801023, A801029, A801030, A801350

Class Interval (ppm)	June	August	Frequency	Cumulative Frequency	Cumulative Percent
0-20	6	17	23	23	4.5
21-40	23	78	101	124	24.5
41-60	62	139	201	325	64.2
61-80	59	43	102	427	84.4
81-100	32	15	47	474	93.7
101-120	8	8	16	490	96.8
121-140	7	9	16	506	100.0
141-160	2	1	3		
161-180	2	2	4		
181-200	2	0	2		
200	3	1	4		
	206	313	519		

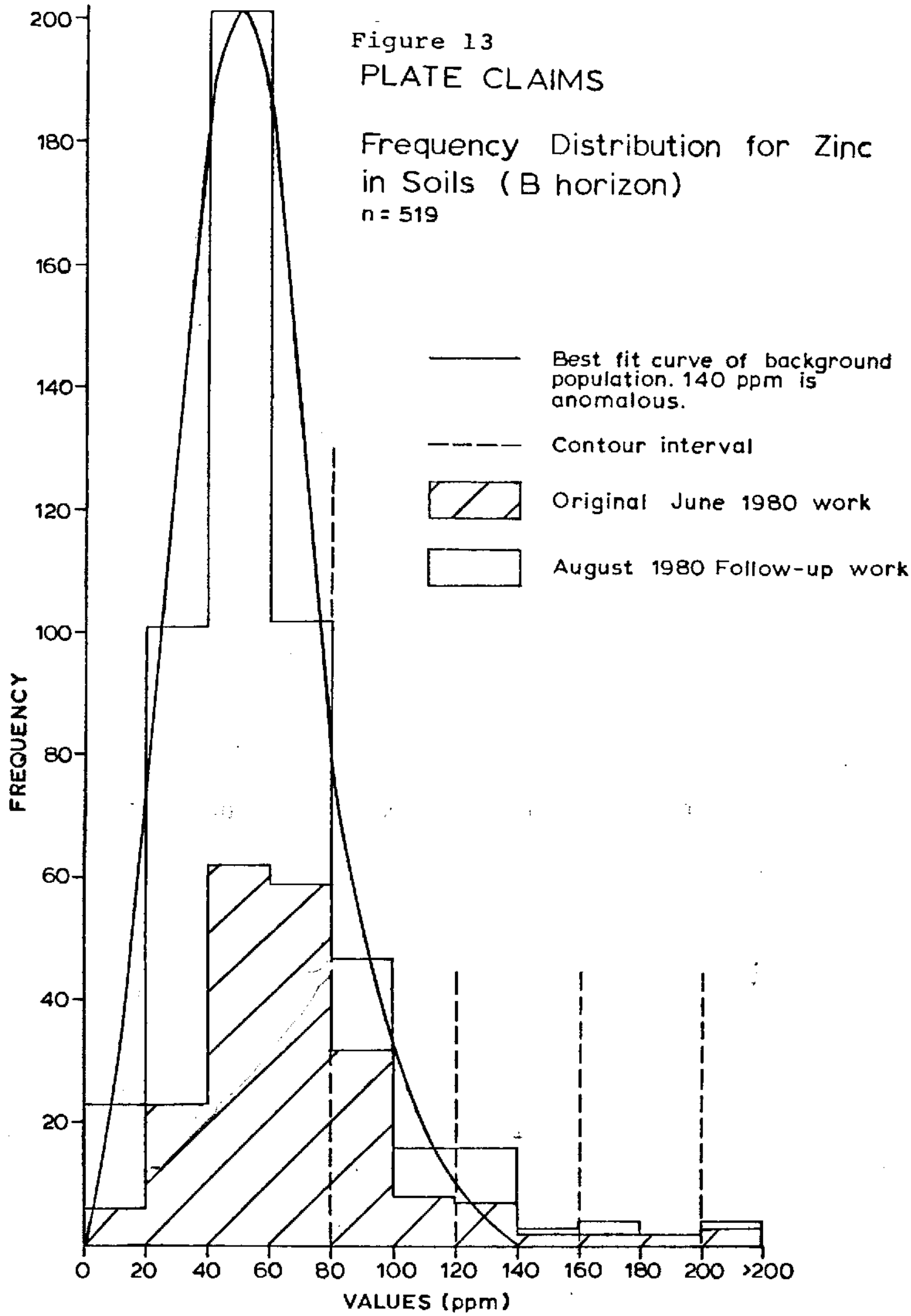


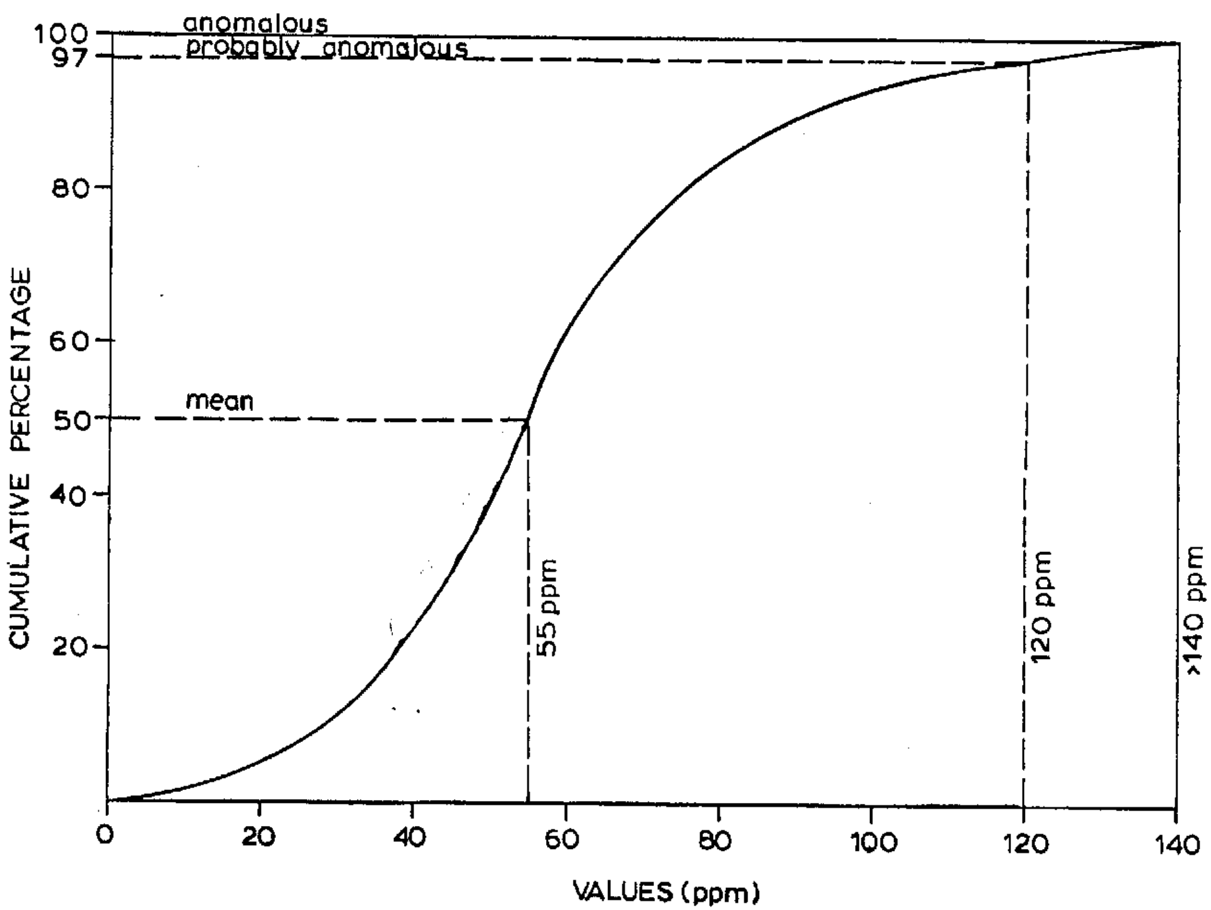
Figure 13
PLATE CLAIMS
Frequency Distribution for Zinc in Soils (B horizon)
n = 519
Best fit curve of background population. 140 ppm is anomalous.
Contour interval
Original June 1980 work
August 1980 Follow-up work
FREQUENCY
200
180
160
140
120
100
80
60
40
20
0
20
40
60
80
100
120
140
160
180
200
>200
VALUES (ppm)

mjc

Figure 14

PROJECT CASSI - PLATE CLAIMS

Cumulative Frequency Graph for Zinc in Soils (B horizon)
n=506



mjc

TABLE 14

Frequency Distribution for Ag in Soils

Certificates: 54185, 53870-53874, A8010168-A8010170, A801023, A801029, A801030, A801350

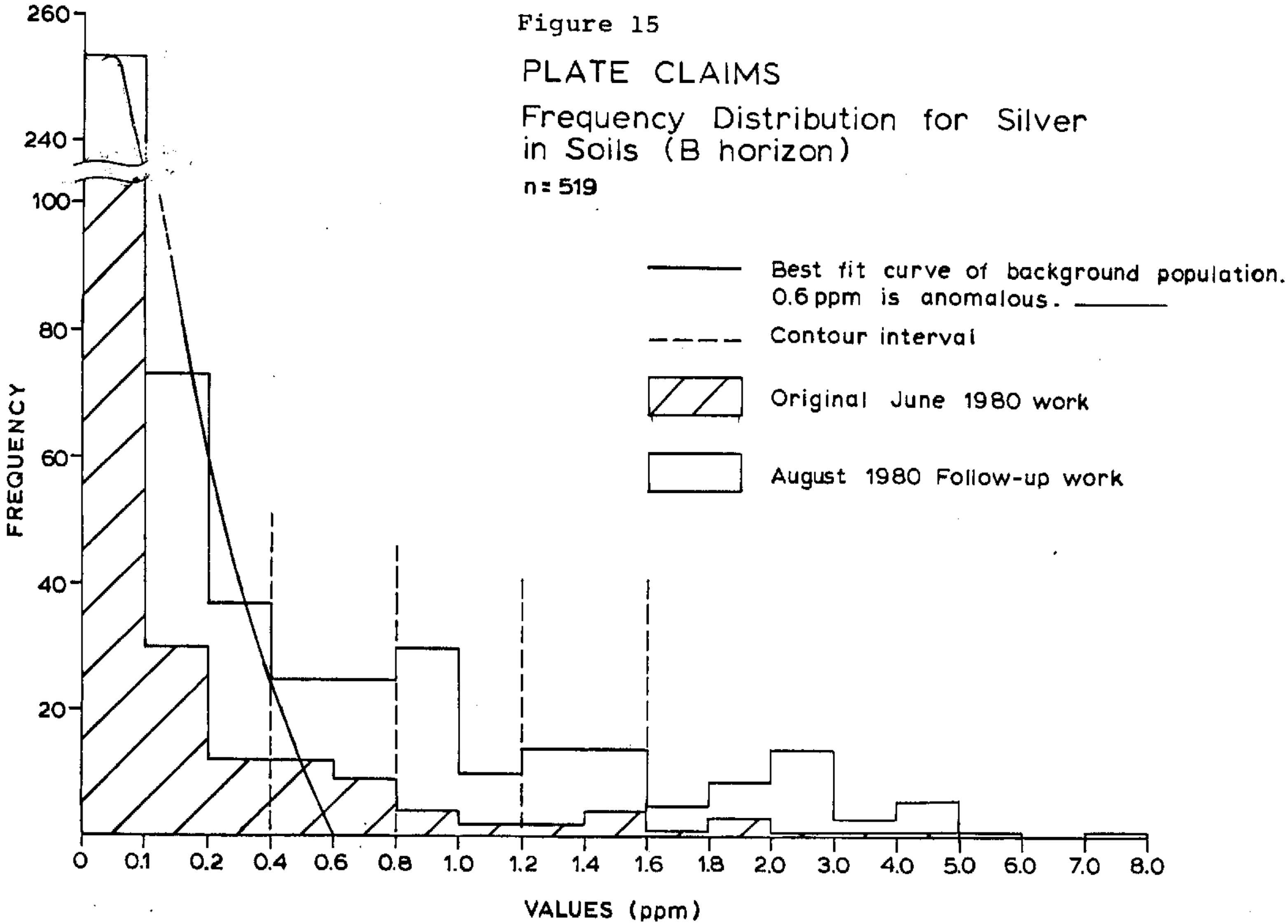
Class Interval (ppm)	June	August	Frequency	Cumulative Frequency	Cumulative Percent
0-0.1	125	128	253	253	65.2
0.1-0.2	30	43	73	326	84.0
0.2-0.4	12	25	37	363	93.6
0.4-0.6	12	13	25	388	100.0
0.6-0.8	9	16	25		
0.8-1.0	4	26	30		
1.0-1.2	2	8	10		
1.2-1.4	2	12	14		
1.4-1.6	4	10	14		
1.6-1.8	1	4	5		
1.8-2.0	3	6	9		
2.0-3.0	1	13	14		
3.0-4.0	1	2	3		
4.0-5.0	1	5	6		
5.0-6.0	0	1	1		
6.0-7.0	0	0	0		
7.0-8.0	0	1	1		
	206	313	519		

Figure 15

PLATE CLAIMS

Frequency Distribution for Silver in Soils (B horizon)

n= 519

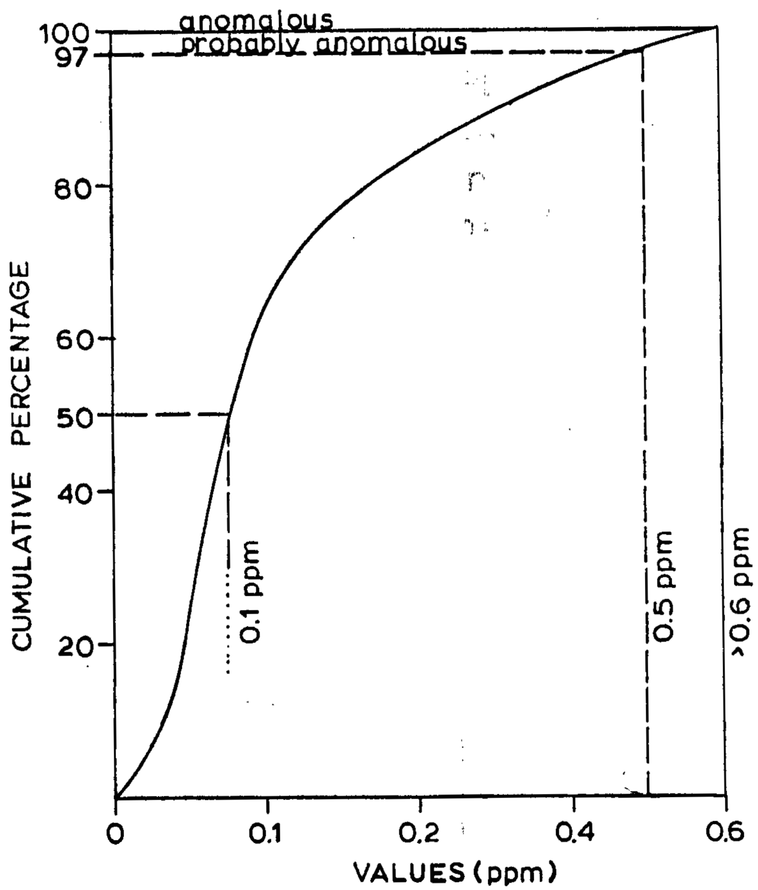


mjc

Figure 16

PROJECT CASSI - PLATE CLAIMS

Cumulative Frequency Graph for Silver in Soils (B horizon)
n=388



mjc

TABLE 15

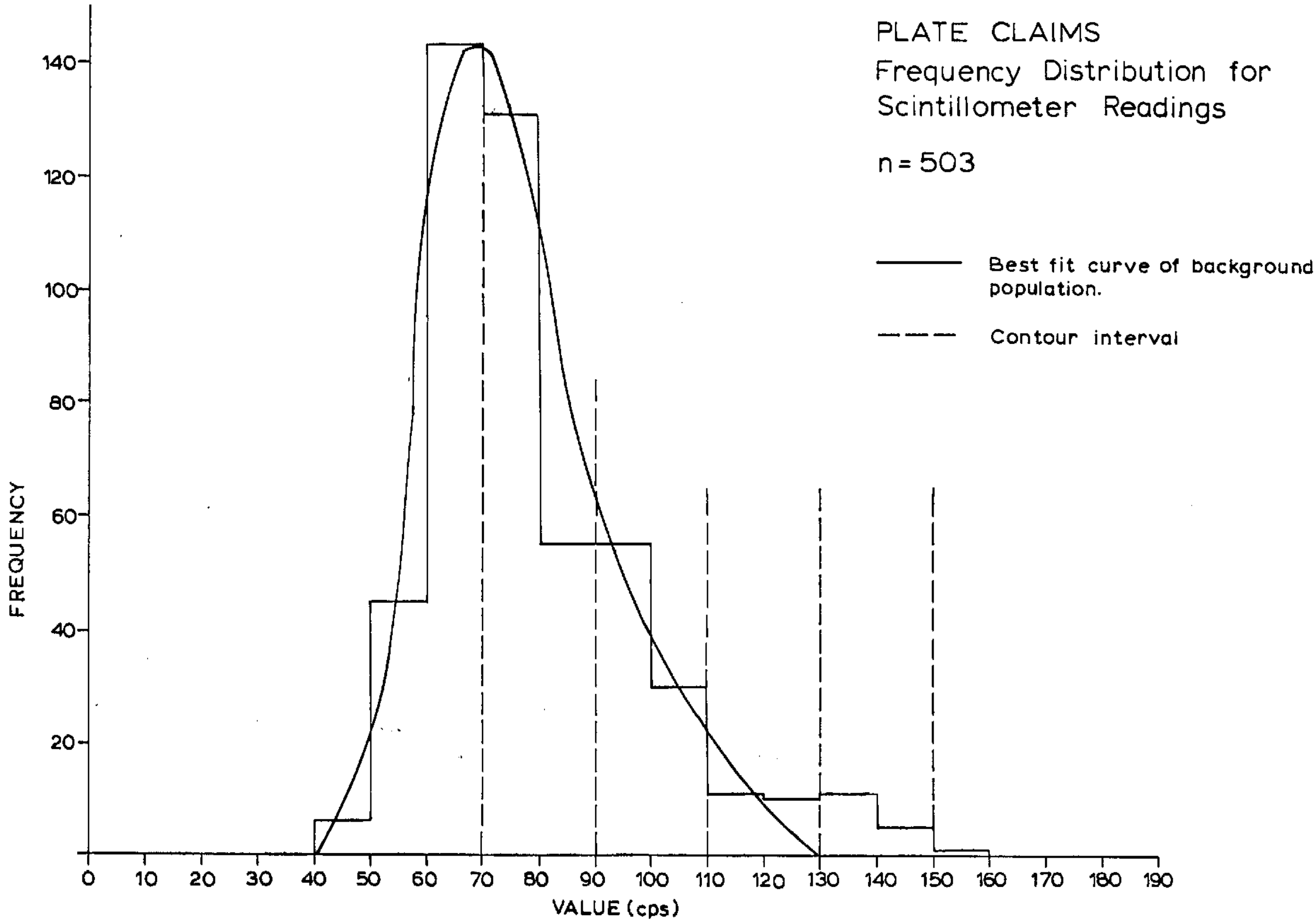
Frequency Distribution for Scintillometer Readings

Class Interval (ppm)	Frequency	Cumulative Frequency	Cumulative Percent
0-40	0	0	0
41-50	6	6	1.2
51-60	45	51	10.5
61-70	143	194	40.0
71-80	131	325	66.9
81-90	55	380	78.2
91-100	55	435	89.5
101-110	30	465	95.7
111-120	11	476	97.9
121-130	10	486	100.0
131-140	11		
141-150	5		
151-160	2		
161-170	3		
171-180	1		
	503		

FIGURE 17

PLATE CLAIMS
Frequency Distribution for Scintillometer Readings

n = 503



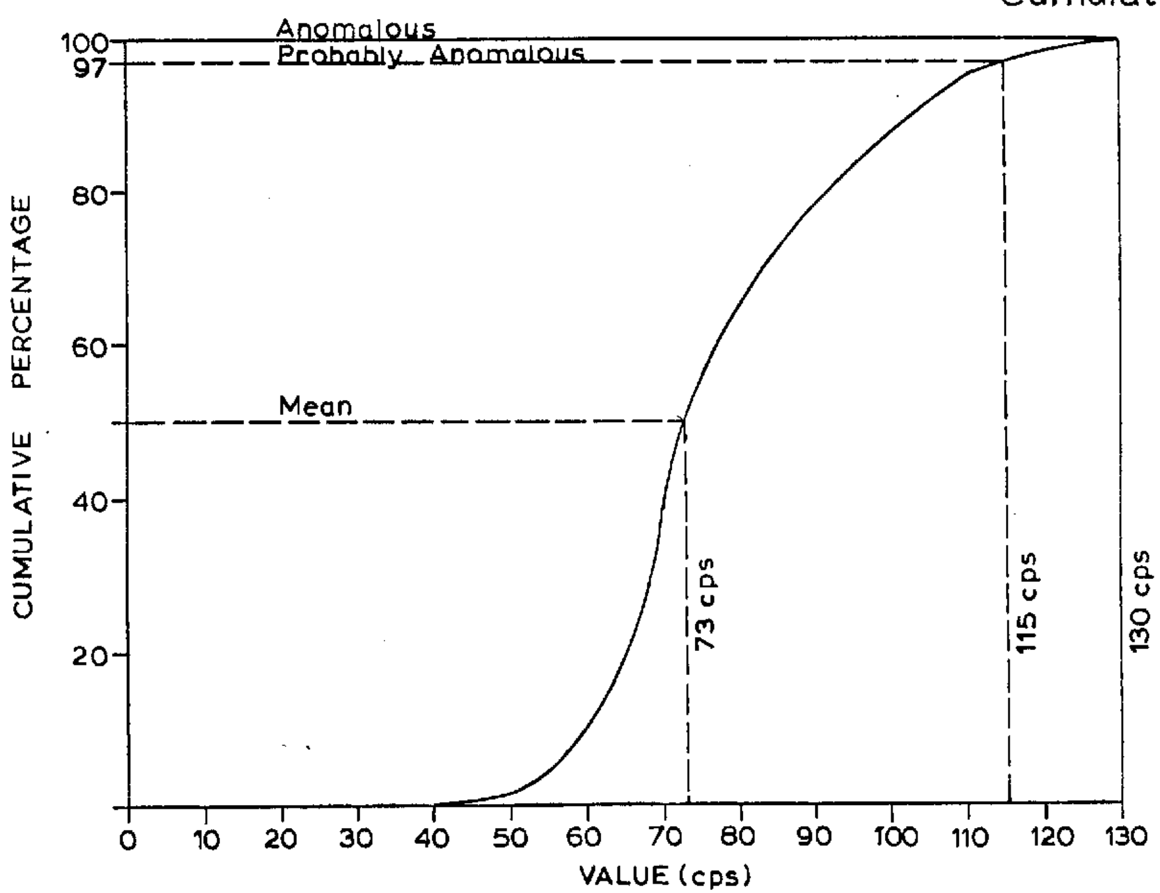
mjc

FIGURE 18

PROJECT CASSI

PLATE CLAIMS
Cumulative Frequency Graph
for Scintillometer Readings

n = 486



mjc

GEOLOGY LEGEND

Recent			
3	Limonite-cemented breccia and/or talus		
Early Jurassic			
Nome Lake Batholith			
2	undifferentiated		
2a	biotite-(hornblende)-quartz monzonite		
2b	hornblende-biotite granodiorite/ diorite, quartz-feldspar porphyritic diorite as dykes		
2c	felsite dyke rocks		
Carboniferous			
1	undifferentiated quartzite, siltstone, phyllite, graphitic quartzite, graphite-chlorite schist		
1a	quartzite and siltstone with or without local micaceous laminae		
1b	white quartzite with graphitic seams, dark grey (possibly graphitic) quartzite		
1c	phyllitic quartzite and siltstone		
1d	graphite-chlorite schist, biotite-chlorite-quartz-feldspar graphite schist, graphite phyllite		
1e	phyllite, quartzitic phyllite		

Symbols

- outcrop
- limit of talus or float
- float
- attitude of bedding or contact: vertical, inclined
- attitude of joints or fractures: vertical, inclined
- geological contact known
- geologic contact inferred
- dyke or vein: strike, strike and dip
- L.C.P. — Legal corner post
- claim boundary
- Pb Au / Mo Sb — Zn Ag / Cu SOCA-Sample number — rock sample location and geochem values (in ppm except Au in ppb)
- QV — quartz veining
- py — pyrite
- po — pyrrhotite
- Cu Pb Zn Ag: 120 | 16 | 180 | 1.4 — Anomalous Values (ppm) — Anomalous represents 10% highest values
- A —— A' — Cross-section

SCALE IN METRES: 100 50 0 100 200 300 400

N — approximate declination 32° (1980)

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

PROJECT CASSI
PLATE CLAIMS

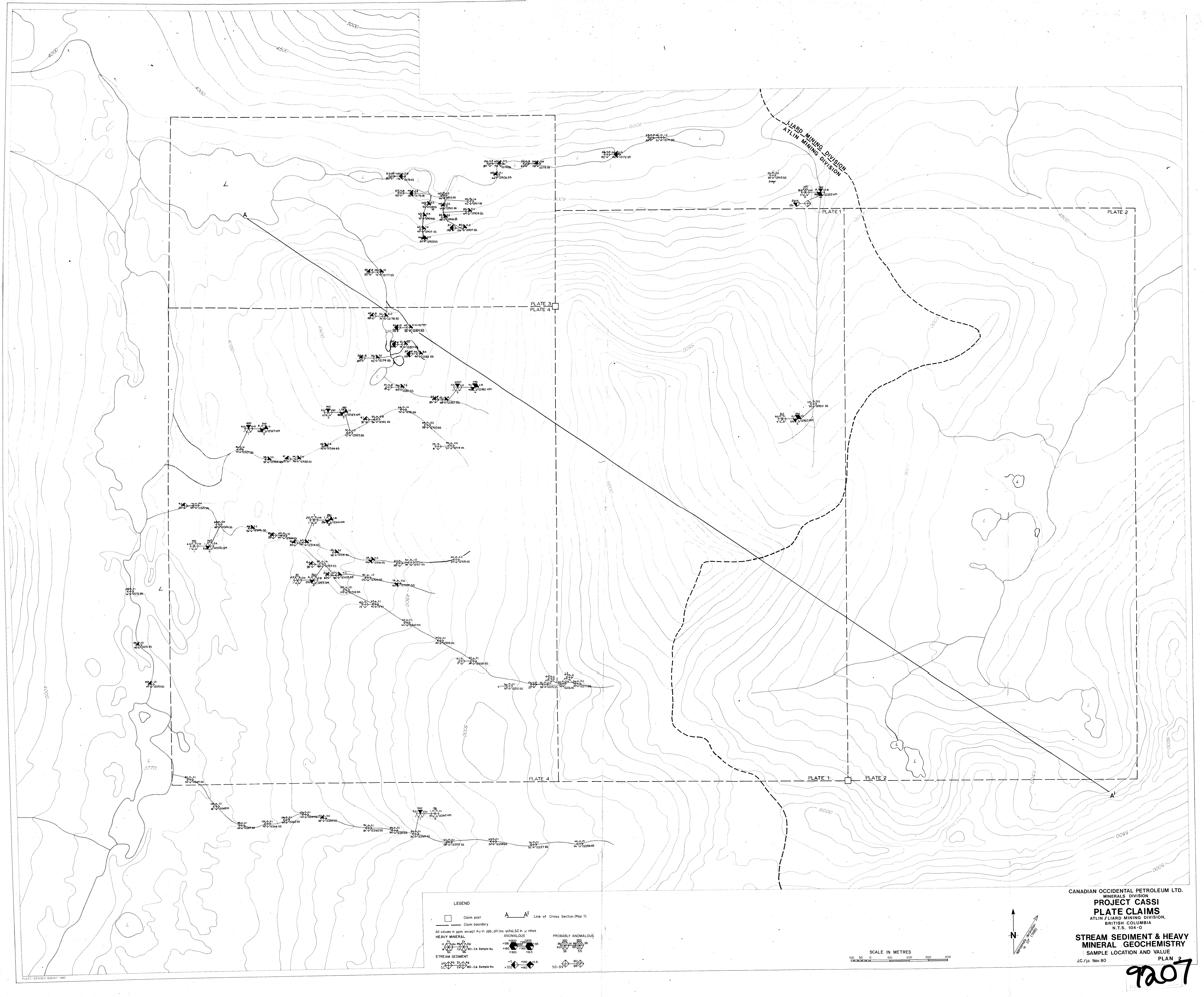
ATLIN / LIARD MINING DIVISION,
BRITISH COLUMBIA
N.T.S. 104-O

GEOLOGY & ROCK GEOCHEMISTRY

J.C. / j.c. Nov. 80

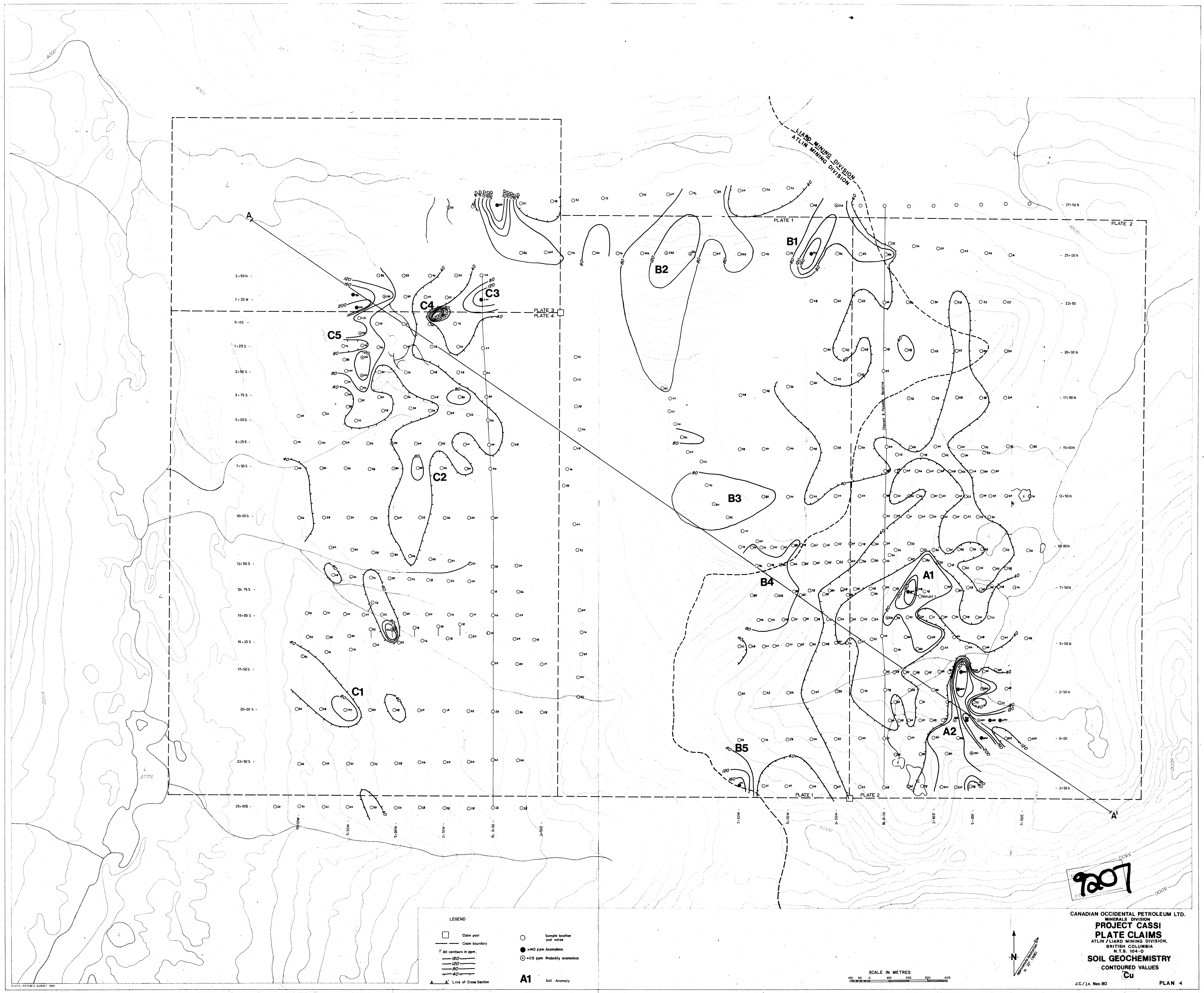
PLAN 1

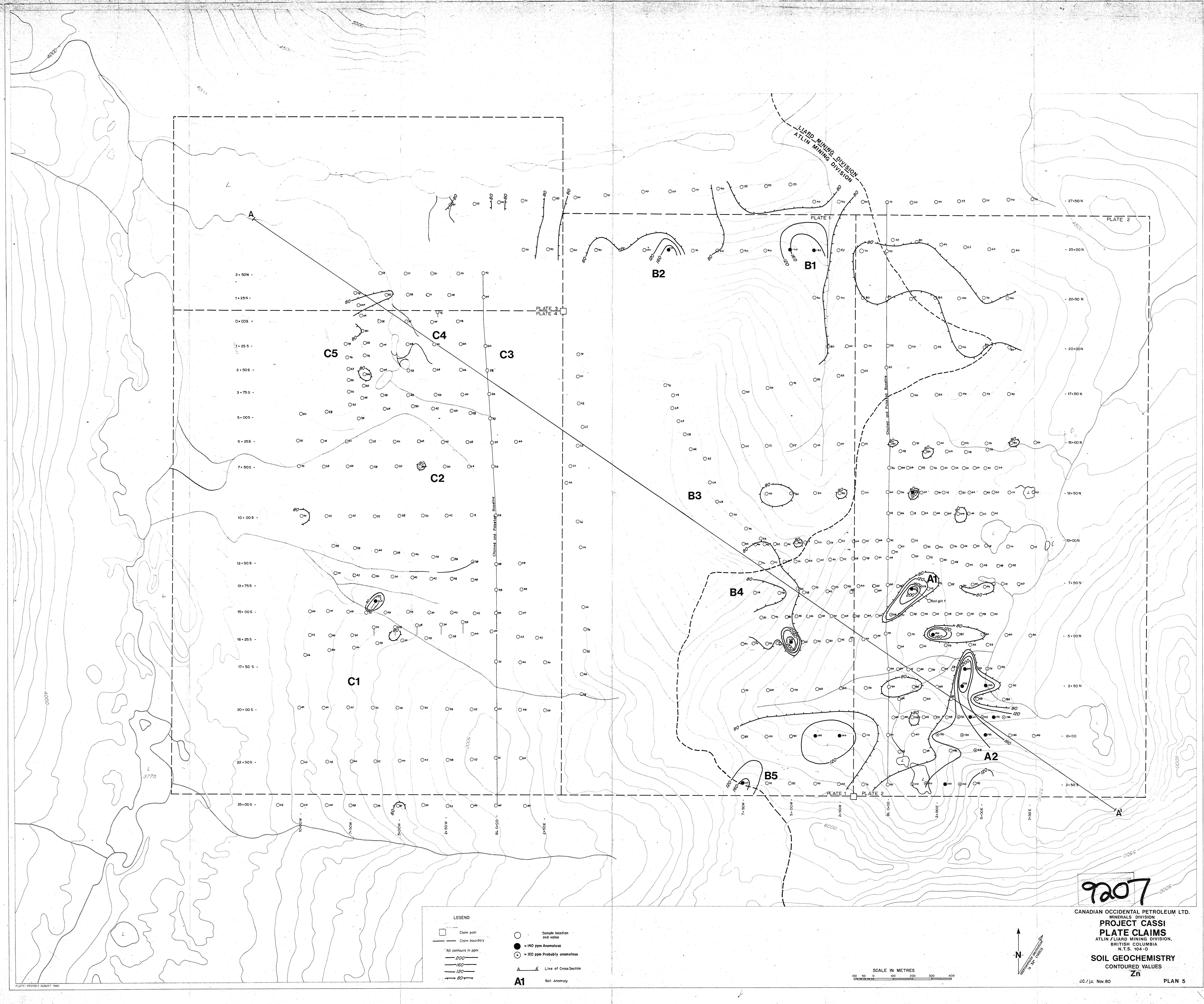
9207

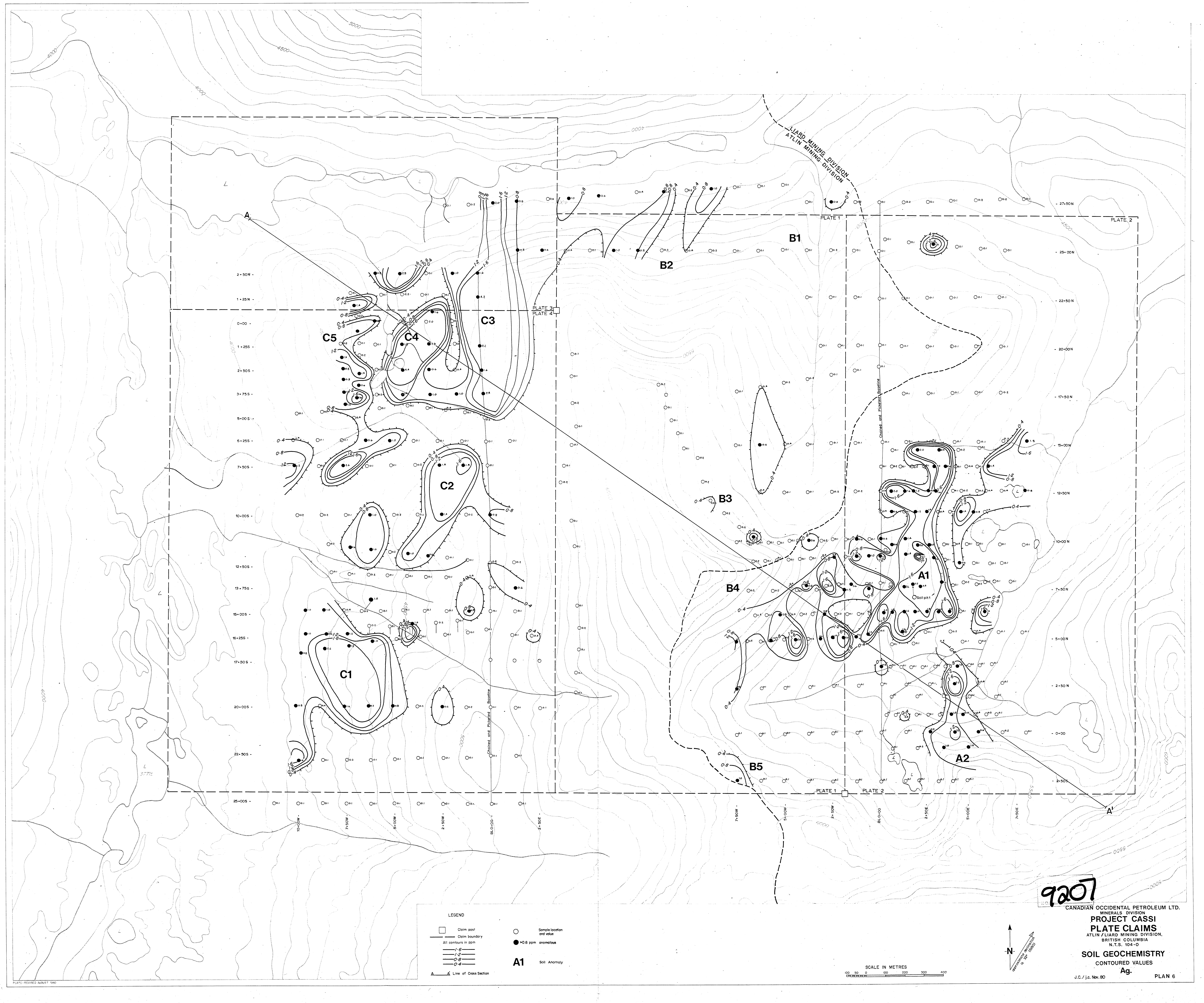


LIARD MINING DIVISION
ATLIN MINING DIVISION
PLATE 1
PLATE 2
PLATE 3
PLATE 4
A
A'
LEGEND
Claim post
Claim boundary
Line of Cross Section (Plan 7)
All values in ppm except Au in ppb; pH (no units); SC in μ mhos
HEAVY MINERAL
ANOMALOUS
PROBABLY ANOMALOUS
80-CA Sample No
STREAM SEDIMENT
80-CA Sample No
SCALE IN METRES
CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
PROJECT CASSI
PLATE CLAIMS
ATLIN / LIARD MINING DIVISION,
BRITISH COLUMBIA
N.T.S. 104-O
STREAM SEDIMENT & HEAVY
MINERAL GEOCHEMISTRY
SAMPLE LOCATION AND VALUE
J.C./j.c. Nov. 80
PLAN 2
approximate declination is 32° (1980)
N
9207


LIARD MINING DIVISION
ATLIN MINING DIVISION
PLATE 1
PLATE 2
PLATE 3
PLATE 4
LEGEND
All values in ppm
Zn Ag Cu 80-CA sample number
Zn Ag Cu 80-CA-12000 series sample number
A A' Line of Cross Section
Anomalous
>140 >0.6 >140
Probably Anomalous
>120 >115
CLAIM BOUNDARY
LEGAL CLAIM POST
SCALE IN METRES
100 50 0 100 200 300 400
N
approximate declination is 32° (1980)
PLATE-REVISED AUGUST 1980
CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
PROJECT CASSI
PLATE CLAIMS
ATLIN / LIARD MINING DIVISION,
BRITISH COLUMBIA
N.T.S. 104-O
SOIL GEOCHEMISTRY
SAMPLE LOCATION AND VALUE
J.C./j.c. Nov. 80
PLAN 3
9207

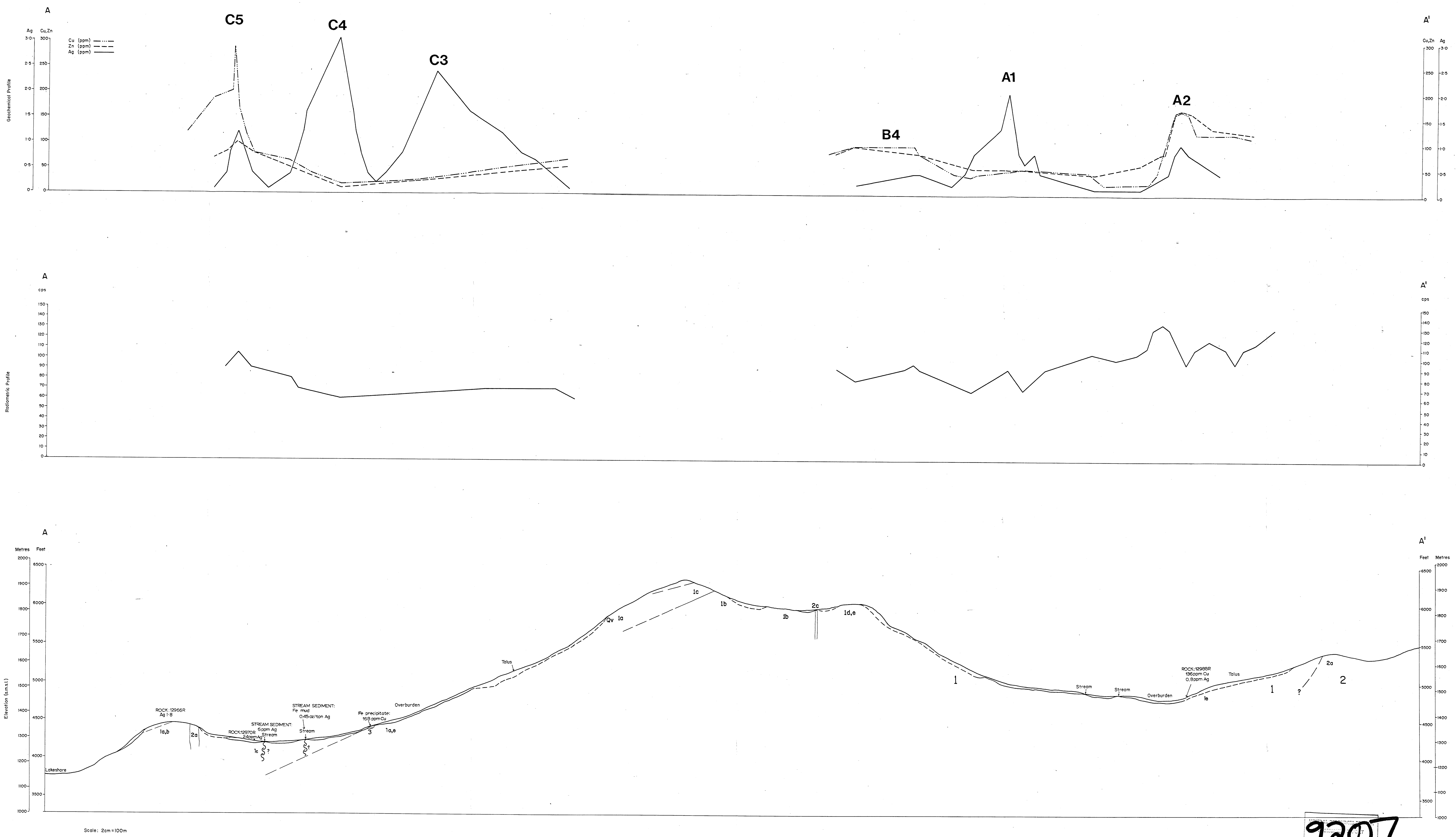

LIARD MINING DIVISION
ATLIN MINING DIVISION
PLATE 1
PLATE 2
PLATE 3
PLATE 4
A
A'
A1
A2
B1
B2
B3
B4
B5
C1
C2
C3
C4
C5
Soil pit 1
Claimed & Flagged Baseline
LEGEND
Claim post
Claim boundary
All contours in ppm
160
120
80
40
Line of Cross Section
Sample location and value
>140 ppm Anomalous
>115 ppm Probably anomalous
A1 Soil Anomaly
SCALE IN METRES
100 50 0 100 200 300 400
N
approximate declination is 32° (1980)
CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
PROJECT CASSI
PLATE CLAIMS
ATLIN / LIARD MINING DIVISION,
BRITISH COLUMBIA
N.T.S. 104-O
SOIL GEOCHEMISTRY
CONTOURED VALUES
Cu
J.C./j.c. Nov. 80
PLAN 4
9207


LIARD MINING DIVISION
ATLIN MINING DIVISION
PLATE 1
PLATE 2
PLATE 3
PLATE 4
A1
A2
B1
B2
B3
B4
B5
C1
C2
C3
C4
C5
A
A'
Chained and Picketed Baseline
LEGEND
Claim post
Claim boundary
All contours in ppm
200
160
120
80
Sample location and value
> 140 ppm Anomalous
> 120 ppm Probably anomalous
Line of Cross Section
Soil Anomaly
SCALE IN METRES
100 50 0 100 200 300 400
N
approximate declination is 32° (1980)
CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
PROJECT CASSI
PLATE CLAIMS
ATLIN / LIARD MINING DIVISION,
BRITISH COLUMBIA
N.T.S. 104-O
SOIL GEOCHEMISTRY
CONTOURED VALUES
Zn
J.C./j.c. Nov. 80
PLAN 5
9207



LIARD MINING DIVISION
ATLIN MINING DIVISION
PLATE 1
PLATE 2
PLATE 3
PLATE 4
A
A'
A1
A2
B1
B2
B3
B4
B5
C1
C2
C3
C4
C5
Soil pit 1
Chained and Picketed Baseline
LEGEND
Claim post
Claim boundary
All contours in ppm
1·6
1·2
0·8
0·4
Line of Cross Section
Sample location and value
>0.6 ppm anomalous
Soil Anomaly
SCALE IN METRES
100 50 0 100 200 300 400
N
approximate declination is 32° (1980)
9207
CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
PROJECT CASSI
PLATE CLAIMS
ATLIN / LIARD MINING DIVISION,
BRITISH COLUMBIA
N.T.S. 104-O
SOIL GEOCHEMISTRY
CONTOURED VALUES
Ag.
J.C. / j.c. Nov. 80
PLAN 6

LIARD MINING DIVISION
ATLIN MINING DIVISION
PLATE 1
PLATE 2
PLATE 3
PLATE 4
Claimed and Picketed Baseline
LEGEND
Readings and contours in c.p.s.
Urtec model UG 130 TC, at 10 sec.
150
130
110
90
70
Claim post
Claim boundary
A — A cross-section
ANOMALOUS
130 cps
PROBABLY ANOMALOUS
115 cps
SCALE IN METRES
100 50 0 100 200 300 400
N
approximate declination is 32° (1980)
CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
PROJECT CASSI
PLATE CLAIMS
ATLIN / LIARD MINING DIVISION,
BRITISH COLUMBIA
N.T.S. 104-O
SCINTILLOMETER SURVEY
CONTOURED VALUES
J.C./j.c. Nov. 80
PLAN 7
9207



9207

Qv quartz veining

inferred fault

A1 Soil Anomaly

GEOLOGY LEGEND

Recent

3 limonite-cemented breccia and/or talus

Early Jurassic

Nome Lake Batholith

2 undifferentiated
- 2a biotite-(hornblende)-quartz monzonite
- 2b hornblende-biotite granodiorite/diorite, quartz-feldspar porphyritic diorite as dykes
- 2c felsite dyke rocks

Carboniferous

1 undifferentiated quartzite, siltstone, phyllite, graphitic quartzite, graphite-chlorite schist
- 1a quartzite and siltstone with or without local micaceous laminae
- 1b white quartzite with graphitic seams, dark grey (possibly graphitic) quartzite
- 1c phyllitic quartzite and siltstone
- 1d graphite-chlorite schist, biotite-chlorite-quartz-feldspar graphite schist, graphite phyllite
- 1e phyllite, quartzitic phyllite

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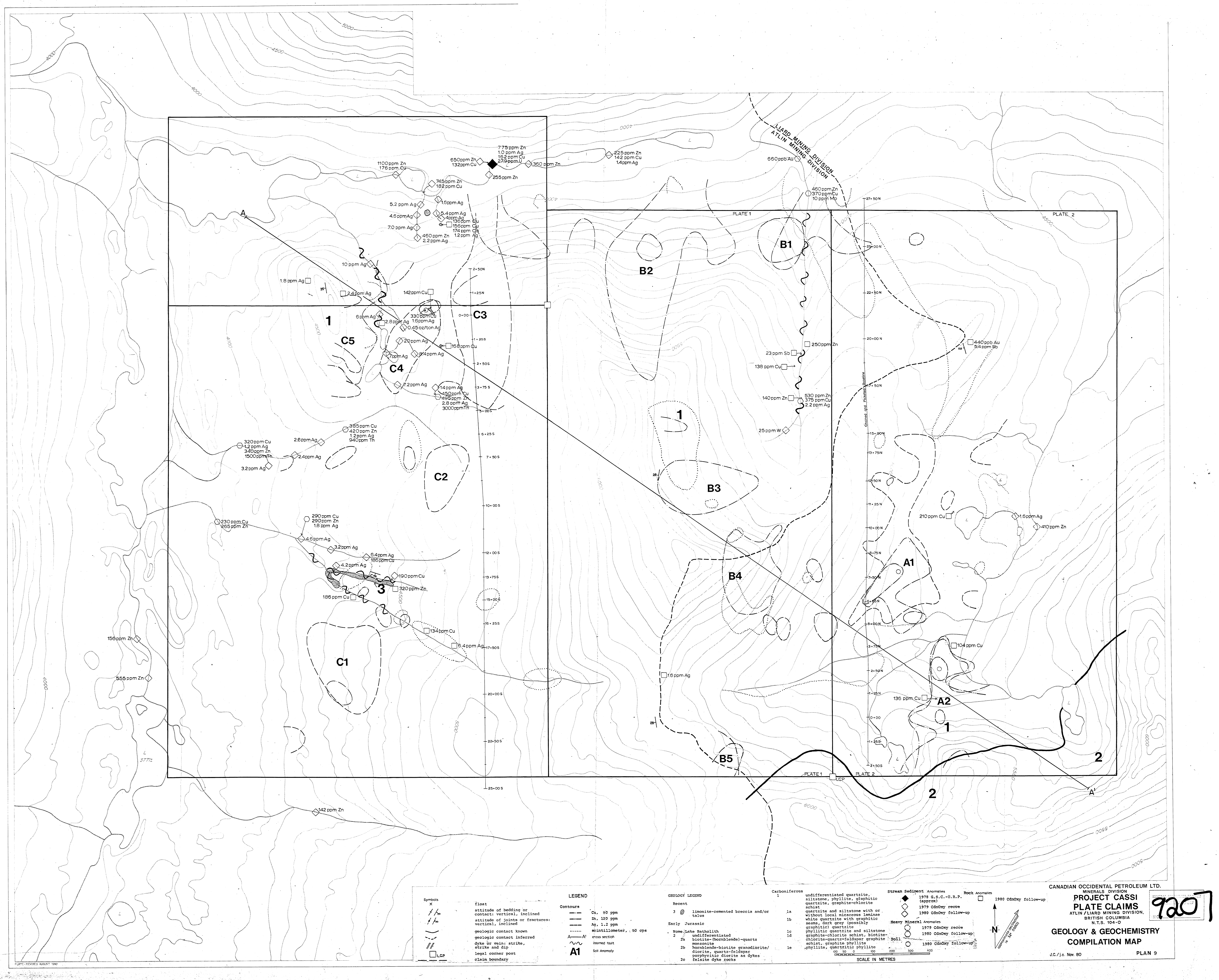
N.T.S. 104-O

GEOLOGICAL, GEOCHEMICAL & SCINTILLOMETER PROFILES A-A'

J.C./p.f. Nov. 80

PLAN 8


CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
PROJECT CASSI
PLATE CLAIMS
ATLIN / LIARD MINING DIVISION, BRITISH COLUMBIA
N.T.S. 104-O
GEOLOGY & GEOCHEMISTRY
COMPILATION MAP
J.C./j.c. Nov. 80
PLAN 9
9207
LEGEND
Symbols
float
attitude of bedding or contact: vertical, inclined
attitude of joints or fractures: vertical, inclined
geologic contact known
geologic contact inferred
dyke or vein: strike, strike and dip
legal corner post
claim boundary
Contours
Cu, 80 ppm
Zn, 120 ppm
Ag, 1.2 ppm
scintillometer, 90 cps
cross section
inferred fault
Soil Anomaly
GEOLOGY LEGEND
Recent
3 limonite-cemented breccia and/or talus
Early Jurassic
Nome Lake Batholith
2 undifferentiated
2a biotite-(hornblende)-quartz monzonite
2b hornblende-biotite granodiorite/diorite, quartz-feldspar porphyritic diorite as dykes
2c felsite dyke rocks
Carboniferous
1 undifferentiated quartzite, siltstone, phyllite, graphitic quartzite, graphite-chlorite schist
1a quartzite and siltstone with or without local micaceous laminae
1b white quartzite with graphitic seams, dark grey (possibly graphitic) quartzite
1c phyllitic quartzite and siltstone
1d graphite-chlorite schist, biotite-chlorite-quartz-feldspar graphite schist, graphite phyllite
1e phyllite, quartzitic phyllite
Stream Sediment Anomalies
1978 G.S.C.-U.R.P. (approx)
1979 CdnOxy recce
1980 CdnOxy follow-up
Rock Anomalies
1980 CdnOxy follow-up
Heavy Mineral Anomalies
1979 CdnOxy recce
1980 CdnOxy follow-up
Soil
1980 CdnOxy follow-up
SCALE IN METRES
N
approximate declination is 32° (1980)
LIARD MINING DIVISION
ATLIN MINING DIVISION
PLATE 1
PLATE 2
LCP
A
A'
A1
A2
B1
B2
B3
B4
B5
C1
C2
C3
C4
C5