CANADIAN OCCIDENTAL PETROLEUM LIMITED

MINERALS DIVISION

GEOLOGY AND GEOCHEMISTRY
OF THE
SHAR 1, 2, 10 CLAIM GROUP

CLAIM SHEET NO. 104-0/15E

Lat.: 59°52'N
Long.: 130°38'W

Claims:

SHAR #1: Units 1-18
SHAR #2: Units 1-18
SHAR #10: Units 1-3

LIARD MINING DIVISION

BRITISH COLUMBIA

by:

Glenn Tetu, B.Sc.

Work Completed Between July 2, 1980 and August 27 1980

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SUMMARY

The SHAR 1 & 2 Claims were staked on June 8, 1979 to cover the headwaters of streams with high values of Pb (200 ppm), Zn (310 ppm), Ag (2.2 ppm), U (46.1 ppm) and Mo (7 ppm). The SHAR 10 Claims was staked on August 9, 1980 to cover an area with favourable rock and soil geochemistry.

The property is underlain by foliated granodiorite to quartz monzonite of the Mid-Cretaceous Cassiar Batholith. The orientation of the foliation is 135-180°/70°-80° south-west. Dykes of megacrystic quartz monzonite and diabase also outcrop on the property.

Economic mineralization is primarily controlled by sheared alteration zones. Pervasive clay and epidote alteration of feldspar, chloritization of biotite and the formation of muscovite, hematite, limonite, mongonite and quartz-aplite has occurred in these zones.

In the south-east portion of the property alteration shear zones oriented at roughly 45°/90° show enrichment in Pb (up to 1700 ppm), Zn (up to 1900 ppm) and Ag (up to 17 ppm).

The two highest values obtained from rock samples were from quartz veins in talus; 0.85% Zn from the central part of the property and 9.18 oz./ton. Ag from the south central portion of the claim.

Four soil anomalies were outlined on the property, two are related to local in situ mineralization (anomalies A and D), and the sources of the other two (anomalies B and C) are not known.

Soil anomaly A occurs in the north central portion of the property. Its maximum area extent is 500 metres by 200 metres and open to both the south and west. Maximum values returned are 128 ppm Pb, 310 ppm Zn, and 3.4 ppm Ag.

Soil anomaly D covers much of the southeastern corner of the property. It consists of 5 smaller anomalous zones in the granodiorite. Maximum values returned are 450 ppm Pb, 1300 ppm Zn and 1.0 ppm Ag.

Stream sediment values up to 245 ppm Pb, 610 ppm Zn, and 3.6 ppm Ag and heavy mineral values ranging to 820 ppm Pb, 1200 ppm Zn, 18 ppm Ag, 49 ppm Mo, and 500 ppm W have been obtained from samples collected from streams draining the central valley. Sources of these anomalous values have not yet been accurately determined.

Although results to date suggest mineralization is localized and probably sub-economic more detailed soil sampling, prospecting and mapping is required to fully evaluate the property's economic potential.

I. INTRODUCTION

The SHAR 1 + 2 Mineral Claims were staked on June 9, 1979 to cover a stream sediment with high values of Pb, Zn, Ag, U, and Mo, detected during the 1978 Geological Survey of Canada - Uranium Reconnaissance Program, the data of which was released as Open File 561 on June 8, 1979. On July 8 and 16, 1979 CanadianOxy conducted reconnaissance geological and geochemical surveys over the property. CanadianOxy also conducted detailed geological and geochemical surveys between July 2, 1980 and July 3, 1980 and from August 10 to 11, 1980. This report represents the results of those survey.

II. LOCATION AND ACCESS

The SHAR 1 + 2 Claims are located at approximately 59°52'N, 130°38'W with NTS sheet 104-0/15E, Liard Mining Division, British Columbia. The claims are situated at the headwater of Allan Creek, approximately 8 km. south of the Alaska Highway. Access to the claims is via helicopter.

III. PHYSIOGRAPHY AND VEGETATION

Relief over the SHAR 1 + 2 Claimsis 2200 ft. (670 m). Topography is complex and consists of a very deeply and steeply incised, north-south, central valley with steep walls. The main crest of Tootsee Ridge in the eastern half of the claims is walkable and descends steeply into several cirques containing ponds and streams. The western half of the claims is similar in topography. The entire claim group lies above the treeline.

IV. PREVIOUS WORK

Prior to the staking of the SHAR 1 + 2 Claims some exploration work had been carried out in the general area, as evidenced by an old claim post east of the CanadianOxy's ground. The Jennings River (104-0) sheet was geologically mapped by the Geological Survey of Canada from 1944 to 1968 (Gabrielse, 1968). In 1978 the Geological Survey of Canada carried out a reconnaissance stream sediment and water sampling program over the Jennings River (104-0) sheet at a density of one sample per 5 mi^2 (13 km^2). Results were released as Open File 561 on June 8, 1979 and the SHAR 1 + 2 Claims were staked the next day to cover a stream sediment with high values of Pb (200 ppm), Zn (310 ppm), Ag (2.2 ppm), U (46.1 ppm) and Mo (7 ppm). The eastern half of the SHAR-1 Claim, however, overlaps on the previously staked Toots Claim of Cassiar Asbestos.

V. CLAIM STATUS

Claim	Number	Date Staked	Anniversary Date	Expiry Date
SHAR 1	18	June 9, 1979	June 19, 1979	June 19, 1982
SHAR 2	18	June 9, 1979	June 19, 1979	June 19, 1982
SHAR 10	4	Aug. 9, 1980	Aug. 14, 1980	Aug. 14, 1981

Information does not include assessment work to be filed for 1980.

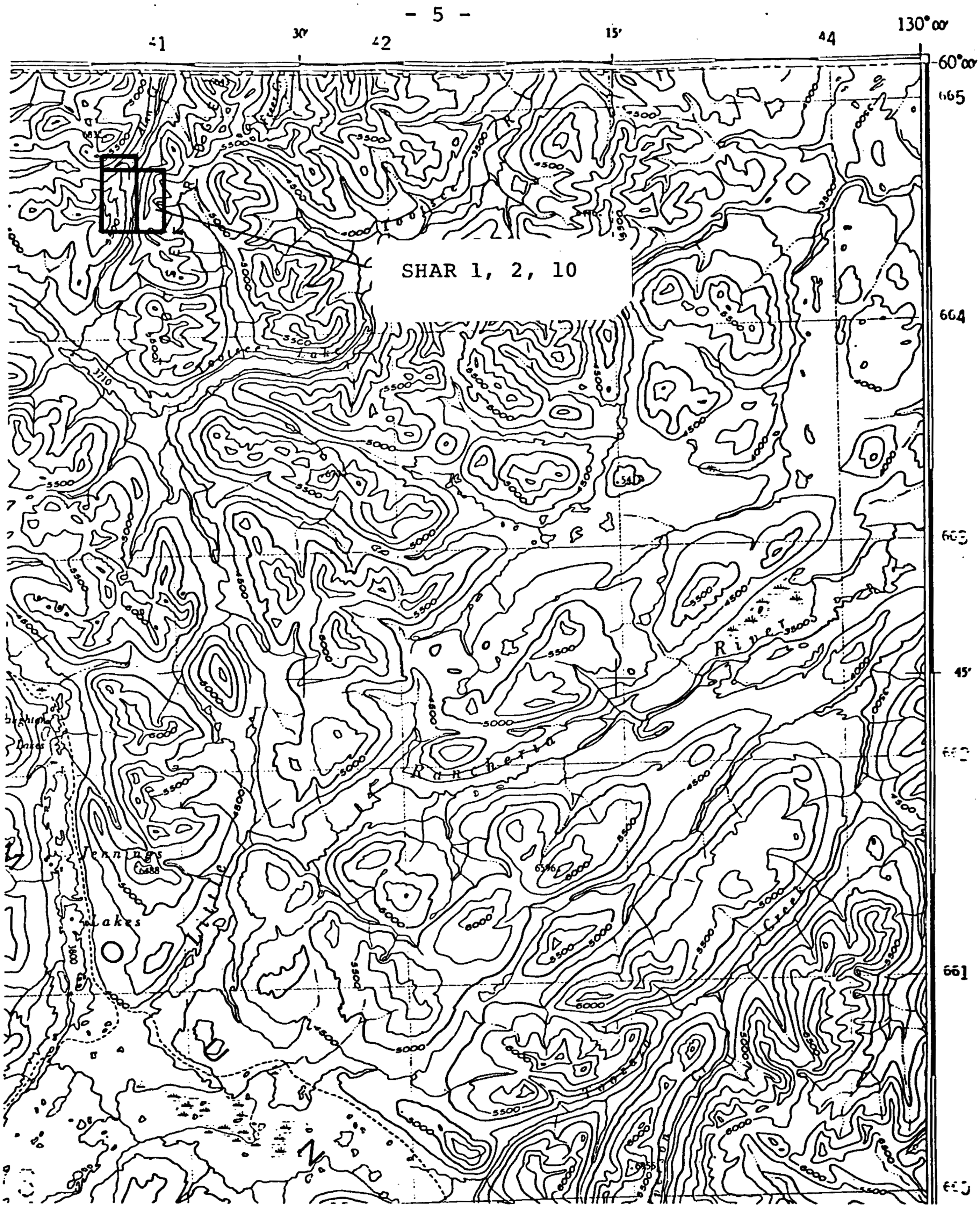


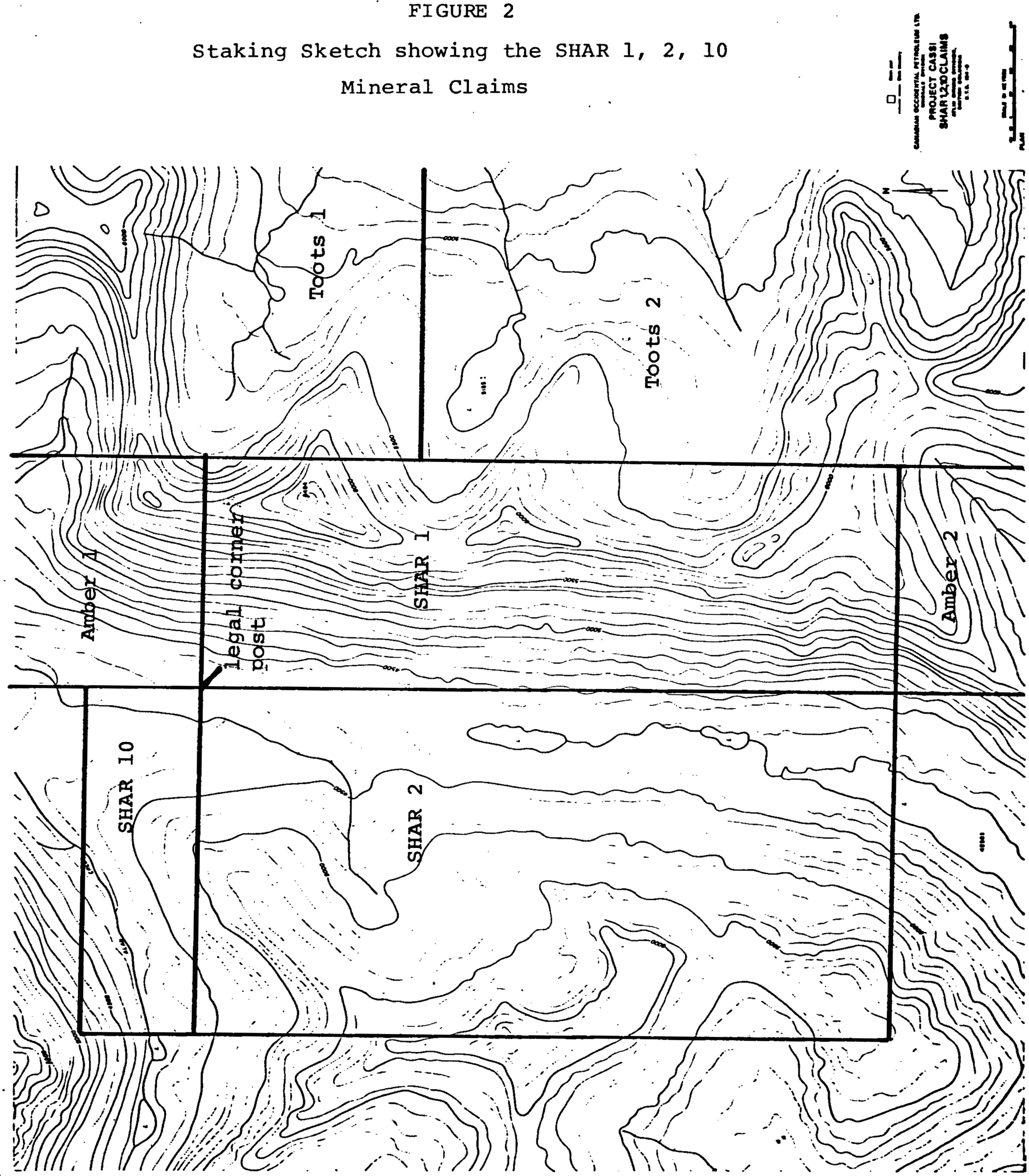
FIGURE 1
Location and Access to SHAR 1, 2, 10 Claims
NTS 104-0/15E

Scale 1: 250,000

FIGURE 2

Staking Sketch showing the SHAR 1, 2, 10

Mineral Claims



VI. WORK COMPLETED - 1980

6.1 Claim Staking

On August 9, 1980 the SHAR 10 Mineral Claim was staked, tying onto the northwest corner of the original SHAR 1-2 group. The new claims were recorded in Victoria, B.C. on August 14, 1980. The anniversary date is August 14, 1980.

6.2 Geological Mapping

The property was visited by Dr. R.H. Wallis, C. Gleeson, R. Kuehnbaum and G. Tetu on June 4, 1980 for the purpose of property evaluation and orientation. A total of one man day of work was performed.

Geological mapping and prospecting was carried out by T. Burns and C. Richardson between July 2, and July 3, 1980, and by C. Richardson from August 10 to 11, 1980. A total of 6 man days of work was performed.

On August 27, 1980 Dr. R.H. Wallis, M.J. Crandall, and C. Richarson visited the property to examine areas of interest in detail. One man day of work was performed.

A property base map at 1:5,000 scale was obtained by photo-enlargement of Department of National Defense topographic map 104-0/15E (scale 1:50,000). Airphotograph #A 114520283 (scale 1"=1/2 mile) was enlarged to roughly a scale of 1:5,000 for field control.

6.3 Geochemistry

A total of 6 heavy mineral, 6 stream sediment and 203 soil samples were collected by Scott, Hauseux, Oberc, Jarvis and Mattiacci. A total of 28 rock samples from the mapping surveys were sent for analysis. All samples were geochemically analyzed by Chemex Labs Ltd., North Vancouver, B.C. A total of 10 man days of work was performed. Analytical results are listed in Appendix I.

6.4 Scintillometer

Coincident with the soil sampling, scintillometer readings were recorded at each soil sample location, at 125 meter intervals. The model of scintillometer used was a Urtec 130 with readings from the TC_1, 10 second channel.

6.5 Summary of Work Completed

SHAR 1 + 2

Type of Work	Man Days	No. of Samples	No. of Analyses Cu	Mo	Pb	Zn	Ag	U	Th	Sn	W	Au	Total
Geological Mapping	7.0												
Geochemistry	7.0												
i) Rock		28	2		28	28	28					1	87
ii) Heavy Min.		6	6	6	6	6	6	6	6	6	6		54
iii) Sediment		6			6	6	6						18
iv) Soil		190			190	190	190						570
TOTAL	14.0	230	8	6	230	230	230	6	6	6	6	1	729

Helicopter Hours 4.7
(Bell 206-B)

SHAR 10

Type of Work	Man Days	No. of Samples	No. of Analyses Cu	Mo	Pb	Zn	Ag	U	Th	Sn	W	Au	Total
Geological Mapping	1.0												
Geochemistry	3.0												
i) Soil		19			19	19	19						57
TOTAL	4.0	19			19	19	19						57

Helicopter Hours 1.7 (Bell 206-B)

6.6 Names and Address 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 Same address as above	Project Suppervisor
G. Tetu Same address as above	Project Geologist
T. Burns Same address as above	Geologist
C.J. Richardson Same address as above	Senior Assistant
M.J. Crandall Same address as above	Senior Assistant
C. Scott Same address as above	Junior Assistant
A. Jarvis Same address as above	Junior Assistant
M. Mattiacci Same address as above	Junior Assistant
M. Oberc Same address as above	Junior Assistant
R. Hauseux Same address as above	Junior Assistant
Dr. C.F. Gleeson C.F. Gleeson and Associates Lakeshore Drive R.R.#1 Iroquois, Ontario KOE 1KO	Consulting Geochemist

VII. GEOLOGY

7.1 General Geology

Gabrielse (1968) shows the SHAR 1 + 2 Claims to be underlain by Mid-Cretaceous, biotite-quartz monzonite and granodiorite of the Cassiar Batholith. Several northwest trending faults are mapped to the west of the claims. The intrusive is foliated between 135° to 180°/70°-80° southwest.

Mapping by CanadianOxy shows the claims to be underlain mainly by foliated granodiorite (Unit 1a), megacrystic quartz monzonite (Unit 1b) and disbase dykes presumably of Tertiary age (Unit 2, see Plan 1). The foliated granodiorite is cut by altered shear zones, one of them is possibly 3660 meters in strike length. It contains limonite, hematite, chlorite, clay, carbonate, eqidote, manganite, quartz veining, and enrichment of Pb, Zn, Ag and U.

Table 1

7.2 Table of Formations

TERTIARY?

Unit 2 Dykes
Diabase

CRETACEOUS

CASSIAR BATHOLITH

Unit 1 Granitic Intrusive Rocks

1b Perthite Megacrystic Quartz Monzonite

1a Foliated Biotite Granodiorite to Quartz Monzonite

7.3 Description of Rock Units (Plan 1)

Unit 1 Cassiar Batholith

The majority of the intrusive underlying the property is a fine to medium-grained, dark grey to white, equigranular, slightly foliated granodiorite to quartz monzonite. The unit (1a) contains 80-90% feldspar (79-50% plagioclase, 30-50% K-spar), 5-10% quartz and 5-15% biotite. Foliation is defined by alignment of biotite and feldspar (rock samples 80-CA-11213R), 11215R, 11217R).

In west central SHAR 1 a perthite megacrystic quartz monzonite coutcrops. The unit (1-) is massive and contains K-feldspar (25-30%), quartz (40-45%) plagioclase (25-30%) and mafic minerals (up to 5%). K-feldspar megacrysts are subhedral, up to 1 cm on edge, and locally show well developed Carlsbad twinning. Anhedral quartz grains up to 3 mm in diameter are also present. The surface trace of this unit suggests it is subhorizontal dyke striking to the south-southeast and dipping slightly to the east (rock sample 80-CA-11224R).

A 3-meter wide quartz porphyry dyke with an exposed strike length of 5 meters and oriented at 40°/90° was located in southwestern SHAR 1 claim. The unit consists of up to 10% quartz phenocrysts (to 2 mm in diameter) within an aphanitic greenish-white groundmass (sample 80-CA-11992R).

Numerous quartz veins up to 10 cm wide cross-cut the foliation within the main intrusive. Two pegmatitic veins 8-16 cm wide were observed in talus boulders in the southwestern section of the property.

Unit 2 Diabase

Several dykes were observed in the western portion of the property. The rock consists of fine-grained plagioclase, pyroxene, biotite and minor amounts of quartz. The dykes are up to 0.75 meters wide and are generally vertical with one being inclined 50° to the north. The strike is between N70°E to N77°E. Alteration consists of surficial weathering of the mafic minerals to produce a limonitic staining.

7.4 Structure

Foliation varies form 147° to 154°/90° in the western half of the claims. The degree of foliation in generally depndent on the amount of biotite present.

A possible fault is visible on airphotographs on the western side of the main valley trending 012° for approximately 1.5 km. This is sub-parallel to a shear zone noted by Sacks (1979) on the eastern side of the property.

Numerous shear zones were noted trending between 060° and 080° with a vertical dip. Shears are evenly spaced on both sides of the main valley which itself may represent a major shear of fault zone.

Three prominent joint sets were noted throughout the property. The most prominent jointing has an attitude of 010°/90°; the second most prominet is oriented at 150° - 180°/ 25°-35°SW. The third strikes 080°-100° with a step dip to the north or south.

7.5 Metamorphism and Alteration

The primary metamorphic process is cataclastic deformation represented by the pervasive shearing and jointing. Whether foliation is a plastic response to this process or related to syn-intrusive stress in unknown.

Alteration is primarily confined to the shear zones. Pervasive clay and eqidote alteration of feldspar, chloritization of biotite and the formation of muscovite, hematite, limonite, manganite and quartz-aplite has occurred. Outside of these zones alteration is confined to surficial weathering of biotite and feldspar.

7.6 Economic Geology

The target for this property is lead, zinc and silver within the Cassiar Batholith. Uranium potential was not evaluated.

Economic mineralization is restricted to shear zones within the granodiorite. The shear zones show some degree of alteration of the original rock type suggesting the economic mineralization was introduced by hydrothermal solutions travelling along zones of increased permeability.

Although shear zones are common throughout the property, visible mineralization (pyrite, galena, and sphalerite) was located in bedrock only in the southeast corner of the claim group. All mineralized zones located have an attitude of roughly 45°/90°. Seven rock samples from this area showed significant values of Pb, Zn or Ag with values ranging as follows; 110 ppm to 1700 ppm Pb, 74 ppm to 1900 ppm Zn, and 0.1 ppm to 17 ppm Ag (from rock samples 80-CA-1220R, 11223R, 11990R, 11994R, 11995R, 11996R, 11997R). Location of samples is given on Plan 1.

A quartz vein in talus (80-CA-11227R) in east central SHAR 2 returned values of 0.85% Zn, 1850 ppm Pb, and 4.8 ppm Ag.

Two rock samples from north-eastern SHAR 2 returned interesting values; sample 80-CA-11229R (quartz vein in talus) with 900 ppm Pb, 96 ppm Zn and 9.18 oz/ton Ag, and sample 80-CA-11228R (quartz vein) with 318 ppm Cu, and 6.4 ppm Ag. Visible chalcopyrite was identified in sample 80-CA-11228R.

7.7 Summary of Geology and Mineralization

The property is underlain by a slightly foliated granodiorite to quartz monzonite of the Cassiar Batholith. A very minor amount of megacrystic, pegmatitic or porphyritic intrusive rock is also present. Lake stage diabase dykes have intruded the batholith.

Economic mineralization is present within northeast trending shear zones in south central SHAR 1 claim. The sheared and altered intrusive hosts visible galena, sphalerite and pyrite.

VIII. GEOCHEMISTRY

8.1 Soil Geochemistry

8.1.1 Introduction

The entire property is above the treeline with grass and scrub brush growing in the valley floors. The main soil development is immature alpine type. Thickness of overburden in the valleys is not known.

8.1.2 Soil Profile

No soil pits were dug on the property as the soil development is very limited.

8.1.3 Sampling Procedure

Sample density over most of the property is low. Two contour traverses, with sample spacing at 125 meters, were run along both sides of the main valley. Detail sampling along contours, with 65 meter sample spacings, was carried out in northeastern SHAR 2.

A baseline oriented at N20°E was established in central and southwestern SHAR 2 claim. Soil samples in this area were collected at roughly 65 mx 125 m intervals.

All soil samples collected were stored in special heavy-duty, high wet-strength kraft envelopes, semi-dried in the field and then sent to Chemex Laboratories in Vancouver for analysis.

8.1.4 Laboratory Procedures

Samples preparation and analysis procedures are described in Appendix III.

8.1.5 Analytical Control Procedure

In order to ensure reproducibility and quality of analytical work duplicate samples were included with each batch of soil samples sent to Chemex Laboratories. Tabulation of data is given in Table 2

The duplicating procedure consisted of

(1) selecting a sample at random from each 30th consecutively numbered samples,
(2) mixing and splitting the sample into two equal halves,
(3) returning one half to the original sample bag,
(4) placing the second half into a new pre-numbered sample bag, and
(5) recording the duplicate sample number and the original sample number for later comparison.

Comparison of results (Table 1) indicates generally good reproducibility of analytical values. In one case (sample 80-CA-11022) there is a significant difference (88 ppm)

COMPARISON OF DUPLICATE CONTROL RESULTS
Table I

Original Sample (80-Ca)	Duplicate Sample (80-Ca)	Pb (ppm)	% diff. Δ from Av.	Zn (ppm)	% diff. Δ from Av.	Ag (ppm)	Δ
11072		20	5	240	22	0.1	0
	11000	22		152		0.1	
11053		74	3	148	3	0.1	0
	11001	70		158		0.1	
11099		8	11	46	0	0.1	0
	11002	10		46		0.1	
11116		36	12	64	7	0.1	0
	11003	46		74		0.1	
11160		34	13	102	2	0.1	0
	11004	26		98		0.1	
11280		24	0	74	0	0.1	0
	11005	24		74		0.1	

Generally accepted reproductibility limits: 0 - 10 ppm - 30%; 10 - 50 ppm - 20%; >50 ppm - 10 %.

for the zinc analysis. Source of error in this case may be related to mechanical as well as hydromorphic dispersion of elements in the soil.

8.1.6 Statistical Analysis of Results

For each element and for radiometric results histograms were contructed. Anomalous values were calculated by free-hand drawing a smooth curve through the lowest normal population, the anomalous threshold being determined by the intersection of the curve with the abscissa. Cumulative frequency curves were constructed from the mean, and probably anomalous levels for each element were determined at the 50th and 97th percentile levels (figures 4, 6, 8 and 10). Analytical results of the 190 soil samples are listed in Appendix I.

Contour intervals for the various soil geochemistry maps were selected using histograms (figures 3, 5, 7 and 9). Between 3 and 5 values were selected to contour low, moderate and high background and anomalous areas on the soil geochemistry maps.

Table 2

Statistical Results for Soil Geochemistry

	Pb in soils (ppm)	Zn in soils (ppm)	Ag in soils (ppm)
Mean Value	32	92	0.1
Probably Anomalous Value	106-120	226-260	+0.2-0.4
Anomalous Value	120	260	0.4
Contour Intervals	60, 100, 140	150 200, 250	0.2, 0.4, 0.8

8.1.7 Summary of Soil Anomalies

Soil sample coverage over much of the property is quite low except where detail follow-up work was carried out. For purposes of discussion anomalous areas are defined by values of +100 ppm Pb, +200 ppm Zn and +0.4 ppm Ag (see Plans 3, 4, 5 and 9).

On the central and southern portion of the western side of the main valley one station highs in either Pb, Zn or Ag have been returned. Source and trend of these anomalies are difficult to determine due to the low sample density. Detail sampling along contour traverses on the northern end of the western side of the valley (Anomaly A) has roughly outlined a composite Ag-Pb-An soil anomaly (+0.4 ppm Ag, +100 ppm Pb, and +200 ppm Zn). The anomaly consists of high Pb values, 4 high Zn values and 2 high Ag values. The maximum area extent of the anomaly is 500 metres by 200 metres and open to both the south and west. The range of values are 124 ppm to 128 ppm Pb, 0.4 ppm to 3.4 ppm Ag, and 200 ppm to 310 ppm Zn. Sample density in the anomalous area is low but there appears to be a north-south alignment of the anomaly. All elements define roughly the same anomalous area which suggests source material is local (relative mobility of the three elements in soil is very different). The source could be mineralized talus (up slope source) or in situ mineralization.

Anomaly B occurs across the valley from Anomaly A on the eastern side of the central valley. It is defined by four sample sites, roughly 500 meters by 300 meters in size, and open to the north and east. The range of values are 192 ppm to 315 ppm Pb, 0.6 ppm to 0.8 ppm Ag, and 320 ppm to 485 ppm Zn. An upslope source is suggested by the dispersion of the elements.

Anomaly C occurs in the central portion of the eastern flank of the central valley. It is defined by 3 sample locations and the range of values are 110 ppm to 132 ppm Pb, 0.4 ppm to 0.8 ppm Ag, and 220 ppm to 330 ppm Zn. Due to the low sample sensity it is difficult to infer potential source of the anomaly.

Anomaly D covers a large area in the southeastern portion of the property. Sample density varies from high to sparse for defining this anomaly. Distribution of anomalous lead and zinc is roughly equal but silver is much more restricted. In siu galena and sphalerite were located within the anomalous area (see Plan 1).

Anomaly D consists of 5 smaller zones as outlined by Pb and Zn values. These zones generally show northeast-southwest orientation which is in good agreement with prospecting results where mineralization was located in sheared alteration zones trending at N20°E to N40°E. The zones are all less than 700 meters by 200 meters in extent and returned values with ranges of 104 ppm to 450 ppm Pb, up to 1.0 ppm Ag and 205 ppm to 1300 ppm Zn.

Only two samples from Anomaly D returned high silver values (both at 1.0 ppm Ag). There is not a significant concentration of silver in soils for Anomaly D.

Comparison of the geology and geochemistry maps (Plans 1, 2 and 9) shows good correlation between mineralization observed and soil anomalies for Pb and Zn. Silver in soils does not appear to be a good indicator of local mineralization.

The detailed sampling in the area of Anomaly D was carried out over a major shear zone, trending at N30°E, in which intensive rock alteration was observed by Sacks (1979). Soil contours for Pb and Zn (Plan 3, 4) show discontinuous anomalies over the projected location of this shear zone. This suggests mineralization in the shear zone is either sporadically distributed, locally leached away, or controled by local minor structures in the vicinity of the major shear.

The broad anomalous area in the western portion of Anomaly D is defined by very low density sample coverage. Distribution of the anomalous samples suggests an upslope source for mineralization, presumable localized in sheared alteration zones.

The anomalous area in the southeast portion of Anomaly D shows north-northeast alignment suggesting a local source with shear zones.

8.2 Stream Sediment Geochemistry

The claim group was originally staked on the basis of results from two Geological Survey of Canada-Uranium

Reconnaissance Program sample sites (returning values of 200 ppm Pb, 310 ppm Zn, 2.2 ppm Ag, 46.1 ppm U, and 7 ppm Mo; refer to Plan 9 for location).

Work by Sacks (1979) confirmed the anomalous values obtained by the Geological Survey of Canada although Mo and Ag values were significantly lower in CanadianOxy's results.

Six stream sediment samples were collected by Canadian Occidental personnel in the summer of 1980. These samples were obtained from a stream draining south from the central valley. All samples were analyzed for Pb, Zn and Ag. Sample preparation and analytical procedures are given in Appendix III.

The sample posulation of stream sediments was too small to carry out a statistical treatment of results. Consequently, values were compared against 'probably anomalous' (97th percentile) values calculated by Sacks (1979) from all samples collected during the CanadianOxy 1979 WATSU property and regional program. Data are listed in Table 7.

Water samples collected at stream sediment sample sites had pH values between 7.4 and 7.9 whereas last year pH of water samples ranged between 9.0 and 9.5 (Sacks, 1979, p. 11). If the difference in results is not due to instrument or operator error then the results would suggest that carbonate alteration (as a probable source of increased water pH) in the intrusive occurs only in the eastern and northern portion of the property.

Table 7

PROBABLY ANOMALOUS VALUES FROM WATSU 1979 FIELD DATA
AND 1980 RANGE OF VALUES

HEAVY MINERALS

	(ppm) Cu	(ppm) Pb	(ppm) Zn	(ppm) Ag	(ppm) Mo	(ppb) Au	(ppm) Sn	(ppm) W	(ppm) U	(ppm) Th
Prob. Anom.* (1979)	165	280	440	0.95	8.5	3150	300	160	120	1200
Range (1980)	20-355	122-820	134-1200	0.1-18	2-49		8-27	10-500	30-117	57-195

STREAM SEDIMENTS

	(ppm) Pb	(ppm) Zn	(ppm) Ag
Prob. Anom.* (1979)	59	320	1.0
Range (1980)	36-245	180-610	0.4-3.6

(* Sacks, 1979)

Values of Pb, Zn and Ag, from the 1980 stream sediments tend to decrease trending downstream (for Pb, 245 ppm to 36 ppm; for Zn, 610 ppm to 180 ppm; for Ag, 3.6 ppm to 0.4 ppm), suggesting dilution away from the source.

8.3 Heavy Mineral Geochemistry

Five heavy mineral samples were collected from streams lakes draining the central valley, a sixth (80-CA-112211HM) was obtained from Alan Creek which drains north of the property. All samples were analyzed for Cu, Mo, Pb, Zn, Ag, U, Th, W and Sn (If sufficient sample was obtained).

Sample preparation and analytical procedures are given in Appendix III. Analytical results are given in Appendix I. As in the case of stream sediments, insufficient samples necessitated the use of 'probably anomalous' levels for all heavy mineral samples taken during the 1979 WATSU program of CanadianOxy (Sacks, 1979). Data are presented in Table 7.

Results, from 1979 (Sacks, 1979 - p.43, 44) showed encouraging values from creeks draining east of the property (e.g. 6400 ppm Pb, 2900 ppm Zn, 22 ppm Ag). Source of these anomalous values is thought to be a large shear zone, oriented at N30°E/vertical, which extends into the southeastern portion of the SHAR 1 Claim.

Sacks (1979) also reports results for a sample collected from the stream draining north from the central valley which was resampled by CanadianOxy in 1980.

Comparison of results obtained show good agreement for all elements except silver; 16 ppm Ag for 1979, and 0.1 ppm Ag for 1980. This suggest silver from the property can exist as a discrete mineral form and not as a solid solution mix within lead or zinc sulphide.

Sample 80-CA-11209HM returned the highest values (355 ppm Cu, 49 ppm Mo, 1200 ppm Zn, 820 ppm Pb, 2.0 ppm Ag and 500 ppm W) of the six heavy mineral samples collected during 1980. This sample was collected along the shore of a lake in the central valley (see Plan 6 for location). Presumably the gravel source for the heavy mineral sample is a paleofluvo-glacial deposit and as such results would indicate a transported anomaly. Alternatively a local source for the anomalous values can be inferred if the sample was collected from talus along the shoreline. This sample site should be rechecked to determine the source material of this sample. Immediately east of the sample site soil anomaly C occurs where a source could not be inferred due to the low density of sample coverage.

The two heavy mineral samples collected downstream from sample 80-CA-11209HM do not indicate dilution of mineralization away from a source whereas the stream sediment results do. Comparison of Pb, Zn and Ag values shows Ag varies independently of Pb and Zn. This again suggest Ag occurs in a discrete mineral phase.

Heavy mineral samples collected from streams draining north from the property returned values (168 ppm Pb, 160 ppm An and 3.2 ppm Ag) of roughly the same magnitude as the south draining stream. Soil sampling in the northern areas suggests anomalies (A and B) may have an upslope source (i.e. in situ mineralization). The heavy mineral results may therefore reflect locally derived, as opposed to glacially transported, mineralization.

Significantly high Mo (up to 49 ppm) and W (up to 500 ppm) values were obtained from analysis of the heavy minerals. Enrichment of W and Mo may be associated with Pb-Zn sulphide mineralization but no soil or rock geochemistry has been doen to test this possibility.

8.4 Rock Geochemistry

All of the 28 rock samples collected from the property were analyzed for Pb, Zn and Ag, two were analyzed for Cu, and one for Au.

The small sample population and wide range of values precludes meaningful statistical analysis of data. From visual estimates of results the following limits are considered to be significantly high values: (see also Plan 1).

+250 ppm Pb

+250 ppm Zn

+0.4 ppm Ag

Geochemical averages and ranges for 23 of the rock samples are listed in Table 8, the remaining 5 rock samples are quartz veins. Since the majority of samples collected show some degree of alteration and/or limonitic staining the values in Table 8 do not reflect normal values for fresh intrusive rock from the property. The range in values for the granodiorite probably indicates the degree

ROCK GEOCHEMISTRY RESULTS
Table 8
(all values in ppm)

Rock Type	Pb average	Pb range	Zn average	Zn range	Ag average	Ag range	population size
Granddionite	185	1-1700	382	10-1900	1.7	0.1-17	19
Diabase	2		58		0.2		1
Quartz Porphyry	98	40-156	32	22-42	0.1		2
Megacrystic Quartz Monzonite	24		96		0.1		1

of mineralization introduced by hydrothemal solutions.

The one Au analysis (for sample 80-CA-11219R) was below detection limit (<10 ppb Au). Two quartz veins were analyzed for Cu, one with visible chalcopyrite (sample 80-CA-11228R with 315 ppm Cu), and a second with 10 ppm Cu (sample 80-CA-11227R).

IX. RADIOMETRICS

A radiometric survey was undertaken concurrent with the soil sampling. Scintillometer readings (using an Urtec 130) were recorded at each soil sample location.

From statistical evaluation of the data the following information was obtained (Appendix IV):

Mean value (50%)	- 224 cps
Probably anomalous (97%)	- +311 cps
Anomalous	- +330 cps

The purpose of the radiometric survey was to outline areas of increased radioactivity related to alteration zones in bedrock (i.e. increased potassium, K^{40}, content).

Density of coverage of the radioactive survey (Plan 7) is generally very low. Contouring of values shows an erratic distribution of highs and lows. The dominant controlling factor is probably the depth and nature (i.e. presence of boulders) of the overburden.

X. CONCLUSIONS

1. The property is underlain by a slightly foliated (at 150°/vertical) granodiorite to quartz monzonite of the

Cassiar Batholith. Later stage dolerite dykes have intruded this unit.

2. Numerous shear zones trending from N20°E to N80°E occur on the property. Pervasive clay and epidote alteration of feldspar, chloritization of biotite and introduction of muscovite, hematite, manganite and quartz has occurred within the shear zones.

3. Visible galena, sphalerite and pyrite was found in shear zones, trending from N20°E to N45°E, within the southeastern portion of the property.

4. Two soil anomalies (A and D) are related to local in situ mineralization. Sources for soil anomalies B and C are problematic.

Soil anomaly A occurs in the north central portion of the property. The maximum areal extent of the anomaly is 500 meters by 200 meters and open to both the south and west. Maximum values returned are 128 ppm Pb, 310 ppm An, and 3.4 ppm Ag.

Soil anomaly D covers much of the southeast corner of the property. It consists of 5 smaller anomalous zones which appear to overly shear zones in the granodiorite. Mazimum values returned are 450 ppm Pb, 1300 ppm Zn, and 1.0 ppm Ag.

5. Stream sediments from streams draining south from the central valley have anomalous Pb (up to 245 ppm), Zn (up to 610 ppm) and Ag (up to 3.6 ppm). Values tend to decrease downstream but a source for the anomalous values has not

yet been accurately determined.

6. Heavy mineral samples collected from the central valley returned anomalous values of Pb (up to 820 ppm), Zn (up to 1200 ppm), Ag (up to 18 ppm), Mo (up to 49 ppm) and W (up to 500 ppm). Source of these anomalous values may be either from in situ or glacially transported mineralization. No rock or soil samples have been analyzed for Mo or W to evaluate the nature or extent of this type of mineralization.

XI. RECOMMENDATIONS

1. The most favourable area for mineralization is the southeast corner of the property (SHAR 2). Detail prospecting should be undertaken to determine the extent and distribution of mineralized shears and fractures in this area. The soil contour maps for Pb and Zn (Plans 3, 4) would be helpful guides for determining areas to prospect. A stream sediment and heavy mineral sample should be collected from the stream draining the southeast portion of this area. The stream sediment sample should be analyzed for Cu, Mo, Pb, Zn and Ag. The heavy mineral sample should be analyzed for Cu, Mo, Pb, Zn, Ag, Au and W.

2. No local source has been found for the Pb-Zn-Ag soil anomaly (A) in the north-central portion of the property. Prospecting of talus and outcrop above the anomaly should be undertaken to determine the nature and size of the source of this anomaly.

3. At least one soil pit should be dug in the central valley in the vicinity of soil anomaly C. The nature of the overburden in the central valley may help determine the

source of anomalous soil, stream sediment, and heavy mineral values obtained from this area.

4. Rock samples with high Pb, Zn, or Ag values should be analyzed for W and Mo. This may help determine if the anomalous heavy mineral values for W and Mo are locally derived.

5. Results to date suggest mineralization is localized and sub-economic. This property should be considered a relatively low priority target compared with other WATSU Pb-Zn-Ag properties for additional follow-up work.

Respectfully submitted,

Glenn Tetu, B.Sc.

Toronto, Ontario
November, 1980

PROJECT WATSU

1980

Statement of Expenditures

Claims SHAR 10

Record Number 1530

1)	Salaries & Benefits	$ 1,048[1]
2)	Helicopter flying - 1.7 hours @ $305/hour	519[2]
3)	Scintillometer rentals (Urtec)	347[3]
4)	Geochemical Analyses - 19	50[4]
5)	Other Work	196
	Total	$ 2,160

Notes:

[1] Pro-rated on basis of 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 10 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 @ $ 2.63/sample.

C. DRILLING (Details in report submitted as per section 8 of regulations.) (The itemized cost statement must be part of the report.)

	COST

D. GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL

(Details in report submitted as per section 5, 6, or 7 of regulations.)
(The itemized cost statement must be part of the report.)
(State type of work in space below.)

	COST
Geological/geochemical surveys, salaries & benefits	$3,668
Helicopter @ 305/hr for 4.7 hours	1,434
Scintillometer rental (Urtec)	486
230 Geochem analyses	1,105
Other work	669
TOTAL OF C AND D	$7362

Who was the operator (provided the financing)?

Name Canadian Occidental Petroleum Ltd

Address 311-215 Carlingview Drive
Rexdale, Ontario, M9W 5X8

AUTHOR'S QUALIFICATIONS

GLENN TETU

Glenn Tetu graduated from the Queen's University, Kingston, Ontario with a Bachelor of Science in geology in 1975.

Since graduation he has worked as a mineral exploration geologist for Kerr Addison (May '75 - April '76), Imperial Oil (May '76 - December '76), Noranda Exploration (February '77 - April '77), Texasgulf (May '77 - August '77), Kaiser Resources (May '78 - August '78), Brenda Mines (September '78 - April '79), and for Canadian Occidental Petroleum Ltd. (May '79 to present).

While employed with Canadian Occidental he has carried out and supervised mineral exploration projects in British Columbia, the Yukon and Quebec.

He is currently a member of the Canadian Institute of Mining and Metallurgy and the Geological Association of Canada.

REFERENCES

Gabrielse, H. (1968) Geology of Jennings River Map-Area, British Columbia (104-0), G.S.C. Paper 68-55.

G.S.C. (1979) Stream Sediment Reconnaissance Sampling Survey, Jennings River (104-0), British Columbia, G.S.C. Open File 561.

Sacks, E.J. (1979) Canadian Occidental Petroleum Ltd., Geology and Geochemistry of the SHAR 1 and 2 Claim Group (In house report).

APPENDIX I

ANALYTICAL RESULTS

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. 54201

INVOICE NO. 36978

RECEIVED July 5/80

ANALYSED July 16/80

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

ATTN: Shar 1, 2 ROCKS Project Cassi · CC. Watson Lake, Y.T.

SAMPLE NO. :	PPM Cu	PPM Pb	PPM Zn	PPM Ag	PPB Au
11213R 80-CA		1	10	0.1	
11214		18	44	0.1	
11215		4	38	0.1	
11216		2	58	0.2	
11217		6	38	0.1	
11218		1	28	0.1	
11219		40	22	0.1	-10
11220		350	140	17	
11221		12	54	0.1	
11222		6	48	0.1	
11223		260	74	1.6	
11224		24	96	0.1	
11225		162	270	0.2	
11226		4	36	0.1	
11227	10	1850	+4000	4.8	
11228	315	106	50	6.4	
11229R 80-CA		900	96	+20	

Note: + denotes greater than

CERTIFIED BY: Hart Bichler

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

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CERTIFICATE NO. 69159
INVOICE NO. 37595
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ANALYSED Aug. 5/80

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

ATTN: Shar 1, 2 Rocks Proj. Cassi CC. Watson Lake, Y.T.

SAMPLE NO. :	Percent Zn	oz/ton Ag
80-CA 11227-R	0.85	
80-CA 11229-R		9.18

CTA MEMBER CANADIAN TESTING ASSOCIATION

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

CHEMEX LABS LTD.

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TELEX:

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CERTIFICATE OF ANALYSIS

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

CERT. # : A80
INVOICE # : 385
DATE : 09-

CASSI-SHAR 1,2

Sample description	Pb ppm	Zn ppm	Ag ppm
80-CA 11990R	1450	230	0.1
80-CA 11991R	52	28	0.1
80-CA 11992R	156	42	0.1
80-CA 11993R	102	136	0.1
80-CA 11994R	110	1900	7.2
80-CA 11995R	1700	1600	0.1
80-CA 11996R	160	88	5.4
80-CA 11997R	116	1100	0.1
80-CA 11998R	260	172	0.1
80-CA 11999R	98	120	0.1

Certified by Hart Bichler

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CANADA
TELEPHONE: (
TELEX:

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CERTIFICATE OF ANALYSIS

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

CERT. # : A801036
INVOICE # : 38909
DATE : 18-SEP-
CASSI SHAR-2-10ROCK

Sample description	Pb ppm	Zn ppm	Ag ppm	
80 CA 11006 R	26	50	0.4	--

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CERTIFICATE NO. 54206
INVOICE NO. 37710
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ANALYSED Aug. 12/80

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

CC: Watson Lake, Y.T.

ATTN: Shar 1, 2 Heavy Minerals Cassi Proj.

SAMPLE NO. :	PPM Cu	PPM Mo	PPM Pb	PPM Zn	PPM U	PPM Ag	PPM Sn	PPM W	PPM Th
11207	58	8	270	490	94	2.6	10	130	To follow
11208	20	2	122	134	30	18	NSS	10	
11209	355	49	820	1200	117	2.0	8	500	
11210	20	3	200	350	73	0.2	27	150	
11211	48	2	168	160	24.0	3.2	NSS	140	
11212	72	20	192	272	20.0	0.1	NSS	NSS	

Note: NSS = not sufficient sample

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Bichler

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

38

CERTIFICATE OF ANALYSIS

CERTIFICATE # A8001865

CLIENT : CAN OXY

ATTN. : SHAR 1,2 HEAVY MINERALS CASSI PROJECT

SAMPLES RECEIVED : 14-AUG-80
ANALYSIS COMPLETED : 14-AUG-80
NUMBER OF SAMPLES : 6
CLIENT P.O. NUMBER : 54206-B
INVOICE NO. : 1405
37917

SAMPLE ID	TH PPM
80-CM-11207-HM	57.
80-CM-11208-HM	N.S.S.
80-CM-11209-HM	N.S.S.
80-CM-11210-HM	195.
80-CM-11211-HM	N.S.S.
80-CM-11212-HM	N.S.S.

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CERTIFICATE NO. 54192
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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: [redacted] Cassi Project

SAMPLE NO. :	PPM Pb	PPM Zn	PPM Ag
11201SS 80-CA	36	180	0.4
11202	54	280	1.0
11203	110	220	1.2
11204	56	178	0.4
11205	245	610	3.6
11206SS 80-CA	94	345	1.0

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: ....

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INVOICE NO. 36931
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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: [redacted] Project Cassi

SAMPLE NO. :	PPM Pb	PPM Zn	PPM Ag
11000 80-CA	22	152	0.1
11001	70	158	0.1
11002	10	46	0.1
11010	28	106	0.1
11011	14	84	0.1
11012	14	74	0.1
11013	12	66	0.1
11014	4	92	0.1
11015	76	178	0.6
11016	34	78	0.1
11017	10	40	0.1
11018	22	72	0.1
11019	30	102	0.1
11020	58	148	0.6
11021	32	94	0.1
11022	20	240	0.1
11023	44	116	0.1
11024	60	132	0.2
11025	4	168	0.1
11026	30	106	0.1
11027	26	76	0.1
11028	12	58	0.1
11029	12	48	0.1
11030	10	78	0.1
11031	10	76	0.1
11032	8	34	0.1
11033	14	48	0.1
11034	60	152	0.6
11035	12	42	0.1
11036	34	70	0.2
11037	96	270	0.2
11038	295	510	1.0
11039	52	78	0.2
11040	64	320	0.2
11041	128	198	0.2
11042	104	385	0.2
11043	22	1300	0.1
11044	50	158	0.1
11045	110	340	0.2
11046 80-CA	46	108	0.1

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CERTIFIED BY: Hart Bichler

Chtw/

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ATTN: Shar 1, 2 Soils Project Cassi

SAMPLE NO. :	PPM Pb	PPM Zn	PPM Ag
11047 80-CA	24	68	0.1
11048	34	122	0.1
11049	60	154	0.2
11050	110	220	0.8
11051	132	330	0.4
11052	18	58	0.1
11053	74	148	0.1
11054	12	44	0.1
11055	36	92	0.1
11056	70	152	0.1
11057	315	485	0.1
11058	192	320	0.8
11059	44	300	0.1
11061	6	36	0.1
11062	12	42	0.1
11063	6	28	0.1
11064	6	40	0.1
11065	2	6	0.1
11066	12	70	0.1
11067	46	158	0.2
11068	14	28	0.1
11069	10	26	0.1
11070	14	82	0.2
11071	10	66	0.1
11072	10	62	0.1
11073	34	108	0.1
11074	60	168	0.1
11075	26	92	0.1
11076	32	108	0.1
11077	16	80	0.1
11078	54	178	0.1
11079	24	50	0.1
11080	82	225	0.8
11081	54	198	0.1
11082	32	86	0.1
11083	90	200	0.2
11084	6	26	0.1
11085	34	92	0.1
11086	38	108	0.1
11087 80-CA	50	136	0.1

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CERTIFICATE NO. 54191
INVOICE NO. 36931
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:
Shar 1, 2 Soils Cassi Project

SAMPLE NO. :	PPM Pb	PPM Zn	PPM Ag
11088 80-CA	26	104	0.1
11089	10	68	0.1
11090	6	32	0.2
11091	16	50	0.1
11092	24	42	0.1
11093	14	50	0.1
11094	4	32	0.1
11095	6	42	0.1
11096	8	38	0.1
11097	8	46	0.1
11098	8	56	0.1
11099	8	46	0.1
11100 80-CA	4	34	0.1

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212 BROOKSBANK AVE.
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CANADA V7J 2C1
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CERTIFICATE NO. A8010019-001-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 Weed CC. Watson Lake, Y.T.

SAMPLE NO. :	PPM Pb	PPM Zn	PPM Ag
80CA 11003	46	74	0.1
80CA 11004	26	98	0.1
11005	24	74	0.1
11101	32	98	0.1
11102	48	102	0.1
11103	44	90	0.1
11104	28	60	0.1
11105	32	68	0.1
11106	156	180	0.1
11107	84	144	0.1
11108	186	250	0.2
11109	24	76	0.1
11110	68	116	0.1
11111	50	88	0.1
11112	26	80	0.1
11113	18	56	0.1
11114	66	100	0.1
11115	54	94	0.1
11116	36	64	0.1
11117	14	82	0.1
11118	26	100	0.1
11119	40	240	0.1
11120	142	205	0.1
11121	128	295	0.1
11122	30	86	0.1
11123	144	196	0.1
11124	48	124	0.1
11125	38	116	0.1
11126	200	250	0.1
11127	22	82	0.1
11128	24	78	0.1
11129	8	70	0.1
11130	24	62	0.1
11131	96	136	0.1
11132	114	190	0.1
11133	88	84	0.1
11134	42	92	0.1
11135	86	144	0.1
11136	34	82	0.1
80CA 11137	78	88	0.1

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Bichler

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
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• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. A8010019-002-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.

SAMPLE NO. :	PPM Pb	PPM Zn	PPM Ag
80CA 11138	34	138	0.1
11139	82	122	0.1
11140	116	138	0.1
11141	168	280	0.1
11142	94	132	0.1
11143	46	76	0.1
80CA 11144	44	92	0.1

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. A8010020-001-A
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Ste. 311-215 Carlingview Dr.,
Rexdale, Ont. M9W 5X8

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

SAMPLE NO. :	PPM Pb	PPM Zn	PPM Ag
80CA 11145	20	86	0.1
11146	14	68	0.1
11147	24	64	0.1
11148	270	210	0.1
11149	22	72	0.1
11150	26	88	0.1
11151	20	72	0.1
11152	104	280	0.1
11153	310	245	0.1
11160	34	102	0.1
11161	26	92	0.1
11162	128	310	3.4
11163	50	142	0.4
11164	64	305	0.4
11165	12	28	0.2
11166	20	64	0.1
11167	86	186	0.1
11168	34	88	0.1
11169	72	198	0.4
11173	124	200	1.2
11174	70	164	0.1
11175	106	245	0.1
11176	54	136	0.1
11177	92	152	0.1
11178	50	118	0.1
11179	80	220	0.1
11180	84	270	0.1
11181	32	74	0.1
11182	28	76	0.1
11183	20	56	0.1
11184	36	84	0.1
11185	26	68	0.1
11186	40	98	0.1
11187	1	116	0.1
11188	128	172	0.1
11230	450	530	0.1
11231	64	245	0.1
11232	20	72	0.1
11233	345	380	1.0
80CA 11234	28	66	0.1

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Bichler

CHEMEX LABS LTD.

212 BROOKSBANK
NORTH VANCOUVE
CANADA

TELEPHONE: (604)9
TELEX: 04

• 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. # : A8010173-
INVOICE # : 38568
DATE : 09-SEP-80
CASSI-SHAR 1-2-10 S

Sample description	Pb ppm	Zn ppm	Ag ppm	
80CA 11189	138	84	0.1	--
80CA 11190	146	260	0.1	--

Certified by Hart Bichle

Appendix II

ROCK DESCRIPTIONS AND ANALYSIS

DESCRIPTION OF ROCK SAMPLES

80-Ca-11213R
(TEB-1)

Foliated Granodiorite from shear zone at 40°/75° SE, shear is about 6 metres wide with strong limonite weathering (after biotite?).

Pb	Zn	Ag	
1	10	0.1	(ppm)

80-Ca-11214R
(TEB-2)

Foliated Granodiorite talus sample, strong limonitic weathering and highly fractured.

Pb	Zn	Ag	
18	44	0.1	(ppm)

80-Ca-11215R
(TEB-3)

Foliated Granodiorite sample from broken outcrop, light cataclastic texture.

Pb	Zn	Ag	
4	38	0.1	(ppm)

80-Ca-11216R
(TEB-4)

Basaltic dyke one meter wide, trend @ 77°/V

Pb	Zn	Ag	
2	58	0.2	(ppm)

80-Ca-11217R
(TEB-5)

Foliated Granodiorite poorly foliated, fine to medium grained, slight alteration of biotite to chlorite, abundant iron staining

Pb	Zn	Ag	
6	38	0.1	(ppm)

80-Ca-11218R
(TEB-6)

Foliated Granodiorite altered shear zone, strong limonitic weathering.

Pb	Zn	Ag	
1	28	0.1	(ppm)

80-Ca-11219R
(TEB-7)

Quartz Porphyry talus sample, possible glacial erratic, strong cloritic alteration of biotite

Pb	Zn	Ag		Au	
40	22	0.1	(ppm)	10	(ppb)

DESCRIPTION OF ROCK SAMPLES

80-Ca-11220R (TEB-8)

Granodiorite strong limonitic weathering and highly fractured

Pb	Zn	Ag	
350	140	17	(ppm)

80-Ca-11221R (TEB-9)

Granodiorite sheared, with strong clay alteration

Pb	Zn	Ag	
12	54	0.1	(ppm)

80-Ca-11222R (TEB-10)

Granodiorite strong limonitic weathering pyrite or fracture surface

Pb	Zn	Ag	
6	48	0.1	(ppm)

80-Ca-11223R (TEB-11)

Granodiorite, talus sample, sheared with quartz lenses, strong rusty weathering, minor pyrite.

Pb	Zn	Ag	
260	74	1.6	(ppm)

80-Ca-11224R (TEB-12)

Perthite Megacrystic Quartz Monzonite

Pb	Zn	Ag	
24	96	0.1	(ppm)

80-Ca-11225R (TEB-13)

Granodiorite highly fractured, strong limonitic weathering, quartz veining

Pb	Zn	Ag	
162	270	0.2	(ppm)

80-Ca-11226R (CJR-6)

Quartz Monzonite strong limonitic weathering on fractures

Pb	Zn	Ag	
4	36	0.1	(ppm)

80-Ca-11227R (CJR-7)

Quartz vein in granodiorite visible galena, sphalerite, and pyrite

Cu	Pb	Zn	Ag	
10	1850	.85%	4.8	(ppm)

DESCRIPTION OF ROCK SAMPLES

80-Ca-11228R
(CJR-4)

Quartz vein in quartz monzonite, red-black rusty weathering, visible pyrrhotite and chalcopyrite; in fracture zone trending at 62°.

Cu	Pb	Zn	Ag
315	106	50	6.4 (ppm)

80-Ca-11229R

Quartz vein talus sample; host is quartz monzonite; visible pyrite

Pb	Zn	Ag
900	96	9.18 o~~z~~/ton (ppm)

80-Ca-11990R
(CJR-1)

Rusty-coloured blackish, botryoidal manganese, Galena associated in a fracture-quartz-vein-vug type feature which appears to be shearing through the country rock (ie. Quartz Monzonite) Outcrop

Zn	Pb	Ag
230	1450	0.1 (ppm)

80-Ca-11991R
(CJR-3)

Very siliceous quartzitic rock with euhedral pyrite some epidote present, associated with a shear zone contact and could be contact recrystallization of the country rock. Outcrop

Pb	Zn	Ag
52	28	0.1 (ppm)

80-Ca-11992R
(CJR-2)

Quartz porphyry with a groundmass of plag feldspar-epidote and quartz. The rock is greenish white and appears to be an intrusive, some Mn staining (Zn?) is on the fracture surfaces. Outcrop

Pb	Zn	Ag
156	42	0.1 (ppm)

Possible chlorite or epidote in the rock

80-Ca-11993R
(CJR-4)

Small Quartz vein associated with shear-fault zones with limonite (yellow) and Mn (black) filling any spaces or vugs. Also some Dendritic Mn in the limonite was observed. Outcrop

Pb	Zn	Ag
102	136	0.1 (ppm)

DESCRIPTION OF ROCK SAMPLES

80-Ca-11994R (CJR-5)	Rusty red-yellow sheared quartz monzonite with some rusty Quartz veining with pyrite and spholerite along the shear-fracture. Noticeable limonite stain on the rock Outcrop Pb Zn Ag 110 1900 7.2 (ppm) Lot of Kaolinization also
80-Ca-11995R (CJR-6)	Strong Black Mn and limonite throughout a fine-medium graining Quartz Monzonite which has a strong cataclastic texture, Quartz Monzonite grains appear to be cataclastic and there is a linear fabric to the rock (Outcrop) Pb Zn Ag 1700 1600 0.1 (ppm)
80-Ca-11996R (CJR-7)	Sheared piece of fine-medium graining Quartz Monzonite with minor Kaolin and limonite alteration, there is some dendritic Mn or Ag cutting through the rock perpendicular to the rock fabric (float) Pb Zn Ag 160 88 5.4 (ppm)
80-Ca-11997R (CJR-8)	Rusty-yellow, medium-graining Quartz Monzonite with a tectonic fabric and limonite filling a fracture (float) Pb Zn Ag 116 1100 0.1 (ppm)
80-Ca-11998R (CJR-9)	Very kaolinized, siliceous, sheared (cataclastic fabric) Quartz Monzonite with abundant muscoite. The rock is medium-coarse grained. There is a lot of (Mn?) throughout the rock and along fracture surfaces. (outcrop) Pb Zn Ag 260 172 0.1 (ppm) 3m wide shear zone
80-Ca-11999R (CJR-10)	Same as CJR-9 but the shear zone is wider (6m wide) Pb Zn Ag 98 120 0.1 (ppm)

DESCRIPTION OF ROCK SAMPLES

80-Ca-11006R

Sheared, kalolinized quartz Monzonite with minor quartz veining. Also some sericitization is present. The rock is fine-medium grained, crystalline, hypdiomorphic. Composition: K-spar (40%), Plag (40%) Quartz (15%) biotite (5%). Some Black mineral in conjunction with the Quartz veins.

Pb	Zn	Ag
26	50	0.4 (ppm)

Appendix III

SAMPLING AND LABORATORY PROCEDURES

Appendix III - Sampling and Laboratory Procedures

I. SAMPLING PROCEDURES

A) Heavy Minerals

1. A sample site is selcted 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 attractive. 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 panned 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, thus 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, then sent to the laboratory for geochemical analysis.

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

D) <u>Soil</u>

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) <u>Sample Site Information Card</u>

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^{o}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.

v) Waters

See individual element descriptions for U and F.

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) ppm Tin (Sn) (Atomic Absorption)

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 acid solution.

3. The TOPO complex is then extracted into MIBIC (Methyl isobutyl ketone) and anaylsed via atomic absorption.

4. Detection limit: 1 ppm Sn

iii) ppm Tungsten (W) (Colourimetric)

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

iv) ppb Gold (Au) (Atomic Absorption)

1. A 5 gm sample of -200 mesh rock flour or pulverized "heavies" is ashed at 800^{o}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

v) 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

vi) 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 strong 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. (TPA

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_2CO_3-NaF.

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

6. Detection limit: 0.5 ppm U

pH

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.

Specific Conductivity (S.C.)

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.

Appendix IV

STATISTICAL ANALYSIS FOR SOIL GEOCHEMISTRY AND RADIOMETRICS

Table 3

STATISTICAL DATA FOR LEAD IN SOILS

(all values ppm)

Interval ppm	Frequency	Cumulative Total	Cumulative Percent (%)
0-20	58	58	32.2
21-40	56	114	63.3
41-60	29	143	79.4
61-80	14	157	87.2
81-100	15	172	95.6
101-120	8	180	100
121-140	7		
141-160	4		
+160	12		
Total	203		

probably anomalous	+ 106 ppm
anomalous	+ 120 ppm
contour intervals	60, 100, 140 (ppm)

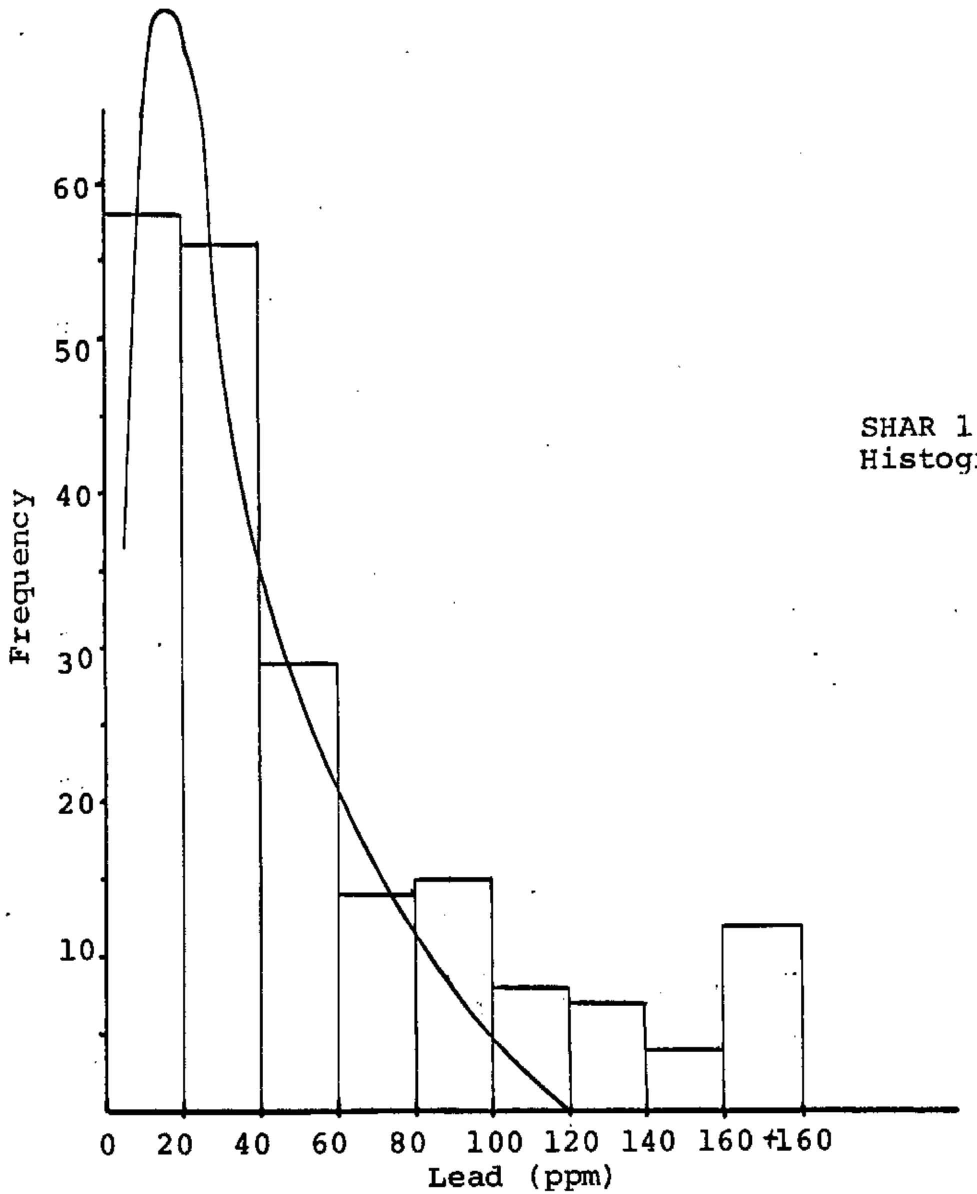


Figure 3

SHAR 1, 2, 10 Claim Group
Histogram of Pb in Soils
n=203

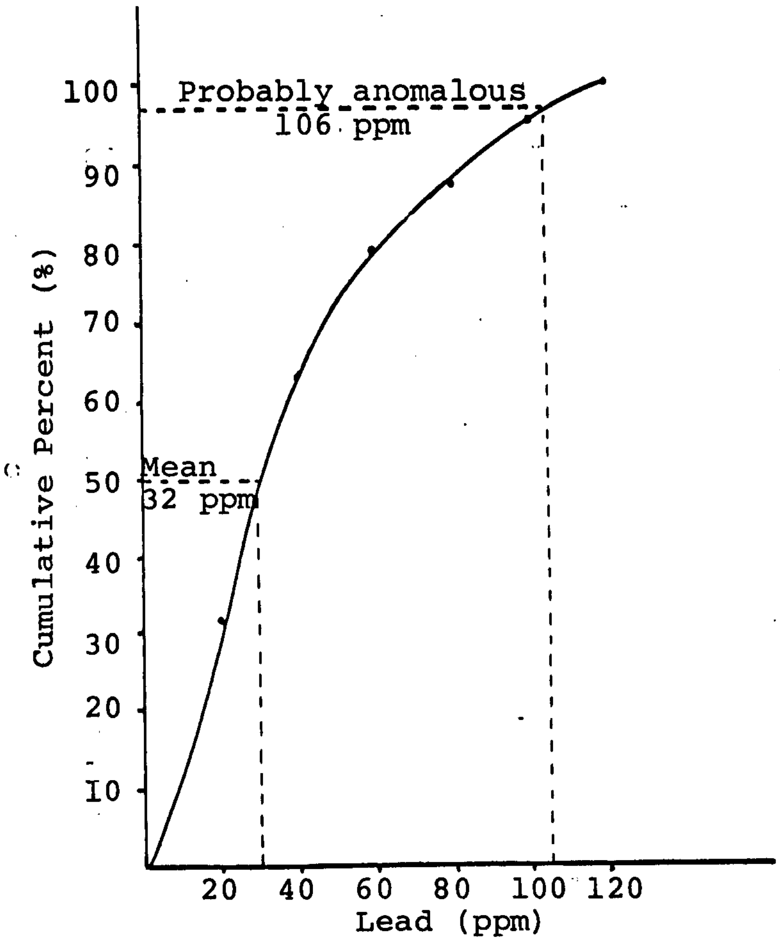


Figure 4

SHAR 1, 2, 10
Cumulative Frequency Graph
Lead in Soils

Table 4

STATISTICAL DATA FOR ZINC IN SOILS

(all values ppm)

Interval ppm	Frequency	Cumulative Total	Cumulative Percent (%)
0-20	1	1	.5
21-40	14	15	8.2
41-60	20	35	19.0
61-80	41	76	41.0
81-100	31	107	58.2
101-120	18	125	67.9
121-140	14	139	75.5
141-160	16	155	84.2
161-180	8	163	88.6
181-200	9	172	93.5
201-220	4	176	95.7
221-240	3	179	97.3
241-260	5	184	100
261-280	3		
281-300	3		
301-320	4		
321-340	2		
+340	7		
Total	203		

probably anomalous + 226 ppm
anomalous + 260 ppm

contour interval 150, 200, 250 (ppm)

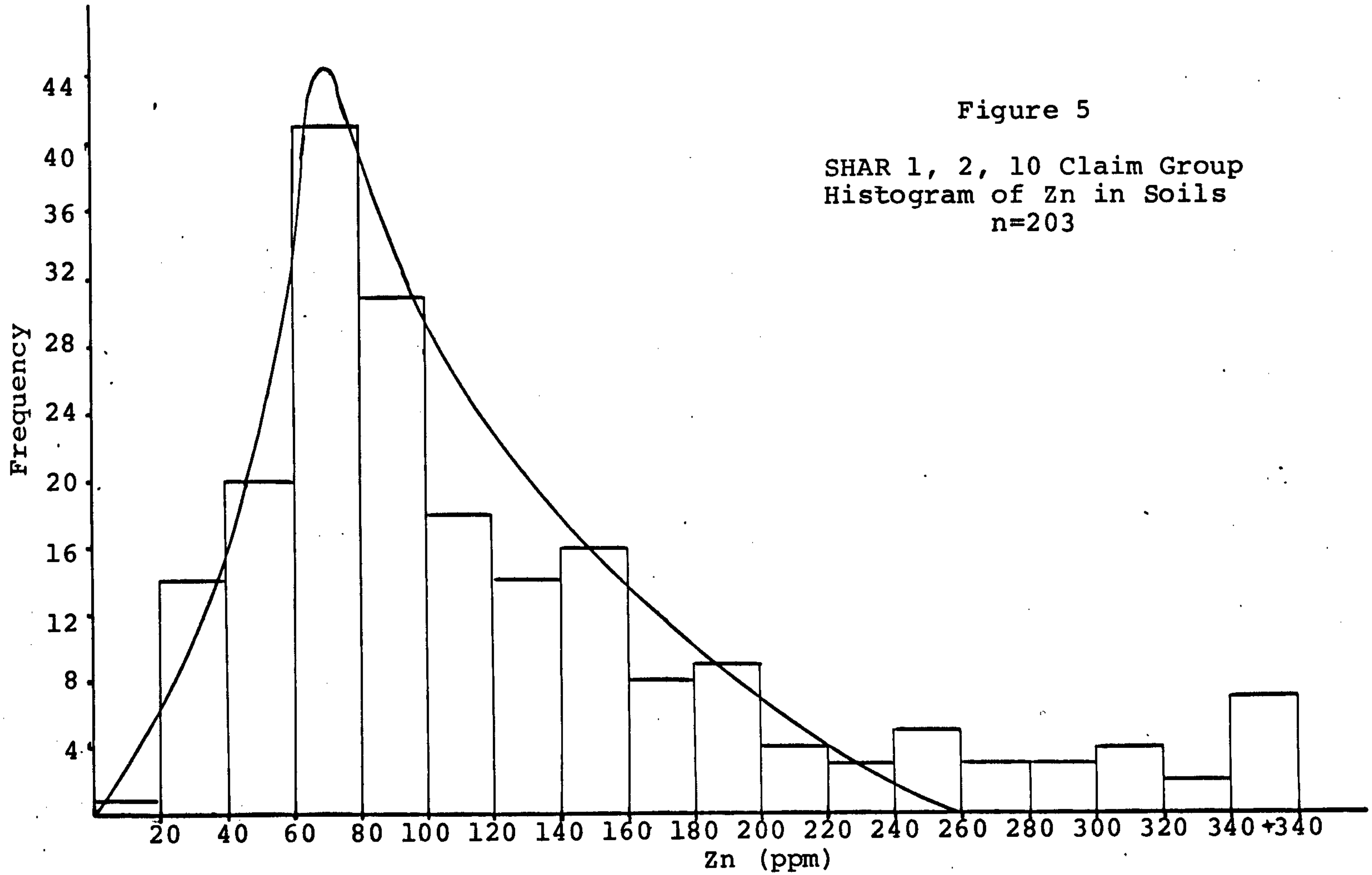


Figure 5

SHAR 1, 2, 10 Claim Group
Histogram of Zn in Soils
n=203

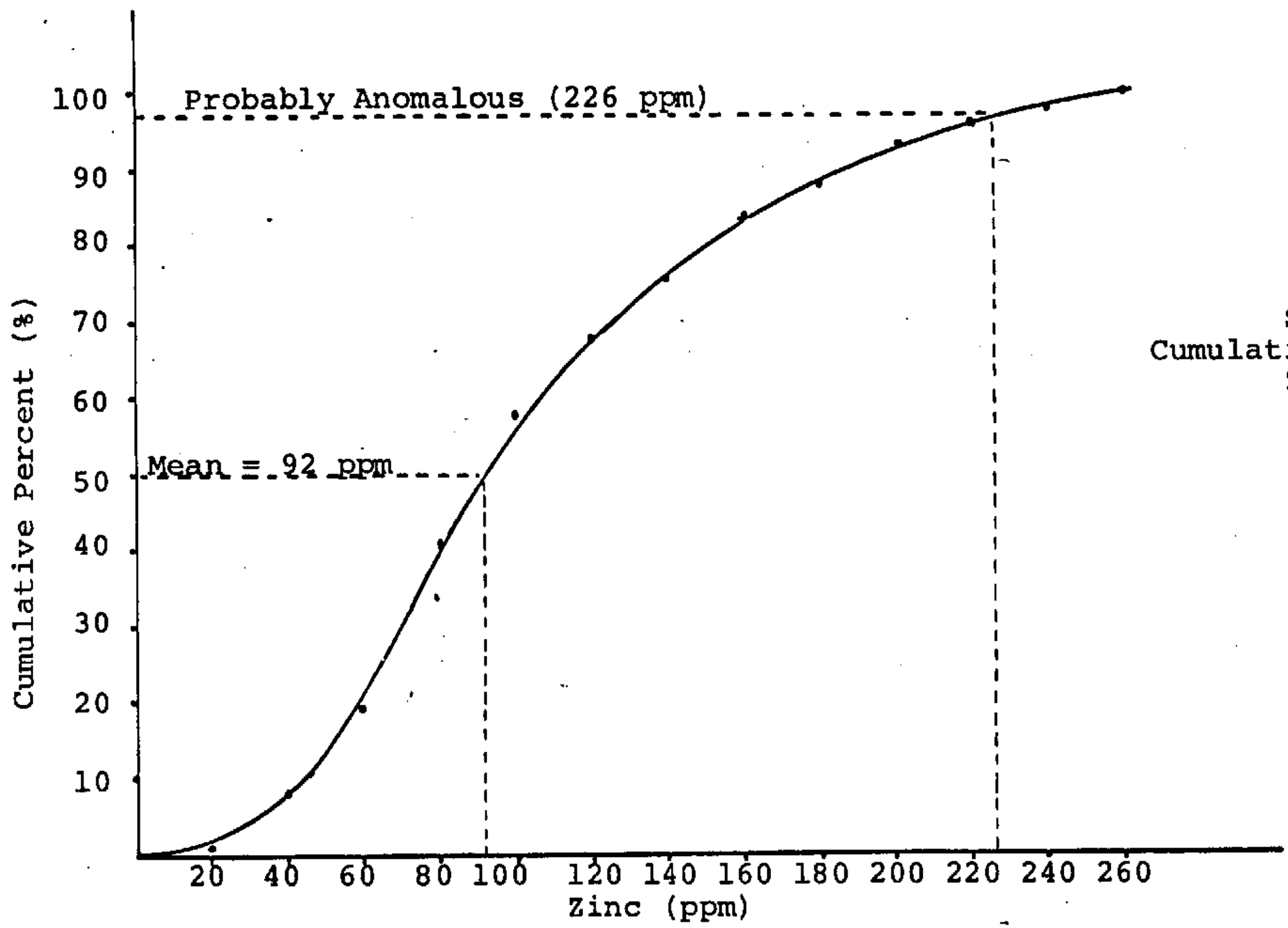


Figure 6

SHAR 1, 2, 10
Cumulative Frequency Graph
Zinc in Soils

Table 5

STATISTICAL DATA FOR SILVER IN SOILS

(all values ppm)

Interval ppm	Frequency	Cumulative Total	Cumulative Percent (%)
0-0.1	170	170	89.0
+0.1-0.2	17	187	97.9
+0.2-0.3	0	187	97.9
+0.3-0.4	4	191	100
+0.4-0.5	0		
+0.5-0.6	3		
+0.6-0.7	0		
+0.7-0.8	3		
+0.8-0.9	0		
+0.9-1.0	2		
+1.0-1.1	0		
+1.1-1.2	1		
+1.2	1		
Total	203		

probably anomalous + 0.2 ppm
anomalous + 0.4 ppm

contours .2, .4, .8 (ppm)

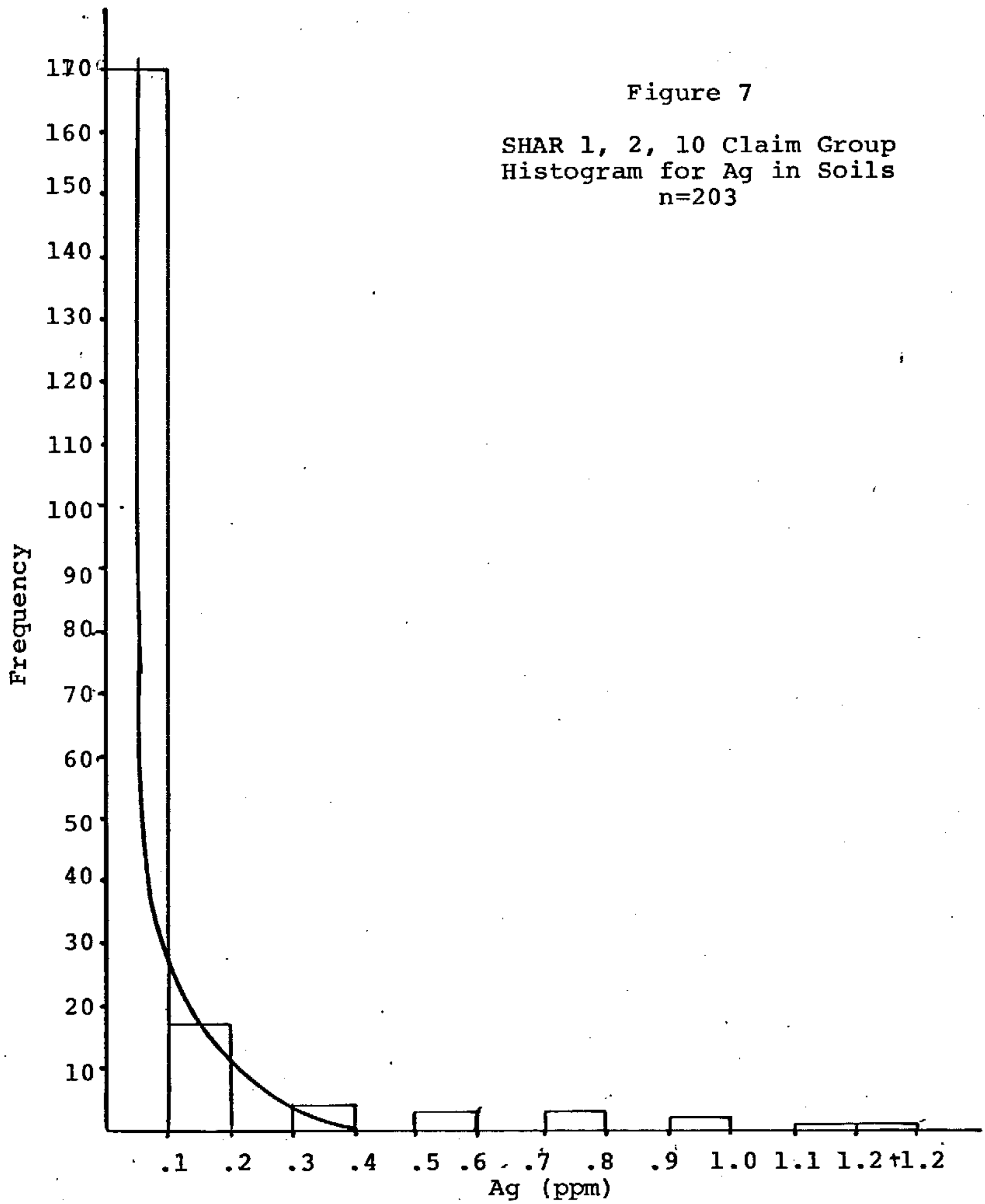


Figure 7
SHAR 1, 2, 10 Claim Group
Histogram for Ag in Soils
n=203
Frequency
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
.1 .2 .3 .4 .5 .6 .7 .8 .9 1.0 1.1 1.2 +1.2
Ag (ppm)

Figure 8
SHAR 1, 2, 10
Cumulative Frequency Graph
Silver in Soils

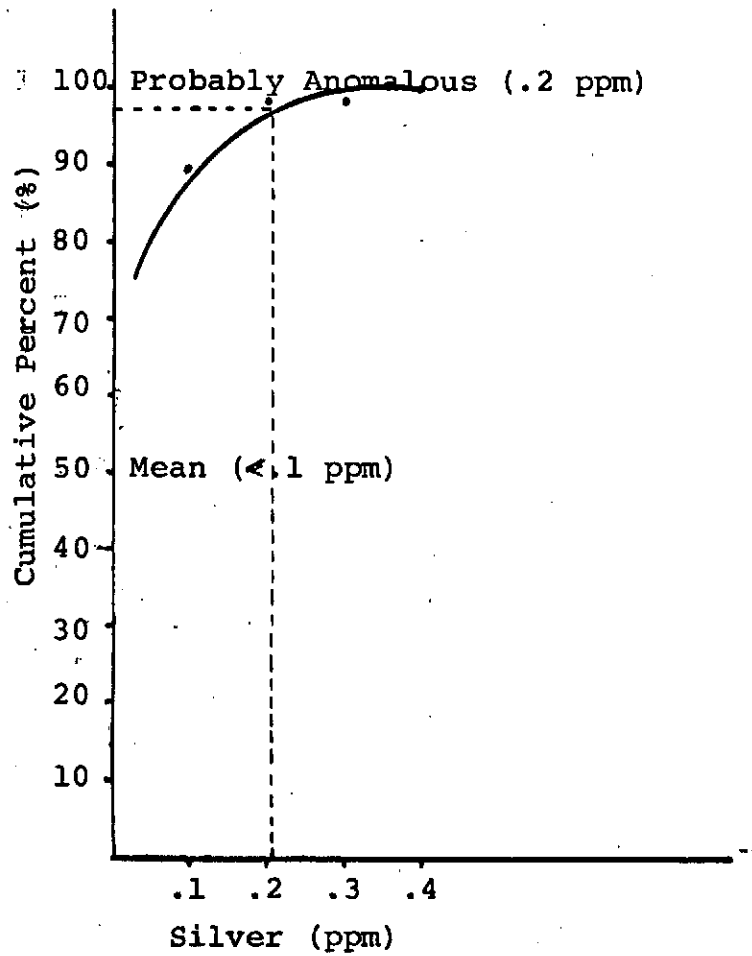


Table 6

STATISTICAL DATA FOR RADIOMETRICS

(Scintillometer values in cps)

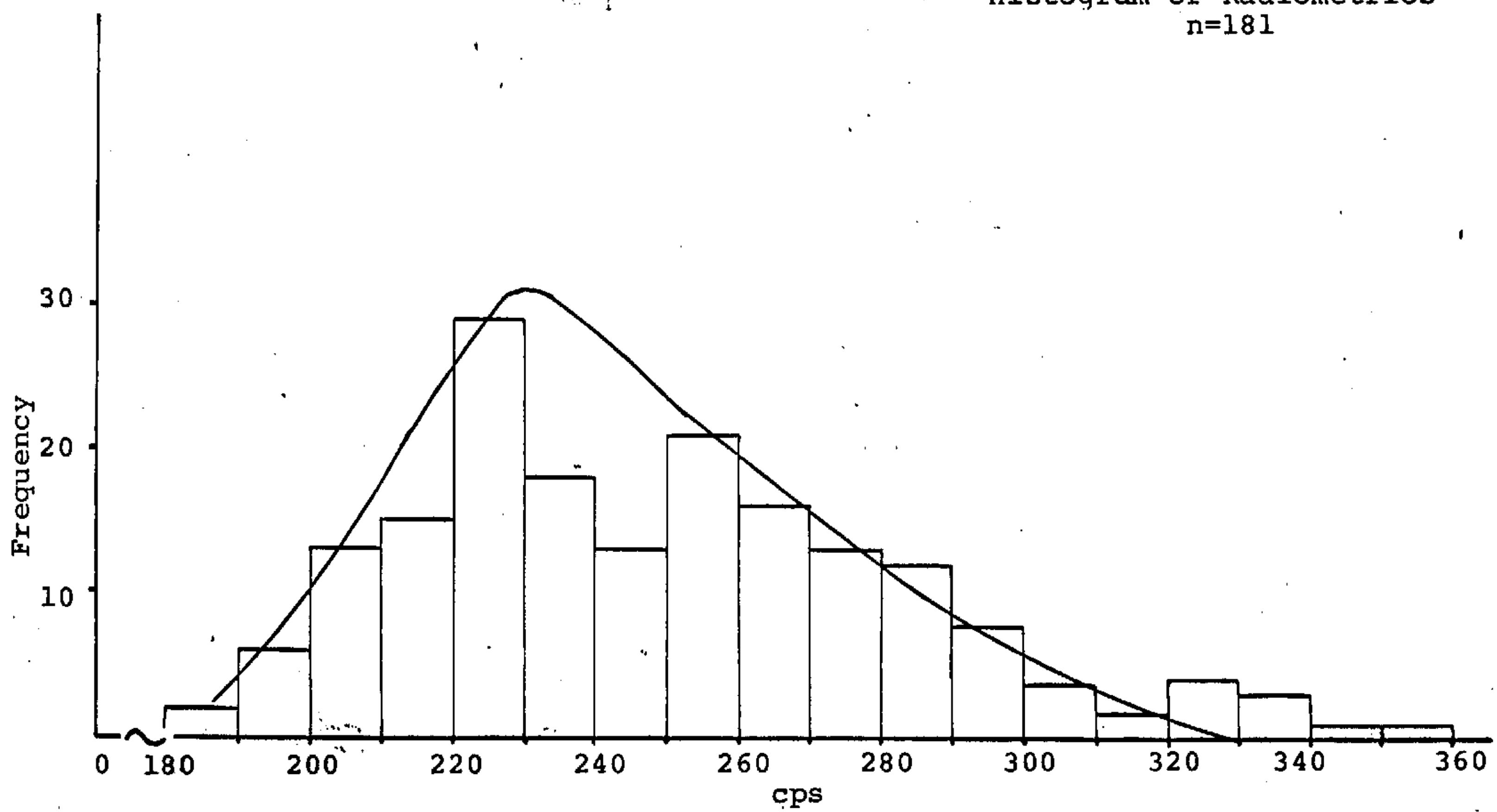
Interval ppm	Frequency	Cumulative Total	Cumulative Percent (%)
0-179	0	0	0
180-189	2	2	1.1
190-199	6	8	4.5
200-209	13	21	11.9
210-219	15	36	20.5
220-229	29	65	36.9
230-239	18	83	47.2
240-249	13	96	54.5
250-259	21	117	66.5
260-269	16	133	75.6
270-279	13	146	83.0
280-289	12	158	89.8
290-299	8	166	94.3
300-309	4	170	96.6
310-319	2	172	98.9
320-329	4	176	100
330-339	3		
340-349	1		
350-359	1		
Total	181		

probably anomalous 311 cps
anomalous + 330 cps

contours 240 cps, 270 cps, 300 cps

Figure 9

SHAR 1, 2, 10 Claim Group
Histogram of Radiometrics
n=181



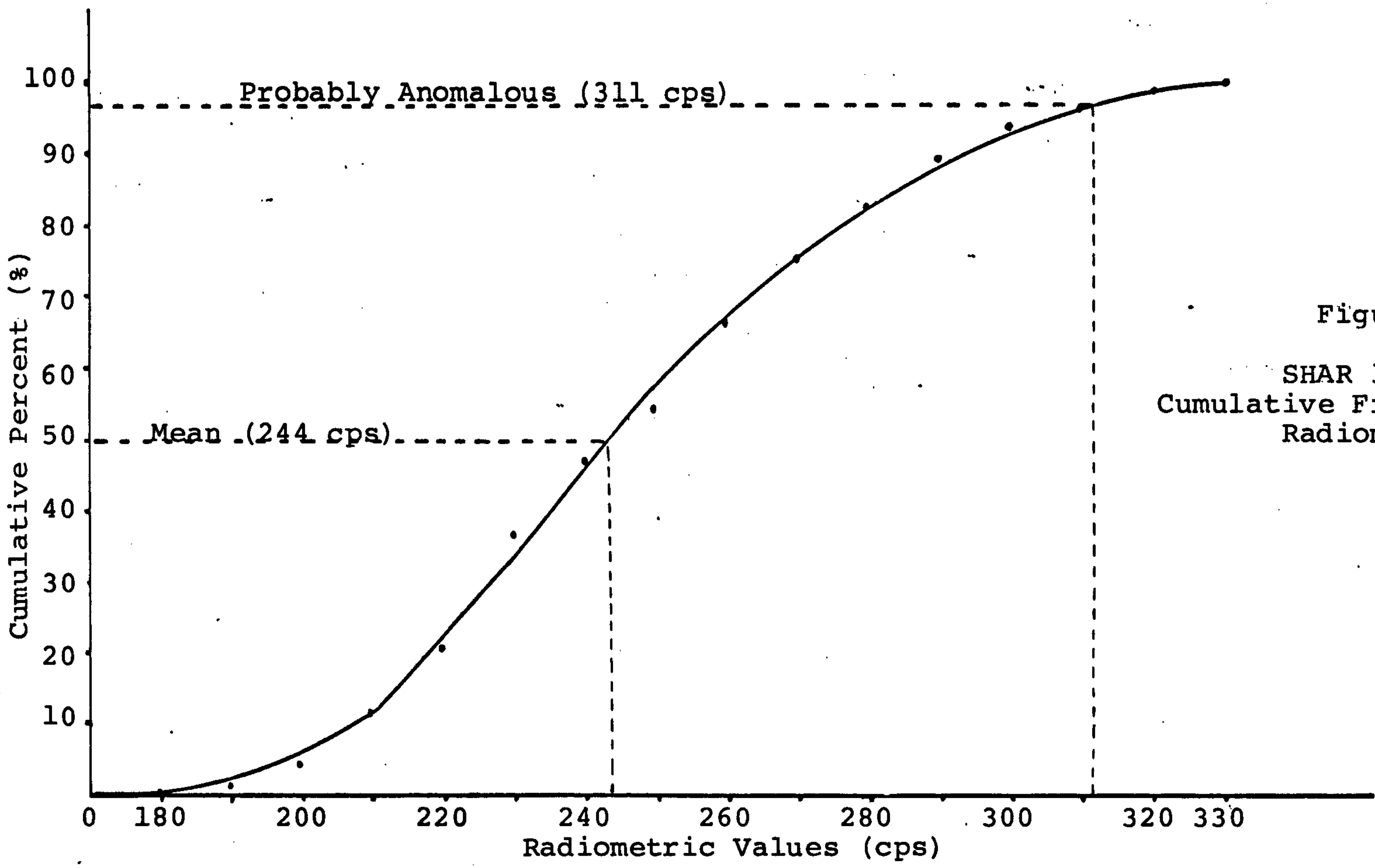
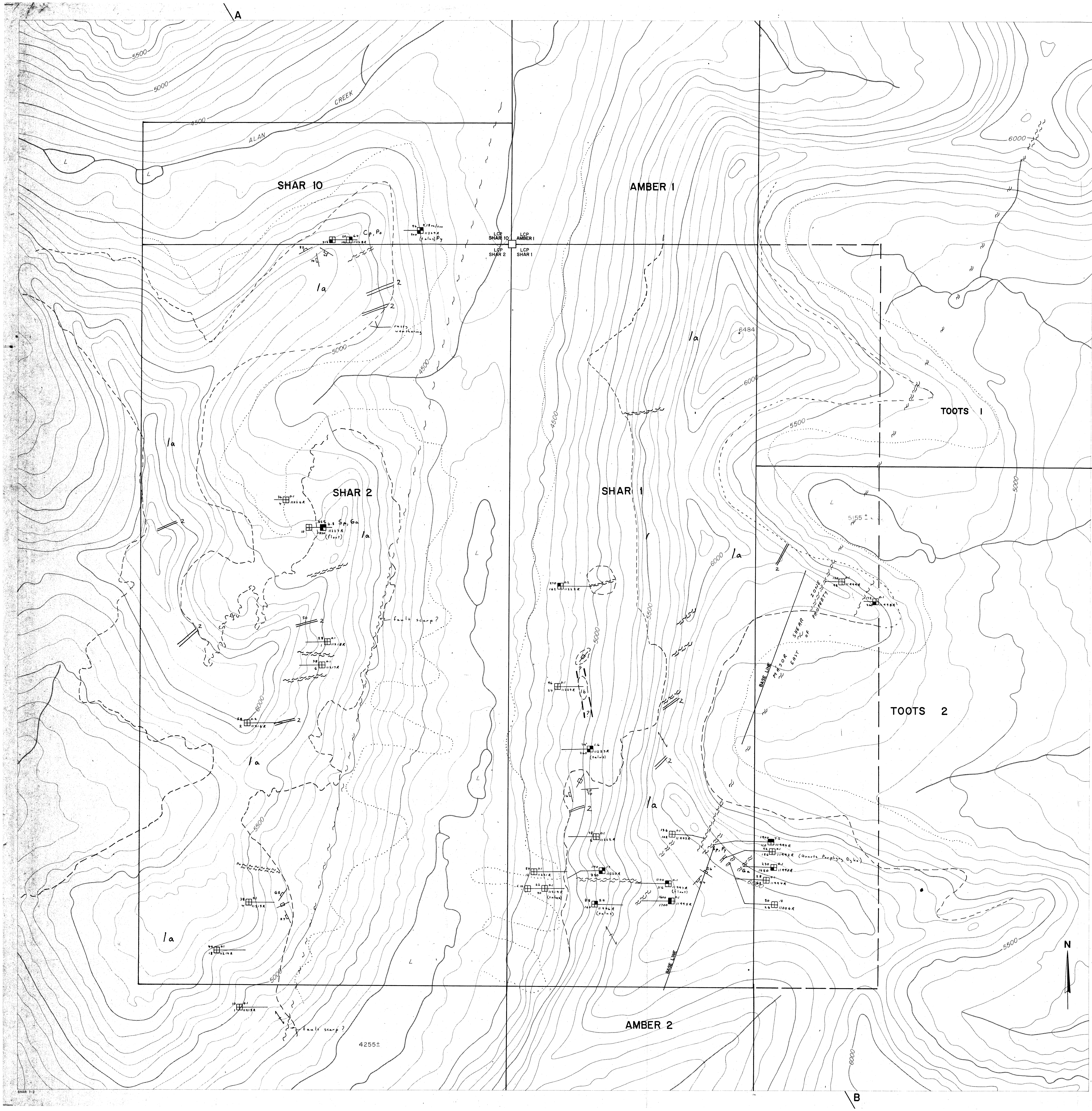


Figure 10

SHAR 1, 2, 10
Cumulative Frequency Graph
Radiometrics



LEGEND

Table of Formations

TERTIARY (?)

2 Dolerite Dykes

CRETACEOUS

1 Cassiar Batholith

1b Perthite Megacrystic Quartz Monzonite

1a Foliated Biotite Granodiorite to Quartz Monzonite

Symbols

geologic contact (defined, assumed)

fault

shear zone

gneissic foliation (vertical)

fracture (inclined, vertical)

limit of outcrop

limit of talus

Au Cu Zn Pb Ag sample number — rock sample location and values (ppm, except ppb Au) - Shading indicates arbitrarily selected high values -

Pb > 250 ppm

Zn > 250 ppm

Ag > 4.0 ppm

Py pyrite

Cp chalcopyrite

Ga galena

Sp sphalerite

Po pyrrhotite

Claim post

Claim boundary

A——B Cross section

9205

CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

PROJECT CASSI

SHAR 1, 2, 10 CLAIMS

ATLIN MINING DIVISION, BRITISH COLUMBIA

N.T.S. 104-O

GEOLOGY & ROCK GEOCHEMISTRY

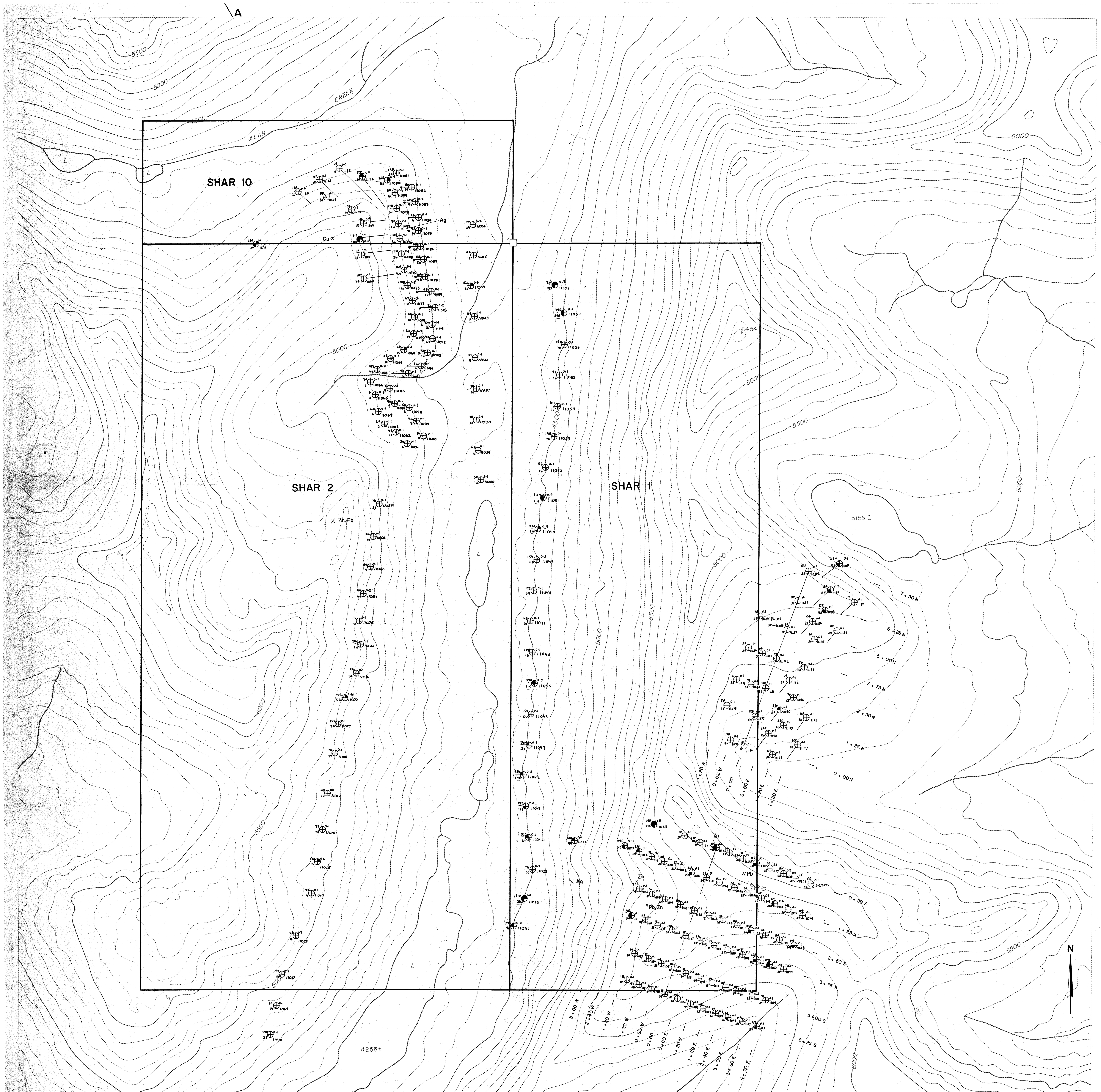
SCALE IN METRES

100 50 0 100 200 300 400

PLAN 1

G.T./P.F./Nov. 1980


A
B
SHAR 10
SHAR 2
SHAR 1
ALAN CREEK
A
B
C
D
BASE LINE
LEGEND
X Pb, Cu, Zn, Ag – metal occurance observed as visible mineralization or high geochemical value in rock.
O 42 sample location and Pb value in ppm
Anomalous
● > 120 ppm
Probably Anomalous
⊙ > 106 ppm
140
100
60
A,B,C,D, Soil anomalies
A____B Cross section
Claim post
Claim boundary
9205
NO.
CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
PROJECT CASSI
SHAR 1,2,10 CLAIMS
ATLIN MINING DIVISION,
BRITISH COLUMBIA
N.T.S. 104-O
SOIL GEOCHEMISTRY
CONTOURED VALUES
Pb
SCALE IN METRES
100 50 0 100 200 300 400
PLAN 3
G.T./P.F./Nov. 1980



LEGEND

× Pb, Cu, Zn, Ag – metal occurance observed as visible mineralization or high geochemical value in rock.

All values in ppm

Zn, Ag, Pb, 80 CA sample number

ANOMALOUS

>260, >0·4, >120

PROBABLY ANOMALOUS

>226, >0·2, >106

Claim post

Claim boundary

A_____B Cross section

9205

NO.

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

PROJECT CASSI
SHAR 1,2,10 CLAIMS

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

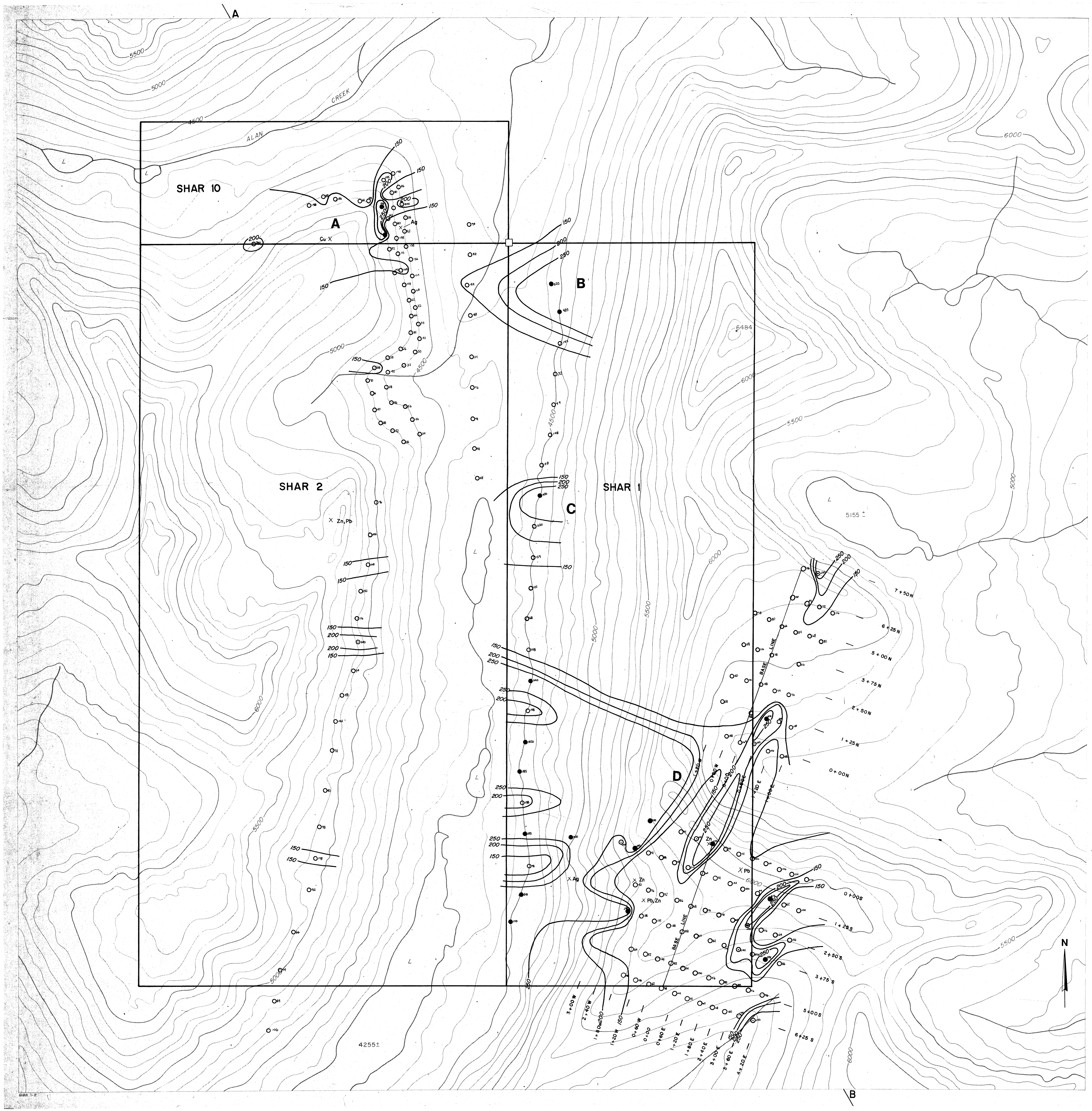
SOIL GEOCHEMISTRY
SAMPLE LOCATION AND VALUE
Pb, Zn, Ag.

SCALE IN METRES

100 50 0 100 200 300 400

PLAN 2

G.T./P.F./Nov. 1980



LEGEND

X Pb, Cu, Zn, Ag – metal occurance observed as visible mineralization or high geochemical values in rocks

O104 sample location and Zn value in ppm.

Anomalous

● > 260 ppm

Probably Anomalous

⊙ > 226 ppm

250

200

150

A Soil anomaly

A——B Cross section

☐ Claim post

—— Claim boundary

MINERAL RESOURCES BRANCH ASSESSMENT REPORT

NO. 9205

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

PROJECT CASSI
SHAR 1,2,10 CLAIMS

ATLIN MINING DIVISION,
BRITISH COLUMBIA

N.T.S. 104-O

SOIL GEOCHEMISTRY
CONTOURED VALUES

Zn,

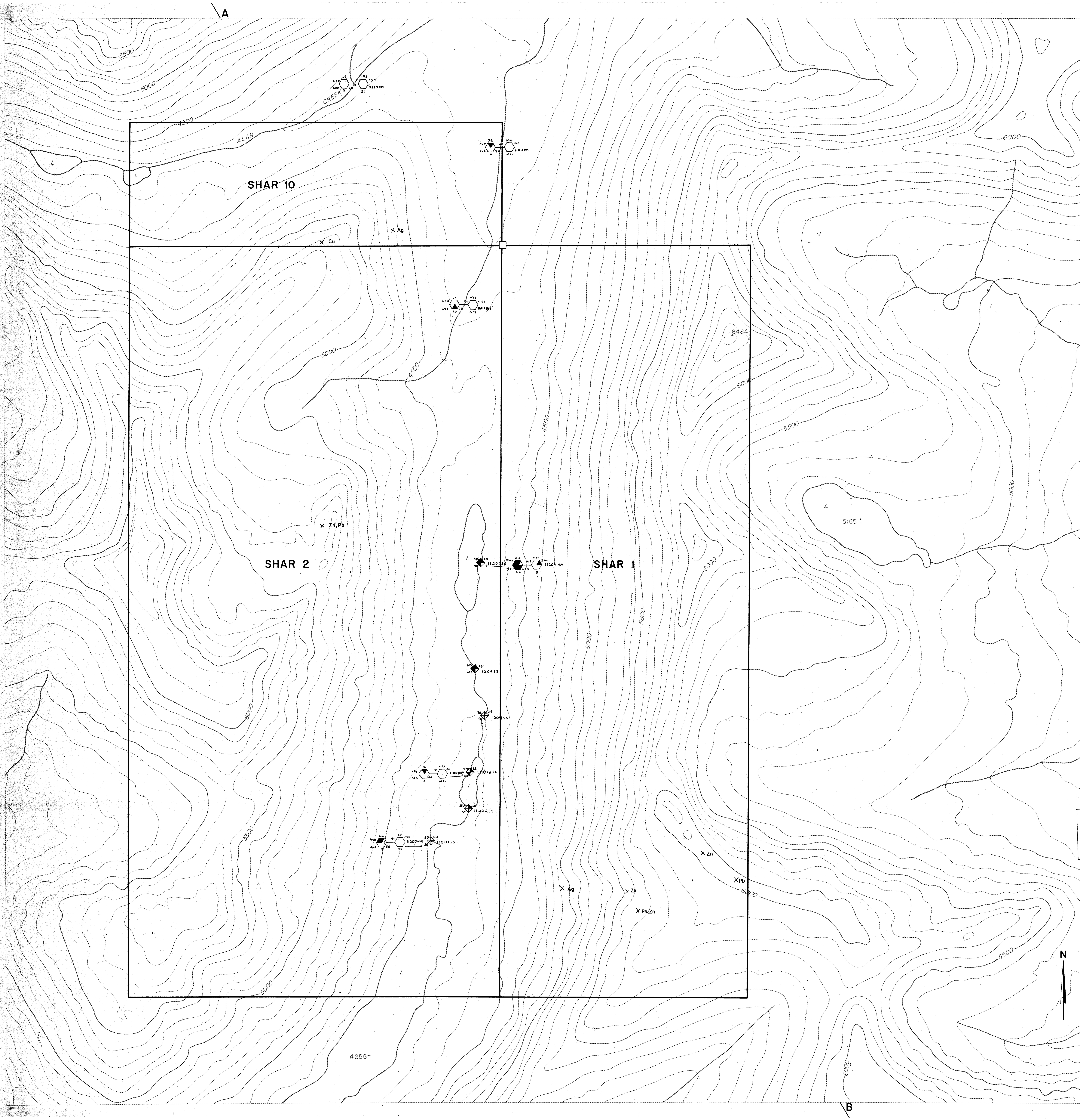
SCALE IN METRES

100 50 0 100 200 300 400

PLAN 4

G.T./P.F./Nov. 1980


A
ALAN
CREEK
SHAR 10
SHAR 2
SHAR 1
A
B
C
D
× Zn, Pb
× Ag
Cu ×
× Zn
× Pb, Zn
× Pb
BASE LINE
6484
5155 ±
4255±
7+50 N
6+25 N
5+00 N
3+75 N
2+50 N
1+25 N
0+00 N
0+00 S
1+25 S
2+50 S
3+75 S
5+00 S
6+25 S
B
SHAR 1-2
LEGEND
× Pb, Cu, Zn, Ag ← metal occurance observed as visible mineralization or high geochemical value in rocks
O0.1 sample location and Ag value in ppm
Anomalous
● > 0.4 ppm
~~Probably~~ Anomalous
⊙ > 0.2 ppm
All contours in ppm
0·8
0·4
0·2
A Soil anomaly
Claim post
Claim boundary
A—B Cross section
9205
N
CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION
PROJECT CASSI
SHAR 1,2,10 CLAIMS
ATLIN MINING DIVISION,
BRITISH COLUMBIA
N.T.S. 104-O
SOIL GEOCHEMISTRY
CONTOURED VALUES
Ag.
SCALE IN METRES
100 50 0 100 200 300 400
PLAN 5
G.T./P.F./Nov. 1980



9205

LEGEND

X Pb, Cu, Zn, Ag – metal occurance observed as visible mineralization or high geochemical value in rocks.

HEAVY MINERAL

Zn, Ag, Pb, Cu, Mo — U, Th, W, Sn — 80 Ca sample # (HM)

Probably Anomalous Levels (Sacks, 1979)

0.95, 440, 280, 8.5, 165 — 120, 1200, 160, 300

STREAM SEDIMENTS

Zn, Ag, Pb — 80 Ca sample number (SS)

320, 1, 59

Claim post

Claim boundary

A — B Cross section

N

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

PROJECT CASSI
SHAR 1,2,10 CLAIMS

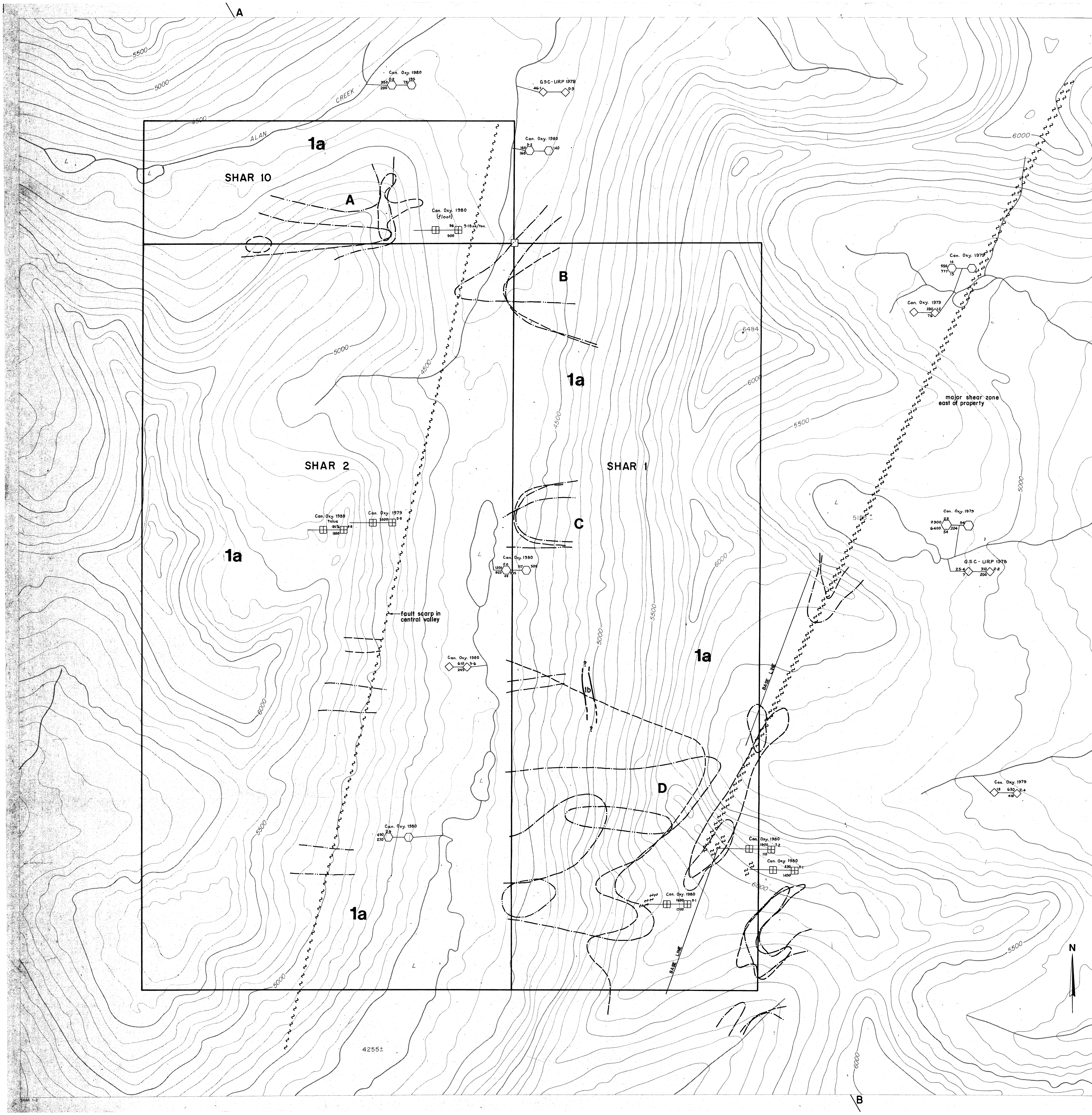
ATLIN MINING DIVISION,
BRITISH COLUMBIA
N.T.S. 104-O

STREAM SEDIMENT & HEAVY MINERAL GEOCHEMISTRY
SAMPLE LOCATION AND VALUE

SCALE IN METRES
100 50 0 100 200 300 400

PLAN 6

G.T. / P.F. / Nov. 1980



LEGEND

Table of Formations

CRETACEOUS

1 Cassiar Batholith

1a Foliated Biotite Granodiorite to Quartz Monzonite

1b Perthite Megacrystic Quartz Monzonite

Symbols

geologic contact

fault

shear zone

gneissic foliation (vertical, inclined)

rock sample (all values ppm, except ppb Au)

heavy mineral sample

stream sediment sample (all values ppm)

Contours

200 ppm Zn in soil

100 ppm Pb in soil

0.4 ppm Ag in soil

A Soil anomaly

A—B Cross section

Claim post

Claim boundary

N

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

PROJECT CASSI
SHAR 1,2,10 CLAIMS

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

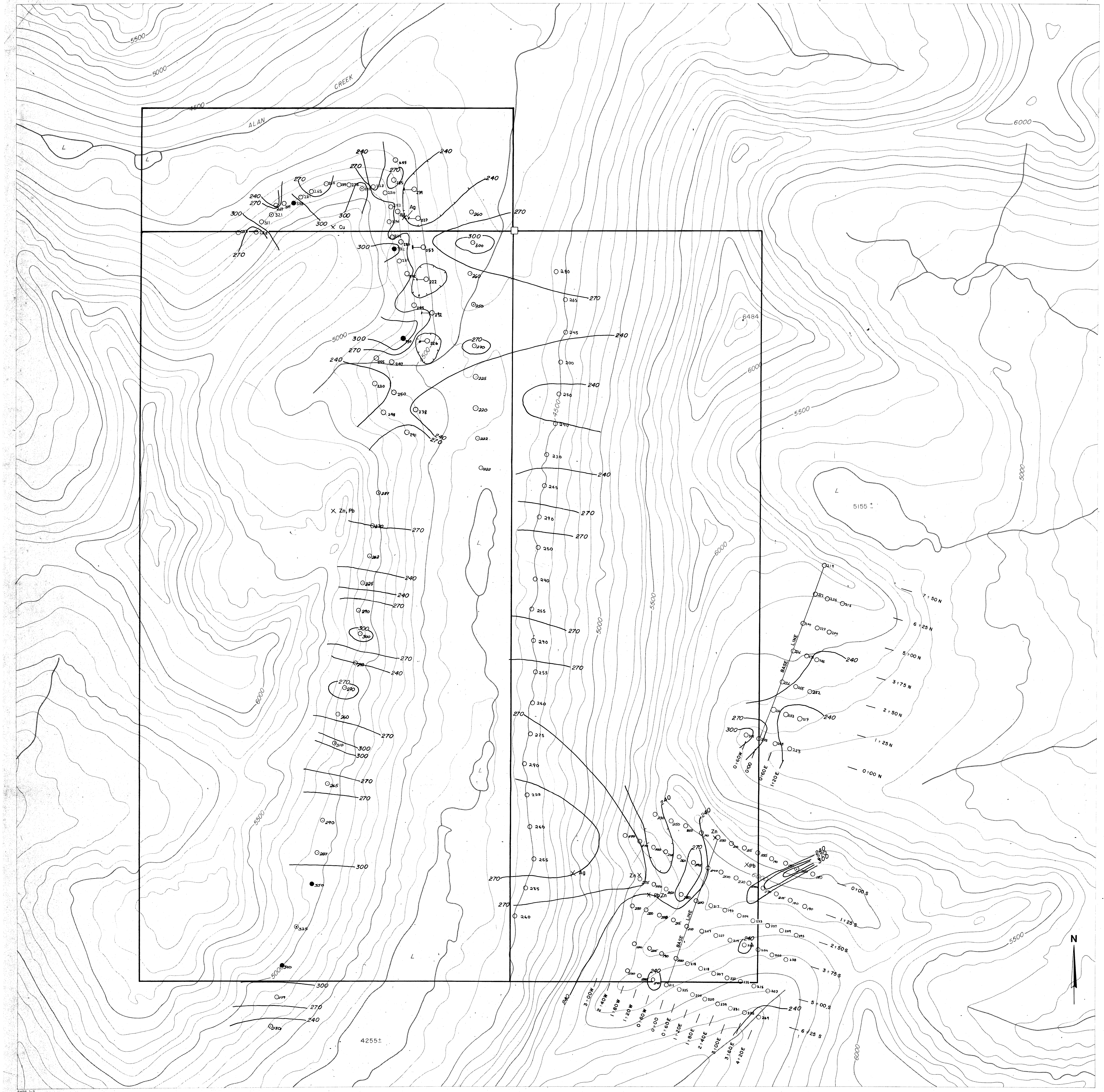
COMPILATION MAP

SCALE IN METRES

100 50 0 100 200 300 400

PLAN 9

G.T./P.F/ Nov. 1980



LEGEND

Pb, Cu, Zn, Ag – metal occurance observed as visible mineralization or high geochemical value in rocks.

○250 scintillometer reading

⊙ probably anomalous 312 – 329 cps

● anomalous ≥ 330 cps

Readings and contours in c.p.s.
Urtec model UG 130 TC_1 at 10 sec.

9205

Contour Interval

240
270
300

Claim post

Claim boundary

A___B Cross section

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

PROJECT CASSI
SHAR 1,2,10 CLAIMS

ATLIN MINING DIVISION,
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SCINTILLOMETER SURVEY
CONTOURED VALUES

SCALE IN METRES
100 50 0 100 200 300 400

PLAN 7 G.T./P.F./Nov. 1980

SCALE: 1 = 5000 metres

GEOLOGICAL LEGEND

Table of Formations

TERTIARY (?)

2 Dolerite Dykes

CRETACEOUS

1 Cassiar Batholith

1b Perthite Megacrystic Quartz Monzonite

1a Foliated Biotite Granodiorite to Quartz Monzonite

Symbols

geologic contact (defined, assumed)

fault

shear zone

rock sample location and values (ppm) (Zn, Ag, Pb, sample number)

Py pyrite
Ga galina
Sp sphalerite

CANADIAN OCCIDENTAL PETROLEUM LTD.
MINERALS DIVISION

PROJECT CASSI
SHAR 1,2,10 CLAIMS

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

GEOLOGICAL, GEOCHEMICAL & SCINTILLOMETER PROFILES A–B.

PLAN 8

G.T./P.F./Nov. 1980