

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT

10504
No.

GEOCHEMICAL RECONNAISSANCE
IN THE
TUCHODI AREA
NORTHEASTERN BRITISH COLUMBIA

82 - 503 - 10504

Liard Mining Division

Geographic Coordinates

58° - 59° N
124° - 126° W
NTS Sheet 94 K

by

L.B. Halferdahl, Ph.D., P. Eng.

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Operator:

Halferdahl & Associates Ltd.
18, 10509 - 81 Avenue
Edmonton, Alberta
T6E 1X7

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SECTION 1.0

SUMMARY

A helicopter-supported geochemical reconnaissance survey was conducted in part of the Tuchodi area, about 180 km west of Fort Nelson in rugged and scenic terrain. A total of 681 soil samples were collected during the seasons of 1979 and 1980 in an attempt to find base metal anomalies in areas covered by overburden.

Thick accumulations of sedimentary rocks presumably of Helikian age, cut by steeply dipping diabase dykes, underlie most of the area. Innumerable faults, including major thrust faults, and the Testa anticlinorium, in the axial region of which the oldest Precambrian strata in the area are exposed, have rendered the rocks structurally complex.

The -80 mesh fractions of the soil samples were analyzed for one or more of copper, cobalt, nickel, lead, zinc, and silver by standard atomic absorption techniques. The low threshold concentrations for copper, lead, zinc, and cobalt are attributed to the fact that in the Tuchodi area mechanical weathering of bedrock predominates over chemical weathering. No silver nor nickel anomalies were found. Correlation coefficients between pairs of metals are so low, that the calculated regression lines have little or no significance. The highest correlation coefficient is for cobalt on copper at 0.56, suggesting that copper is more closely related to cobalt than to either lead or zinc. Copper anomalies are scattered over different formations and range up to 20 times background. Zinc anomalies seem more confined to the Aida Formation; they range up to nine times background.

It is concluded that copper anomalies are related to mineralized quartz veins, and are independent of zinc anomalies which may be derived from a strata-bound source that cannot be accurately delimited at this stage.

SECTION 2.0

INTRODUCTION

Parts of the Tuchodi area in northeastern British Columbia were extensively explored in the late 1960's and early 1970's during the period in which the Magnum deposit of Churchill Copper Corporation Ltd. (later part of Teck Corporation) was being prepared for production, and the Eagle Vein of Davis-Keays Mining Co. Ltd. was being explored underground. Many veins and related types of copper deposits, none yet proven to be economic, were discovered during these explorations.

2.1 Geographic Setting

The Tuchodi area lies in northeastern British Columbia and is centred about 130 km (80 miles) west of Fort Nelson. Fort Nelson is a modern town on the Alaska Highway; it is served by regularly scheduled airline flights and is a northern terminus of the British Columbia Railway. Access to the Tuchodi area for exploration is mostly by helicopter from Fort Nelson. Ground access also exists for limited parts adjoining the Alaska Highway and by formerly used roads to the Magnum and Davis-Keays copper deposits. A few short airstrips used mostly by outfitters for big-game hunters exist in other parts of the area. The formerly used mine roads require some repairs before they can be used by vehicles.

The part of the Tuchodi area surveyed is within the Rocky Mountains roughly 50 km northeast of the Rocky Mountain Trench. The mountains are rugged and picturesque, with at least one peak higher than 2700 m (9000 feet). Glaciers are found on some of the higher mountains. Treeline is about 1450 m (4800 feet), with permafrost extending to below the treeline locally at least. The ground is generally free enough from snow for geological field work during June, July, and August, but snow may fall in any month particularly at the higher elevations. Summers may be wet or dry. The rivers are rushing mountain streams; most cannot be easily crossed by wading.

2.2 History and Previous Investigation

Copper mineralization was first discovered near Delano Creek in the Tuchodi area in the mid 1940's. Surface exploration and drilling were conducted on the Magnum deposit on a tributary of Delano Creek in 1958 and 1959. Development for production began in 1967 with production ensuing during two periods as the Churchill Mine from April 1970 to October 1971 and again from January 1974 to April 1975. Reserves when production started were 1.0 million tonnes at 3.9 per cent copper.

The Strangward copper deposit on the South Tetsa River was discovered and explored briefly in the early 1950's.

Work began on the Davis-Keays deposit a few kilometres north of the Magnum deposit in 1967. Surface sampling and underground exploration and development to 1971 had outlined reserves of 1.2 million tonnes of 3.3 per cent copper in one vein, but no ore has been produced.

Many other properties were explored during the period 1958 to 1971 with the bulk of the exploration being conducted from 1968 to 1971. Companies active in the area included Alberta Copper and Resources Ltd., Bralorne Resources Limited, Canadian Superior Exploration Ltd., Copperline Mines Ltd., Fort Reliance Minerals Ltd., Largo Mines Ltd., and Windermere Exploration Ltd. Reports of these explorations are listed in the references.

Showings of galena, sphalerite, and barite in Paleozoic strata have been explored from time to time in the Tuchodi area. Significant deposits of lead, zinc, and barite in upper Devonian and Mississippian black shale sequences about 80 km southwest of Tuchodi Lakes have attracted considerable attention in recent years. The Gataga Joint Venture conducted a major drilling program at Driftfile Creek and Cyprus Anvil drilled the Cirque deposit to the southeast.

The works of Bell (1966, 1968) and Taylor and Stott (1973) have significantly increased the understanding of the geology of the area, especially the Precambrian rocks present. Preto (1971) and holders of claims contributed to the mapping of smaller sections of the area.

2.3 Purpose of Survey

A reconnaissance geochemical soil survey was undertaken in parts of the Tuchodi area in an attempt to find base metal anomalies in areas covered by overburden. This report presents the results of this geochemical reconnaissance which started in August 1979 and was continued in a second season during 1980. It includes a few geological notes.

2.4 Summary of Work Done

A total of 681 soil samples were collected in 1979 and 1980 along 38 geochemical traverses totalling approximately 34 km. The crews were based at the Toad River Lodge on the Alaska Highway whence they were moved to the beginning of each traverse by helicopter.

SECTION 3.0

GEOLOGY

The Tuchodi area is underlain by Paleozoic and Proterozoic rocks as summarized in Table 3.1. Rock types are fairly distinctive, and many units exhibit great thicknesses. Besides structural complications, mapping is rendered difficult by better exposures invariably being on precipitous cliffs. The following description has been summarized from published reports listed in the references.

3.1 Stratigraphy

Only the Helikian Formations are pertinent to this investigation and their estimated thicknesses total a minimum of 5900 m. The assignment of a Helikian age to these rocks is tentative only and is based on their lithological similarity to the Purcell or Belt series of southeastern British Columbia and adjacent regions as well as to other areas. They may be bracketed by the age of 1800 million years of the crystalline basement rocks east of the Foothills in northeastern British Columbia, and the apparently younger sequence of greenish-grey, green and grey chloritic phyllites and slates, probably of Hadrynian age, which are in turn overlain by Cambrian strata adequately dated by fossils.

3.2 Intrusions

All formations of Helikian age are cut by steeply dipping diabasic or gabbroic dykes up to 70 m thick but mostly 10 m or so and extending up to 16 km. The dykes trend from northeasterly to northwesterly; at some places they trend in two directions as much as 40° apart. They are very abundant in some places. These dykes do not cut the strata assigned a Hadrynian age.

3.3 Structure

In detail the structure of the Tuchodi area is complex, particularly the penetrative cleavage of the Aida Formation. The broad features are simpler, however. The Precambrian strata were gently folded on more than one occasion in pre-Silurian times. The most obvious structure from these foldings is the Tetsa anticlinorium whose axis extends from Mount St. George to the Tuchodi Lakes, and in whose axial region the oldest Precambrian strata in the area are exposed. In general dips of bedding in the Tuchodi area are shallow to moderate. Laramide faulting consists mostly of northwesterly trending thrust faults, which divide the Precambrian strata into at least five separate northwesterly trending bands. In addition to the major

thrust faults, two large normal faults have been recognized. Many other smaller faults are present.

SECTION 4.0 GEOCHEMICAL RECONNAISSANCE

4.1 Sampling

Samples were collected along traverses with the locations shown in Fig. 4.1, mostly at 50-m intervals. Locations of traverses were limited by accessible helicopter landing sites and the avoidance of precipitous cliffs.

In many places soils were poorly developed, but an effort was always made to avoid the uppermost humus layer, if one was present. Descriptions of the soil samples are in Appendices 1 and 2.

4.2 Analyses

A one-gram sample of the -80 mesh fraction was digested for approximately two hours with a mixture of 70% perchloric acid and 18 N nitric acid, diluted, and analyzed for one or more of copper, lead, zinc, nickel, cobalt, and silver by standard atomic absorption techniques, with the necessary background corrections for lead, nickel, cobalt, and silver. The analytical reports are in Appendix 3.

4.3 Distributions of Metals

The cumulative frequency distributions of copper, cobalt, lead, nickel, and zinc are shown in Fig. 4.2. The statistical method of presentation is that described by Lepeltier (1969). According to this method the parameters, suitably rounded, for the curves are as follows:

Metal	Number of Samples	Background Concentration (Geometric Mean) ppm	Coefficient of Deviation	Threshold Concentration ppm	Per Cent of Anomalous Samples
Cu	681	18	0.276	50	6
Co	211	9	0.260	19	10
Pb	504	14	0.184	35	2
Ni	118	11	0.202	-	0
Zn	504	60	0.146	110	6

The curves for copper, cobalt, lead, and zinc show changes of slope typical of groups of samples with anomalous populations. The curve for nickel does not. Although silver was determined in some samples, the results showed so little variation, that it is not considered further herein.

At the threshold concentrations above, the samples with anomalous concentrations of copper, cobalt, lead, and zinc are listed in Table 4.1. In the Tuchodi area, most weathering of the bedrock is mechanical in nature, with chemical weathering being very low in extent. Thus these thresholds and the level of anomalous concentrations obtained are expected to be lower than those which have led to ore deposits in other areas where chemical weathering and dispersion are more extensive.

4.4 Correlations between Metals

Scatter diagrams for copper and cobalt, copper and lead, copper and zinc, and zinc and lead for the 1979 samples are shown in Fig. 4.3 to 4.6. Linear regression lines have been calculated for the first three, but the correlation coefficients are so low that the regression lines calculated and shown in Fig. 4.3 to 4.5 have little or no significance. A regression line was not calculated for lead on zinc. Although copper is evidently not correlated with zinc nor lead, nor lead with zinc, the correlation coefficient for cobalt on copper at 0.56 is higher than those for lead and zinc on copper, 0.22 and 0.11, respectively. These data suggest that copper is more closely related to cobalt than to either lead or zinc.

4.5 Geochemically Anomalous Samples

The two most anomalous metals are copper and zinc, with copper having a weak but definite correlation with cobalt. The relationship of the very few lead anomalies to other metal anomalies is dubious. Mostly copper and zinc anomalies are separate. Copper anomalies are scattered over different formations and range between just above threshold and up to 20 times above background value. They appear to be generally related to mineralized quartz veins, most of which might be covered by overburden. Zinc anomalies on the other hand, are less scattered and range from above threshold to nine times background value. They seem to be

TABLE 4.1: ANOMALOUS COPPER, COBALT, LEAD, AND ZINC IN GEOCHEMICAL TRAVERSES

Traverse	Metrage	Copper ppm	Cobalt ppm	Lead ppm	Zinc ppm
R	150	58	nd	-	-
	400	110	40	-	-
	500	62	66	-	-
B1	450	58	nd	-	-
	700	124	-	-	-
	750	66	-	-	-
H1	0	-	nd	-	192
	100	62	-	104	-
	150	270	86	-	280
	200	-	-	-	24
	250	166	44	-	-
	300	-	-	-	30
H2	0	88	nd	72	164
	100	58	nd	-	-
	150	-	nd	44	-
	350	-	nd	-	178
	400	-	nd	54	146
	450	-	nd	-	380
	700	130	44	-	-
	800	80	-	-	-
	1500	100	-	-	-
	1550	60	-	-	-
	1600	68	-	-	-
1650	74	-	-	-	
H3	1050	72	38	-	-
	1100	70	36	-	-
	1150	66	34	-	-
	1200	102	32	-	-
	1250	-	30	-	-
	1300	102	-	-	-
B2	150	56	-	-	-
	250	315	-	56	-
	400	380	-	-	-
	800	62	-	-	-
	1350	56	-	-	-
	1400	290	78	-	-
1600	210	-	-	-	
R2	150	-	nd	-	158
	650	-	nd	42	-
H4	350	-	nd	54	-
B4	600	-	nd	-	156

nd - not determined

TABLE 4.1: CONTINUED

Traverse	Metrage	Copper ppm	Cobalt ppm	Lead ppm	Zinc ppm
R3	200	-	nd	-	142
B5	550	-	nd	-	126
B9	200	61	-	-	-
H9	450	60	-	-	-
H6	0	-	nd	-	140
R6	200	-	nd	-	148
	250	-	nd	-	128
B7	900	-	nd	-	305
	1000	-	nd	-	545
B8	50	136	40	-	-
	100	56	40	-	-
	550	56	-	-	-
	650	-	-	-	160
	700	74	-	-	-
R7	150	-	-	-	192
	300	-	-	-	122
	350	86	-	-	220
	400	-	-	-	154
	450	-	-	-	148
	500	-	-	-	186
	550	-	-	-	230
M3	1400	-	-	-	156
M4	550	-	21	-	-
	800	-	-	-	134
	850	-	-	-	183
M5	0	-	-	-	155
	150	-	-	-	195

concentrated in the Aida Formation, but lack of contact definition disallows an interpretative assignment of the sources of the anomalies, with regard to transportation down slope, to specific parts of the Aida Formation.

SECTION 5.0

CONCLUSIONS

1. Moderate copper anomalies are related to mineralized quartz veins.
2. Copper is more closely correlated with cobalt than with lead or zinc.
3. Zinc and, to a lesser extent, lead anomalies may be related to a strata bound source, possibly in the Aida Formation. Strata bound lead-zinc deposits have already been discovered in the area in Devonian and Mississippian Formations, and may be present in older rocks as well.

Respectfully submitted,

L.B. HalferdaHL
L.B. HalferdaHL Eng.

Expiry Date: August 5, 1981.

Edmonton, Alberta
1981 02 12

SECTION 6.0

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APPENDIX 1: 1979 SOIL SAMPLE DESCRIPTIONS AND TRAVERSE NOTES

Sample numbers in each traverse are metres measured down the slope from the starting point. Elevations were measured at most sample locations with pocket altimeters calibrated as well as possible, but may be off a few hundred feet. However, they should be relatively correct on each traverse.

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
<u>R</u>	NTS Sheet 94K/12E Bearing westerly along creek		
0	30	4410	brown soil overlain by light-brown humus
50	15	nr	light-brown soil underlain by reddish clay with rock fragments
100	-	nr	not sampled
150	30	nr	black soil overlain by light-brown humus
200	15	nr	brown soil underlain by reddish clay with rounded rock fragments
250	5	nr	reddish sandy clay; between two dry creek beds
300	20	nr	dark-brown soil underlain by humus and rocks
350	30	nr	clayey reddish soil overlain by dark-brown humus
400	30	nr	brown clayey soil with rock fragments overlain by reddish-brown soil
450	-	nr	not sampled; talus
500	20	3760	brown soil underlain by red-brown soil with rock fragments
<u>Y2</u>	NTS Sheet 94K/12E Bearing 287°		
0	15	5430	medium-brown soil and rock fragments
50	25	5360	medium-brown soil and rock fragments
100	20	5300	medium-brown soil and rock fragments
150	20	5200	medium-brown soil and rock fragments
200	20	5120	dark-brown soil and rock fragments
250	30	5050	dark-brown soil and rock fragments
300	20	4930	medium-brown soil, mostly rock fragments
350	20	4870	medium-brown soil and rock fragments
400	20	4790	grey clay and rock fragments, numerous boulders of white quartzite; elev. 4790'
		4740	valley bottom

nr - not recorded

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
<u>B1</u>	NTS Sheet 94K/12E Bearing 250° to major bend on creek with junction with small creek from north		
-	-	4920	greyish finely laminated fine-grained argillite; attitude 326/22°NE
0	5	4800	dark-brown humus with many rock fragments
50	20	4680	medium-brown "B" horizon, sandy humus with many rock fragments
71	-	nr	not sampled; white quartzite, attitude 320°/80°NE
100	10	4580	medium-brown "B" horizon with rock fragments; finely laminated quartzite
150	10	4440	medium-brown "B" horizon with rock fragments
200	5	4380	medium-brown humus with rock fragments; finely laminated quartzite and interlayered argillite
250	5	4270	medium-dark-brown humus
300	10	4200	medium-light-brown clayish humus
350	15	4150	medium-light-brown clayish humus
400	20	4110	light-brown clayish humus with rock fragments
450	5	4050	medium-brown clayish humus on bedrock; poorly laminated white quartzite
500	10	3980	medium-light-brown clayish humus from "B" horizon
550	15	3860	medium-light-brown "B" horizon
600	15	3800	medium-light-brown "B" horizon
650	20	3720	medium-light-brown "B" horizon
700	15	3660	dark-brown humus
750	15	3580	dark-brown clayish humus
800	20	3550	light-brown clayish "B" horizon
<u>R1</u>	NTS Sheet 94K/12E Bearing northeasterly		
0	35	5140	light-brown clay with rock fragments overlain by light- brown and grey soil
50	20	nr	light-brown soil with rock fragments
100	30	nr	greyish-brown sandy clay with rock fragments
150	15	nr	light-brown soil with rock fragments
200	-	nr	not sampled; bedrock below moss
250	15	nr	grey soil with angular rock fragments overlain by brown and grey soil
300	25	nr	light-brown-grey soil overlain by brown and grey soil.
350	25	nr	light-brown clay with many rock fragments
400	40	nr	light-brown soil with rock fragments
450	25	nr	grey clay overlain by brown and grey soil
500	30	nr	grey-brown soil
550	-	nr	not sampled; angular rocks at surface
600	10	nr	dark-brown soil with rock fragments
650	30	nr	brown soil
700	25	3980	grey-brown soil with rock fragments

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
<u>H1</u>		NTS Sheet 94K/12E	Bearing 355° along crest of ridge
0	25	6520	black clay and slaty rock fragments
50	30	6500	mostly fragments of grey slate, very little clay or silt; S of saddle
100	30	6490	mostly fragments of grey slate, with small amount of dark-brown clay; about 10m S of saddle
125	20	6455	dark-brown soil mostly; right at saddle
150	20	6490	mostly fragments of basic dyke, small amount of dark-brown clay; N of saddle
200	20	6510	mostly black slate with rusty joints, small amount dark-brown clay, grassy and mossy knoll
250	15	6540	mostly grey slate with some brown clay; almost on outcrop; almost along strike of cleavage from last sample
300	10	6570	mostly light-greyish-green slate with small amount of brown soil; at outcrop
350	-	6590	not sampled; no soil, only light-greyish-green slate
400	15	6620	mostly grey slate with brown soil; not far above outcrop
450	-	6660	not sampled; outcrop practically continuously visible along crest of ridge; grey and green slates with few beds of light-grey (on fresh surface) dolomite to 2 or 4 cm thick
500	-	nr	not sampled; along crest of ridge; grey slates, attitude of cleavage 308°/42°SW
550	-	6590	not sampled; greenish-grey slates continuously exposed along crest of ridge
560	-	nr	not sampled; black slates with few dolomite layers
600	-	nr	not sampled; grey and greenish slates with few dolomite layers to 5 cm in continuous outcrop
650	-	6610	not sampled; along crest of ridge from 600 with continuous outcrop on W side and almost continuous on E side; interbedded greyish-green and black slates, few dolomite layers 5 cm thick
700	-	6590	not sampled; along crest of ridge with continuous outcrop on W side; black and grey slates with beds to 15 cm thick and becoming more numerous; attitude of bedding and cleavage 285°/40°SW
750	20	6560	dark-brown clay and rock fragments, some rusty; grassy and mossy
775	-	nr	not sampled; cliff too steep to descend past this point
<u>H2</u>		NTS Sheet 94K/11W	Bearing 346° along crest of ridge
0	25	5960	mostly fragments of grey slate, some rusty, with very minor dark-brown clay; on grassy and mossy slope
50	25	5950	mostly fragments of black slate with minor dark-brown clay; grassy and mossy slope
100	25	5920	slate fragments and dark-greyish-brown soil; grassy and mossy

APPENDIX 1 : CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
150	25	5880	rubble of black slaty, siltstone with dark-brownish-black clay; grassy and mossy slope except for one rubble patch
200	20	5870	greyish-brown clay with rock fragments; grassy and mossy slope
250	28	5840	dark-black-brown clay with fragments of basic dyke; grassy and mossy slope
300	30	5780	mostly black slate with minor dark-black-brown clay; grassy and mossy slope
350	30	5750	dark-black-brown clay with less fragments of black slate; grassy and mossy slope
400	30	5730	granule size slate fragments and grey-black-brown clay; grassy and mossy slope
450	20	5690	mostly brown clay with few fragments of black slate and other rocks; in hollow on mossy and grassy slope with willow bushes to west
500	25	5690	brown-grey clay and rock fragments; mossy and grassy slope
550	20	5690	mostly dark-brown clay with few rock fragments; mossy and grassy slope
600	25	5660	mostly brown clay with few rock fragments; mossy and grassy slope
650	25	5620	mostly brown clay with few rock fragments; mossy and grassy slope in hollow along ridge
700	20	5640	brown soil and fragments of basic dyke; on knoll underlain by dyke; mossy and grassy slope
750	20	5615	brown clay and granule size slate with few larger fragments; grassy and mossy slope
800	20	5585	mostly granule size and coarser grey slate with minor brown clay; grassy and mossy slope
850	25	5560	mostly grey slate with minor brown-black clay; grassy and mossy slope
900	30	5540	brown clay and fragments of grey slate
950	25	5380	mostly black slate with some rusty planes and minor brown soil; steep grassy and mossy slope
1000	30	5295	mostly black slate, some rusty, minor dark-brown soil and some humus; very steep mossy and grassy slope
1050	25	5185	mostly black slate, minor dark-brown soil; very steep mossy and grassy slope; outcrop to west
1100	30	5080	brown clay and slate fragments, some rusty; steep grassy and mossy slope
1150	30	4980	brown clay, slate fragments and rusty rock fragments; steep grassy and mossy slope with bushes

APPENDIX 1 : CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
1200	25	4970	grey-brown soil with few rock fragments; grassy and mossy slope with bushes
1250	25	4930	mostly grey-brown clay, some rock fragments
1300	25	4860	mostly grey-brown clay, some rock fragments; bushes and stunted spruce on slope
1350	20	4800	brown clay, few rock fragments
1400	30	4730	brownish clay with abundant rock fragments, bushes and stunted spruce on slope
1450	25	4630	brownish clay with abundant slate and other rock fragments, some rusty
1500	30	4550	grey-brown clay; hard to find amidst thick humus and rubble of large blocks of basic dyke
1550	30	4460	grey-brown clay and abundant rock fragments
1600	30	4380	grey-brown clay and rock fragments, some of basic dyke
1650	30	4310	grey-brown clay and rock fragments
-	-	4200	fork of creeks
<u>Y1</u>	NTS	Sheet 94K/11W	Bearing 208°
0	20	5050	light-brown clay with rock fragments
50		5020	
100	20	4930	medium-brown clay and rock fragments
150		4840	
200	20	4760	medium-brown soil and rock fragments
250		4680	
300	20	4560	medium-brown soil and rock fragments
350		4550	
400	20	4300	medium-brown soil and rock fragments
450		4240	
500	15	4140	medium-brown soil and rock fragments
550		4050	
600	20	3970	medium-brown soil and rock fragments
650		3900	
700	15	3810	medium-brown soil and rock fragments
750		3760	
800	20	3690	medium-brown soil and rock fragments
<u>H3</u>	NTS	Sheet 94K/11W	Bearing southerly
0	20	6020	brown clay and grey slate of mostly granule size, rubble of grey slate on surface
50	15	5920	brown clay and grey slate with little clumps of bushes here and there
100	20	5810	brown clay and grey slate
150	30	5730	brown clay and grey slate
200	25	5680	brown clay and grey slate
250	25	5570	practically no clay, all granules of slate, bushes in a few places

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
300	25	5470	brown clay and rock fragments; grass and bushes on slope, stunted spruce
350	30	5360	brown clay and rock fragments
400	30	5285	brown clay with rock fragments, some of rusty weathering slate
450	15	5200	brown sandy clay and rock fragments; spruce trees and other vegetation
500	25	5070	brown clay and rock fragments, some black shale
550	25	5000	brown sandy clay and rock fragments, some rusty
600	20	4960	brown clay and rock fragments
650	25	4875	brown clay and rock fragments
700	25	4765	brown clay and rock fragments
750	25	4710	brown sandy clay and rock fragments
800	25	4605	brown clay and rock fragments
850	25	4550	brown sandy clay and rusty brown rock fragments
900	25	4440	brown sandy clay and rock fragments
950	25	4390	brown sandy clay and rock fragments
1000	25	4320	brown sandy clay and rock fragments
1050	15	4250	brown sandy clay and rock fragments
1100	20	4230	brown sandy clay and rock fragments
1150	30	4160	brown sandy clay and rock fragments
1200	30	4120	black-brown clay and minor rock fragments
1250	30	4080	brown clay with very minor rock fragments; many big spruce trees
1300	30	4010	brown-black clay
1342	-	3970	Yedhe Creek
<u>B2</u>	NTS	Sheet 94K/11W	Bearing 335°
0	15	5640	medium-light-brown sandy clay mixed with rock fragments
50	15	5650	medium-light-brown sandy clay mixed with rock fragments
78	-	-	not sampled; light-grey slate, attitude 127°/35°SW; attitude of intersection of cleavage and bedding 170°/30°S
100	10	5650	medium-light-brown sandy clay mixed with rock fragments
150	10	5660	medium-light-brown sandy clay mixed with rock fragments
200	5	5680	medium-light-brown sandy clay mixed with rock fragments
250	5	5660	medium-light-brown sandy clay mixed with rock fragments
300	5	5640	medium-light-brown sandy clay with rock fragments
350	5	5640	medium-light-brown sandy clay with rock fragments
400	15	5660	medium-light-brown sandy clay with rock fragments
450 to 750			not sampled
800	10	5700	medium-dark-brown humus; slate, attitude 140°/50°SW
850	10	5620	medium-brown sandy humus and slate fragments
900	10	5520	medium-dark-brown sandy humus and slate fragments

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
950	-	-	not sampled; grey slate, attitude 132°/47°SW
1000	15	5420	light-brown sandy clay with rock fragments
1050	10	nr	light-brown sandy clay with rock fragments
1100	10	5330	light-brown clay with rock fragments
1150	15	5300	light-brown clay with rock fragments
1200	15	5280	light-brown clay with rock fragments
1250	10	5240	light-brown clay with rock fragments
1300	-	-	not sampled; interbedded slate and quartzite, attitude 145°/68°SW
1350	5	5110	light-brown humus with many slate fragments
1400	10	5020	light-brown humus with many slate fragments
1450	10	4980	greyish clay with slate fragments
1500	10	4860	medium-light-brown clay with many rock fragments
1550	10	4870	medium-brown clay with many rock fragments
1570	-	-	not sampled; axis of synform shown by intersection of cleavage and bedding, attitude 165°/08°SE
1600	20	4750	dark-brown humus with many rusty rock fragments
1650	15	4700	black humus
1700	20	4700	light-brown clay with many rock fragments
1750	20	4650	light-brown clay with many rock fragments
1800	20	4600	black humus and grey clay with few rock fragments
1850	20	4570	grey to very light brown clay with rock fragments
1900	20	4530	grey to very light brown clay with rock fragments
1950	15	4480	light-brown clay with rock fragments
<u>R2</u>	NTS Sheet 94K/11W Bearing northwesterly		
0	40	5140	fine rusty soil and rock fragments
50	20	nr	light-brown sandy soil with rock fragments
100	25	nr	brown soil and rock fragments
150	40	nr	light-brown clay
200	25	nr	orange-brown soil
250	25	nr	light-brown soil with rusty streaks and few rock fragments
300	30	nr	light-brown soil
350	5	nr	brown soil with slate fragments
400	30	nr	light-brown-orange soil with many rock fragments
450	35	nr	light-brown soil with slate fragments
500	15	nr	black soil
550	25	nr	light-brown soil with tree roots
600	25	nr	light-brown soil with slate fragments
650	10	nr	light-brown soil
700	25	nr	brown soil with rock fragments
750	15	4440	brown-grey soil

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
<u>T1</u>	NTS Sheet 94K/11W Bearing 95° down ridge		
0	20	5150	brown clay and numerous rock fragments; at base of cliff
50		5070	
100	20	5000	brown clay and rock fragments
150		4910	
200	15	4845	brown clay, quartz sand, fewer rock fragments
250		4760	
300	20	4715	brown clay and sand with rock fragments
350		4650	
400	20	4580	brown clay and sand with rock fragments
450		4520	
500	20	4470	brown clay and sand with rock fragments
550		4450	bearing now 50°
600	25	4360	sandy brown clay and rock fragments
650		4300	30m above creek
<u>B3</u>	NTS Sheet 94K/11W Bearing about 60°		
0	15	5820	dark-brown humus with rock fragments
50	10	5720	medium-brown sandy clay with rock fragments
100	20	5630	medium-greyish-brown sandy clay with rock fragments
150	15	5570	greyish to light-brown clay with few rock fragments
200	15	5500	greyish to light-brown clay with rock fragments
250	15	5400	medium-brown clayish humus with many rock fragments
300	15	5310	medium-brown humus with many rock fragments
350	20	5240	grey and light-brown clay; sample lost
390	-		not sampled; in creek; well laminated white quartzite, attitude 110°/28°SW
400	15	5170	medium-dark-brown clay with many rock fragments
450	15	5120	dark-brown humus and clay with rock fragments
500	15	5080	dark-brown humus with many rock fragments
550	10	5020	dark-brown humus with many rock fragments; on bank 2 m above creek
<u>H4</u>	NTS Sheet 94K/6W Bearing 213° starting at NW side of cirque		
0	15	6510	brown clay and black slate fragments; surface all rubble of black slate with odd patch of moss
50	30	6490	grey-brown clay with fragments of grey and black slate; gentle mossy slope with patches of rubble
100	30	6450	grey-brown clay with fragments of grey and black slate
150	20	6400	grey-brown clay with fragments of grey and black slate
200	20	6360	grey-brown clay with granules of slate
250	20	6370	grey-brown clay with fewer granules of slate
300	30	6330	grey-brown clay with abundant fragments of grey and black slate
350	25	6260	brown clay with rusty fragments and black slate fragments; on mossy patch just below rubble of talus

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
400	25	6200	grey-brown clay with granules of slate, some rusty; rubble of brown-weathering slate on surface of ground
450	20	6170	grey-brown clay and slate fragments; mossy
500	20	6120	grey-brown clay and grey and black slate fragments; mossy patch in area of mostly rubble
550	25	6100	grey-brown clay and slate fragments; mossy
600	30	6020	grey-brown clay and slate fragments; mossy
650	25	5960	brown clay and slate fragments; grassy and mossy area at foot of steep slope of talus and rubble
700	35	5930	grey-brown clay with slate fragments below 25 cm of humus; grassy and mossy
750	30	5870	brown clay with slate fragments; steep mossy slope, mostly rubble
800	25	5760	brown clay with slate fragments
850	30	5710	grey-brown clay with slate fragments; no humus, only rubble of slate and dolomite
900	15	5640	grey-brown clay with slate fragments; talus
950	20	5545	grey-brown clay with slate fragments; no humus nor vege- tation, only talus; offset 30 m NW to NW side of dry creek valley
1000	20	5450	grey-brown clay with slate fragments
1050	30	5380	grey-brown clay with few slate fragments below 20 cm of humus; grassy and mossy slope
1100	30	5300	grey-brown clay with more slate fragments
1150	20	5220	grey-brown clay with slate fragments; no humus, bushes to each side
1200	35	5140	grey-brown clay with few rock fragments; thick bush
1250	30	5050	grey-brown clay with few rock fragments; thick bush
1300	35	5010	black clay, possibly humus, few rock fragments; dense and thick bush
1350	15	4970	grey-brown clay and rock fragments; bush thinner
1400	35	4960	grey-brown clay with very minor rock fragments below black humus; thick bush
1448	-	4960	not sampled; road to Magnum deposit
<u>B4</u>	NTS Sheet 94K/6W Bearing 105° to junction of two creeks		
0	15	5940	medium-to dark-brown clay and humus
50	10	5830	medium-brown clay with many rock fragments
100	10	5750	medium-brown sandy clay with many rock fragments
150	15	5660	medium-brown sandy clay with many rock fragments
200	15	5580	medium-brown sandy clay with many rock fragments
250	15	5520	medium-brown sandy clay
300	15	5440	medium-brown sandy clay
350	10	5380	medium-brown clay with rock fragments
400	10	5280	dark-brown clay and humus

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
450	10	5160	dark-brown humus
500	40	5060	medium-dark-brown clayish humus with large rock fragments
550	20	4970	dark-brown humus with large rock fragments
600	20	4920	dark-brown humus with large rock fragments
650	20	4820	dark-brown clayish humus with rock fragments
700	15	4770	medium-brown sandy clay with rock fragments
750	20	4680	medium- to dark-brown clayish humus
800	15	4590	medium-light-brown clay with rock fragments
850	20	4530	brown sandy clay with rock fragments
900	15	4480	black humus
950	15	4360	orange-brown clay
1000	25	4310	light-brown sandy clay with rock fragments
1200	-	4080	creek
<u>R3</u>	NTS Sheet 94K/6W Bearing southerly		
0	30	5020	brown clay with rock fragments
50	30	nr	dark-brown soil with rock fragments
100	40	nr	light-brown clay with rock fragments
150	30	nr	brown soil with rock fragments
200	25	nr	brown soil with rock fragments
250	30	nr	light-brown soil with rock fragments
300	30	nr	light-brown soil
350	30	nr	light-brown clay with rock fragments
400	40	nr	light-brown soil
450	25	nr	light-brown soil
500	35	nr	reddish soil
550	10	nr	reddish soil
600	35	nr	reddish soil
650	10	nr	reddish-brown soil with rounded rock fragments
700	30	nr	red-brown soil with rock fragments
750	30	nr	red-brown soil with rock fragments
800	30	nr	red-brown soil with rock fragments
850	20	nr	brown soil; large tree roots
900	20	nr	red-brown soil
950	35	nr	red-brown soil
1000	30	nr	red-brown soil
1050	5	3820	red-brown soil
<u>R4</u>	NTS Sheet 94K/6W Bearing northeasterly		
0	40	4480	brown soil with rock fragments
50	30	nr	light-brown soil
100	25	nr	light-brown soil
150	30	nr	light-brown soil
200	40	nr	light-brown clay
250	25	nr	red-brown soil
300	25	nr	light-brown soil
350	15	nr	red-brown soil

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
400	30	nr	light-brown soil
450	25	nr	red-brown soil with rock fragments
500	25	nr	light-brown soil
550	15	nr	red-brown soil; tree roots
600	20	nr	red-brown clay
650	15	nr	reddish-brown clay
700	15	nr	grey soil
750	15	nr	red-brown clay
800	10	nr	red-brown clay
850	15	3500	red-brown soil with rounded rock fragments
<u>D1</u>	NTS Sheet 94K/6E Bearing 0°		
0	30	5050	brown clay with rock fragments; just below outcrop
25	30	4965	brown clay with rock fragments
50			
75	30	4890	brown clay and humus
100			
125	20	4790	brown and grey clay
150	40	nr	grey-brown clay
175	10	nr	grey-brown clay with few rock fragments
200	20	nr	medium-brown clayish humus
225	15	nr	dark-brown clay and humus
250	20	nr	grey-brown soil with rock fragments
275	25	nr	medium-brown clay with many rock fragments
300	30	nr	medium-brown sandy clay with many rock fragments
325	15	nr	dark-brown clay and humus
350	20	nr	light-brown soil with rock fragments
375	30	nr	light-brown clay
400	30	nr	dark-brown humus
425	10	nr	black humus
450	40	nr	light-brown sandy clay with rock fragments
475	25	nr	grey soil
500	15	nr	red-brown clay
525	15	nr	red-brown clay
550	20	nr	red-brown clay
575	25	nr	orange-brown clay with rock fragments
600	30	nr	brown clay
625	15	nr	red-brown clay
650	20	nr	brown-clay
675	20	nr	brown clay
700	30	nr	red-brown clay

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
<u>D1A</u> NTS Sheet 94K/6E Bearing northerly down creek valley			
Geological traverse down creek			
	4270		interbedded quartzite, dolomite, and black shale, mostly to quartzite, some white with rusty spots but fresh mineral causing rust not observed, fine- and medium-grained with odd conglomeratic layer
	3810		interbedded reddish quartzite and green siltstone and argillite in canyon along creek
	3670		quartzite mostly similar to strata above canyon to base of outcrop
<u>B5</u> NTS Sheet 94K/6E Bearing 55° below limestone outcrop			
0	15	4640	medium-dark-brown humus with rock fragments
50	25	4580	medium-dark-brown humus with rock fragments
85	-	-	not sampled; white massive quartzite
100	15	4450	medium-brown sandy clay with many big quartzite fragments
150	20	4360	medium-brown sandy clay, humus with quartzite fragments
200	25	4280	black humus
250	25	4200	medium-light-brown clay
300	20	4130	light-brown sandy clay
350	20	4060	medium-brown sandy clay with rock fragments
400	15	4000	light-brown sandy clay
450	25	3930	dark-brown clay and humus
500	20	3860	medium-brown sandy clay with rock fragments
550	25	3800	greyish clay and dark-brown humus with rock fragments beside tributary creek
<u>R5</u> NTS Sheet 94K/6E Bearing southeasterly			
0	20	5660	brown soil
50	5	nr	brown soil on rock
100	30	nr	orange-brown soil
150	30	nr	light-brown soil with slate fragments
200	40	nr	light-brown soil with slate fragments
250	-	-	not sampled; slate 140°/5°
300	40	nr	light-brown soil with slate fragments
350	40	nr	brown soil with slate fragments
400	15	nr	light-brown soil, many shrub roots
450	15	nr	light-brown soil, many tree roots
500	20	nr	light-brown soil
550	20	nr	light-brown sandy soil with rock fragments
600	30	nr	light-brown soil with rock fragments
650	20	nr	dark-brown soil with rock below

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
700	20	nr	light-brown soil with rock fragments
750	15	nr	brown soil
800	20	nr	brown soil
850	-	-	not sampled; outcrop
900	15	nr	light-brown soil
950	25	nr	brown soil
1000	20	4020	brown soil
<u>H6</u>	NTS Sheet 94K/6E Bearing 43°		
-	-	5000	not sampled; interbedded slate (to 75 cm) and dolomite (to 15 cm), attitude 15°/4°NW, attitude of cleavage in slate 325°/17°SW
0	30	4980	brown clay with roots, numerous rock fragments; steep slope with thick scrub bushes and few stunted spruce
50	25	nr	brown clay with roots, numerous rock fragments
100	25	4990	grey-brown clay mixed with black clay or humus
150	30	4850	mostly black humus, minor grey-brown clay, rock fragments
200	35	4800	grey-brown clay under thick organic layer; very thick bush with scrub spruce
250	35	4720	grey-brown clay under thick organic layer
300	35	4670	mostly black humus, bit of grey-brown clay, few rock fragments
350	10	4640	grey-brown clay; from hole left by fallen tree
400	30	4580	whitish sand mixed with brown silt and clay
450	30	4540	brown clay, some black humus, minor rock fragments
500	25	4505	grey-brown clay and abundant black humus
550	20	4500	brown clay and rock fragments
600	20	4460	whitish-grey silty clay, minor brown
650	25	4440	whitish-grey silty clay, minor brown, few rock fragments
724	-	4430	not sampled; creek
<u>B7</u>	NTS Sheet 94K/6E Bearing 60°		
0	15	5300	medium-brown sandy clay with rock fragments
50	20	5230	medium-brown sandy clay with rock fragments
100	35	5140	medium-brown sandy clay
150	30	5070	dark-brown clay with some rock fragments
200	20	5000	medium-dark-brown sandy clay with rock fragments
250	30	4920	greyish-brown sandy clay with rock fragments
300	40	4850	greyish clay with many rock fragments
350	40	4800	greyish clay with many slate fragments
400	35	4720	greyish clay with rock fragments
450	35	4650	greyish clay with rock fragments
500	45	4620	greyish clay with rock fragments
550	35	4560	medium-brown sandy clay with many slate fragments; creek about 25 m NE
600	35	4550	medium-light-brown sandy clay with rock fragments; 25 m past creek
650	25	4590	orange-brown clay; top of ridge beside creek; bearing 40°

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
700	-	4550	not sampled; interbedded slate and quartzite, attitude 115°/51°SW
750	30	4470	dark-brown humus with many slate fragments
800	30	4390	medium-brown clay with many slate fragments
850	10	4310	dark-brown humus with many rock fragments; just above bedrock
900	15	4270	dark-brown humus
950	10	4220	black humus with many rock fragments
1000	15	4140	medium-dark-orange-brown clayish humus with many rock fragments; just above tree line; bearing 120° to creek, 200 m, 3960'
<u>R6</u>	NTS Sheet 94K/6E		Bearing westerly
0	30	5590	brown soil with rock fragments
50	30	5550	light-brown soil with rock fragments
100	30	5450	light-brown soil with few rock fragments
150	35	5370	light-brown soil with few rock fragments
200	15	5250	light-brown soil
250	20	5160	brown soil, many tree roots
300	30	5080	brown soil, tree roots
350	25	5010	brown soil, many tree roots
400	35	4950	brown soil
450	30	4870	brown soil, some tree roots
<u>B6</u>	NTS Sheet 94K/6E		Bearing 345°
0	20	5500	medium-brown clay
50	15	5480	medium-brown sandy clay
100	20	5410	medium-brown sandy clay with many rock fragments
150	15	5360	medium-brown sandy clay with many rock fragments
200	15	5310	medium-brown sandy clay with many rock fragments
250	20	5270	medium-brown sandy clay with slate fragments
300	20	5200	dark-brown clayish humus with rock fragments
350	15	5130	medium-brown sandy clay with rock fragments
400	15	5090	medium-brown sandy clay with rock fragments
450	15	5060	orange-brown clay with rock fragments
500	20	5030	medium-brown sandy clay with rock fragments
550	15	4950	dark-brown clay with rock fragments
600	15	4910	greyish-brown sandy clay with rock fragments
650	15	4840	orange-brown sandy clay with rock fragments
700	15	4800	orange-brown sandy clay with rock fragments
750	10	4750	orange-brown sandy clay with rock fragments
800	15	4650	medium-brown clayish humus with rock fragments
850	15	4570	medium-brown sandy clay with slate fragments
900	20	4490	dark-brown clay with rock fragments; just above treeline
950	20	4410	medium-dark-brown clayish humus with rock fragments

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
1000	25	4330	brown clayish humus with many slate fragments; slate outcrop
1050	25	4260	black humus with many slate fragments
1100	25	4210	medium-light-brown clay
<u>H5</u>	NTS Sheet 94K/6E Bearing 330° starting about 30 m northerly from bed of creek with outcrops of Paleozoic strata; traverse all below treeline		
0	25	3860	brown clay and few rock fragments
50	20	3810	greyish-brown silt and clay, few rock fragments
100	15	3780	greyish-brown silt and clay, few rock fragments
150	20	3730	greyish-brown silt and clay, few rock fragments
200	25	3670	greyish-brown silt and clay, few rock fragments
250	35	3640	greyish-brown silty clay with some black clay below 35 cm of humus
300	20	3590	greyish-brown silty clay
350	15	3560	greyish-brown silty clay
400	15	3550	greyish-brown silty clay
450	-	3510	not sampled; fairly steep slope ended at 435 m in flat gravelly area overgrown with trees
500	20	3490	brown silty clay, some humus and rock fragments
550	20	3480	grey-brown clay, few rock fragments
600	20	3480	grey-brown clay, few rock fragments; labrador tea prevalent on flat ground
			End of traverse on same level as old river terrace, Churchill Creek at 3350'
<u>H7</u>	NTS Sheet 94K/6E Bearing 250°, start just S of small creek This traverse starts in the Tuchodi Formation not the Aida Formation The Tuchodi Formation extends at least to an elevation of 5200 feet above the start of this traverse, and is probably unconformably overlain by Paleozoic strata which form the cliffs above without any of the Aida Formation between.		
-	-	4940	not sampled; interbedded white quartzite, tough siltstone which is green or rusty on weathered surface, and black argillite, some quartzite weathers reddish, attitude 328°/48°SW
-	-	4930	not sampled; interbedded black and greenish-grey argillite (in creek approx. 30 m thick; some contacts between black and bed) green argillite conform to bedding, but locally bend in smooth curves which depart from bedding
0	-	4920	not sampled because soil not obtainable in rubble of large quartzite boulders and organic material
25	25	4890	grey-brown clay and rock fragments
50	25	4880	grey-brown clay and rock fragments
100	30	4780	grey-brown clay and rock fragments

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
150	30	4700	grey-brown clay and rock fragments; few spruce trees, mostly stunted
200	25	4590	grey-brown clay and rock fragments, mostly quartzite
250	30	4510	grey-brown clay and rock fragments
300	30	4450	grey-brown clay and rock fragments
350	25	4380	grey-brown clay and rock fragments
400	25	4300	grey-brown clay and rock fragments
450	25	4240	grey-brown clay and rock fragments
500	30	4190	grey-brown clay and rock fragments
Traverse ended at treeline. Elevation of Racing River past end of traverse opposite valley on E side 3540'			
<u>H8</u>	NTS Sheet 94K/7W Geological notes on Tuchodi Formation which is overlain directly by Paleozoic strata in an inaccessible cliff at head of cirque, not a geochemical traverse		
-	-	6340	large blocks of quartzite to 2m in size with pyrite along some layers, apparently from a partly rusty-weathering layer in cliff at the head of the cirque
-	-	6420	N wall of cirque - 3m bed of fine-grained buff-weathering quartzite with fresh surfaces whitish-grey, clear rounded to subrounded quartz grains, attitude 3120/370SW above this quartzite are brownish-weathering to rusty fine-grained calcite-cemented sandstones zone of black argillite 30-50m thick visible in cirque wall, perhaps 500' vertically below this point; it may have been mistaken for the Carbonaceous Member of the Aida Formation in the GSC mapping above rusty calcitic sandstones are white quartzites 2-3m thick and then dirtier sandstones or quartzites some with rusty laminae odd piece of red quartzite or siltstone float possibly indicating the variegated zone in the Tuchodi Formation is stratigraphically above this point
-	-	6480	white massive quartzite, some banded, beds 75 cm or so, attitude 3150/330SW
-	-	6510	greyish-green argillite on weathered and fresh surfaces, rusty on joints siltstone above, weathers dark-green, slight reddish cast on fresh surface, very rusty on joints, may be lower contact of variegated section
<u>B9</u>	NTS Sheet 94K/7W Bearing 450		
0	20	5350	medium-light-brown sandy clay
50	20	5300	medium-light-brown sandy clay with rock fragments
100	30	5240	medium-dark-brown sandy clay
150	15	5180	medium-light-brown clay
200	15	5120	medium-light-brown clay

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
250	10	5080	light-brown sandy clay
300	25	5020	medium-light-brown clay
350	15	4980	light-brown sandy clay
400	15	4940	light-brown sandy clay
450	15	4890	greyish-brown sandy clay with rock fragments
500	15	4870	light-brown sandy clay
550	15	4840	light-brown sandy clay with rock fragments
600	20	4820	medium-light-brown sandy clay
650	25	4780	orange-brown clay
<u>H9</u>	NTS Sheet 94K/7W Bearing 270° starts on S side of small creek valley. On N side of creek valley the Carbonaceous Member of the Aida Formation is clearly visible with the green Chamosite Member below. Elevation of top of Carbonaceous Member is about 5600'; general attitude observed from across creek approx. 10°/20°E		
0	20	5690	brown-black clay and slate fragments; grassy and mossy slope
50	20	5635	brown-black clay and slate fragments
100	25	5555	brown-black clay and slate fragments
150	30	5490	brown-black clay and slate fragments
200	25	5380	brown-black clay and slate fragments; just below steeper drop with line of bigger bushes; few or no bushes on slope - moss and grass
250	25	5320	brown-black clay and few rock fragments
300	25	5220	brown-black clay and few rock fragments
350	25	5170	brown-black clay and rock fragments
400	30	5090	brown-black clay and rock fragments
450	35	5020	black clay and fewer rock fragments
500	30	4980	grey-brown clay and few rock fragments
550	40	4940	mostly black clay
600	25	4920	grey-brown clay, few rock fragments
650	25	4880	grey-brown clay, few rock fragments
700	30	4830	brown clay with fragments of quartzite
<u>R8</u>	NTS Sheet 94K/7W Bearing easterly		
0	35	5220	light-brown soil and rock fragments
50	25	5120	light-brown soil and rock fragments
100	30	5060	brown soil, many shrub roots
150	30	5010	brown soil with rock fragments
200	30	4950	black soil
250	10	4870	brown clay and rock fragments; near outcrop
300	25	4760	light-brown clay and rock fragments
<u>B8</u>	NTS Sheet 94K/3W Bearing 120°		
0	20	5890	medium-brown sandy clay with rock fragments
50	20	5850	medium-brown sandy clay with rock fragments
100	20	5810	medium-brown silt with many large rock fragments

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
150	25	5770	medium-brown clay with rock fragments
200	10	5750	dark-brown humus with many slate fragments
250	10	5700	medium-brown sandy clay with many slate fragments
300	5	5640	sandy clayish humus with many slate fragments
350	20	5580	medium-brown sandy clay with rock fragments
400	15	5510	medium-brown sandy clay with rock fragments
450	15	5480	medium-brown sandy clay with rock fragments
500	10	5440	medium-brown sandy clay with rock fragments
550	20	5380	greyish-brown sandy clay with rock fragments
600	35	5310	orange-brown clay with rock fragments; just above junction of dry creek with main creek; just past creek junction outcrop of rusty slate containing sulfides in zone 1-2 m thick which may be structurally repeated on other side of dry creek, attitude 150°/98°SW
650	25	5260	greyish-brown sandy clay with many slate fragments; just above main creek; about 20 m of rusty slate beside creek, similar to slate at 600 m
700	30	5280	greyish-light-brown clay with rock fragments
750	25	5200	black clayish humus
			Traverse ends where creek valley widens.
<u>RZ</u>			NTS Sheet 94K/3E Bearing southeasterly
0	20	4600	light-brown soil with rock fragments
50	20	4510	light-brown soil with tree roots
100	20	4440	brown soil with tree roots
150	20	4380	brown soil with rock fragments and tree roots
200	15	4310	brown soil with rock fragments and tree roots
250	20	4260	orange-brown soil with rock fragments
300	25	4180	orange-brown soil with rock fragments
350	25	4140	black soil with rock fragments
400	20	4080	orange-brown soil with tree roots
450	25	4070	light-brown soil with rock fragments
500	30	4050	black soil
550	25	4030	light-brown soil with tree roots
600	25	4000	orange-brown soil with rounded rock fragments
650	25	3940	black soil with tree remnants
700	20	3880	brown soil with tree remnants and roots
750	30	3820	black soil with tree roots
<u>R9</u>			NTS Sheet 94K/10E Bearing easterly
0	15	5900	brown soil and rock fragments
50	20	5870	orange-brown soil and rock fragments
100	15	5790	brown soil and rock fragments
150	15	5780	grey-brown soil and rock fragments
200	20	5730	orange-brown soil and rock fragments
250	15	5720	brown soil and slate fragments
300	15	5720	light-brown soil with rock fragments
350	15	5720	brown soil and rock fragments

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
400	10	5680	brown soil and many rock fragments
450	15	5650	light-brown soil with rock fragments
500	10	5630	orange-brown soil with slate fragments
550	20	5600	brown soil with many rock fragments
600	-	5560	not sampled; outcrop
650	10	5480	orange-brown soil with rock fragments
700	-	5440	not sampled; outcrop
750	-	-	not sampled; outcrop
800	-	-	not sampled; outcrop
850	-	-	not sampled; talus
900	15	5100	brown soil with many slate fragments
950	20	5040	light-brown soil with rock fragments
1000	25	4980	light-grey-brown soil with rock fragments
<u>B10</u>	NTS Sheet 94K/10E Bearing 180°		
0	5	6100	dark-brown sandy clay with many rock fragments
50	5	6050	dark-brown sandy clay with many rock fragments
100	5	6000	medium-dark-brown sandy clay with rock fragments
150	5	5910	dark-brown clay with rock fragments
200	-	5900	not sampled; rock fragments only
250	-	5800	not sampled; rock fragments only
300	10	5750	sandy with rock fragments; minor brown clay
350	5	5690	dark-brown humus
400	10	5640	dark-brown clay with rock fragments
450	10	5560	medium-brown sandy clay with rock fragments
500	10	5550	greyish-brown clay with rock fragments
550	10	5500	medium-brown clay with rock fragments
600	10	5530	black humus
650	5	5510	medium-brown clayish humus
700	5	5480	dark-brown clayish humus
750	5	5450	very sandy clay with many rock fragments; beside creek
<u>H10</u>	NTS Sheet 94K/7E Bearing 227° at start; may be W of fault		
0	20	6260	grey-brown clay and slate fragments; rubble, no vegetation
50	25	6200	grey-brown clay and slate fragments
100	25	6120	brown clay and grey, buff, and black slate fragments; rubble, no vegetation
150	20	6025	brown clay and slate fragments
200	25	5960	brown clay and slate fragments
250	25	5880	brown clay and slate fragments
300	30	5780	dark-brown clay and rock fragments, some quartzite; slope mossy and grassy below

APPENDIX 1: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Elev. (ft.)	Remarks
350	20	5730	brown clay and rock fragments below humus
400	30	5720	brown clay and rock fragments
450	25	5680	brown clay and rock fragments
500	25	5620	brown clay and rock fragments; steep slope with out- crops in cliffs at both ends
550	20	5530	brown clay and rock fragments; near cliff of black flaggy siltstone with rusty-weathering bedding surfaces
600	25	5480	brown clay with rock fragments; mossy and grassy slope, few bushes
650	20	5430	brown clay with rock fragments
700	20	5380	brown clay and rock fragments below leached A ₁ horizon and 5 cm of humus
750	25	5360	brown clay and rock fragments
800	30	5350	dark-greyish-brown clay and rock fragments, some rusty; below thick black humus ends about 50' vertically above creek; average bearing for whole traverse 165°

APPENDIX 2: 1980 SOIL SAMPLE DESCRIPTIONS AND TRAVERSE NOTES

Sample numbers in each traverse are metres measured down the slope from the starting point. Soils are generally poorly developed so a description of the material sampled is given, rather than an assignment to a particular soil horizon. An effort was made to sample below the humus layer but this was not always possible.

Traverse and Sample Number	Sample Depth (cm)	Remarks
<u>M1</u>		NTS Sheet 94K/12W Bearing 175 ⁰ to West Toad River
0	20	medium- and dark-brown clay and humus with dark-brown rock fragments to 6 cm
50	30	medium-brown clay with dark-brown and dark-grey rock fragments to 4 cm
100	10	dark-brown humus with roots above layer of rock fragments
150	35	dark-grey clay with dark-brown and dark-grey rock fragments to 5 cm
200	20	dark-brown humus with roots
250	35	dark-brown humus, light-brown clay with dark- and light-brown rock fragments to 3 cm.
300	35	dark-brown humus mixed with dark-grey clay and dark-grey rock fragments to 4 cm
350	40	dark-brown humus mixed with light-brown clay and light-brown rock fragments to 40 cm
400	40	same as previous sample
450	35	dark-brown humus with light-brown clay, light-brown rock fragments to 2 cm
500	35	light-brown clay and humus with roots, light-brown rock fragments to 4 cm
550	15	dark-brown humus with roots
		Changed bearing to 200 ⁰ to by-pass cliffs
600	35	dark- and medium-brown humus and clay with dark-green rock fragments to 3 cm
650	30	light-brown clay with dark-brown and dark-green rock fragments to 6 cm
700	15	dark-brown humus with roots above layer of rock fragments
750	35	dark-brown humus and light-brown clay with dark-brown and dark-grey rock fragments to 4 cm
800	40	medium- to dark-brown humus with roots and dark-brown rock fragments to 3 cm
850	30	grey clay with light-grey rock fragments to 4 cm
900	40	grey clay, dark-brown humus, and dark-grey rock fragments to 3 cm
950	45	dark-brown humus with roots, grey clay, dark-grey rock fragments to 2 cm
1000	40	dark-brown humus with roots, grey clay streaks, dark-grey rock fragments to 2 cm
1050	35	grey clay with dark-grey rock fragments to 4 cm
1100	45	dark-brown humus with roots

Traverse and Sample Number	Sample Depth (cm)	Remarks
<u>M2</u>		NTS Sheet 94K/12W Bearing northeasterly starting at elevation about 4900 feet
0	40	grey clay with light-grey rock fragments to 3 cm
50	35	grey clay with light-brown streaks, light-grey and white rock fragments
100	30	grey clay with rusty streaks, dark-brown rock fragments to 3 cm
150	30	light-brown clay with grey streaks, dark-grey rock fragments to 2 cm
200	25	medium-brown humus with roots, dark-brown rock fragments to 2 cm
250	40	dark-brown humus with roots, rusty clay streaks
300	25	light-brown clay with grey clay streaks, dark-brown rock fragments to 3 cm
350	35	light-brown clay and humus with roots, light-brown rock fragments to 4 cm
380		running stream
400	35	light-grey clay with light-brown streaks, dark-grey rock fragments to 3 cm
450	40	grey clay with medium-brown streaks, dark-grey rock fragments
500	45	grey clay with light-brown streaks and roots
550	40	same as previous sample
600	40	light-brown and grey clay with roots, dark-brown rock fragments
650	35	light-brown and grey clay, dark-grey rock fragments
700	45	grey clay with light-brown streaks, roots, dark-grey and dark-brown rock fragments to 2 cm
750	35	same as previous sample
800	30	grey clay with roots, dark-brown and white rock fragments to 4 cm
850	40	light-brown clay with roots and dark-grey streaks, rock fragments to 3 cm
900	35	grey and light-brown clay, dark-brown and dark-grey rock fragments to 3 cm
950	20	light-brown clay with dark-brown rock fragments to 2 cm
1000	30	medium-brown clay with roots, medium- and dark-brown rock fragments to 3 cm
1050	35	dark-brown humus with roots, dark-brown rock fragments to 2 cm
1100	30	dark-brown humus with roots, medium-brown clay, dark-brown and medium-brown rock fragments
1150		lake
<u>M3</u>		NTS Sheet 94K/5E Bearing northeasterly to Toad River starting at elevation about 3700 feet
0	20	grey humus and clay with roots
50	20	medium-brown clay and humus with roots
100	30	dark-brown humus with roots
150	30	same as previous sample
200	30	medium-brown-dark-grey clay and humus with roots, grey rock fragments to 3 cm
250	20	grey clay with dark-grey rock fragments to 4 cm

APPENDIX 2: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Remarks
300	30	medium-brown clay with grey streaks, dark-brown rock fragments to 2 cm
350	30	medium-brown humus with roots, very wet
400	25	medium- and dark-brown humus with roots; running water
450	25	light-brown clay with rusty streaks, light-brown rock fragments to 3 cm
500	20	light-brown clay with rusty streaks, dark-brown rock fragments
550	40	dark-brown humus with roots
600	30	light-brown clay and humus with roots, dark-green rock fragments to 4 cm
650	30	dark-grey and dark-brown humus with roots, dark-grey rock fragments; bottom of valley, running water
700	30	light-brown humus with roots, light-brown rock fragments to 2 cm
750	25	light-brown clay with grey streaks, dark-brown pebbles to 3 cm
800	20	light-brown clay and humus with roots, rusty streaks of clay, dark-brown pebbles to 2 cm
850	20	same as previous sample
900	25	light-brown and grey clay with dark-grey rock fragments to 2 cm
950	25	rusty humus with roots, dark-rusty rock fragments to 2 cm
1000	30	light-brown clay and gravel
1050	25	dark-brown humus with roots
1100	20	light-brown clay with dark-green rock fragments to 2 cm
1150	40	medium-brown-greyish clay and humus
1200	40	same as previous sample
1250	30	grey clay with light-brown streaks
1300	25	light-brown clay with grey and rusty streaks
1350	20	light-rusty clay with dark-rusty rock fragments to 3 cm
1400	40	dark-rust humus with roots, light rusty rock fragments to 4 cm
1450	25	light-brown clay with rusty streaks, dark-brown rock fragments to 3 cm
<u>M4</u>	NTS Sheet 94K/12W	Bearing southeasterly
0	20	medium-brown clay with dark-green and dark-brown rock fragments to 3 cm
50	20	medium-brown and grey clay with dark-green and grey rock fragments to 3 cm
100	20	medium-brown clay with rusty streaks, dark-brown rock fragments to 4 cm
150	15	dark-brown clay and humus with roots, dark-brown rock fragments to 4 cm
200	25	dark-brown clay and humus with roots, dark-brown rock fragments to 3 cm
250	25	dark-brown clay and humus with roots, dark- and light-brown rock fragments to 3 cm
300	20	dark-brown humus with roots, medium-dark-brown rock fragments to 5 cm
350	30	dark-brown humus with roots and medium-brown clay, dark-brown rock fragments to 4 cm

APPENDIX 2: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Remarks
400	30	same as previous sample
450	35	dark-brown humus with roots, light-brown rock fragments to 2 cm
500	30	medium- and dark-brown humus with roots, dark-brown rock fragments to 3 cm
550	30	medium-brown and rusty clay and humus with roots, dark-rusty rock fragments to 3 cm
600	25	medium- to dark-brown clay and humus with roots, dark-brown and dark-grey rock fragments to 4 cm
650	25	dark-brown humus with roots, dark-brown rock fragments to 3 cm
700	25	medium-brown clay and humus with roots and rusty clay streaks, dark-brown and rusty rock fragments to 3 cm
750	20	medium-brown and dark-brown clay and humus with roots, dark-brown and dark-rust rock fragments to 5 cm
800	35	medium-brown clay and humus with roots and rusty clay streaks, dark-brown rock fragments to 3 cm
850	25	medium- and dark-brown humus with roots, medium- and dark-brown rock fragments to 2 cm
900	25	medium- and dark-brown clay and humus with roots, dark-brown and dark-green rock fragments to 3 cm
<u>M5</u>		NTS Sheet 94K/5E Bearing southwesterly to Toad River starting at elevation about 4200 feet
0	35	dark-brown humus with roots and grey clay, dark-grey rock fragments to 3 cm
50	35	dark-brown humus with roots
100	35	dark-brown humus with roots and streaks of medium-brown clay, medium-brown rock fragments to 3 cm
150	30	medium- and dark-brown humus with roots
200	35	medium- and dark-brown humus with roots, dark-brown rock fragments to 4 cm
250	35	medium-brown clay with roots, medium-brown rock fragments to 3 cm
300	35	same as previous sample
350	40	light-brown rusty clay and humus with roots, dark-brown rust rock fragments to 2 cm
400	25	light-brown clay, dark-brown humus streaks with roots, dark-brown and dark-grey rock fragments to 2 cm
450	40	medium- and dark-brown humus with roots
500	30	light-brown clay and humus with roots, dark-brown and dark-grey rock fragments to 4 cm
550	40	dark-brown and dark-rusty humus with roots, dark-brown and rusty rock fragments to 3 cm
600	35	rusty clay and humus with roots, dark-rust rock fragments to 3 cm
650	35	light-brown humus with roots, dark-grey and dark-brown rock fragments to 5 cm
700	30	same as previous sample
750	35	light-brown clay and humus with rusty clay streaks, dark-brown and dark-rusty rock fragments to 2 cm

APPENDIX 2: CONTINUED

Traverse and Sample Number	Sample Depth (cm)	Remarks
800	25	dark-brown and rusty humus with roots
850	20	rusty clay and humus with roots, dark-brown rock fragments to 2 cm
900	25	medium-brown rusty clay and humus with roots, dark-grey and dark-rusty rock fragments to 4 cm
920		running stream
950	25	medium-brown clay and humus with roots

H11 NTS Sheet 94K/11W Geological notes on part of Aida Formation north of Davis-Keays Camp down small tributary creek flowing into east side of Cariboo Creek, which in turn is a tributary of Yedhe Creek

Creek coincides approximately with surface trace of a fault with fault breccia from 5400' to 4800' at least; offset of Carbonaceous Member indicates possible displacement N side up

Elev. 5360' stratigraphically above Carbonaceous Member on N side of creek, attitude of bedding $323^{\circ}/38^{\circ}$ NE; attitude of cleavage $305^{\circ}/54^{\circ}$ SW; large blocks of fault breccia in creek bed

Elev. 5220' black argillite and siltstone in Carbonaceous Member, veined with greenish-weathering rock, sparse sulfides locally, attitude of bedding $345^{\circ}/27^{\circ}$ NE; breccia zone strikes 40°

Elev. 5200' black argillite and siltstone in Carbonaceous Member, sparse pyrite and chalcopyrite along fractures, locally carbonaceous

Elev. 5080' Chamosite Member, green siltstone with minor grey carbonate and black argillite, few disseminated sulfides along fractures

Elev. 4940' block 2 m x 1 m of chamosite rock in breccia

Elev. 4780' stromatolitic limestone layer

Elev. 4390' dark-grey and buff weathering dolomite ribbons 2-3 cm thick, attitude $190^{\circ}/40^{\circ}$ E

Elev. 4310' road

H12 NTS Sheet 94K/11W Geological notes on part of Aida Formation on first ridge east of the one explored underground by Davis-Keays east of Cariboo Creek. Traverse H12 coincides in part with geo-chemical traverse B2 of 1979.

Elev. 5460' Bulldozed trail from valley to west crosses ridge at Carbonaceous Member and continues down into valley of Yedhe Creek to east; black argillite with no visible sulfides

APPENDIX 2: CONTINUED

Three geochemical soil samples

- B1-1 at saddle along ridge about 15 m N of bulldozed trail; grey-brown clay with few rock fragments at depth of 25 cm
- B1-2 10 m N of B1-1; grey-brown clay with few rusty rock fragments at depth of 20 cm
- B1-3 about 80 m N of B1-2 in second low spot in saddle; basic dyke between B1-2 and B1-3; grey-brown clay with few rusty rock fragments at depth of 30 cm
- Elev. 5380' north of hollow on ridge - Chamosite Member; attitude of cleavage $300^{\circ}/36^{\circ}$ SW
about 50 m farther N - interbedded argillite and dolomite with dolomite layers 1-2 cm thick; attitude of bedding $60^{\circ}/36^{\circ}$ SE
next dip in ridge - grey slate followed by dark-grey to black slate
- Elev. 5400' grey and green slate similar to chamosite slate noted previously; attitude of cleavage $305^{\circ}/44^{\circ}$ SW
- Farther north at high point on ridge - interbedded grey slate and dolomite in layers to 10 cm thick
- Below high point on E side - black slate about 20 m thick with no rust nor sulfides; grey slate below
- Elev. 5240' N of high point on ridge - dark-grey to black slate with no rust, few interbedded dolomite beds; attitude of bedding $0^{\circ}/5^{\circ}$ E, attitude of cleavage $315^{\circ}/42^{\circ}$ SW
- H13 NTS Sheet 94K/12E Geological notes on part of Lower Member of Aida Formation on ridge extending SW from confluence of Cariboo and Yedhe Creeks; overlaps and extends north of Traverse H1 of 1979. Traverse starts at elevation 6810' at high point on north end of ridge and extends southerly along ridge. Measurements are along the ridge. Contact between Aida and underlying Tuchodi Formations is at base of north end of ridge where it is covered: GSC Map 1343A requires revision there.
- 0-134 m buff-grey-weathering slate, light-grey on fresh surface, slightly limy; attitude of bedding $275^{\circ}/47^{\circ}$ N; attitude of cleavage $30^{\circ}/45^{\circ}$ SW
105 m few dolomite interbeds 10 to 15 cm thick
- 134-175 m slate as previous with moderate amount of interbedded buff-weathering dolomite
145 m siliceous dolomite
- 175-188 m buff-grey slaty limestone, dark-grey on fresh surface
- 188-205 m slate with up to 50 per cent dolomite in beds 10 to 15 cm thick
- 205-218 m grey slate with dolomite interbeds

APPENDIX 2: CONTINUED

- 218-266 m mostly dolomitic slate, dolomite lenses to 4 cm thick by $\frac{1}{2}$ m long separated by argillaceous partings to $\frac{1}{2}$ cm thick; few intervals of grey slate
- 266-272 m buff-grey slate; attitude of cleavage $325^{\circ}/61^{\circ}$ SW
- 272-282 m grey slate with about 50 per cent interbedded dolomite, attitude of bedding $160^{\circ}/77^{\circ}$ E
- 297-337 m slate with conspicuous interbedded dolomite
- 360-421 m slate with much interbedded dolomite
- 421-655 m buff-grey slate; attitude of cleavage $295^{\circ}/54^{\circ}$ SW
519 m attitude of bedding $10^{\circ}/28^{\circ}$ E
- 655-663 m black slate and interbedded dark-grey buff-brown-weathering limestone; attitude of cleavage $285^{\circ}/38^{\circ}$ SW
- Elev. 6800' on high knob part way S along ridge
- 663-709 m grey slate
- 709-770 m dark-grey slate; attitude of cleavage $305^{\circ}/48^{\circ}$ SW
- 770-890 m buff-grey slate
- 890-895 m dark-grey to black slate at low point along ridge
- 908 m black slate about 2 m thick in buff-grey slate
- 944 m quartz vein 10 cm thick, no sulfides
- 960 m quartz vein 20 cm thick at low point in ridge
- 1020-1032 m dark-grey to black slate, attitude of cleavage $300^{\circ}/40^{\circ}$ SW
- 1100 m interbedded dolomite and grey slate
- 1135 m attitude of bedding $305^{\circ}/30^{\circ}$ SW

H14 NTS Sheet 94K/12E Down creek just east of H1 traverse

Elev. 5680'-5500' 0-530 m

Numerous blocks of float of black argillite with no visible sulfides

Elev. 5350' 650 m large blocks of limestone in creek bed

Elev. 5240' 753 m outcrops of massive dolomite with beds 30 to 40 cm; attitude of bedding $300^{\circ}/22^{\circ}$ SW; gradient of creek decreases below layer of massive dolomite

Elev. 5030' 1033 m end of traverse

APPENDIX 3: CERTIFICATES OF ANALYSIS
FOR GEOCHEMICAL SOIL SAMPLES



CALGARY 2021 - 41 AVE. N.E. CALGARY, CANADA T2E 6P2
TELEPHONE (403) 276-9627 TELEX 038-25541
EDMONTON 6112 DAVIES ROAD, EDMONTON, CANADA T6E 4M9
TELEPHONE (403) 465-9877 TELEX 037-41596

CERTIFICATE OF ANALYSIS

- MINERAL
- GAS
- WATER
- OIL
- SOILS
- VEGETATION
- ENVIRONMENTAL ANALYSIS

HALFERIAHL & ASSOCIATES LTD

DATE

2-NOV-79

PROJECT NO.

763-1-1360

GEOCHEMICAL ANALYSIS

PAGE: 1 OF 2

SAMPLE NUMBER	CU PPM
D1-0	21
D1-25	15
50	31
75	27
100	25
125	24
150	27
175	21
200	18
225	22
250	24
275	13
300	38
325	18
350	16
375	24
400	23
425	19
450	22
475	19
500	35
525	21
550	14
575	32
600	18
625	26
650	25
675	21
700	11
T1-0	9
50	7
100	7
150	5
200	5
250	2
300	4
350	4
400	5
450	5



Certified by *[Signature]*



CALGARY 2021 - 41 AVE. N.E. CALGARY, CANADA T2E 6P2
TELEPHONE (403) 276-9627 TELEX 038-25541

EDMONTON 6112 DAVIES ROAD, EDMONTON, CANADA T6E 4M9
TELEPHONE (403) 465-9877 TELEX 037-41596

CERTIFICATE OF ANALYSIS

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- GAS
- WATER
- OIL
- SOILS
- VEGETATION
- ENVIRONMENTAL ANALYSIS

HALFERDAHL & ASSOCIATES LTD

DATE

2-NOV-79

PROJECT NO.

763-1-136

GEOCHEMICAL ANALYSIS

PAGE: 2 OF 2

SAMPLE NUMBER	CU PPM
500	8
550	2
600	2
650	3
Y1-0	49
50	44
100	21
150	29
200	19
250	10
300	19
350	23
400	17
450	16
500	18
550	29
600	27
650	12
700	12
750	14
800	13
Y2-0	12
50	16
100	10
150	9
200	8
250	14
300	7
350	15
400	6



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 TELEPHONE: ~~235-2222~~ 984-0221
 AREA CODE: 604
 TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: Halferdahl & Assoc.
 18, 10509-81 Ave.
 Edmonton, Alta.

CERTIFICATE NO. 49788
 INVOICE NO. 32087
 RECEIVED Aug. 17/79
 ANALYSED Aug. 22/79

ATTN:

SAMPLE NO. :	PPM
R - 0	16
50	16
150	58
200	20
250	16
300	22
350	30
400	110
R - 500	62
R1 - 0	10
50	26
100	18
150	8
250	22
300	6
350	16
400	6
450	8
500	4
600	12
650	4
R1 - 700	10
R2 - 0	20
50	12
100	10
150	18
200	16
250	12
300	12
350	18
400	22
450	14
500	12
550	16
600	12
650	24
700	18
R2 - 750	16
R3 - 0	12
R3 - 50	16



MEMBER
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CERTIFIED BY: *J. F. Macdonald*



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ATTN:

SAMPLE NO. :	PPM
	Cu
R3 - 100	14
150	18
200	28
250	22
300	12
350	28
400	26
450	16
500	24
550	16
600	12
650	10
700	10
750	8
800	10
850	14
900	10
950	10
1000	14
R3 - 1050	16
R4 - 0	12
50	14
100	8
150	12
200	10
250	6
300	6
350	6
400	12
450	14
500	10
550	10
600	2
650	4
700	2
750	2
800	8
R4 - 850	2
R5 - 0	6
R5 - 50	10



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CERTIFICATE NO. 49790
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ATTN:

SAMPLE NO. :	PPM
	Cu
R5 - 100	6
150	12
200	10
300	14
350	30
400	10
450	6
500	10
550	8
600	6
650	22
700	8
750	22
800	12
900	8
950	16
R5 - 1000	16
B1 - 0	12
50	14
100	16
150	18
200	22
250	26
300	10
350	28
400	24
450	58
500	40.
550	20
600	16
650	14
700	124
750	66
B1 - 800	28
B2 - 0	14
50	30
100	32
150	56
200	34
B2 - 250	315



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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 49791

TO: Halferdahl & Assoc.
 18, 10509-81 Ave.
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INVOICE NO. 32087

RECEIVED Aug. 17/79

ATTN:

ANALYSED Aug. 22/79

SAMPLE NO. :	PPM
	Cu
B2 - 300	28
350	34
400	380
800	62
850	34
900	14
1000	16
1050	18
1100	12
1150	18
1200	14
1250	20
1350	56
1400	290
1450	12
1500	24
1550	36
1600	210
1650	20
1700	16
1750	14
1800	10
1850	8
B2 - 1950	12
B3 - 0	34
50	14
100	16
150	16
200	18
250	20
300	18
400	36
450	32
500	32
B3 - 550	38
B4 - 0	22
50	26
100	20
150	14
B4 - 200	18



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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 49792

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 Edmonton, Alta.

INVOICE NO. 32087

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ATTN:

ANALYSED Aug. 22/79

SAMPLE NO. :	PPM
	Cu
B4 - 250	16
300	14
350	12
400	24
450	26
500	24
550	16
600	30
650	20
700	22
750	18
800	18
850	22
900	54
950	14
B4 - 1000	20
B5 - 0	14
50	12
100	18
150	54
200	22
250	20
300	10
350	16
400	10
450	18
500	16
B5 - 550	20
B6 - 0	12
50	16
100	22
150	22
200	14
250	14
300	14
350	30
400	20
450	20
500	22
B6 - 550	16



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Edmonton, Alta.

CERTIFICATE NO. 49793

INVOICE NO. 32087

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ANALYSED Aug. 22/79

ATTN:

SAMPLE NO. :	PPM
	Cu
B6 - 600	26
650	20
700	14
750	18
800	16
850	26
900	22
950	24
1000	30
1050	18
B6 - 1100	16
H1 - 0	44
50	40
100	62
125	38
150	270
200	48
250	166
300	22
400	26
H1 - 750	28
H2 - 0	88
50	44
100	58
150	42
200	44
250	46
300	38
350	48
400	42
450	16
500	42
550	40
600	30
650	34
700	130
750	22
800	80
850	32
H2 - 900	16



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CERTIFICATE NO. 49794
 INVOICE NO. 32087
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 ANALYSED Aug. 22/79

ATTN:

SAMPLE NO. :	PPM
	Cu
H2 - 950	30
1000	46
1050	24
1100	34
1150	36
1200	22
1250	28
1300	44
1350	18
1400	34
1450	54
1500	100
1550	60
1600	68
H2 - 1650	74
H3 - 0	30
50	30
100	32
150	48
200	38
250	26
300	36
350	26
400	28
450	30
500	22
550	20
600	24
650	34
700	24
750	18
800	18
850	18
900	14
950	14
1000	14
1050	72
1100	70
1150	66
H3 - 1200	102



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 AREA CODE: 604
 TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO: Halferdahl & Assoc.
 18, 10509-81 Ave.,
 Edmonton, Alta.

CERTIFICATE NO. 49795

INVOICE NO. 32087

RECEIVED Aug. 17/79

ATTN:

ANALYSED Aug. 22/79

SAMPLE NO. :	PPM
	Cu
H3 - 1250	42
H3 - 1300	102
H4 - 0	32
50	28
100	24
150	28
200	22
250	22
300	24
350	40
400	28
450	22
500	22
550	24
600	22
650	20
700	26
750	26
800	22
850	24
900	24
950	22
1000	28
1050	36
1100	28
1150	36
1200	42
1250	34
1300	24
1350	38
H4 - 1400	36
H5 - 0	12
50	16
100	10
150	20
200	12
250	26
300	14
350	10
H5 - 400	10



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CERTIFIED BY:

J. F. Halferdahl



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 AREA CODE: 604
 TELEX: 043-52597

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TO: Halferdahl & Assoc.
 18, 10509-81 Ave.
 Edmonton, Alta.

CERTIFICATE NO. 49796
 INVOICE NO. 32087
 RECEIVED Aug. 17/79
 ANALYSED Aug. 22/79

ATTN:

SAMPLE NO. :	PPM
	Cu
H5 - 500	16
550	20
H5 - 600	14
H6 - 0	30
50	30
100	14
150	16
200	18
250	18
300	18
350	20
400	14
450	20
500	20
550	14
600	8
H6 - 650	10
R6 - 0	16
50	18
100	20
150	20
200	20
250	18
300	20
350	18
400	20
R6 - 450	20
R7 - 0	18
50	16
100	18
150	32
200	10
250	10
300	12
350	86
400	12
450	8
500	28
550	34
R7 - 600	16



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TO: Halferdahl & Assoc.
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CERTIFICATE NO. 49798
 INVOICE NO. 32087
 RECEIVED Aug. 17/79
 ANALYSED Aug. 22/79

ATTN:

SAMPLE NO. :	PPM
	Cu
B8 - 500	54
550	56
600	34
650	52
700	74
B8 - 750	42
B9 - 0	22
50	18
100	18
150	18
200	61
250	12
300	18
350	12
400	10
450	16
500	14
550	14
600	14
B9 - 650	18
H7 - 25	12
50	12
100	18
150	14
200	12
250	14
300	10
350	12
400	10
450	10
H7 - 500	12
H9 - 0	22
50	36
100	32
150	26
200	22
250	20
300	16
350	30
H9 - 400	22



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D. F. Windsor



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AREA CODE: 604
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO: Halferdahl & Assoc. Ltd.
Dept. 18
10509 - 81st Ave.
Edmonton, Alta. T6E 1X7

ATTN:

CERTIFICATE NO. 49842
INVOICE NO. 32125
RECEIVED Aug. 17/79
ANALYSED Aug. 24/79

SAMPLE NO. :	PPM
	Cu
R9-0	26
50	24
100	46
150	20
200	18
250	26
300	22
350	24
400	20
450	16
500	24
550	22
650	18
900	28
950	14
R9-1000	12
B10-0	28
50	40
100	34
150	20
300	38
350	28
400	26
450	20
500	16
550	20
600	26
650	14
700	34
B10-750	40
H10-0	26
50	28
100	30
150	38
200	24
250	34
300	38
350	16
H10-400	20



MEMBER
CANADIAN TESTING
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CERTIFIED BY: *Hart Biddle*



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 035-0648 984-0221
AREA CODE: 604
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO: Halferdahl & Assoc. Ltd.,
Dept. 18
10509 - 81st Ave.,
Edmonton, Alta.
ATTN: T6E 1X7

CERTIFICATE NO. 50709
INVOICE NO. 32867
RECEIVED September 20, 1979
ANALYSED September 26, 1979

SAMPLE NO. :	PPM Pb	PPM Zn	PPM Ag	PPM Co	
R 350	10	60	0.1	16	
400	8	60	0.1	40	
R 500	8	96	0.1	66	From Geochem Certificate #49788-99
BI 650	12	42	0.1	12	
700	10	40	0.1	14	
750	8	40	0.1	14	
BI 800	12	44	0.1	14	
B2 150	6	34	0.1	16	
200	14	50	0.1	16	
250	56	26	0.1	14	
300	12	42	0.1	16	
350	8	36	0.1	12	
400	6	20	0.1	18	
1350	14	30	0.1	14	
1400	34	26	0.1	78	
1450	14	42	0.1	6	
1500	12	56	0.1	10	
1550	24	90	0.1	14	
1600	20	68	0.1	16	
B2 1650	6	34	0.1	8	
HI 100	104	46	0.1	16	
125	16	104	0.1	8	
150	32	280	0.1	86	
200	10	68	0.1	24	
250	8	30	0.1	44	
HI 300	2	34	0.1	30	
H2 650	30	54	0.2	18	
700	6	68	0.1	44	
750	12	42	0.1	16	
800	6	30	0.1	14	
850	22	56	0.2	10	
1300	22	72	0.2	10	
1350	8	50	0.1	8	
1400	14	86	0.1	14	
1450	8	68	0.1	12	
1500	12	82	0.1	20	
1550	10	58	0.1	16	
1600	10	68	0.1	20	
H2 1650	10	74	0.1	16	
H3 1000	6	42	0.1	8	



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Hart Biddle



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AREA CODE: 604
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CERTIFICATE OF ANALYSIS

TO: Halferdahl & Assoc. Ltd.,
Dept. 18
10509 - 81st Ave.,
Edmonton, Alta.
ATTN: T6E 1X7

CERTIFICATE NO. 50710
INVOICE NO. 32867
RECEIVED September 20, 1979
ANALYSED September 26, 1979

SAMPLE NO. :	PPM Pb	PPM Zn	PPM AgI	PPM Co	
H3 1050	8	56	0.1	38	From Geochem Certificate 49788-99
1100	14	58	0.1	36	
1150	8	60	0.1	34	
1200	8	62	0.1	32	
1250	10	98	0.1	30	
H3 1300	8	66	0.1	20	
R7 0	10	68	0.1	12	
50	16	64	0.1	12	
100	4	42	0.1	6	
150	10	192	0.1	10	
200	22	54	0.1	8	
250	16	94	0.2	8	
300	12	122	0.1	6	
350	16	220	0.1	8	
400	14	154	0.1	6	
450	8	148	0.1	4	
500	14	186	0.1	16	
550	14	230	0.1	12	
600	12	74	0.1	8	
650	6	44	0.1	4	
700	18	106	0.1	10	
R7 750	14	112	0.1	8	
B8 0	10	90	0.2	20	
50	6	108	0.1	40	
100	10	80	0.1	40	
150	6	46	0.1	8	
200	16	64	0.1	12	
250	28	86	0.1	12	
300	20	76	0.1	8	
350	28	88	0.1	12	
400	24	92	0.1	14	
450	24	96	0.1	10	
500	26	108	0.1	10	
550	20	96	0.1	12	
600	20	120	0.1	16	
650	26	160	0.1	16	
700	24	104	0.1	18	
B8 750	8	34	0.1	8	
B9 100	20	54	0.1	10	
B9 150	20	56	0.1	12	



MEMBER
CANADIAN TESTING
ASSOCIATION

CERTIFIED BY: *Hart Biele*



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
 NORTH VANCOUVER, B.C.
 CANADA V7J 2C1
 TELEPHONE: 985-6645 934-0221
 AREA CODE: 604
 TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: Halferdahl & Assoc. Ltd.,
 Dept. 18
 10509 - 81st Ave.,
 Edmonton, Alta.
 ATTN: T6E 1X7

CERTIFICATE NO. 50711
 INVOICE NO. 32867
 RECEIVED September 20, 1979
 ANALYSED September 26, 1979

SAMPLE NO. :	PPM	PPM	PPM	PPM
	Pb	Zn	Ag	Co
B9 200	22	84	0.1	14
B9 250	26	56	0.1	10
H9 350	14	74	0.1	10
400	20	90	0.1	10
450	16	114	0.2	8
H9 500	14	56	0.1	10

From Geochem Certificate #49788 - 49799



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 ASSOCIATION

CERTIFIED BY: *Hart Bielle*



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-6648 984-0221
AREA CODE: 604
TELEX: 043-52597

- ANALYTICAL CHEMISTS
- GEOCHEMISTS
- REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: Halferdahl & Assoc. Ltd.
Dept. 18
10509 - 81st Ave.
Edmonton, Alta.
ATTN: T6E 1X7

CERTIFICATE NO. 51425
INVOICE NO. 33789
RECEIVED November 7, 1979
ANALYSED November 12, 1979

SAMPLE NO. :	PPM	
	Pb	Zn
B1 - 0	6	40
50	10	22
100	10	24
150	10	32
200	10	32
250	8	34
300	10	32
350	14	36
400	14	38
450	14	42
500	12	42
550	10	38
B1 - 600	10	36
B2 - 0	20	48
50	12	36
100	8	32
800	12	52
850	6	46
900	10	46
1000	10	38
1050	12	38
1100	14	30
1150	20	62
1200	12	36
1250	18	42
1700	10	36
1750	14	46
1800	12	20
1850	8	26
B2 - 1950	10	24
B3 - 0	34	56
50	10	52
100	10	32
150	10	36
200	8	36
250	18	42
300	20	36
400	18	50
450	14	78
B3 - 500	16	52

From Geo #49790 & 49791



MEMBER
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ASSOCIATION

CERTIFIED BY: *[Signature]*



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 9[REDACTED] 984-0221
AREA CODE: 604
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 51426

TO: Halferdahl & Assoc. Ltd.
Dept. 18
10509 - 81st Ave.
Edmonton, Alta.
ATTN: T6E 1X7

INVOICE NO. 33789

RECEIVED November 7, 1979

ANALYSED November 12, 1979

SAMPLE NO. :	PPM Pb	PPM Zn	PPM Co
B3 - 550	18	48	
B4 - 0	16	82	
50	16	52	
100	20	60	
150	16	58	
200	14	68	
250	14	78	
300	12	112	
350	14	74	
400	18	62	
450	18	52	
500	26	52	
550	12	108	From Geo # 49791 & 49792
600	14	156	
650	16	68	
700	20	88	
750	14	48	
800	18	108	
850	14	58	12
900	10	78	6
950	14	52	10
B4 - 1000	18	50	8
B5 - 0	10	46	
50	10	34	
100	12	30	10
150	16	40	8
200	10	36	6
250	16	42	
300	16	42	
350	14	36	
400	14	38	
450	10	46	
500	12	32	
B5 - 550	14	126	
B6 - 0	20	42	
50	18	42	
100	16	54	
150	16	38	
200	14	36	
B6 - 250	14	54	



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ASSOCIATION

CERTIFIED BY: *J. G. Halferdahl*



CHEMEX LABS LTD.

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 CANADA V7J 2C1
 TELEPHONE: - 985-6622 984-0221
 AREA CODE: 604
 TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO: Halferdahl & Assoc. Ltd.
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 Edmonton, Alta.
 ATTN: t6e LX7

CERTIFICATE NO. 51427
 INVOICE NO. 33789
 RECEIVED November 7, 1979
 ANALYSED November 12, 1979

SAMPLE NO. :	PPM	PPM
	Pb	Zn
B6 - 300	10	48
350	16	34
400	20	58
450	20	54
500	14	46
550	14	52
600	12	36
650	14	40
700	12	44
750	14	48
800	10	38
850	12	42
900	14	48
950	12	54
1000	24	64
1050	4	52
B6 - 1100	14	62
B7 - 0	22	48
50	12	44
100	16	46
150	14	44
200	10	50
250	16	58
300	14	48
350	10	40
400	12	44
450	8	40
500	6	44
550	16	64
600	16	54
650	12	46
750	10	82
800	10	44
850	12	88
900	18	305
950	16	98
B7 - 1000	18	545
B9 - 0	22	42
50	24	86
B9 - 300	22	78

From Geo # 49792, 49793, 49797, 49798



MEMBER
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 ASSOCIATION

CERTIFIED BY: *D. F. [Signature]*



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
 NORTH VANCOUVER, B.C.
 CANADA V7J 2C1
 TELEPHONE: 964-0221
 AREA CODE: 604
 TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO: Halferdahl & Assoc. Ltd.
 Dept. 18
 10509 - 81st Ave.
 Edmonton, Alta.
 ATTN: T6E 1X7

CERTIFICATE NO. 51428
 INVOICE NO. 33789
 RECEIVED November 7, 1979
 ANALYSED November 12, 1979

SAMPLE NO. :	PPM Pb	PPM Zn
B9 - 350	16	54
400	24	72
450	16	72
500	20	52
550	20	62
B9 - 600	12	58
B9 - 650	16	44
R - 0	10	74
50	10	82
150	8	50
200	8	62
250	6	34
R - 300	10	48
R1 - 0	10	24
50	8	18
R1 - 100	12	40
R2 - 0	16	64
50	14	54
100	20	116
150	16	158
200	16	68
250	10	56
300	10	62
350	18	54
400	14	48
450	12	44
500	12	54
550	14	46
600	14	40
650	42	58
700	8	36
R2 - 750	10	88
R3 - 0	12	56
50	10	58
100	14	56
150	10	68
200	16	142
250	16	56
300	12	52
R3 - 350	14	64

From Geo # 49798, 49788, 49789



MEMBER
 CANADIAN TESTING
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CERTIFIED BY: *D. F. Halferdahl*



CHEMEX LABS LTD.

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 TELEPHONE: 984-0221
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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 51429

TO: Halferdahl & Assoc. Ltd.
 Dept. 18
 10509 - 81st Ave.
 Edmonton, Alta.
 ATTN: T6E 1X7

INVOICE NO. 33789

RECEIVED November 7, 1979

ANALYSED November 12, 1979

SAMPLE NO. :	PPM	
	Pb	Zn
R3 - 400	16	72
450	12	60
500	10	120
550	12	48
600	10	42
650	10	34
700	10	28
750	8	26
800	10	28
850	10	32
900	10	32
950	10	36
1000	14	42
R3 - 1050	12	44
R4 - 0	12	44
50	16	46
100	10	40
150	12	34
200	10	38
250	10	28
300	10	24
350	14	26
400	10	32
450	12	38
500	12	30
550	12	38
600	2	8
650	4	12
700	4	14
750	6	12
800	4	16
R4 - 850	6	12
R6 - 0	16	58
50	20	68
100	18	70
150	16	110
200	20	148
250	14	128
300	14	54
R6 - 350	12	62

From Geo # 49789, 49796



MEMBER
 CANADIAN TESTING
 ASSOCIATION

CERTIFIED BY: *J. F. Halferdahl*



CHEMEX LABS LTD.

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

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CERTIFICATE OF ANALYSIS

TO: Halferdahl & Assoc. Ltd.
 Dept. 18
 10509 - 81st Ave.
 Edmonton, Alta.
 ATTN: T6E 1X7

CERTIFICATE NO. 51430
 INVOICE NO. 33789
 RECEIVED November 7, 1979
 ANALYSED November 12, 1979

SAMPLE NO. :	PPM	
	Pb	Zn
R6 - 400	14	90
R6 - 450	16	88
H1 - 0	30	192
50	24	140
400	10	54
H1 - 750	12	54
H2 - 0	72	164
50	36	82
100	28	68
150	44	114
200	32	92
250	24	84
300	10	50
350	36	178
400	54	146
450	20	380
500	24	112
550	32	48
600	26	58
900	10	52
950	26	40
1000	18	58
1050	14	56
1100	14	40
1150	24	38
1200	14	70
H2 - 1250	16	72
H3 - 0	18	54
50	18	48
100	22	52
150	28	48
200	24	60
250	20	68
300	20	68
350	22	64
400	16	50
450	12	44
500	10	40
550	12	52
H3 - 600	16	50

From Geo # 49796, 49793, 49794



MEMBER
 CANADIAN TESTING
 ASSOCIATION

CERTIFIED BY:

J. F. [Signature]



CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 51431

TO: Halferdahl & Assoc. Ltd.
Dept.18
10509-81st Ave.
Edmonton, Alta.

INVOICE NO. 33789

RECEIVED Nov.7/79

ATTN: T6E 1X7

ANALYSED Nov.12/79

SAMPLE NO.	PPM	
	Pb	Zn
H3 650	20	36
700	14	38
750	14	32
800	16	42
850	14	38
900	16	54
H3 950	12	44
H4 0	28	98
50	26	106
100	20	78
150	20	84
200	16	78
250	18	96
300	18	94
350	54	96
400	24	100
450	16	74
500	18	64
550	14	78
600	14	94
650	18	68
700	14	82
750	12	68
800	14	66
850	12	76
900	8	64
950	20	78
1000	20	76
1050	12	58
1100	16	68
1150	16	64
1200	14	78
1250	16	80
1300	10	62
1350	14	72
H4 1400	22	102
H6 0	30	140
50	26	82
100	14	46
H6 150	14	64



MEMBER
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ASSOCIATION

CERTIFIED BY: *D. G. Waldman*



CHEMEX LABS LTD.

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

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 51432
INVOICE NO. 33789
RECEIVED November 7, 1979
ANALYSED November 12, 1979

TO: Halferdahl & Assoc. Ltd.
Dept. 18
10509 - 81st Ave
Edmonton, Alta.
ATTN: T6E 1X7

SAMPLE NO.	PPM	
	Pb	Zn
H6 - 200	14	70
250	10	58
300	14	68
350	14	64
400	12	58
450	16	64
500	16	118
550	18	72
600	8	28
H6 - 650	16	36
H9 - 0	12	44
50	16	34
100	16	58
150	14	64
200	16	62
250	16	58
300	14	48
550	16	42
600	26	46
650	22	78
H9 - 700	28	82
From Geo # 49796, 49798, 49799		



MEMBER
CANADIAN TESTING
ASSOCIATION

CERTIFIED BY: *D. G. Macdonald*



CALGARY 2021 - 41 AVE. N.E. CALGARY, CANADA T2E 6P2
TELEPHONE (403) 276-9627 TELEX 038-255-41
EDMONTON 6112 DAVIES ROAD, EDMONTON, CANADA T6E 4M9
TELEPHONE (403) 485-9877 TELEX 037-41596

CERTIFICATE OF ANALYSIS

• MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

HALFERDAHL AND ASSOCIATES

DATE OCT.10/80

GEOCHEM ANALYSIS

PROJECT NO. 963-1-12

LOCATION	CU PPM	FB PPM	NI PPM	ZN PPM
M1- 0	17.0	17.0	14.0	70.0
50	17.0	13.0	12.0	51.0
100	9.0	4.0	4.0	32.0
150	27.0	13.0	14.0	54.0
200	21.0	9.0	8.0	44.0
250	24.0	13.0	12.0	71.0
300	25.0	13.0	12.0	66.0
350	20.0	13.0	13.0	64.0
400	29.0	14.0	11.0	66.0
450	20.0	12.0	10.0	61.0
500	21.0	18.0	11.0	80.0
550	6.0	3.0	2.0	30.0
600	26.0	22.0	16.0	81.0
650	25.0	20.0	14.0	70.0
700	7.0	5.0	3.0	77.0
750	16.0	18.0	11.0	78.0
800	35.0	22.0	15.0	86.0
850	36.0	24.0	28.0	94.0
900	15.0	7.0	20.0	85.0
950	10.0	7.0	15.0	55.0
1000	19.0	7.0	15.0	61.0
1050	13.0	9.0	15.0	80.0
1100	16.0	5.0	8.0	66.0
M2- 0	7.0	3.0	9.0	34.0
50	7.0	4.0	10.0	38.0
100	8.0	4.0	10.0	39.0
150	8.0	7.0	10.0	38.0
200	11.0	10.0	12.0	42.0
250	15.0	11.0	15.0	52.0
300	10.0	6.0	12.0	44.0
350	6.0	8.0	13.0	47.0
400	6.0	4.0	8.0	36.0
450	5.0	4.0	9.0	36.0
500	7.0	5.0	10.0	38.0
550	5.0	6.0	6.0	26.0
600	5.0	7.0	7.0	33.0
650	6.0	5.0	8.0	33.0
700	7.0	4.0	7.0	31.0
750	7.0	10.0	8.0	34.0
800	6.0	6.0	7.0	35.0



Certified by *[Signature]*



CALGARY 2021 - 41 AVE. N.E. CALGARY, CANADA T2E 6P2
 TELEPHONE (403) 278-9627 TELEX 038-25541
 EDMONTON 8112 DAVIES ROAD, EDMONTON, CANADA T6E 4M9
 TELEPHONE (403) 485-9877 TELEX 037-41598

CERTIFICATE OF ANALYSIS

MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

HALFDIAHL AND ASSOCIATES

DATE OCT.10/80

GEOCHEM ANALYSIS

PROJECT NO. 963-1-1251

LOCATION	CU PPM	PB PPM	NI PPM	ZN PPM
M2- 850	17.0	9.0	11.0	34.0
900	10.0	19.0	6.0	29.0
950	26.0	20.0	15.0	36.0
1000	12.0	7.0	7.0	36.0
1050	10.0	11.0	11.0	90.0
1100	22.0	18.0	12.0	66.0
M3- 0	20.0	14.0	16.0	50.0
50	25.0	19.0	21.0	67.0
100	11.0	7.0	7.0	60.0
150	9.0	5.0	5.0	55.0
200	31.0	26.0	26.0	104.0
250	27.0	22.0	21.0	69.0
300A omit	18.0	9.0	9.0	66.0
300B M4-300	10.0	16.0	12.0	55.0
300C	28.0	25.0	24.0	70.0
350	30.0	26.0	28.0	83.0
400	22.0	20.0	20.0	74.0
450	9.0	21.0	16.0	115.0
500	5.0	8.0	11.0	64.0
550	37.0	13.0	15.0	48.0
600	7.0	15.0	9.0	46.0
650	15.0	12.0	13.0	48.0
700	7.0	12.0	14.0	54.0
750	7.0	8.0	11.0	55.0
800	6.0	15.0	16.0	96.0
850	7.0	13.0	13.0	68.0
900	9.0	11.0	10.0	57.0
950	8.0	14.0	11.0	69.0
1000	11.0	27.0	12.0	40.0
1050	6.0	2.0	2.0	10.0
1100	22.0	20.0	22.0	69.0
1150	15.0	14.0	18.0	52.0
1200	13.0	13.0	14.0	53.0
1250	32.0	29.0	27.0	101.0
1300	27.0	27.0	26.0	74.0
1350	7.0	15.0	13.0	68.0
1400	8.0	19.0	14.0	156.0
1450	10.0	17.0	16.0	64.0
M4- 0	25.0	16.0	21.0	80.0
50	11.0	18.0	9.0	24.0



Certified by *AAH*



CALGARY 2021 - 41 AVE. N.E. CALGARY, CANADA T2E 6P2
 TELEPHONE (403) 278-9627 TELEX 038-25541
 EDMONTON 8112 DAVIES ROAD, EDMONTON, CANADA T6E 4M9
 TELEPHONE (403) 485-9877 TELEX 037-41596

CERTIFICATE OF ANALYSIS

MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

HALFDAHL AND ASSOCIATES

DATE OCT.10/80

GEOCHEM ANALYSIS

PROJECT NO. 963-1-1251

LOCATION	CU PPM	PB PPM	NI PPM	ZN PPM
M4- 100	18.0	12.0	15.0	40.0
150	10.0	5.0	9.0	37.0
200	28.0	10.0	11.0	45.0
250	32.0	13.0	12.0	68.0
350	17.0	8.0	10.0	59.0
400	18.0	10.0	10.0	51.0
450	16.0	7.0	8.0	67.0
500	27.0	10.0	11.0	64.0
550	36.0	25.0	15.0	81.0
600	32.0	21.0	18.0	69.0
650	22.0	20.0	10.0	62.0
700	18.0	30.0	8.0	92.0
750	18.0	21.0	10.0	90.0
800	19.0	27.0	11.0	134.0
850	20.0	21.0	13.0	183.0
900	11.0	20.0	8.0	102.0
M5- 0	13.0	22.0	10.0	155.0
50	28.0	10.0	5.0	67.0
100	18.0	12.0	5.0	74.0
150	10.0	6.0	4.0	195.0
200	24.0	17.0	14.0	95.0
250	19.0	25.0	10.0	89.0
350	7.0	15.0	10.0	62.0
400	5.0	11.0	7.0	67.0
450	6.0	3.0	1.0	41.0
500	16.0	18.0	14.0	51.0
550	15.0	12.0	5.0	64.0
600	6.0	14.0	10.0	52.0
650	17.0	19.0	12.0	63.0
700	5.0	4.0	6.0	42.0
750	8.0	10.0	12.0	57.0
800	8.0	9.0	5.0	48.0
850	9.0	29.0	7.0	84.0
900	37.0	28.0	19.0	82.0
950	19.0	13.0	9.0	71.0
R1- 1	9.0	23.0	7.0	32.0
2	10.0	18.0	12.0	52.0
3	10.0	8.0	11.0	63.0



Certified by *[Signature]*



CALGARY 2021 - 41 AVE. N.E. CALGARY, CANADA T2E 6P2
 TELEPHONE (403) 276-9627 TELEX 038-25541
 EDMONTON 6112 DAVIES ROAD, EDMONTON, CANADA T6E 4M9
 TELEPHONE (403) 465-9877 TELEX 037-41596

CERTIFICATE OF ANALYSIS

• MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

DATE Nov. 6, 1980

PROJECT NO. 963-1-1257

GEOCHEM ANALYSIS

LOCATION	CO (PPM)	LOCATION	CO (PPM)
M1-0	10	M2-800	7
50	7	850	6
100	4	900	4
150	6	950	9
200	6	1000	3
250	7	1050	3
300	5	1100	8
350	7	M3-0	12
400	7	50	14
450	7	100	4
500	9	150	2
550	2	200	14
600	13	250	11
650	11	300A	7
700	2	300B	9
750	9	300C	15
800	7	350	20
850	10	400	16
900	8	450	11
850	7	500	5
1000	5	550	8
1050	6	600	7
1100	3	650	9
M2-0	3	700	7
50	3	750	4
100	4	800	10
150	3	850	5
200	3	900	5
250	4	950	7
300	6	1000	8
350	7	1050	<1
400	7	1100	15
450	4	1150	8
500	7	1200	7
550	4	1250	11
600	5	1300	16
650	4	1350	8
700	4	1400	10
750	6	1450	7



Certified by *[Signature]*



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 TELEPHONE (403) 276-9627 TELEX 038-25541
 EDMONTON 6112 DAVIES ROAD, EDMONTON, CANADA T6E 4M9
 TELEPHONE (403) 465-9877 TELEX 037-41596

CERTIFICATE OF ANALYSIS

• MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

DATE NOV. 6, 1980

PROJECT NO. 963-1-1257

LOCATION	CO (PPM)
M4-0	10
50	3
100	7
150	6
200	10
250	8
350	8
400	9
450	5
500	6
550	21
600	14
650	15
700	20
750	11
800	8
850	12
900	8
M5-0	8
50	3
100	4
150	5
200	7
250	10
350	7
400	4
450	2
500	11
550	5
600	10
650	12
700	5
750	12
800	6
850	12
900	13
950	4
B1-1	<1
B1-2	2
B1-3	5



MEMBER
 CANADIAN TESTING
 ASSOCIATION

Certified by 

APPENDIX 4: ITEMIZED COST STATEMENT

a) Wages

1979

L.B. Halferdahl, geologist 10 days @ \$300 between August 1 and 16, field work and organization	\$ 3 000.00	
R. Bissonnette, assistant 8 days @ \$120 August 9-16	960.00	
C. Russell, assistant 8 days @ \$85 August 9-16	680.00	\$ 4 640.00

1980-81

L.B. Halferdahl, geologist 11 days @ \$350 4 days field work and organization between August 1 and 17, 1980 and 7 days report preparation between December 1 and 15, 1980 and between February 1 and 12, 1981	3 850.00	
S. Malone, assistant 3 days @ \$90 August 16-18	270.00	4 120.00

b) Food and Accommodation

4 men (including helicopter pilot) 8 days @ \$29.56 August 9-16, 1979	945.92	
3 men (including helicopter pilot) 3 days @ \$37.53 August 16-18, 1980	337.77	1 283.69

c) Transportation

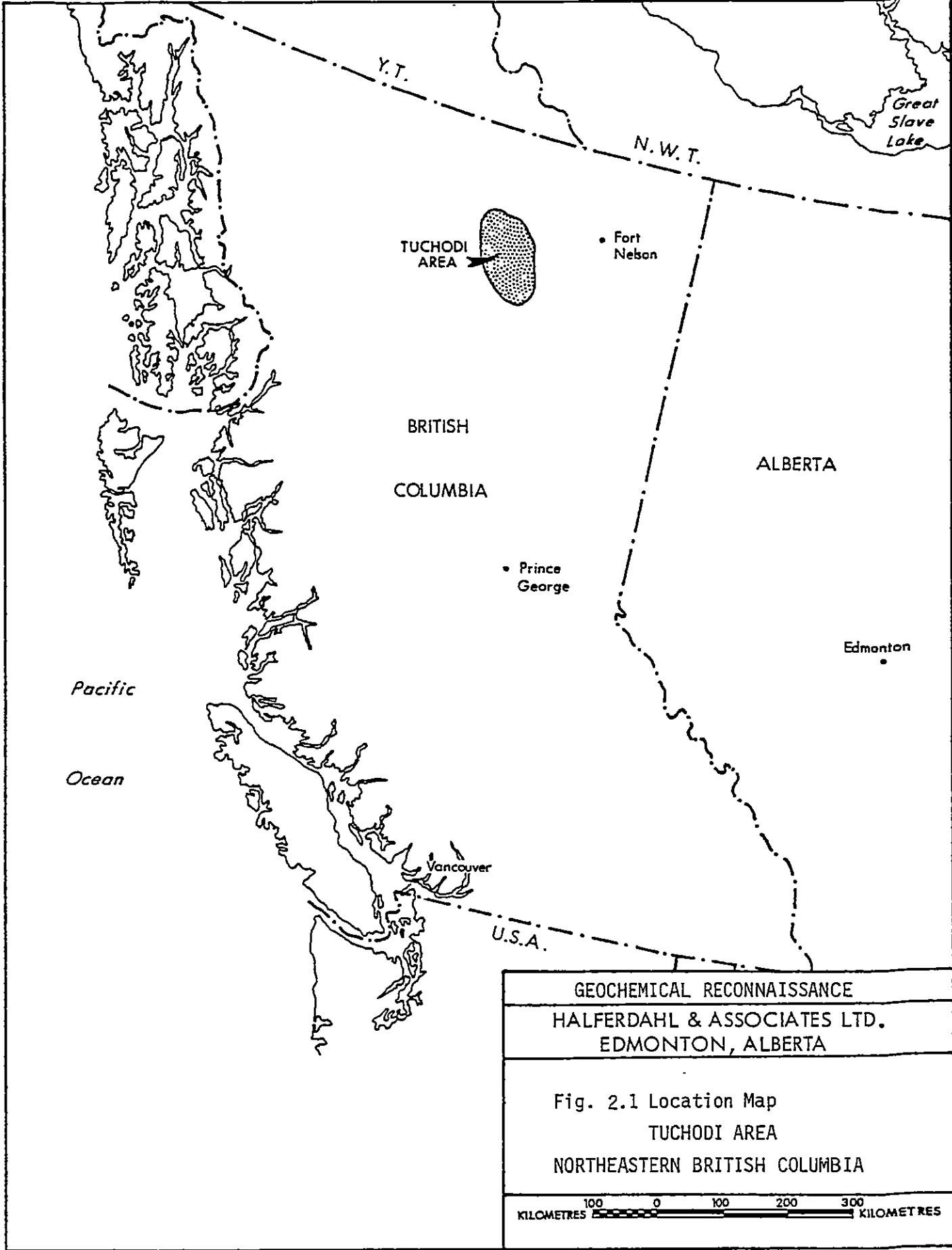
Helicopter, 15.3 hrs @ \$335/hr	\$5 125.50	
Gas and oil August 9-16, 1979	752.15	5 877.65
Helicopter, 9.7 hrs @ \$370/hr	3 589.00	
Gas and oil August 16-17, 1980	494.10	4 083.10
Airfares 1979 Edmonton/Fort Nelson/Edmonton 3 @ \$173	519.00	
1980 Edmonton/Fort Nelson/Edmonton 2 @ \$186	372.00	
Express on samples	42.63	10 894.38

APPENDIX 4: CONTINUED

d)	Instrument rental not applicable		
e)	Survey not applicable		
f)	Analyses		
	<u>1979</u>		
	563 samples prepared and analyzed for Cu @ \$1.95	\$ 1 097.85	
	7 samples analyzed for Pb, Zn, Co @ \$2.75	19.25	
	86 samples analyzed for Pb, Zn, Ag, Co @ \$3.30	283.80	
	294 samples analyzed for Pb, Zn @ \$2.15	632.10	
	<u>1980</u>		
	118 samples prepared and analyzed for Cu, Pb, Ni, Zn, Co @ \$4.95	584.10	\$ 2 617.10
g)	Report preparation typing, drafting, reproduction, assembly		1 295.00
h)	Telephone		<u>40.07</u>
			\$ 24 890.24

APPENDIX 5: AUTHOR'S QUALIFICATIONS

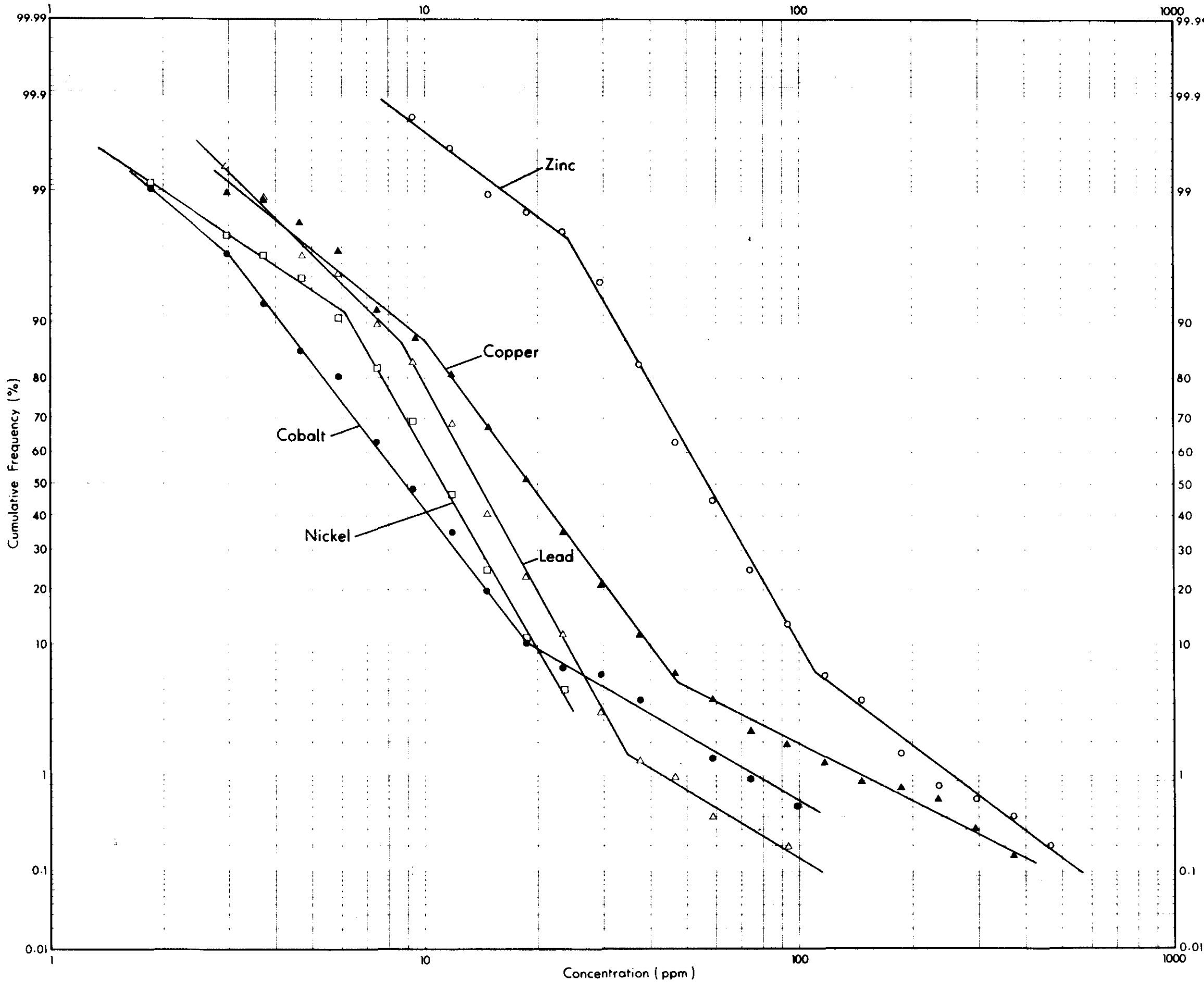
L.B. Halferdahl obtained degrees in geological engineering and geology from Queen's University and The Johns Hopkins University. He has had more than 25 years' experience as a practising engineer and geologist in research and mining exploration, including consulting since 1969. He is a member of the Canadian Insititute of Mining and Metallurgy, and is registered as P. Eng. and P. Geol. in the Association of Professional Engineers, Geologists, and Geophysicists of Alberta, and licensed as P. Eng. in the Association of Professional Engineers of British Columbia.



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Fig. 2.1 Location Map
TUCHODI AREA
NORTHEASTERN BRITISH COLUMBIA

100 0 100 200 300
KILOMETRES KILOMETRES



Metal	Symbol	N	Back-ground	Threshold
Copper	▲	681	18	50
Cobalt	●	211	9	19
Lead	△	504	14	35
Nickel	□	118	11	-
Zinc	○	504	60	110

MINERAL RESOURCE
ASSESSMENT REPORT
10,504
NO

GEOCHEMICAL RECONNAISSANCE
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Fig.4-2 Distributions of Copper,
Cobalt, Lead, Nickel, and Zinc
Concentrations.
TUCHODI AREA
NORTHEASTERN BRITISH COLUMBIA
LBH 1980-12

Equation of least square regression line:

$$Y = 9.89 + 0.123 X$$

Correlation coefficient = 0.5595

N = 92

Mean copper = 58.2 ppm

Mean cobalt = 17.0 ppm

GEOCHEMICAL RECONNAISSANCE

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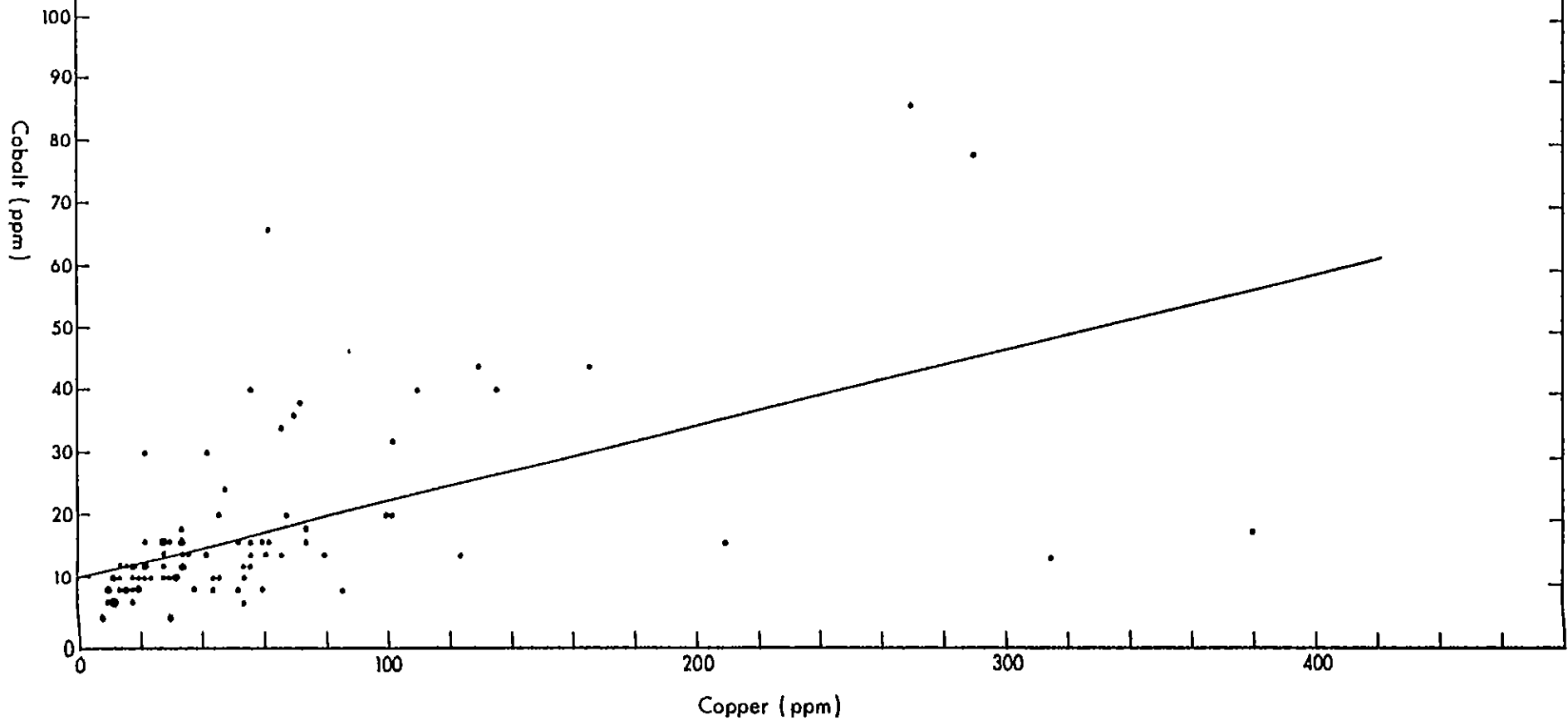
Fig. 4.3 Scatter Diagram and Re-
gression of Cobalt on Copper
for 1979 Samples

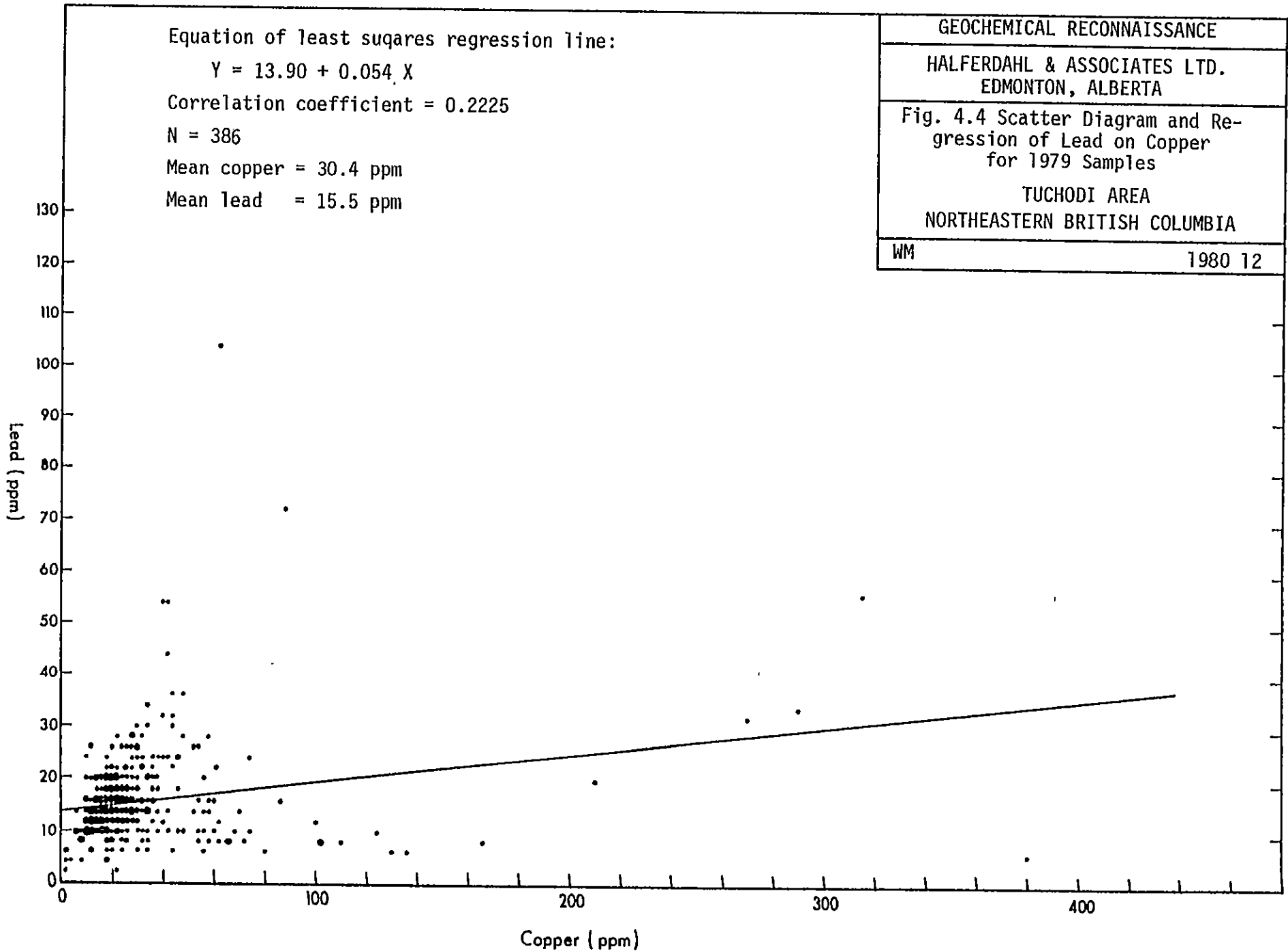
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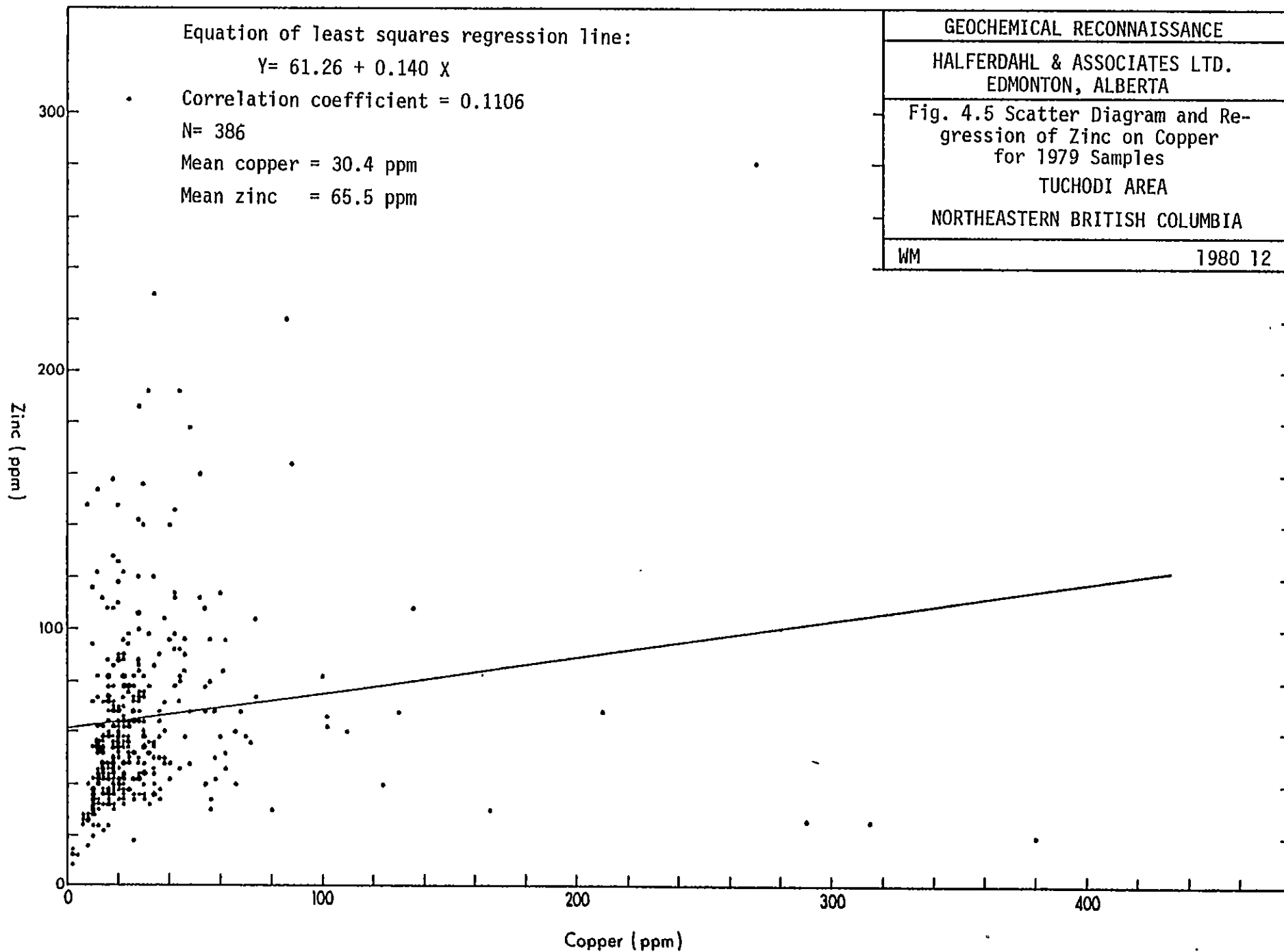
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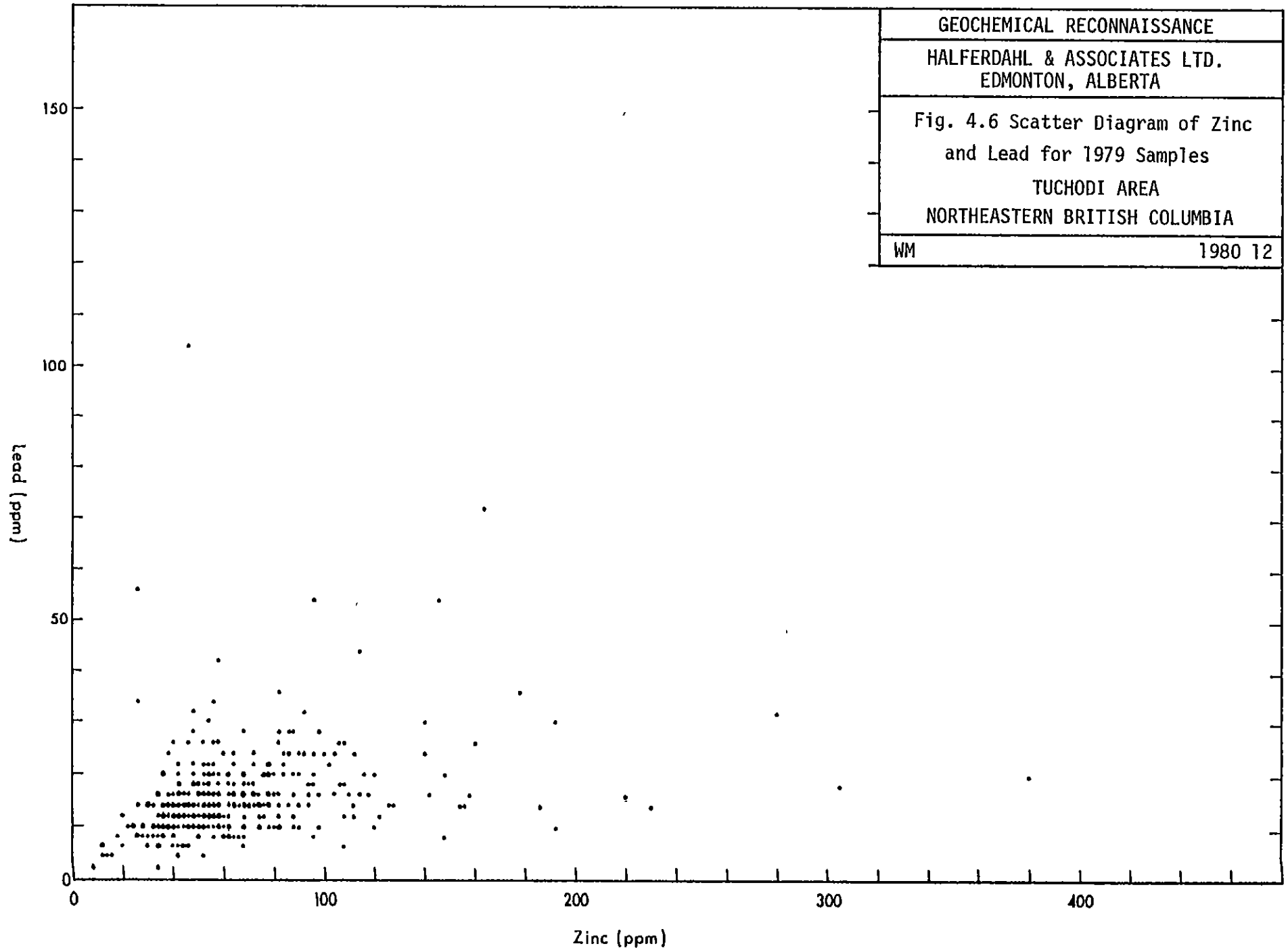
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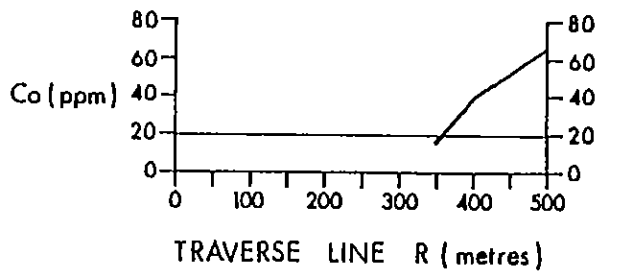
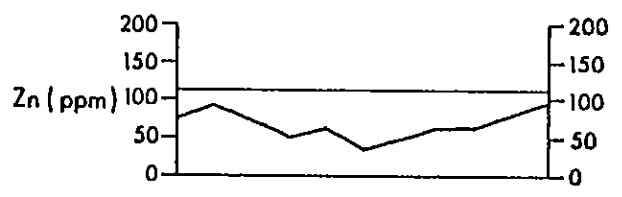
1980 12



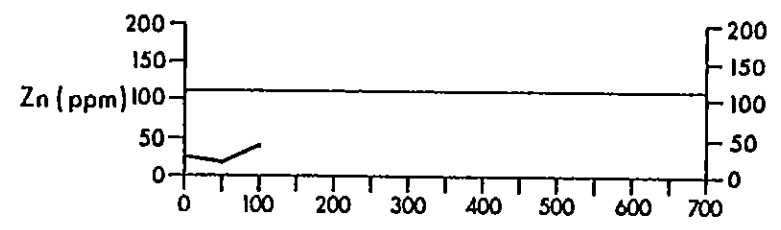
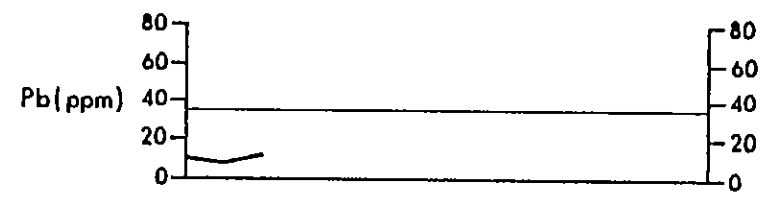
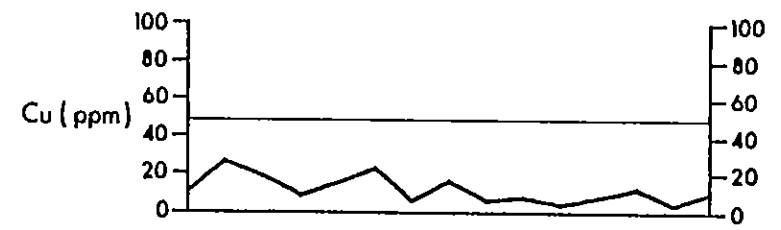






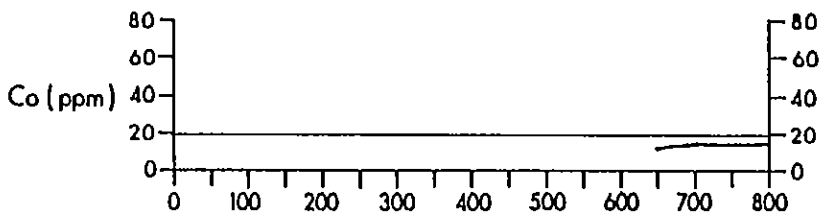
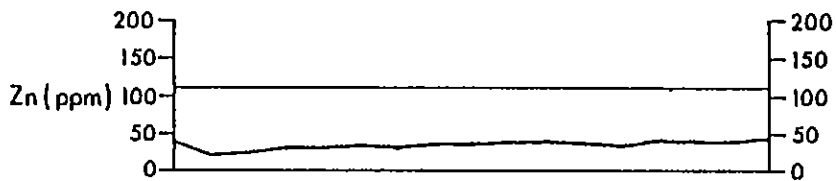
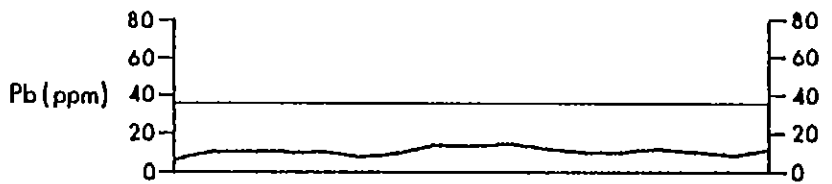


Threshold _____

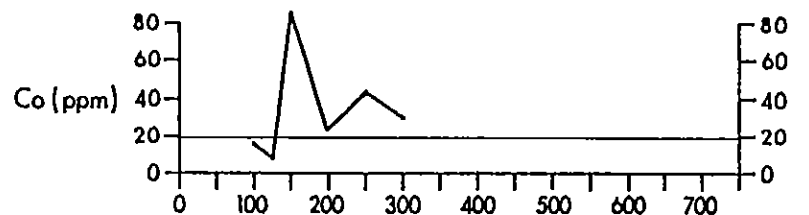
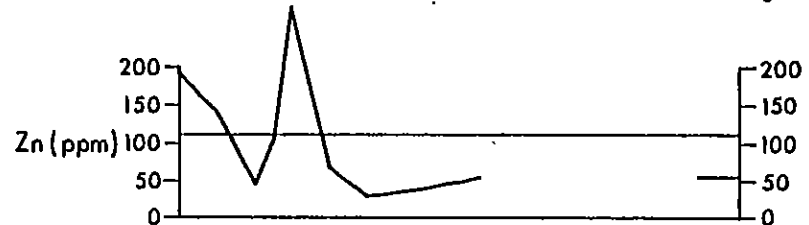
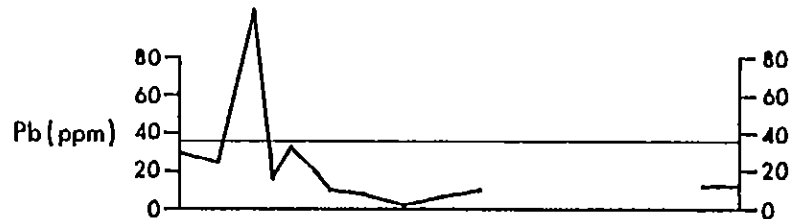
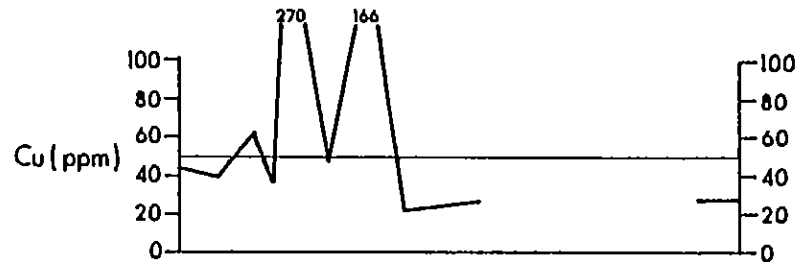


TRAVERSE LINE R1 (metres)

GEOCHEMICAL RECONNAISSANCE	
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Fig. 4.7 Geochemical Profiles for Traverses R and R1	
TUCHODI AREA NORTHEASTERN BRITISH COLUMBIA	
WM	1980 12



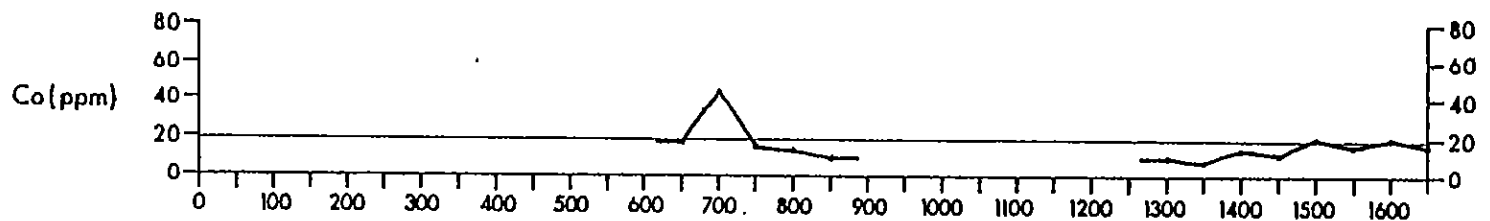
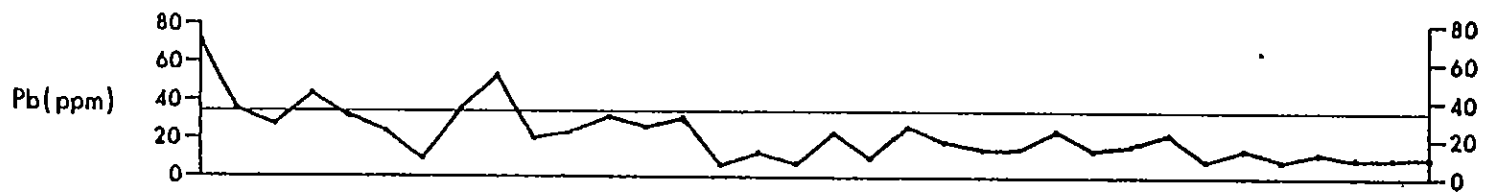
TRAVERSE LINE B1 (metres)



TRAVERSE LINE H1 (metres)

Threshold

GEOCHEMICAL RECONNAISSANCE	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 4.8 Geochemical Profiles for Traverses B1 and H1	
TUCHODI AREA NORTHEASTERN BRITISH COLUMBIA	
WM	1980 12



TRAVERSE LINE H2 (metres)

Threshold

GEOCHEMICAL RECONNAISSANCE

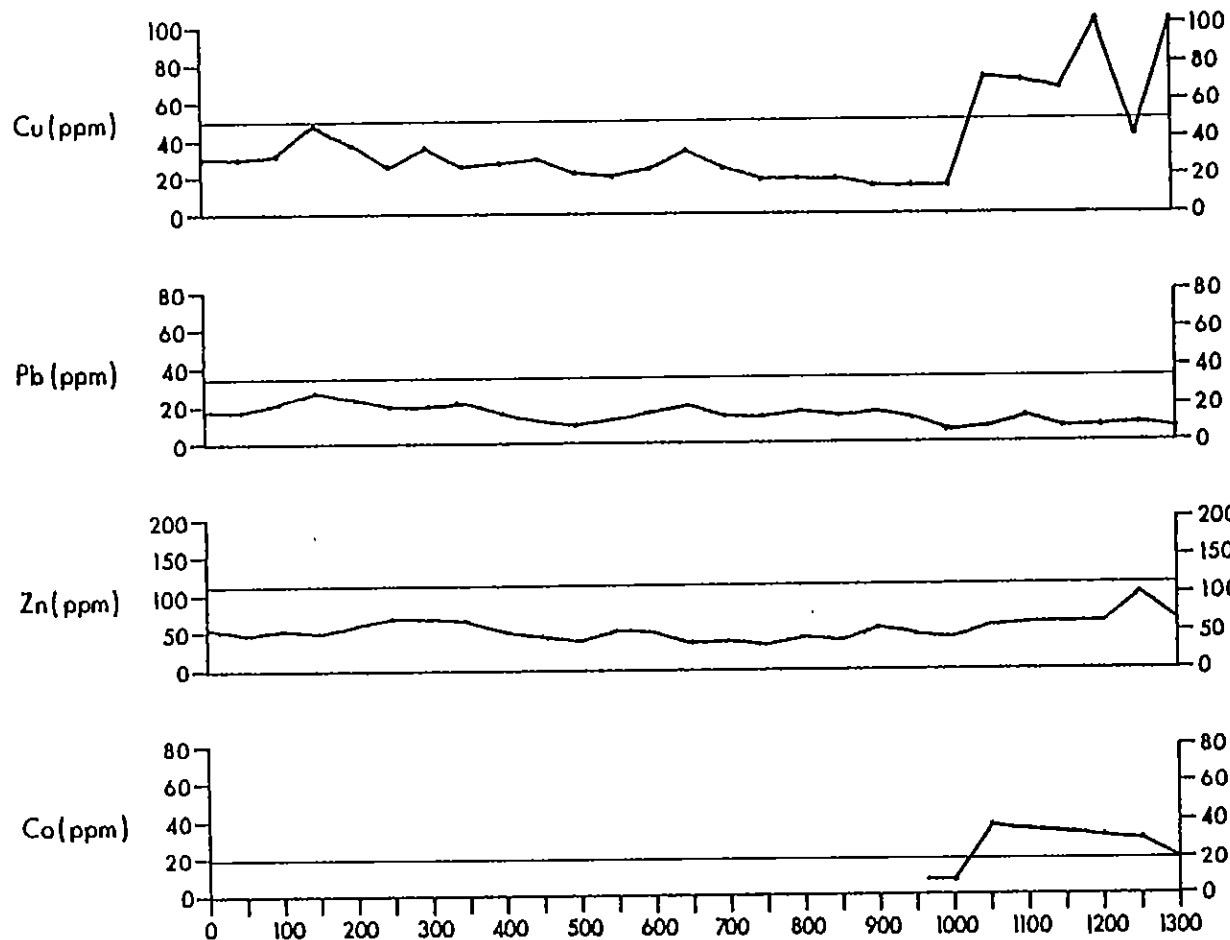
HALFERDAHL & ASSOCIATES LTD.
EDMONTON, ALBERTA

Fig. 4.9 Geochemical Profiles for
Traverse H2

TUCHODI AREA
NORTHEASTERN BRITISH COLUMBIA

WM

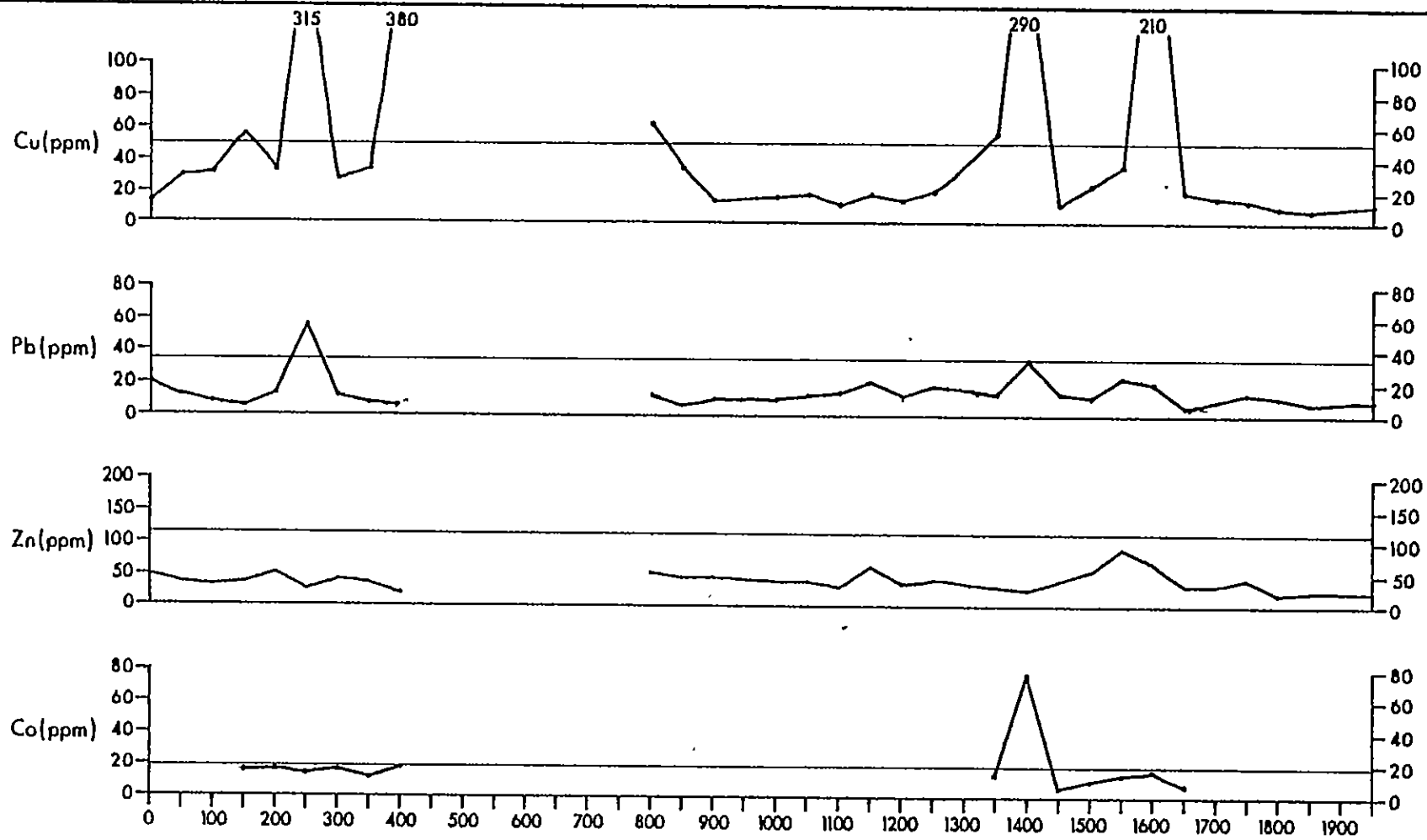
1980 12



TRAVERSE LINE H3 (metres)

Threshold

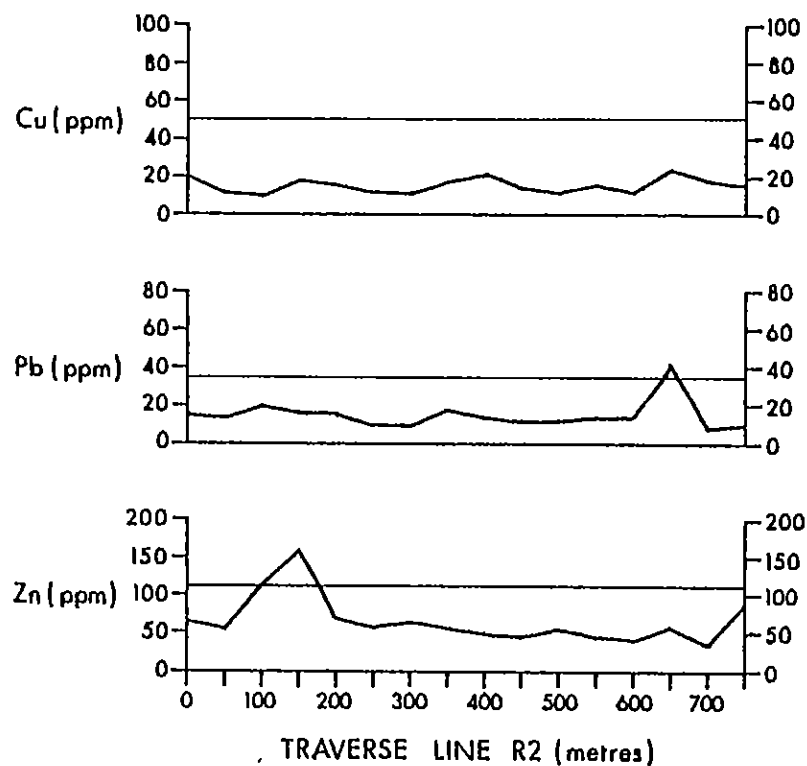
GEOCHEMICAL RECONNAISSANCE	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 4.10 Geochemical Profiles for Traverse H3	
TUCHODI AREA NORTHEASTERN BRITISH COLUMBIA	
WM	1980 12



TRAVERSE LINE B2 (metres)

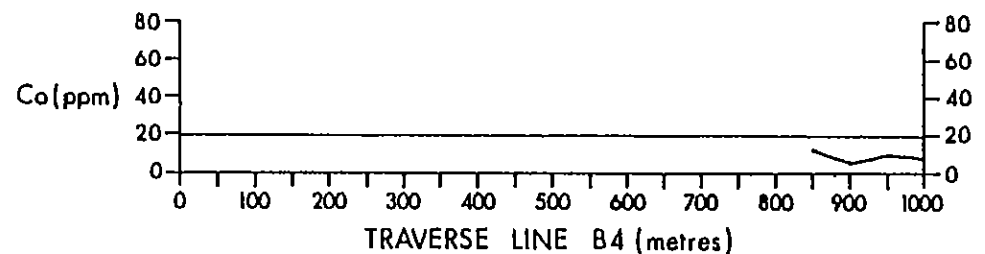
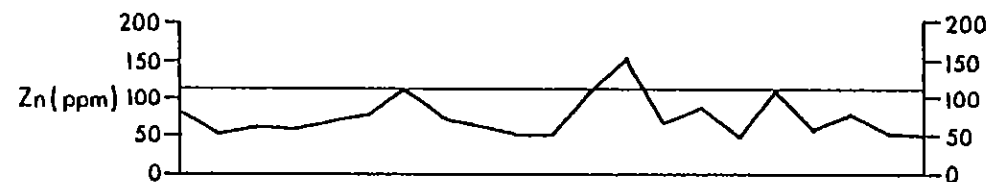
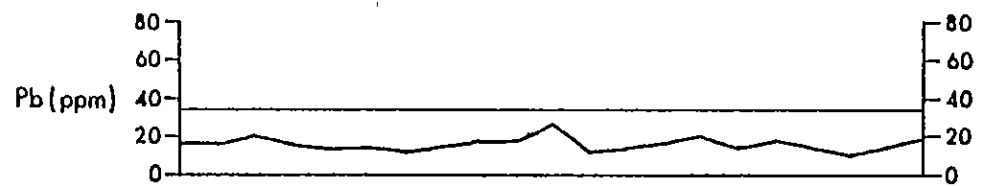
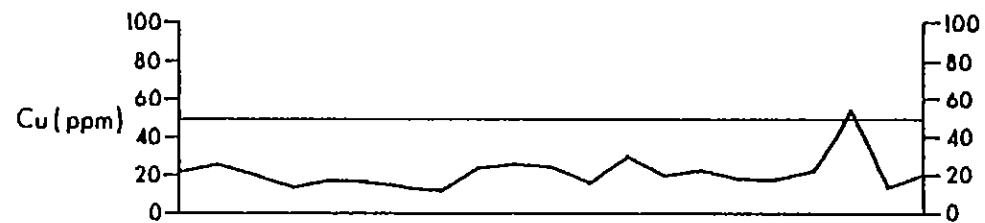
Threshold

GEOCHEMICAL RECONNAISSANCE	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 4.11 Geochemical Profiles for Traverse B2	
TUCHODI AREA NORTHEASTERN BRITISH COLUMBIA	
WM	1980 12

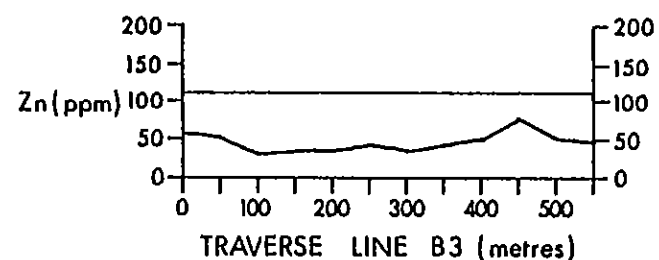


Threshold

GEOCHEMICAL RECONNAISSANCE	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 4.12 Geochemical Profiles for Traverse R2	
TUCHODI AREA NORTHEASTERN BRITISH COLUMBIA	
WM	1980 12

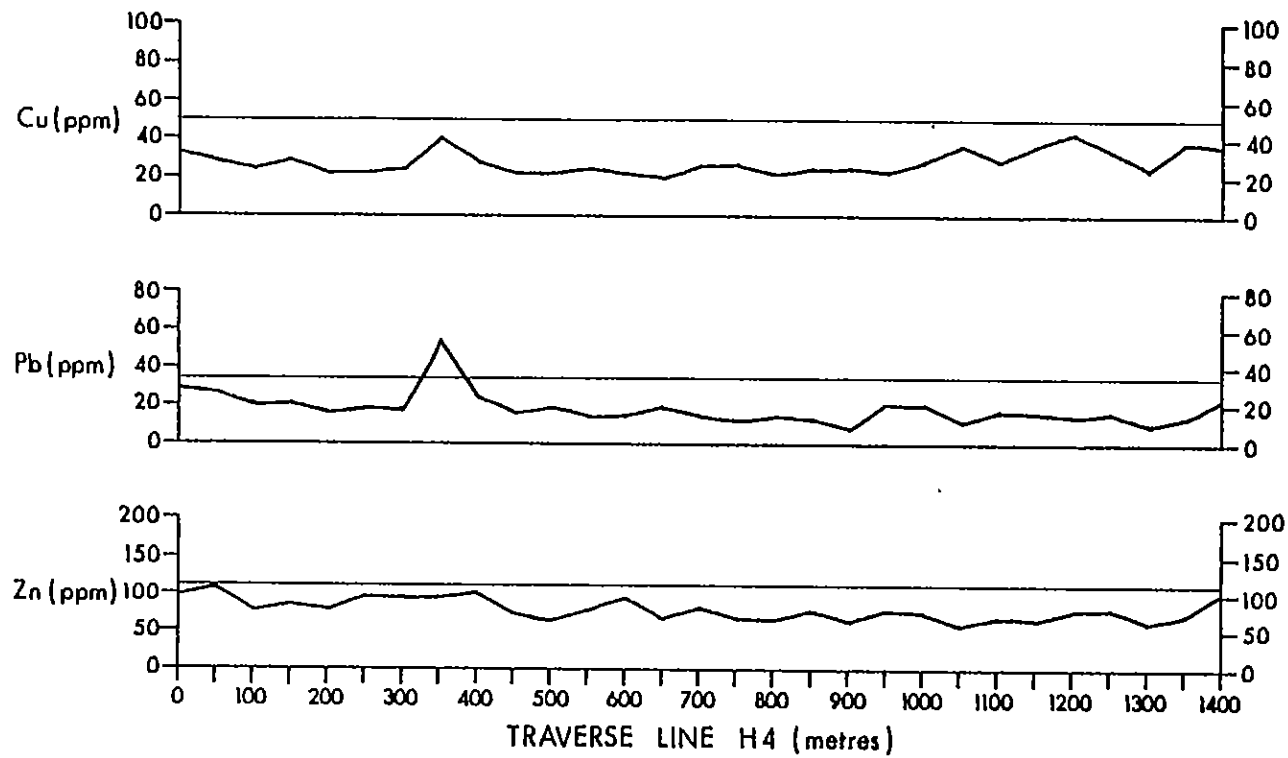


Threshold _____



TRAVERSE LINE B3 (metres)

GEOCHEMICAL RECONNAISSANCE	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 4.13 Geochemical Profiles for Traverses B4 and B3	
TUCHODI AREA NORTHEASTERN BRITISH COLUMBIA	
WM	1980 12



Threshold _____

GEOCHEMICAL RECONNAISSANCE

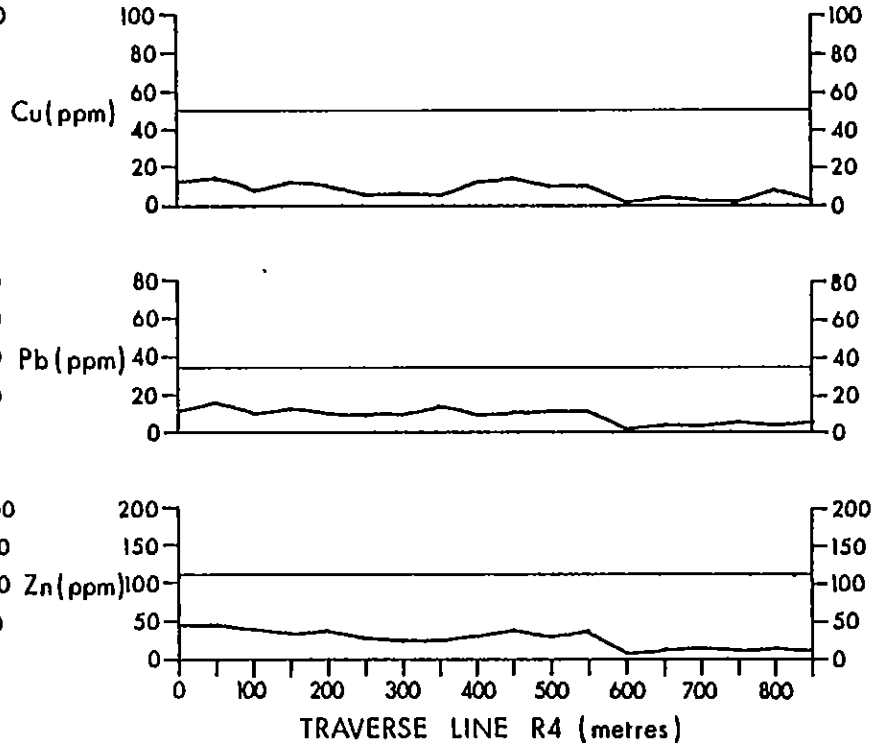
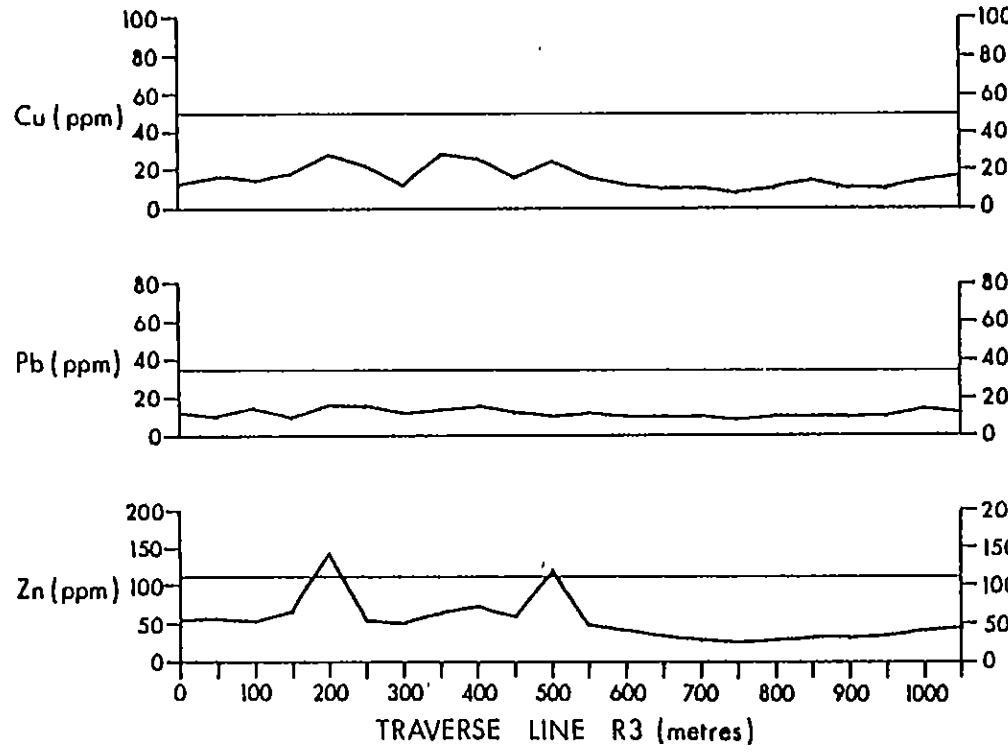
HALFERDAHL & ASSOCIATES LTD.
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Fig. 4.14 Geochemical Profiles for
Traverse H4

TUCHODI AREA
NORTHEASTERN BRITISH COLUMBIA

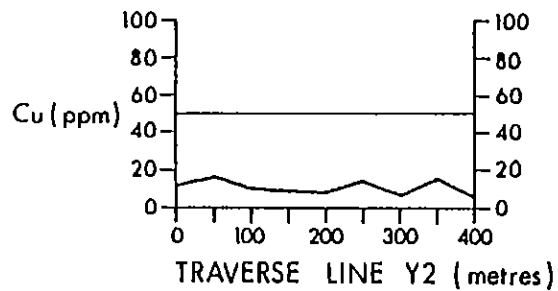
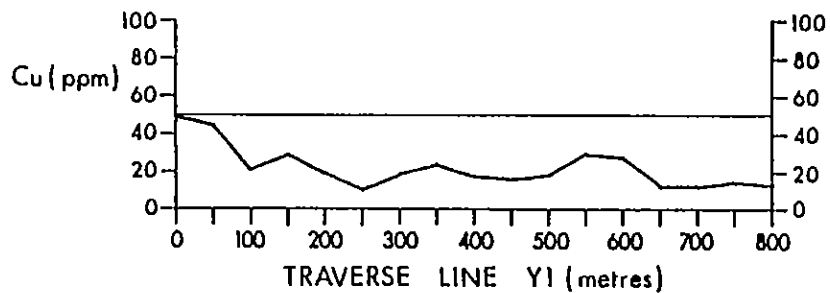
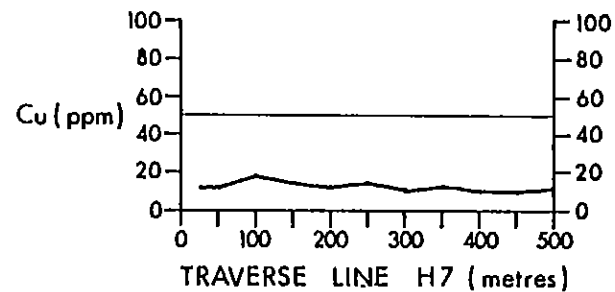
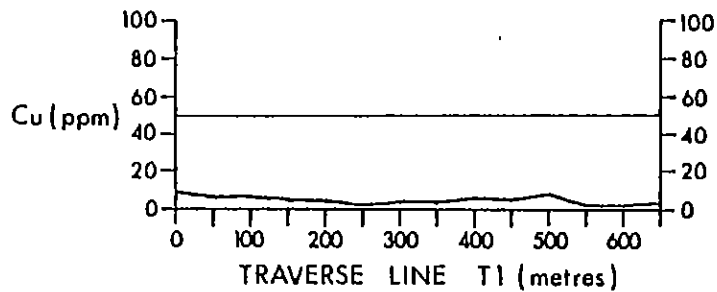
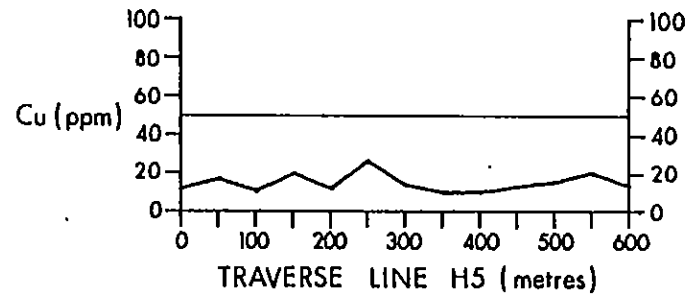
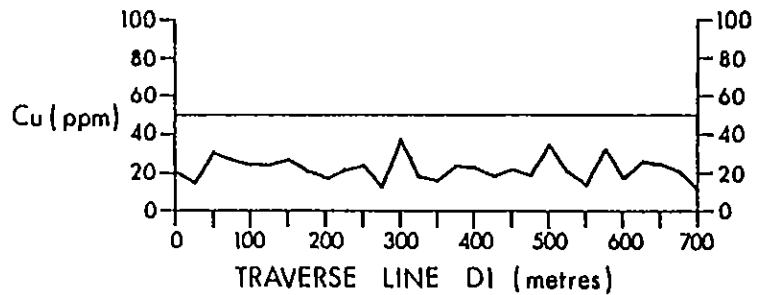
WM

1980 12



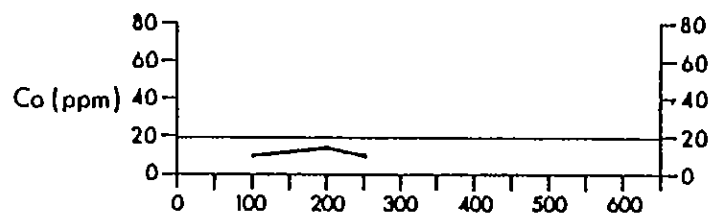
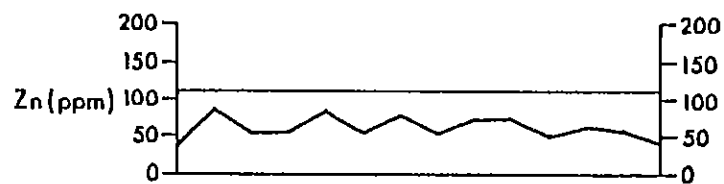
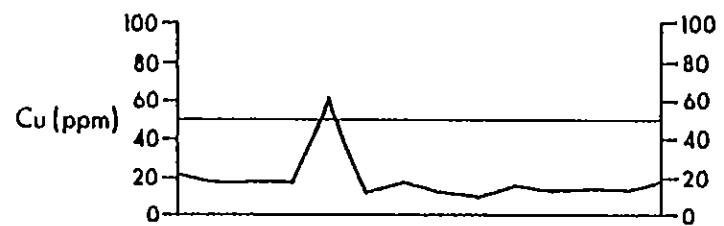
Threshold

GEOCHEMICAL RECONNAISSANCE	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 4.15 Geochemical Profiles for Traverses R3 and R4	
TUCHODI AREA NORTHEASTERN BRITISH COLUMBIA	
WM	1980 12

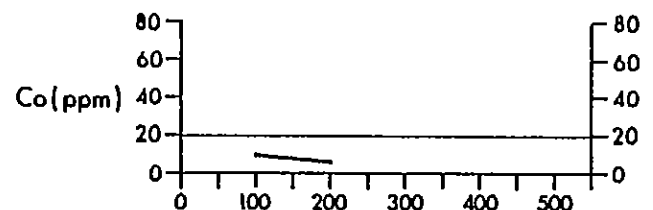
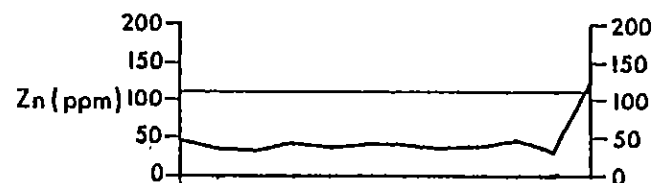
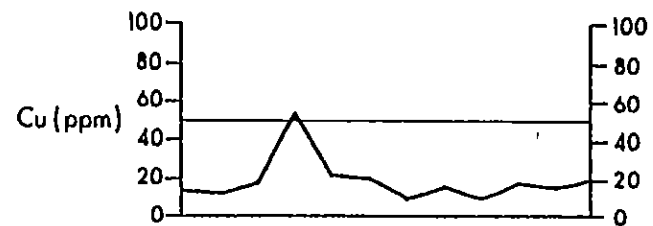


Threshold

GEOCHEMICAL RECONNAISSANCE	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 4.16 Geochemical Profiles for Traverses D1, T1, Y1, Y2, H5, and H7	
TUCHODI AREA NORTHEASTERN BRITISH COLUMBIA	
WM	1980 12



TRAVERSE LINE B9 (metres)



TRAVERSE LINE B5 (metres)

Threshold

GEOCHEMICAL RECONNAISSANCE

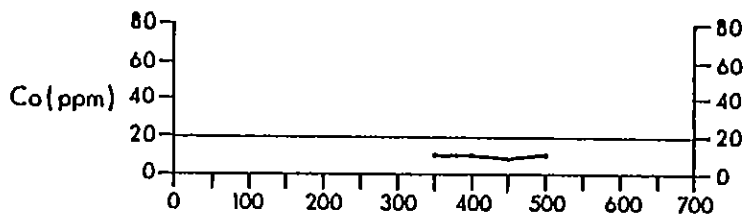
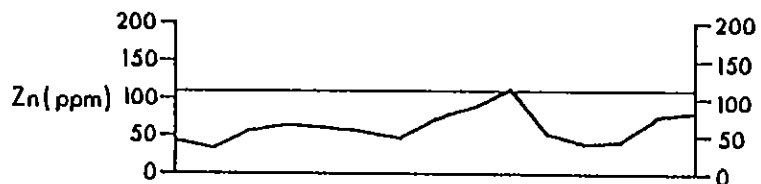
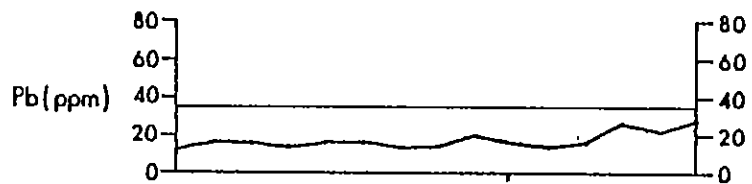
HALFERDAHL & ASSOCIATES LTD.
EDMONTON, ALBERTA

Fig. 4.17 Geochemical Profiles for
Traverses B9 and B5

TUCHODI AREA
NORTHEASTERN BRITISH COLUMBIA

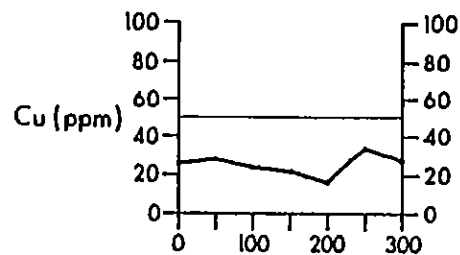
WM

1980 12



TRAVERSE LINE H9 (metres)

Threshold



TRAVERSE LINE R8
(metres)

GEOCHEMICAL RECONNAISSANCE

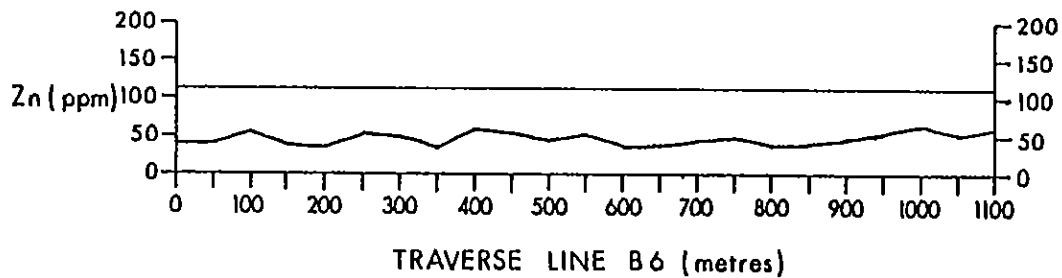
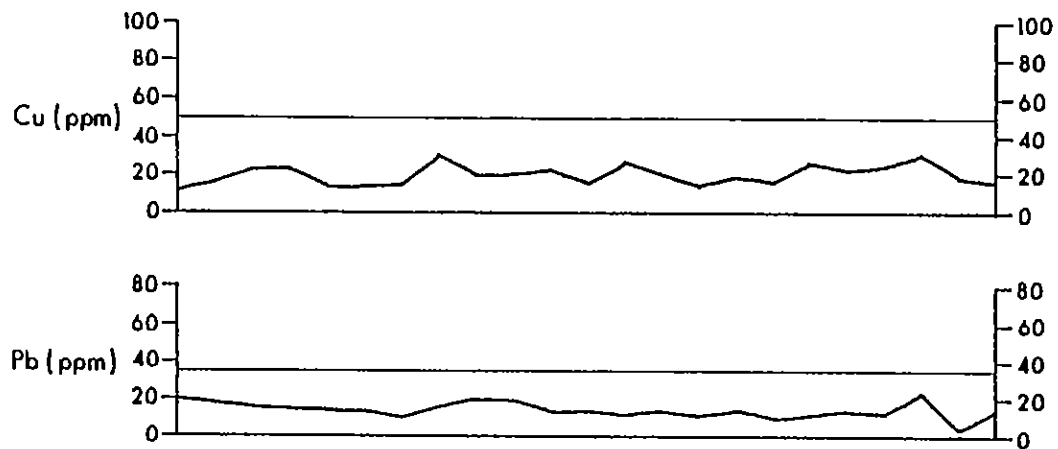
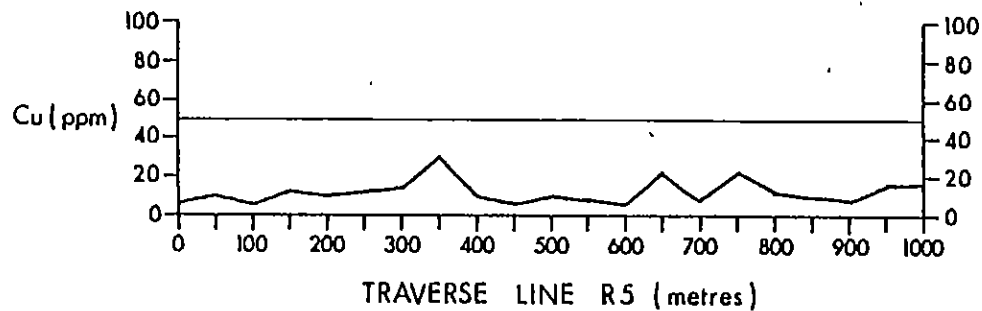
HALFERDAHL & ASSOCIATES LTD.
EDMONTON, ALBERTA

Fig. 4.18 Geochemical Profiles for
Traverses H9 and R8

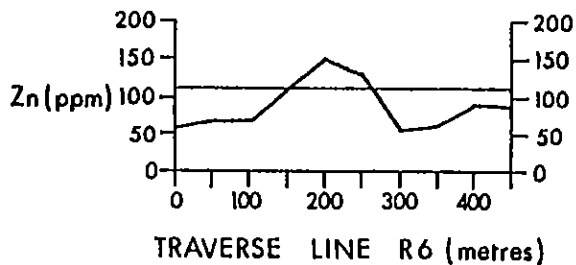
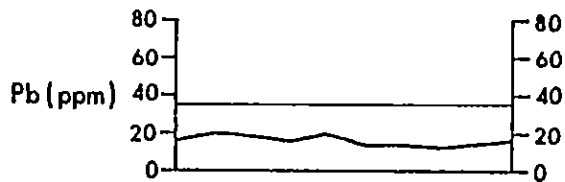
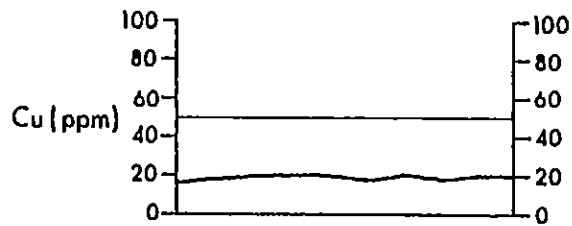
TUCHODI AREA
NORTHEASTERN BRITISH COLUMBIA

WM

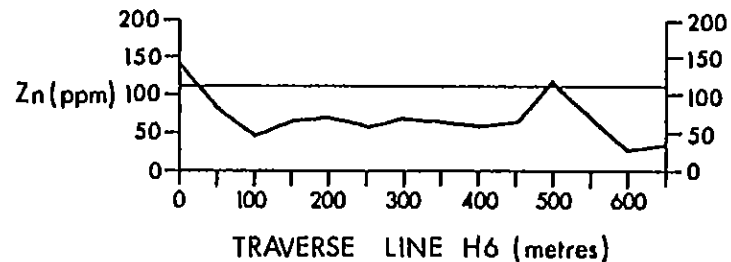
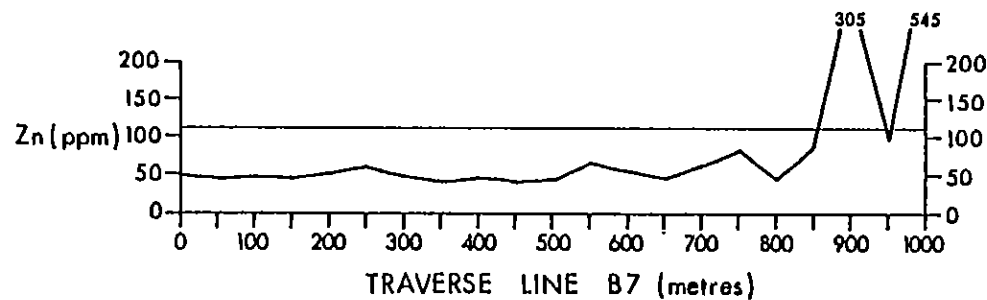
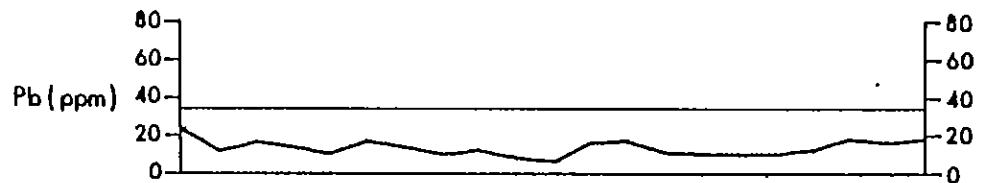
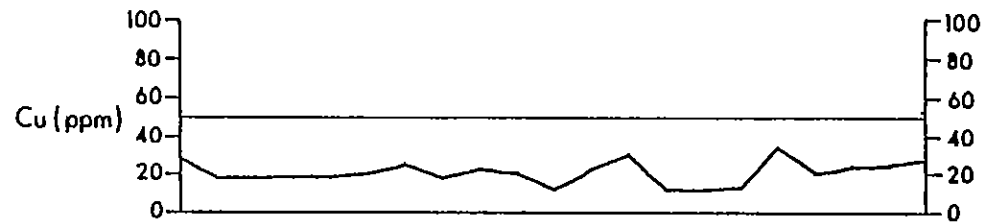
1980 12



Threshold

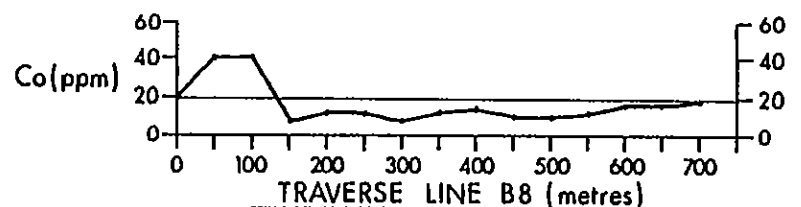
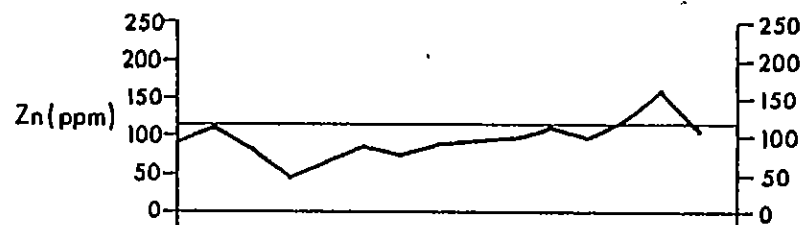
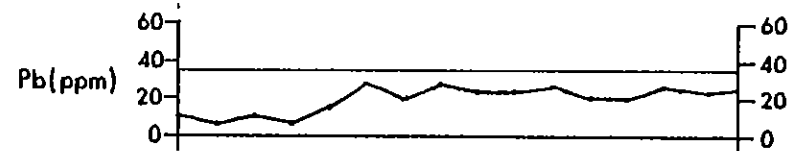
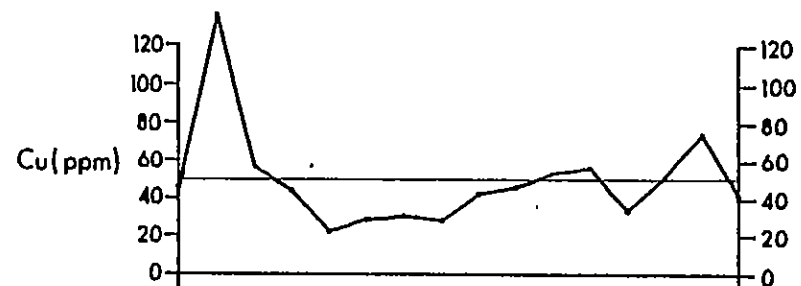
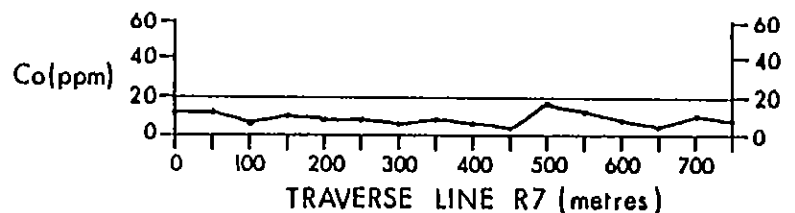
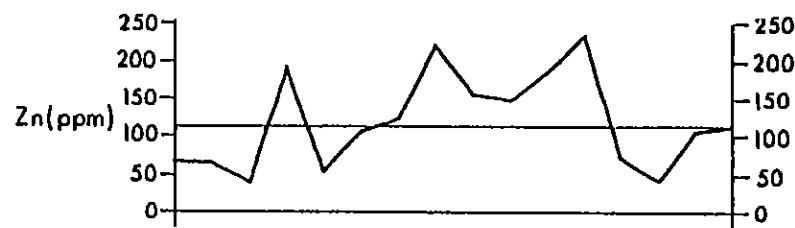


GEOCHEMICAL RECONNAISSANCE	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 4.19 Geochemical Profiles for Traverses R5, B6, and R6	
TUCHODI AREA NORTHEASTERN BRITISH COLUMBIA	
WM	1980 12



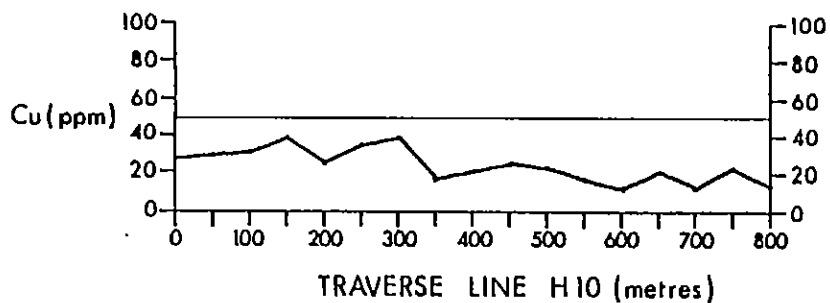
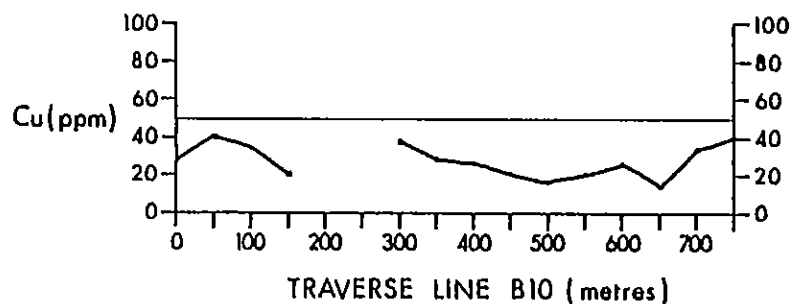
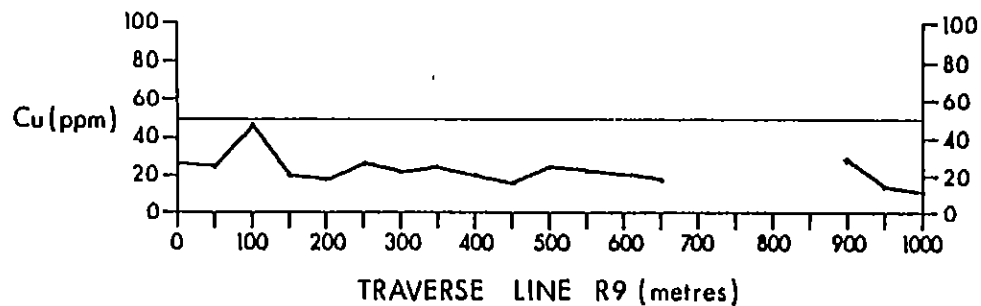
Threshold

GEOCHEMICAL RECONNAISSANCE	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 4.20 Geochemical Profiles for Traverses B7 and H6	
TUCHODI AREA NORTHEASTERN BRITISH COLUMBIA	
WM	1980 12



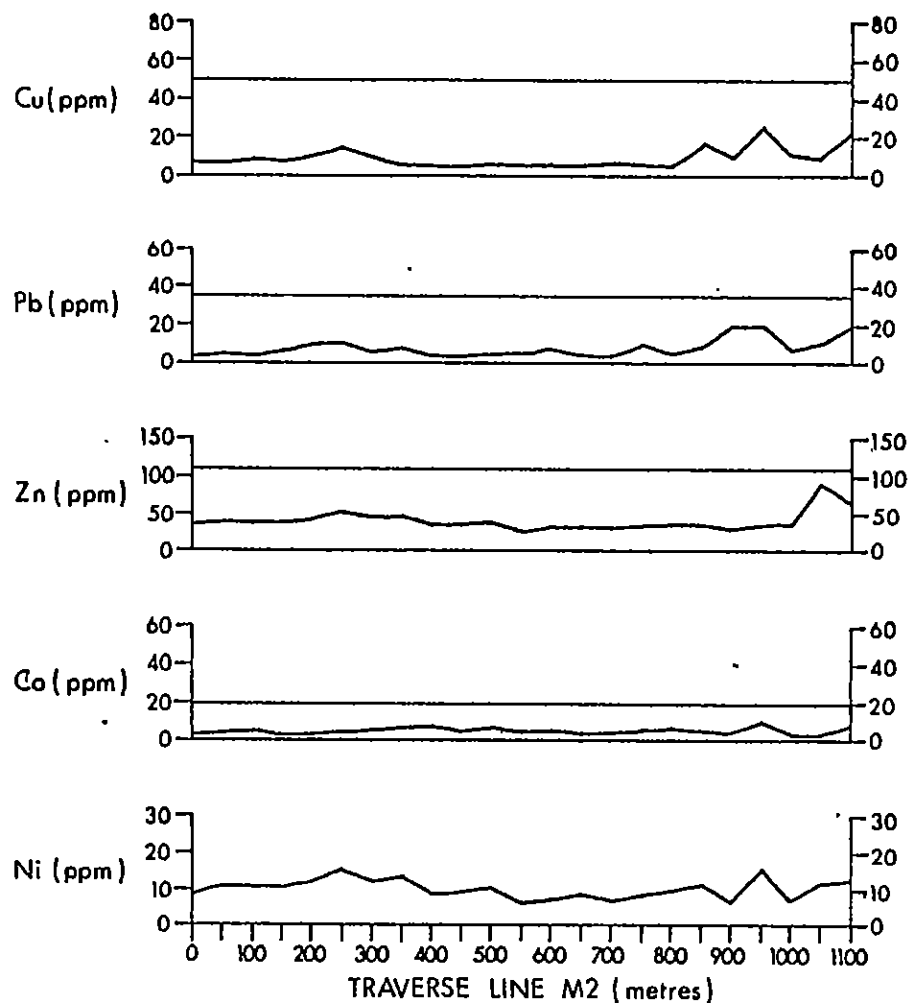
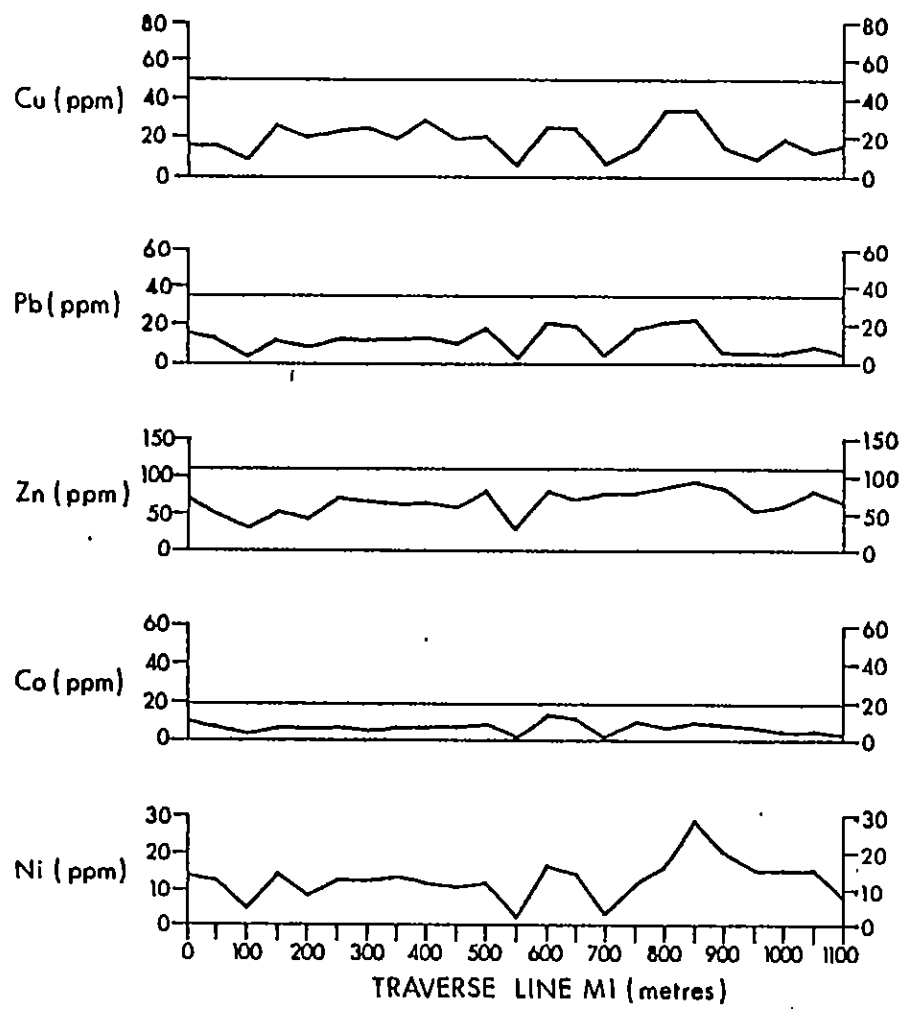
Threshold

GEOCHEMICAL RECONNAISSANCE	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 4.21 Geochemical Profiles for Traverses R7 and B8	
TUCHODI AREA NORTHEASTERN BRITISH COLUMBIA	
WM	1980 12



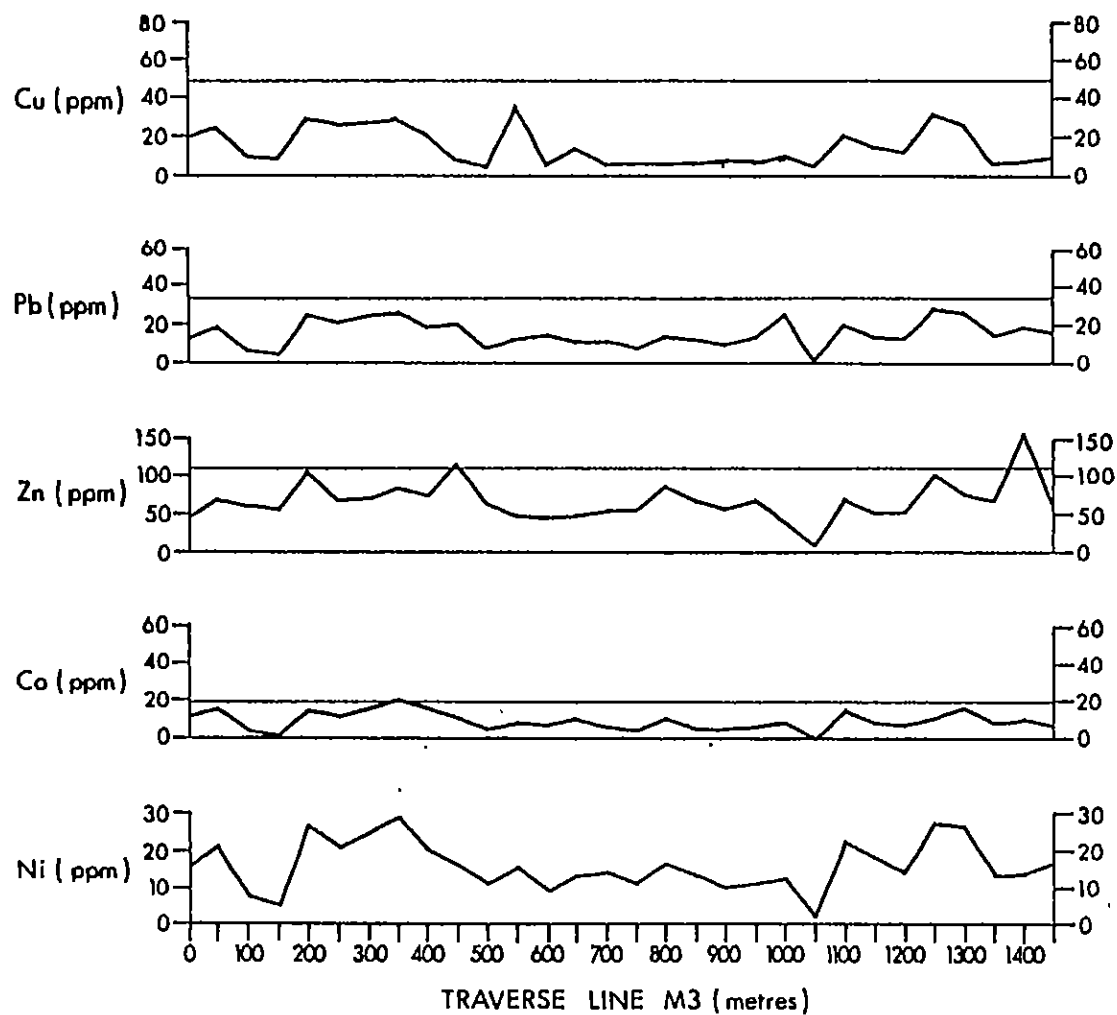
Threshold _____

GEOCHEMICAL RECONNAISSANCE	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 4.22 Geochemical Profiles for Traverses R9, B10, and H10	
TUCHODI AREA NORTHEASTERN BRITISH COLUMBIA	
WM	1980 12

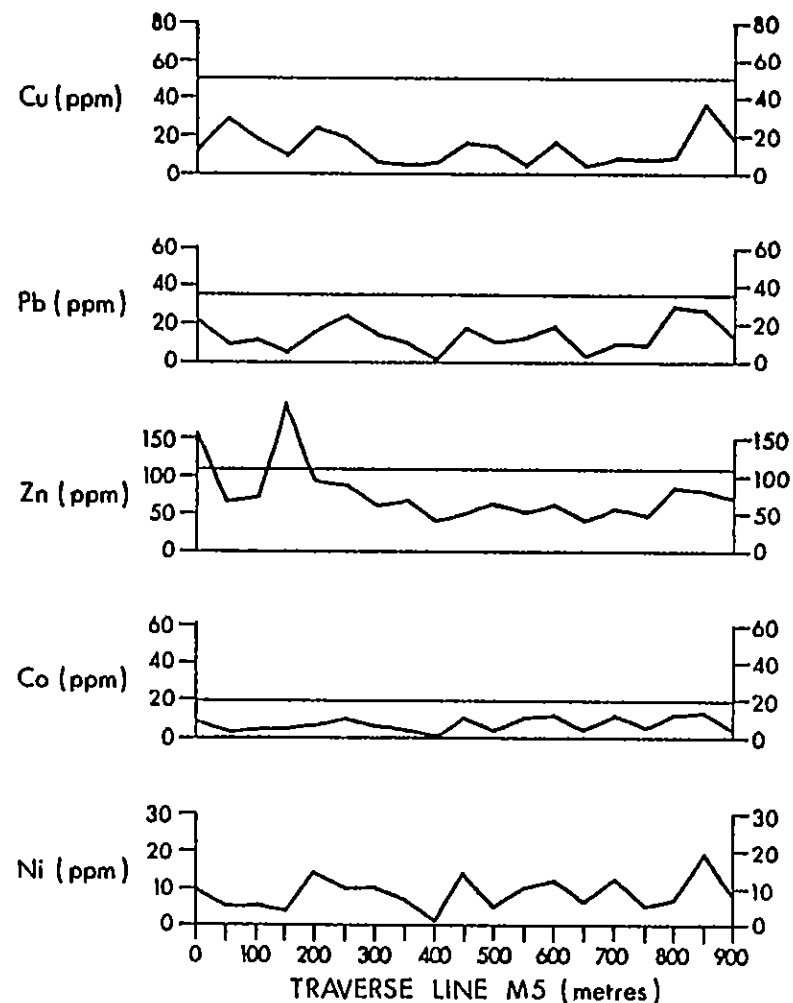
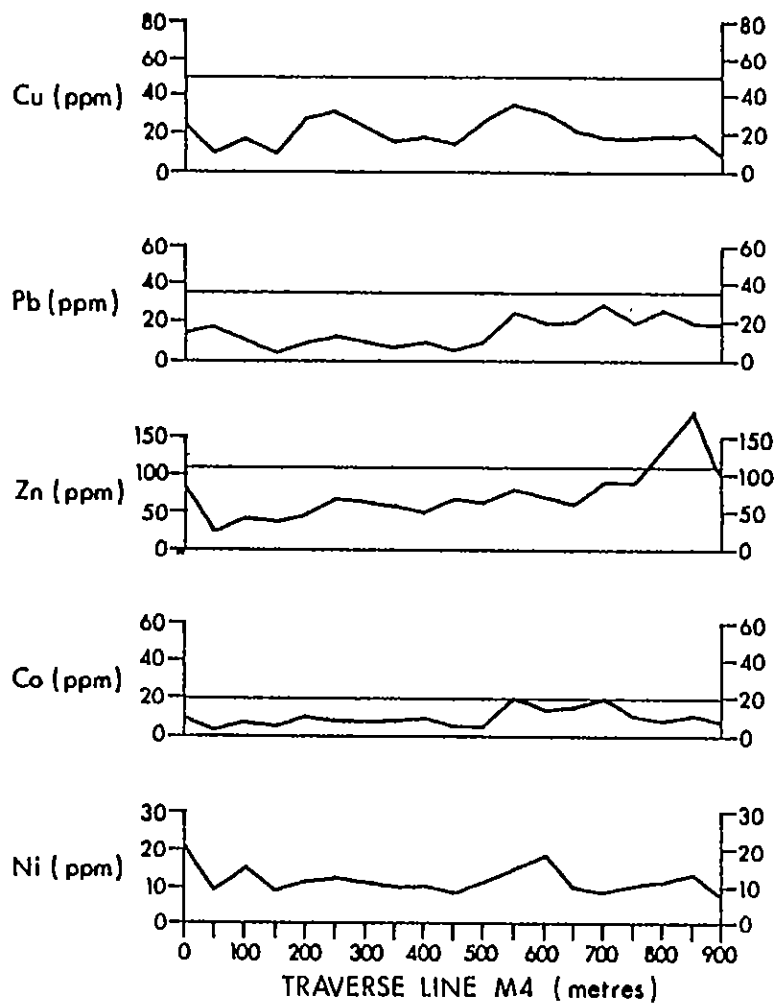


Threshold

GEOCHEMICAL RECONNAISSANCE	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 4.23 Geochemical Profiles for Traverses M1 and M2 TUCHODI AREA NORTHEASTERN BRITISH COLUMBIA	
WM	1980 12

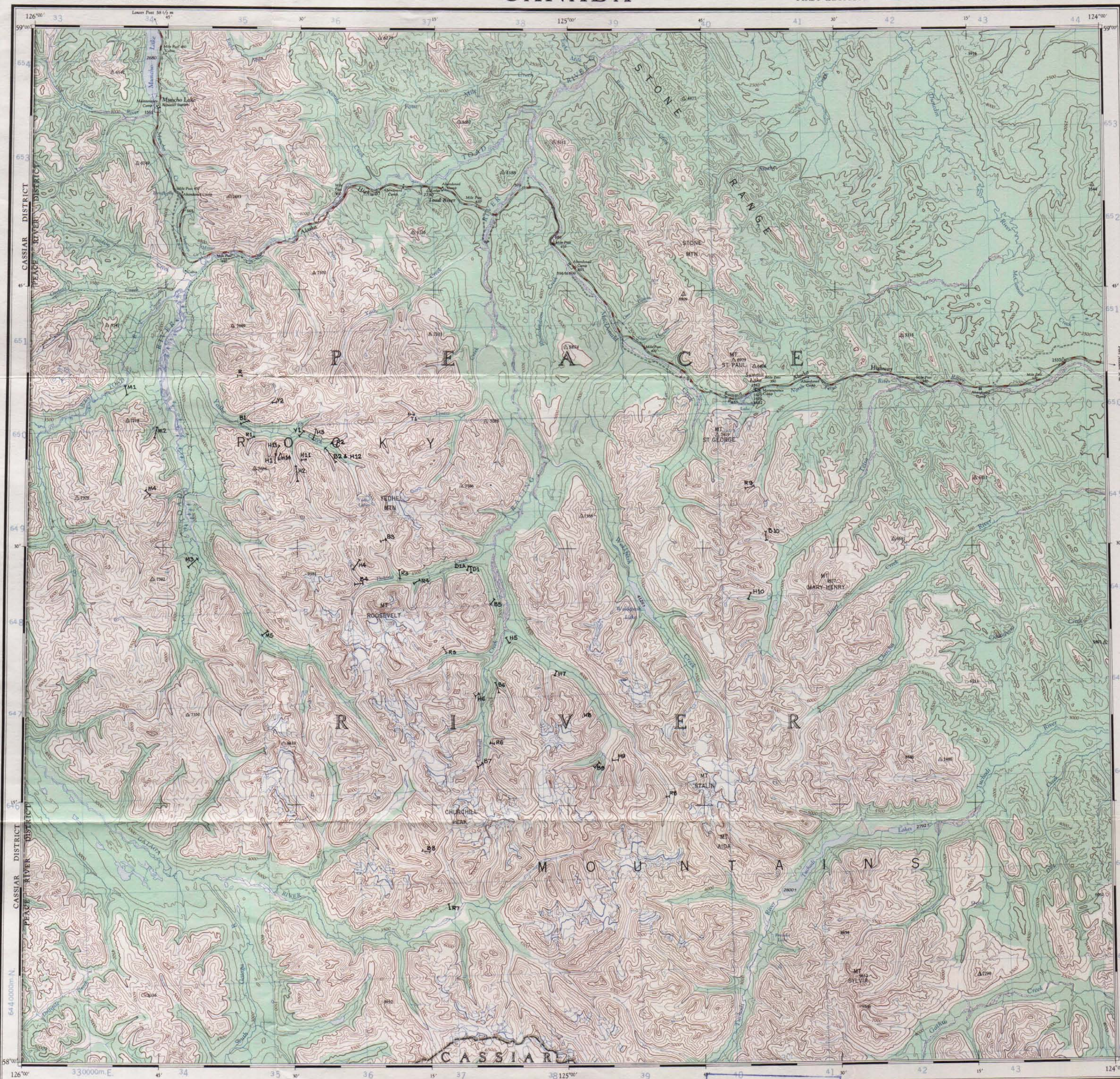


GEOCHEMICAL RECONNAISSANCE	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 4.24 Geochemical Profiles for Traverse M3 TUCHODI AREA NORTHEASTERN BRITISH COLUMBIA	
WM	1980 12



Threshold

GEOCHEMICAL RECONNAISSANCE	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 4.25 Geochemical Profiles for Traverses M4 and M5 TUCHODI AREA NORTHEASTERN BRITISH COLUMBIA	
WM	1980 12



GRID ZONE DESIGNATION 10V	TO GIVE A STANDARD REFERENCE ON THIS SHEET TO HORIZONTAL CONTROL
10V CADA CVIDV 650 40	<p>1. Read letters identifying 100,000 metre square in which the point lies</p> <p>2. Locate this 100,000 metre square on the grid and read LARGE figure showing the easting and the northings on the grid</p> <p>3. Estimate northings and eastings to point of location on the grid and read SMALL figure showing the easting and northings on the grid</p> <p>4. Example: 10V 650 40 8 9</p>
IGNORE THE SMALLER figures of any grid number: these are for finding the full co-ordinates: the ONLY the LARGER figures of the grid number are used.	<p>EXAMPLE: 10V 650 40 8 9</p> <p>CV 85 89</p> <p>33 000 000 m. E.</p> <p>10VCV8589</p>

TEN THOUSAND METRE
UNIVERSAL TRANSVERSE MERCATOR GRID
ZONE 10

Fig. 4.1 Locations of Geochemical and Geological Traverses

Traverse with number..... 7

THE DECLINATION OF THE COMPASS NEEDLE, 1954



The declination of the compass needle at any place along a red line is the declination given on that red line. At other places the declination is between those given on the neighbouring red lines: thus at the place marked A, the declination is between N. 31° 15' and N. 31° 30' E. The exact declination of the compass needle is decreasing 5 minutes annually.

Surveyed, compiled, drawn and printed by the ARMY SURVEY ESTABLISHMENT R.C.E., 1949-54
Aerial photography by the R.C.A.F. 1948

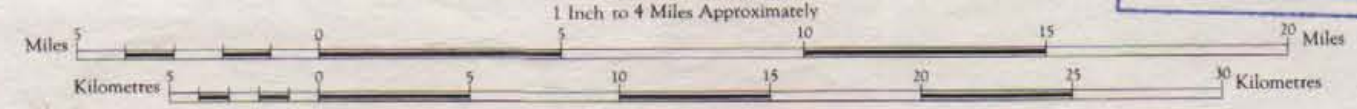
Universal Transverse Mercator Projection.

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Road, Hard Surface, All Weather	Less than 2 Lanes	Blue No. 3
Road, Hard Surface, All Weather	Less than 2 Lanes	Blue No. 4
Road, Hard Surface, All Weather	Less than 2 Lanes	Blue No. 5
Road, Hard Surface, All Weather	Less than 2 Lanes	Blue No. 6
Road, Hard Surface, All Weather	Less than 2 Lanes	Blue No. 7
Road, Hard Surface, All Weather	Less than 2 Lanes	Blue No. 8
Road, Hard Surface, All Weather	Less than 2 Lanes	Blue No. 9
Road, Hard Surface, All Weather	Less than 2 Lanes	Blue No. 10
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TUCHODI LAKES
BRITISH COLUMBIA

Scale 1 : 250,000
1 Inch to 4 Miles Approximately

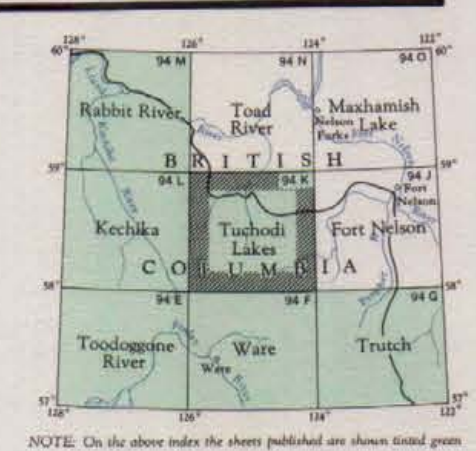


MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
10,504
NO.

Contour Interval 500 Feet
All Elevations in Feet above Mean Sea Level
North American Datum 1927
Preliminary 1951

REFERENCE

Horizontal Control Point	Spot Elevation, in feet	124
Contour, 500 Feet	Forest, undisturbed	
Depression	Swamp or Marsh	
Approximation		
Glacier or Snowfield		
Stream, permanent		
Dam	Ferry	W. L. 135
Falls	Mail	
Airfield, on Land	Lighthouse	
Power Transmission Line	Anchor	



NOTE: On the above index the sheets published are shown in red.

TUCHODI LAKES
SHEET 94 K
FIRST EDITION

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