



1983 MAGNETOMETER SURVEY, SOIL SAMPLING
AND FINAL PART OF HEAVY MINERAL SAMPLING
OF THE BUR PROPERTY, YUKON

091495

Claims EL 3, 5-6, 11-76, JO 8, SUE 1-6, 9-12,
KAT 1-4, 9, 11, 13-24, 41-42, NAN 1-12, JAN 1-52, 59-66, 69-80
DEN 4, 6, WEN 7, AND 1-6, 9-12, JY 1-2, 7-10, 12, 27-30, 32-42, 51, 57-70

Whitehorse Mining District

Geographic Coordinates
61° 22'N
139° 18'W
NTS Sheet 115G/6

by

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1983 10 31

Work on Property Conducted 1983 06 27 to 1983 08 31

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20110

This report has been examined by
the Geological Evaluation Unit
under Section 53 (4) Yukon Quartz
Mining Act and is allowed as
representation work in the amount
of \$ 33,200.

for Kathryn Grapes
Regional Manager, Exploration and
Geological Services for Commissioner
of Yukon Territory.

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SECTION 1.0

INTRODUCTION

Exploration of the Bur property including most of the 182 new claims staked in September and November, 1982 continued during the period June 28 to August 31, 1983 with a five-person crew. This work consisted mostly of a magnetometer survey, the collection and analyses of 583 geochemical soil samples, the collection of 38 panned concentrates from which heavy minerals were analyzed, and the clearing of slides from the road through part of the canyon of Tatamagouche Creek. This report describes these explorations. As the previous work by others on the original claims has been reviewed in previous assessment reports, only previous work on the newer claims is reviewed here.

Topographic maps at a scale of 1:5000 with a 10-m contour interval were prepared photogrammetrically to cover the claims staked in 1982, and served as base maps. Access to the valley of Burwash and Tatamagouche Creeks was by a four-wheel-drive vehicle; access along the Duke River road and to some of the winter roads branching from it was by an all-terrain cycle. Helicopters were used to position and retrieve a fly camp on the Burwash Uplands. Accommodation for the crew was in a temporary camp in the valley of Burwash Creek.

Many of the tributaries of Burwash and Tatamagouche Creeks and the Duke River have not been formally named. For convenience some of these tributaries or pups have been given informal names. Similarly, the mountain between Burwash and Tatamagouche Creeks is here termed Tatamagouche Mountain, and the prominent hill on the Burwash Uplands between Burwash Creek and Amphitheatre Mountain is termed Hill 90.

SECTION 2.0

SUMMARY OF RESULTS AND RECOMMENDATIONS

2.1 Summary

1. Soil samples on the one geochemical line run near Johnson Creek at the west end of the Bur property contain gold concentrations ranging from 10 to 255 ppb. Most are coincident with anomalous copper and molybdenum concentrations. Nearby outcrops are tuffs, some of which contain disseminated chalcopyrite and molybdenite and up to 0.04 oz/ton gold. These tuffs have been intruded by latite porphyry which is locally mineralized with chalcopyrite and molybdenite. The showing was drilled in 1970 by Imperial Oil Enterprises Ltd. and found to contain uneconomic concentrations of copper and molybdenum, but the core was not assayed for gold.

2. A geochemical soil survey of an area at the top of Tatamagouche Mountain at the head of Kat Creek detected subtle discontinuous anomalous concentrations of nickel, copper, zinc, lead, gold, and molybdenum in an area partly covered by glacial till and slump and creep material, and subject to active mechanical erosion rather than chemical weathering. The bedrock under most of the anomalies appears to be tuffs stratigraphically 100 to 200 m below a distinctive unit of chert-granule limestone, which appears to be a suitable mappable unit to mark the base of the Hasen Creek Formation.
3. The sill of magnetitic peridotite within the Station Creek Formation on Tatamagouche Mountain is now roughly estimated to be 800 to 900 m thick or possibly more, considerably thicker than previously suggested.
4. Coincident anomalous gold, molybdenum, and zinc concentrations were found in one sample of humus on the one line of geochemical soil samples run on the Burwash Uplands about midway between Burwash Creek and Duke River.
5. The contact of the Cretaceous granodiorite which intrudes strata of the Permian Skolai Group and Permo-Triassic ultrabasic rocks has been traced, not everywhere with certainty, across the southern part of the Bur property on the Burwash Uplands, which are almost devoid of outcrops, by means of magnetometer profiles spaced 400 to 500 m apart. The highest magnetic readings of more than 66 000 gammas are probably caused by outcrops of magnetitic peridotite.
6. Highly anomalous gold concentrations were found in heavy minerals from panned concentrates in the lowest 900 m on Frying Pan Creek, which drains into Duke River. Similar and lower anomalous gold concentrations were found in three widely separated samples of heavy minerals on Thirty Pup.

2.2 Recommendations

1. Relog and assay for gold, if possible, selected parts of the core from the holes drilled by Imperial Oil in 1970.
2. Follow up the anomalous gold concentrations in Frying Pan Creek and Thirty Pup by additional heavy mineral and soil sampling.
3. Trench and strip the areas with anomalous concentrations of gold and other metals near Johnson Creek, on Tatamagouche Mountain, and if slopes will permit near drillhole 81-5.
4. If warranted from the trenching, drill one or more holes at Johnson Creek, on Tatamagouche Mountain, and near drillhole 81-5 above Tatamagouche Creek.
5. Check the peridotite sill on Tatamagouche Mountain for the sources of platinum which has been recovered as a small percentage of the precious metals in the sluices of placer miners along Burwash Creek.

SECTION 3.0

PROPERTY

The Bur property now consists of more than 300 quartz mineral claims along both sides of Burwash Creek extending from Duke River to beyond Tatamagouche Creek in the Whitehorse Mining District (Fig. 1.2 and 8.3), but only the 132 claims to which the work reported here is to be applied are listed below.

<u>Claim</u>	<u>Grant Number</u>	<u>Record Date</u>	<u>Expected Expiry Date</u>
✓Jy 23	YA 51139	1980 08 13	1985 04 16
✓KAT 9, 11	YA 51141, -43	1980 08 13	1985 04 16
✓KAT 13-14	YA 51145-46	1980 08 13	1986 04 16
✓KAT 17-19	YA 51149-51	1980 08 13	1985 04 16
✓KAT 21	YA 51153	1980 08 13	1985 04 16
✓KAT 23-24	YA 51155-56	1980 08 13	1985 04 16
✓JY 57-70	YA 75153-66	1982 10 18	1986 10 18
✓KAT 41-42	YA 75183-84	1982 10 18	1986 10 18
✓SUE 11	YA 75195	1982 10 18	1986 10 18
✓EL 11-12	YA 75205-06	1982 10 18	1985 10 18
✓EL 13-20	YA 75207-14	1982 10 18	1986 10 18
✓EL 21-22	YA 75215-16	1982 10 18	1985 10 18
✓EL 23-28	YA 75217-22	1982 10 18	1986 10 18
✓JAN 19-30	YA 75233-44	1982 10 18	1986 10 18
✓JAN 43-48	YA 75257-62	1982 10 18	1986 10 18
✓JAN 49-52	YA 75385-88	1982 12 13	1986 12 13
✓JAN 59-66	YA 75389-96	1982 12 13	1986 12 13
✓JAN 69-72	YA 75397-400	1982 12 13	1985 12 13
✓JAN 77-80	YA 75405-08	1982 12 13	1985 12 13
✓EL 29	YA 75409	1982 12 13	1985 12 13
✓EL 30	YA 75410	1982 12 13	1986 12 13
✓EL 31-32	YA 75411-12	1982 12 13	1985 12 13
✓EL 33-40	YA 75413-20	1982 12 13	1986 12 13
✓EL 41-42	YA 75421-22	1982 12 13	1985 12 13
✓EL 43-50	YA 75423-30	1982 12 13	1986 12 13
✓EL 51-52	YA 75431-32	1982 12 13	1985 12 13
✓EL 53	YA 75433	1982 12 13	1986 12 13
✓EL 54-76	YA 75434-56	1982 12 13	1985 12 13

The recorded holder of these claims is Laurence B. Halferdahl for whom the work described in this report was conducted. On its approval, this work is expected to extend the expiry dates of these claims to those listed above.

For assessment work purposes, the work reported here including the topographic mapping was performed on the claims listed on the following page. Some work was performed on other claims.

YA 23531	EL 3	YA 52589	JY 51
YA 23533-34	EL 5-6	YA 59001-02	SUE 9-10
YA 23544	JO 8	YA 75154	JY 58
YA 23580	DEN 4	YA 75195	SUE 11
YA 23582	DEN 6	YA 75205-22	EL 11-28
YA 23591	WEN 7	YA 75223-62	Jan 9-48
YA 51125-26	JY 9-10	YA 75385-88	JAN 49-52
YA 51128	JY 12	YA 75389-96	JAN 59-66
YA 51147-48	KAT 15-16	YA 75397-408	JAN 69-80
YA 51152	KAT 20	YA 75409-56	EL 29-76
YA 51154	KAT 22		

SECTION 4.0

GEOGRAPHIC SETTING

4.1 Location

The Bur property is in southwestern Yukon a few kilometres northeast of Kluane National Park. It extends almost from the headwaters of Tatamagouche Creek, across Burwash Creek, and the Burwash Uplands some 14½ km to Duke River. It averages about 3½ km wide.

4.2 Access

From Whitehorse, the Bur property may be reached by driving about 300 km northwesterly along the Alaska Highway. From the Alaska Highway three roads branch off to reach different parts of the property. The first near Mile 1099 leaves the Alaska Highway just past the Duke River bridge and continues along the west side of Duke River as far as a point opposite the mouth of Squirrel Creek. The first 2 km or so are generally passable for ordinary vehicles but the next stretch of about 4 km was only passable to tracked or similar vehicles in the summer of 1983. When frozen in November 1982 it was passable for a ½-ton truck without four-wheel drive. The last kilometre or so along a flat beside Duke River is easily driveable. The east end of the Bur property is accessible from the Duke River road by means of winter roads: one about 1 km up Bea Creek and another with a few branches continues a few kilometres up the west side of the Duke River past Frying Pan Creek onto the southeast part of the property and extends to placer claims on Granite Creek.

The second road to the Bur property starts at Mile 1104 on the Alaska Highway and follows up Burwash Creek for at least 20 km to a point just above the upper canyon and even beyond to the boundary of Kluane National Park. This is a very rough road passable under favorable conditions for an



ALASKA

YUKON
TERRITORY

NORTHWEST TERRITORIES

YELLOWKNIFE

* BUR PROPERTY

● WHITEHORSE

PACIFIC
OCEAN

BRITISH
COLUMBIA

ALBERTA

● EDMONTON

● CALGARY

● VANCOUVER

U.S.A.

0 100 200 300 400

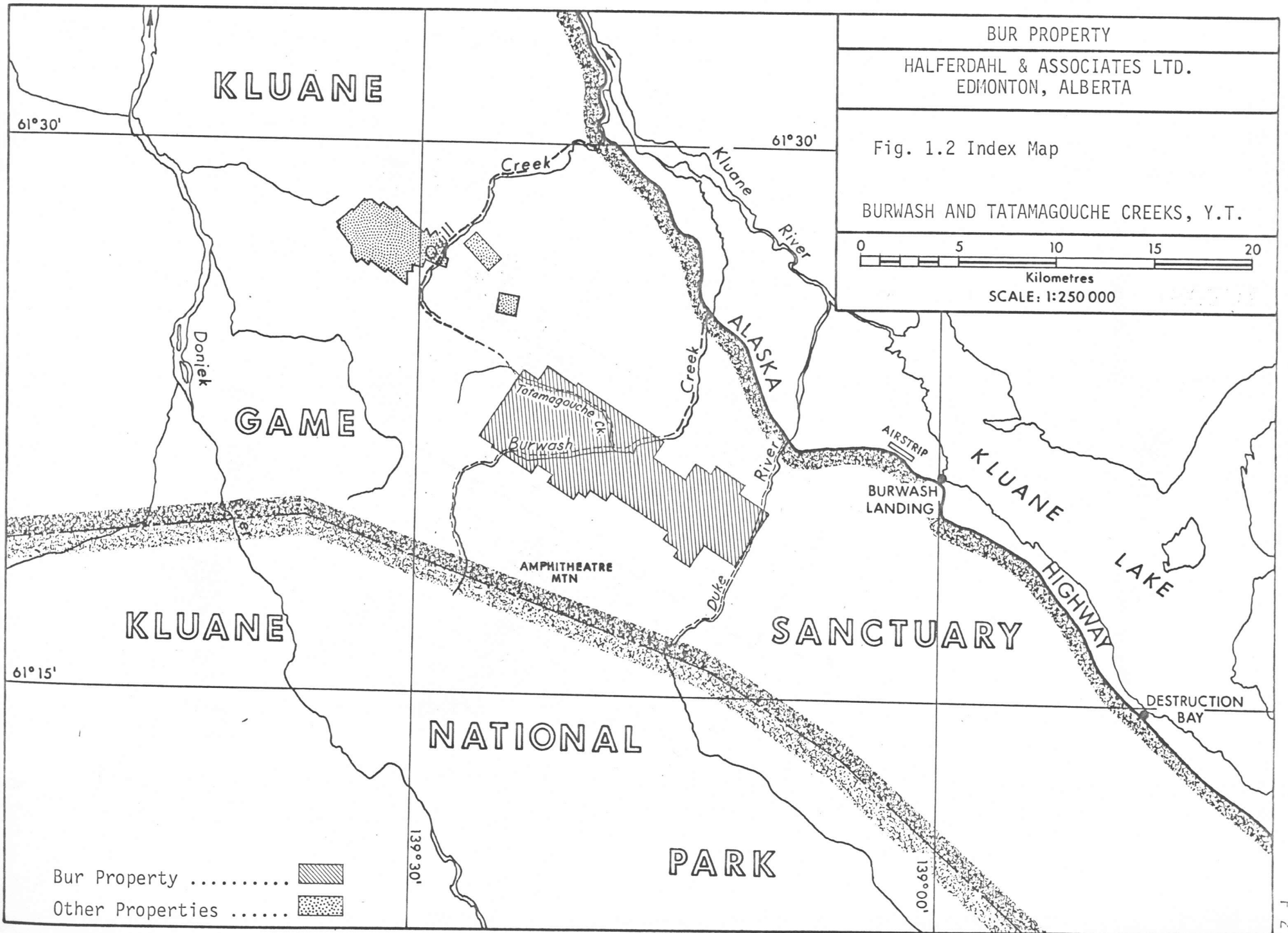
Kilometres

Scale: 1:8 920 000 Approx.

0 100 200 300 400

Miles

Fig 1.1 : Location Map, Bur Property, Yukon Territory



ordinary vehicle, but better with a four-wheel-drive vehicle. Parts of it in the lower canyon and the middle canyon just below the mouth of Tatamagouche Creek were subject to washouts or slides or both during the summer of 1983. A branch from this road leads through the canyon of Tatamagouche Creek and continues up the valley of Tatamagouche Creek across a pass to the headwaters of Quill Creek to connect with the third road which leaves the Alaska Highway at Mile 1112 and runs up Quill Creek. The branch road was partly washed out and partly covered by slides in Tatamagouche Canyon in the summer of 1983 but for part of the season was the only and best way into Burwash Creek above the lower canyon. The part of this road above Tatamagouche Canyon crosses Tatamagouche Creek at least 12 times. Across the pass on the Quill Creek side, it also crosses the creek numerous times and is right in the creek bed for short stretches.

4.3 Infrastructure

Burwash Landing at Mile 1093 on the Alaska Highway is the closest settlement. Its population is about 70 natives but seasonally may include as many as 10 or 15 non-natives excluding tourists and transients. It has an airstrip about 2000 m long and a weather office staffed by Ministry of Transport personnel. Accommodation is available in a lodge at Burwash Landing, as well as at Kluane Wilderness Village at Mile 1118 and at Destruction Bay at Mile 1083. Both of these latter places have gasoline stations with mechanics; limited groceries and helicopter fuel are also available at Destruction Bay. The closest town is Haines Junction at Mile 1016 Alaska Highway; some supplies are available there, but a wider selection of groceries and other equipment is available in Whitehorse.

Mill buildings at Mile 1112 from the former Wellgreen mine appear to be in good shape, but we understand that the milling equipment was removed some years ago.

Installations for the proposed Alaska Highway gas pipeline have been constructed at Mile 1105. A small-diameter gas pipeline already runs along the Alaska Highway.

4.4 Topography

Elevations on the Bur property range from 860 m at the lowest point on Duke River, to 1035 m at the lowest point on Burwash Creek, and to about 1960 m at the highest point on the west end of Tatamagouche Mountain near the

west end of the property. The Burwash Uplands are at elevations between 1250 and 1400 m, mostly above timberline. The property is crossed by the major valleys of Burwash Creek and its tributary Tatamagouche Creek and bounded at its southeast end by the major valley of Duke River. These valleys are 200 to 250 m deep. Smaller creeks have incised minor valleys. Valley slopes range from locally precipitous as in the canyons on Burwash and Tatamagouche Creeks to steep and moderate elsewhere. Away from the major valleys and except for parts of Tatamagouche Mountain, slopes of the upland areas are moderate to gentle with the latter on much of the Burwash Uplands. Treeline is at about 1300 m with trees mostly of spruce and poplar. Locally stumps indicate previous logging and a forest fire, both many years ago, but growth since then has resulted in some spruce trees large enough to provide mine timbers. Above treeline, the ground is covered with moss, grass, and low bushes, with extensive swampy areas on the Burwash Uplands.

4.5 Water

Both Burwash and Tatamagouche Creeks and Duke River can provide adequate water for mining and milling. Burwash Creek is fed by Burwash Glacier and is subject to rapid rises.

Investigations are required to determine whether the Kluane River with the vast natural reservoir of Kluane Lake would be suitable for hydro power. Its location in the Shakwak Trench, which contains the Denali Fault, may prevent such use.

4.6 Climate

The Bur property has an Arctic climate with pleasant summer temperatures of up to 20^o to 25^oC and winter temperatures down to -40^oC or lower. Being in the shadow of the St. Elias Mountains, the property has variable rainfall with some years being very wet and others comparatively dry. Snowfall except on the higher mountains is generally light. Except on the higher mountains, the ground is generally free of snow from late May to late September, but snow can fall in any month.

Except along the lower parts of south-facing valley slopes, the property is underlain by permafrost at depths greater than the few tens of centimetres reached by the summer thaw. Diamond drilling, however, has

indicated that the temperature of this permafrost is not much below freezing. It has not been recorded from depths greater than 60 m.

SECTION 5.0 PREVIOUS EXPLORATION

Much of the previous exploration for the Bur property was reviewed in a previous report (Bissonnette and Halferdahl, 1979). With additional claims added to the original Bur property, a summary of earlier work by others on two properties now partly included in the Bur property is included here. Review of placer exploration and mining are beyond the scope of this report.

5.1 Former Cork Claims

Twelve Cork claims were initially staked in 1966 following a regional geochemical stream sediment survey which detected anomalous copper concentrations in Johnson Creek. In 1967, additional claims were staked, and 12 claims were geologically mapped on a topographic base map at a scale of 1 inch = 400 feet with 50-foot contours. Six magnetometer profiles totalling 27 700 feet were surveyed, and 234 soil samples collected at intervals of 100 feet on parts of the same six lines surveyed magnetically. All the soil samples were analyzed for cold extractable metals and selected samples for copper by the Holman method. Copper anomalies on three lines coincided roughly with the magnetic anomalies. The magnetometer survey served as an aid in geological mapping. Copper mineralization is present in a latite porphyry and in adjoining Permian rocks on the south limb of an easterly trending syncline.

Later in 1967, seven induced polarization and resistivity profiles totalling 7.1 miles were run on 12 Cork claims. Several anomalies were found, but the surveyed lines were too widely spaced for reliable correlation from line to line, although two zones appeared to be aligned on some lines.

In 1969, a rough road was constructed to the property, 22 claims were mapped geologically at a scale of 1 inch = 200 feet, and 341 samples were collected from outcrops some of which were blasted. Both grab samples and chips from measured lengths were taken. The best average values were 0.22 per cent copper and 0.010% MoS₂. Only small proportions of the samples were assayed for lead, zinc, gold, silver, tungsten, and nickel. The results

for these six metals were considered economically uninteresting. Oddy (1969) considered the mineralization to be of the porphyry-copper type.

In 1970, eight diamond drillholes totalling 2641 feet were drilled on the Cork claims with the best grades below 0.20 per cent copper and consistently less than 0.01 per cent MoS_2 . The core was not assayed for other metals. The mineralization was reported to consist of fine-grained, finely disseminated pyrite, chalcopyrite, and molybdenite related to weak but pervasive hydrothermal alteration associated with late porphyry, which is present in irregular small bodies. Also in 1970, 181 soil samples, spaced at 200-foot intervals and collected on 10 lines 400 feet apart, showed moderate areas anomalous in copper and molybdenum, and several smaller areas possibly anomalous in one or more of lead, zinc, silver, arsenic, and nickel.

The Cork claims lapsed in 1978 or 1979, were partly restaked by others in 1979 and subsequently lapsed again in 1980.

5.2 Former Teck Claims

The 48 Teck claims were staked in 1954 to cover an area of peridotite about $6\frac{1}{2}$ km up Duke River from the Alaska Highway. The claims straddle Duke River with about three-quarters on the west side. They were staked for their potential for nickel and copper. The few outcrops on the property were mapped geologically at a scale of 1 inch = 400 feet. Magnetometer lines totalling 8.0 miles were run on lines 400 feet apart with readings at intervals of 100 feet. Most of the magnetometer lines were on the east side of Duke River. All 48 claims were covered by an electromagnetic survey totalling 52.2 miles on lines 400 feet apart. No anomalies were found and the claims lapsed after two or three years.

SECTION 6.0 GEOLOGY OF THE PROPERTY

Most of the work on the Bur property in 1983 consisted of a magnetometer survey, geochemical sampling, and heavy mineral sampling. Hence, only a brief review of the geology is given here.

6.1 Stratigraphy

A stratigraphic column for the Burwash Creek area is in Table 6.1. Of the units in it, only strata of the Paleocene St. Clare and Amphitheatre Formations have not been observed on the Bur property. Details on these and

TABLE 6.1 STRATIGRAPHIC COLUMN FOR THE BURWASH CREEK AREA
(modified after Muller, 1967; Smith and MacKevett, 1970;
Read and Monger, 1976)

Period Epoch Formation Member	Lithology
Tertiary Paleocene	LATITE, porphyritic
	————— Intrusive Contact —————
St. Clare	BASALT and ANDESITE, red-brown; massive or vesicular agglomerate, breccia, tuff
Paleocene or Eocene Amphitheatre	SANDSTONE, sand, conglomerate, gravel, shale, coal
	————— Angular Unconformity —————
Cretaceous and Later or Earlier	GRANITE, alaskite, granodiorite, diorite, related hybrid rocks
	————— Intrusive Contact —————
Upper Triassic ?	LIMESTONE and SHALE, thin-bedded, dark to black
Chitistone	LIMESTONE, massive
Nikolai	BASALT, purple and dark-green, amygdaloidal; minor interbedded limestone; conglomerate
	————— Disconformity —————
Permian-Triassic	INTRUSIONS, basic and ultrabasic feldspar porphyry
	————— Intrusive Contact —————
Lower Permian Skolai Group	
Hasen Creek	CHERT, thin-bedded; argillite, limestone, chert-granule limestone
Station Creek	
Volcaniclastic	TUFFS and AGGLOMERATES; CARBONATE, fine-grained rusty-weathering ankerite or siderite, and ARGILLITE and shale
Volcanic Flow	VOLCANICS, intermediate to basic
Rust	TUFFS and AGGLOMERATES underlain by CARBONATE, fine-grained rusty-weathering ankerite, siderite, dolomite?, and limestone, in part siliceous and argillaceous

the other units in Table 6.1 are available in some of the reports listed in the references, as only selected aspects of stratigraphic correlations are included here.

In our previous reports on the Bur property, we have attempted to adapt the stratigraphy of the Skolai Group established by Smith and MacKevett (1970) for the McCarthy Quadrangle in Alaska some 200 km west of the Bur property. However, correlating formations of volcanic flows and tuffs over such a distance is difficult, because unlike the blanket-like occurrence of most formations of sedimentary rocks, lava flows erupt from volcanoes which are essentially point sources or from fissures which are elongated sources. Further, there is no requirement for all volcanoes within a sizeable area to erupt at the same time. In spite of these circumstances we have used Smith's and MacKevett's stratigraphy for the Bur property with only minor modifications.

6.1.1 Station Creek Formation

We have retained our previous correlation of the lavas at and surrounding the middle canyon of Burwash Creek with the Volcanic Flow Member of the Station Creek Formation, but note that its minimum thickness of 100 m there is considerably less than the minimum of 1200 m for the Volcanic Flow Member at its type section near McCarthy. Further, it thins even more farther up Burwash Creek near the trailer camp, where thicknesses of only about 25 or 30 m have been mapped on both sides of the valley of Burwash Creek.

Near McCarthy the base of the Volcanic Flow Member is not exposed, whereas along Burwash Creek downstream from the trailer camp, a minimum thickness of 70 or 80 m of fine- to very fine grained light- to dark-grey siliceous to argillaceous ankeritic sediments including a few beds of grey-weathering argillaceous limestone form prominent rusty cliffs. Similar strata have been mapped below the Volcanic Flow Member just below the middle canyon on Burwash Creek. We have designated these strata as the Rust Member of the Station Creek Formation. Its base is not exposed.

Overlying the Volcanic Flow Member at one point in and above the canyon of Tatamagouche Creek is a thickness of about 290 to 300 m of agglomerates, tuffs of several kinds, black argillites, limestones, and possibly thin flows, all below a peridotite sill. The lower 153 m of this unit forms prominent rusty cliffs with the rust being caused by the oxidation of sparse

to 10 per cent or more finely disseminated pyrrhotite. At one place a bomb of almost massive pyrrhotite with minor chalcopyrite, about 1 m in size was observed. The part of this unit above the cliffs has been penetrated in drillholes and appears similar except for a gabbroic-looking tuff about 60 m thick carrying up to 1 or 2 per cent red-brown mica just below the peridotite. From 6 to 15 m below the red-mica tuff is an 18 to 20 m layer dominantly of light-grey glassy tuff here termed vitrophyric. The part of this unit in the rusty cliffs was originally designated the Volcaniclastic Member of the Station Creek Formation, and later all the strata below the peridotite sill, with the sill separating the Station Creek Formation from the overlying Hasen Creek Formation. Further observations, however, have revealed tuffs and argillites, and possibly relatively thin basic to intermediate volcanic flows stratigraphically overlying the peridotite sill, with some of the first two being similar to the strata below the sill. Hence the peridotite sill does not appear to separate the Station Creek and Hasen Creek Formations satisfactorily. Instead it is now proposed to place the top of the Station Creek Formation just below a mappable unit of chert-granule limestone roughly estimated to be about 400 to 500 m stratigraphically above the peridotite sill on Tatamagouche Mountain.

The rocks mapped as skarn by Oddy (1969) along Johnson Creek actually appear to be tuffs somewhat resembling those farther east near the top of Tatamagouche Mountain. Some contain disseminated chalcopyrite, molybdenite, as well as abundant pyrite.

6.1.2 Hasen Creek Formation

In a previous report (Nelson, 1981) the Hasen Creek Formation was divided into a Transition Member and a Main Member. However, if the base of the Hasen Creek Formation is now placed at the bottom of the mappable chert-granule limestone, then all or most of the Transition Member will be in the Station Creek Formation. Although tuffs are present above the chert-granule limestone, it appears to be a distinctive marker horizon. Where exposed on Tatamagouche Mountain, two limestone layers are present each perhaps 10 m thick separated by 20 m of sandy tuff, some pyritiferous. The limestone contains angular blocks 40 or 50 cm in size with abundant chert-granules. The chert-granule blocks are not ubiquitous throughout the limestone but are not confined to a particular layer. This chert-granule limestone forms part

of the northwesterly trending spur at the top of Tatamagouche Mountain. This chert-granule limestone has also been mapped on Betz Creek farther west.

The thickness of the Hasen Creek Formation on Tatamagouche Mountain is not yet known, but its top has been eroded both in pre-Late Triassic time and again at present, at least. Such pre-Late Triassic erosion may have removed all the Hasen Creek Formation from parts of the west end of Tatamagouche Mountain so that the overlying Nikolai Formation was locally extruded onto the partly eroded surface of the Station Creek Formation there.

6.1.3 Nikolai Formation

The base of the Nikolai Formation on Tatamagouche Mountain is an agglomeratic unit about 80 m thick unconformably overlying strata of the Skolai Group. Above the agglomerate are the amygdaloidal purple and green flows more typical of the Nikolai elsewhere in the area. The top of the Nikolai Formation on Tatamagouche Mountain has been eroded so that only about 60 m of the volcanic flows are present.

6.1.4 Other Formations

A few outcrops of limestone and chert believed to belong to formations stratigraphically above the Nikolai have been noted in one or two creeks tributary to its north side near the upper end of Tatamagouche Creek.

6.2 Intrusions

6.2.1 Magnetitic Peridotite

Much or all of the rock previously called gabbro in and near the canyon of Tatamagouche Creek is actually magnetitic peridotite. Its lower parts have been drilled on the east end of Tatamagouche Mountain, where a few bands of unassimilated whitish siliceous tuff were intersected. Its upper contact can only be located approximately on Tatamagouche Mountain, because of the scarcity of outcrops. With this uncertainty as well as uncertainty regarding its dip, it is roughly estimated to be 800 to 900 m thick. Similar peridotite, probably part of the same sill, outcrops along

the lower parts of Thirty and Forty Pups. There the peridotite may become gabbroic in its upper part. Peridotite boulders have also been noted along the lower part of 101 Pup, so the peridotite probably extends at least that far west until truncated by the southern extension of the ABC fault.

Apparently similar peridotite has been mapped by others (Walker, 1955; Muller, 1967) along the west side of Duke River upstream from Frying Pan Creek near the east end of the Bur property. Thus it is likely that the magnetitic peridotite sill on Tatamagouche Mountain extends at least to Duke River except where eroded as in the valley of Burwash Creek, and probably beyond to the southeast. Whether this sill is part of that mapped by others along Quill Creek is uncertain.

6.2.2 Granodiorite

Cretaceous granodiorite has been mapped in the upper canyon of Burwash Creek (Muller, 1967; Nelson, 1981), along 105 Pup (Nelson, 1981), on Hill 90 on the Burwash Uplands (Muller, 1967) as well as farther south. It appears to form a large pluton across the southern part of the Bur property as described in Section 7.0.

6.2.3 Latite Porphyry

Tertiary latite porphyry outcrops in two elongated masses trending along Burwash Creek, and in a third smaller mass along the axial region of an anticline on Johnson Creek. Petrographically all three masses appear similar, but the smaller westernmost mass is locally altered and contains disseminated pyrite, lesser chalcopryrite, and minor molybdenite.

6.3 Structure

The Bur property is bounded approximately on the north by the Bocks Brook Fault, a major southeasterly trending thrust fault which brings Permian strata of the Skolai Group on the southwest against Upper Triassic Nikolai Volcanics on the northeast.

A west-trending anticlinal axis appears to coincide approximately with Burwash Creek, with an adjacent westerly plunging syncline being the chief fold structure to the north on Tatamagouche Mountain. An anticline has been mapped along part of Johnson Creek, but whether this anticline is the continuation of the one farther east along Burwash Creek is uncertain.

The scarcity of outcrops has prevented most mapping of structures south of Burwash Creek.

Several faults apparently steeply dipping and striking in various directions have been located on Tatamagouche Mountain:

- 1) southerly trending ABC Fault along ABC Creek and probably extending farther south onto the Burwash Uplands with west side down,
- 2) southeasterly trending EJ Fault along EJ Creek with southwest side down,
- 3) southeasterly trending fault southwest of and crossing the canyon of Tatamagouche Creek with southwest side up, and
- 4) fault between Betz and Johnson Creeks which apparently cuts off the chert-granule limestone mapped along Betz Creek and renders stratigraphic correlations between Betz and Johnson Creeks uncertain; strike and movement also uncertain.

Undoubtedly other faults such as those encountered in some of the drillholes are present as well. In addition to the ABC Fault, others probably will be found on the Burwash Uplands. Some of these faults are probably the result of stress relief in the thick peridotite sill intercalated in tuffaceous and volcanic rocks, accompanying Tertiary and earlier periods of tectonic activity.

SECTION 7.0

MAGNETOMETER SURVEY

7.1 Rationale

Cretaceous granodiorite has been mapped on and adjacent to the Burwash Uplands: on Hill 90, along part of 105 Pup, and in the upper canyon of Burwash Creek. A magnetometer survey was run in order to trace its contact across the Burwash Uplands.

7.2 Equipment and Methods

A proton magnetometer, model MP-2 manufactured by Scintrex Limited was used for 27 traverses and 9 cross-ties between traverses all in the southern part of the Bur property on the Burwash Uplands. It reads to one gamma, with readings reproduceable to within 5 or 10 gammas under the conditions of the survey.

The magnetometer traverses were run along parts of the location lines of the claims on the Burwash Uplands and along lines midway between, starting with line 105 along the location line between claims Jy 27 and 28 and ending with line 131 along the location line between claims Jan 77 and 78 and extending farther north (Fig. 7.1 to 7.6). In all a total of 60 365 m were surveyed as follows:

<u>Traverse</u>	<u>Length</u>	<u>Traverse</u>	<u>Length</u>	<u>Traverse</u>	<u>Length</u>
105	850 m	114	2400 m	123	2460 m
106	760	115	2680	124	2000
107	840	116	2400	125	2920
108	1320	117	2780	126	2000
109	1600	118	1900	127	2370
110	1800	119	1810	128	2580
111	1890	120	1510	129	1770
112	2080	121	1800	130	1750
113	2210	122	1910	131	2440
<u>Cross-Tie</u>	<u>Length</u>	<u>Cross-Tie</u>	<u>Length</u>	<u>Cross-Tie</u>	<u>Length</u>
106-107	420 m	113-115	855 m	122-123	300 m
107-109	1070	115-117	850	123-125	1060
109-111	700	118-119	330	125-126	470
111-113	1030	120-121	440		

The magnetometer was read at intervals of 10 m along the traverses and at 20 m along the cross-ties with two readings taken at each station and averaged. Stations were re-occupied to determine diurnal and daily variations, for which corrections were made even though such corrections, mostly up to 50 gammas, are probably not significant.

7.3 Results

The results for traverses 105 to 131 are shown as profiles on the topographic base maps (Fig. 7.1 to 7.6) because the spacing between the traverses is too wide for contouring. The profiles for traverses 105 to 122 are characterized by relatively flat sections between 58 000 and 59 000 gammas either for the complete profile or at their southern ends only. Comparable flat sections mostly between 59 000 and 60 000 gammas appear at or near the southern ends of the remaining traverses except for 129 which is relatively flat throughout. These flat sections are interpreted as being underlain by typical granodiorite. Cross-tie 107-109 (Fig. 7.7) actually crosses outcrops of granodiorite in the valley of 105 Pup. Magnetometer profiles from lines 2 W and 14 W on the former Cork claims (McGinn, 1967), which cross from the

Permian rocks to the granodiorite at their southern ends, show readings 3000 to 4000 gammas higher within the granodiorite than in the adjacent Permian strata. Neither of these profiles on the former Cork claims extends far enough into the granodiorite to show the flat sections noted in the 1983 survey. These increases appear to be caused by an increase in magnetite content in the border phases of the granodiorite as noted by Nelson (1981) in the upper canyon of Burwash Creek. Hence, on the profiles in Fig. 7.1 to 7.6 the granodiorite contact is placed on the first peak north of the southern flat section, with the area south of this contact interpreted as being underlain by granodiorite. With these interpretations the contact of the granodiorite appears to be marked approximately by Burwash Creek through its upper canyon and for a short distance below as well as by the easterly flowing upper part of Thirty Pup.

The profiles for some of the traverses show relatively flat sections at their northern ends somewhat similar to those at their southern ends but with lower gamma readings as follows:

<u>Traverses</u>	<u>Gammas</u>
112-114, 121, 126-128, 131	57 000 - 58 000
122, 124, 125	56 000 - 57 000
123	55 000 - 57 000

These parts are interpreted as being underlain by sedimentary rocks of the Hasen Creek Formation.

Between the flat sections at the south and north ends most of the profiles are irregular with readings mostly between 59 000 and 63 000 gammas. These sections are interpreted as being underlain chiefly by volcanic and tuffaceous strata of the Station Creek Formation as well as ultrabasic intrusions. In these sections some of the profiles are sharp and jagged, whereas others are smooth and rounded. Possibly these differences are due to the depth of overburden with the more rounded profiles from places where the overburden is thicker.

The very high peak of 66 300 gammas on traverse 124 between claims Jan 48 and 49 may be due to peridotite but this is uncertain. It does not correlate with the profiles on adjacent traverses. The highest peak on the survey of 66 600 gammas on traverse 113 appears to be at the contact of the granodiorite, probably with peridotite.

Fig. 7.1 to 7.6 show an attempt to correlate between selected features on adjacent profiles. The features correlated may be stratigraphically equivalent but in sections of complexly faulted volcanic and tuffaceous strata, intruded by peridotite and granodiorite, many uncertainties remain.

SECTION 8.0 GEOCHEMICAL SOIL SAMPLING

8.1 Sampling and Analyses

The geochemical soil sampling on the Bur property in 1978, 1979, and 1980 showed the presence of one or two layers of volcanic ash right below the humus with the volcanic ash locally permanently frozen. Further, glacial till is present in many places below the volcanic ash. In spite of these conditions, which militate against the collection of useful samples, geochemical soil samples were collected from a grid on Tatamagouche Mountain, as well as from one traverse on Johnson Creek, and from another on the Burwash Uplands. It was expected that permafrost would be deep enough not to reach the volcanic ash layer or possibly not present at all on the south-facing slopes of Tatamagouche Mountain. Further, on some of the steeper slopes it is likely that the ash layer and possibly the glacial till had been eroded away, locally at best. In any event, all samples were collected from as deep as reasonably possible.

The location of the grid for soil sampling on Tatamagouche Mountain was chosen to include the geochemical anomalies found there in the 1980 reconnaissance geochemical traverses, and because that part of Tatamagouche Mountain appeared to consist of strata correlatable with those from which heavy mineral samples along Johnson and Betz Creeks had shown anomalous gold concentrations. The grid was laid out by extending the baseline westerly from west of the upper sump from 2400 E for 2720 m to ABC Creek by means of pickets and chain. The previous chainages along the baseline were modified by adding 10 000 m to each so that 2000 E will now be designated 12 000 E. Similarly, 10 000 m were added to the previous northing coordinates so that the baseline now lies along 11 000 N. The soil samples were all collected north of the baseline at intervals of 20 m along offset lines 200 m apart, run by compass and topofil without slope corrections.

Geochemical soil samples were collected on one line (25W) on the former Cork claims of Imperial Oil Limited in order to be able to compare the Imperial Oil analyses with those from other parts of the Bur property.

Geochemical soil samples were also collected along one of the lines of magnetometer readings (line 124) on the Burwash Uplands to learn whether useful soil samples can be obtained on the Burwash Uplands.

In all, 583 geochemical soil samples were collected along 10 lines (Fig. 8.2 and 8.3, appendix 1) as follows:

<u>Line</u>	<u>Length</u>	<u>Sample Interval</u>	<u>Number of Samples</u>	<u>Claims</u>
10 600 E	840 m	20 m	43	JY 9, 10, 12
10 800 E	1600	20	81	JY 9, 10, 12, KAT 15, 20
11 000 E	2000	20	98	JY 5, 7, 10, KAT 13, 15, 16, 22
11 200 E	1800	20	93	JY 7, 10, KAT 13, 15, 16, 22
11 400 E	1200	20	61	JY 7, KAT 1, 13, 14, 16
11 600 E	1200	20	61	JY 8, KAT 1, 3, 14
11 800 E	900	20	46	KAT 1, 2, 3
12 000 E	900	20	46	KAT 2, 3, 4
25 W	560	40	15	JY 51
124	1520	40	39	JAN 42, 44, 46, 48, 49, 51
	<u>12 520 m</u>		<u>583</u>	

The -80 mesh fractions of the soil samples were analyzed by standard atomic absorption techniques for nickel, copper, zinc, lead, and molybdenum and by standard neutron activation techniques for gold.

8.2 Distributions of Concentrations of Gold, Molybdenum, Lead, Zinc, Copper, and Nickel

The distributions of gold, molybdenum, lead, zinc, copper, and nickel in the 583 soil samples collected in 1983 are shown in Fig. 8.1. The method of presentation is that described by Lepeltier (1969). In Fig. 8.1 all samples have been included regardless of whether the material sampled is silt, humus, or volcanic ash. Statistical parameters for each metal follow.

<u>Metal</u>	<u>Number of Samples</u>	<u>Background Concentration (geometric mean)</u>	<u>Coefficient of Deviation</u>	<u>Threshold Concentration</u>	<u>Per Cent of Anomalous Samples</u>
Au	583	2.1 ppb	0.35	9 ppb	4.0
Mo	583	1.5 ppm	0.26	4 ppm	5.5
Pb	583	4.5 ppm	0.27	16 ppm	2.5
Zn	583	92 ppm	0.13	170 ppm	2.5
Cu	583	63 ppm	0.15	110 ppm	5.0
Ni	583	50 ppm	0.16	105 ppm	2.5

All the curves show the change in slope at higher concentrations typical of samples from a suite with both normal and anomalous populations. Some show other small changes in slope, probably the result of more than two populations, but these are not considered here.

The threshold and background concentrations for gold are lower than those found in previous geochemical soil surveys of the Bur property. No comparisons are possible for molybdenum because it was not determined in previous surveys. The threshold and background concentrations for lead and copper are about the same as in previous surveys. The threshold concentration for zinc is higher than found in previous surveys, whereas the background concentration is only slightly higher. The threshold and background concentrations for nickel are generally lower than those in previous surveys. Except for nickel, the reasons for these differences are not apparent. The likely explanation for the nickel differences is that only short lengths of a few traverses were across ground underlain by peridotite with its higher nickel content compared to much longer lengths across peridotite in the previous surveys.

8.3 Anomalous Concentrations

The concentrations of nickel, copper, zinc, lead, gold, and molybdenum at or above the thresholds for these metals for the soil sample grid on Tatamagouche Mountain are listed in Table 8.1. The locations of these samples with anomalous concentrations are shown in Fig. 8.2 along with the analyses for all six metals even though only one to four of the six metals are anomalous in any one sample. It is obvious from Table 8.1 and Fig. 8.2 that

- 1) very few anomalous concentrations are more than twice the threshold concentrations: the anomalies are subtle,
- 2) many samples with anomalous concentrations are not adjacent to other samples with anomalous concentrations, and
- 3) of 68 samples with an anomalous concentration of at least one metal, only 20 samples have anomalous concentrations of two or more metals.

Such occurrences of anomalous concentrations are to be expected in a mountainous area where mechanical weathering of mineralized bedrock greatly predominates over chemical weathering, as shown by many of the sample descriptions in appendix 1. Further the glacial till which forms the relatively flat top on

TABLE 8.1

ANOMALOUS CONCENTRATIONS OF NICKEL, COPPER, ZINC, LEAD, GOLD,
AND MOLYBDENUM IN GEOCHEMICAL SOIL SAMPLES FROM GRID
ON TATAMAGOUCHE MOUNTAIN
(all ppm except Au - ppb)

Location	Ni	Cu	Zn	Pb	Au	Mo	Location	Ni	Cu	Zn	Pb	Au	Mo
<u>10600E</u>							<u>11200E</u>						
11200N	-	-	175	-	-	-	11040N	107	-	-	-	-	-
11360N	-	-	-	17	-	-	11360N	-	130	-	-	13	4
11440N	-	-	185	-	9	-	11640N	-	-	-	-	23	-
11800N	-	116	-	-	-	-	11660N	-	-	-	26	-	-
<u>10800E</u>							11680N	-	-	188	31	-	-
11080N	-	-	-	-	37	-	11740N	-	-	-	-	-	4
11120N	110	-	-	-	-	-	11760N	-	184	320	59	-	4
12060N	-	-	-	18	-	-	11780N	-	119	275	110	-	5
12180N	-	208	-	-	-	-	11800N	-	-	-	-	17	-
12440N	110	-	-	-	-	-	11920N	-	-	171	-	-	-
<u>11000E</u>							12000N	117	220	-	-	-	-
11560N	-	-	-	-	9	-	12360N	-	119	-	-	-	-
11760N	-	-	306	33	-	-	12540N	-	-	190	20	-	-
11860N	120	-	-	-	-	-	12560N	-	-	-	-	28	-
11920N	-	-	180	-	-	-	12600N	-	143	-	-	-	-
11940N	115	122	-	-	-	-	12620N	400	-	-	-	-	-
11960N	-	220	-	-	-	-	12640N	118	-	-	-	-	-
11980N	128	136	248	16	-	-	<u>11400E</u>						
12000N	115	161	210	-	-	-	11000N	109	-	-	-	-	-
12020N	-	196	174	-	-	-	11120N	-	140	-	-	-	-
12060N	-	147	207	-	-	4	11140N	-	-	-	-	-	11
12100N	184	-	-	-	-	-	11180N	-	117	-	-	-	-
12120N	-	-	182	-	-	-	11260N	-	-	-	-	-	17
12140N	-	154	-	-	-	-	11620N	-	179	-	-	-	-
12220N	-	-	184	-	-	-	11640N	-	123	-	-	-	-
12240N	-	111	180	-	-	-	11680N	106	-	-	-	-	-
12280N	-	-	-	-	9	-	11880N	-	-	-	16	-	-
12360N	-	182	275	18	-	-	12120N	-	111	-	-	-	-
12520N	-	-	170	-	-	-	12160N	-	131	-	17	-	-
12600N	-	-	240	-	-	-	12180N	-	135	191	21	-	-
12680N	-	-	187	70	-	-	<u>11600E</u>						
12700N	-	158	480	37	-	-	11400N	-	127	-	16	-	-
12780N	-	120	-	-	-	-	12080N	-	132	-	-	-	-
12800N	-	164	-	-	-	-	12100N	-	130	-	-	-	-
							<u>11800E</u>						
							11600N	-	-	-	-	9	-
							<u>12000E</u>						
							11120N	116	-	-	-	-	-
							11300N	-	135	-	-	-	-
							11880N	130	-	-	-	-	-

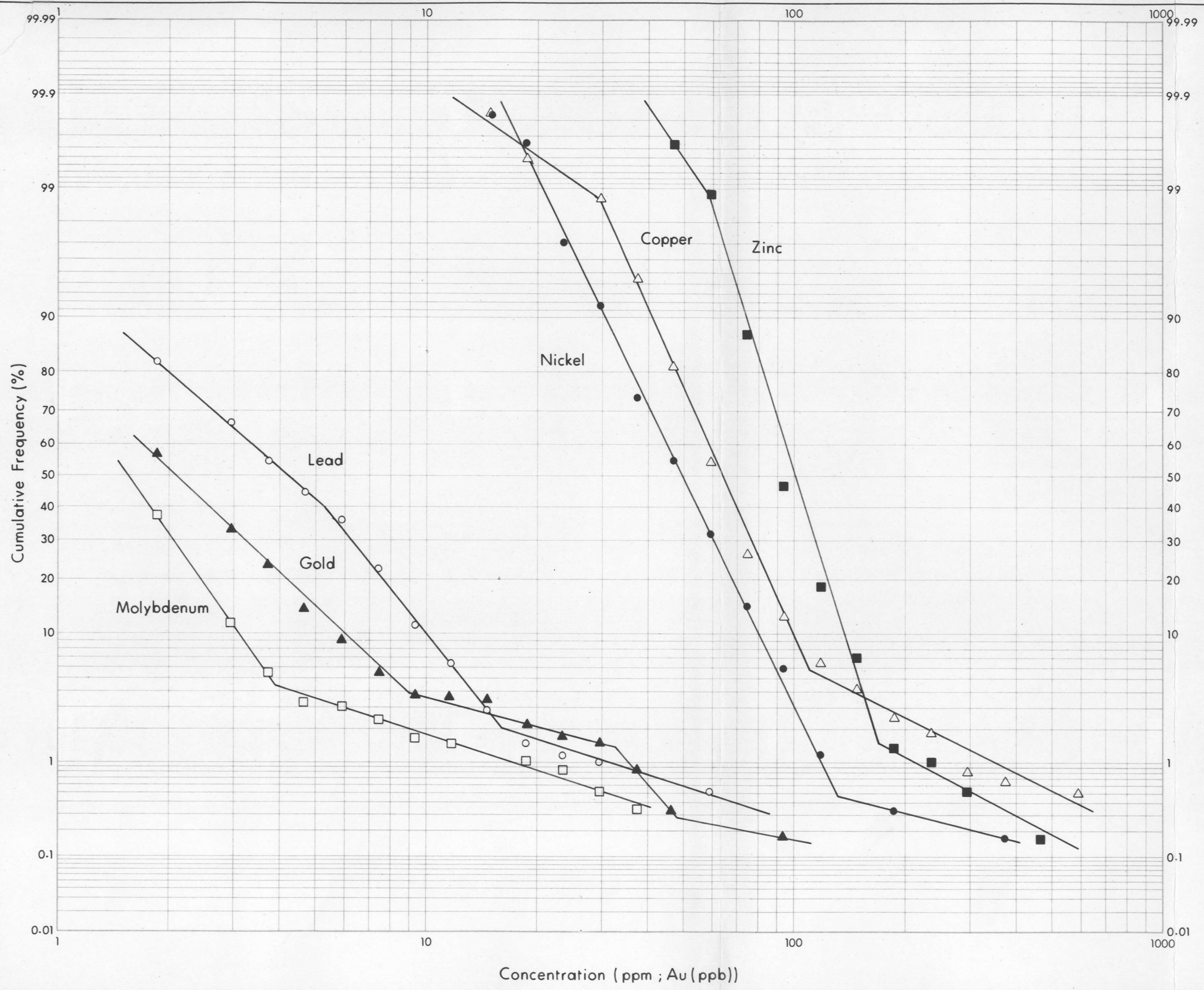
the part of Tatamagouche Mountain from which the samples were collected, the presence of a layer of volcanic ash mostly present just below the humus layer, the local presence of permafrost which limits the depths of holes from which the samples were collected, and the occurrence of slump and creep phenomena locally on some of the mountainsides are not conducive to collecting soil samples which reflect metal concentrations in the underlying bedrock.

In spite of the foregoing, it is obvious that lines 11 000 E, 11 200 E and 11 400 E are more anomalous than the other lines as shown by the following tabulation. The anomalous samples on the central and northern parts

Line	Number of Samples	Number of Anomalous Samples	Per Cent of Anomalous Samples	Number of Anomalous Concentrations	Per Cent of Anomalous Concentrations
10600E	43	4	9.3	5	1.9
10800E	81	5	6.2	5	1.0
11000E	98	23	23.5	39	6.6
11200E	93	17	18.3	28	5.0
11400E	61	12	19.7	15	4.1
11600E	61	3	4.9	4	1.1
11800E	46	1	2.2	1	0.4
12000E	46	3	6.5	3	1.1

of lines 11 000 E and 11 200 E, and the northern part of line 11 400 E are on a steep slope mostly covered by overburden and drained by Kat Creek and its upper tributaries. The anomalous concentrations on this slope appear to be 100 to 200 m stratigraphically below the chert-granule limestone. Three adjacent samples have slightly anomalous concentrations of molybdenum on this part of line 11 200 E, among the higher concentrations of zinc and lead, as well as anomalous copper. Although the structure is probably not uniform, some measurements indicate that the highly anomalous zinc and lead concentrations near the north end of line 11 000 E may be on strike with those farther south on lines 11 000 E and 11 200 E. Near the top of the south-facing slope above Joyce Creek is an outcrop of malachite-stained tuff.

Although the grid lines are 200 m apart, Fig. 8.2 shows an attempt to outline the areas of anomalous concentrations for nickel, copper, zinc, lead, and molybdenum. The lines showing these anomalous concentrations include some samples without anomalous concentrations because anomalous concentrations in underlying bedrock may be masked in some samples by the products of



METAL	SYMBOL	N	BACK-GROUND	THRESHOLD
Nickel	●	583	50	105
Copper	△	583	63	110
Zinc	■	583	92	170
Lead	○	583	4.5	16
Gold	▲	583	2.1	9
Molybdenum	□	583	1.5	3.7

BUR PROPERTY
 HALFERDAHL & ASSOCIATES LTD.
 EDMONTON, ALBERTA

Fig. 8.1 Distributions of Nickel,
 Copper, Zinc, Lead, Gold,
 and Molybdenum

BURWASH CREEK AREA, YUKON

LBH 1983.10

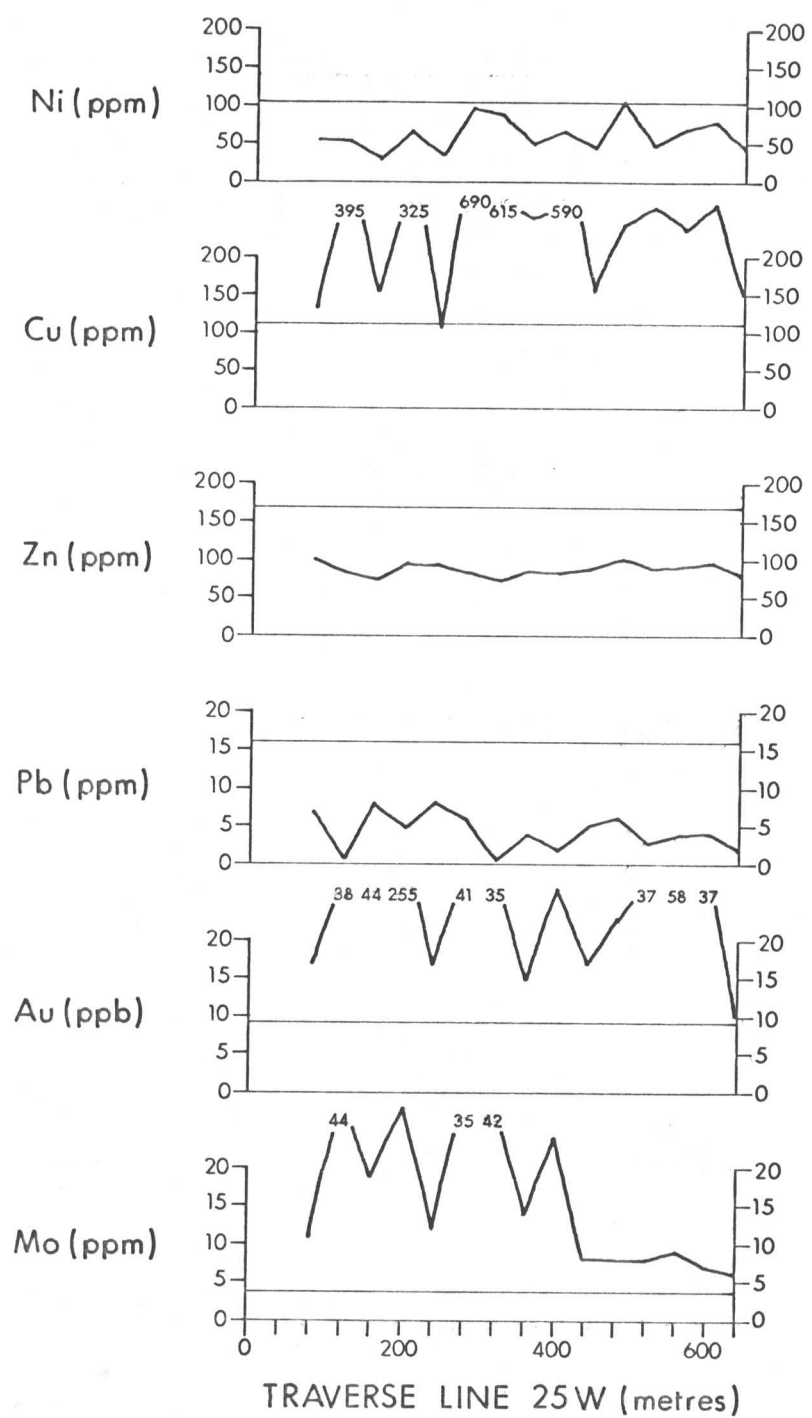
mechanical weathering, or covered by glacial till or slumped material. Hence, the areas shown as anomalous are approximate only.

Only nine anomalous gold concentrations were found on Tatamagouche Mountain and only two of these coincide with anomalous concentrations of other metals in the same samples. This is regarded as further evidence of the mechanical weathering of the bedrock in the area. Those from the south slope of Tatamagouche Mountain have probably moved farther downslope from their source than the others, although those near the south end of lines 10 600 E and 10 800 E may be related to the EJ Fault. For these reasons, areas with anomalous concentrations of gold in soil samples have not been outlined in Fig. 8.2.

Previous soil sampling, overburden drilling, and analyses of rock samples have shown that much of the magnetitic peridotite contains at least 1000 ppm nickel. Thus, the nickel in the samples with anomalous nickel concentrations has an obvious source with such samples near the ends of the grid lines probably reflecting nearby peridotite bedrock and the others, glacially transported magnetitic peridotite. The area of anomalous nickel concentrations shown including 11 000 E, 12 000 N in Fig. 8.2 may coincide with a basic dyke.

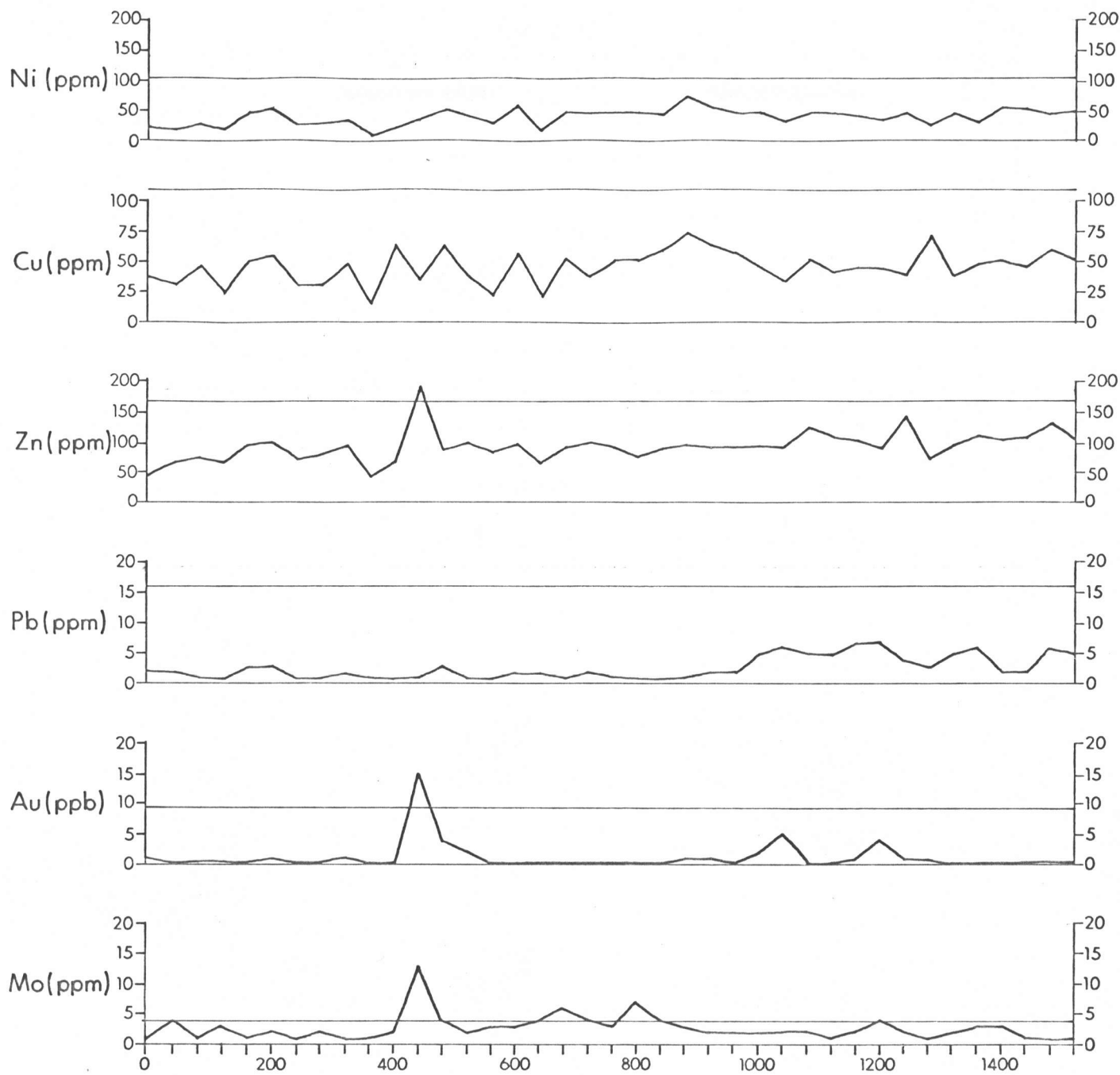
The results for geochemical soil samples from traverse line 25 W from the former Cork claims are shown in Fig. 8.4. Highly anomalous concentrations of copper, gold, and molybdenum are mostly coincident in the same adjacent samples. These results differ from those from the grid on Tatamagouche Mountain probably because of the character of the slope sampled - relatively uniform south-facing and free from permafrost and till. The lack of anomalous zinc and lead concentrations is puzzling. The range of concentrations obtained for nickel, copper, zinc, and molybdenum compare favorably with those reported by Cathro (1970) but those for lead are only one-sixth to one-eighth.

The results for geochemical soil samples from traverse line 124 on the Burwash Uplands are shown in Fig. 8.5. Surprisingly one sample of humus contains anomalous concentrations of zinc, gold, and molybdenum. Two other samples of humus also contain slightly anomalous concentrations of molybdenum. Although previous sampling of humus on the Bur property has not been favorably



Threshold

BUR PROPERTY	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 8-4 Concentrations of Nickel, Copper, Zinc, Lead, Gold, and Molybdenum along Geochemical Traverse Line 25W BURWASH CREEK AREA, YUKON	
LBH	1983.10



TRAVERSE LINE 124 (metres)

Threshold.....

BUR PROPERTY	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 8-5 Concentrations of Nickel, Copper, Zinc, Lead, Gold, and Molybdenum along Geochemical Traverse Line 124 BURWASH CREEK AREA, YUKON	
LBH	1983.10

regarded, a review of previous analyses of humus samples does show some anomalous concentrations. Thus humus may possibly be a satisfactory medium to sample on parts of the Bur property, at least.

SECTION 9.0 HEAVY MINERAL SAMPLING

9.1 Sampling and Analyses

Samples of heavy minerals were collected from four pups draining into Burwash Creek from the south and from Frying Pan Creek which drains into Duke River from the west. The first sample in each pup or creek was collected at or about 100 m upstream from its confluence with Burwash Creek or Duke River. Other samples were collected at intervals of about 200 or 400 m farther upstream, with the sample number corresponding to the number of metres upstream. The following five creeks were sampled.

<u>Creek</u>	<u>Designation in Appendix 3</u>	<u>Sampled Length</u>	<u>Number of Samples</u>	<u>Claims</u>
30 Pup	D.P.	5700 m	19	DEN 6, EL 5, 6, 11, 14, 19, 20, 27, JAN 28, 29, 45, 47
40 Pup	II	1300 m	4	DEN 4, 6, EL 1
45 Pup	PI	100 m	1	WEN 1
101 Pup	III	2100 m	6	JY 37, 38, 40, 42, AND 13, 14
Frying Pan	Frying Pan	2900 m	8	EL 48, 53, 54, 60, 61
		<u>12100 m</u>	<u>38</u>	

At each sample location, gravel from the bed of the creek was shovelled into a five-gallon (24-L) pail with the larger boulders omitted, so that at most locations, the boulders omitted from the samples will compensate for the swell of the disturbed gravel. The gravel in the pail was sieved wet with an 8-inch hand sieve and the -10 mesh material panned to $\frac{1}{4}$ to $\frac{1}{2}$ kg in the field. These concentrates were later dried and the heavy minerals separated at a specific gravity of 2.96. A representative part of the non-magnetic heavy fraction was analyzed by standard atomic absorption techniques for copper, nickel, lead, and zinc, and by neutron activation techniques for gold.

9.2 Results

The analytical results are in appendix 3 and shown in Fig. 9.1 to 9.4. The analytical results from 37 samples have not been analyzed statistically but inspection of them indicates the following:

Gold is highly anomalous in the lower part of Frying Pan Creek at two separate places along Thirty Pup, moderately anomalous at a third place along Thirty Pup and at the one place sampled in 45 Pup, and possibly slightly anomalous at one place along 101 Pup

Lead may be slightly anomalous in one sample from Thirty Pup.

No zinc anomalies were found.

Copper may be slightly anomalous in one sample from Forty Pup.

Nickel is anomalous in five samples from 101 Pup.

The highly anomalous concentrations of gold in Frying Pan Creek and Thirty Pup appear highly significant, but as these do not coincide with anomalous concentrations of other metals, it is uncertain whether they represent contributions directly from bedrock sources or from pre-glacial channels. The nickel anomalies in 101 Pup are probably derived from local magnetitic peridotite.

SECTION 10.0

ROAD MAINTENANCE

Following the repair and rerouting of part of the road through the upper part of the canyon on Tatamagouche Creek in July, 1983, heavy rain about the middle of August caused two slides in the same area (Fig. 7.4). One was cleared by means of a 980 loader, and the second about a week later by means of a 7-man crew working with hammers, crowbars, and shovels, when the loader was not available.

Respectfully submitted,

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Edmonton, Alberta
1983 10 31

SECTION 11.0

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APPENDIX 1: GEOCHEMICAL SOIL SAMPLE DESCRIPTIONS

Soil horizons sampled are not specifically designated because of the presence of a light-colored layer of volcanic ash (except as noted) just below the humus layer (Ao). At some locations samples could not be collected below the humus or the ash layer because of permafrost.

Sample Number	Sample Depth (cm)	Remarks
<u>Line 10600E</u>		
11000N	40	medium-tan-brown silt to coarse sand with 50% angular rock fragments including abundant chips $\frac{1}{4}$ -1 cm
11020N	50	dark-blackish-brown silt with trace of fine sand and 25% angular rock fragments
11040N	40	dark-brown silt with 3% fine to medium sand and 12% angular rock fragments
11060N	40	dark-tan-brown silt with 3% fine to medium sand and 50% angular volcanic or gabbro fragments, no ash visible
11080N	45	dark-tan-brown silt with 3% fine to medium sand and 12% angular rock fragments
11100N	40	medium-tan-brown silt with coarse sand and 75% small angular rock fragments
11120N	45	dark-tan-brown silt with 3% fine to medium sand and 12% angular rock fragments
11140N	45	tan-brown silt with coarse sand and 67% angular rock fragments 1/3 gabbro or coarse flow
11160N	50	dark-brown silt with 3% fine to medium sand and 50% angular volcanic fragments
11180N	50	dark-blackish-brown silt with trace of fine sand and 8-10% angular rock fragments
11200N	50	dark-brown silt with trace of fine sand and 50% angular rock fragments
11220N	50	dark-tan brown silt with 3% fine to medium sand and 33% angular very fine dark-grey tuff fragments
11240N	60	medium-tan-brown silt to coarse sand and 67% angular argillite fragments
11260N	40	medium-tan-brown silt with 3% fine to medium sand and 50% angular volcanic fragments
11280N	40	dark-brown silt with trace fine sand and 67% angular shale and volcanic fragments
11300N	45	dark-tan-brown silt ranging to coarse sand with 75% angular dark-grey fragments with pyrite in fractures including abundant chips $\frac{1}{4}$ to 1 cm

Sample Number	Sample Depth (cm)	Remarks
11320N	50	dark-brown silt with 75% angular rock fragments to 10 cm
11340N	45	dark-brown silt with 3% fine to medium sand and with 1-3% white specks, 50% angular black argillite fragments
11360N	45	dark-tan-brown silt with 3% fine to medium sand and 33% angular rock fragments up to 4 cm
11380N	35	dark-brown silt with 12% angular bioclastic dolomite fragments
11400N	35	dark-brown silt and 8-10% angular bioclastic dolomite fragments
11420N	45	dark-brown silt with less than 8-10% angular rock fragments
11440N	35	medium-tan-brown silt with 3% fine to medium sand and 75% angular shale fragments to 10 cm
11460N	35	dark-tan-brown silt with 3% fine to medium sand and 67% angular bioclastic dolomite fragments
11480N	35	medium-tan-brown silt to coarse sand and 75% angular rock fragments to 5 cm
11500N	40	medium-tan-brown silt with 3% fine to medium sand and 75% angular fragments of rusty buff-weathering grey-green tuff with abundant white crystallites
11520N	45	medium-tan-brown silt with 3% fine to medium sand and 75% angular fine-grained green-grey tuff or argillite fragments
11540N	30	medium-tan-brown silt to coarse sand with 75% angular fine-grained light-greenish-grey tuff fragments including abundant chips 1/4-1 cm
11560N	40	dark-tan-brown silt with trace fine sand and 75% angular rock fragments
11580N	35	medium-tan-brown silt to coarse sand and more than 75% angular greenish tuff fragments including abundant chips to 1 cm
11600N	30	medium-tan-brown silt to coarse sand and much more than 75% angular fragments of argillite and dark-medium-grey tuff
11620N	30	dark-tan-brown silt with 3% fine to medium sand and more than 75% angular rock fragments on permafrost
11640N	60	humus with ash on permafrost
11660N	30	medium-greyish-tan-brown silt with trace fine sand and 50% angular rock fragments
11680N	40	medium-tan-brown silt with trace fine sand and 67% angular medium-greenish-grey tuff fragments
11700N	40	medium-grey-brown silt with few coarse sand grains and 75% angular rock fragments
11720N	45	medium-grey-brown silt with ash and more than 75% angular greenish-grey tuff fragments
11740N	40	medium-brown silt with 3% fine to medium sand with ash and 75% angular rock fragments

Sample Number	Sample Depth (cm)	Remarks
11760N	40	medium-tan-brown silt with 3% fine to medium sand and 50% angular rock fragments
11780N	30	medium-tan-brown silt with trace fine sand and 12% angular medium-grained greenish-grey tuff fragments
11800N	30	medium-rusty-brown silt to coarse sand and more than 75% angular rock fragments including abundant chips 1/4-1 cm
11820N	25	rust-brown silt to coarse sand with ash and humus
11840N	15	dark-blackish-brown silt with trace fine sand and 12% angular rock fragments
<u>Line 10800E</u>		
11000N	65	90% whitish volcanic ash
11020N	40	black silt with about 2% fine to medium sand and less than 10% rounded rock fragments
11040N	30	dark-brown soil with less than 10% rounded rock fragments and ash
11060N	40	dark-brown silt with 10% rounded rock fragments and 3% fine to medium sand
11080N	45	dark-brown soil with less than 10% rounded rock fragments and some ash
11100N	40	medium-tan-brown soil with less than 10% rounded rock fragments and 40% ash
11120N	35	tan-brown soil with less than 10% rounded rock fragments and 30% roots
11140N	45	dark-brown silt with 10% rounded rock fragments and 3% fine to medium sand
11160N	45	dark-brown clay with 3% fine to medium sand, no ash noted
11180N	80	dark-brown clay with 3% fine to medium sand
11200N	50	dark-brown silt with less than 10% angular rock fragments including one of tuff
11220N	40	black silt with less than 10% rock fragments and 20% ash
11240N	40	dark-brown silt with 10% slightly rounded rock fragments and 3% fine to medium sand; no ash noted
11260N	60	dark-brown silt with 3% fine to medium sand and some ash
11280N	40	dark-brown silt with 20% angular tuff fragments
11300N	40	dark-brown silt with 3% fine to medium sand and 40% angular rock fragments
11320N	40	black silt with less than 10% angular rock fragments and 3% fine to medium sand
11340N	50	dark-brown silt with roots and less than 10% angular rock fragments

Sample Number	Sample Depth (cm)	Remarks
11360N	60	dark-brown silt with 3% fine to medium sand
11380N	30	medium-tan-brown silt with 20% angular tuff fragments, no ash noted
11400N	30	dark-brown silt with 50% angular rock fragments near tuffaceous bedrock, no ash visible
11420N	30	dark-brown silt with 30% angular rock fragments, no ash visible
11440N	0	dark-brown silt on scree slope of tuff, no ash noted
11460N	30	dark-brown to black silt with 3% fine to medium sand, no ash visible
11480N	30	dark-brown silt with 30% angular tuff fragments, no ash visible
11500N	25	black humus with 75% angular rock fragments, no ash visible
11520N	20	red ash with humus at permafrost
11540N	20	mostly ash with humus at permafrost
11560N	20	mostly ash with humus at permafrost
11580N	20	mostly humus with ash at permafrost
11600N	30	dark-brown silt with 20% angular rock fragments, no ash visible
11620N	30	dark-brown silt with less than 10% slightly rounded tuff fragments and 3% fine to medium sand
11640N	30	ash and humus in equal proportions at permafrost
11660N	40	dark-brown silt with 20% angular rock fragments
11680N	30	dark-brown silt with 20% angular rock fragments, no ash visible
11700N	35	dark-brown silt with 30% angular tuff fragments some containing pyrrhotite, no ash visible
11720N	40	dark-brown silt with 50% angular tuff fragments and 3% fine to medium sand, no ash visible
11740N	40	dark-brown silt with 80% angular tuff fragments
11760N	45	dark-brown silt with 50% angular tuff and gabbro fragments
11780N	35	dark-brown silt with 30% angular tuff fragments, no ash visible
11800N	45	dark-brown silt with 50% angular tuff fragments, no ash visible
11820N	40	dark-brown silt with 10% angular tuff fragments, no ash visible
11840N	40	mostly humus at permafrost
11860N	35	dark-brown silt with less than 10% angular rock fragments, no ash visible
11880N	35	dark-brown-black silt with less than 10% angular rock fragments and 3% fine to medium sand

Sample Number	Sample Depth (cm)	Remarks
11900N	45	dark-brown silt with less than 10% angular rock fragments and 3% fine to medium sand
11920N	35	dark-brown silt with 10% angular rock fragments to 1 cm in size and 3% fine to medium sand
11940N	35	dark-brown silt with 40-50% angular tuff fragment mostly 1-2 mm no ash visible
11960N	20	dark-brown silt with 40% angular rock fragments, no ash visible
11980N	40	dark-brown silt with less than 10% angular rock fragments and 3% fine to medium sand
12000N	40	dark-brown silt with 10% angular rock fragments
12020N	25	dark-brown silt with 20% angular tuff fragments, no ash visible
12040N	50	dark-brown-black silt with less than 10% angular rock fragments and 3% fine to medium sand
12060N	30	dark-brown silt with 15% angular rock fragments and 3% fine to medium sand, no ash visible
12080N	40	dark-brown to black silt with less than 10% angular rock fragments and 3% fine to medium sand
12100N	35	dark-brown to black silt with less than 10% angular rock fragments and 3% fine to medium sand, no ash visible
12120N	50	black silt with less than 10% angular rock fragments and 3% fine to medium sand
12140N	45	dark-brown silt with less than 10% angular rock fragments and 3% fine to medium sand
12160N	40	black silt with 40% angular tuff fragments and 3% fine to medium sand
12180N	30	dark-brown silt with 75% angular tuff fragments
12200N	55	80% ash and some dark-brown silt
12220N	40	black very fine silt with 3% fine sand
12240N	35	tan-brown silt with 80% angular tuff fragments 3-12 mm in size on scree slope
12260N	40	dark-brown silt with 50% angular tuff fragments
12280N	50	fine black silt with 20% angular tuff fragments and 3% fine to medium sand
12300N	40	black silt with 50% angular tuff fragments
12320N	10	tan-brown silt with 75% angular fragments of tuff, conglomerate, and limestone on scree slope
12340N	30	tan-brown silt with 70% angular fragments of tuff, conglomerate, and limestone on scree slope, no ash visible

Sample Number	Sample Depth (cm)	Remarks
12360N	30	black silt with 80-90% angular fragments of limestone and tuff, no ash visible
12380N	30	dark-brown silt with 60% angular rock fragments on scree slope
12400N	20	angular tuff fragments, no ash visible
12420N	40	black silt with 50% angular rock fragments and 3% fine to medium sand, no ash visible
12440N	25	dark-brown silt with 30% angular rock fragments, no ash visible
12460N	20	dark-brown silt with 20% angular rock fragments
12480N	30	dark-brown silt with 20% angular rock fragments, no ash visible
12500N	30	humus at permafrost
12520N	30	dark-brown silt with 20% angular rock fragments and some humus, no ash visible
12540N	30	dark-brown silt with 20% angular rock fragments and some humus, no ash visible
12560N	30	dark-brown silt with 20% angular rock fragments and 3% fine to medium sand
12580N	30	dark-brown silt with 20% angular rock fragments, no ash visible
12600N	50	dark-brown silt with 90% ash
<u>Line 11000E</u>		
11000N	40	medium-tan-brown silt with 3% fine to medium sand and 75% angular gabbro fragments
11020N	35	dark-brown silt with 3% fine to medium sand and 33% rounded angular rock fragments
11040N	50	dark-brown ash, humus, and silt with 3% fine to medium sand and 12% angular rock fragments
11060N	30	medium-tan-brown silt with 3% fine to medium sand and more than 75% angular rock fragments
11080N	40	dark-tan-brown silt with 3% fine to medium sand and less than 12% angular rock fragments
11100N	40	medium-tan-brown silt with 3% fine to medium sand and 12% angular rock fragments
11120N	35	dark-brown silt with 3% fine to medium sand and 12% angular rock fragments
11140N	40	dark-brown silt with 3% fine to medium sand and 12% angular rock fragments
11160N	30	dark-tan-brown silt with 3% fine to medium sand and 33% angular rock fragments

Sample Number	Sample Depth (cm)	Remarks
11180N	40	dark-brown silt with 3% fine to medium sand and 33-50% angular gabbro fragments
11200N	40	dark-tan-brown silt with 3% fine to medium sand and 33% angular tuff fragments
11220N	35	dark-brown-silt with 3% fine to medium sand, a bit of ash and 33% angular gabbro fragments
11240N	40	dark-brown silt with 3% fine to medium sand and 75% angular gabbro fragments
11260N	40	dark-tan-brown silt with 3% fine to medium sand and 33% angular gabbro fragments
11280N	40	dark-tan-brown silt with 3% fine to medium sand and 50% angular gabbro fragments
11300N	60	dark-tan-brown silt with 3% fine to medium sand and 12% angular rock fragments
11320N	30	medium-tan-brown silt with 3% fine to medium sand and 75% angular volcanic fragments at bedrock
11340N	30	dark-tan-brown silt with 3% fine to medium sand and more than 75% angular tuff or volcanic fragments
11360N	30	medium-rust-tan-brown silt with 3% fine to medium sand and 50% angular volcanic fragments
11380N	35	dark-rust-tan-brown silt with 3% fine to medium sand and 67% angular dark-grey-green volcanic fragments
11400N	35	medium-rust-brown silt with 6% fine to medium sand and 67% angular rock fragments including abundant rock chips $\frac{1}{4}$ -1 cm
11420N	30	medium-tan-rust-brown silt with 3% fine to medium sand and 75% angular volcanic fragments $\frac{1}{4}$ -1 cm.
11440N	50	dark-tan-brown clayey silt and 12% angular gabbro fragments
11460N	30	rust-tan-brown-silt with 75% angular rock fragments including abundant small fragments $\frac{1}{4}$ -1 cm on scree
11480N	40	medium-rusty-brown silt with 3% fine to medium sand and 67% angular rock fragments including abundant chips $\frac{1}{4}$ -1 cm
11500N	30	dark-brown silt with 50% angular volcanic fragments $\frac{1}{4}$ -1 cm
11520N	35	dark-tan-brown silt with 3% fine to medium sand and 75% angular rock fragments
11540N	25	rusty-tan-brown silt with 3% fine to medium sand and 50% angular rock fragments
11560N	35	dark-tan-brown silt with 67% angular rock fragments including abundant chips $\frac{1}{4}$ -1 cm
11580N	35	medium-tan-brown silt with 3% fine to medium sand and more than 75% angular rock fragments from mostly less than 1 to 3 cm

Sample Number	Sample Depth (cm)	Remarks
11600N	35	medium-tan-brown silt with 6% fine to medium sand and 50% angular rock fragments to 5 cm
11620N	30	dark-tan-brown silt with 3% fine to medium sand and 67% angular pale greenish-grey vitrophyric tuff fragments to 10 cm
11640N	35	dark tan-brown silt with 3% fine to medium sand and 50% angular rock fragments to 3 cm
11660N	40	dark-brown silt to very coarse sand and much more than 75% angular black shale fragments to 8 cm (scree) but dominated by 3-5 mm sizes
11680N	30	dark-brown silt to coarse sand and much more than 75% angular rock fragments 3-8 mm maximum to 5 cm (scree)
11700N	50	dark-brown silt with 3% fine to medium sand and ash, and more than 75% angular rusty-weathering black argillite fragments to 8 cm
11720N	30	dark-tan-brown silt with 3% fine to medium sand, and 50% angular rock fragments to 4 cm
11740N	35	dark-tan-brown silt with 3% fine to medium sand and 33% angular rock fragments to 4 cm
11760N	30	medium tan-brown silt to coarse sand and much more than 75% angular rust-weathering medium-grey to black volcanic and tuff fragments, mostly 3-8 mm with maximum 8 cm
11780N	35	dark-tan-brown silt with 3% fine to medium sand and angular fragments of greenish-grey vitrophyric tuff, scree
11800N	40	dark-tan-brown silt with 3% fine to medium sand and more than 75% angular brown-weathering dark-greenish grey volcanic fragments to 10 cm
11820N	35	dark-tan-brown silt to coarse sand and more than 75% angular volcanic and tuff fragments $\frac{1}{4}$ -10 cm
11840N	40	medium-rusty-brown silt with 3% fine to medium sand and 12% angular rock fragments to 3 cm
11860	40	medium-rust-tan-brown silt with 3% fine to medium sand and 33% angular rock fragments to 2 cm
11880N	35	medium-tan-brown silt to coarse sand and more than 75% angular rock fragments 3-8 mm maximum 10 cm
11900N	35	medium-tan-brown silt to coarse sand and more than 75% angular rock fragments to 2 cm (scree), no ash visible
11920N	40	medium-tan-brown silt to coarse sand and much more than 75% angular black argillite fragments $\frac{1}{4}$ -1 cm maximum 10 cm
11940N	60	medium-tan-brown silt to coarse sand and ash and more than 75% angular green-grey tuff fragments to 5 cm
11960N	40	medium-brown silt to coarse sand and more than 75% angular rock fragments to 7 cm

APPENDIX 1: CONTINUED

Sample Number	Sample Depth (cm)	Remarks
11980N	40	rust-brown silt to coarse sand and more than 75% angular vitrophyric tuff fragments $\frac{1}{4}$ -1 cm maximum 10 cm, scree
12000N	45	rust-brown silt to coarse sand and 75% angular grey-green volcanic fragments to 10 cm (scree)
12020N	40	rusty-brown silt with coarse sand and 75% angular volcanic fragments
12040N	40	medium-tan-brown silt with 3% fine to medium sand and 12% angular rock fragments including abundant chips $\frac{1}{4}$ -1 cm
12060N	50	dark-brown silt with 3% fine to medium sand and 75% angular argillite or shale fragments (scree)
12080N	25	dark-tan-brown silt and more than 75% angular rock fragments with a few chips $\frac{1}{4}$ -1 cm (scree)
12100N	45	dark-tan-brown silt to coarse sand and much more than 75% angular gabbro or volcanic fragments
12120N	40	dark-brown silt to coarse sand and more than 75% angular gabbro or volcanic fragments (scree)
12140N	40	dark-rust-brown silt with fine to coarse sand and more than 75% angular rock fragments
12160N	-	scree slope, not sampled
12180N	45	dark-brown silt with 3% fine to medium sand and 50% angular green argillite fragments
12200N	50	medium-tan-brown silt and 50% angular black argillite fragments
12220N	40	medium-tan-brown silt to coarse sand and 75% angular blackish argillite fragments
12240N	35	dark-tan-brown silt to coarse sand and more than 75% angular rock fragments
12260N	50	dark-blackish-brown silt and 50% angular rock fragments
12280N	50	dark-brown silt with 3% fine to medium sand and 75% angular black argillite fragments
12300N	45	dark-brown silt with 3% fine to medium sand and 33% angular crystalline tuff fragments
12320N	60	dark-tan-brown silt to coarse sand and 75% angular rock fragments including abundant fragments $\frac{1}{4}$ -1 cm
12340N	40	dark-tan-brown silt to coarse sand and more than 75% angular rock fragments
12360N	40	dark-tan-brown silt to coarse sand and more than 75% angular fossiliferous black argillite fragments
12380N	40	dark-tan-brown silt to coarse sand and more than 75% angular rock fragments including abundant fragments $\frac{1}{4}$ -1 cm

Sample Number	Sample Depth (cm)	Remarks
12400N	35	dark-tan-brown silt with 3% fine to medium sand and 50% angular rock fragments including abundant chips $\frac{1}{4}$ -1 cm, no ash visible
12420N	30	dark-tan-brown silt with 3% fine to medium sand and 12% small angular rock fragments, no ash visible
12440N	35	dark-brown silt to coarse sand and 33% angular black argillite fragments including abundant chips $\frac{1}{4}$ -1 cm
12460N	40	dark-brown silt to coarse sand and more than 75% angular rock fragments including numerous fragments $\frac{1}{4}$ -1 cm
12480N	40	dark-brown silt with trace fine sand and 67% angular argillite fragments
12500N	50	dark-brown silt with 3% fine to medium sand and 33% angular rock fragments
12520N	40	dark-brown silt with 3% fine to medium sand and 75% angular volcanic fragments, no ash visible
12540N	45	dark-brown silt with trace fine sand and 67% angular volcanic and shale fragments, no ash visible
12560N	40	dark-brown silt with trace fine sand and 50% angular rock fragments
12580N	45	dark-tan-brown silt with 3% fine to medium sand and more than 75% angular volcanic or tuff fragments
12600N	40	dark-grey-blue-brown silt to coarse sand and more than 75% very fine angular coarse gabbro and shale fragments (scree)
12620N	50	dark-tan-brown silt with 3% fine to medium sand and ash with less than 12% angular rock fragments to 3 cm
12640N	40	dark-tan-brown silt with 10% fine to medium sand and 25% angular and rounded rock fragments (till?)
12660N	35	medium-tan-brown silt with 6% fine to medium sand and 33% angular rock fragments
12680N	35	medium-tan-brown silt to coarse sand and much more than 75% angular tuff fragments to 15 cm
12700N	55	bluish-grey very fine to coarse sand and more than 75% angular rock fragments to 2 cm
12720N	45	dark-brown silt and 3% fine to medium sand and 12% angular rock fragments
12740N	60	dark-tan-brown silt with 33% fine to medium sand and 12% angular rock fragments to 4 cm
12760N	-	outcrop of dark-green-grey weathering tuff, not sampled
12780N	35	dark-brown silt with 3% fine to medium sand and 50% angular rock fragments 2-10 cm

APPENDIX 1: CONTINUED

Sample Number	Sample Depth (cm)	Remarks
12800N	40	dark-tan-brown silt with 6% fine to medium sand and more than 75% angular tuff fragments to 10 cm
12820N	25	dark-brown silt to coarse sand and much more than 75% angular tuff fragments
12840N	40	dark-brown silt with 3% fine to medium sand and 50% angular rock fragments to 5 cm
12860N	50	dark-brown silt with 3% fine to medium sand and 67% angular rock fragments 2-3 cm
12880N	35	blackish-brown silt with fine humus and less than 12% angular rock fragments 4-15 cm, at permafrost
12900N	40	dark-tan-brown silt to coarse sand and more than 75% angular rock fragments, on permafrost
12920N	45	very fine to coarse sand and much more than 75% angular tuff fragments to 30 cm (scree)
12940N	60	dark-brown silt with 3% fine to medium sand and 75% angular rock fragments to 5 cm
12960N	45	dark-brown silt and 3% fine to medium sand and 67% angular tuff fragments to 10 cm
12980N	-	slump, not sampled
13000N	40	dark-brown silt with 3% fine to medium sand and 67% angular rock fragments to 5 cm
<u>Line 11200E</u>		
11000N	50	dark-brown silt with 3% fine to medium sand and some ash less than 10% angular rock fragments
11020N	50	dark-brown silt with 3% fine to medium sand and ash, less than 10% angular rock fragments
11040N	15	tan-brown silt with 30% angular rock fragments; no ash visible
11060N	60	dark-brown silt with 3% fine to medium sand, some ash in sample
11080N	35	dark-brown silt with 3% fine to medium sand and less than 10% angular rock fragments
11100N	45	medium-brown clay with 3% fine to medium sand
11120N	30	dark-brown silt with 3% fine to medium sand and 20% angular rock fragments
11140N	40	dark-brown silt with 3% fine to medium sand and 20% angular rock fragments; no ash visible
11160N	40	dark-brown silt with 3% fine to medium sand and less than 10% angular rock fragments
11180N	60	dark-brown silt with 3% fine to medium sand

APPENDIX 1: CONTINUED

Sample Number	Sample Depth (cm)	Remarks
11200N	50	dark-brown silt with 3% fine to medium sand and less than 10% slightly rounded rock fragments
11220N	45	dark-brown to black silt with 10% angular tuff fragments
11240N	30	dark-brown silt with 3% fine to medium sand and 25% angular tuff fragments; no ash visible
11260N	40	dark-brown silt with 50% angular rock fragments
11280N	40	dark-brown silt with 3% fine to medium sand and 30% angular rock fragments
11300N	50	dark-brown silt with 20% angular tuff fragments; no ash visible
11320N	30	dark-brown silt with 3% fine to medium sand and 30% angular rock fragments; no ash visible
11340N	30	reddish-brown silt with 3% medium sand and angular tuff fragments; no ash visible
11360N	40	brown silt with 80% angular fragments of coarse volcanics; no ash visible
11380N	20	brown silt with 90% very coarse angular volcanic fragments; no ash visible
11400N	60	dark-brown silt
11420N	60	reddish-brown silt with 1½% fine to medium sand and less than 10% angular rock fragments
11440N	50	black silt with some ash
11460N	40	dark-brown silt with 3% fine to medium sand and 40% angular rock fragments
11480N	40	dark-brown clayey soil with 3% fine to medium sand and less than 10% angular rock fragments
11500N	50	dark-brown silt with 3% fine to medium sand and 30% angular rock fragments
11520N	35	tan-brown silt and lesser reddish-brown clay with 10% angular tuff fragments; no ash visible
11540N	35	dark-brown silt with 3% fine to medium sand and 75% angular tuff fragments; no ash visible
11560N	30	reddish-brown silt with 1½% fine to medium sand and more than 90% angular tuff fragments; no ash visible
11580N	30	reddish-brown silt with 1½% fine to medium sand and 80% angular tuff fragments; no ash visible
11600N	30	dark-brown silt with 80% angular tuff chips; no ash visible
11620N	50	dark-brown silt with 3% fine to medium sand and 50% angular rock fragments; no ash visible

Sample Number	Sample Depth (cm)	Remarks
11640N	30	dark-brown silt with 30% angular rock fragments; no ash visible
11660N	30	tan-brown silt with 3% fine to medium sand and 30% angular rock fragments; no ash visible
11680N	40	tan-brown silt with 3% fine to medium sand and 15% angular rock fragments, no ash visible
11700N	40	dark-brown silt with 3% fine to medium sand and 20% angular rock fragments
11720N	30	medium-brown silt with 80% angular tuff fragments; no ash visible
11740N	25	brown silt with 90% rock chips on scree slope; no ash visible
11760N	25	brown silt with 90-95% tuff chips on scree slope; no ash visible
11780N	30	orange-brown silt with 90% rock fragments predominantly grey-weathered tuff on scree slope; no humus nor ash visible
11800N	50	dark-brown silt with 3% fine to medium sand and few roots; no ash visible
11820N	60	dark-brown to black silt with 3% fine to medium sand and less than 10% angular rock fragments; no ash visible
11840	50	dark-brown silt with 12% medium sand and 30% angular rock fragments; no ash visible
11860N	30	clay with minor sand and 10% angular rock fragments; no ash visible
11880N	60	medium-brown silt with 50% angular rock fragments
11900N	60	dark-brown silt with 40% rock chips to 1 cm and 60% larger rock fragments
11920N	30	dark-brown to black silt with 6% fine to medium sand and 30% angular rock fragments
11940N	50	dark-brown silt with 6% sand, abundant chips to 1 cm, and 10% rock fragments; no ash visible
11960N	50	dark-brown silt with 3% fine to medium sand, many chips to 1 cm, and 50% rock fragments
11980N	70	black silt with 20% rock fragments at permafrost; no ash visible
12000N	40	dark silt with many chips to 1 cm and 60% rock fragments; no ash visible
12020N	40	black silt with 3% fine to medium sand and 10% rock fragments
12040N	40	dark-brown silt with 3% fine to medium sand and 30% gabbro fragments
12060N	40	tan-brown silt with 3% fine to medium sand and 10% rock fragments

Sample Number	Sample Depth (cm)	Remarks
12080N	50	tan-brown silt with 3% fine to medium sand and 40% rock fragments
12100N	40	reddish-brown silt with 20% rock fragments
12120N	45	tan-brown and black silt with 3% fine to medium sand and 20% rock fragments
12140N	30	dark-brown silt with abundant chips and 70% angular tuff fragments; no ash visible
12160N A	35	dark-brown chips 2-5 mm in size with 80% angular tuff fragments on scree slope; no ash visible
12160N B	25	medium-brown soil with 80% tuff fragments from 2 to 12 mm in size on scree slope; no ash visible
12180N	30	chips and larger rock fragments on old scree slope
12200N	25	black silt with 15% rock fragments; no ash visible
12220N	30	dark-brown silt, water seep
12240N	30	black silt with less than 10% rock fragments; no ash visible
12260N	60	light-grey silty soil with 30% tuff fragments
12280N	30	brown-grey silt with abundant chips and 75% tuff fragments; no ash visible
12300N	40	dark-brown silt with 30% rock fragments; no ash visible
12320N	30	dark-brown silt with 3% fine to medium sand and 30% rock fragments
12340N	30	dark-brown silt with 3% fine to medium sand and 20% rock fragments
12360N	25	dark-brown silt with 20% rock fragments; no ash visible
12380N	35	medium-brown silt and granules 1-2 mm in size with 20% rock fragments
12400N	50	90% ash
12420N	40	mostly ash
12440N	30	dark-brown silt with less than 10% tuff fragments
12460N	35	dark-brown silt with 3% fine to medium sand and 10% tuff fragments
12480N	30	dark-brown silt with 20% tuff fragments
12500N	35	dark-brown silt with 80% fragments of tuff and gabbro on scree slope
12520N	40	dark-brown silt with 50% rock fragments
12540N	30	dark-brown silt with 30% volcanic fragments below humus at permafrost
12560N	50	dark-brown silt with 3% fine to medium sand and 40% tuff fragments

APPENDIX 1 : CONTINUED

Sample Number	Sample Depth (cm)	Remarks
12580N	30	dark-brown silt with some ash and 20% rock fragments at permafrost
12600N	40	medium-brown silt with 40% volcanic fragments
12620N A	25	dark-brown silt with 40% rock fragments
12620N B	35	light-green silt with abundant chips of black rock (peridotite)
12640N	45	greenish silt with 80% volcanic fragments; no ash visible
12660N	50	mostly greenish rock chips 2-10 cm in size
12680N	35	dark-brown silt with 30% tuff fragments
12700N	40	dark-brown silt with minor ash and 20% rock fragments
12720N	35	dark-brown silt with less than 10% peridotite fragments
12740N	40	dark-brown silt with 20% rock fragments
12760N	40	dark-brown silt with 20% volcanic fragments; no ash visible
12780N	50	dark-brown silt with 3% fine to medium sand and less than 10% rock fragments
12800N	30	dark-brown silt with 3% fine to medium sand and 10% rock fragments
<u>Line 11400E</u>		
11000N	35	dark-tan-brown silt with 6% fine to medium sand, abundant chips to 1 cm and 75% angular medium-grained gabbro fragments (scree); no ash visible
11020N	35	dark-tan-brown silt with 6% fine to medium sand, moderate chips to 1 cm and 67% medium-grained gabbro fragments
11040N	45	dark-brown silt with 6% fine to medium sand and 67% angular rock fragments
11060N	60	dark-brown silt with 6% fine to medium sand and 50% angular rock fragments
11080N	45	dark-brown silt with 3% fine to medium sand and 75% angular rock fragments
11100N	40	dark-tan-brown silt with 3% fine to medium sand and 33% angular rock fragments
11120N	40	medium-tan-brown silt with 6% fine to medium sand, abundant chips to 1 cm, and 67% angular gabbro fragments
11140N	45	medium-tan-brown silt with 3% fine to medium sand and 75% angular gabbro fragments
11160N	45	dark-brown silt with 3% fine to medium sand and 50% angular rock fragments
11180N	45	medium-rust-tan-brown silt with 6% fine to medium sand and 67% angular gabbro and tuff fragments

Sample Number	Sample Depth (cm)	Remarks
11200N	50	very dark brown silt with 3% fine to medium sand and less than 12% gabbro fragments slightly rounded
11220N	50	very dark brown silt with 3% fine to medium sand and 33% angular rock fragments
11240N	55	very dark blackish-brown silt with 3% fine to medium sand and 12% angular rock fragments
11260N	55	dark-tan-brown silt with 3% fine to medium sand, abundant chips to 1 cm and 50% angular rock fragments
11280N	60	dark-tan-brown silt with abundant chips to 1 cm and 50% angular tuff fragments
11300N	80	medium-tan-brown silt with 3% fine to medium sand, abundant chips to 1 cm, and 67% angular grey-green tuff fragments
11320N	65	dark-tan-brown silt with 3% fine to medium sand and 67% angular rock fragments
11340N	55	dark-tan-brown silt with 6% fine to medium sand with abundant chips to 1 cm and 75% angular volcanic fragments
11360N	40	medium-yellow-tan-brown silt with 3% fine to medium sand and 75% fine tuff fragments
11380N	45	medium-yellow-tan-brown silt with 3% fine to medium sand, abundant chips to 1 cm and 75% vitrophyric tuff fragments
11400N	65	medium-tan-brown silt with trace fine to medium sand and less than 12% angular rock fragments
11420N	45	dark-tan-brown silt with trace fine to medium sand and less than 12% angular rock fragments
11440N	55	dark-tan-brown silt with 3% fine to medium sand and 75% dark-grey rock fragments
11460N	45	dark-tan-brown silt with trace fine to medium sand, abundant chips to 1 cm, and 75% angular rock fragments
11480N	25	tan-rusty-brown silt with 3% fine to medium sand, and abundant chips to 1 cm and 75% tuff fragments
11500N	45	medium-tan-brown silt with 3% fine to medium sand and 33% angular rock fragments
11520N	40	dark-tan-brown silt with 3% fine to medium sand and 50% dark-grey tuff fragments
11540N	45	medium-tan-brown silt with 50% angular rock fragments
11560N	40	dark-brown silt with 6% fine to medium sand and 75% angular rock fragments
11580N	35	medium-tan-brown silt with 6% fine to medium sand and more than 75% medium-grey fragments

APPENDIX 1: CONTINUED

Sample Number	Sample Depth (cm)	Remarks
11600N	35	medium-brown silt with 90% light-green-grey tuff fragments
11620N	25	dark-brown silt with 3% fine to medium sand and 50% angular rock fragments
11640N	45	dark-brown silt with 3% fine to medium sand and 50% rock fragments
11660N	20	dark-brown silt with 3% fine to medium sand and 33% angular rock fragments
11680N	50	medium-tan-rust-brown silt with 3% fine to medium sand and 67% angular rock fragments
11700N	40	dark-brown silt with 3% fine to medium sand and 67% pale-green tuff fragments
11720N	40	dark-brown silt with 3% fine to medium sand and 50% angular rock fragments
11740N	35	medium-tan-brown silt with 3% fine to medium sand and 67% angular rock fragments
11760N	40	dark-brown silt and scree with 12% fine to medium sand and 90% rock fragments on scree slope; no ash visible
11780N	35	dark-brown silt with trace fine to medium sand and 33% dark-grey-green tuff fragments
11800N	40	dark-brown silt with trace fine to medium sand and 25% tuff fragments
11820N	40	dark-brown silt with 3% fine to medium sand and 25% rock fragments; no ash visible
11840N	35	dark-tan-brown silt with 6% fine to medium sand and 67% rock fragments
11860N	35	dark-brown silt and 3% fine to medium sand and 50% rock fragments
11880N	35	dark-brown silt and coarse sand with 75% rock fragments
11900N	50	dark-brown silt and 3% fine to medium sand and 33% medium-grey-green tuff fragments
11920N	45	dark-brown silt to coarse sand and 85% rock fragments
11940N	40	dark-tan-brown silt to coarse sand and 85% medium-grey tuff fragments
11960N	55	dark-brown silt with 6% fine to medium sand and 67% rock fragments
11980N	35	dark-brown silt with 3% fine to medium sand and 75% rock fragments
12000N	60	dark-brown silt with 3% fine to medium sand and 33% rock fragments

APPENDIX 1: CONTINUED

Sample Number	Sample Depth (cm)	Remarks
12020N	50	dark-brown silt with 3% fine to medium sand and 50% medium-grey-green tuff fragments
12040N	35	dark-brown silt with 3% fine to medium sand and 50% angular rock fragments
12060N	60	dark-brown silt and humus with 3% fine to medium sand and 33% dark-greenish-grey tuff fragments
12080N	40	dark-tan-brown silt with 3% fine to medium sand and 50% medium-greenish-grey tuff fragments
12100N	60	dark-tan-brown silt to coarse sand and 85% rock fragments
12120N	40	dark-brown silt with 3% fine to medium sand and 67% rock fragments
12140N	30	blackish-brown silty humus on permafrost
12160N	40	dark-tan-brown silt to rock fragments on scree slope
12180N	40	dark-tan-brown silt with 3% fine to medium sand and 50% rock fragments
12200N	35	medium-tan-brown silt with 3% fine to medium sand and 75% rock fragments
<u>Line 11600E</u>		
11000N	55	dark-brown silt with less than 10% rock fragments
11020N	50	dark-brown silt with less than 10% rock fragments
11040N	50	dark-brown silt with 30% rock fragments
11060N	50	dark-brown silt with 40% coarse gabbro and tuff fragments
11080N	60	dark-brown to black silt with less than 10% angular rock fragments
11100N	40	dark-brown silt with 20% rounded rock fragments; no ash visible
11120N	40	dark-brown silt with less than 5% rock fragments
11140N	40	dark-brown silt with 20% angular rock fragments
11160N	60	black silt with 30% angular rock fragments
11180N	60	black humus and ash
11200N	40	dark-brown silt with 10% angular rock fragments
11220N	40	dark-brown silt with less than 10% angular rock fragments
11240N	50	black silt with less than 10% rock fragments; no ash visible
11260N	60	dark-brown silt with 10% rounded rock fragments
11280N	50	medium-brown silt with 40% angular rock fragments
11300N	60	medium-brown silt with 10% angular rock fragments

APPENDIX 1: CONTINUED

Sample Number	Sample Depth (cm)	Remarks
11320N	60	medium-brown silt and vegetation with 50% argillite fragments
11340N	50	medium-brown silt with 55% argillite fragments
11360N	50	medium-brown silt with 50% argillite fragments
11380N	60	medium-brown silt with 10% argillite fragments
11400N	20	red-brown silt with 80% tuff fragments on scree slope
11420N	40	50% medium-brown silt and 50% grey clay
11440N	15	black humus sample, at permafrost
11460N	30	black humus sample, at permafrost
11480N	25	medium-brown silt with 40% tuff fragments
11500N	30	reddish-brown silt with 20% tuff fragments
11520N	30	dark-brown silt with 12% fine to medium sand and less than 12% rock fragments
11540N	40	dark-brown silt with 3% fine to medium sand and 12% angular rock fragments
11560N	30	dark-tan-brown silt with 3% fine to medium sand and 67% tuff and fine gabbro fragments
11580N	30	dark-tan-brown silt with 3% fine to medium sand, abundant rock chips to 1 cm, and 75% angular rock fragments
11600N	40	dark-brown silt with rusty patches, 3% fine to medium sand; some humus and 50% angular rock fragments
11620N	40	dark-tan-brown silt with 3% fine to medium sand and 25% angular rock fragments
11640N	30	medium-greenish-brown silt with rusty patches with 3% fine to medium sand and 25% tuff fragments
11660N	25	dark-brown silt with 3% fine to medium sand and rusty patches, 50% tuff fragments
11680N	40	dark-tan-brown silt with 3% fine to medium sand and 50% angular rock fragments
11700N	30	medium-tan-brown silt with 3% fine to medium sand and abundant chips to 1 cm and 75% angular tuff fragments; no ash visible
11720N	25	medium-tan-brown silt with 3% fine to medium sand and 75% tuff fragments
11740N	30	medium-tan-brown silt with 3% fine to medium sand and 75% angular rock fragments
11760N	40	medium-tan-brown silt with 3% fine to medium sand and 50% rock fragments; no ash visible
11780N	30	medium-tan-brown silt with 3% fine to medium sand and 33% rock fragments

Sample Number	Sample Depth (cm)	Remarks
11800N	35	medium-tan-brown silt with 3% fine to medium sand and 50% angular rock fragments
11820N	10	black humus at permafrost
11840N	30	mixture of humus and dark-tan-brown silt with 3% fine to medium sand
11860N	40	dark-brown silt with 3% fine to medium sand and some ash; 67% tuff fragments
11880N	35	dark-tan-brown silt with 3% fine to medium sand and 95% angular rock fragments
11900N	45	tan-brown silt with some ash and 25% angular rock fragments
11920N	30	tan-brown silt with 3% fine to medium sand and 50% angular rock fragments
11940N	25	medium-brown silt with 3% fine to medium sand and 20% gabbro fragments
11960N	40	medium-brown silt with 3% fine to medium sand and some humus; 12% tuff fragments; no ash visible
11980N	30	medium-brown silt with 90% banded tuff fragments on scree slope
12000N	45	light-brown-silt with 3% fine to medium sand and 10% tuff fragments with epidote veins
12020N	40	dark-brown silt with 3% fine to medium sand
12040N	30	dark-brown silt with 3% fine to medium sand and 50% angular tuff fragments
12060N	35	dark-tan-brown silt with 3% fine to medium sand and 50% gabbro fragments
12080N	35	dark-brown silt with 3% fine to medium sand and 67% tuff fragments
12100N	40	dark-brown silt with 3% fine to medium sand and 12% angular rock fragments
12120N	30	dark-tan-brown silt with 3% fine to medium sand and 33% tuff fragments; no ash visible
12140N	25	dark-brown silt with 3% fine to medium sand and 75% tuff fragments
12160N	20	dark-tan-brown silt with 1% fine to medium sand and 33% tuff fragments
12180N	30	dark-brown silt with 3% fine to medium sand and 50% angular rock fragments
12200N	40	dark-brown silt with 3% fine to medium sand and 33% angular rock fragments

APPENDIX 1: CONTINUED

Sample Number	Sample Depth (cm)	Remarks
<u>Line 11800E</u>		
11000N	40	dark-brown silt
11020N	40	dark-brown silt with less than 10% angular rock fragments
11040N	55	black clay with 20% angular rock fragments
11060N	55	dark-brown to black silt with small amount of ash and less than 10% angular rock fragments
11080N	60	dark-brown clay with 50% rounded rock fragments
11100N	50	coarse dark-brown silt with 75% rounded rock fragments; no ash visible
11120N	40	dark-brown fine clay with less than 10% rounded rock fragments; no ash visible
11140N	50	black silt with 20% rounded rock fragments
11160N	35	black clayey silt with less than 10% rounded rock fragments
11180N	40	reddish-brown fine silt
11200N	40	black clay with 30% angular rock fragments; no ash visible
11220N	50	dark-brown to black clayey silt with 10% angular rock fragments
11240N	40	dark-brown clay with 10% rounded rock fragments
11260N	60	dark-brown silt with rounded rock fragments
11280N	40	dark-brown silt with less than 10% rock fragments
11300N	40	dark-brown silt with less than 10% rounded rock fragments
11320N	30	dark-brown silt with 50% rounded rock fragments
11340N	30	dark-brown silt with 50% angular rock fragments
11360N	40	black clay with 50% rounded rock fragments
11380N	60	medium-brown silt with 70% angular rock fragments
11400N	40	light-brown silt with 60% angular tuff fragments
11420N	40	light-brown silt with 50% angular tuff fragments
11440N	40	light-brown silt with 10% humus and 40% angular rock fragments
11460N	40	light-brown silt with 10% ash and 30% tuff fragments
11480N	40	light-brown silt with 50% angular rock fragments
11500N	50	light-brown silt with ash and humus, very wet
11520N	60	grey clay with 20% rock fragments
11540N	50	grey clay
11560N	25	light-brown silt with humus and ash at permafrost
11580N	25	black-brown humus with 40% ash at permafrost

APPENDIX 1: CONTINUED

Sample Number	Sample Depth (cm)	Remarks
11600N	25	black humus and ash at permafrost
11620N	30	brown ash with 10% rock fragments at permafrost
11640N	40	brown ash with 10% rock fragments at permafrost
11660N	20	black humus at permafrost
11680N	20	black humus at permafrost
11700N	20	black humus at permafrost
11720N	30	black humus at permafrost
11740N	45	black humus at permafrost
11760N	50	dark-brown silt with 30% angular rock fragments
11780N	60	dark-brown silt with 50% gabbro fragments
11800N	60	medium-brown silt with 25% angular rock fragments
11820N	50	medium-brown silt with 20% angular rock fragments; no ash visible
11840N	50	medium-brown silt with 20% angular rock fragments
11860N	50	medium-brown silt with 20% angular rock fragments; no ash visible
11880N	50	medium-brown silt with 15% angular rock fragments
11900N	40	medium-brown silt with 40% gabbro fragments
<u>Line 12000E</u>		
11000N	40	dark-brown silt with 25% rounded rock fragments
11020N	35	dark-brown silt with less than 12% rounded rock fragments
11040N	40	dark-brown silt with minor ash and humus and less than 12% rounded rock fragments
11060N	30	dark-brown silt with 33% angular rock fragments
11080N	30	dark-brown silt with 6% fine to medium sand and less than 12% angular rock fragments
11100N	45	dark-brown silt, minor ash, 3% fine to medium sand and 12% angular rock fragments
11120N	25	dark-brown silt with 6% fine to medium sand and 50% angular rock fragments
11140N	25	dark-brown silt with 3% fine to medium sand and 25% angular rock fragments
11160N	30	dark-brown silt with 3% fine to medium sand and 25% angular rock fragments
11180N	40	dark-brown silt with 3% fine to medium sand and 25% greenish volcanic fragments
11200N	30	dark-brown silt with 3% fine to medium sand and 25% gabbro fragments

APPENDIX 1: CONTINUED

Sample Number	Sample Depth (cm)	Remarks
11220N	35	dark-tan-brown silt with 3% fine sand and 33% rounded gabbro fragments
11240N	35	dark-tan-brown silt and 33% fine-grained intermediate volcanic fragments
11260N	50	dark-tan-brown silt with 3% fine to medium sand and 50% gabbro fragments
11280N	30	dark-tan-brown silt with 3% fine to medium sand and 33% angular rock fragments
11300N	40	faint-rust-brown silt with 3% fine to medium sand and 50% gabbro fragments
11320N	50	dark-brown silt with 3% fine to medium sand and 25% angular rock fragments; no ash visible
11340N	30	dark-tan-brown silt with 25% fine to coarse sand and more than 75% gabbro fragments
11360N	30	dark-brown silt with 3% fine to medium sand and 75% gabbro fragments
11380N	30	dark-tan-brown slightly clayey silt with 3% fine to medium sand and 75% gabbro fragments
11400N	40	dark-tan-brown slightly clayey silt with 12% fine to medium sand and 33% angular rock fragments
11420N	35	tan-rust-brown silt with 3% fine to medium sand and 50% argillite and volcanic fragments
11440N	40	dark-brown silt with 3% fine to medium sand and 75% gabbro fragments
11460N	50	dark-brown silt with 3% fine to medium sand and 25% angular peridotite fragments.
11480N	45	dark-brown silt with 3% fine to medium sand and more than 75% angular rock fragments on permafrost
11500N	40	dark-tan-brown silt with 3% fine to medium sand and 50% angular peridotite fragments on permafrost
11520N	40	dark-tan-brown silt with 3% fine to medium sand and scattered rusty spots, 25% angular rock fragments
11540N	25	dark-brown silt with 3% fine to medium sand and 12% angular rock fragments on permafrost
11560N	25	dark-brown silt with 3% fine to medium sand and 33% angular gabbro fragments on permafrost
11580N	35	dark-tan-brown clayey silt with 3% fine to medium sand and more than 75% angular gabbro fragments
11600N	20	dark-brown silt with 3% fine to medium sand and 67% angular rock fragments on permafrost

Sample Number	Sample Depth (cm)	Remarks
11620N	50	dark-rusty-green-brown silt with 3% fine to medium sand and 12% angular rock fragments
11640N	35	humus, ash, and rusty-brown silt with 3% fine to medium sand and less than 12% angular fragments on permafrost
11660N	20	dark-tan-brown silt with 3% fine to medium sand and 5% angular rock fragments on permafrost
11680N	25	dark-brown silt with 3% fine to medium sand possibly with humus and ash and 5% rock fragments on permafrost
11700N	45	dark-tan-brown silt with 3% fine to medium sand and 90% angular peridotite fragments
11720N	40	dark-tan-brown silt with 3% fine to medium sand and 25% angular gabbro and peridotite fragments on permafrost
11740N	20	dark-brown silt with 3% fine to medium sand, abundant chips to 1 cm and 75% angular gabbro fragments
11760N	40	dark-brown silt with 3% fine to medium sand and 33% angular gabbro fragments on permafrost
11780N	35	dark-brown silt with 3% fine to medium sand and 33% angular gabbro fragments on permafrost
11800N	35	dark-brown silt with 3% fine to medium sand and 67% angular rock fragments on permafrost
11820N	20	dark-brown silt with 3% fine to medium sand and humus and 33% angular rock fragments on permafrost
11840N	35	dark-brown silt with 3% fine to medium sand and 75% angular grey-green rock fragments in scree
11860N	50	medium-brown silt with coarse sand, 7% stream-rounded pebbles, and 75% angular rock fragments
11880N	40	medium-tan-brown silt with 6% fine to medium sand and 67% angular rock fragments
11900N	55	medium-tan-rust-brown silt to very coarse sand and 75% angular rock fragments
<u>Line 25W on former Cork claims</u>		
80S	30	dark-tan-brown silt with trace fine sand and 12-25% angular rock fragments
120S	30	dark-tan-brown silt with trace fine sand and 12-25% angular rock fragments
160S	25	medium-yellowish-tan-brown silt with 3% fine to medium sand and less than 12% angular rock fragments; on latite
200S	35	medium-yellowish-tan silt with 3% fine to medium sand and 50% scree-like angular rock fragments

Sample Number	Sample Depth (cm)	Remarks
240S	35	dark-tan-brown clayey silt with less than 12% angular rock fragments
280S	40	medium-rusty-brown silt with trace fine sand and less than 12% angular rock fragments; right beside one of Esso's soil samples
320S	30	medium-tan-brown silt with 3% medium coarse sand and 25% small angular rock fragments
360S	40	dark-brown silt with 3% medium sand and less than 12% angular rock fragments
400S	30	dark-tan-brown silt with 3% fine to medium sand and less than 12% angular rock fragments
440S	25	dark-tan-brown silt with 3% fine to medium sand and 67-75% angular rock fragments
480S	35	dark-tan-brown silt with 3% fine to medium sand and less than 12% angular rock fragments
520S	40	dark-brown silt with 3% fine to medium sand and 25% angular rock fragments
560S	40	dark-brown silt with 3% fine to medium sand and less than 12% angular rock fragments
600S	30	dark-greyish-brown silt with 3% medium to coarse sand and 25-33% angular rock fragments
640S	50	humus

Line 124 on Burwash Uplands

0	30	humus with 10% volcanic ash; very wet
40	35	humus with 10% volcanic ash
80	35	humus with 20% volcanic ash
120	37	humus with 40% volcanic ash
160	40	40% black humus, 30% grey ash, 30% greyish-green clay
200	40	greenish clay with abundant roots
240	35	black humus with 20% volcanic ash
280	40	black humus with 30% grey ash
320	40	light-grey ash with 30% black humus
360	40	light-grey ash with 30% black humus
400	45	light-grey ash with 10% humus
440	35	humus with 10% ash
480	35	only humus, very wet; no ash layer noted
520	40	greenish-grey clay with 20% ash

APPENDIX 1: CONTINUED

Sample Number	Sample Depth (cm)	Remarks
560	35	humus with 25% grey ash
600	30	green clay with 25% brown silt and 5% roots; no ash layer noted
640	35	black humus with 25% grey ash, very wet
680	30	black humus with 10% roots; no ash layer noted
720	40	humus with 10% roots, very wet; no ash layer noted
760	50	black humus with 50% grey ash
800	50	black humus with 75% greyish-brown ash at permafrost
840	45	black humus with 20% ash and abundant roots at permafrost
880	50	greenish clay with 5% humus; no ash layer noted
920	25	greenish clay with 10% humus and ash
960	40	green clay
1000	40	green clay with 20% grey ash
1040	40	green clay
1080	40	dark-brown silt
1120	40	dark-brown clayey silt with minor ash
1160	45	medium-dark-brown clay
1200	50	dark-brown clay with minor ash
1240	30	dark-brown silt with less than 10% small rounded pebbles
1280	35	humus with 25% volcanic ash
1320	40	dark-brown silt with small rounded green pebbles
1360	25	black humus with 50% grey ash at permafrost
1400	25	green-brown silt with 10% subrounded green pebbles
1440	30	medium-dark-brown silt with 12% coarse sand; no ash layer noted
1480	45	dark-brown silt
1520	40	dark-brown clay; no ash layer noted

APPENDIX 2: CERTIFICATES OF ANALYSIS FOR SOIL SAMPLES



CHEMEX LABS LTD.

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

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

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TC : HALFERDAHL & ASSOC. LTD.,
DEPT. 13,
10509 - 81ST AVE.,
EDMONTON, ALTA.
T6E 1X7

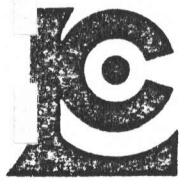
CERT. # : A8313108-001-A
INVCICE # : I8313108
DATE : 19-AUG-83
P.C. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
10600E 11000N	202	53	1	1	93	65	4
10600E 11020N	202	78	1	1	96	75	5
10600E 11040N	202	69	1	1	100	65	<1
10600E 11060N	202	72	1	1	95	77	<1
10600E 11080N	202	48	1	1	100	68	1
10600E 11100N	202	69	1	3	120	61	2
10600E 11120N	202	75	1	3	100	69	1
10600E 11140N	202	85	1	3	120	68	<1
10600E 11160N	202	57	1	3	110	63	1
10600E 11180N	202	71	1	4	115	54	<1
10600E 11200N	202	68	1	4	175	64	1
10600E 11220N	202	51	1	8	104	72	1
10600E 11240N	202	48	1	1	104	65	<1
10600E 11260N	202	72	1	2	100	70	4
10600E 11280N	202	55	1	5	130	51	2
10600E 11300N	202	40	1	5	100	51	<1
10600E 11320N	202	37	1	3	97	31	<1
10600E 11340N	202	40	1	8	130	38	2
10600E 11360N	202	43	1	17	155	43	4
10600E 11380N	202	46	1	15	144	46	<1
10600E 11400N	202	47	1	10	155	54	<1
10600E 11420N	202	41	1	8	130	40	1
10600E 11440N	202	49	1	13	185	69	9
10600E 11460N	202	40	1	12	121	49	3
10600E 11480N	202	76	1	8	140	43	<1
10600E 11500N	202	81	1	5	105	39	2
10600E 11520N	202	46	1	1	100	38	5
10600E 11540N	202	47	1	2	100	35	2
10600E 11560N	202	59	1	9	115	40	<1
10600E 11580N	202	56	1	8	115	43	<1
10600E 11600N	202	48	1	10	95	33	7
10600E 11620N	202	56	1	10	95	47	<1
10600E 11640N	202	74	1	2	98	36	4
10600E 11660N	202	36	1	3	100	32	<1
10600E 11680N	202	43	1	7	107	38	<1
10600E 11700N	202	46	1	7	104	38	<1
10600E 11720N	202	38	1	1	98	33	<1
10600E 11740N	202	44	1	7	115	38	<1
10600E 11760N	202	32	1	1	86	19	<1
10600E 11780N	202	40	1	6	130	33	<1

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CANADA V7J 2C1
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TELEX: 043-52597

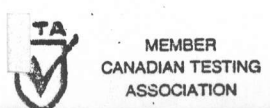
- ANALYTICAL CHEMISTS
- GEOCHEMISTS
- REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

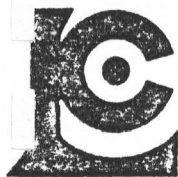
TO : HALFERDAHL & ASSOC. LTD.,
DEPT. 18,
10509 - 81ST AVE.,
EDMONTON, ALTA.
T6E 1X7

CERT. # : A8313108-002-A
INVOICE # : I8313108
DATE : 19-AUG-83
P.C. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
10600E 11800N	202	116	1	1	121	33	2
10600E 11820N	202	55	1	10	111	23	<1
10600E 11840N	202	44	1	9	112	33	5
10800E 11000N	202	45	1	7	87	56	<1
10800E 11020N	202	66	1	8	90	78	3
10800E 11040N	202	87	1	4	94	90	<1
10800E 11060N	202	68	1	1	88	87	<1
10800E 11080N	202	44	1	1	91	51	37
10800E 11100N	202	44	1	9	88	86	<1
10800E 11120N	202	59	1	11	102	110	2
10800E 11140N	202	58	1	2	92	77	<1
10800E 11160N	202	67	1	2	102	61	<1
10800E 11180N	202	70	1	3	96	67	2
10800E 11200N	202	53	1	2	100	62	<1
10800E 11220N	202	43	1	6	90	50	<1
10800E 11240N	202	68	1	2	104	97	<1
10800E 11260N	202	60	1	4	97	53	2
10800E 11280N	202	58	1	7	103	45	<1
10800E 11300N	202	55	1	8	95	42	2
10800E 11320N	202	49	1	9	79	24	<1
10800E 11340N	202	49	1	11	97	34	4
10800E 11360N	202	54	1	9	100	27	2
10800E 11380N	202	64	1	9	107	40	2
10800E 11400N	202	48	1	8	125	36	2
10800E 11420N	202	55	1	7	119	37	3
10800E 11440N	202	102	1	9	106	52	3
10800E 11460N	202	48	1	10	123	42	<1
10800E 11480N	202	44	1	14	120	40	<1
10800E 11500N	202	39	1	9	98	30	<1
10800E 11520N	202	37	1	6	88	20	<1
10800E 11540N	202	44	1	7	92	32	<1
10800E 11560N	202	40	1	1	57	18	<1
10800E 11580N	202	39	1	7	105	27	2
10800E 11600N	202	43	1	9	101	35	<1
10800E 11620N	202	34	1	10	100	25	<1
10800E 11640N	202	39	1	5	80	26	1
10800E 11660N	202	40	1	10	88	28	2
10800E 11680N	202	35	1	10	90	28	<1
10800E 11700N	202	62	1	1	99	33	<1
10800E 11720N	202	69	1	8	114	42	1



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NORTH VANCOUVER, B.C.
CANADA V7J 2C1

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

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO : HALFERDAHL & ASSOC. LTD.,
DEPT. 18,
10509 - 81ST AVE.,
EDMONTON, ALTA.
T6E 1X7

CERT. # : A8313108-003-A
INVOICE # : 18313108
DATE : 19-AUG-83
P.C. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
10800E 11740N	202	67	1	11	141	36	<1
10800E 11760N	202	54	1	10	105	29	<1
10800E 11780N	202	60	1	10	130	30	<1
10800E 11800N	202	54	1	4	107	25	<1
10800E 11820N	202	56	1	8	125	33	1
10800E 11840N	202	53	1	5	160	30	<1
10800E 11860N	202	55	1	7	133	40	<1
10800E 11880N	202	52	1	12	150	37	<1
10800E 11900N	202	44	1	10	142	38	<1
10800E 11920N	202	52	1	3	119	57	1
10800E 11940N	202	71	1	2	116	93	<1
10800E 11960N	202	78	1	3	145	49	<1
10800E 11980N	202	71	1	6	123	63	2
10800E 12000N	202	55	1	8	116	44	1
10800E 12020N	202	96	1	1	110	78	<1
10800E 12040N	202	45	1	2	98	32	<1
11000E 11580N	202	66	1	1	94	70	<1
11000E 11600N	202	73	1	1	92	50	<1
11000E 11620N	202	77	1	4	94	41	1
11000E 11640N	202	59	1	3	95	45	<1
11000E 11660N	202	61	1	6	115	55	2
11000E 11680N	202	54	1	4	101	42	1
11000E 11700N	202	47	1	5	95	34	2
11000E 11720N	202	64	1	2	90	52	6
11000E 11740N	202	53	1	4	100	44	<1
11000E 11760N	202	73	1	33	306	37	3
11000E 11780N	202	62	1	11	136	46	1
11000E 11800N	202	43	1	5	114	36	<1
11000E 11820N	202	102	1	4	97	95	1
11000E 11840N	202	50	1	1	103	42	<1
11000E 11860N	202	84	1	1	113	120	<1
11000E 11880N	202	98	2	4	162	66	<1
11000E 11900N	202	85	2	3	168	75	2
11000E 11920N	203	79	1	12	180	52	6
11000E 11940N	202	122	2	4	134	115	1
11000E 11960N	202	220	2	3	135	104	3
11000E 11980N	203	136	2	16	248	128	4
11000E 12000N	202	161	3	14	210	115	<1
11000E 12020N	202	196	2	2	174	90	<1
11000E 12040N	202	76	1	1	114	66	2

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CANADA V7J 2C1

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TELEX: 043-52597

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• GEOCHEMISTS

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CERTIFICATE OF ANALYSIS

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10509 - 81ST AVE.,
EDMONTON, ALTA.
T6E 1X7

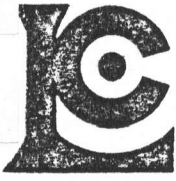
CERT. # : A8313108-004-
INVOICE # : I8313108
DATE : 19-AUG-83
P.C. # : NONE

Sample description	Prep code	Cu ppr	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppp
11000E 12060N	202	147	4	13	207	80	8
11000E 12080N	202	51	2	3	126	45	2
11000E 12100N	202	98	2	1	100	184	<1
11000E 12120N	202	94	2	4	182	79	7
11000E 12140N	202	154	1	1	130	71	2
11000E 12180N	202	63	2	2	123	53	4
11000E 12200N	202	86	3	2	138	67	5
11000E 12220N	202	109	1	13	184	69	3
11000E 12240N	202	111	1	8	180	75	4
11000E 12260N	202	60	1	8	107	45	<1
11000E 12280N	202	77	1	14	146	48	9
11000E 12300N	202	68	1	9	140	48	3
11000E 12320N	202	89	1	7	149	55	3
11000E 12340N	202	45	2	7	116	36	<1
11000E 12360N	202	182	3	18	275	82	7
11000E 12380N	202	93	1	10	160	55	3
11000E 12400N	202	87	1	7	145	60	2
11000E 12420N	202	45	2	5	112	40	3
11000E 12440N	202	53	1	7	117	34	3
11000E 12460N	202	56	1	4	130	47	4
11000E 12480N	202	61	1	6	127	40	3
11000E 12500N	202	104	1	5	150	60	3
11000E 12520N	202	87	1	8	170	65	2
11000E 12540N	202	93	1	7	154	55	3
11000E 12560N	202	82	1	4	132	52	3
11000E 12580N	202	46	2	3	104	85	5
11000E 12600N	202	63	2	13	240	54	5
11000E 12620N	202	47	1	5	100	41	2
11000E 12640N	202	93	1	2	90	77	1
11000E 12660N	202	49	2	3	88	77	5
11000E 12680N	202	48	1	70	187	73	3
11000E 12700N	202	158	2	37	480	68	4
11000E 12720N	202	72	1	3	117	70	4
11000E 12740N	202	43	2	1	94	72	4
11000E 12780N	202	120	1	1	140	57	6
11000E 12800N	202	164	1	2	160	65	3
11000E 12820N	202	51	1	2	98	42	4
11000E 12840N	202	77	1	5	105	72	3
11000E 12860N	202	60	1	4	116	99	4
11000E 12880N	202	54	3	2	106	43	<1

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

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO : HALFERDAHL & ASSOC. LTD.,
DEPT. 18,
10509 - 81ST AVE.,
EDMONTON, ALTA.
T6E 1X7

CERT. # : A8313108-005-
INVOICE # : I8313108
DATE : 19-AUG-83
P.C. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
11000E 12900N	202	36	1	2	84	51	6
11000E 12920N	202	17	2	1	61	36	3
11000E 12940N	202	40	2	1	111	54	3
11000E 12960N	202	57	2	2	98	52	1
11000E 13000N	202	50	2	1	95	66	4
11200E 12100N	202	53	1	2	94	52	<1
11200E 12120N	202	48	1	1	95	55	2
11200E 12140N	202	100	1	1	96	100	8
11200E 12160N	203	45	1	1	102	59	2
11200E 12180N	202	102	1	3	107	62	3
11200E 12200N	202	72	2	4	112	48	4
11200E 12220N	202	52	2	4	99	72	1
11200E 12240N	202	45	2	7	120	40	3
11200E 12260N	202	82	3	1	88	26	1
11200E 12280N	202	72	1	2	99	63	6
11200E 12300N	202	66	1	4	120	52	2
11200E 12320N	202	84	1	3	163	87	3
11200E 12340N	202	74	1	8	136	45	3
11200E 12360N	202	119	1	6	121	102	5
11200E 12380N	202	69	2	12	160	47	3
11200E 12400N	202	32	1	4	81	22	<1
11200E 12420N	202	49	1	8	160	49	3
11200E 12440N	202	43	1	10	133	41	1
11200E 12460N	202	44	1	4	111	36	2
11200E 12480N	202	54	1	9	110	52	5
11200E 12500N	202	94	2	2	168	60	2
11200E 12520N	202	61	1	14	164	54	8
11200E 12540N	202	57	1	20	190	55	5
11200E 12560N	202	77	1	11	160	77	28
11200E 12580N	202	58	1	7	110	62	4
11200E 12600N	202	143	2	5	93	52	3
11200E 12620NA	202	78	1	2	92	400	<1
11200E 12620NB	202	45	4	2	91	136	<1
11200E 12640N	202	42	1	7	79	118	3
11200E 12660N	202	17	1	1	56	23	<1
11200E 12680N	202	47	1	5	90	85	<1
11200E 12700N	202	51	1	3	91	87	<1
11200E 12720N	202	50	1	2	86	104	<1
11200E 12740N	202	62	1	1	92	102	2
11200E 12760N	202	36	1	2	91	71	1

Certified by *Hart Bechler*



MEMBER
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ASSOCIATION



CHEMEX LABS LTD.

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

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

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO : HALFERDAHL & ASSOC. LTD.,
DEPT. 18,
10509 - 81ST AVE.,
EDMONTON, ALTA.
T6E 1X7

CERT. # : A8313108-006-
INVOICE # : 18313108
DATE : 19-AUG-83
P.C. # : NCNE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
1120CE 1278CN	202	55	1	2	91	73	<1
1120CE 1280CN	202	62	2	4	105	103	4

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1

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

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO : HALFERDAHL & ASSOC. LTD.,
SEPT. 18,
10509 - 81ST AVE.,
EDMONTON, ALTA.
T6E 1X7

CERT. # : A8313807-001-A
INVOICE # : 18313807
DATE : 29-AUG-83
P.C. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
11000E 11000N	202	74	1	1	52	97	<1
11000E 11020N	202	63	1	3	73	66	<1
11000E 11040N	202	80	1	1	69	64	3
11000E 11060N	202	74	1	1	63	68	<1
11000E 11080N	202	72	1	2	80	75	2
11000E 11100N	202	65	2	1	79	69	<1
11000E 11120N	202	66	1	1	77	74	3
11000E 11140N	202	65	2	3	83	69	2
11000E 11160N	202	55	1	1	70	74	2
11000E 11180N	202	61	1	3	77	72	3
11000E 11200N	202	49	2	3	82	62	<1
11000E 11220N	202	57	1	1	77	48	1
11000E 11240N	202	56	1	3	92	66	6
11000E 11260N	202	35	1	2	55	40	<1
11000E 11280N	202	47	1	3	82	58	<1
11000E 11300N	202	49	2	4	95	39	6
11000E 11320N	202	53	2	4	76	50	4
11000E 11340N	202	61	3	3	104	42	3
11000E 11360N	202	90	1	1	101	48	4
11000E 11380N	202	99	1	1	85	52	4
11000E 11400N	202	71	1	1	92	20	2
11000E 11420N	202	69	1	1	82	41	<1
11000E 11440N	202	49	2	4	91	48	4
11000E 11460N	202	37	1	6	101	38	1
11000E 11480N	202	58	1	2	95	38	5
11000E 11500N	202	46	2	3	87	36	1
11000E 11520N	202	40	1	1	68	32	<1
11000E 11540N	202	50	3	1	77	34	<1
11000E 11560N	202	33	1	1	64	34	9
11200E 11000N	202	59	1	1	77	73	3
11200E 11020N	202	62	2	1	66	92	2
11200E 11040N	202	97	2	1	63	107	5
11200E 11060N	202	47	3	1	70	47	2
11200E 11080N	202	55	1	1	71	77	2
11200E 11100N	202	57	2	3	89	70	1
11200E 11120N	202	63	1	4	77	79	1
11200E 11140N	202	70	1	5	76	65	5
11200E 11160N	202	58	2	2	73	68	6
11200E 11180N	202	53	2	4	85	53	3
11200E 11200N	202	60	2	3	83	66	2

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CHEMEX LABS LTD.

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

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

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

CERTIFICATE OF ANALYSIS

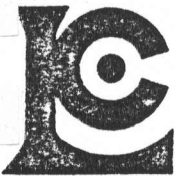
TO : HALFERDAHL & ASSOC. LTD.,
DEPT. 13,
10509 - 81ST AVE.,
EDMONTON, ALTA.
T6E 1X7

CERT. # : A8313807-003-A
INVOICE # : I8313807
DATE : 29-AUG-83
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
1120CE 12020N	202	74	2	7	104	56	3
1120CE 12040N	202	58	1	7	92	50	2
1120CE 12060N	202	66	2	5	77	56	2
1120CE 12080N	202	65	3	6	76	45	2
1120CE 12100N	202	99	2	2	81	32	3
11400E 11000N	202	104	1	1	71	109	2
11400E 11020N	202	71	1	1	56	93	5
11400E 11040N	202	71	1	3	63	45	2
11400E 11060N	202	64	1	2	66	53	2
11400E 11080N	202	87	2	3	70	42	3
11400E 11100N	202	63	2	4	77	50	2
11400E 11120N	202	140	3	2	100	53	1
11400E 11140N	202	85	3	6	95	39	11
11400E 11160N	202	61	1	6	74	59	3
11400E 11180N	202	117	3	9	81	57	4
11400E 11200N	202	75	1	4	80	74	4
11400E 11220N	202	73	2	4	78	65	4
11400E 11240N	202	61	2	4	63	48	2
11400E 11260N	202	62	2	3	71	72	17
11400E 11280N	202	90	2	6	86	75	2
11400E 11300N	202	37	2	5	72	61	3
11400E 11320N	202	82	3	6	81	94	2
11400E 11340N	202	65	1	8	79	73	3
11400E 11360N	202	50	1	6	71	25	<1
11400E 11380N	202	58	2	8	117	49	<1
11400E 11400N	202	48	1	10	102	34	2
11400E 11420N	202	64	2	10	111	42	2
11400E 11440N	202	46	1	9	99	32	2
11400E 11460N	202	56	1	7	93	55	1
11400E 11480N	202	59	1	8	115	51	<1
11400E 11500N	202	73	2	14	138	37	3
11400E 11520N	202	59	1	7	84	49	1
11400E 11540N	202	58	1	10	80	30	<1
11400E 11560N	202	106	1	4	88	51	3
11400E 11580N	202	51	2	6	63	38	<1
11400E 11600N	202	104	2	11	101	33	2
11400E 11620N	202	179	3	5	87	32	2
11400E 11640N	202	123	2	7	97	35	5
11400E 11660N	202	83	1	9	87	35	4
11400E 11680N	202	91	1	1	77	106	<1

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TELEX: 043-52597

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• GEOCHEMISTS

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CERTIFICATE OF ANALYSIS

TO : HALFERDAHL & ASSOC. LTD.,
DEPT. 18,
10509 - 81ST AVE.,
EDMONTON, ALTA.
T6E 1X7

CERT. # : A8313807-004-A
INVOICE # : I8313807
DATE : 29-AUG-93
P.C. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
11400E 11700N	202	76	1	8	119	34	3
11400E 11720N	202	53	2	8	98	39	<1
11400E 11740N	202	94	1	8	105	42	<1
11400E 11760N	202	100	1	7	115	40	2
11400E 11780N	202	53	1	8	53	36	3
11400E 11800N	202	57	1	8	82	36	2
11400E 11820N	202	64	2	6	31	46	2
11400E 11840N	202	43	1	5	37	23	1
11400E 11860N	202	51	1	5	81	31	<1
11400E 11880N	202	53	2	16	101	44	<1
11400E 11900N	202	46	1	9	90	29	4
11400E 11920N	202	78	3	14	104	40	2
11400E 11940N	202	60	1	11	109	36	3
11400E 11960N	202	72	1	6	92	44	<1
11400E 11980N	202	94	1	7	93	41	1
11400E 12000N	202	86	2	4	92	41	<1
11400E 12020N	202	94	2	5	76	36	1
11400E 12040N	202	85	1	6	91	33	5
11400E 12060N	202	80	1	6	92	33	2
11400E 12080N	202	79	2	12	123	44	3
11400E 12100N	202	80	1	7	100	59	2
11400E 12120N	202	111	1	9	123	41	<1
11400E 12140N	202	59	1	6	64	25	2
11400E 12160N	202	131	2	17	156	53	4
11400E 12180N	202	135	1	21	191	56	4
11400E 12200N	202	97	1	13	122	53	<1
11600E 11000N	202	66	1	5	79	56	<1
11600E 11020N	202	71	1	5	75	61	1
11600E 11040N	202	53	2	4	93	53	5
11600E 11060N	202	69	1	4	92	66	<1
11600E 11080N	202	73	1	3	77	61	1
11600E 11100N	202	72	1	4	88	67	2
11600E 11120N	202	60	1	5	86	25	2
11600E 11140N	202	69	1	6	85	63	5
11600E 11160N	202	69	1	4	84	51	2
11600E 11180N	202	63	2	4	84	49	1
11600E 11200N	202	63	2	5	87	54	4
11600E 11220N	202	58	1	6	91	56	2
11600E 11240N	202	48	1	3	86	45	2
11600E 11260N	202	46	2	5	68	36	<1



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TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO : HALFERDAHL & ASSOC. LTD.,
DEPT. 13,
10509 - 81ST AVE.,
EDMONTON, ALTA.
T6E 1X7

CERT. # : A8313807-005-A
INVOICE # : 18313807
DATE : 29-AUG-83
P.C. # : NONE

Sample description	Prep code	Cu ppr	Mo ppm	Pb ppr	Zn ppm	Ni ppm	Au NAA ppb
11600E 11230N	202	56	2	5	77	50	<1
11600E 11300N	202	55	1	5	85	52	2
11600E 11320N	202	50	2	5	92	48	<1
11600E 11340N	202	52	2	4	81	67	5
11600E 11360N	202	73	1	8	143	44	<1
11600E 11380N	202	52	1	6	93	36	<1
11600E 11400N	202	127	1	16	78	39	4
11600E 11420N	202	61	1	1	76	70	<1
11600E 11440N	202	52	1	2	81	34	2
11600E 11460N	202	60	2	4	81	31	1
11600E 11480N	202	55	1	9	83	32	<1
11600E 11500N	202	51	2	5	82	35	<1
11600E 11520N	202	45	1	1	71	27	<1
11600E 11540N	202	43	1	2	85	27	<1
11600E 11560N	202	44	3	4	83	27	4
11600E 11580N	202	43	2	3	74	28	<1
11600E 11600N	202	51	1	1	61	23	<1
11600E 11620N	202	46	1	2	72	32	2
11600E 11640N	202	37	1	2	69	27	<1
11600E 11660N	202	47	2	5	90	34	<1
11600E 11680N	202	45	3	2	77	31	1
11600E 11700N	202	43	2	3	71	35	3
11600E 11720N	202	36	1	5	75	28	3
11600E 11740N	202	42	1	3	76	34	4
11600E 11760N	202	46	2	4	82	32	1
11600E 11780N	202	40	1	4	83	32	4
11600E 11800N	202	38	3	6	90	37	3
11600E 11820N	202	52	2	2	87	32	<1
11600E 11840N	202	39	2	5	73	34	5
11600E 11860N	202	46	1	5	73	33	<1
11600E 11880N	202	63	2	7	102	40	1
11600E 11900N	202	73	1	3	83	36	2
11600E 11920N	202	57	1	4	88	33	2
11600E 11940N	202	47	2	5	72	46	<1
11600E 11960N	202	45	2	5	70	30	1
11600E 11980N	202	75	1	12	101	39	2
11600E 12000N	202	46	1	3	95	49	2
11600E 12020N	202	66	2	1	74	59	<1
11600E 12040N	202	63	1	1	84	51	2
11600E 12060N	202	90	1	1	78	63	4



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TELEX: 043-52597

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TO : HALFERDAHL & ASSOC. LTD.,
DEPT. 18,
10509 - 81ST AVE.,
EDMONTON, ALTA.
T6E 1X7

CERT. # : A9313807-006-
INVOICE # : I9313807
DATE : 29-AUG-83
P.C. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ccb
11600E 12080N	202	132	3	3	85	52	2
11600E 12100N	202	130	2	4	80	69	2
11600E 12120N	202	63	2	13	136	67	1
11600E 12140N	202	38	2	9	84	34	<1
11600E 12160N	202	65	3	7	107	72	1
11600E 12180N	202	54	1	8	95	44	<1
11600E 12200N	202	52	1	5	81	30	1
11800E 11000N	202	52	1	3	72	48	<1
11800E 11020N	202	63	2	2	82	37	2
11800E 11040N	202	77	1	3	83	95	2
11800E 11060N	202	64	1	1	73	58	2
11800E 11080N	202	84	1	2	85	92	1
11800E 11100N	202	63	1	1	81	56	2
11800E 11120N	202	64	1	2	75	46	<1
11800E 11140N	202	78	1	2	86	52	1
11800E 11160N	202	100	1	2	80	50	1
11800E 11180N	202	67	1	2	78	45	<1
11800E 11200N	202	81	1	2	80	52	1
11800E 11220N	202	77	1	1	82	45	2
11800E 11240N	202	79	1	2	80	51	2
11800E 11260N	202	66	2	3	86	50	1
11800E 11280N	202	66	1	3	87	55	<1
11800E 11300N	202	56	2	3	88	49	8
11800E 11320N	202	62	3	5	93	52	1
11800E 11340N	202	62	2	3	97	47	1
11800E 11360N	202	67	1	4	89	50	2
11800E 11380N	202	52	1	4	100	63	1
11800E 11400N	202	52	1	3	74	51	7
11800E 11420N	202	53	2	4	81	45	<1
11800E 11440N	202	52	2	3	82	60	1
11800E 11460N	202	57	1	1	84	34	<1
11800E 11480N	202	52	1	3	76	34	2
11800E 11500N	202	40	1	2	60	23	1
11800E 11520N	202	56	1	4	91	35	4
11800E 11540N	202	52	1	3	79	30	3
11800E 11560N	202	53	2	1	92	34	<1
11800E 11580N	202	36	1	1	63	22	<1
11800E 11600N	202	55	1	1	132	37	9
11800E 11620N	202	84	2	2	64	32	2
11800E 11640N	202	95	1	2	74	51	2



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CHEMEX LABS LTD.

212 BROOKSBANK AVE.
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CANADA V7J 2C1

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

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO : HALFERDAHL & ASSOC. LTD.,
SEPT. 18,
10509 - 81ST AVE.,
EDMONTON, ALTA.
T6E 1X7

CERT. # : A8313808-001-A
INVOICE # : I8313803
DATE : 29-AUG-83
P.C. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ccb
11800E 11660N	202	62	1	3	105	42	3
11800E 11680N	202	39	2	1	92	32	2
11300E 11700N	202	51	1	3	102	45	<1
11800E 11720N	202	48	2	2	97	50	4
11800E 11740N	202	43	1	2	86	41	1
11800E 11760N	202	50	1	1	83	37	2
11800E 11780N	202	73	1	1	85	49	3
11800E 11800N	202	62	1	3	97	38	5
11300E 11820N	202	81	1	3	80	99	2
11300E 11840N	202	60	2	2	72	64	2
11300E 11860N	202	65	1	3	75	75	3
11800E 11880N	202	80	1	1	76	91	4
11800E 11900N	202	78	1	1	65	31	4
12000E 11000N	202	65	2	2	81	75	3
12000E 11020N	202	65	2	2	87	75	2
12000E 11040N	202	76	1	2	89	98	4
12000E 11060N	202	66	1	2	81	83	<1
12000E 11080N	202	68	1	2	67	80	6
12000E 11100N	202	68	1	2	80	75	<1
12000E 11120N	202	91	1	1	80	116	4
12000E 11140N	202	76	1	2	85	96	3
12000E 11160N	202	71	2	2	75	85	8
12000E 11180N	202	67	1	3	81	92	5
12000E 11200N	202	73	1	4	96	86	4
12000E 11220N	202	80	1	2	91	84	4
12000E 11240N	202	98	1	3	85	85	5
12000E 11260N	202	93	1	2	78	68	6
12000E 11280N	202	107	2	4	80	65	5
12000E 11300N	202	135	1	1	77	56	5
12000E 11320N	202	68	1	4	90	60	4
12000E 11340N	202	81	1	2	81	92	5
12000E 11360N	202	103	1	2	88	63	5
12000E 11380N	202	66	1	2	87	40	4
12000E 11400N	202	77	2	2	84	61	6
12000E 11420N	202	44	1	1	86	78	3
12000E 11440N	202	69	2	4	82	65	2
12000E 11460N	202	57	1	2	83	82	4
12000E 11480N	202	67	1	2	81	72	6
12000E 11500N	202	59	1	2	81	61	2
12000E 11520N	202	64	1	3	82	57	6

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CERTIFICATE OF ANALYSIS

TO : HALFERDAHL & ASSOC. LTD.,
DEPT. 18,
10509 - 81ST AVE.,
EDMONTON, ALTA.
T6E 1X7

CERT. # : A8313808-002-A
INVOICE # : I8313803
DATE : 29-AUG-83
P.C. # : NONE

Sample description	Prep code	Cu ppm	Po ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
12000E 11540N	202	54	1	2	93	56	<1
12000E 11560N	202	65	1	2	91	57	2
12000E 11580N	202	60	1	1	84	45	<1
12000E 11600N	202	74	2	1	88	54	<1
12000E 11620N	202	103	1	1	78	67	1
12000E 11640N	202	91	1	1	63	22	1
12000E 11660N	202	33	1	2	69	28	<1
12000E 11680N	202	78	2	2	69	51	1
12000E 11700N	202	71	1	1	71	68	1
12000E 11720N	202	73	3	1	77	70	1
12000E 11740N	202	85	1	2	83	67	1
12000E 11760N	202	90	1	3	87	57	2
12000E 11780N	202	98	2	1	79	50	4
12000E 11800N	202	86	1	1	78	48	2
12000E 11820N	202	92	2	3	93	54	1
12000E 11840N	202	81	2	2	21	48	2
12000E 11860N	202	67	1	2	89	52	2
12000E 11880N	202	65	2	1	70	130	<1
12000E 11900N	202	53	1	3	88	72	1



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Certified by

Stuart B. Schler



CHEMEX LABS LTD.

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

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CERTIFICATE OF ANALYSIS

TC : HALFERDAHL & ASSOC. LTD.,
DEPT. 18,
10509 - 81ST AVE.,
EDMONTON, ALTA.
T6E 1X7

CERT. # : A8314039-001-A
INVOICE # : I8314039
DATE : 7-SEP-83
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
10800E 12060N	201	68	2	18	121	33	3
10800E 12080N	201	65	1	6	102	33	3
10800E 12100N	201	108	1	6	101	45	1
10800E 12120N	201	65	2	5	104	35	2
10800E 12140N	201	62	2	8	89	40	2
10800E 12160N	201	70	1	5	124	38	4
10800E 12180N	201	208	2	1	130	83	6
10800E 12200N	201	58	2	5	93	29	1
10800E 12220N	201	53	2	5	99	37	1
10800E 12240N	201	82	2	10	125	49	4
10800E 12260N	201	73	2	9	113	43	8
10800E 12280N	201	52	1	6	101	37	2
10800E 12300N	201	70	3	13	98	38	3
10800E 12320N	201	48	2	6	91	55	2
10800E 12340N	201	82	2	7	134	66	1
10800E 12360N	201	51	2	4	104	40	4
10800E 12380N	201	59	3	3	122	98	1
10800E 12400N	217	30	2	1	107	28	2
10800E 12420N	201	52	2	3	105	48	4
10800E 12440N	201	65	2	5	134	110	2
10800E 12460N	201	80	2	6	144	63	3
10800E 12480N	201	75	3	8	144	76	5
10800E 12500N	201	53	1	3	95	38	1
10800E 12520N	201	80	2	7	134	48	3
10800E 12540N	201	60	1	6	114	39	3
10800E 12560N	201	75	2	7	139	51	2
10800E 12580N	201	58	2	8	149	49	4
10800E 12600N	201	60	1	8	105	38	3

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TELEPHONE: (604) 984-0221

TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO : HALFERDAHL & ASSOC. LTD.,
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EDMONTON, ALTA.
T6E 1X7

CERT. # : A8314622-001-A
INVOICE # : I8314622
DATE : 21-SEP-83
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
25W 080S	201	135	11	7	99	47	17
25W 120S	201	395	44	1	83	45	38
25W 160S	201	155	19	8	75	31	44
25W 200S	201	325	28	5	94	66	255
25W 240S	201	108	12	8	93	36	17
25W 280S	201	690	35	6	83	98	41
25W 320S	201	615	42	1	74	88	35
25W 360S	201	255	14	4	84	49	15
25W 400S	201	590	24	2	82	64	27
25W 440S	201	155	8	5	87	45	17
25W 480S	201	242	8	6	100	105	23
25W 520S	201	265	8	3	91	48	37
25W 560S	201	240	9	4	94	70	58
25W 600S	201	270	7	4	98	80	37
25W 640S	201	150	6	2	79	44	10
LINE 124 000	201	38	1	2	43	24	1
LINE 124 040	201	30	4	2	66	21	<1
LINE 124 080	201	46	1	1	73	30	<1
LINE 124 120	201	23	3	1	65	20	<1
LINE 124 160	201	50	1	3	95	49	<1
LINE 124 200	201	55	2	3	98	57	1
LINE 124 240	201	30	1	1	70	27	<1
LINE 124 280	201	30	2	1	78	31	<1
LINE 124 320	201	47	1	2	92	36	1
LINE 124 360	201	14	1	1	41	8	<1
LINE 124 400	201	62	2	1	65	23	<1
LINE 124 440	201	35	13	1	190	36	15
LINE 124 480	201	62	4	3	83	50	4
LINE 124 520	201	37	2	1	95	40	2
LINE 124 560	201	21	3	1	79	32	<1
LINE 124 600	201	56	3	2	93	60	<1
LINE 124 640	201	21	4	2	59	20	<1
LINE 124 680	201	51	6	1	88	53	<1
LINE 124 720	201	37	4	2	97	45	<1
LINE 124 760	201	51	3	1	87	47	<1
LINE 124 800	201	50	7	1	71	47	<1
LINE 124 840	201	58	4	1	84	45	<1
LINE 124 880	201	72	3	1	93	74	1
LINE 124 920	201	62	2	2	87	55	1
LINE 124 960	201	56	2	2	88	48	<1



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Certified by *Hans Biele*



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CANADA V7J 2C1

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

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO : HALFERDAHL & ASSOC. LTD.,
DEPT. 18,
10509 - 81ST AVE.,
EDMONTON, ALTA.
T6E 1X7

CERT. # : A8314622-002-A
INVOICE # : I8314622
DATE : 21-SEP-83
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
LINE 124 1000	201	44	2	5	90	48	2
LINE 124 1040	201	32	2	6	87	33	5
LINE 124 1080	201	50	2	5	120	45	<1
LINE 124 1120	201	40	1	5	105	44	<1
LINE 124 1160	201	45	2	7	99	40	1
LINE 124 1200	201	43	4	7	88	35	4
LINE 124 1240	201	38	2	4	138	45	1
LINE 124 1280	201	70	1	3	69	24	1
LINE 124 1320	201	37	2	5	92	44	<1
LINE 124 1360	201	47	3	6	105	30	<1
LINE 124 1400	201	50	3	2	98	57	<1
LINE 124 1440	201	45	1	2	103	55	<1
LINE 124 1480	201	58	1	6	125	44	<1
LINE 124 1520	201	50	1	5	102	46	<1



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Certified by

Harold Biddle



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• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

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

CERTIFICATE OF ANALYSIS

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

CERT. # : A8313599-001-A
INVOICE # : I8313599
DATE : 26-AUG-83
P.O. # : NONE

ATTN: C. GIBSON

Sample description	Prep code	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Au ppm	NAA ppb	
I 100	213	65	10	58	157	<2		--
I 300	213	69	7	56	94	4		--
I 500	213	56	3	44	83	6		--
I 700	213	70	6	56	80	358		--
I 900	213	184	15	86	88	4		--
II 100	213	50	3	46	73	6		--
II 495	213	60	3	50	82	4		--
II 905	213	60	9	48	64	4		--
II 1300	213	138	6	54	128	<2		--
III 92	213	36	3	48	202	4		--
III 500	213	51	1	48	345	12		--
III 900	213	46	2	58	485	2		--
III 1300	213	30	1	54	250	4		--
III 1700	213	54	4	50	212	6		--
III 2100	213	13	3	38	25	6		--
KKIW 555	213	65	6	50	93	8		--
PI 100	213	19	4	44	52	196		--
KK2W LEFT FORK	213	188	35	205	64	10		--
WEST FORK I 100	213	140	24	400	180	10		--
WEST FORK II	213	105	24	250	110	2		--
WEST FORK II 1585	213	98	22	230	104	8		--
RIGHT FOR 1700	213	160	37	260	93	4		--
KK2W100	213	70	11	108	90	2		--
KK2W500	213	76	10	110	73	6		--
KK2W900	213	66	11	98	90	4		--
KK2W1300	213	78	14	110	76	6		--
KK3W100	213	83	12	144	85	14		--
KK3W500	213	74	10	116	86	96		--
KK3W900	213	144	10	315	142	10		--
KK3W1300	213	165	7	450	193	8		--
KAT	213	56	9	72	108	4		--
EAST FORK 1300	213	590	870	250	51	24		--
D.P. 100	213	43	5	52	61	4		--
D.P. 300	213	48	14	52	70	<2		--
D.P. 500	213	27	5	48	54	6		--
D.P. 700	213	27	5	50	50	4		--
D.P. 900	213	23	3	46	43	4		--
D.P. 1300	213	21	5	46	31	334		--
D.P. 1700	213	19	6	50	32	4		--
D.P. 2100	213	24	3	46	33	2		--

Certified by *Hart Buchler*



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TELEPHONE: (604) 984-0221
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• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

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

CERT. # : A8313599-002-
INVOICE # : 18313599
DATE : 26-AUG-83
P.O. # : NONE

ATTN: C. GIBSON

Sample description	Prep code	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb	
D.P. 2500	213	25	6	48	31	1122	--
D.P. 2900	213	15	5	50	24	4	--
D.P. 3300	213	16	3	48	33	2	--
D.P. 3700	213	N.S.S.	N.S.S.	N.S.S.	N.S.S.	N.S.S.	--
D.P. 3900	213	23	4	48	53	2	--
D.P. 4100 A	213	27	5	48	75	22	--
D.P. 4100 B	213	27	3	48	72	4	--
D.P. 4500	213	15	3	38	30	1636	--
D.P. 4900	213	16	2	42	35	2	--
D.P. 5300	213	15	3	42	34	9	--
D.P. 5700	213	15	3	40	38	<2	--
FRYING PAN 100M	213	57	1	80	67	2135	--
FRYING PAN 500M	213	45	1	74	56	2430	--
FRYING PAN 900M	213	47	2	72	77	8035	--
FRYING PAN 1300M	213	77	8	64	68	13	--
FRYING PAN 1700M	213	70	1	72	64	3	--
FRYING PAN 2100M	213	68	2	80	67	5	--
FRYING PAN 2500M	213	46	1	67	73	<1	--
FRYING PAN 2900M	213	40	1	78	60	<1	--

Hart Buchler

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APPENDIX 4: FIELD AND OFFICE PERSONNEL

Field

M. Alexander, Geologist 50 days between June 28 and August 31, 1983
 83 Frontenac Crescent
 Deep River, Ontario
 K0J 1P0

A. Fafard, Geological Assistant 54 days between June 28 and August 31, 1983
 9111 - 74 Street
 Edmonton, Alberta
 T6B 2B3

L.B. Halferdahl, Engineer 30 days between June 28 and August 31, 1983
 11539 - 73 Avenue
 Edmonton, Alberta
 T6G 0E2

J. Murasko, Assistant 43 days between June 28 and August 31, 1983
 11110 University Avenue
 Edmonton, Alberta
 T6G 1Y6

C. Sayer, Geological Assistant 61 days between June 28 and August 31, 1983
 1 Garnet Avenue
 Sherwood Park, Alberta
 T8A 3J5

Office

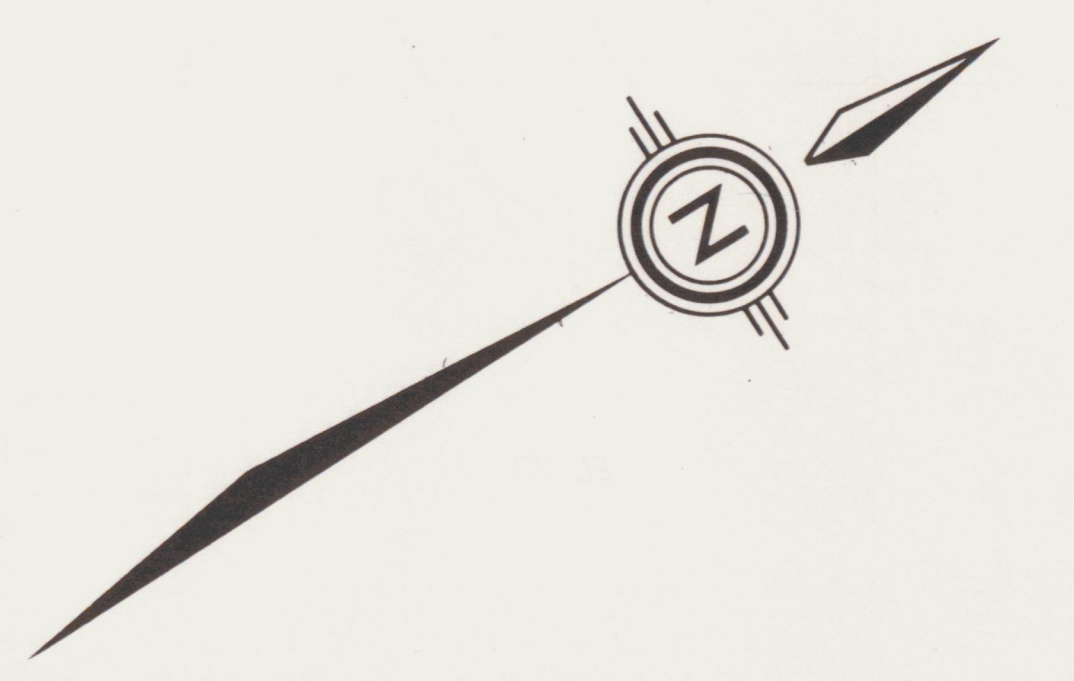
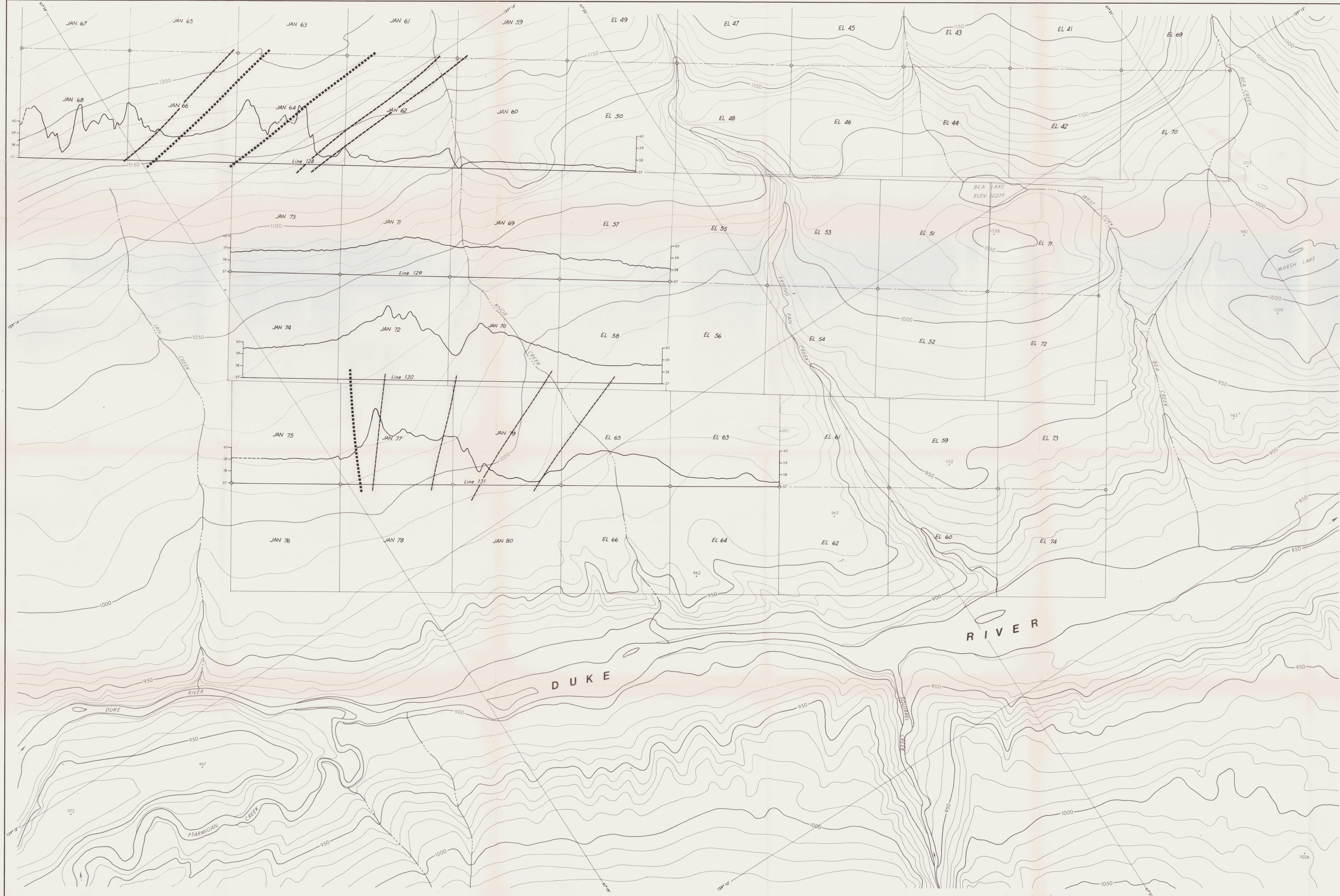
M. Alexander, Geologist 12 days in September, 1983
 83 Frontenac Crescent
 Deep River, Ontario
 K0J 1P0

L.B. Halferdahl, Engineer 9 days in September and October, 1983
 11539 - 73 Avenue
 Edmonton, Alberta
 T6G 0E2

W. McGuire, Draftsman 102 hours in September and October, 1983
 5307 - 145 Avenue
 Edmonton, Alberta
 T5A 4E9

APPENDIX 5: QUALIFICATIONS

L.B. Halferdahl obtained degrees in geological engineering and geology from Queen's University and The John 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 Institute 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.



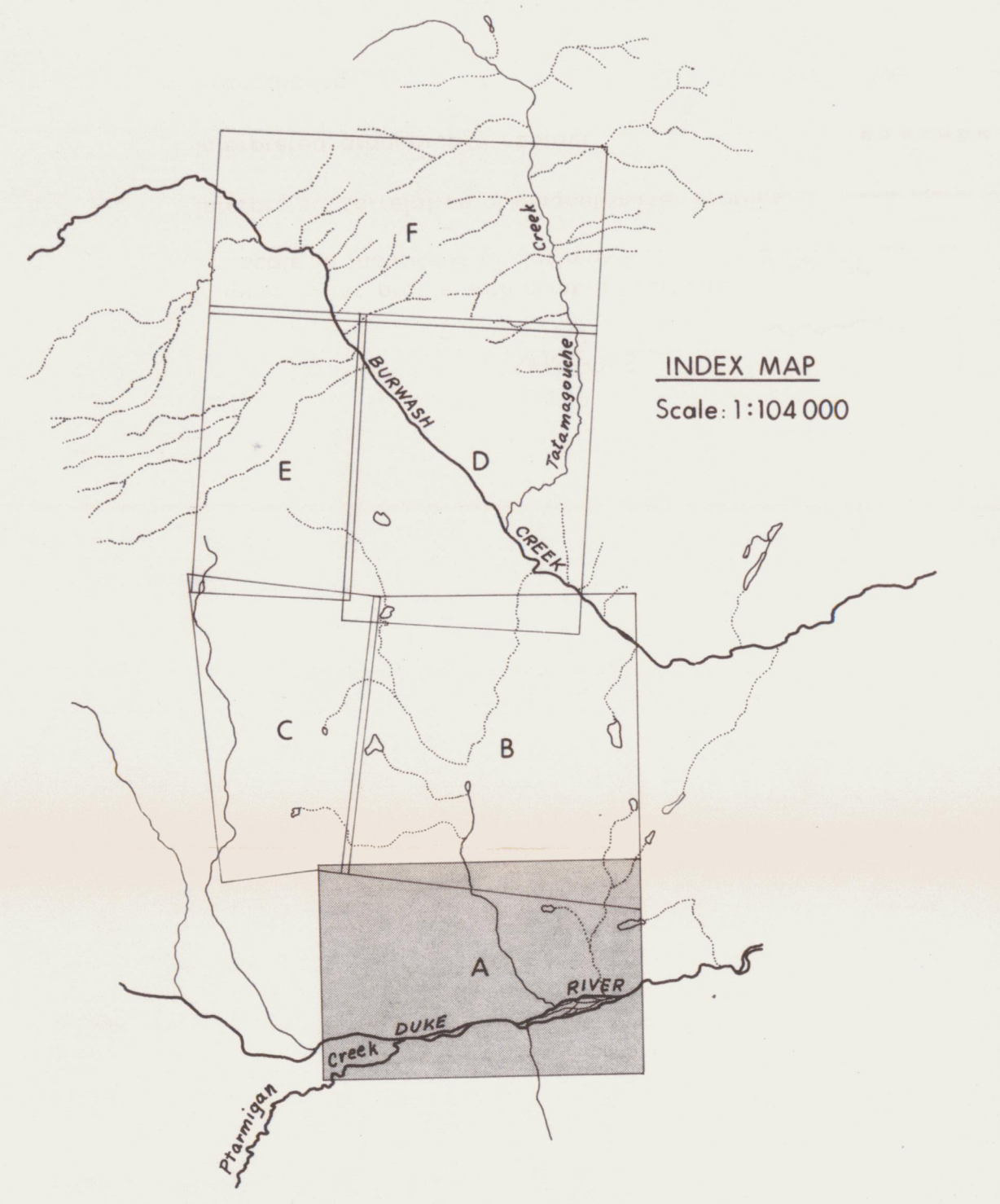
SYMBOLS

Magnetometer profile with number (vertical scale in thousands of gammas) Line 129

Interpreted correlation of magnetometer profiles - - - - -

Interpreted granodiorite contact ■■■■■

Granodiorite Kgd



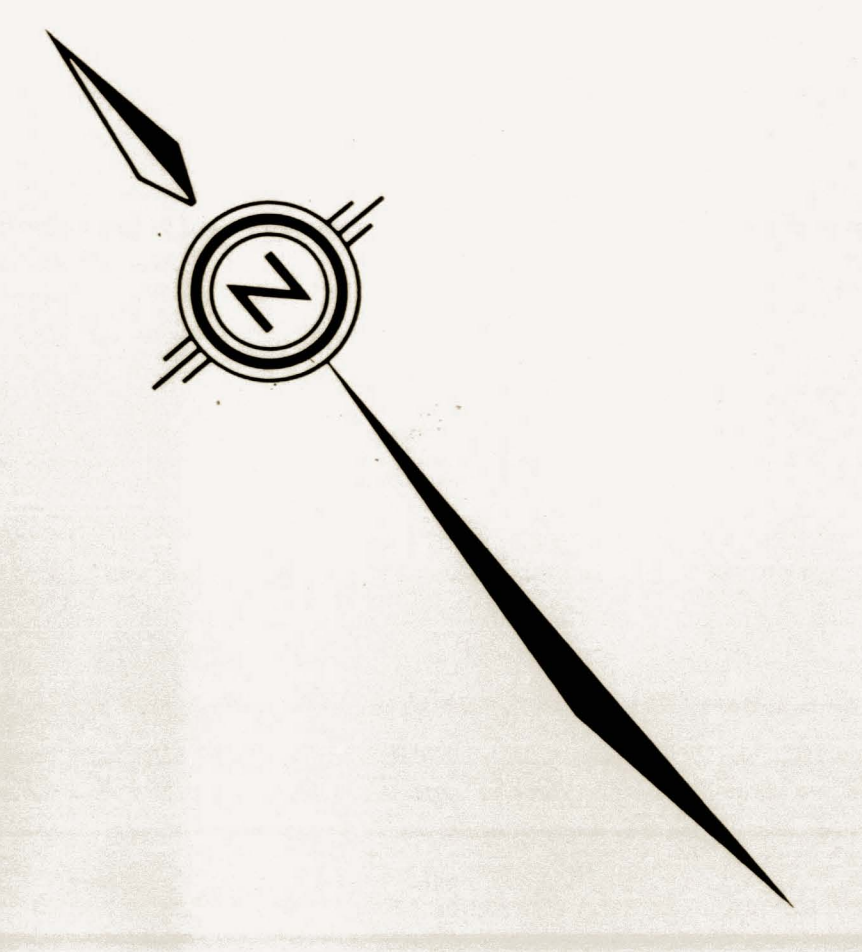
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Fig. 7-1 Magnetometer Profiles on Map Sheet A

BURWASH CREEK AREA, YUKON

LBH SCALE: 1:5000 1983-10



SYMBOLS

Magnetometer profile with number (vertical scale in thousands of gammas) Line 119

Interpreted correlation of magnetometer profiles - - - - -

Interpreted granodiorite contact ■■■■■

Granodiorite Kgd



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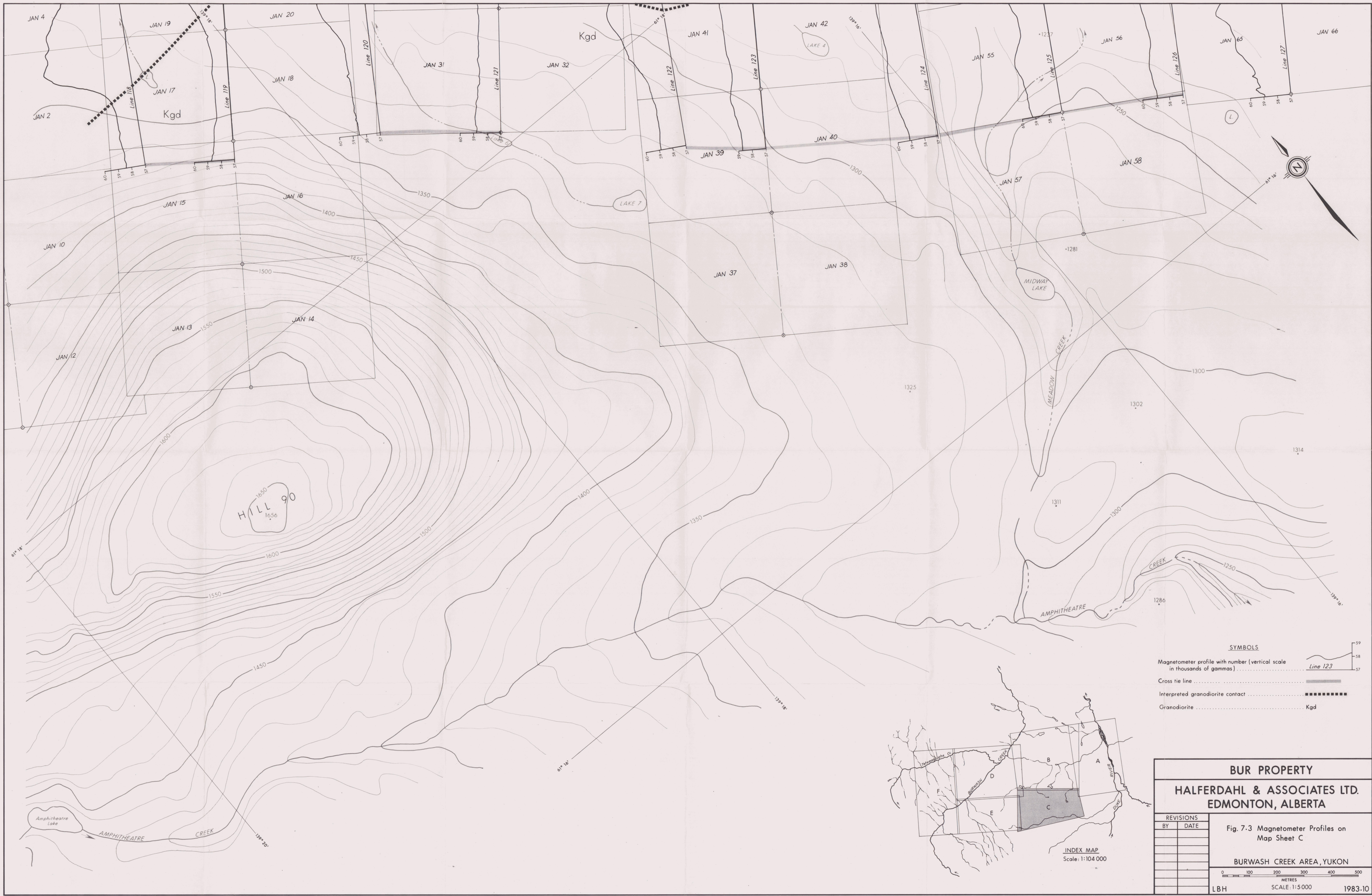
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Fig. 7-2 Magnetometer Profiles on Map Sheet B

BURWASH CREEK AREA, YUKON

0 100 200 300 400 500 METRES

LBH SCALE: 1:5000 1983-10



SYMBOLS

- Magnetometer profile with number (vertical scale in thousands of gammas) Line 123
- Cross tie line
- Interpreted granodiorite contact
- Granodiorite Kgd

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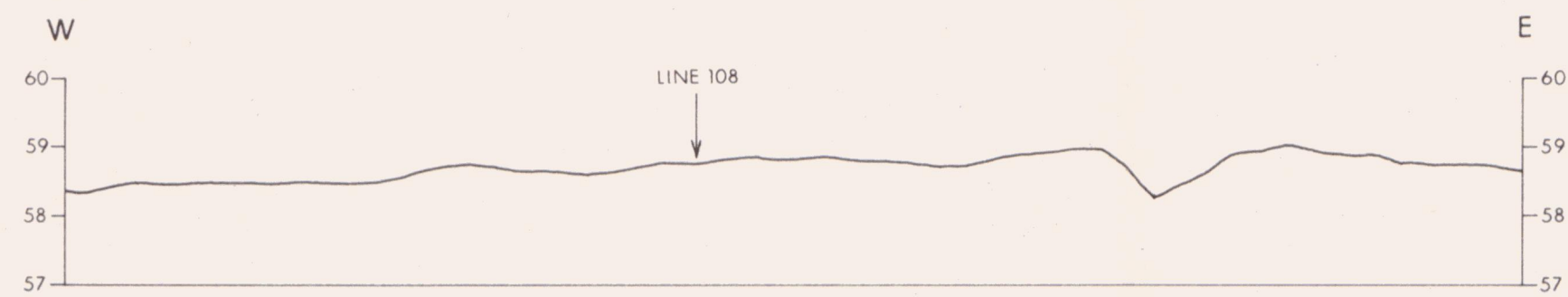
Fig. 7-3 Magnetometer Profiles on Map Sheet C

BURWASH CREEK AREA, YUKON

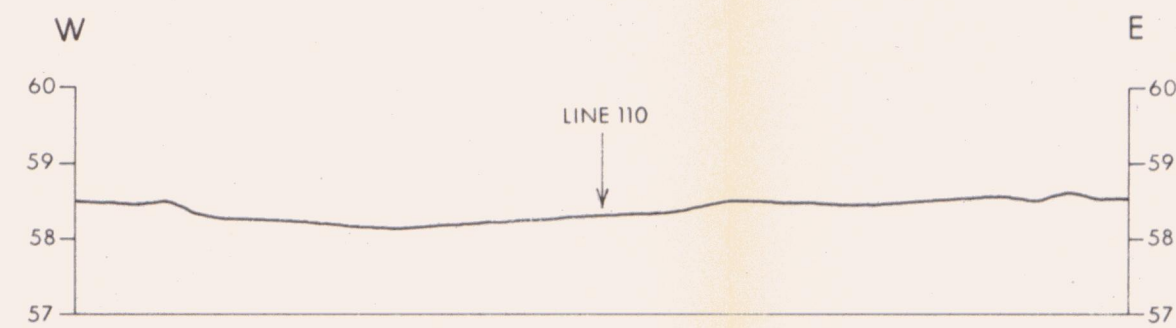


LBH SCALE: 1:5 000 1983.10

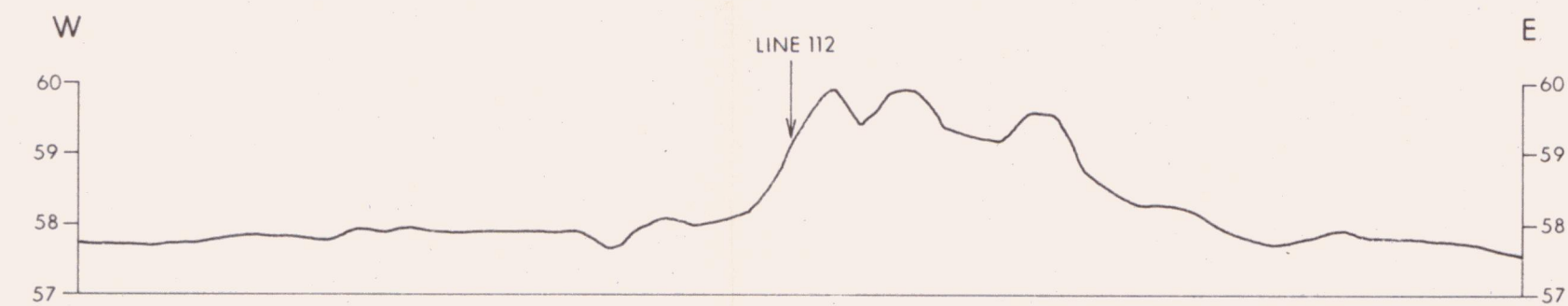
INDEX MAP
Scale: 1:104 000



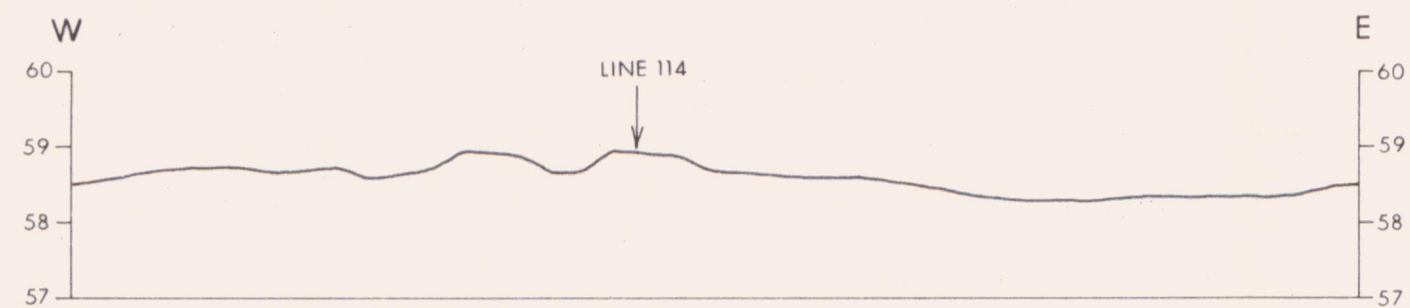
CROSS TIE 107-109



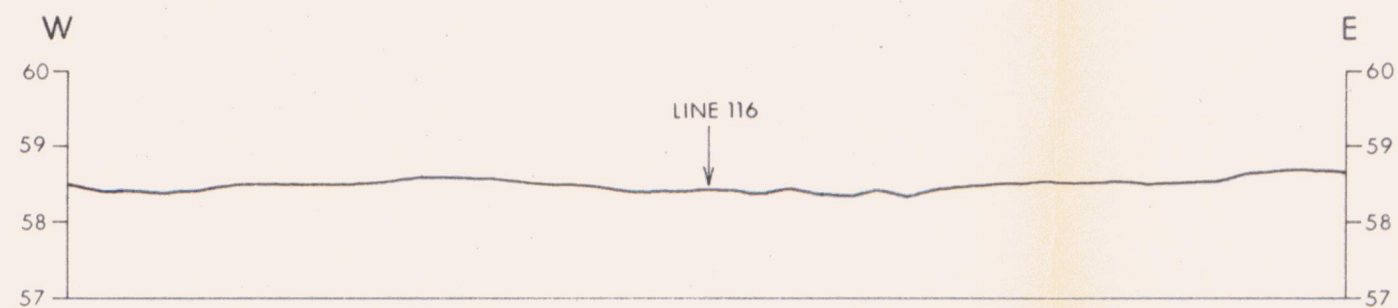
CROSS TIE 109-111



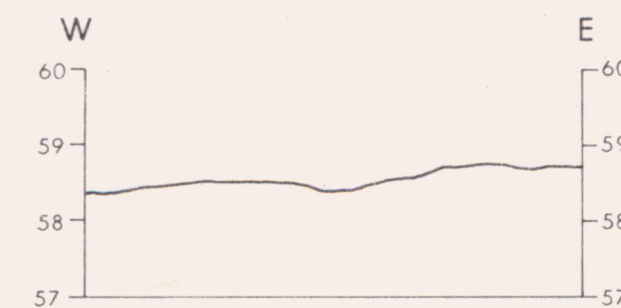
CROSS TIE 111-113



CROSS TIE 113-115



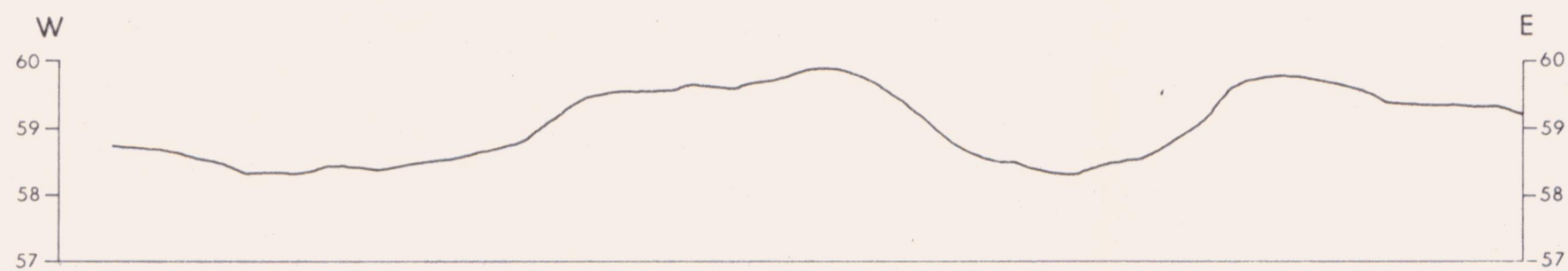
CROSS TIE 115-117



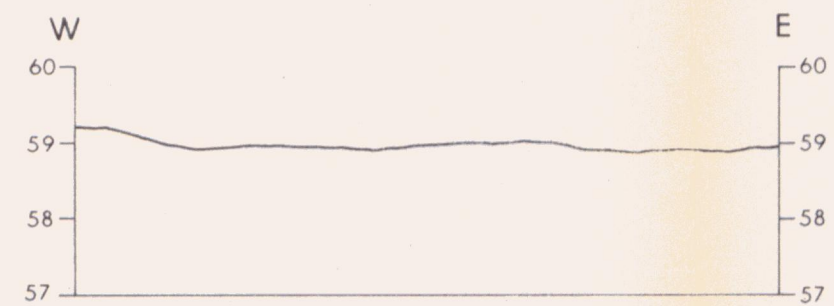
CROSS TIE 118-119



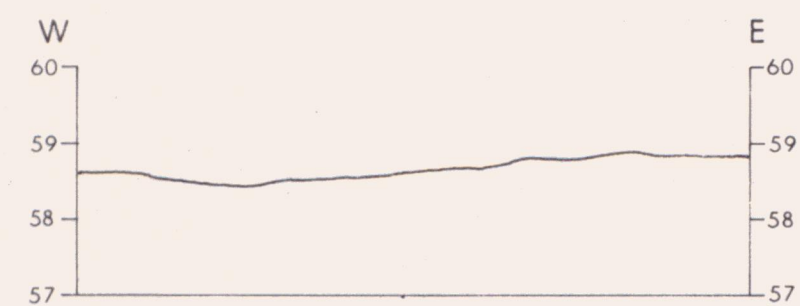
CROSS TIE 106-107



CROSS TIE 123-125



CROSS TIE 125-126



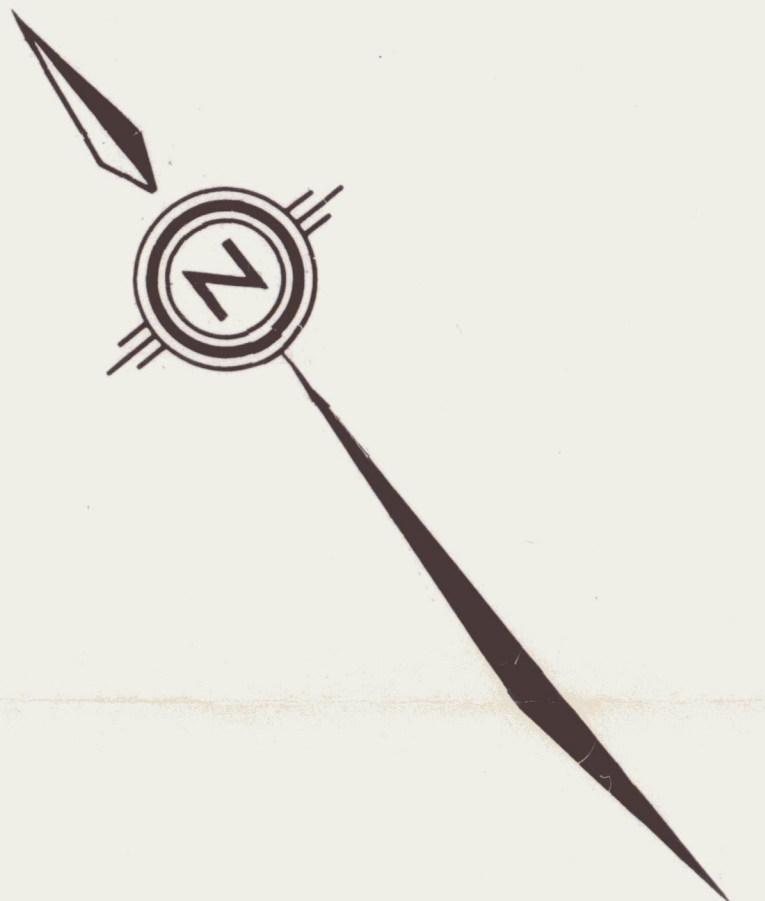
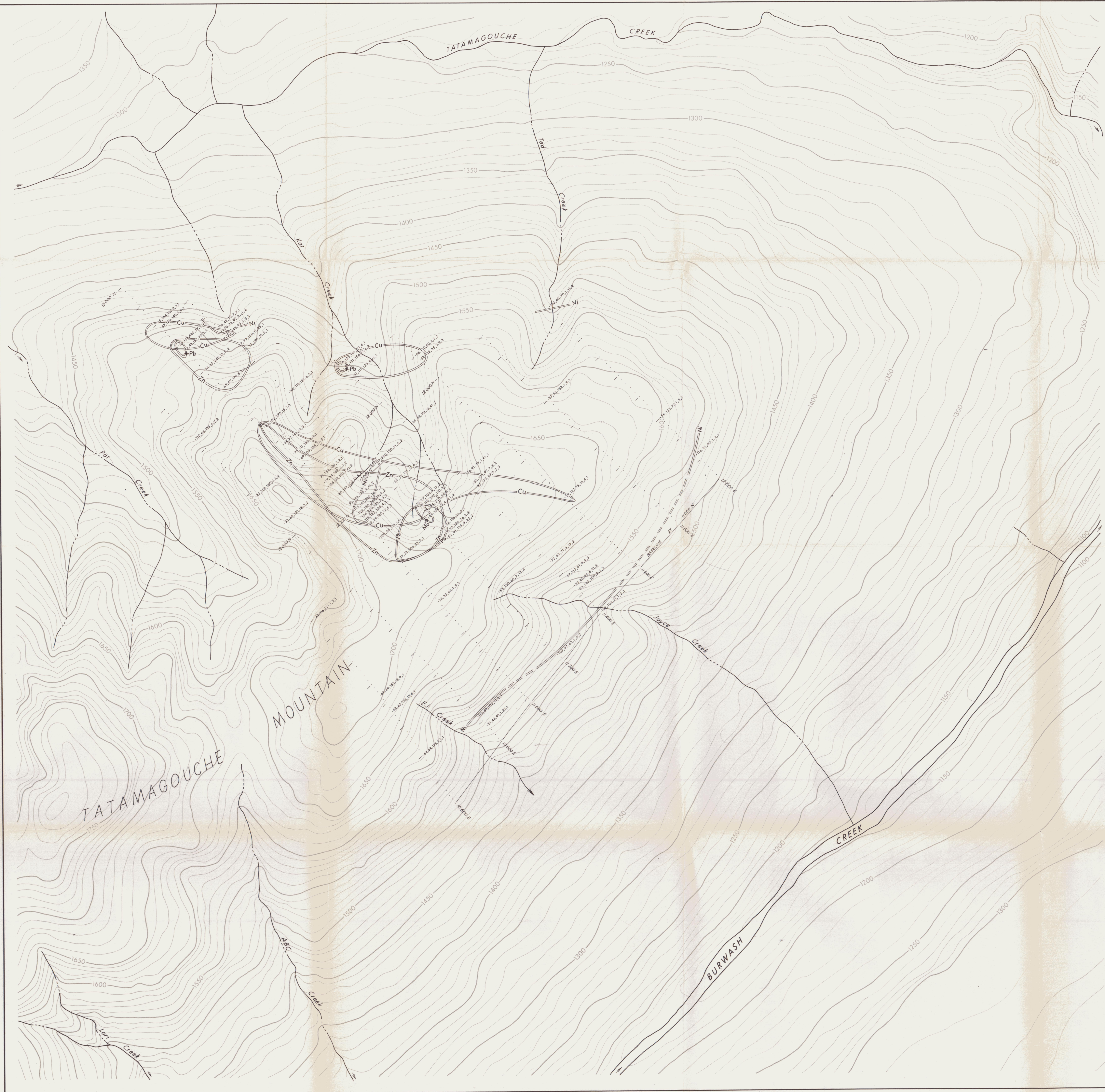
CROSS TIE 120-121



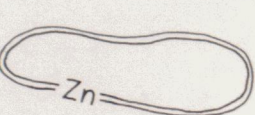
CROSS TIE 122-123

Readings are in thousands of gammas.
 For locations of Cross Ties see Fig. 7.3 and 7.5.

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Fig. 7.7 Magnetometer Profiles of Cross Ties		
BURWASH CREEK AREA, YUKON		
LBH	METRES SCALE: 1:5000	1983-10



SYMBOLS

- Offset line with sample locations
- Concentrations of nickel, copper, zinc, lead, gold, and molybdenum in anomalous soil samples *37, 73, 306, 33, 3, 1
(concentrations are in ppm except gold (ppb))
(Only analyses where at least one metal concentration is anomalous are shown. For other analyses see appendix 2.)
- Anomalous areas with symbol of anomalous metal 
- Contour interval: 10 metres

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**Fig. 8.2 Anomalous Geochemical Soil Samples on Tatamagouche Mountain
BURWASH CREEK AREA, YUKON**

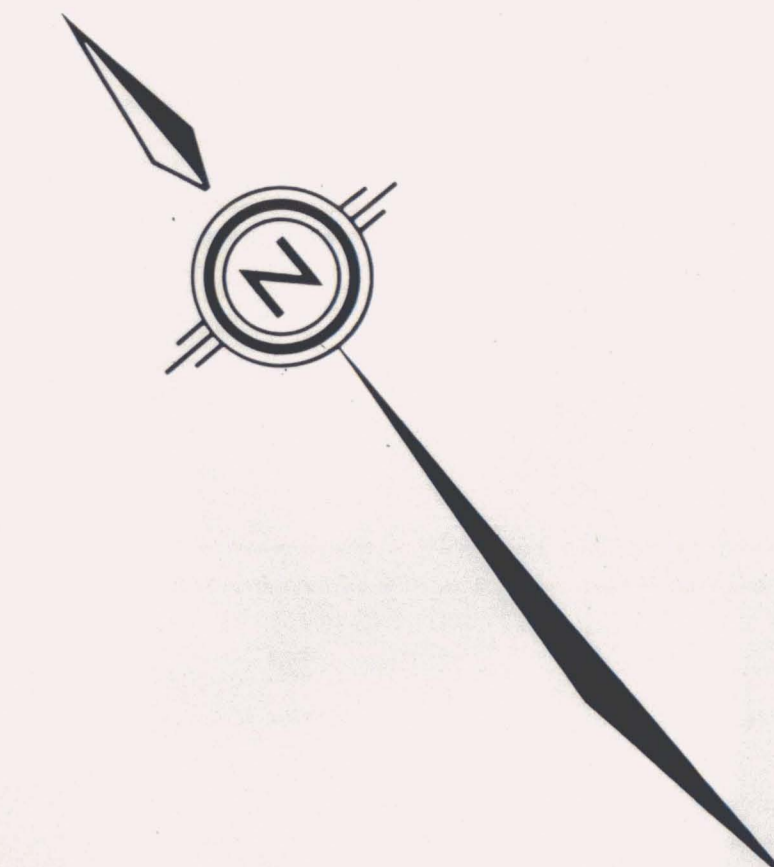
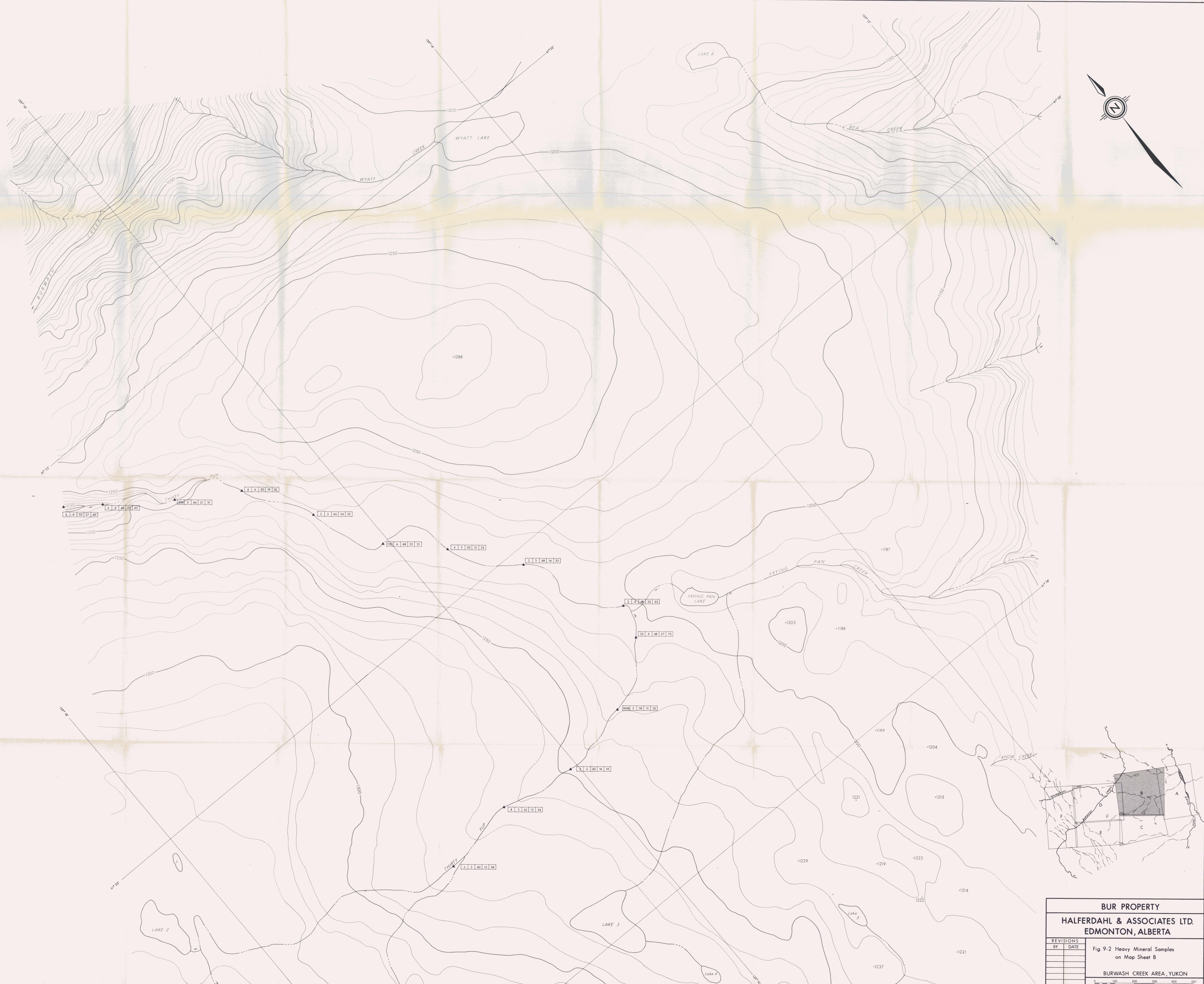




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Fig. 8.3 Locations of Traverse Lines
 25W and 124 of Geochemical
 Soil Samples
 BURWASH CREEK AREA, YUKON

0 1/2 1 2
 Kilometres
 LBH SCALE: 1:31 360 (1" = 1/2 mi.) 1983-10



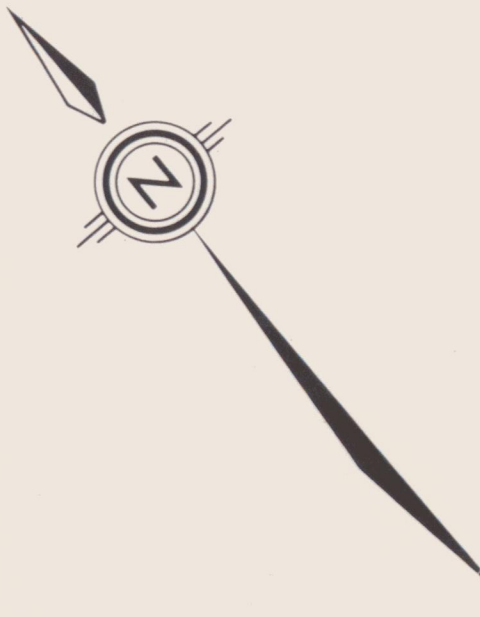
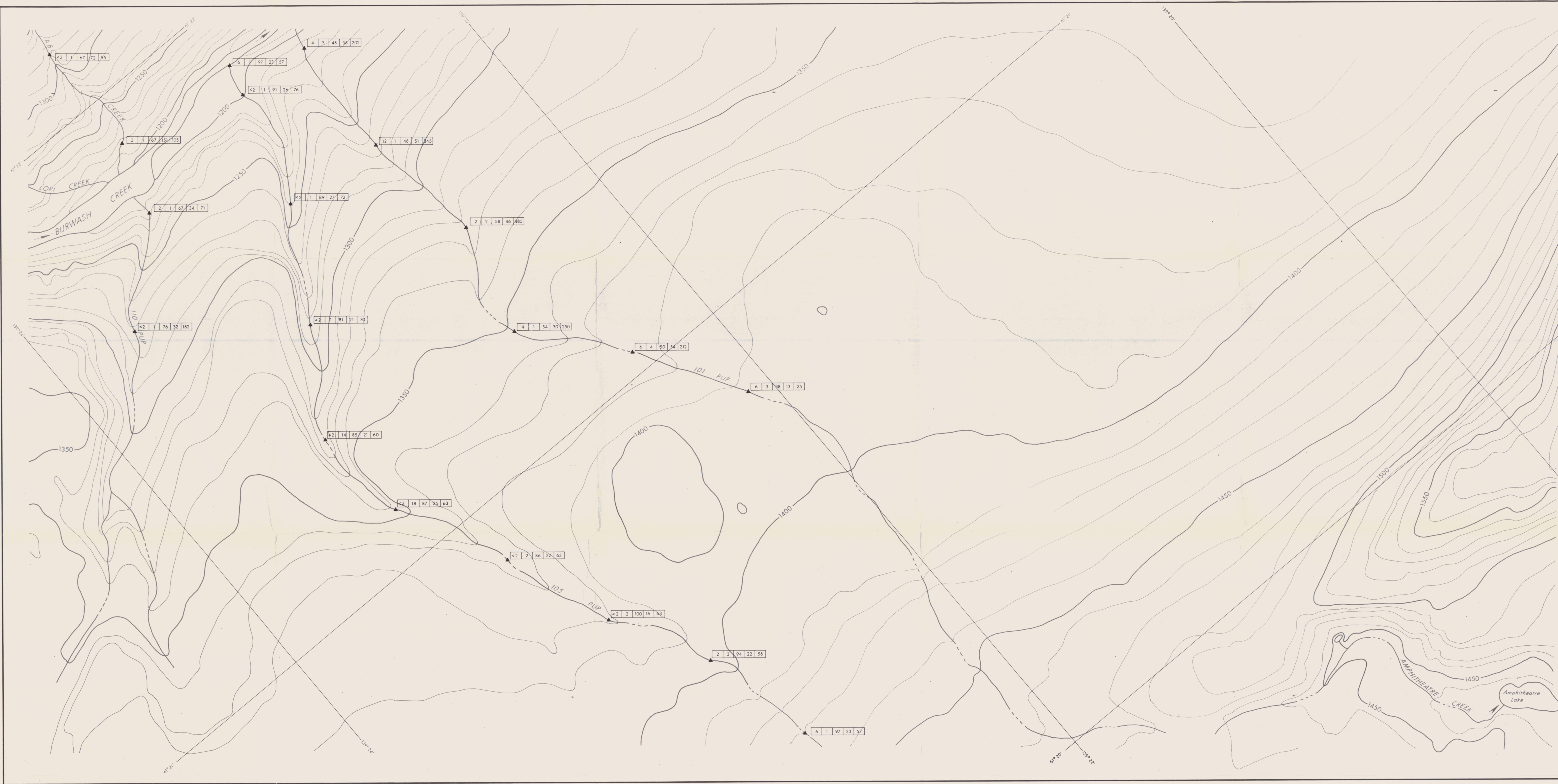
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Fig. 9-2 Heavy Mineral Samples
on Map Sheet B

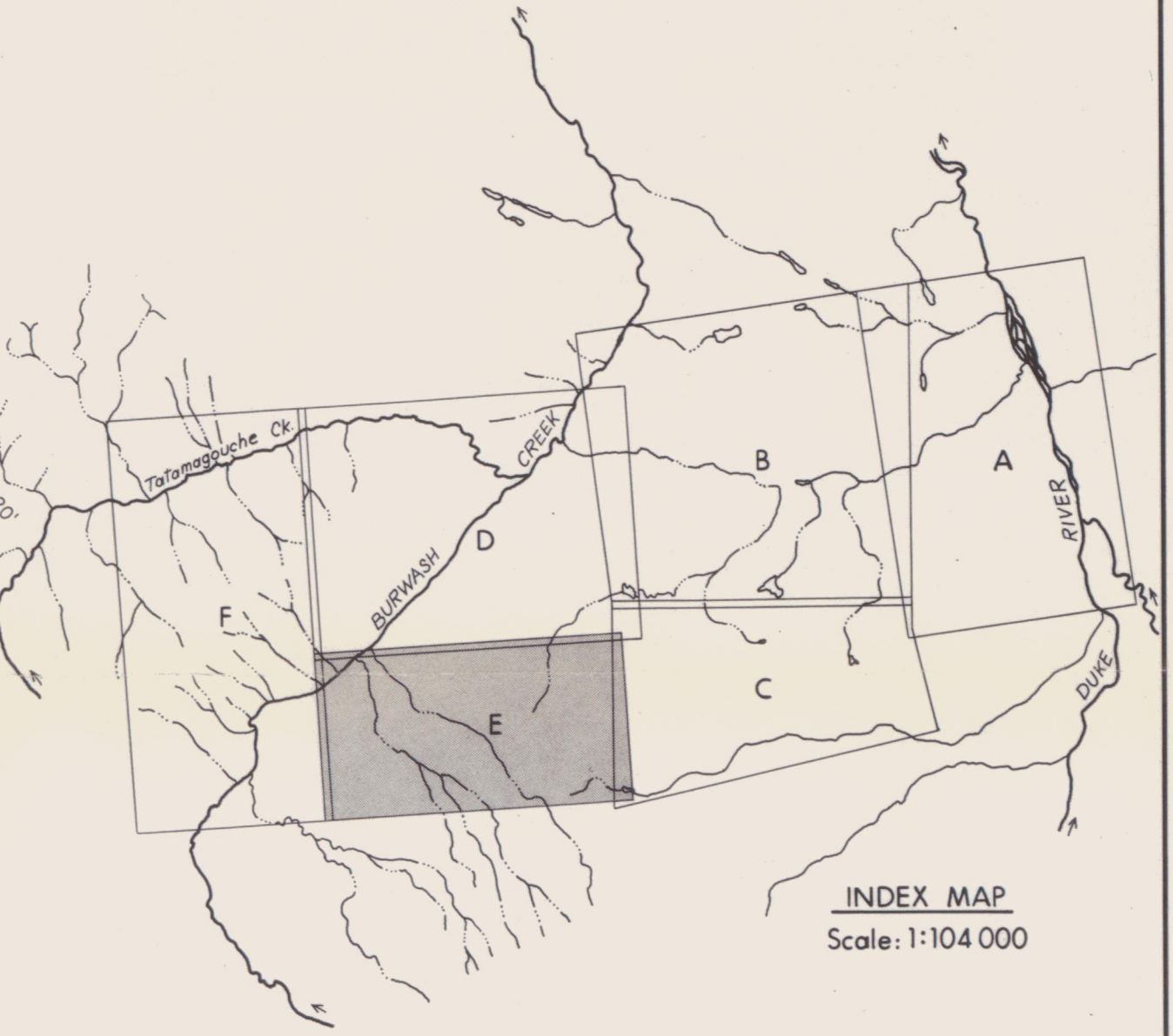
BURWASH CREEK AREA, YUKON

SCALE: 1:5000 1983-10



SYMBOLS
 Heavy mineral sample location ▲
 Assay results (ppm; Au (ppb)).....

Au	Pb	Zn	Cu	Ni
4	3	48	36	202



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Fig. 9.4 Heavy Mineral Samples on Map Sheet E

BURWASH CREEK AREA, YUKON

0 100 200 300 400 500
 METRES

LBH SCALE: 1:5000 1983-10