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1984 EXPLORATION OF THE BUR PROPERTY, YUKON (GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL, OVERBURDEN DRILLING, TRENCHING)

091585

Claims EL 1-9, 11-12, 21-22, 29, 31-32, 38, 40-42, 44, 48-84,
JO 1, 4, 7, SUE 1-2, 5-11, KAT 5-14, 17-24, 26-30, 37-40, 42, NAN 5-8,
JAN 4, 5, 7, 53-56, 61-62, 67-72, 77-80, DEN 1, 3-10, WEN 2-10,
AND 7, 9-12, JY 17-21, 23, 25-28, 31-34, 37-40, 43-52, 58

Whitehorse Mining District

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

by

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

1984 11 05

Work on Property Conducted 1984 07 18 to 1984 10 12

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091585

DEC 4 1984
WHITEHORSE
YUKON TERRITORY

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 $ 26,518.69.

D. Emond

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

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

LIST OF APPENDICES

LIST OF TABLES

SECTION 1.0 INTRODUCTION

Exploration of the Bur property, which now comprises more than 300 quartz mineral claims, continued during the periods July 18 to August 29 and September 26 to October 12, 1984. During the first period, a three-person crew mapped part of the geology, ran magnetometer profiles, collected 48 geochemical soil samples, collected 24 panned concentrates from which heavy minerals were analyzed, arranged for and supervised bulldozer trenching and stripping, drilled 136 holes into the overburden, and supervised a bulldozer which maintained a road and constructed access trails to the trenches. During the second period the writer supervised another bulldozer, which constructed more access trails and excavated another trench. This report describes these explorations; it includes other current and some previously obtained information. As accounts of the geographic setting, previous work and the geology are available in previous assessment reports, only changes and new information on these three features are included.

Access to the valleys of Burwash and Tatamagouche Creeks and Duke River was by a four-wheel-drive vehicle; access along some trails and winter roads was by an all-terrain cycle. Accommodation for the crew during July and August was in a temporary camp in the valley of Burwash Creek, supplemented by a few overnight stays in a placer miner's camp on Duke River. For the period in September and October, the writer stayed in a lodge at Burwash Landing.

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. Overburden drilling in Tatamagouche Canyon has revealed clusters about 150 m long of subtle mostly coincident anomalous concentrations of gold and copper at or near a fault previously detected by geophysics. Whether the gold and copper are fault controlled or in a stratigraphic layer cut by a fault is uncertain. The cluster of anomalous gold and copper concentrations is mostly separate from a cluster of subtle anomalous lead concentrations, a pattern which is present elsewhere in the Bur property. Trench TT does not yet extend far enough to reach these anomalous concentrations, nor has it yet reached bedrock because of permafrost, but muck from its lower end, which is closest to the gold anomaly detected in the overburden drilling, contains gold concentrations similar to

those in the overburden-drilling anomaly.

2. Trench J near Johnson Creek encountered the auriferous tuff layer previously intersected in drillhole 70-6 drilled by Imperial Oil Enterprises Ltd. and relogged and re-assayed in late 1983. This auriferous layer, accompanied by highly anomalous concentrations of copper and molybdenum does not appear to contain economic concentrations of gold in either trench J nor in drillhole 70-6. It forms part of a layer of distinctive tuff, here termed "wormy", for which not all the core was available for relogging and re-assaying, and of which only the upper part was exposed in trench J.
3. Highly anomalous concentrations of gold are present in heavy minerals from the lower part of Bea Creek with lower but still anomalous concentrations of gold farther up Bea Creek. The lack of anomalous concentrations of other metals accompanying the gold suggests that the gold in these heavy minerals does not have a nearby source.
4. Magnetometry and geochemical soil sampling have not yet been successful in tracing the anomalous gold concentrations previously found in heavy minerals from the lower part of Frying Pan Creek.
5. It appears possible that the same bedrock source is contributing gold to the heavy minerals in the lower parts of both Frying Pan and Bea Creeks.
6. Almost all the area drained by Frying Pan Creek appears to be underlain by the Hasen Creek Formation, with a thick unit of pyritic black tuff along Frying Pan Creek probably correlating with a similar unit much disturbed structurally, along the lower part of Johnson Creek. Farther up Frying Pan Creek are outcrops of interbedded limestone and chert that appear typical of the upper part of the Hasen Creek Formation.
7. A few magnetometer profiles have aided in interpreting the geology in areas devoid of outcrops.

2.2 Recommendations

1. Extend trench TT to the coincident gold and copper anomalies in Tatamagouche Canyon or drill one or more holes to test them.
2. Test the "wormy" tuff zone near Johnson Creek with one or more drillholes.
3. Drill at least one hole just south of drillhole 81-5 to confirm and extend the economically significant auriferous intersection previously obtained in it.
4. Extend magnetometer and run electromagnetic surveys in part of the area between Frying Pan and Bea Creeks to aid in locating the source of the gold in the heavy minerals in them. If warranted, drill one or more holes to test any targets found.

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), but only the 160 claims to which the work reported here is to be applied are listed below.

Claim	Grant Number	Record Date	Expected Expiry Date
EL 2-3, 6-7	YA 23530-31, -34-35	1978 08 28	1990 04 16
EL 4	YA 23532	1978 08 28	1988 04 16
EL 5, 8	YA 23533, -36	1978 08 28	1989 04 16
JO 1	YA 23537	1978 08 28	1990 04 16
SUE 1-2	YA 23545-46	1978 08 28	1990 04 16
SUE 5-8	YA 23549-52	1978 08 28	1990 04 16
KAT 5	YA 23557	1978 08 28	1991 04 16
KAT 6-8	YA 23558-60	1978 08 28	1990 04 16
NAN 5-8	YA 23565-68	1978 08 28	1990 04 16
JAN 4, 5, 7	YA 23572, -73, -75	1978 08 28	1990 04 16
DEN 3, 5-8	YA 23579, -81-84	1978 08 28	1990 04 16
DEN 4	YA 23580	1978 08 28	1989 04 16
WEN 2	YA 23586	1978 08 28	1989 04 16
WEN 6, 8	YA 23590, -92	1978 08 28	1990 04 16
AND 7	YA 23599	1978 08 28	1990 04 16
JY 17-21, 23	YA 51133-37, -39	1980 08 13	1987 04 16
KAT 9-11, 13-14	YA 51141-43, -45-46	1980 08 13	1989 04 16
KAT 12	YA 51144	1980 08 13	1990 04 16
KAT 17-19	YA 51149-51	1980 08 13	1987 04 16
KAT 20	YA 51152	1980 08 13	1991 04 16
KAT 21, 23-24	YA 51153, -55-56	1980 08 13	1989 04 16
KAT 22	YA 51154	1980 08 13	1990 04 16
JY 25, 27-28	YA 52563, -65-66	1980 10 16	1988 04 16
JY 26, 31-32	YA 52564, -69-70	1980 10 16	1989 04 16
JY 33-34, 39-40	YA 52571-72, -77-78	1980 10 16	1988 04 16
JY 37-38	YA 52575-76	1980 10 16	1989 04 16
JY 43-49, 51-52	YA 52581-87, -89-90	1980 10 16	1988 04 16
JY 50	YA 52588	1980 10 16	1987 04 16
AND 9-12	YA 52595-98	1980 10 16	1989 04 16
SUE 9-10	YA 59001-2	1980 10 16	1989 04 16
EL 9	YA 73861	1981 09 28	1989 04 16
JY 58	YA 75154	1982 10 18	1988 04 16
KAT 26-30	YA 75168-72	1982 10 18	1990 04 16
KAT 37-40, 42	YA 75179-82, -84	1982 10 18	1990 04 16
JO 9-10	YA 75189-90	1982 10 18	1990 04 16
WEN 9-10	YA 75191-92	1982 10 18	1990 04 16
DEN 9-10	YA 75193-94	1982 10 18	1990 04 16
SUE 11	YA 75195	1982 10 18	1990 04 16
EL 11-12, 21-22	YA 75205-06, -15-16	1982 10 18	1986 10 18
JAN 69	YA 75397	1982 12 13	1986 12 13
JAN 70-72, 77	YA 75398-400, -405	1982 12 13	1987 12 13
JAN 78-80	YA 75406-08	1982 12 13	1986 12 13

Claim	Grant Number	Record Date	Expected Expiry Date
EL 29, 31-32	YA 75409, -11-12	1982 12 13	1986 12 13
EL 41-42, 44	YA 75421-2, -44	1982 12 13	1988 04 16
EL 51, 53, 55-57	YA 75431, -33, -35-37	1982 12 13	1988 04 16
EL 52, 54, 58-67	YA 75432, -34, -38-47	1982 12 13	1986 12 13
EL 68-69	YA 75448-49	1982 12 13	1988 04 16
EL 70-71	YA 75450-51	1982 12 13	1987 12 13
EL 72-76	YA 75452-56	1982 12 13	1986 12 13
JAN 53-56, 67-68	YA 78505-10	1983 09 22	1987 09 22
EL 77-84	YA 81412-19	1984 02 08	1988 02 08

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 was performed on the claims listed below. Some work was performed on other claims.

YA 23529, -32-33, -35-36	EL 1, 4-5, 7-8
YA 23540, -43	JO 4, 7
YA 23577, -80, -84	DEN 1, 4, 8
YA 23587-89, -91	WEN 3-5, 7
YA 52589	JY 51
YA 73861	EL 9
YA 75154	JY 58
YA 75179-82, -84	KAT 37-40, 42
YA 75194	DEN 10
YA 75391-2, -97	JAN 61-62, 69
YA 75406, -08	JAN 78, 80
YA 75418, -20, -24	EL 38, 40, 44
YA 75428-30, -32-36	EL 48-50, 52-56
YA 75439-44, 46	EL 59-64, 66
YA 75448-51	EL 68-71
YA 81412, -14, -16, -18	EL 77, 79, 81, 83

SECTION 4.0 LOCATION AND ACCESS

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 15½ km to just across Duke River. It averages about 3½ km wide.

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. This road was gravelled in early 1984 by placer miners and, although rough, is passable for ordinary vehicles except possibly in and after periods of heavy rain when a four-wheel-drive vehicle is preferable. The east end of the Bur property is accessible from the Duke River road by means of tracked-vehicle or four-wheel-drive roads:

1) four-wheel-drive road about 3 km up Bea Creek,
2) four-wheel-drive road about 1 km up Frying Pan Creek,
3) four-wheel-drive road up Squirrel Creek (which requires fording the Duke River - possible at moderately low water),
4) tracked-vehicle river road which continues past Frying Pan Creek on the west side of Duke River beyond the Bur property to placer claims on Granite Creek, and
5) tracked-vehicle swamp road which branches off the river road and continues beyond the Bur property also 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 ordinary vehicle, but better with a four-wheel-drive vehicle. Parts of it are subject to washouts or slides during periods of heavy rain. The part through the lower canyon of Burwash Creek was improved by placer miners in 1984, so that it may not be washed out as easily as before. A branch from the Burwash Creek 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. Parts of this branch road in Tatamagouche Canyon are also subject to washouts and slides. The part of this road above Tatamagouche Canyon crosses Tatamagouche Creek several times. Across the pass on the Quill Creek side, it also crosses a creek numerous times and is right in the creek bed for short stretches.

SECTION 5.0 GEOLOGY OF THE PROPERTY

As previously indicated, only new information on the geology is presented here, as more complete accounts of the geology are available in previous assessment reports.

5.1 Stratigraphy

A stratigraphic column for the Burwash Creek area is in Table 5.1. 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 the other units in Table 5.1 are available in some of the reports listed in the references.

5.1.1 Hasen Creek Formation

Geological mapping and sampling and relogging of available core from the 1970 Imperial Oil Enterprises Limited drilling (Appendix 1) along and near Johnson Creek, has shown that the lower part of the Hasen Creek Formation consists of tuffs of various types intercalated with basic volcanic flows, some of which are magnetic or porphyritic or both, along with a few agglomeratic units. Some of the tuffs, chiefly the lighter-colored units contain disseminated pyrite as well as small amounts of chalcopyrite and molybdenite. A unit of black pyritic tuff probably stratigraphically above most of the other tuffs, flows, and agglomerates is exposed along the lower part of Johnson Creek, where it is complexly folded and faulted, probably partly caused by the intrusion of latite porphyry there. So far its complex structure there has prevented reasonable measurements of its thickness, but it is probably at least 100 m thick. In the upper part of the Hasen Creek Formation just below the overlying Nikolai Formation at one place at least on a spur adjacent to Johnson Creek is a unit at least 33 m thick of interbedded chert and limestone. The chert and limestone unit is probably stratigraphically above the thick unit of black pyritic tuff, but this relation requires farther work to establish its reality.

Mapping of outcrops along Frying Pan Creek identified a thick unit of black pyritic tuff for a length of about 300 m along a straight canyon whose lower end is about two km upstream from its mouth. Beds are mostly 25 to 35 cm thick with considerable flexures in short distances. Farther up Frying Pan Creek are outcrops of interbedded black chert in layers 20 to 30 cm thick with layers of whitish-grey limestone about 1 m thick with some fine-grained layers of white or light-grey quartzite, and still farther up, only limestone. It is probable that

TABLE 5.1 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
	——— 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 black pyritic tuff in the straight canyon correlates with the black pyritic tuff along the lower part of Johnson Creek, and that the chert and limestone, and limestone along Frying Pan Creek are in the upper part of the Hasen Creek Formation. This suggests that the Hasen Creek Formation constitutes the bedrock surface of much or all the area drained by Frying Pan Creek, and that the part of Frying Pan Creek above the falls is directly underlain by the upper part of the Hasen Creek Formation.

Geological mapping identified one or more layers of light-colored tuffs along the West Fork of Sky Creek. These are probably in the Hasen Creek Formation.

5.1.2 Nikolai Formation

The basal unit of the Nikolai Formation is now recognized as a conglomerate because it contains clasts of tuffs, flows, limestone, and cherts from the underlying Hasen Creek Formation near the west end of Tatamagouche Mountain. The clasts consist of angular pebbles and boulders up to 30 or 40 cm in size. Locally the conglomerate ranges up to about 80 m thick, but thicknesses vary apparently because of significant relief on the surface on which it was deposited.

5.2 Intrusions

5.2.1 Magnetitic Peridotite

The extent of the magnetitic peridotite along and near part of Tatamagouche Canyon has been mapped by interpretations based on several magnetometer traverses there, but the details of these traverses are not included in this report. They show a narrow band of peridotite along part of the eastern margin of Tatamagouche Canyon. The low magnetic response in Tatamagouche Canyon near the falls can be attributed to thin peridotite there, or alternatively its alteration to serpentine.

5.2.2 Intermediate Intrusion

Along Frying Pan Creek intruding the first outcrop of interbedded chert and limestone above the black pyritic tuff is a body of altered medium-grey igneous rock. It has a vertical contact striking 312^{o} with the chert and limestone with a chilled margin. Grains of whitish feldspar and altered green-grey mafic minerals range up to 3 mm in size.

5.2.3 Latite Porphyry

The irregular dyke-like mass of latite porphyry with a few apophyses on Johnson Creek has been dated at 26 my (Christoper et al, 1972). Typically, it shows various shades of grey and weathers a conspicuous white to light buff. Its fine-grained matrix consists mostly of quartz and feldspar. Feldspar phenocrysts to 10 mm in size constitute up to about 20 per cent with a few per cent of biotite phenocrysts. Other phenocrysts are present locally: 2 to 3 per cent amphibole and fairly abundant quartz. Locally near its contacts are abundant tuffaceous xenoliths from the strata it intrudes.

5.3 Structure

The Bur property is bounded approximately on the north by the Bocks Brook Fault, a major southeasterly trending thrust fault which brings Lower 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.

In addition to the major faults on Tatamagouche Mountain described in previous reports, more information on the faults in and near Tatamagouche Canyon has been obtained.

1) Fault D: Walcott's electromagnetic anomaly D appears to mark a complex fault zone which trends southeasterly across Tatamagouche Canyon at and near the falls. Its lateral displacement is not yet known, but its southwest side appears to have moved up.
2) Fault E: Drilling has intersected a reverse fault which appears to coincide with Walcott's anomaly E. It strikes 104^{o} and dips 40^{o}S.
3) The offset of Walcott's anomaly F appears to mark a fault about 500 m west of Tatamagouche Canyon, and which trends southerly according to interpretations of detailed magnetometry, which indicate peridotite on its west side.

Several faults were intersected in the Imperial Oil drillholes along Johnson Creek, but these holes are too widely spaced to determine their attitudes or movements.

The magnetometer profiles run on the Burwash Uplands in 1983 apparently indicate a major structural break there near the divide between Thirty Pup and Frying Pan Creek. Undoubtedly other faults are present on the Burwash Uplands.

SECTION 6.0 MAGNETOMETER SURVEYS

6.1 Equipment and Methods

A proton magnetometer, model MP-2 manufactured by Scintrex Limited was used to extend magnetometer traverses 115 and 117 (Fig. 6.2), run in 1983, northerly, and to add magnetometer traverse 132 (Fig. 6.1) near Duke River. It was also used for seven more detailed magnetometer traverses across part of Frying Pan Creek. The magnetometer used reads to one gamma, with most readings reproduceable to within 5 or 10 gammas under the conditions of the survey. The magnetometer was read at intervals of 10 m along the traverses with two or more readings taken at each station and averaged. Stations were re-occuppied to determine diurnal and daily variations, but all variations were so small that no corrections were made.

6.2 Widely Spaced Traverses

The lengths of the three widely spaced traverses are as follows:

Traverse	Length
115 (north part)	930 m
117 (north part)	1920 m
132	2720 m

The northern part of traverse 115 appears generally similar to the southern part run in 1983, but shows readings of about 55 500 gammas at its northern end, which appear to be caused by an intrusion of latite porphyry there. The very low gamma readings along the southern part of the location line between claims Den 1 and 2 may also be due to latite porphyry or possibly a fault.

The northern part of traverse 117 shows readings between 55 000 and 56 000 gammas for part of the location line between claims El 1 and 2, and extending northerly onto the southern part of the location line between claim El 3 and 4. Such readings are interpreted as due to latite porphyry. The readings between 56 000 and 57 000 gammas at the north end of traverse 117 appear to be caused by volcanic rocks of the Volcanic Flow Member and possibly the underlying sedimentary rocks of the Rust Member, both of the Station Creek Formation.

The northern part of traverse 132 shows readings between 56 000 and 57 000 gammas. Fig. 5.1 shows outcrops of medium-grey tuffs near the mouth of Frying Pan Creek, which obviously give rise to these gamma readings. The higher gamma readings near the boundary between claims El 62 and 64 are caused by peridotite which outcrops nearby along Duke River. The southern part of traverse 132 is believed to cross units of the Hasen Creek Formation, but the readings mostly between 57 000 and 58 000 gammas cannot yet be correlated with any specific lithologic units in it. We have not attempted to correlate features on traverse 132 with those on adjacent traverse 131 run in 1983.

6.3 Traverses Across Part of Frying Pan Creek

Seven magnetometer traverses each 600 m long were run across part of Frying Pan Creek in order to aid in tracing the anomalous gold concentrations in heavy mineral samples obtained there in 1983, to their source. The magnetometer profiles are shown in Fig. 6.3. The profiles are generally flat with all the readings just below 57 000 gammas. Line 0 +00 crosses outcrops of basic volcanics just below the lowest canyon on Frying Pan Creek, and these apparently produce magnetic readings of about 57 000 gammas or a little lower. Hence the entire area of Fig. 6.3 is probably underlain by basic volcanic or similar rocks. If so, the source of the gold concentrations in the lower part of Frying Pan Creek does not appear to lie within the area shown in Fig. 6.3.

SECTION 7.0 GEOCHEMICAL SOIL SAMPLING

Geochemical soil samples were collected along three lines each 300 m long: one south of and two north of Frying Pan Creek (Fig. 7.1) in an effort to trace the anomalous gold concentrations previously found in heavy mineral samples from the lower part of Frying Pan Creek, to their source. Descriptions of the soil samples are in appendix 2. The -80 mesh fractions were analyzed for lead, zinc, copper, nickel, and molybdenum by standard atomic absorption techniques and for gold by standard neutron activation techniques. The results (appendix 3) have not been analyzed statistically, but according to the thresholds established previously for the Bur property, only two samples contain anomalous concentrations of any of the metals determined:

100N	0	36 ppb gold and
75S	160W	73 ppb gold.

The area surveyed appears covered by thick glacial till, so the scarcity of anomalous concentrations in samples collected from depths of 60 cm or less is to be expected. The two anomalous gold concentrations do not appear to show a useful pattern.

Geochemical soil samples were also collected on the northerly extension of traverse line 25W at the headwaters of the West Fork of Johnson Creek as described in Section 10.1.

SECTION 8.0 HEAVY MINERAL SAMPLING

8.1 Sampling and Analyses

Some 24 samples of heavy minerals were collected from creeks and pups within and adjacent to the Bur property. An effort was made to collect the first sample in each creek or pup far enough upstream from its mouth so that it would not be influenced by material in the stream into which the creek or pup flows. Where possible other samples were collected farther upstream with the sample numbers generally corresponding to the number of metres upstream from the mouth or other point on the creek or pup. Heavy minerals were collected from the following nine creeks.

Creek	Sampled Length	Number of Samples
Bea	2600 m	7
Small tributary of Duke River near Knob Creek	450	2
Phil	250	3
West Fork Bea	1500	2
Frying Pan	1600	4
Frying Pan Pup	25	1
Knob	800	3
49 Pup	100	1
North Fork Johnson	70	1
	7395 m	24

Samples Bea 1400, 1800, and 2200 are from a stretch where Bea Creek crosses a swamp and has little gravel in its bed at the surface. Above 2600 m Bea Creek was considered too swampy for sampling. Most of the West Fork of Bea Creek between 100 and 1500 m crosses a swamp and flows into and out of Bea Lake, so was not sampled. Three samples, namely 1700, 2100, and 2500, were collected from the same part of Frying Pan Creek sampled in 1983 as checks. Some difficulty was encountered in tracing Knob Creek across a swamp. As a result a nearby small creek mistaken for the lower part of Knob Creek was sampled. Three samples were collected from the upper part of Knob Creek with point A as a reference location. 49 Pup is the first very small left limit tributary of Burwash Creek upstream from 46 Pup. Previous sampling of Johnson Creek stopped just below the junction of North Fork and Northwest Fork. Accordingly one sample was collected from North Fork to learn if it drains the same gold-bearing terrain already discovered farther up Northwest and West Forks.

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 ¼ to ½ 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.

8.2 Results

The analytical results are in appendix 4, and shown in Fig. 8.1 and 8.2 except those for 49 Pup and North Fork Johnson Creek. The results from these 24 samples have not been analyzed statistically but inspection of them indicates the following:

Gold is very highly anomalous in the lower part of Bea Creek, drops off in the swampy part, and then increases moderately at the highest place sampled. The West Fork of Bea Creek has low gold concentrations, but perhaps above background. The gold concentration in the lower sample from the small creek near Knob Creek is probably related to its proximity to Duke River. Gold is moderately anomalous in North Fork of Johnson Creek.

Lead is anomalous in one sample from Phil Creek.

Zinc is probably slightly anomalous in North Fork of Johnson Creek.

Copper is anomalous in North Fork of Johnson Creek.

Nickel is probably anomalous in 49 Pup.

The very highly anomalous concentrations of gold in the lower part of Bea Creek appear highly significant, but as they do not coincide with anomalous concentrations of other metals, it is uncertain whether they represent contributions directly from a bedrock source or from a pre-glacial channel. The moderate concentration of gold in the highest sample from Bea Creek is also significant.

Although no anomalous concentrations of gold were found in Phil Creek, which is a small creek eroded into but probably not through thick glacial till, the anomalous lead concentration in one sample thence is intriguing.

The sample from the North Fork of Johnson Creek with its anomalous gold and copper concentrations is similar to the heavy mineral samples farther down Johnson Creek, collected in 1981, and indicates that the three major forks of Johnson Creek are contributing both gold and copper.

The high nickel concentration in 49 Pup is probably derived from local magnetitic peridotite.

SECTION 9.0 OVERBURDEN DRILLING AND SAMPLING

9.1 Equipment and Methods

Overburden-drilling and sampling equipment, designed and manufactured in Finland by Metallisorvaamo was used for drilling and sampling 82 holes surrounding the junction of the East and West Forks of Sky Creek as a follow-up on the anomalous concentrations of gold in heavy mineral samples previously found there, and 54 holes on the west side of Tatamagouche Canyon to provide more details on the anomalous gold concentrations found there in previous overburden drilling. This equipment was adapted for use with a Cobra drill manufactured by Atlas Copco. Drill rods with bit and sampling tube are driven into the overburden by the Cobra. The bit and sample tube permit the cylinder of overburden within the tube to pass out one side of the tube, so that a sample, about 15 cm long, can be obtained from the last interval penetrated, without manually removing material higher up the hole from the sample tube or rods. Under favorable circumstances samples can be obtained from depths of 20 to 30 m. On the Bur property, however, depths exceeding 1 m were seldom reached because of shallow overburden, large boulders, small rock fragments which blocked the sample tube, and the permafrost. At Sky Creek the drillholes were 20 m apart along lines spaced at 200 m (Fig. 9.1); in Tatamagouche Canyon the drillholes were also 20 m apart on lines spaced at 40 m (Fig. 9.2). The -80 mesh fractions of the samples from both Sky Creek and Tatamagouche Canyon were analyzed by standard atomic absorption techniques for lead, zinc, copper, and molybdenum, and by standard neutron activation techniques for gold. The -80 mesh fractions of samples from Tatamagouche Canyon were also analyzed by standard atomic absorption techniques for nickel.

9.2 Results for Sky Creek

The results of the analyses for the samples from Sky Creek are in appendix 7 and shown in Fig. 9.1, where areas with more than 5 ppb gold, 9 ppm lead, and 139 ppm copper are outlined. These limiting concentrations are below the thresholds for these metals established in previous work on the Bur property, but were chosen to show the locations of the samples with the higher concentrations of these metals. Inspection of the analyses shows that all the concentrations obtained for zinc and molybdenum are background, so no areas with higher concentrations of zinc and molybdenum are shown in Fig. 9.1.

In spite of the fact that very few adjacent samples have concentrations of gold greater than 5 ppb, the pattern for higher gold concentrations depicted in Fig. 9.1 consists of two long narrow easterly trending zones, possibly suggestive of fault control. The area with lead concentrations greater than 9 ppm is almost restricted to the upper part of line Sky 4, and appears almost completely unrelated to the higher concentrations of gold and copper. The area with copper concentrations greater than 139 ppm is almost entirely restricted to line Sky 2. It partly overlaps some of the higher gold concentrations, but none of the higher lead concentrations, a pattern consistent with concentrations of gold, lead, and copper in other parts of the Bur property. None of the concentrations obtained for gold, lead, and copper are high enough to give this part of the Bur property a high priority for further exploration, but the ubiquitous permafrost in this area which prevented drilling for deeper samples, may well be masking something of interest.

9.3 Results for Tatamagouche Canyon

The results of the analyses for the samples from Tatamagouche Canyon are in appendix 7 and shown in Fig. 9.2, where areas with more than 7 ppb gold, 9 ppm lead, 199 ppm copper, and 149 ppm nickel are outlined. These limiting concentrations are below the thresholds for gold, lead, and nickel established in previous work on the Bur property, but were chosen to show the locations of samples with the higher concentrations of all four metals. Inspection of the analyses shows that the concentrations obtained for zinc and molybdenum, with one exception for zinc, are background, so no areas with higher concentrations of zinc and molybdenum are shown in Fig. 9.2.

Except for a few isolated samples, the higher concentrations of gold are in a cluster which generally coincides with the higher concentrations of copper. The higher concentrations of lead are in another cluster which is distinct from the clusters with higher concentrations of gold and copper. The higher concentrations of nickel are mostly north of 10 880 N. They are undoubtedly from magnetitic peridotite, which abuts the Station Creek Formation along Fault D, which lies between 10 880N and 10 920N. Although the higher concentrations of metals in these clusters are not very high, the coincidence of higher concentrations of gold and copper separate from those of lead is the pattern that has emerged in other places on the Bur property. The ubiquitous permafrost prevented drilling for deeper samples which may well show higher concentrations of gold than those obtained. The subtly higher concentrations of both gold and copper in coincident clusters indicate that this area appears worth further work even though the steep slopes and seeps with their associated wet muck which slumps downhill, will hinder such work.

SECTION 10.0 TRENCHING AND STRIPPING

10.1 Trench J, Johnson Creek

Trench J, 291 m long by an average of 11.1 m wide by an average of 1.7 m deep was excavated along a spur between the West Fork of Johnson Creek and Flynn Creek across the boundary between claims Jy 51 and Jy 58 (Fig. 5.4), by means of a D8H bulldozer. Most of this trench was excavated to bedrock but the bedrock was not cleaned off. Nevertheless, careful examination of the muck remaining in the trench permitted mapping much of the bedrock along it, and collecting chip samples of bedrock where appropriate (Fig. 10.1). In addition to the bedrock chips, samples of the finer muck were collected systematically where appropriate from trench J. The bedrock chips and the -80 mesh fractions of the finer muck samples were analyzed for lead, zinc, copper, and molybdenum by standard atomic absorption techniques, and for gold by standard neutron activation techniques. A few samples were analyzed for nickel as well. Later the +80 mesh fractions of the finer muck samples were also analyzed for gold by standard neutron activation techniques. Analytical results for the samples from trench J are in appendix 5.

Although not part of the trenching, geochemical soil samples were collected along a projection from the upper end of trench J to extend geochemical traverse line 25W run in 1983, 590 m to the top of Tatamagouche Mountain. The -80 mesh fractions of these soil samples were analyzed in the same way as the finer muck samples from trench J, with the analytical results in appendix 3.

All the analytical results including those from traverse line 25W collected in 1983 are shown in Fig. 10.1 along with the geology. Inspection of the analyses without statistical treatment reveals that most samples from trench J contain anomalous concentrations of gold, copper, and molybdenum. It is obvious from Fig. 10.1 that trench J almost exposed the zone in the "wormy" tuff intersected in IOE drillhole 70-6 from 48.16 to 48.90 m and containing 510 ppb gold, 1900 ppm copper, and 44 ppm molybdenum. All the anomalous gold concentrations in trench J and the related geochemical soil samples can be ascribed to either erosion of this zone or remobilization of gold from this zone into other nearby rocks during folding, faulting, or intrusion of latite porphyry or probably all three. Analytical results from soil samples from the northward extension of traverse line 25W bracket the contact of the Hasen Creek Formation with the unconformably overlying Nikolai Formation and show that the gold giving rise to anomalous gold concentrations has not come from fractures or related structural features in the overlying Nikolai Formation farther up Tatamagouche Mountain, at least above trench J.

The previously mentioned auriferous tuff layer does not contain economic concentrations of gold in either drillhole IOE 70-6 nor where almost exposed in trench J, but tracing it throughout the Bur property may reveal places with economic concentrations of gold. The "wormy" tuff layer in which this auriferous zone is present is at least 21 m thick in IOE drillhole 70-6 with an additional thickness of perhaps 10 to 15 m farther down the hole, and for which core was not available. Its complete thickness requires checking for other zones of auriferous tuff which contain economic grades of gold. Any such zones will not be exposed by extending trench J farther up Tatamagouche Mountain because it appears to cross the axis of an anticline.

9.2 Trench TT, Tatamagouche Canyon

Trench TT, 117 m long by an average of 10 m wide by an average of 1.5 m deep was excavated on the west side of Tatamagouche Canyon on claim Wen 7 (Fig. 10.2) in an attempt to cross Fault D and to obtain more information on the anomalous gold, copper, and lead concentrations previously found there. Trenching by bulldozer on the side of Tatamagouche Canyon is difficult because of the steep slopes, and the presence of up to 2 m of wet soupy clay overlying permafrost. Trench TT did not reach bedrock, nor does it yet extend far enough to cross Fault D. Muck samples were collected from it, with the -80 mesh fractions analyzed for lead, zinc, copper, nickel, and molybdenum by standard atomic absorption techniques and for gold by standard neutron activation techniques (appendix 5). These results are shown in Fig. 10.3. Most samples contain anomalous concentrations of nickel which is derived from magnetitic peridotite which forms the bedrock there. Most samples contain only background concentrations of gold but one has 26 ppb, and the two samples from the lower end of the trench closest to Fault D contain 11 and 10 ppb gold. All of the other metals appear to be present in background concentrations only. Extending this trench farther south to cross Fault D and into the area of the higher gold and copper concentrations obtained in overburden drilling appears worthwhile.

9.3 Burwash Creek Terrace

An area 36½ m long by 5½ m wide was stripped to a depth of 0.6 m to provide a parking place on the Burwash Creek Terrace (Fig. 10.2) at the beginning of the access trail to the lower sump.

SECTION 11.0 ROAD MAINTENANCE AND ACCESS TRAIL CONSTRUCTION

11.1 Upper Part of Tatamagouche Canyon

In the upper part of Tatamagouche Canyon, a section of the road from just below the mouth of Jo Creek upstream for some 400 m was rerouted to the south side of Tatamagouche Creek (Fig. 6.2) to eliminate three crossings of Tatamagouche Creek, to avoid the washouts in this section experienced in 1983, and to reduce problems caused by winter ice build-up at the mouth of Jo Creek. Ice there may last until July or later.

11.2 Mullere Creek

A trail about 400 m long was constructed to provide access to the lower part of Mullere Creek (Fig. 5.3). It is planned to extend it farther up Mullere Creek in another season.

11.3 Burwash Creek to Previously Constructed Sump

The access trail starting from the terrace on Burwash Creek was extended about 1200 m to the lower sump (Fig. 10.2). Much of its upper part encountered permafrost at shallow depths, so further work will be required after it thaws and drains, to make the upper part readily useable.

11.4 Johnson Creek

Considerable improvements were made to one of the access trails, originally constructed by Imperial Oil Enterprises Ltd. in 1970, to provide access to trench J on claims 51 and 58 (Fig. 5.4). This trail is about one km long.

11.5 Burwash Creek to Burwash Uplands

The part of the old Besner trail from Burwash Creek to the Burwash Uplands proved easily accessible for a bulldozer as far as the first bench on claim El 7. Above this bench, however, soft ground on the old trail combined with steep slopes and near-surface permafrost elsewhere hindered bulldozer access unless the bulldozer was equipped with caulks. Enough of the material above the permafrost was stripped off along a route with a moderate slope (Fig. 6.2), so that after thawing and draining, material will be available for the construction of an access trail there, about 200 m long. The upper end of such a trail is at gentle slopes of the Burwash Uplands, which are easily traversed in most places.

11.6 Bea Creek

An access trail was constructed about 3 km along the north side of Bea Creek (Fig. 5.1 and 5.2). Part of it follows previously used trails but some of these had to be rerouted to avoid troublesome seeps. Most of this trail was passible to a four-wheel-drive vehicle shortly after it was constructed, but the parts of it on permafrost will require maintenance in another season.

Respectfully submitted,

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Edmonton, Alberta
1984 11 05

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Fig 1.1 Location Map, Bur Property, Yukon Territory

BUR PROPERTY

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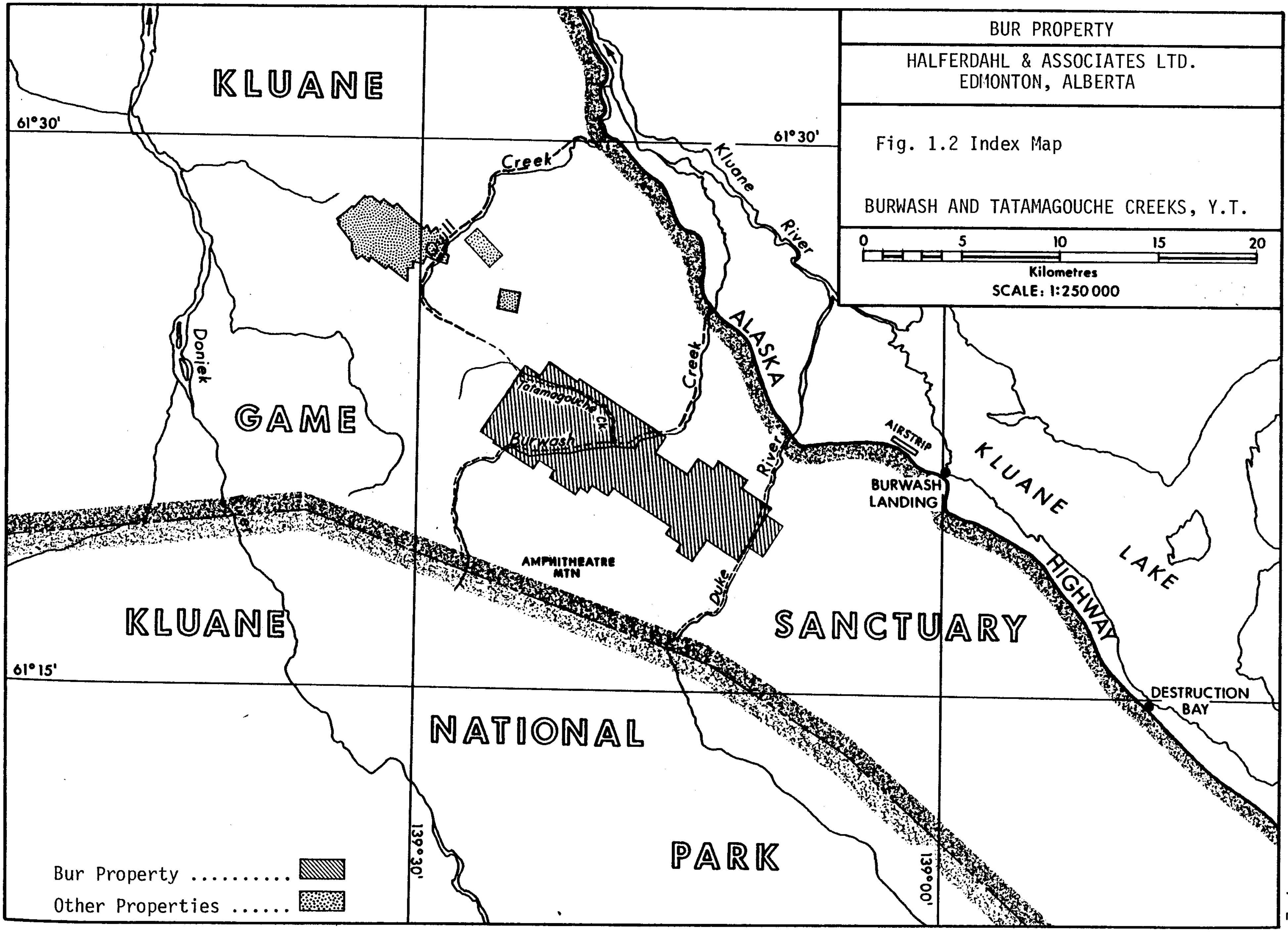
Fig. 1.2 Index Map

BURWASH AND TATAMAGOUCHE CREEKS, Y.T.



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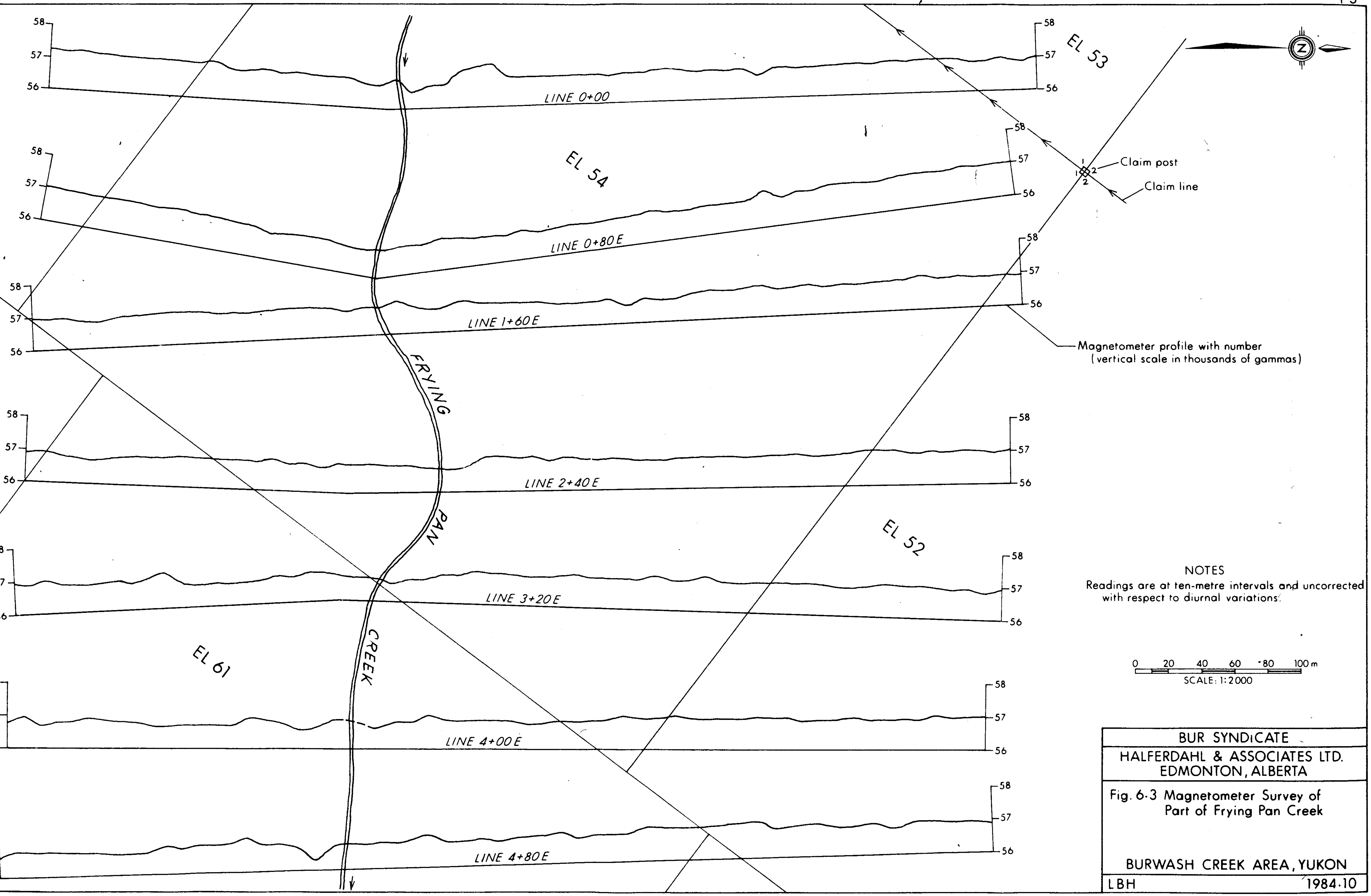
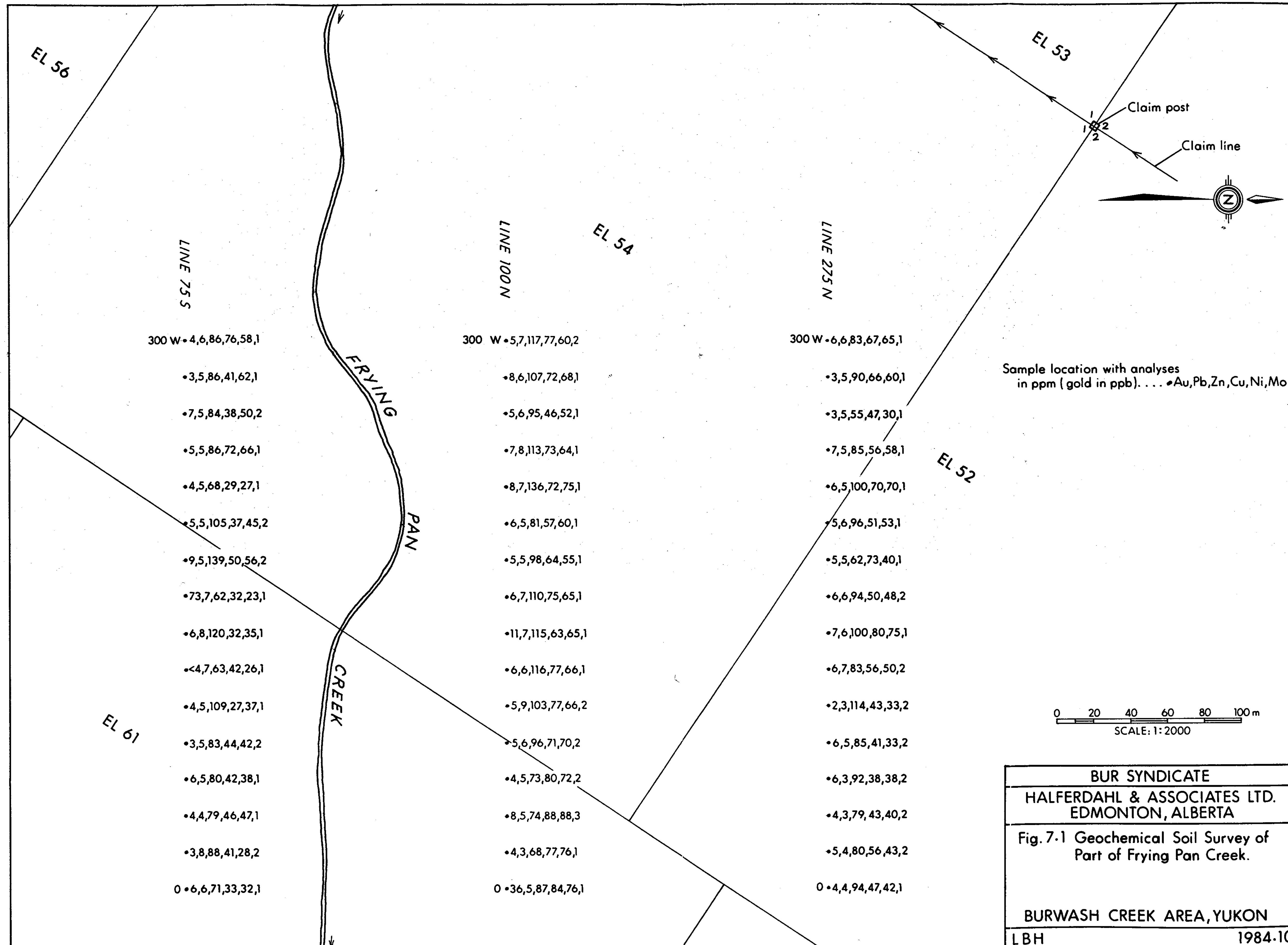


NOTES
Readings are at ten-metre intervals and uncorrected with respect to diurnal variations.

BUR SYNDICATE
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA
Fig. 6-3 Magnetometer Survey of Part of Frying Pan Creek
BURWASH CREEK AREA, YUKON
LBH 1984-10



BUR SYNDICATE

HALFERDAHL & ASSOCIATES LTD.
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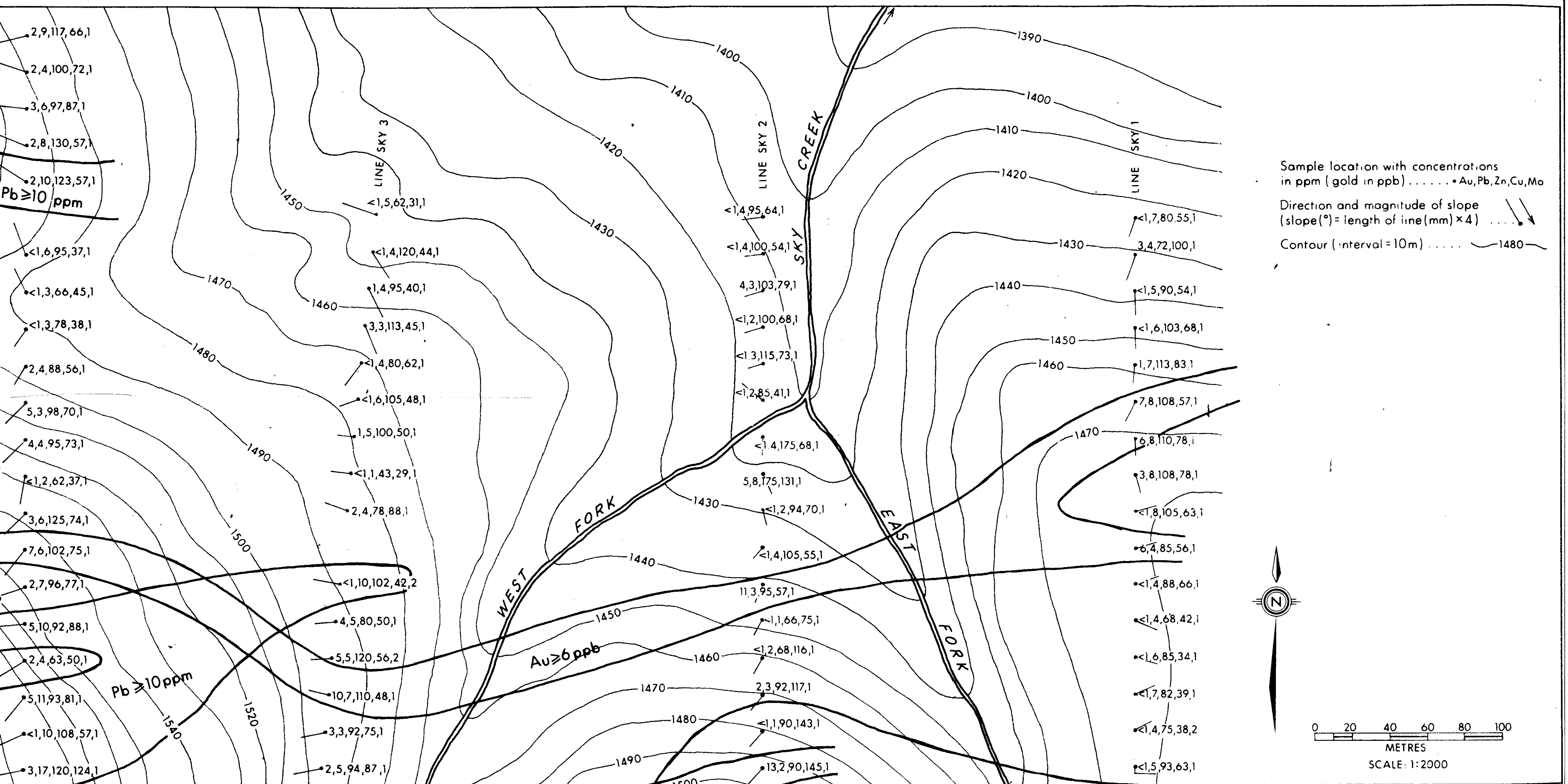
Fig. 7·1 Geochemical Soil Survey of Part of Frying Pan Creek.

BURWASH CREEK AREA, YUKON

LBH 1984·10



BUR SYNDICATE

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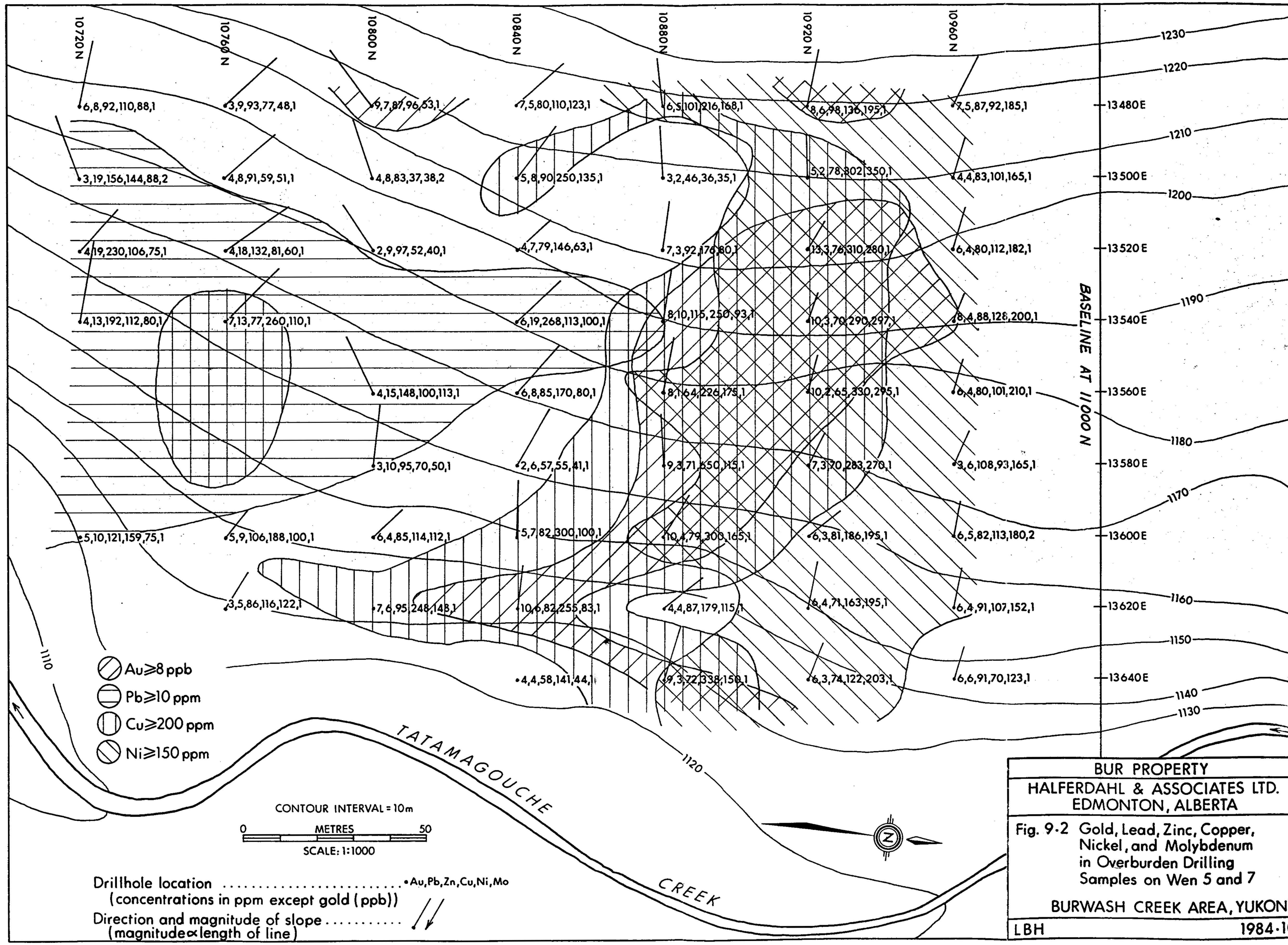
Fig. 9·1 Gold, Lead, Zinc, Copper, and Molybdenum in Overburden Drilling Samples on Kat 37, 38, 39, 40, and 42.

BURWASH CREEK AREA, YUKON

LBH 1984·10



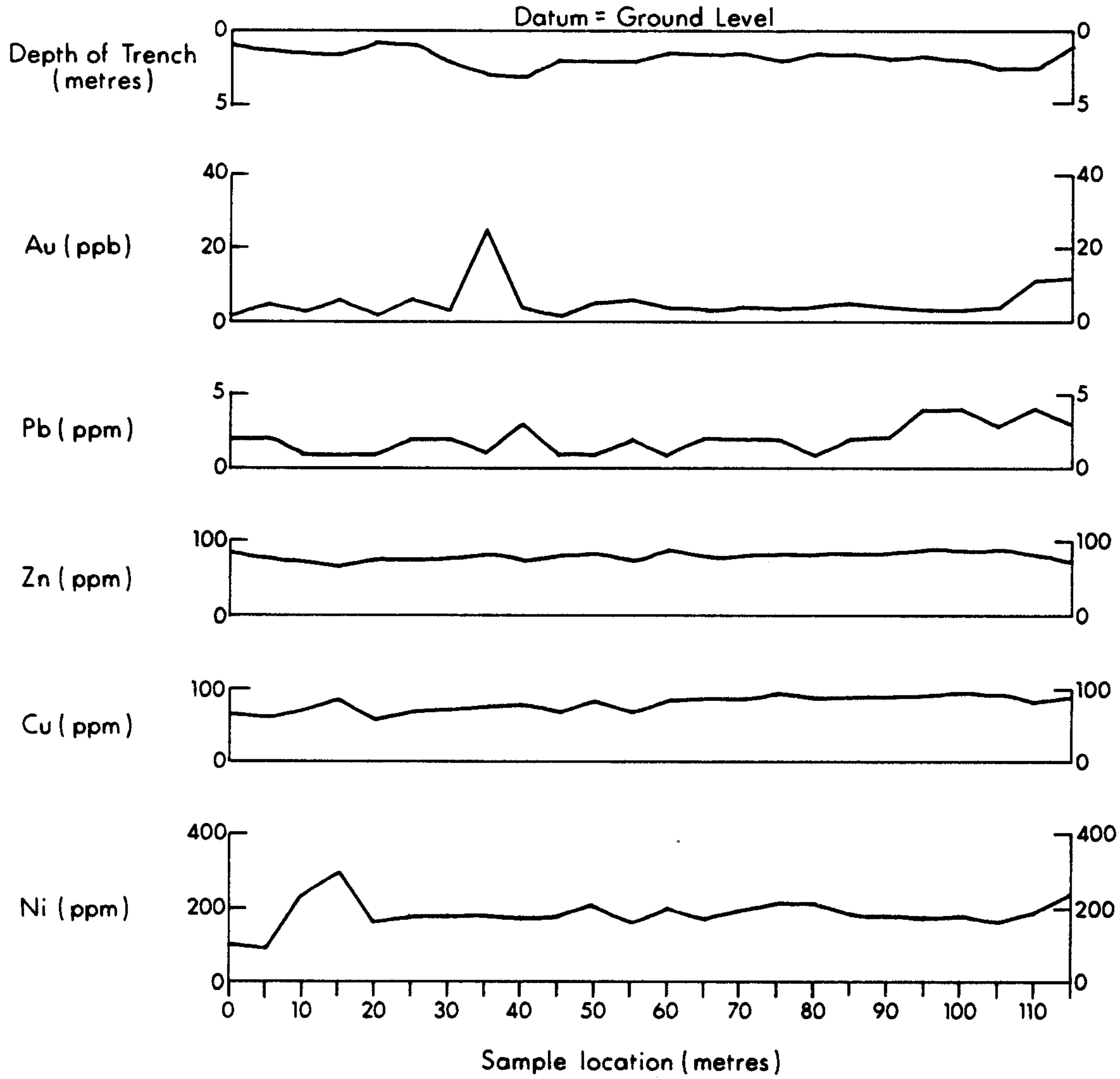
BUR PROPERTY

HALFERDAHL & ASSOCIATES LTD.
EDMONTON, ALBERTA

Fig. 9-2 Gold, Lead, Zinc, Copper, Nickel, and Molybdenum in Overburden Drilling Samples on Wen 5 and 7

BURWASH CREEK AREA, YUKON

LBH 1984-10



BUR SYNDICATE	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 10·3 Concentrations of Gold, Lead, Zinc, Copper, and Nickel along Trench TT BURWASH CREEK AREA, YUKON	
LBH	1984·10

APPENDIX 1: SUMMARY OF DEPTHS AND THICKNESSES OF ROCK UNITS IN IMPERIAL OIL ENTERRPISES LTD. 1970 DRILLHOLES ON CORK PROSPECT (all available core relogged in 1983-84 with data on missing core from IOE logs)

Description	Depth (m)	Estimated Dip	Estimated True Thickness (m)
Drillhole IOE 70-1			
Overburden	0-4.57	n/a	4.57
Latite porphyry	4.57-90.98	n/a	n/a
Mud seam (fault?)	37.46		
Mud seam (fault?)	54.25-55.17		
Fault gouge	60.47-60.98		
Fault gouge	69.87-70.71		
Fault gouge?	71.71-71.73		
End of hole	90.98		
(71.8% core available; no boxes missing)			
Drillhole IOE 70-2			
Overburden	0-8.53	n/a	8.53
Tuffs, intermediate, rhyolitic, vitrophyric	8.53-33.53	60°	12.50
Sand (fault?)	26.97-28.19		
Magnetitic flow	33.53-33.72	60°	0.10
Tuff, rhyolitic	33.72-42.06	60°	4.17
Basic volcanics, coarse-grained in upper part, magnetic	42.06-66.70	55°	14.13
Fault?	48.49-48.59		
Tuff, "wormy"	66.70-69.95	55°	1.86
Basic volcanics, magnetic	69.95-72.12	55°	1.24
Fault?	71.31-71.48		
Basic volcanics intruded by latite porphyry	72.12-72.32	55°	0.11
Basic volcanics, magnetic, locally porphyritic	72.32-84.80	52°	7.68
Fault?	82.19-84.20		
Latite porphyry	84.80-94.79	n/a	n/a
Basic volcanics, magnetic	94.79-97.05	52°	1.39
Latite porphyry	97.05-97.54	n/a	n/a
Basic volcanics	97.54-103.94	52°	3.94
End of hole	103.94		
(71.6% core available; no boxes missing)			

APPENDIX 1: CONTINUED

Description	Depth (m)	Estimated Dip	Estimated True Thickness (m)
<u>Drillhole IOE 70-3</u>			
Overburden	0-5.49	n/a	5.49
Latite porphyry	5.49-74.37	n/a	n/a
Fault gouge	12.73-13.40		
Fault gouge	22.40-25.76		
Fault gouge	26.89-27.28		
Fault gouge	27.70-28.96		
Fault gouge	29.90-30.06		
Fault gouge	31.59-32.46		
Fault gouge	32.60-34.52		
Fault gouge	36.87-37.69		
Fault?	53.12-55.68		
End of hole	74.37		
(41.0% core available; no boxes missing)			
<u>Drillhole IOE 70-4</u>			
Overburden	0-1.83	n/a	1.83
Basic volcanics (magnetic) and latite porphyry	1.83-3.96	45°	1.51
Tuff, light-grey, locally cherty	3.96-10.32	43°	4.65
Basic volcanics	10.32-11.73	43°	1.03
Latite porphyry	11.73-66.45	n/a	n/a
Fault	30.27-31.43		
Fault gouge	66.45-71.93	n/a	n/a
Basic volcanics, locally magnetic	71.93-89.51	58°	9.32
Fault	85.13-85.16		
Fault gouge	86.86-86.89		
Fault gouge	87.57-87.61		
Fault gouge	88.55-89.15		
Tuff, green	89.51-90.73	60°	0.61
Tuff, whitish-grey, pyritic	90.73-95.71	59°	2.56
Basic volcanics, amygdaloidal	95.71-100.79	58°	2.69
Tuff, whitish, pyritic	100.79-100.86	59°	0.04
Tuff, brown-grey	100.86-106.25	60°	2.70
Tuff, whitish-grey	106.25-111.05	60°	2.40
Tuff, brown-grey	111.05-115.71	59°	2.40
Tuff, whitish	115.71-115.92	59°	0.11
Tuff, brown-grey	115.92-120.57	59°	2.39
Tuff, whitish, pyritic	120.57-120.91	59°	0.18
Tuff, brown-grey	120.91-122.12	59°	0.62
End of hole	122.12		

(61.2% core available excluding missing core 63.40-83.21 m)

APPENDIX 1: CONTINUED

Description	Depth (m)	Estimated Dip	Estimated True Thickness (m)
Drillhole IOE 70-5			
Overburden	0-3.05	n/a	3.05
Latite porphyry	3.05-5.38	n/a	n/a
Conglomerate	5.38-7.76	n/a	n/a
Chert and limestone	7.76-27.16	43°	14.20
Latite porphyry	27.16-27.55	41°	0.29
Chert and limestone	27.55-51.82	40°	18.60
Latite porphyry with xenoliths	51.82-108.51	n/a	n/a
Latite porphyry	108.51-118.37	n/a	n/a
Fault?	111.44-111.57		
Tuff, cherty, light-grey	118.37-123.01	5°	4.62
Basic volcanics	123.01-130.92	13°	7.71
Tuff, cherty, whitish-grey	130.92-131.06	13°	0.14
Basic volcanics, magnetic	131.06-132.00	13°	0.92
Tuff, cherty and magnetic basic volcanics	132.00-133.59	13°	1.55
Fault gouge	132.33-133.59		
Basic volcanics, coarse-grained intervals, mostly magnetic	133.59-152.70	28½°	16.79
End of hole	152.70		

(71.5% core available excluding missing core 48.77-73.61 m)

Description	Depth (m)	Estimated Dip	Estimated True Thickness (m)
Drillhole IOE 70-6			
Overburden	0-5.18	n/a	5.18
Tuff, mostly "wormy"	5.18-21.57	65°	6.93
Basic volcanics, locally pyritic	21.57-24.20	65°	1.11
Fault gouge	23.58-24.08		
Latite porphyry	24.20-25.79	n/a	n/a
Fault gouge	25.79-26.07	n/a	n/a
Basic volcanics, pyritic	26.07-26.12	70°	0.02
Fault gouge	26.12-26.41	n/a	n/a
Tuff, light-grey, vitrophyric, irregularly silicified	26.41-32.66	70°	2.14
Fault gouge	26.75-26.87		
Fault gouge	27.45-27.84		
Fault gouge	29.14-29.81		
Basic volcanics, locally porphyritic and magnetic	32.66-43.59	70°	3.74
Tuff, "wormy", light-grey, locally pyritic and silicified	43.59-79.25	72°	11.02
Chert and intercalated volcanics (core not available	79.25-99.06	67°	7.74
Tuff, "wormy" (mostly)	99.06-105.19	62°	2.88
Fault gouge	104.24-104.49		

APPENDIX 1: CONTINUED

Description	Depth (m)	Estimated Dip	Estimated True Thickness (m)
Chert, light-grey	105.19-107.49	62°	1.08
Fault gouge	106.11-107.49		
Latite porphyry	107.49-114.60	n/a	n/a
Chert and hornfels (core not available)	114.60-124.05	n/a	n/a
Latite porphyry	124.05-124.36	n/a	n/a
Chert and hornfels (core not available)	124.36-142.95	n/a	n/a
End of hole	142.95		

(81.3% core available excluding missing core 79.25-99.06 m and 109.12-142.95 m)

Drillhole IOE 70-7

Description	Depth (m)	Estimated Dip	Estimated True Thickness (m)
Overburden	0-9.14	n/a	9.14
Chert	9.14-13.41	n/a	n/a
Chert breccia	13.41-16.15	n/a	n/a
Gabbro	16.15-20.12	n/a	n/a
Chert	20.12-22.25	n/a	n/a
Gabbro	22.25-66.45	n/a	n/a
End of hole	66.45		

(no core available: IOE chert is either chert or tuff; gabbro is interpreted as basic volcanics)

Drillhole IOE 70-8

Description	Depth (m)	Estimated Dip	Estimated True Thickness (m)
Overburden	0-12.19	n/a	12.19
Gabbro and andesite	12.19-40.54	n/a	n/a
Argillite	40.54-46.63	n/a	n/a
End of hole	46.63		

(no core available: IOE gabbro and andesite are interpreted as basic volcanics)

APPENDIX 2: DESCRIPTIONS OF GEOCHEMICAL SOIL SAMPLES

Sample Number	Sample Depth (cm)	Description
F.P. 75S		
0	30	brown clay at permafrost
20	40	humus at permafrost
40	20	brown clay
60	40	grey clay at permafrost
80	40	brown clay at permafrost
100	40	brown clay at permafrost
120	40	brown clay at permafrost
140	30	brown clay
160	30	brown clay at permafrost
180	45	brown sandy clay from creek bed
200	35	grey sandy clay from creek bed
220	30	brown clay
240	40	grey-brown clay
260	30	brown clay
280	15	brown clay
300	20	brown clay
F.P. 100N		
0	30	grey clay
20	30	grey clay
40	30	brown sandy clay
60	20	grey clay
80	20	grey clay
100	20	grey clay
120	15	grey clay
140	20	grey clay
160	25	grey clay
180	30	grey clay
200	25	brown sandy clay
220	25	grey clay
240	20	brown clay
260	25	brown clay
280	20	grey clay
300	20	grey clay
F.P. 275N		
0	45	humus and ash at permafrost; near dry creek
20	45	humus at permafrost
40	30	half humus and half volcanic ash at permafrost
60	25	volcanic ash
80	50	humus at permafrost
100	25	humus at permafrost
120	40	brownish-grey clay
140	25	grey clay
160	25	grey clay
180	30	black humus below volcanic ash
200	35	grey clay
220	35	grey clay

APPENDIX 2: CONTINUED

Sample Number	Sample Depth (cm)	Description
240	30	grey clay
260	60	humus with 25% volcanic ash at permafrost
280	30	grey clay
300	30	grey clay
25W		
40N	25	light-brown sandy clay; few fragments of latite porphyry on surface
80N	35	dark-brown sandy clay with few rock fragments
120N	25	dark-brown sandy clay with few rock fragments
160N	25	dark-brown sandy clay with few rock fragments; on steep pitch
200N	25	dark-brown sandy clay with few rock fragments; at base of steep pitch with Nikolai Formation float nearby
240N	25	dark-brown silty clay with few rock fragments with fine-grained Nikolai Formation float nearby
280N	30	dark-brown silty clay with few rock fragments with Nikolai Formation float nearby
320N	20	dark-brown silty clay with few rock fragments with Nikolai Formation float nearby
360N	20	dark-brown silty clay with few rock fragments with Nikolai Formation float nearby
400N	20	dark-brown sandy clay with rock fragments; talus from Nikolai Formation 3 m away
440N	20	dark-brown sandy clay with rock fragments; between talus of Nikolai Formation rocks
480N	20	dark-brown sandy clay with rock fragments adjacent to talus from Nikolai Formation
540N	20	dark-brown sandy clay at top of ridge
J		
0	20	dark-brown sandy clay and rock fragments from old bulldozer track to drillhole 70-2
20	30	dark-brown sandy clay and rock fragments

APPENDIX 3: CERTIFICATES OF ANALYSIS FOR SOIL SAMPLES

Chemex Labs Ltd.

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North Vancouver, B.C.
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Telex: 043-52597

CERTIFICATE OF ANALYSIS

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

CERT. # : A8415594-001-A
INVOICE # : I8415594
DATE : 12-SEP-84
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
F.P. 100N 0	201	84	1	5	87	76	36
F.P. 100N 0+20W	201	77	1	3	68	76	4
F.P. 100N 0+40W	201	88	3	5	74	88	8
F.P. 100N 0+60W	201	80	2	5	73	72	4
F.P. 100N 0+80W	201	71	2	6	96	70	5
F.P. 100N 1+00W	201	77	2	9	103	66	5
F.P. 100N 1+20W	201	77	1	6	116	66	6
F.P. 100N 1+40W	201	63	1	7	115	65	11
F.P. 100N 1+60W	201	75	1	7	110	65	6
F.P. 100N 1+80W	201	64	1	5	98	55	5
F.P. 100N 2+00W	201	57	1	5	81	60	6
F.P. 100N 2+20W	201	72	1	7	136	75	8
F.P. 100N 2+40W	201	73	1	8	113	64	7
F.P. 100N 2+60W	201	46	1	6	95	52	5
F.P. 100N 2+80W	201	72	1	6	107	68	8
F.P. 100N 3+00W	201	77	2	7	117	60	5
F.P. 275N 0	201	47	1	4	94	42	4
F.P. 275N 0+20W	201	56	2	4	80	43	5
F.P. 275N 0+40W	201	43	2	3	79	40	4
F.P. 275N 0+60W	201	38	2	3	92	38	6
F.P. 275N 0+80W	201	41	2	5	85	33	6
F.P. 275N 1+00W	201	43	2	3	114	33	2
F.P. 275N 1+20W	201	56	2	7	83	50	6
F.P. 275N 1+40W	201	80	1	6	100	75	7
F.P. 275N 1+60W	201	50	2	6	94	48	6
F.P. 275N 1+80W	201	73	1	5	62	40	5
F.P. 275N 2+00W	201	51	1	6	96	53	5
F.P. 275N 2+20W	201	70	1	5	100	70	6
F.P. 275N 2+40W	201	56	1	5	85	58	7
F.P. 275N 2+60W	201	47	1	5	55	30	3
F.P. 275N 2+80W	201	66	1	5	90	60	3
F.P. 275N 3+00W	201	67	1	6	83	65	6
F.P. 75S 0+00W	201	33	1	6	71	32	6
F.P. 75S 0+20W	201	41	2	8	88	28	3
F.P. 75S 0+40W	201	46	1	4	79	47	4
F.P. 75S 0+60W	201	42	1	5	80	38	6
F.P. 75S 0+80W	201	44	2	5	83	42	3
F.P. 75S 1+00W	201	27	1	5	109	37	4
F.P. 75S 1+20W	201	42	1	7	63	26	<4
F.P. 75S 1+40W	201	32	1	8	120	35	6

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CERTIFICATE OF ANALYSIS

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

CERT. # : A8415594-002-A
INVOICE # : I8415594
DATE : 12-SEP-84
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
F.P. 75S 1+60W	201	32	1	7	62	23	73
F.P. 75S 1+80W	201	50	2	5	139	56	9
F.P. 75S 2+00W	201	37	2	5	105	45	5
F.P. 75S 2+20W	201	29	1	5	68	27	4
F.P. 75S 2+40W	201	72	1	5	86	66	5
F.P. 75S 2+60W	201	38	2	5	84	50	7
F.P. 75S 2+80W	201	41	1	5	86	62	3
F.P. 75S 3+00W	201	76	1	6	86	58	4

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T6E 1X7

CERT. # : A8416882-001-A
INVOICE # : I8416882
DATE : 17-OCT-84
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
25W 040N	202	67	1	3	53	51	6
25W 080N	202	70	2	3	75	51	18
25W 120N	202	65	2	4	78	93	6
25W 160N	202	68	1	5	93	52	3
25W 200N	202	53	1	4	88	45	3
25W 240N	202	63	2	6	87	52	4
25W 280N	202	58	1	5	98	48	3
25W 320N	202	63	1	1	80	65	8
25W 360N	202	65	1	3	83	51	8
25W 400N	202	88	2	2	73	48	7
25W 440N	202	62	1	4	80	43	4
25W 480N	202	72	1	3	80	50	4
25W 540N	202	59	1	3	68	67	4
J0	202	140	5	2	63	70	20
J20	202	82	2	1	50	45	13
J40	202	78	4	4	90	38	12

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CERT. # : A8414425-001-A
INVOICE # : I8414425
DATE : 27-AUG-84
P.O. # : NONE

Sample description	Prep code	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb	
BEA 215	213	36	1	64	58	>10000	--
BEA 600	213	38	1	66	66	>10000	--
BEA 1000	213	46	1	78	68	77	--
BEA 1400	213	32	1	62	54	16	--
BEA 1800	213	40	1	68	62	5	--
BEA 2200	213	24	1	76	52	4	--
BEA 2600	213	28	1	76	62	214	--
KNOB 0+25M	213	46	1	74	48	22	--
KNOB 4+50M	213	44	1	62	52	<2	--
PHIL 0+50M	213	42	1	70	60	<2	--
PHIL 1+20M	213	44	20	72	60	<2	--
PHIL 210-250	213	18	1	58	34	<2	--

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CERT. # : A8415591-001-A
INVOICE # : I8415591
DATE : 17-SEP-84
P.O. # : NONE

Sample description	Prep code	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb	
BEA W. FORK 100	213	32	2	52	44	12	--
BEA W. FORK 1500	213	28	2	50	46	10	--
FRYING PAN 1700	213	39	1	54	47	5	--
FRYING PAN 2100	213	74	2	50	47	6	--
FRYING PAN 2500	213	30	1	45	52	3	--
FRYING PAN 3300	213	35	1	56	52	7	--
FRYING PAN PUP25	213	30	2	52	68	<2	--
KNOB A-400	213	21	2	53	38	3	--
KNOB A	213	32	1	55	70	<2	--
KNOB A+400	213	25	1	43	23	<2	--
49 PUP 100	213	40	2	53	200	5	--
N.FORK JOHNSON70	213	1400	1	105	75	813	--

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CERT. # : A8415592-001-A
INVOICE # : I8415592
DATE : 10-SEP-84
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Au NAA ppb	
4653	205	250	67	7	28	24	--
4654	205	138	15	4	29	50	--
4655	205	179	70	1	32	21	--
4656	205	122	12	1	24	34	--
4657	205	141	18	1	21	26	--
4658	205	135	32	1	23	17	--
4659	205	216	24	1	25	18	--
4660	205	151	28	1	18	19	--
4661	205	115	14	1	22	16	--
4662	205	150	16	2	9	111	--
4663	205	115	11	6	13	50	--
4664	205	90	9	1	20	26	--

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T6E 1X7

CERT. # : A8416883-001-A
INVOICE # : I8416883
DATE : 17-OCT-84
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
J60 -80	202	980	82	1	58	145	92
J80 -80	202	455	49	2	47	84	95
J100 -80	202	325	33	2	47	70	77
J60 +80	217	458	41	1	45	112	46
J80 +80	217	495	57	1	37	93	62
J100 +80	217	240	25	1	37	67	52

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CERT. # : A8415593-001-A
INVOICE # : I8415593
DATE : 10-SEP-84
P.C. # : NONE

-80 mesh

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Au NAA ppb	
J 108	202	530	75	2	47	72	--
J 120	202	520	64	2	55	110	--
J 130	202	404	45	2	52	257	--
J 140	202	670	93	3	55	245	--
J 150	202	147	9	1	30	8	--
J 160	202	405	53	7	58	198	--
J 170	202	398	43	3	57	130	--
J 180	202	680	58	6	67	163	--
J 190	202	409	45	3	52	151	--
J 200	202	640	58	7	57	186	--
J 210	202	383	44	6	60	243	--
J 220	202	530	56	4	59	368	--
J 230	202	447	48	6	63	99	--

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EDMONTON, ALTA.
T6E 1X7

CERT. # : A8416732-001-A
INVOICE # : I8416732
DATE : 10-OCT-84
P.O. # : NONE

+80 mesh

Sample description	Prep code	Au NAA ppb					
J 108	217	29	--	--	--	--	--
J 120	217	34	--	--	--	--	--
J 130	217	109	--	--	--	--	--
J 140	217	102	--	--	--	--	--
J 150	217	7	--	--	--	--	--
J 160	217	212	--	--	--	--	--
J 170	217	51	--	--	--	--	--
J 180	217	81	--	--	--	--	--
J 190	217	50	--	--	--	--	--
J 200	217	66	--	--	--	--	--
J 210	217	37	--	--	--	--	--
J 220	217	62	--	--	--	--	--
J 230	217	38	--	--	--	--	--

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CERT. # : A8416881-001-A
INVOICE # : I8416881
DATE : 17-OCT-84
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
TT00M	202	65	1	2	85	107	2
TT05M	202	60	1	2	77	93	5
TT10M	202	72	1	1	73	235	3
TT15M	202	85	1	1	65	290	6
TT20M	202	57	1	1	75	155	2
TT25M	202	68	1	2	75	178	6
TT30M	202	68	1	2	77	180	3
TT35M	202	75	1	1	80	175	26
TT40M	202	77	1	3	75	163	4
TT45M	202	73	1	1	80	170	2
TT50M	202	62	1	1	83	200	5
TT55M	202	70	1	2	75	160	6
TT60M	202	83	1	1	87	198	4
TT65M	202	85	1	2	80	175	3
TT70M	202	83	1	2	80	190	4
TT75M	202	94	1	2	82	213	3
TT80M	202	87	1	1	82	213	4
TT85M	202	88	1	2	83	185	5
TT90M	202	88	1	2	85	180	4
TT95M	202	90	1	4	92	175	3
TT100M	202	95	1	4	88	180	3
TT105M	202	92	1	3	90	160	4
TT110M	202	80	1	4	83	192	11
TT115M	202	88	1	3	75	240	10

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APPENDIX 6: OVERBURDEN - DRILLING SAMPLE DESCRIPTIONS

Drillhole Coordinates	Slope Azimuth	Slope Inclination	Depth m	Description
Sky 1				
100	19°	22°	0.70	brown clay with rock chips
120	20°	30°	0.60	brown clay and humus
140	358°	26°	0.60	brown clay with rock chips
160	358°	23°	0.60	brown clay
180	5°	22°	0.80	brown clay
200	28°	24°	0.60	brown clay
220	358°	18°	0.45	brown clay
240	344°	20°	0.80	brown clay
260	254°	23°	0.50	brown clay
280	253°	24°	0.70	brown clay with rock chips
300	250°	27°	0.70	brown clay
320	292°	25°	0.50	brown clay; at crest of ridge
340	285°	24°	0.80	brown clay
360	247°	23°	0.80	brown clay
380	243°	20°	1.00	volcanic ash on bedrock
400	272°	22°	1.00	brown clay with rock chips; at base of solufluction lobe
420	271°	25°	0.70	brown clay and volcanic ash; at base of solufluction lobe
440	253°	26°	1.00	brown clay; at base of solufluction lobe
460	251°	26°	1.20	brown clay and volcanic ash; at base of solufluction lobe
480	251°	24°	0.80	brown clay, volcanic ash, and humus with rock chips; at base of solufluction lobe
500	251°	24°	0.80	brown clay, volcanic ash, and humus with rock chips; at base of solufluction lobe
Sky 2				
100	82°	23°	0.50	brown clay
120	83°	20°	0.60	brown clay
140	72°	21°	0.80	brown clay and volcanic ash on bedrock
160	72°	21°	0.50	brown clay and volcanic ash
180	72°	17°	0.60	brown clay
200	129°	29°	0.50	brown clay
220	2°	20°	0.55	brown clay with rock chips
240	337°	23°	0.80	brown clay with rock chips on creek bank
260	345°	17°	0.50	brown sandy clay
280	40°	15°	0.45	brown clay
300	24°	21°	0.60	brown clay
320	28°	18°	0.50	brown clay
340	30°	19°	0.60	brown clay
360	39°	20°	0.50	brown clay
380	41°	21°	0.60	brown clay

APPENDIX 6: CONTINUED

Drillhole Coordinates	Slope Azimuth	Slope Inclination	Depth m	Description
400	42°	22°	0.50	brown clay with rock chips
420	48°	20°	0.50	brown clay with rock chips
440	46°	20°	0.55	brown clay with rock chips
460	49°	24°	0.45	brown clay with rock chips
480	45°	26°	0.50	brown clay with rock chips
500	47°	23°	0.60	brown clay
Sky 3				
100	108°	38°	0.50	minor brown clay with rock chips; in creep area
120	327°	33°	0.60	grey-brown clay; at a seep
140	333°	34°	0.55	grey-brown clay and volcanic ash
160	338°	33°	0.60	grey-brown clay and volcanic ash; at a seep
180	37°	30°	0.35	volcanic ash
200	70°	21°	0.40	volcanic ash
220	95°	18°	0.55	grey-brown clay and volcanic ash
240	96°	22°	0.35	volcanic ash
260	110°	26°	0.55	grey-brown clay with mostly volcanic ash and rock fragments
280	-	-	-	no sample collected; volcanic ash on talus
300	100°	29°	0.60	grey-brown clay with rock chips
320	85°	22°	0.60	grey-brown clay with rock chips
340	87°	22°	0.60	grey-brown clay with rock chips
360	103°	22°	0.60	grey-brown clay with rock chips
380	79°	26°	0.60	grey-brown clay with rock chips
400	79°	30°	0.60	grey-brown clay with rock chips
420	91°	28°	0.60	grey-brown clay with rock chips
440	90°	23°	0.60	grey-brown clay with rock chips; at small seep
460	98°	28°	0.55	grey-brown clay with rock chips
480	98°	24°	0.55	grey-brown clay with rock chips
500	78°	28°	0.50	grey-brown clay with rock chips
Sky 4				
0	75°	36°	0.55	grey-brown clay with rock chips
20	107°	33°	0.60	grey-brown clay with rock chips
40	95°	34°	0.60	grey-brown clay with rock chips; on spur
60	111°	36°	0.60	grey-brown clay with rock chips
80	122°	40°	0.60	grey-brown clay with rock chips
100	-	-	-	no sample: too steep and rocky
120	160°	36°	0.55	brown clay
140	155°	28°	0.65	dark-brown clay
160	35°	22°	0.60	brown clay with volcanic ash
180	31°	23°	0.65	brown clay; at small seep
200	45°	31°	0.60	brown clay; east side of creek
220	45°	35°	0.55	brown clay; at small seep

APPENDIX 6: CONTINUED

Drillhole Coordinates	Slope Azimuth	Slope Inclination	Depth m	Description
240	10°	30°	0.65	brown clay with volcanic ash
260	46°	32°	0.55	brown clay
280	38°	35°	0.55	brown clay
300	71°	27°	0.50	brown clay with mostly rock chips
320	85°	30°	0.50	brown clay with mostly rock chips
340	58°	32°	0.50	brown clay with mostly rock chips
360	39°	33°	0.50	brown clay with mostly rock chips
380	65°	30°	0.60	brown clay
400	79°	26°	0.45	brown clay with mostly rock chips
3480E*				
720N	95°	37°	0.45	brown clay; in gully
760N	130°	38°	0.55	brown clay
800N	47°	38°	0.65	brown clay with rock chips
840N	132°	35°	0.80	light-brown clay
880N	77°	27°	0.80	dark-brown clay
920N	95°	32°	0.75	dark-brown clay
960N	110°	31°	0.55	brown clay
3500E				
720N	63°	37°	0.50	brown clay with rock chips
760N	132°	37°	0.55	brown clay
800N	65°	34°	0.55	brown clay
840N	120°	36°	0.50	brown clay
880N	80°	29°	0.80	brown clay and volcanic ash
920N	82°	24°	0.45	brown clay
960N	100°	23°	1.00	brown clay
3520E				
720N	125°	31°	0.45	brown clay
760N	138°	42°	0.50	brown clay
800N	50°	30°	0.60	brown clay
840N	131°	35°	0.55	brown clay
880N	91°	27°	0.50	brown clay and rock chips
920N	115°	18°	0.55	grey clay
960N	100°	24°	0.75	brown-grey clay
3540E				
720N	93°	45°	0.40	brown clay
760N	128°	41°	0.55	brown clay with rock chips
800N	95°	30°	-	no sample: rocky
840N	130°	33°	0.60	brown clay
880N	92°	29°	0.65	brown clay and volcanic ash
920N	103°	17°	0.65	brown clay
960N	105°	16°	0.75	brown clay

* In Fig. 10.2 the drillhole coordinates in Tatamagouche Canyon differ from those here by the addition of 10000 to both eastings and northings.

APPENDIX 6: CONTINUED

Drillhole Coordinates	Slope		Depth	Description
	Azimuth	Inclination	m	
3560E				
800N	58^{o}	34^{o}	0.75	light-brown clay with rock chips
840N	125^{o}	35^{o}	0.60	light-brown clay
880N	94^{o}	31^{o}	0.60	light-brown clay
920N	98^{o}	21^{o}	0.45	brown clay
960N	100^{o}	19^{o}	0.75	brown clay
3580E				
800N	90^{o}	34^{o}	0.80	brown clay with rock chips
840N	113^{o}	36^{o}	0.55	light-brown clay
880N	80^{o}	28^{o}	0.90	brown clay with rock chips
920N	110^{o}	20^{o}	0.45	brown clay
960N	107^{o}	20^{o}	0.45	brown clay
3600E				
720N	-	flat	0.75	dark-brown sandy clay
760N	122^{o}	19^{o}	0.70	dark-brown sandy clay
800N	130^{o}	22^{o}	0.70	dark-brown sandy clay
840N	85^{o}	31^{o}	0.70	light-brown-grey clay with rock chips; seep at 830N
920N	135^{o}	22^{o}	0.75	brown clay with pebbles
960N	94^{o}	20^{o}	0.75	brown clay with few pebbles
3620E				
760N	115^{o}	24^{o}	0.75	brown clay
800N	-	flat	0.75	brown clay
840N	90^{o}	24^{o}	0.65	brown clay; at seep
880N	135^{o}	27^{o}	0.65	grey clay with rock chips
920N	95^{o}	26^{o}	0.65	grey clay with rock chips
960N	95^{o}	22^{o}	0.65	grey sandy clay
3640E				
840N	-	flat	0.95	brown clay
880N	100^{o}	31^{o}	0.65	grey clay with rock chips
920N	105^{o}	22^{o}	0.65	brown clay
960N	100^{o}	19^{o}	0.65	brown clay with few pebbles

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CERTIFICATE OF ANALYSIS

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

CERT. # : A8414427-001-A
INVOICE # : I8414427
DATE : 14-AUG-84
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Au NAA ppb	
SKY 1 100	201	55	1	7	80	<1	--
SKY 1 120	201	100	1	4	72	3	--
SKY 1 140	201	54	1	5	90	<1	--
SKY 1 160	201	68	1	6	103	<1	--
SKY 1 180	201	83	1	7	113	1	--
SKY 1 200	201	57	1	8	108	7	--
SKY 1 220	201	78	1	8	110	6	--
SKY 1 240	201	78	1	8	108	3	--
SKY 1 260	201	63	1	8	105	<1	--
SKY 1 280	201	56	1	4	85	6	--
SKY 1 300	201	66	1	4	88	<1	--
SKY 1 320	201	42	1	4	68	<1	--
SKY 1 340	201	34	1	6	85	<1	--
SKY 1 360	201	39	1	7	82	<1	--
SKY 1 380	201	38	2	4	75	<1	--
SKY 1 400	201	63	1	5	93	<1	--
SKY 1 420	201	200	1	3	92	1	--
SKY 1 440	201	105	1	2	82	<1	--
SKY 1 460	203	92	1	1	75	<1	--
SKY 1 480	201	133	1	3	82	<1	--
SKY 1 500	201	139	1	3	102	2	--
SKY 2 100	201	64	1	4	95	<1	--
SKY 2 120	201	54	1	4	100	<1	--
SKY 2 140	201	79	1	3	103	4	--
SKY 2 160	201	68	1	2	100	<1	--
SKY 2 180	201	73	1	3	115	<1	--
SKY 2 200	201	41	1	2	85	<1	--
SKY 2 220	201	68	1	4	175	<1	--
SKY 2 240	201	131	1	8	175	5	--
SKY 2 260	201	70	1	2	94	<1	--
SKY 2 280	201	55	1	4	105	<1	--
SKY 2 300	201	57	1	3	95	11	--
SKY 2 320	203	75	1	1	66	<1	--
SKY 2 340	201	116	1	2	68	<1	--
SKY 2 360	201	117	1	3	92	2	--
SKY 2 380	201	143	1	1	90	<1	--
SKY 2 400	201	145	1	2	90	13	--
SKY 2 420	201	190	1	3	100	2	--
SKY 2 440	201	149	1	4	100	9	--
SKY 2 460	201	146	1	1	85	1	--

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EDMONTON, ALTA.
T6E 1X7

CERT. # : A8414427-002-A
INVOICE # : I8414427
DATE : 14-AUG-84
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Au NAA ppb	
SKY 2 480	201	174	1	4	103	3	--
SKY 2 500	201	150	1	3	105	2	--
SKY 3 1+00	201	31	1	5	62	<1	--
SKY 3 1+20	201	44	1	4	120	<1	--
SKY 3 1+40	201	40	1	4	95	1	--
SKY 3 1+60	201	45	1	3	113	3	--
SKY 3 1+80	201	62	1	4	80	<1	--
SKY 3 2+00	201	48	1	6	105	<1	--
SKY 3 2+20	201	50	1	5	100	1	--
SKY 3 2+40	201	29	1	1	43	<1	--
SKY 3 2+60	201	88	1	4	78	2	--
SKY 3 3+00	201	42	2	10	102	<1	--
SKY 3 3+20	201	50	1	5	80	4	--
SKY 3 3+40	201	56	2	5	120	5	--
SKY 3 3+60	201	48	1	7	110	10	--
SKY 3 3+80	201	75	1	3	92	3	--
SKY 3 4+00	201	87	1	5	94	2	--
SKY 3 4+20	201	44	1	5	96	2	--
SKY 3 4+40	201	39	1	7	90	2	--
SKY 3 4+60	201	52	1	9	110	7	--
SKY 3 4+80	201	48	1	9	113	7	--
SKY 3 5+00	201	46	1	9	128	4	--
SKY 4 0+00	201	66	1	9	117	2	--
SKY 4 0+20	201	72	1	4	100	2	--
SKY 4 0+40	201	87	1	6	97	3	--
SKY 4 0+60	201	57	1	8	130	2	--
SKY 4 0+80	201	57	1	10	123	2	--
SKY 4 1+20	201	37	1	6	95	<1	--
SKY 4 1+40	201	45	1	3	66	<1	--
SKY 4 1+60	201	38	1	3	78	<1	--
SKY 4 1+80	201	56	1	4	88	2	--
SKY 4 2+00	201	70	1	3	98	5	--
SKY 4 2+20	201	73	1	4	95	4	--
SKY 4 2+40	201	37	1	2	62	<1	--
SKY 4 2+60	201	74	1	6	125	3	--
SKY 4 2+80	201	75	1	6	102	7	--
SKY 4 3+00	201	77	1	7	96	2	--
SKY 4 3+20	201	88	1	10	92	5	--
SKY 4 3+40	201	50	1	4	63	2	--
SKY 4 3+60	201	81	1	11	93	5	--

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APPENDIX 7: CONTINUED

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EDMONTON, ALTA.
T6E 1X7

CERT. # : A8414427-003-A
INVOICE # : I8414427
DATE : 14-AUG-84
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Au NAA ppb	
SKY 4 3+80	201	57	1	10	108	<1	--
SKY 4 4+00	201	124	1	17	120	3	--

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T6E 1X7

CERT. # : A8415594-002-A
INVOICE # : I8415594
DATE : 12-SEP-84
P.O. # : NONE

NOTE

In Fig. 10.2 the drillhole coordinates in Tatamagouche Canyon differ from those here by the addition of 10000 to both eastings and northings.

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
3480E 720N	201	110	1	8	92	88	6
3480E 760N	201	77	1	9	93	48	3
3480E 800N	201	96	1	7	87	53	9
3480E 840N	201	110	1	5	80	123	7
3480E 880N	201	216	1	5	101	168	6
3480E 920N	201	136	1	6	98	195	8
3480E 960N	201	92	1	5	87	185	7
3500E 720N	201	144	2	19	156	88	3
3500E 760N	201	59	1	8	91	51	4
3500E 800N	203	37	2	8	83	38	4
3500E 840N	201	250	1	8	90	135	5
3500E 880N	203	36	1	2	46	35	3
3500E 920N	201	302	1	2	78	350	5
3500E 960N	201	101	1	4	83	165	4
3520E 720N	201	106	1	19	230	75	4
3520E 760N	201	81	1	18	132	60	4
3520E 800N	201	52	1	9	97	40	2
3520E 840N	201	146	1	7	79	63	4
3520E 880N	201	176	1	3	92	80	7
3520E 920N	201	310	1	3	76	280	13
3520E 960N	201	112	1	4	80	182	6
3540E 720N	201	112	1	13	192	80	4
3540E 760N	201	260	1	13	77	110	7
3540E 840N	201	113	1	19	268	100	6
3540E 880N	201	250	1	10	115	93	8
3540E 920N	201	290	1	3	70	297	10
3540E 960N	201	128	1	4	88	200	8
3560E 800N	201	100	1	15	148	113	4
3560E 840N	201	170	1	8	85	80	6
3560E 880N	201	226	1	1	64	175	8
3560E 920N	201	330	1	2	65	295	10
3560E 960N	201	101	1	4	80	210	6

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CERT. # : A8415594-003-A
INVOICE # : I8415594
DATE : 12-SEP-84
P.O. # : NONE

Sample description	Prep code	Cu ppm	Mo ppm	Pb ppm	Zn ppm	Ni ppm	Au NAA ppb
3580E 800N	201	70	1	10	95	50	3
3580E 840N	201	55	1	6	57	41	2
3580E 880N	201	650	1	3	71	115	9
3580E 920N	201	283	1	3	70	270	7
3580E 960N	201	93	1	6	108	165	3
3600E 720N	201	159	1	10	121	75	5
3600E 760N	201	188	1	9	106	100	5
3600E 800N	201	114	1	4	85	112	6
3600E 840N	201	300	1	7	82	100	5
3600E 880N	201	300	1	4	79	165	10
3600E 920N	201	186	1	3	81	195	6
3600E 960N	201	113	2	5	82	180	6
3620E 760N	201	116	1	5	86	122	3
3620E 800N	201	248	1	6	95	148	7
3620E 840N	201	255	1	6	82	83	10
3620E 880N	201	179	1	4	87	115	4
3620E 920N	201	163	1	4	71	195	6
3620E 960N	201	107	1	4	91	152	6
3640E 840N	201	141	1	4	58	44	4
3640E 880N	201	338	1	3	72	150	9
3640E 920N	201	122	1	3	74	203	6
3640E 960N	201	70	1	6	91	123	6

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APPENDIX 8: FIELD AND OFFICE PERSONNEL

Field

T.I. Groves, Assistant 503, 9929 Saskatchewan Drive Edmonton, Alberta T6E 4R2	36 days between July 18 and August 29, 1984
G.M. Halferdahl, Engineer and Driller 11539 - 73 Avenue Edmonton, Alberta T6G 0E2	36 days between July 18 and August 29, 1984
L.B. Halferdahl, Geological Engineer 11539 - 73 Avenue Edmonton, Alberta T6G 0E2	15 days between July 18 and August 29, 1984 5 days between September 26 and October 7, 1984

Office

L.B. Halferdahl, Geological Engineer 11539 - 73 Avenue Edmonton, Alberta T6G 0E2	5 days in October and November, 1984
W. McGuire, Draftsman 5307 - 145 Avenue Edmonton, Alberta T5A 4E9	52 hours in October and November, 1984

APPENDIX 9: 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.

FIELD EXPENSES 1984 07 18 to 1984 08 29
EXCLUDING THOSE OF BULLDOZER

Personnel		
T.I. Groves, assistant 36 days @ $110.00	$3,960.00	
G.M. Halferdahl, engineer and driller 36 days @ $135.00	4,860.00	
L.B. Halferdahl, geological engineer 15 days @ $350.00	5,250.00	
		$14,070.00
Food and Accommodation		
87 man-days @ $16.27		1,415.49
Transportation		
4X4 truck rental and gas	2,274.10	
Trucking of drilling equipment	210.15	
Express on samples	110.40	
Rental of all-terrain cycle	800.00	
		3,394.65
Supplies		
Fuel and oil for drill		49.00
Equipment Rental		
Cobra drill	300.00	
Overburden rods, bits, adaptors, jack, holder	250.00	
Magnetometer	500.00	
		1,050.00
Analyses		
136 samples from overburden drilling prepared and analyzed for Cu, Pb, Zn, Mo and Au @ $11.65	1,584.40	
22 heavy mineral samples prepared and analyzed for Cu, Pb, Zn, Ni, and Au @ $24.95	548.90	
24 samples from trench prepared and analyzed for Cu, Pb, Zn, Mo, and Au @ $12.55	301.20	
48 soil samples prepared and analyzed for Cu, Pb, Zn, Mo, Ni, and Au @ $12.55	602.40	3,036.90
Long distance telephone		219.65
		$23,235.69

REPORT PREPARATION EXPENSES

L.B. Halferdahl, geological engineer	5 days @ $350.00	$1,750.00
W. McGuire, draftsman	52 hours @ $24.00	1,248.00
Typing, reproduction, assembly		285.00
		$3,283.00

BREAKDOWN BETWEEN OVERBURDEN DRILLING AND TECHNICAL WORK

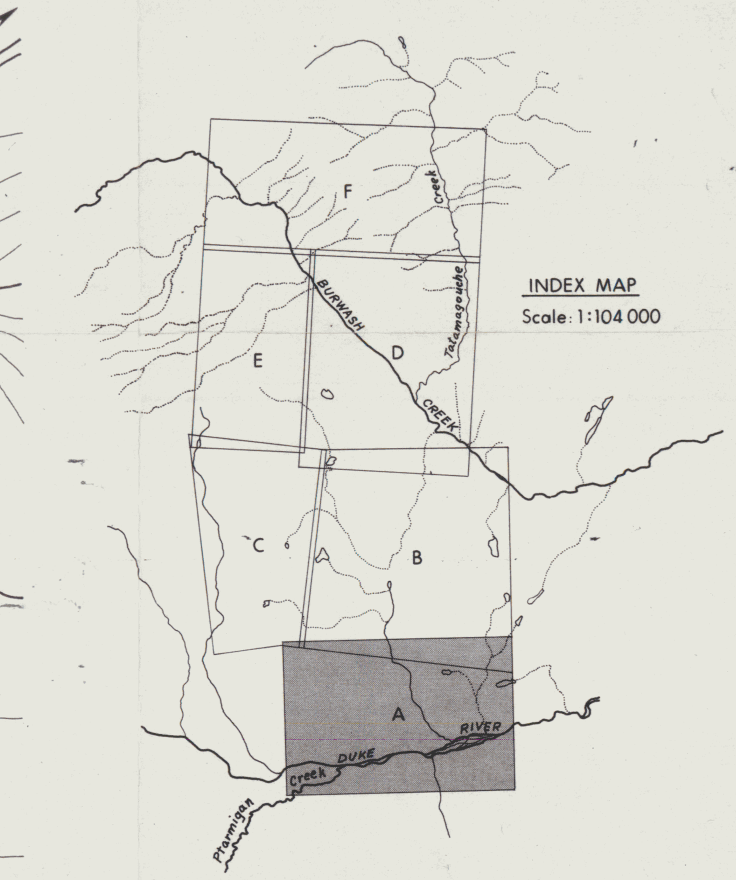
	Overburden Drilling	Technical Work
Personnel	$ 3,885.00	$10,185.00
Food and Accommodation	455.56	959.93
Transportation	1,215.67	2,178.98
Supplies	49.00	-
Equipment rental	550.00	500.00
Analyses	1,885.60	1,151.30
Long distance telephone	110.00	109.65
Report preparation	1,641.50	1,641.50
	$ 9,792.33	$16,726.36

LEGEND

See fig. 5-4

SYMBOLS

Geological boundary, defined
approximate
Area of outcrop
Isolated outcrop ×
Strike and dip of bedding 68°
Fault, defined, approximate



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BY	DATE

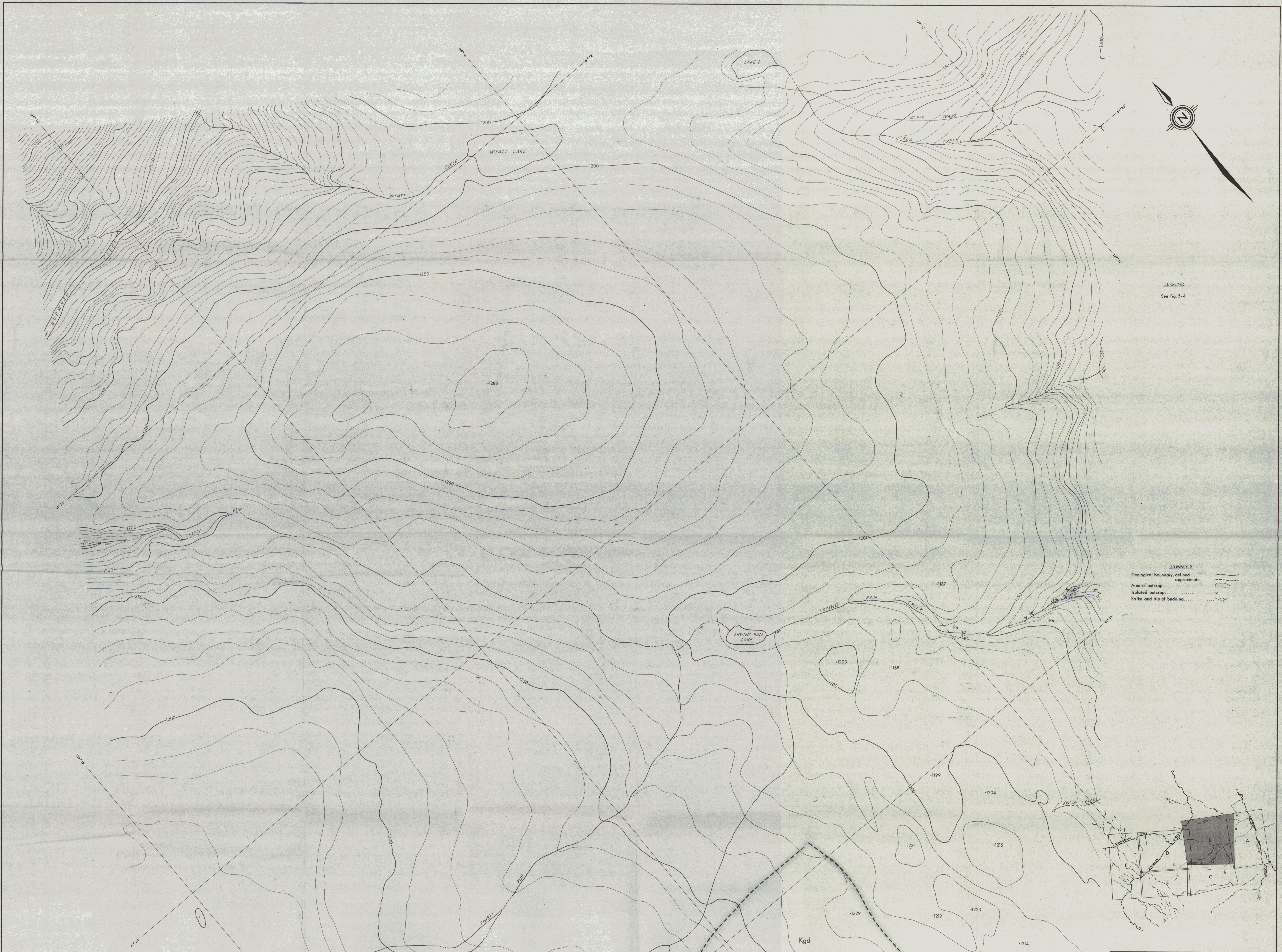
Fig. 5-1 Geology of Map Sheet A

091585

BURWASH CREEK AREA, YUKON

0 100 200 300 400 500
METRES

LBH SCALE: 1:5000 1984 10



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BY	DATE

Fig. 5·2 Geology of Map Sheet B

091585

BURWASH CREEK AREA, YUKON

0 100 200 300 400 500 METRES

LBH SCALE: 1:5000 1984·10


TATAMAGOUCHE MOUNTAIN
FAULT D
FAULT E
EJ FAULT
LAKE 1
LAKE 2
Kgd
Muller Creek
Thirty Pup
Forty Pup
KAT 10
KAT 7
KAT 8
KAT 12
KAT 5
KAT 6
KAT 14
KAT 3
KAT 4
KAT 16
KAT 1
KAT 2
JO 7 JO 8
JO 5 JO 6
JO 3 JO 4
JO 1 JO 2
WEN 7
WEN 8
WEN 5
WEN 6
WEN 3
WEN 4
WEN 1
WEN 2
DEN 7
DEN 8
DEN 5
DEN 6
DEN 3
DEN 4
DEN 1
DEN 2
EL 7 EL 8
EL 5 EL 6
EL 3 EL 4
EL 1 EL 2
JY 7
JY 8
JY 11 JY 12
JY 5
JY 6
JY 13 JY 14
JY 3
JY 4
JY 15 JY 16
JY 31 JY 32
JY 1
JY 2
JY 37
JY 38
AND 7 AND 8
AND 5 AND 6
AND 3 AND 4
AND 1 AND 2
AND 9 AND 10
SUE 7
SUE 8
SUE 5 SUE 6
SUE 3 SUE 4
SUE 1 SUE 2
SUE 9 SUE 10
NAN 7
NAN 8
NAN 5
NAN 6
NAN 3
NAN 4
NAN 1
NAN 2
NAN 9 NAN 10
JAN 7
JAN 8
JAN 5
JAN 6
JAN 3
JAN 4
JAN 1
JAN 2
JAN 9 JAN 10
LEGEND
TERTIARY
Paleocene
Tpl Latite porphyry
CRETACEOUS
Kgd Granodiorite
UPPER TRIASSIC
Ꞧn Nikolai Formation: basalt; cgl-conglomerate
PERMIAN-TRIASSIC
Pp Peridotite Pg Gabbro
LOWER PERMIAN
Skolai Group
Hasen Creek Formation
Phm Main Member: argillite; r-rusty weathering argillite; ch-chert; ls-limestone
Station Creek Formation
Psc Volcaniclastic Member
Psf Volcanic Flow Member, Basic dyke
Psr Rust Member
SYMBOLS
Geological boundary, defined
approximate
Area of outcrop
Isolated outcrop
Strike and dip of bedding
Strike and dip of schistosity
Strike and dip of joint
Strike and plunge of lineation
Fault, defined
Road, unimproved
Contour line, interval 10 metres
Spot elevation in metres
Claim post
Claim boundary, location line
other
Claim name WEN 3
Abandoned adit
Anticlinal axis
Claim posts and claim boundaries are only approximate.
BUR PROPERTY
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EDMONTON, ALBERTA
REVISIONS
INITIALS DATE
BH 1980.08
LBH 1981.04
DBN 1981.11
LBH 1984.10
Fig. 5.3 Geology of Sheet D.
091585
BURWASH & TATAMAGOUCHE CREEKS, Y.T.
0 100 200 300 400 500
Metres
SCALE: 1:5000
RB
1979.08

LEGEND

TERTIARY
Paleocene
Tpl — Latite porphyry

CRETACEOUS
Kgd — Granodiorite

UPPER TRIASSIC
Trn — Nikolai Formation: basalt, conglomerate - cgl

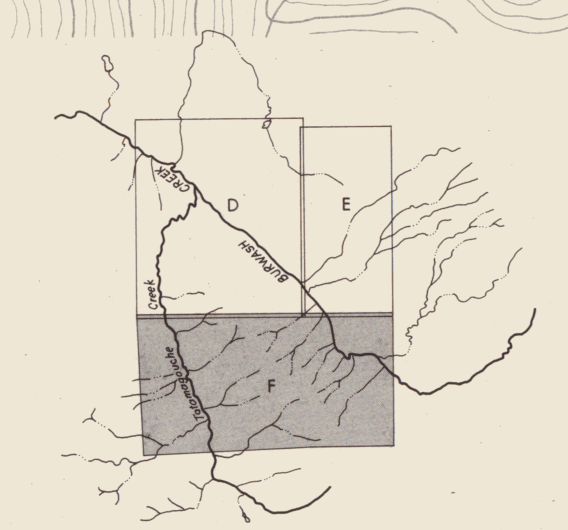
PERMIAN-TRIASSIC
Pp — Peridotite   Pg — Gabbro

LOWER PERMIAN
Skolai Group
Ph — Hasen Creek Formation: argillite - a, rusty weathering argillite - r, basic volcanics - bv, agglomerate - ag, tuff - t, dark tuff - td, chert - ch, limestone - ls, light tuff - tl, chert granule limestone - ch-ls, black pyritic tuff - pbt

Station Creek Formation:
Psc — Volcaniclastic Member
Psf — Volcanic Flow Member
Psr — Rust Member

SYMBOLS

Geological boundary, defined
approximate
Area of outcrop
Isolated outcrop
Strike and dip of bedding
Fault (defined, approximate)
Diamond drillhole with number ● 70-3
Claim post
Anticlinal axis
Synclinal axis



INDEX MAP
Scale: 1:104 000

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Fig. 5-4 Geology of Map Sheet F

091585

BURWASH CREEK AREA, YUKON

0 100 200 300 400 500
METRES

LBH SCALE: 1:5000 1984-04

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Fig. 6-1 Magnetometer Profiles on Map Sheet A

091585

BURWASH CREEK AREA, YUKON

0 100 200 300 400 500 METRES

LBH SCALE: 1:5000 1983-10


TATAMAGOUCHE MOUNTAIN
BURWASH CREEK
Tatamagouche Creek
Jo Creek
Millers Creek
Thirty Pup
Forty Pup
Wen Creek
Joyce Creek
El Creek
Kat Creek
3rd Creek
Trailer Camp
LAKE 1
LAKE 2
Kgd
LINE 109
LINE 110
LINE 111
LINE 112
LINE 113
LINE 114
LINE 115
LINE 116
LINE 117
LINE 118
KAT 1
KAT 2
KAT 3
KAT 4
KAT 5
KAT 6
KAT 7
KAT 8
JO 1
JO 2
JO 3
JO 4
JO 5
JO 6
JO 7
JO 8
WEN 1
WEN 2
WEN 3
WEN 4
WEN 5
WEN 6
WEN 7
WEN 8
DEN 1
DEN 2
DEN 3
DEN 4
DEN 5
DEN 6
DEN 7
DEN 8
EL 1
EL 2
EL 3
EL 4
EL 5
EL 6
EL 7
EL 8
JY 1
JY 2
JY 3
JY 4
JY 5
JY 6
JY 7
JY 8
AND 1
AND 2
AND 3
AND 4
AND 5
AND 6
AND 7
AND 8
AND 10
SUE 1
SUE 2
SUE 3
SUE 4
SUE 5
SUE 6
SUE 7
SUE 8
SUE 9
SUE 10
NAN 1
NAN 2
NAN 4
NAN 5
NAN 6
NAN 7
NAN 8
NAN 9
NAN 10
JAN 1
JAN 2
JAN 3
JAN 4
JAN 5
JAN 6
JAN 7
JAN 8
JAN 9
JAN 10
SYMBOLS
Magnetometer profile with number (vertical scale in thousands of gammas)
Line 114
59
58
57
Interpreted correlation of magnetometer profiles
Interpreted granodiorite contact
Granodiorite .... Kgd
INDEX MAP
SCALE: 1:104 000
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REVISIONS
INITIALS DATE
LBH 1984-10
Fig. 6-2 Magnetometer Profiles on Map Sheet D
091585
BURWASH CREEK AREA, YUKON
0 100 200 300 400 500
METRES
SCALE: 1:5 000
LBH
1983-10


DUKE
RIVER
DUKE RIVER
KNOB CREEK
JAN CREEK
FRYING PAN CREEK
Phil Creek
BEA CREEK
WEST FORK
BEA LAKE
ELEV. 1027±
MARSH LAKE
SQUIRREL CREEK
PTARMIGAN CREEK
1200
1150
1100
1050
1000
950
900
850
SYMBOLS
Heavy mineral sample location ▲
Assay results (ppm; Au (ppb))
Au Pb Zn Cu Ni
13 8 64 77 68
× denotes Au <1 ppb
INDEX MAP
Scale 1:104 000
BUR PROPERTY
HALFERDAHL & ASSOCIATES LTD.
EDMONTON, ALBERTA
REVISIONS
BY DATE
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Fig. 8-1 Heavy Mineral Samples on Map Sheet A
091585
BURWASH CREEK AREA, YUKON
0 100 200 300 400 500
METRES
LBH
SCALE: 1:5000
1983-10

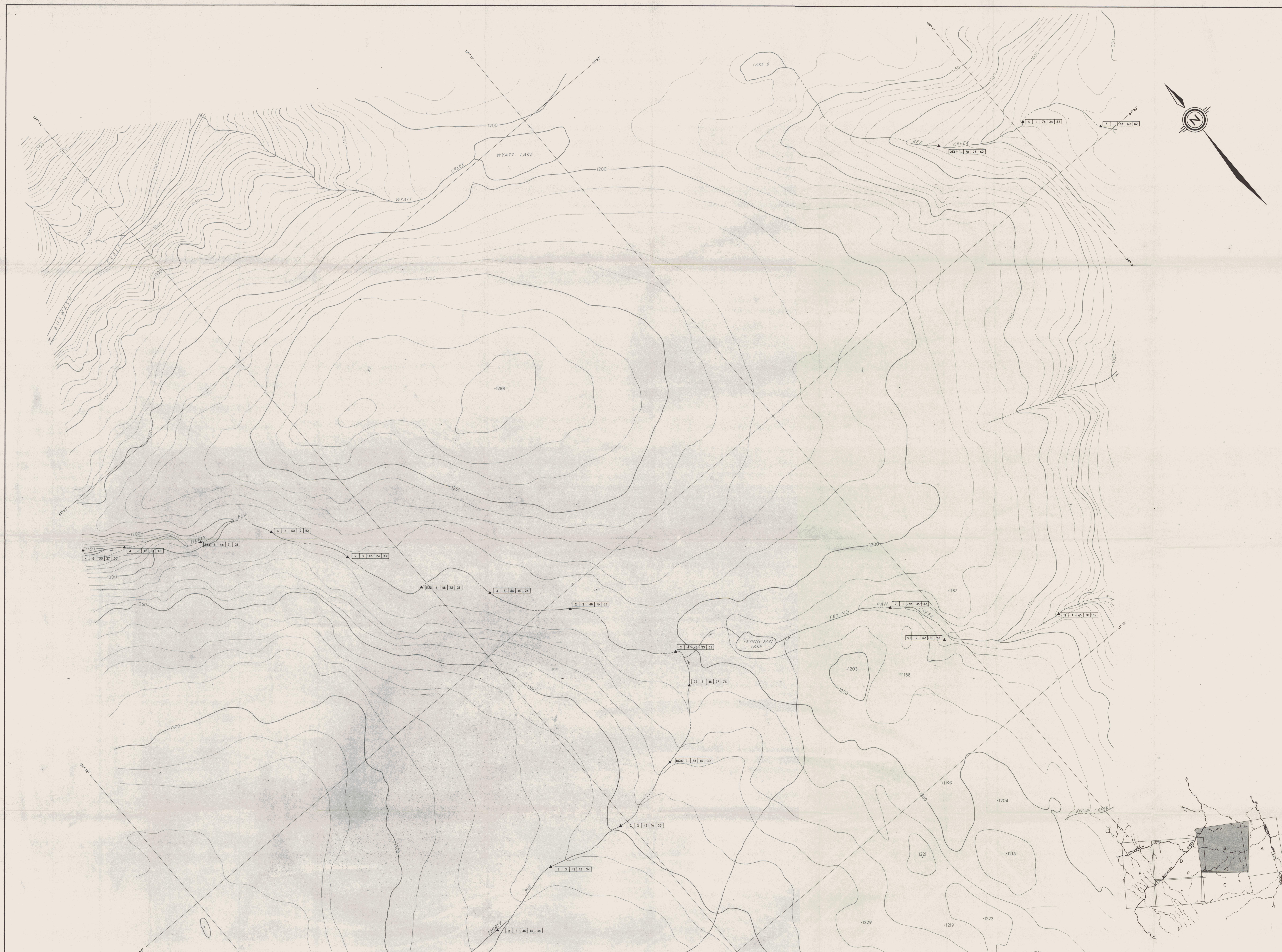

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Fig. 8-2 Heavy Mineral Samples on Map Sheet B.

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BURWASH CREEK AREA, YUKON

0 100 200 300 400 500
METRES

LBH SCALE: 1:5000 1983-10

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Fig. 10-1 Geology and Concentrations of Gold, Lead, Zinc, Copper, and Molybdenum along Trench J.

091585

BURWASH CREEK AREA, YUKON

LBH 1984-10

SYMBOLS

Fault, defined ....
interpreted ....
Trench, excavation ....
Drillhole with number and projection 81-2
Claim post ....
Claim line, location line ....
other ....
Claim name .... WEN 5
Contour (interval 10m) 1250
Road, unimproved ....

NOTES

Locations of claim posts, claim lines, trenches, and drillholes were located approximately with compass and topofil chain.

Diamond drillholes:

No.	Depth (m)	From No. 1 Post Jo 6 Distance (m)	From No. 1 Post Jo 6 Azimuth	Bearing	Dip
81-1	14.0	317	129°	—	Vert.
81-2	23.2	314	128.5°	320°	60°
81-3	96.6	275	138.5°	—	Vert.
81-4	73.7	311	94°	—	Vert.
81-5	69.5	679	119°	102°	60°
82-1	47.8	676	116.5°	102°	60°
82-2	139.6	468	30.2°	102°	70°
82-3	85.3	566	41.2°	102°	60°

Contours are based on aerial photographs without survey control. Lines surveyed subsequently show some discrepancies with contours.

REVISIONS			
BY	DATE	BY	DATE
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L B H	1984.10		

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Fig. 10.2 Locations of Trenches, Sumps, and Drillholes near Tatamagouche Canyon

091585

BURWASH & TATAMAGOUCHE CREEKS, Y. T.

0 50 100 150 200
METRES

DBN SCALE: 1:2000 1981.10