

NATHAN MINERALS INC.

1989 EXPLORATION OF QUARTZ CLAIMS  
NEAR BURWASH CREEK, YUKON  
(LINE CUTTING, ACCESS TRAIL, TEST PIT,  
DIAMOND DRILLING)

Work on Claims

JO 3, 5, 6, 8; SUE 1, 2; NAN 3, 5, 6,; JAN 4-6, 19, 20,  
30, 43, 44, 51; DEN 7, 9; WEN 5, 7; JY 32, 40; EL 11, 12  
33-40, 42, 44-49, 51, 52, 54, 56, 59, 60, 62, 64, 66, 71-74, 78

Whitehorse Mining District

Geographic Coordinates (Centre of Property)

61° 20' N  
139° 15' W  
NTS Sheet 115 G/6

by

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

1990 04 17

Work done from 1989 06 29 to 1989 11 29

Halferdahl & Associates Ltd.  
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1092838

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1.

## INTRODUCTION

Exploration of the quartz claims extending from Tatamagouche and Burwash Creeks to beyond Duke River in southwestern Yukon continued during the period June 29 to November 29, 1989. In addition to other work not reported here, it consisted of line cutting and picketing, improvements and additions to an access trail by the use of a D8 bulldozer, a JCB hoe and loader, and a dump truck, excavation of a pit to find water for drilling, and 730.45 m of diamond drilling in 10 holes. This report describes some of these explorations. As information on the geographic and geological settings, previous exploration, and references have been detailed in previously filed assessment reports, sections dealing with these topics have been omitted.

Many of the tributaries of Burwash and Tatamagouche Creeks and Duke River have not been formally named. For convenience some of these tributaries or pups have been given informal names, which accord with local use as much as possible. A few other topographic features have also been named informally.

Access to the parts of the property along Bea Creek and selected parts of the Burwash Uplands was by four-wheel-drive vehicles. Access to other parts of the property was by a Honda Fourtrax, and a J5 Bombardier. Accommodation for the crew was in a trailer and tent camp in the valley of Bea Creek.

2.

## SUMMARY

Some 31.7 km of lines were cut and picketed for ground geophysical surveys.

About 9.8 km of an access trail to drillsites including two sites across the Burwash Uplands, were constructed or improved. This trail connects with about 3½ km of access trail previously constructed from Burwash Creek. Improvements were made to the fords on 101 and 105 Pups on this previously constructed section.

Ten holes were diamond drilled for a total of 730.45 m, but information on only eight totalling 570.13 m is included.

3.

## LINE CUTTING FOR GEOPHYSICAL SURVEYS

In preparation for ground geophysical surveys the Golden Gopher grid including its baseline was cut and picketed (Fig. 3.1). In addition other lines for ground geophysical surveys were cut and picketed (Fig. 3.1, 3.3, and 3.4). The lengths cut are listed below. Dense growth between the lower parts of

Golden Gopher Grid	26 594 m
50 E	1 200
Line G	1 550
Lines on claims DEN 7 and 9	1 225
Lines on claims JO 3, 5, 6, 8; WEN 5, 7	1 150
	<hr/> 31 719 m

Bea and Frying Pan Creek hindered line cutting. Access to the lines on the north side of Burwash Creek was difficult because the access trail across the Burwash Uplands had not been constructed at the time the lines there were cut.

#### 4. ACCESS TRAIL

During 1989 parts of the previous access trail were improved by building and widening grades, excavating ditches, and minor gravelling. Part of the previous access trail (a winter road) was rerouted to dryer ground. Two log culverts were constructed, and cast-iron pipes installed at appropriate places for cross drains. Additional culverts and drains are needed. In general, the trail is 4 to 6 m wide; depending on topography and soil conditions it includes sidehill cuts, cut and bladed gravel ridges, and lengthy stretches of material pushed up from one or both sides with later flattening and smoothing to make a grade passable for 4-wheel-drive vehicles, particularly when frozen. The equipment used for this work included a D8 bulldozer, a JCB hoe and loader, and a 6-yd Ford dump truck.

Work was done on the part of the access trail from where it branches off the road up Bea Creek to near Lake One on the Burwash Uplands (Fig. 3.1 and 3.2), and a small amount at the crossings of 101 and 105 Pups (Fig. 4.1), on the part of the trail constructed in 1987 and earlier. The crossing of 105 Pup is in the valley of Burwash Creek. A brief account of the work is in Appendix 3.

#### 5. TEST PIT

In an attempt to find water for diamond drilling at a convenient place along Frying Pan Creek, a pit about 30 yards long by 8 yards wide by an average of 4 yards deep was excavated by means of a D8 bulldozer in the gravels of Frying Pan Creek just upstream from where it is crossed by the access trail. Some water was encountered at a depth of about 5 yards, but not enough for diamond drilling. Instead enough water for drilling was found about 500 m downstream, where the bed of Frying Pan Creek is almost at bedrock.

6.

## DIAMOND DRILLING

Mobilization for the drilling started on October 10, 1989 and the program ended with closing the camp on November 29, 1989. The drilling was to test and evaluate the GENIE anomalies discovered in the latter part of the 1988 season, and in the 1989 season. If time and other factors permitted one or more holes were to be drilled to test the anomalous concentrations of platinum near the SUE trench. Kluane Drilling Ltd. of Whitehorse was contracted for the diamond drilling with a skid-mounted Longyear 38. Nathan supplied a D8 bulldozer for moving the drill, preparing drillsites, and access thereto, and a camp for the crew.

Ten holes were drilled for a total of 730.45 m as follows:

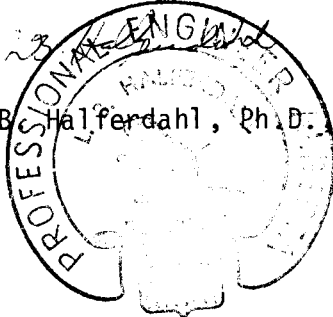
<u>Gold on or near Golden Gopher Slope</u>				<u>Platinum at SUE Trench</u>	
89-1	131.67 m	89-5	88.39 m	89-9	72.54 m
89-2	44.20	89-6	66.14	89-10	79.25
89-3	46.33	89-7	71.93		
89-4	47.09	89-8	82.91		

Except for holes 89-1 and 89-10 core recovery was very unsatisfactory. A very hard siliceous tuff unit, either blocky or cleaved, caused most of the problems in holes 89-2 to 89-8. Permafrost is present in the almost ubiquitous boulder tills but was generally not more than 15 m thick. Its temperature was close enough to freezing that no salt or other material was needed to lower the freezing temperature of the drilling water. In hole 89-6, water-bearing sand and gravel below the frozen till caused problems, as did the depth of overburden in some holes. Caving serpentine and copious serpentine in the overburden at the SUE trench forced abandoning both holes there before reaching their targeted depths. A cold snap in mid-November interrupted the drilling for almost one week.

The lithological logs of drillholes 89-1 to 89-4, 89-6, and 89-8 to 89-10 are in Appendix 1 along with tabulations of the analyses of samples. In some holes, sludge samples were collected and analyzed, particularly when core recovery was low. Samples from holes 89-1 to 89-4, 89-6, and 89-8 were analyzed by standard atomic absorption methods, with gold being preconcentrated by fire assay methods at Northern Analytical Laboratories Ltd. of Whitehorse. The analyses of some of the samples from holes 89-1 to 89-4, 89-6, and 89-8 were checked by standard ICP techniques after fusing with  $\text{LiBO}_2$  and dissolving in 5 per cent nitric acid at Acme Analytical Laboratories Ltd. of Vancouver. Analytical reports for samples from

drillholes 89-1 to 89-4, 89-6, 89-8, and for the check samples are in Appendix 2. No samples from drillhole 89-9 were analyzed as it did not reach bedrock. Samples from drillhole 89-10 were analyzed by the ICP techniques of Acme Analytical Laboratories Ltd. of Vancouver; an analytical report is included in Appendix 1.

Respectfully submitted,

A circular professional seal for a Professional Engineer in Alberta, Canada. The seal features a central emblem of a caduceus (a staff with two snakes entwined around it) and is surrounded by the text "PROFESSIONAL ENGINEER" and "ALBERTA".  
L. B. Halferdahl, Ph. D., P. Eng.

Edmonton, Alberta  
1990 04 17

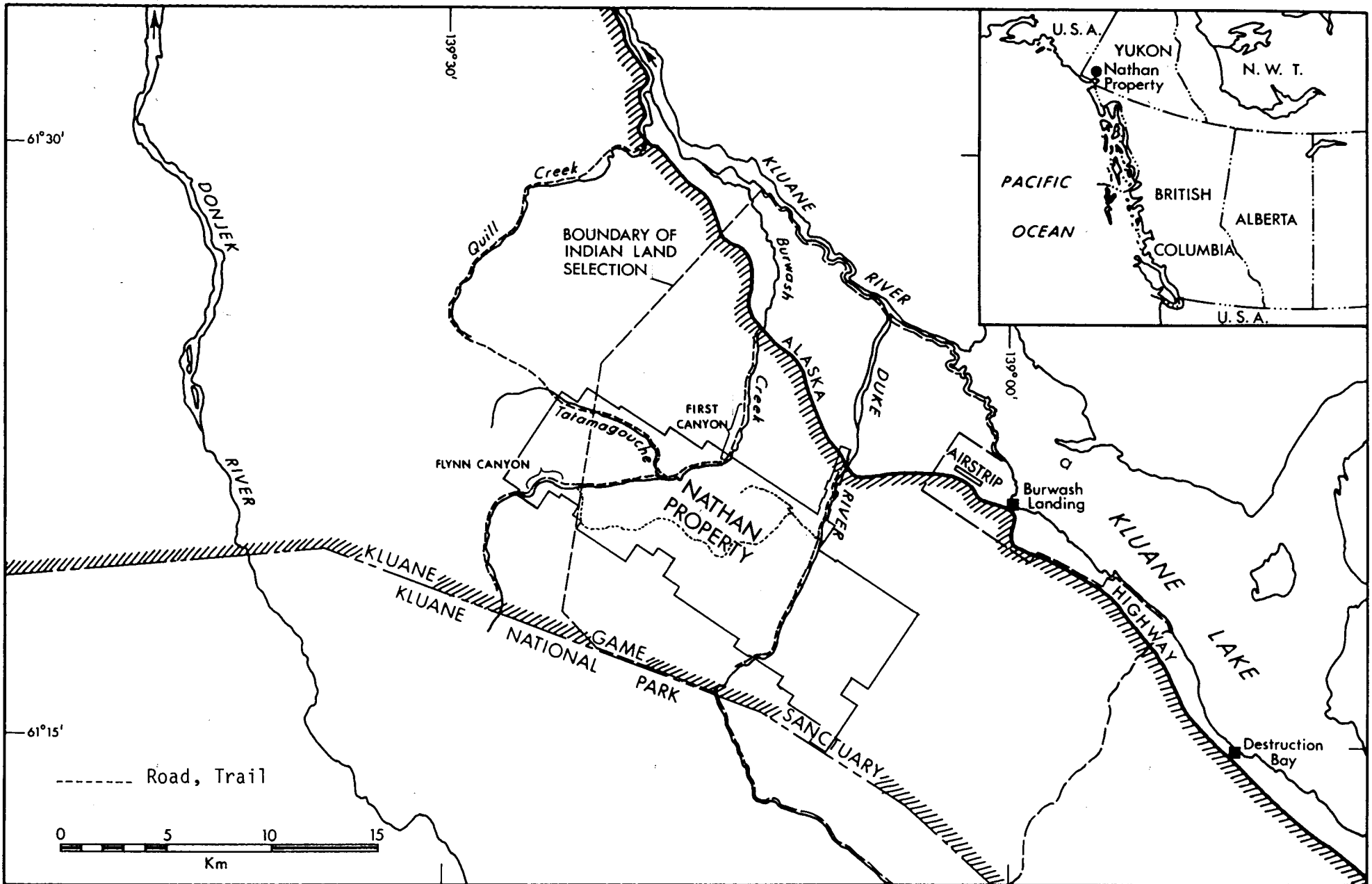
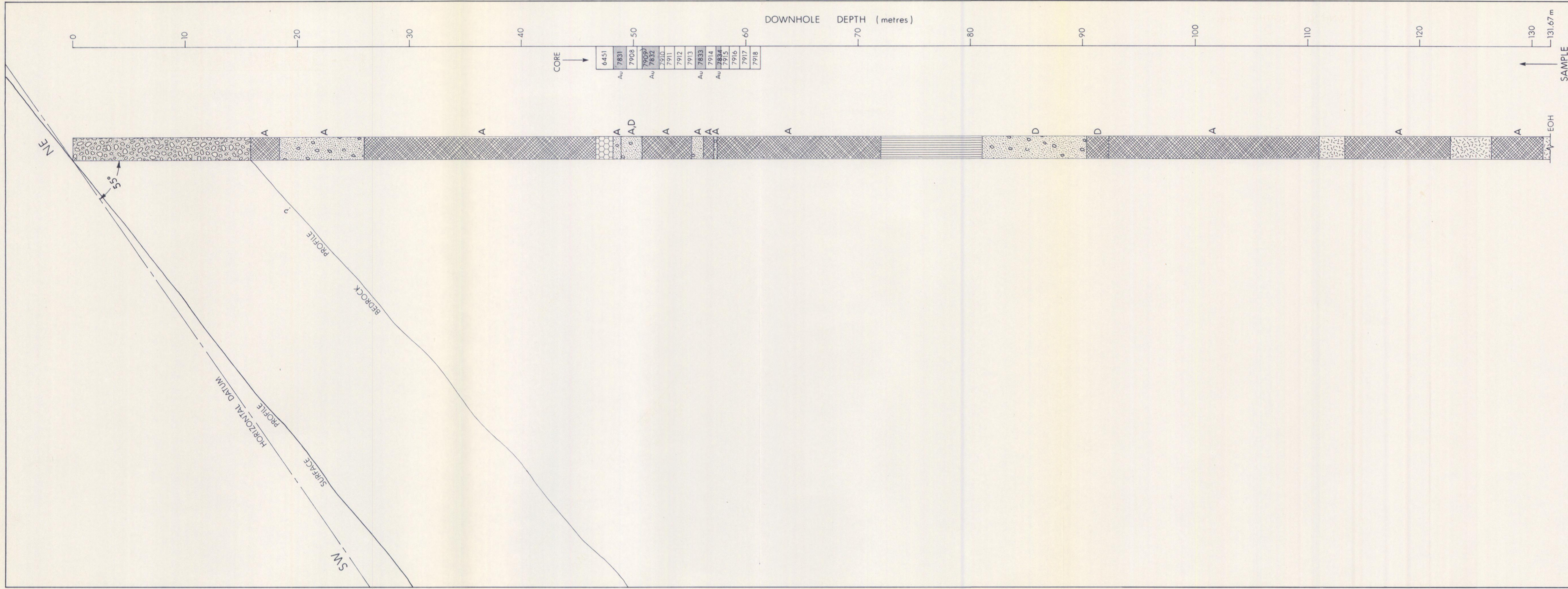


Fig. 1.1 Location and Index Map



**SYMBOLS**

- Overburden
- Tuff
- Volcanic flow
- Graphite
- Dyke
- Gabbro

- A - Andesite
- D - Dacite

**NOTES**

Samples containing metals whose concentrations exceed the values listed below are shaded and that metal is noted beside the sample interval.

Au.....100 ppb	Ag.....2.5 ppm
Pb.....40 ppm	Cu.....200 ppm
Mo.....30 ppm	Zn.....300 ppm




See Fig. 3-1 for drillhole location.

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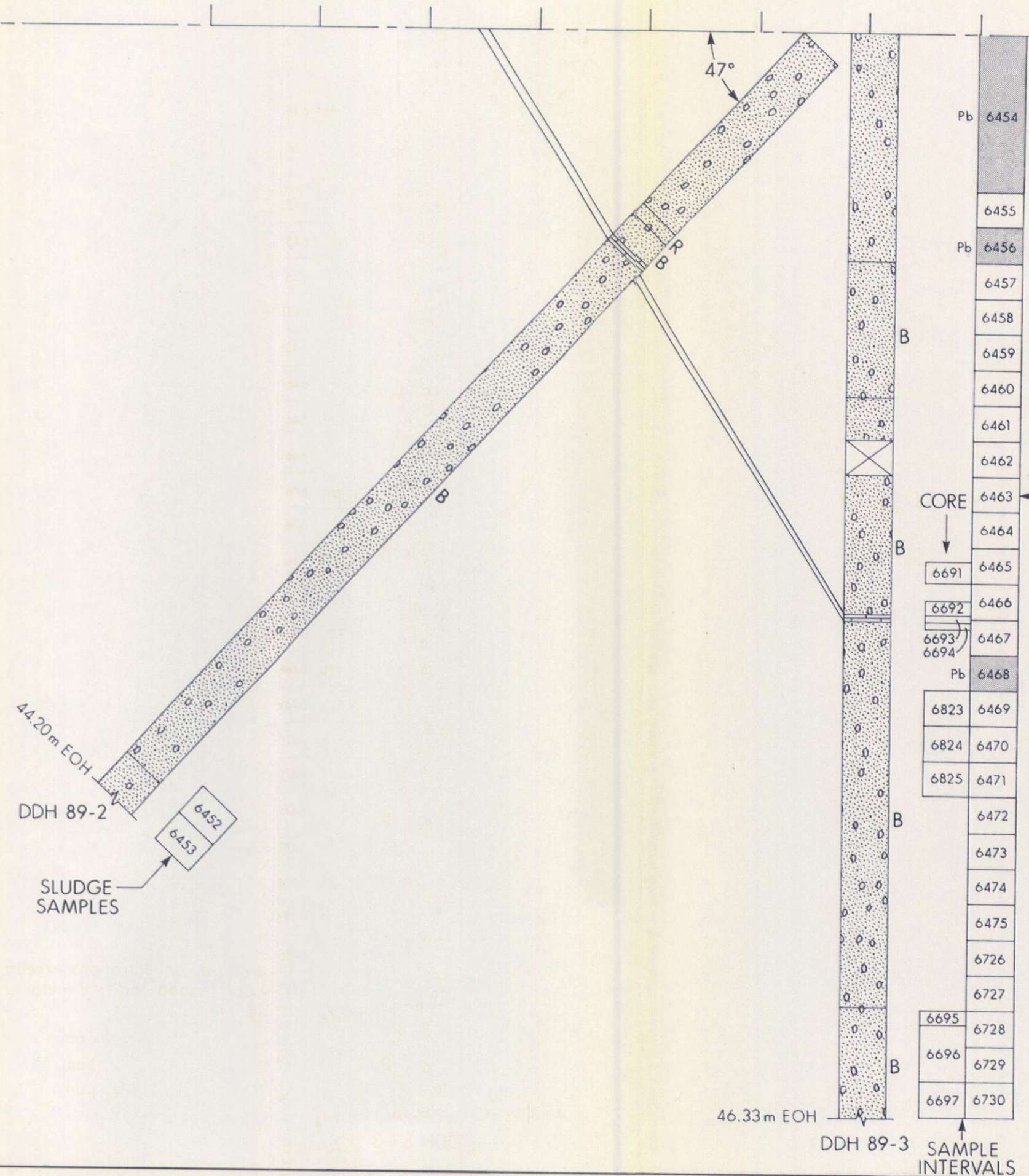
Fig. 5-1 Vertical Section through Drillhole 89-1.

BURWASH CREEK AREA, YUKON  
TY Scale: 1:200 1990.04

- SYMBOLS**
-  Tuff
  -  Limestone
  -  Lost core
  - R - Rhyolitic
  - B - Black

- NOTES**
- Samples containing metals whose concentrations exceed the values listed below are shaded and that metal is noted beside the sample interval.
- |                |                 |
|----------------|-----------------|
| Au.....100 ppb | Ag..... 2.5 ppm |
| Pb..... 40 ppm | Cu.....200 ppm  |
| Mo..... 30 ppm | Zn.....300 ppm  |

See Fig. 3.1 for drillhole location.



SLUDGE SAMPLES

CORE

SAMPLE INTERVALS

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 EDMONTON, ALBERTA

Fig. 5.2 Vertical Section through Drillholes 89-2 and 89-3.

SW

NE

HORIZONTAL DATUM

SURFACE PROFILE

BEDROCK PROFILE

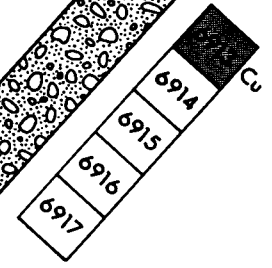
NOTES

Samples containing metals whose concentrations exceed the values listed below are shaded and that metal is noted beside the sample interval.

Au.....100 ppb	Ag ..... 2.5 ppm
Pb..... 40 ppm	Cu .....200 ppm
Mo ..... 30 ppm	Zn .....300 ppm

See Fig. 3-1 for drillhole location.

48°

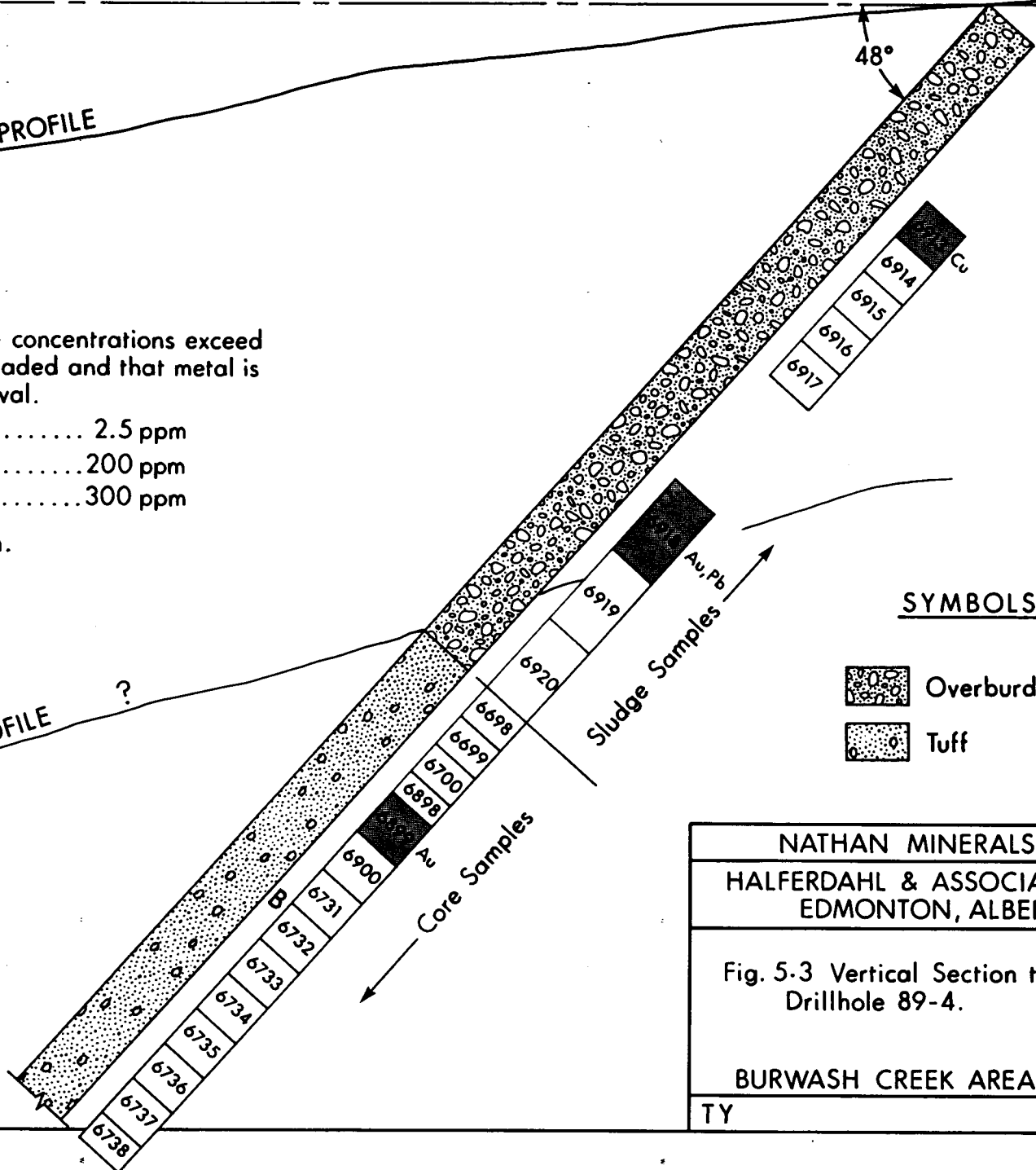


Sludge Samples

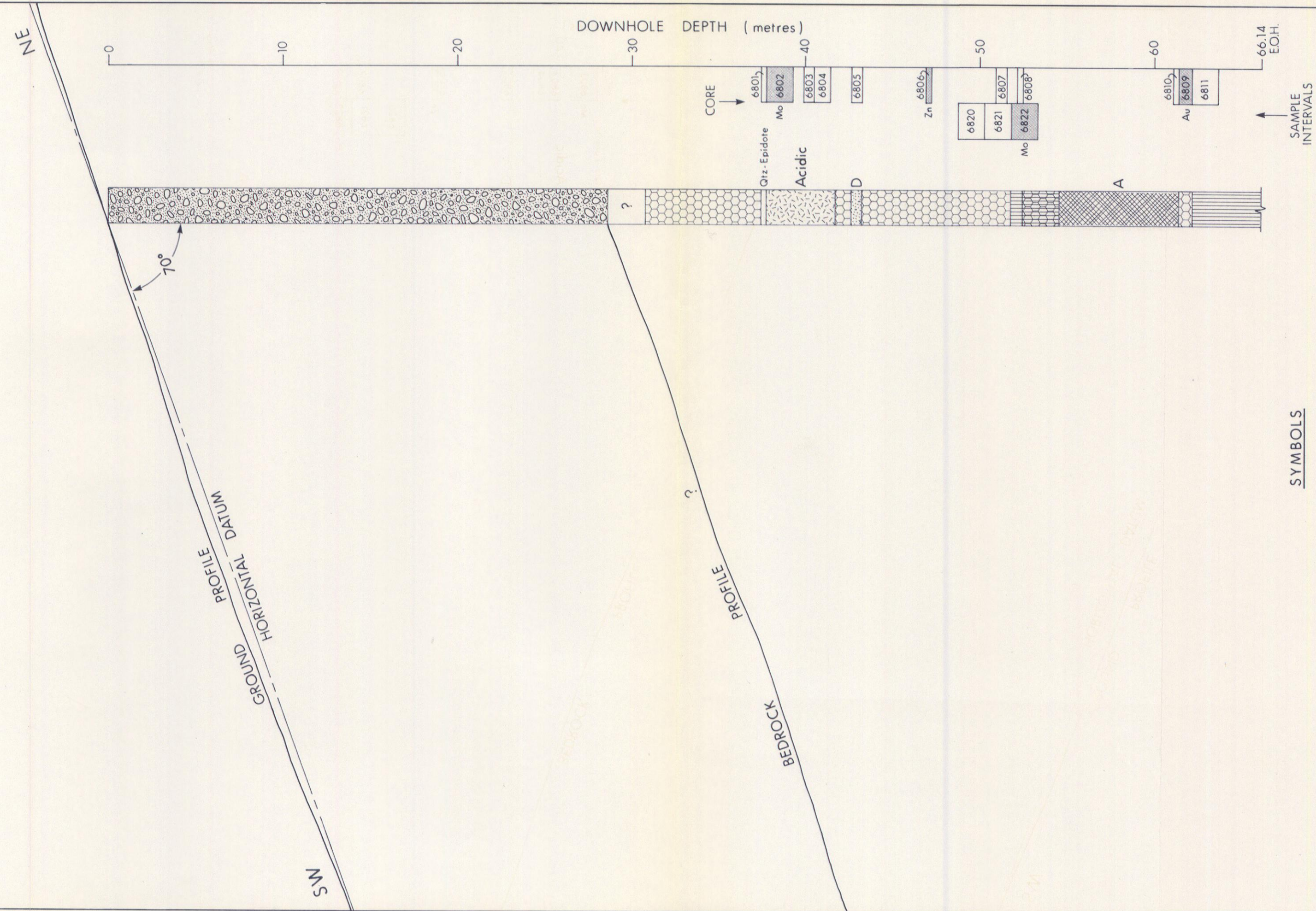
SYMBOLS



Core Samples



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Fig. 5-3 Vertical Section through Drillhole 89-4.	
BURWASH CREEK AREA, YUKON	
TY	1990.04



SYMBOLS

- Overburden
- Tuff
- Volcanic flow
- Graphite
- Dyke
- Gabbro

- A - Andesite
- D - Dacite

NOTES

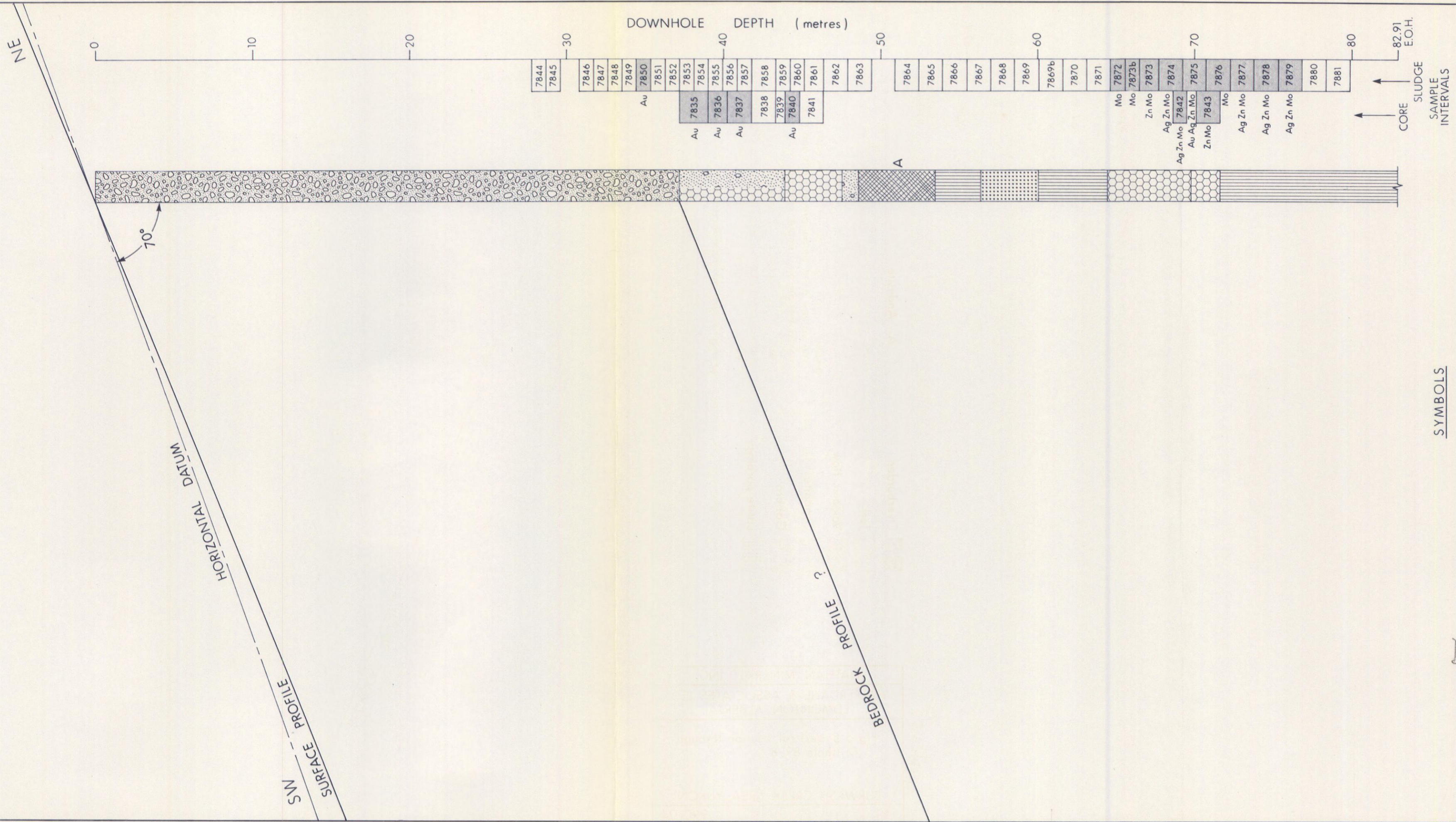
Samples containing metals whose concentrations exceed the values listed below are shaded and that metal is noted beside the sample interval.

Au.....	100 ppb	Ag.....	2.5 ppm
Pb.....	40 ppm	Cu.....	200 ppm
Mo.....	30 ppm	Zn.....	300 ppm

See Fig. 3.1 for drillhole location.

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Fig. 5.4 Vertical Section through Drillhole 89-6.	
BURWASH CREEK AREA, YUKON	
TY	1990.04



**SYMBOLS**

- Overburden
- Tuff
- Volcanic flow
- Graphite
- Gabbro
- Latite porphyry

A - Andesite

**NOTES**

Samples containing metals whose concentrations exceed the values listed below are shaded and that metal is noted beside the sample interval.

Au.....100 ppb	Ag.....2.5 ppm
Pb.....40 ppm	Cu.....200 ppm
Mo.....30 ppm	Zn.....300 ppm

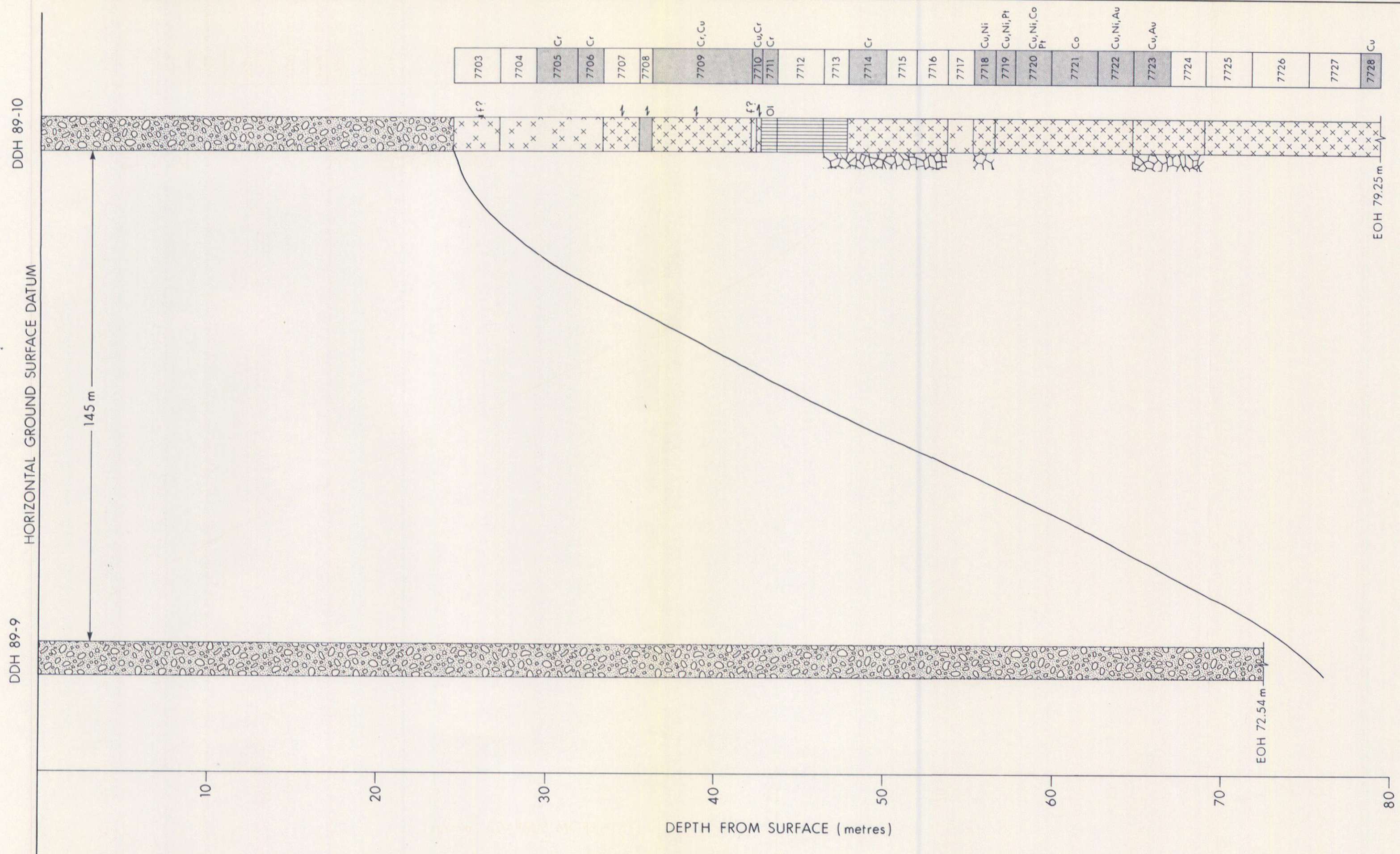
See Fig. 3.1 for drillhole location.

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NATHAN MINERALS INC.  
HALFERDAHL & ASSOCIATES LTD.  
EDMONTON, ALBERTA

Fig. 5.5 Vertical Section through Drillhole 89-8.

BURWASH CREEK AREA, YUKON



SAMPLE INTERVALS

- SYMBOLS**
- Overburden
  - Peridotite
  - Serpentinite
  - Gabbro
  - Fault gouge
  - Breccia zone

- Ol - Olivine
- f? - Possible fault
- ↔ - Sheared rocks

**NOTES**

Samples containing a metal whose concentration exceeds the value listed below are shaded and that metal is noted beside the sample interval.

Au ..... 30ppb  
 Pt ..... 30ppb  
 Cr<sub>2</sub>O<sub>3</sub>.. 0.3%  
 Cu ..... 500ppm  
 Ni ..... 600ppm  
 Co ..... 120ppm

See Fig. 3-2 for drillhole locations.

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 Doc #092838 (130)

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Fig. 5.6 Vertical Section through Drillholes 89-9 and 89-10.

APPENDIX 1: LITHOLOGICAL LOGS FOR DIAMOND DRILLHOLES  
AND ANALYSES OF SAMPLES

89-1 .....	A2
89-2 .....	A6
89-3 .....	A8
89-4 .....	A11
89-6 .....	A13
89-8 .....	A15
89-9 .....	A17
89-10 .....	A18

Company: Nathan Minerals Inc.  
 Drillhole: 89-1  
 Azimuth: 211°  
 Inclination: -55° at collar  
 Length: 131.67 m  
 Core recovered: 90.95 m, 78.9%  
 Core size: NQ  
 Downhole logs: none run

Property: Burwash Creek, Yukon  
 Location: north of Golden Gopher Slope,  
 claim EL 46  
 Coordinates: Gopher Grid: 0794N, 2880W  
 Elevation: 1085 m (from 1:5000 topo map)  
 Drilled: 1989 10 12 to 16  
 Drilled by Kluane Drilling Ltd.  
 Logged and sampled by T. Yawnghwe

Purpose: To determine the cause of GENIE anomaly M. Hole 89-1 was spotted near the eastern end of anomaly M, just off the main access trail to the Burwash Uplands.

Note: Analyses of core samples from 46.63-61.26 m are tabulated at the end of this log.

Metrage	Interval	Description
0- 16.46	16.46	<u>Overburden</u> to 15.85 m; cased to 16.46 m
16.46- 18.39	1.93	<u>Andesite Flow</u> , brownish-green, weathered and oxidized
18.39- 25.91	6.52	<u>Andesite Tuff</u> 18.39-21.03 m greenish-grey, interbedded with thin flows, mafic clasts 1-5 mm, flow contact at 45°CA with zones of fine calcite veins 18.39-18.54 m flow with calcite veins at 45°CA 19.66-19.96 m flow contact at 50°CA 19.96-21.03 m fractured 21.03-25.91 m light-green-grey, subrounded and subangular mafic clasts 2-5 mm, few 15-20 mm 21.09-21.33 m calcite vein parallel to bedding(?) at 30°CA, minor fine calcite veins throughout
25.91- 46.63	20.72	<u>Andesite Flows</u> , greenish-green, minor tuffaceous interbeds, few fine calcite veins throughout 27.14-27.43 m flow contact and calcite veins subparallel at 17°CA, banded 27.43-32.92 m fractured, sheared, partly altered to greenish clay 32.92-33.22 m quartz vein at 17°CA 33.22-34.44 m clayey altered zones 34.93-35.36 m quartz vein, upper contact 70°CA, lower 20°CA

Company: Nathan Minerals Inc.  
Drillhole: 89-1

Property: Burwash Creek, Yukon  
Page: 2

Metrage	Interval	Description
		35.36-35.81 m and 35.96-36.88 m clayey alteration
		38.51-38.84 m bedded mafic tuff at 40 <sup>o</sup> CA
		41.00-44.68 m calcite veins and blebs to 1-2 mm
46.63- 48.16	1.53	<u>Graphite</u> , black, carbonaceous, soft, clayey, altered (?), bedded at 60 <sup>o</sup> CA
48.16- 48.87	0.71	<u>Andesite Tuff</u> , greenish-grey, bedded(?) at 50 <sup>o</sup> CA
48.87- 50.75	1.88	<u>Dacitic and Andesitic Tuff</u> 48.87-49.17 m light-green-grey dacitic, altered clayey 49.17-49.68 m medium-greenish-grey andesitic, bedded(?) at 60 <sup>o</sup> -65 <sup>o</sup> CA 49.68-49.80 m dacitic as above 49.80-50.65 m andesitic as above 50.65-50.75 m dacitic as above
50.75- 55.17	4.42	<u>Andesite Flow</u> , greyish-green, generally massive, minor bedded tuffs at 45 <sup>o</sup> -50 <sup>o</sup> CA
55.17- 56.24	1.07	<u>Andesite Tuff(?)</u> , green, chloritic, altered, soft, clayey, schistose, schistosity/bedding(?) at 30 <sup>o</sup> CA
56.24- 57.15	0.91	<u>Andesite Flow</u> , greenish-grey, massive, calcite veins subparallel to CA at contact
57.15- 57.45	0.30	<u>Andesite Tuff</u> , bedding (?) at 55 <sup>o</sup> CA
57.45- 72.08	14.63	<u>Andesite Flows</u> 57.45-61.57 m dark-greyish-green, minor tuff interbeds 61.57-72.08 m dark- to medium-greyish-green, massive, minor calcite veins to 66.75 m and then increasing to 71.32 m at 45 <sup>o</sup> -90 <sup>o</sup> CA
72.08- 81.08	9.00	<u>Gabbro?</u> , dark-greenish-green, massive, granular, partly altered and crumbly 80.90-81.08 m chilled contact zone(?)
81.08- 90.37	9.29	<u>Dacite Tuff</u> , light-greyish 81.08-86.04 m clastic, cryptocrystalline greyish siliceous fragments and clasts 2-3 mm, few to 10-20 mm 82.26 m mafic tuff interbed at 55 <sup>o</sup> CA

Company: Nathan Minerals Inc.  
Drillhole: 89-1

Property: Burwash Creek, Yukon  
Page: 3

Metrage	Interval	Description
		82.90 m brecciated graphitic banding at 65 <sup>o</sup> CA
		86.47-90.37 m siliceous, cryptocrystalline
		88.24 m calcite veins at 25 <sup>o</sup> CA
		90.00-90.37 m indurated contact zone
90.37- 92.35	1.98	<u>Porphyritic Dacite</u> , fine-grained greenish-grey matrix with whitish to pinkish feldspar phenocrysts, chilled contacts at 65 <sup>o</sup> CA
92.35- 111.10	18.75	<u>Andesite</u> , greenish-grey agglomerates and minor tuff
111.10- 113.39	2.29	<u>Diorite(?)</u> , fine-grained, lower contact grading to tuff
113.39- 122.83	10.56	<u>Andesite Flow</u> , greyish-green, massive, locally agglomeratic
122.83- 126.47	3.66	<u>Diorite(?)</u> , greyish, very fine to fine-grained, chilled(?) lower contact 124.70-125.12 m quartz vein at 45 <sup>o</sup> CA
126.47- 131.06	4.59	<u>Andesite Flow</u> , greenish-grey, partly gabbroic(?)
131.06- 131.67	0.61	<u>Diorite(?)</u> , as 122.83-126.47 m 130.15-130.67 m altered and brecciated
131.67	-	End of hole

CORE SAMPLES AND ANALYSES FROM DRILLHOLE 89-1

Interval (m)	Sample	Au (ppb)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)	Ni (ppm)
46.63-48.16	6451	46	0.8	44	7	64	21	42
48.16-49.38	7831	135	0.3	103	3	79	4	33
49.38-50.29	7908	34	0.5	93	8	46	4	19
50.29-50.75	7909	83	0.3	56	11	38	5	33
50.75-52.27	7832	345	0.4	63	1	35	3	72
52.27-52.73	7910	25	0.1	99	4	48	4	21
52.73-53.64	7911	27	<0.1	82	7	48	3	24
53.64-54.56	7912	35	<0.1	50	6	47	4	23
54.56-55.47	7913	34	0.3	58	8	41	3	25
55.47-56.39	7833	346	0.2	25	1	73	3	15
56.39-57.30	7914	28	0.2	48	6	57	4	20
57.30-57.76	7834	1025	0.4	75	2	51	3	67
57.76-58.52	7915	16	<0.1	190	5	36	4	24
58.52-59.44	7916	15	0.1	117	3	29	4	26
59.44-60.35	7917	58	0.1	159	2	41	2	21
60.35-61.26	7918	43	<0.1	132	4	58	4	37

## CORE RECOVERY FOR DRILLHOLE 89-1

Interval (m)	Recovery (m)	Remarks	Interval (m)	Recovery (m)	Remarks
16.46-17.98	0.76	fractured, broken	80.47-81.08	0.55	massive
17.98-18.68	0.52	blocky	81.08-81.53	0.38	
18.68-19.51	0.41	fractured, broken	81.53-83.82	1.37	
19.51-19.81	0.24	blocky	83.82-84.73	0.82	broken
19.81-21.03	0.37	fractured, broken	84.73-86.87	1.50	fractured, blocky
21.03-25.76	4.26		86.87-87.02	0.07	
25.76-25.91	0.07	broken, fractured	87.02-88.09	0.75	blocky, fractured
25.91-26.62	0.57	blocky	88.09-89.92	0.91	fractured
26.62-27.04	0.25	broken, fractured	89.92-92.20	2.28	
27.04-27.39	0.31		92.20-92.96	0.46	broken, fractured
27.39-32.84	2.72	fractured	92.96-93.88	0.83	
32.84-33.22	0.38		93.88-94.18	0.15	broken, fractured
33.22-34.44	0.61	fractured, broken, clayey zones	94.18-95.01	0.70	broken
34.44-45.72	10.72		95.01-98.76	2.25	broken, fractured
45.72-46.63	0.45	fractured	98.76-100.58	0.73	clayey
46.63-48.16	1.22		100.58-101.49	0.64	fractured, broken
48.16-55.47	5.85	blocky, fractured at 50.9, 52.4, 55.47 m	101.49-102.71	0.61	fractured, broken
55.47-57.30	1.65		102.71-103.32	0.24	clayey
57.30-58.06	0.76		103.32-104.24	0.69	broken
58.06-61.57	2.46	blocky, broken	104.24-115.82	11.58	
61.57-69.80	6.58	blocky, fractured zone 63.70-64.46 m	115.82-116.13	0.19	broken, fractured
69.80-71.02	0.85	blocky	116.13-120.70	4.35	
71.02-72.09	0.97	blocky	120.70-121.00	0.18	broken, fractured
72.09-73.15	0.64	broken, fractured	121.00-123.13	2.02	
73.15-75.74	2.07	blocky	123.13-124.05	0.55	broken, fractured
75.74-77.72	1.39	blocky, fractured	124.05-124.97	0.87	
77.72-78.49	0.73	blocky	124.97-125.88	0.73	broken
78.49-79.25	0.53	blocky, fractured	125.88-126.19	0.15	fractured, broken
79.25-80.16	0.91		126.19-129.24	3.05	
80.16-80.47	0.19	blocky, fractured	129.24-129.54	0.18	broken, fractured
			129.54-130.45	0.82	
			130.45-131.67	0.91	fractured at 131.37 m

90.95

$$\text{Recovery} = \frac{90.95}{131.67-16.46} \times 100 = 78.9\%$$

Company: Nathan Minerals Inc.  
 Drillhole: 89-2  
 Azimuth: 225°  
 Inclination: -47° at collar  
 Length: 44.20 m  
 Core recovered: <2.10 m; <4.8%  
 Core size: NQ  
 Downhole logs: none run

Property: Burwash Creek, Yukon  
 Location: on Golden Gopher Slope, claim EL 48  
 Coordinates: Gopher Grid: 0390N, 2930W  
 Elevation: 1109 m (from 1:5000 topo map)  
 Drilled: 1989 10 17 to 18  
 Drilled by Kluane Drilling Ltd.  
 Logged and sampled by T. Yawnghwe

Purpose: To test the lead and gold anomalous concentrations in soils on geochemical soil traverse 50.

Note: Drillhole 89-2 was abandoned at 44.20 m when the drill could not advance because of sloughing and caving ground, accompanied by no core recovery. Analyses of sludge samples from 41.15-44.20 m are tabulated at the end of this log.

Metrage	Interval	Description
0- 10.06	10.06	<u>Tuff</u> , grey to dark-grey, very hard, siliceous, fragments only some abraded round, (rhyolite?)
10.06- 10.67	0.61	<u>Rhyolitic(?) Tuff</u> , greyish, siliceous, cryptocrystalline, sheared and brecciated
10.67- 11.89(?)	1.22	<u>Black Tuff</u> , vitreous, very hard, siliceous, glassy, cleaved fragments only
11.89(?) - 12.19(?)	0.33	<u>Limestone</u> , grey, argillaceous, bedding contact at about 80°CA
12.19- 42.37	30.18	<u>Black Tuff</u> , very hard, siliceous, glassy as 10.67-11.88 m, cleaved fragments only
42.37- 44.20	1.83	<u>Black Tuff?</u> (no recovery)
44.20	-	End of hole

#### SLUDGE SAMPLES AND ANALYSES FROM DRILLHOLE 89-2

Interval (m)	Sample	Au (ppb)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)	Ni (ppm)
41.15-42.67	6452	34	0.1	72	14	33	3	25
42.67-44.20	6453	11	0.4	110	30	76	5	52

## CORE RECOVERY FOR DRILLHOLE 89-2

Interval (m)	Recovery (m)	Interval (m)	Recovery (m)	Interval (m)	Recovery (m)
0 -10.06	<0.50	17.07-19.02	0	34.14-34.75	0.06
10.06-10.67	<0.15	19.02-20.12	<0.11	34.75-36.58	<0.09
10.67-12.19	0.15	20.12-26.21	0	36.58-41.15	0
12.19-13.41	<0.06	26.21-29.26	<0.15	41.15-42.37	0.24
13.41-14.46	0.05	29.26-32.31	0.15	42.37-42.67	0.21
14.46-16.46	0	32.31-32.92	0.12	42.67-43.38	0
16.46-17.07	0	32.92-34.14	0.06		
					<2.10

$$\text{Recovery} = \frac{<2.10}{44.20} \times 100 = <4.8\%$$

Company: Nathan Minerals Inc.  
 Drillhole: 89-3  
 Azimuth: n/a  
 Inclination: -90° at collar  
 Length: 46.33 m  
 Core recovered: <10.65 m; <23.0%  
 Core size: NQ  
 Downhole logs: none run

Property: Burwash Creek, Yukon  
 Location: on Golden Gopher Slope claim EL 48  
 Coordinates: Gopher Grid: 0390N, 2930 W  
 Elevation 1109 m (from 1:5000 topo map)  
 Drilled: 1989 10 18 to 19  
 Drilled by Kluane Drilling Ltd.  
 Logged and sampled by T. Yawnghwe

Purpose: To attempt to get better core recovery of the Gopher Member.

Note: Analyses of core samples from 22.56-46.33 m and of sludge samples from 0.46.33 m are tabulated at the end of this log.

Metrage	Interval	Description
0- 9.75	9.75	<u>Tuff</u> , greyish, siliceous, very hard, brecciated and sheared
9.75- 15.58	5.83	<u>Black Tuff</u> , dark-grey to black, very hard, siliceous, cleavage fragments and abraded and subrounded core fragments
15.58- 17.37	1.79	<u>Tuff</u> , greyish, siliceous, very hard, brecciated and sheared
17.37- 18.90	1.53	(no recovery)
18.90- 24.84	5.94	<u>Black Tuff</u> , vitreous, glassy vitreous shards (slaty-carbonaceous?), very hard
24.84- 25.15	0.31	<u>Limestone</u> , grey, argillaceous, bedding contacts at about 40°C
25.15- 41.67	16.52	<u>Black Tuff</u> , vitreous, as 18.90-24.84 m
41.67- 46.33	4.66	<u>Black Tuff</u> , dark-grey to grey, slightly calcareous locally, very hard, abundant quartz veins, 1-2% disseminated pyrite throughout
46.44	-	End of hole

## SAMPLES AND ANALYSES FROM DRILLHOLE 89-3

Interval (m)	Sample	Au (ppb)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)	Ni (ppm)
<u>Core</u>								
22.56-23.47	6691	33	0.7	81	27	110	4	51
24.23-24.84	6692	39	0.8	80	9	29	4	84
24.84-25.15	6693	35	0.4	51	22	127	10	87
25.15-25.45	6694	16	0.2	48	6	31	5	44
28.04-29.57	6823	93	0.6	68	30	93	10	62
29.57-31.09	6824	81	0.5	43	11	75	4	43
31.09-32.61	6825	76	0.5	64	9	71	3	46
41.76-42.37	6695	11	0.3	53	6	17	3	73
42.37-44.81	6696	<10	0.7	65	6	30	2	105
44.81-46.33	6697	18	0.5	63	6	26	2	97
<u>Sludge</u>								
0 -6.71	6454	37	0.1	79	81	201	2	68
6.71- 8.23	6455	47	0.1	106	21	36	2	20
8.23- 9.75	6456	67	0.2	187	51	283	2	23
9.75-11.28	6457	44	0.3	97	12	31	3	23
11.28-12.80	6458	31	0.3	98	5	15	2	30
12.80-14.33	6459	54	0.1	46	7	82	3	69
14.33-15.85	6460	35	0.1	116	6	23	3	28
15.85-17.37	6461	50	0.2	48	5	64	3	33
17.37-18.90	6462	47	0.2	50	4	49	2	33
18.90-20.42	6463	52	0.3	48	5	38	2	56
20.42-21.95	6464	47	0.1	55	9	47	3	43
21.95-23.47	6465	15	0.2	37	7	47	1	36
23.47-24.99	6466	30	0.3	70	9	69	3	52
24.99-26.52	6467	27	0.7	65	6	45	1	95
26.52-28.04	6468	45	0.5	110	43	66	4	72
28.04-29.57	6469	44	0.5	35	7	44	3	45
29.57-31.09	6470	97	0.5	27	5	40	3	46
31.09-32.61	6471	73	0.2	63	11	52	3	47
32.61-34.14	6472	17	0.3	28	13	36	3	42
34.14-35.66	6473	29	0.4	55	6	46	4	73
35.66-37.19	6474	29	0.5	68	15	34	2	89
37.19-38.71	6475	21	0.4	49	5	59	2	40
38.71-40.23	6726	31	0.4	21	8	28	4	44
40.23-41.76	6727	24	0.4	28	12	40	2	47
41.76-43.28	6728	35	0.5	62	19	81	3	53
43.28-44.81	6729	32	0.1	24	6	33	3	42
44.18-46.33	6730	27	0.1	26	7	43	2	51

## CORE RECOVERY FOR DRILLHOLE 89-3

Interval (m)	Recovery (m)	Interval (m)	Recovery (m)	Interval (m)	Recovery (m)
0 - 8.28	0.41	24.54-25.15	0.61	37.19-38.71	<0.30
8.28- 9.14	0.60	25.15-26.52	0.68	38.71-40.23	0.30
9.14- 9.75	0	26.52-28.04	0	40.23-41.76	<0.31
9.75-14.33	0.05	28.04-29.57	0.92	41.76-42.37	0.30
14.33-15.58	0.12	29.57-31.09	0.46	42.37-43.28	0.27
15.58-17.37	<0.09	31.09-32.61	0.61	43.28-44.81	<0.08
17.37-18.90	0	32.61-34.14	0.46	44.81-46.33	0.61
18.90-21.95	1.52	34.14-35.66	0.30		
21.95-24.54	1.04	35.66-37.19	0.61		
					<hr/>
					<10.65

$$\text{Recovery} = \frac{<10.65}{46.33} \times 100 = <23.0\%$$

Company: Nathan Minerals Inc.  
 Drillhole: 89-4  
 Azimuth: 225°  
 Inclination: -48° at collar  
 Length: 47.09 m  
 Core recovered: estimated 5-40%  
 Core size: NQ  
 Downhole logs: none run

Property: Burwash Creek, Yukon  
 Location: west of Golden Gopher Slope  
 Claim EL 47  
 Coordinates: 15 m E of Line L at 0207N  
 Elevation: 1152 m (from 1:5000 topo map)  
 Drilled: 1989 10 20 to 23  
 Drilled by Kluane Drilling Ltd.  
 Logged and sampled by T. Yawnghwe

Purpose: To determine the cause of GENIE anomaly L on Line L. Drillhole 89-4 was abandoned at 47.09 m because of problems with overburden; casing came apart at 7.92 m and even with H casing over break, the bit kept hanging up at 7.92 m.

Note: Analyses of core samples from 27.43-47.09 m and of sludge samples from 6.10-27.43 m are tabulated at the end of this log.

Metrage	Interval	Description
0- 27.43	27.43	<u>Overburden</u> , boulder till; casing to 18.59 m
27.43- 47.09	19.66	<u>Black Tuff</u> , dark-grey to black, massive, very hard, siliceous, locally oxidized 27.43-42.70 m 1-5% pyrite in veins 42.70-47.09 m 1-2% finely disseminated pyrite with some in blebs to 3-4 mm
47.09	-	End of hole

#### SAMPLES AND ANALYSES FROM DRILLHOLE 89-4

Interval (m)	Sample	Au (ppb)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)	Ni (ppm)
<u>Sludge</u>								
6.10- 7.62	6913	31	<0.1	425	22	76	5	98
7.62- 9.14	6914	32	0.1	46	7	56	4	48
9.14-10.67	6915	48	0.1	25	1	41	4	51
10.67-12.19	6916	37	0.1	27	7	42	3	42
12.19-13.72	6917	34	<0.1	48	3	45	5	64
18.29-21.34	6918	198	2.3	70	42	270	8	78
21.34-24.38	6919	45	1.5	46	5	48	3	59
24.38-27.43	6920	74	1.7	46	3	144	7	67

## CORE SAMPLES AND ANALYSES FROM DRILLHOLE 89-4 (CONT.)

Internal (m)	Sample	Au (ppb)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)	Ni (ppm)
<u>Core</u>								
27.43-28.65	6698	<10	0.7	40	6	47	1	32
28.65-29.87	6699	18	0.7	95	6	43	2	30
29.87-31.09	6700	<10	0.6	52	8	59	3	41
31.09-32.00	6898	<10	0.3	40	5	44	3	26
32.00-33.71	6899	626	0.8	41	6	42	5	27
33.71-35.36	6900	14	0.5	32	6	42	3	19
35.36-36.88	6731	<10	0.4	26	6	48	3	25
36.88-38.40	6732	<10	0.4	45	6	55	2	35
38.40-39.93	6733	10	0.6	54	6	71	3	46
39.93-41.45	6734	10	0.9	93	6	133	2	101
41.45-42.98	6735	13	0.7	52	7	192	15	182
42.98-44.50	6736	14	0.5	38	9	251	3	275
44.50-46.02	6737	10	0.6	40	8	233	4	281
46.02-47.09	6738	15	0.6	38	6	240	4	256

Company: Nathan Minerals Inc.

Drillhole: 89-6

Azimuth: 211<sup>0</sup>Inclination: -70<sup>0</sup> at collar

Length: 66.14 m

Core recovered: 5 to 40% estimated

Core size: NQ

Downhole logs: none run

Property: Burwash Creek, Yukon

Location: east of Frying Pan Lake  
claim EL 36

Coordinates: Gopher Grid: 0830N, 3800W

Elevation: 1205 m (from 1:5000 topo map)

Drilled: 1989 10 28 to 31

Drilled by Kluane Drilling Ltd.

Logged and sampled by T. Yawnghwe

Purpose: To test GENIE anomaly M toward its western end.

Note: Analyses of core samples are tabulated at the end of this log.

0-	28.65	<u>Overburden</u>
28.65		0-14.33 m boulder till 14.33-28.65 m sand, minor gravel
28.65- 30.78	2.13	<u>Bedrock(?)</u> , triconed, not cored; NW casing to 30.78 m
30.78- 37.49	6.71	<u>Graphite Zone</u> , black, carbonaceous, soft, crumbly, altered, clayey, fault(?) zone
37.49- 37.80	0.31	<u>Quartz-Epidote</u> , finely disseminated pyrite
37.80- 41.76	3.96	<u>Acidic Dyke, intrusion(?)</u> , greyish-brown, finely crystalline, hard and compact where not cut by quartz veins and carrying disseminated pyrite 37.80-37.95 m brecciated with graphitic fragments
41.76- 42.67	0.91	<u>Graphitic Zone</u> , brecciated, with quartz veins
42.67- 43.28	0.61	<u>Dacite(?) or Welded Tuff(?)</u> , greyish, compact, cut by fine quartz-calcite veins
43.28- 51.82	8.54	<u>Graphitic Zone</u> , black, carbonaceous, more or less altered to soft clayey mass with some greenish alteration, faulted(?)
51.82- 52.43	0.61	<u>Gabbro(?)</u> , greenish, fine crystalline texture with chill zone 52.12-52.43 m altered clayey zone with minor quartz veins
52.43- 54.56	2.13	<u>Graphitic-Gabbro Zone</u> , brecciated, perhaps graphite layer intruded by gabbro
54.56- 61.42	6.86	<u>Andesite(?)</u> , greyish-green, massive, some coarsening to gabbroic texture 61.11-61.42 m fine quartz-pyrite veins
61.42- 62.18	0.76	<u>Graphitic Zone</u> , black, carbonaceous, altered to soft clayey material, brecciated-fault(?) zone with greenish clayey altered gabbro(?)
62.18- 66.14	3.96	<u>Gabbro</u> , greenish, finely crystalline with broken, altered soft clayey sections 62.18-63.70 m brecciated 64.31-66.14 m minor quartz veins, no sulfide
66.14	-	End of hole

## CORE SAMPLES AND ANALYSES FROM DRILLHOLE 89-6

Interval (m)	Sample	Au (ppb)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)	Ni (ppm)
37.49-37.80	6801	<10	<0.1	31	<1	29	18	32
37.80-39.32	6802	22	0.9	75	2	33	43	69
39.93-40.54	6803	13	<0.1	60	1	34	22	87
40.54-41.45	6804	19	<0.1	56	2	52	14	55
42.67-43.28	6805	24	0.2	65	1	17	2	180
46.94-47.24	6806	25	0.8	58	2	927	12	116
48.77-50.29	6820	17	1.3	70	9	189	23	57
50.29-51.82	6821	23	1.4	111	10	280	28	77
50.90-51.51	6807	18	0.1	92	3	132	7	76
51.82-53.34	6822	27	1.4	99	12	240	32	66
52.12-52.43	6808	<10	<0.1	74	<1	14	3	103
61.11-61.42	6810	18	0.4	109	<1	28	2	124
61.42-62.18	6809	188	0.3	111	2	22	3	78
62.18-63.70	6811	27	0.1	73	<1	28	<1	272

## NOTES ON CORE RECOVERY

Interval (m)	Remarks
39.32-39.93	little or no core recovered
41.45-42.67	little or no core recovered
43.28-46.94	little or no core recovered
47.24-48.77	little or no core recovered

Company: Nathan Minerals Inc.  
 Drillhole: 89-8  
 Azimuth: 210°  
 Inclination: -70° at collar  
 Length: 82.91 m  
 Core recovered: 5-40% estimated  
 Core size: NQ  
 Downhole logs: none run

Property: Burwash Creek, Yukon  
 Location: east of Frying Pan Lake  
 claim EL 37  
 Coordinates: Gopher Grid: 0660N, 4000W  
 Elevation: 1202 m (from 1:5000 topo map)  
 Drilled: 1989 11 05 to 08  
 Drilled by Kluane Drilling Ltd.  
 Logged and sampled by T. Yawnghwe

Purpose: To test a GENIE anomaly at 0625N with a strike length of some 200 m

Note: Analyses of core and sludge samples are tabulated at the end of this log.

Metrage	Interval	Description
0- 37.19	37.19	<u>Overburden</u> , boulder till, silt and gravel
37.19- 43.89	6.70	<u>Graphitic and Acidic Tuffs</u> , interbedded black graphite bands and light-grey siliceous acidic tuff, minor chloritic andesite, bedding and banding at 75°-80°CA, 1-3% pyrite in veins and disseminations
43.89- 47.55	3.66	<u>Graphite Zone</u> , massively bedded(?), contacts and bedding obliterated, crumpled and broken
47.55- 48.62	1.07	<u>Graphitic and Acidic Tuffs</u> , interbedded as 37.19-43.89 m
48.62- 53.49	4.87	<u>Andesite</u> , green, tuffaceous, gabbroic(?) in part 48.92-49.23, 49.53-49.83, 50.44-50.60, 51.21-51.82, 52.43-53.49 m black graphitic interbeds at 85°-90°CA
53.49- 56.39	2.90	<u>Gabbro</u> , green, massive, fine- to medium-grained, sill(?), minor calcite veins
56.39- 60.05	3.66	<u>Latite(?) Porphyry</u> , light-grey, fine-grained to aphanitic, whitish plagioclase(?) phenocrysts 1-3 mm in size
60.05 64.47	4.42	<u>Gabbro</u> , green, massive 61.87-62.48 m brecciated with some quartz veins, contact at 45°CA
64.47- 69.80	5.33	<u>Graphitic Zone</u> , black, carbonaceous, sheared and crushed, contacts obliterated, some quartz veins
69.80- 71.63	1.83	<u>Calcareous Graphite</u> , black to coal-grey, marly, fine calcite veins at 80°CA
71.63- 82.91	11.28	<u>Gabbro</u> , green, medium- to fine-grained, generally massive
82.91	-	End of hole

SAMPLES AND ANALYSES FROM DRILLHOLE 89-8

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Interval (m)	Sample	Au (ppb)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	Mo (ppm)	Ni (ppm)
<b>Core</b>								
37.19-39.01	7835	260	1.1	28	7	61	7	27
39.01-40.23	7836	203	1.2	36	6	108	5	74
40.23-41.76	7837	104	1.9	46	8	80	10	50
41.76-43.28	7838	33	0.9	98	7	85	4	50
43.28-43.89	7839	21	0.3	70	1	88	7	131
43.89-44.81	7840	131	0.5	95	4	156	13	152
44.81-46.33	7841	31	0.4	77	6	221	6	65
68.58-69.49	7842	42	3.0	50	3	325	61	59
70.10-71.63	7843	48	1.5	53	1	307	38	43
<b>Sludge</b>								
27.74-28.65	7844	33	0.1	24	<1	43	3	41
28.65-29.57	7845	<10	<0.1	48	8	50	5	43
30.78-31.70	7846	26	<0.1	89	6	86	5	58
31.70-32.61	7847	43	0.3	194	15	143	11	96
32.61-33.53	7848	39	0.1	57	<1	52	8	44
33.53-34.44	7849	47	0.3	82	3	67	10	57
34.44-35.36	7850	161	0.1	61	1	56	7	47
35.36-36.27	7851	28	0.2	47	<1	68	7	53
36.27-37.19	7852	38	0.2	37	2	68	5	30
37.19-38.10	7853	43	0.1	56	2	66	6	39
38.10-39.01	7854	85	0.3	43	1	103	9	65
39.01-39.93	7855	57	0.3	86	15	92	10	67
39.93-40.84	7856	28	0.4	68	9	101	18	83
40.84-41.76	7857	35	0.9	56	9	93	9	58
41.76-43.28	7858	48	0.5	69	12	78	10	49
43.28-44.20	7859	50	<0.1	87	12	102	8	89
44.20-45.11	7860	30	0.4	94	8	116	7	74
45.11-46.33	7861	12	0.6	90	11	111	10	76
46.33-47.85	7862	23	0.8	91	10	135	9	48
47.85-49.38	7863	24	<0.1	78	10	84	10	67
50.90-52.43	7864	<10	0.2	95	10	116	14	89
52.43-53.95	7865	15	0.5	93	14	144	15	66
53.95-55.47	7866	<10	0.2	91	11	84	10	89
55.47-57.00	7867	20	0.1	87	13	92	12	49
57.00-58.52	7868	23	0.3	74	8	94	7	63
58.52-60.05	7869	33	0.1	75	11	91	8	49
60.05-61.57	7869b	10	<0.1	90	9	61	3	180
61.57-63.09	7870	<10	<0.1	90	9	79	9	92
63.09-64.62	7871	59	0.1	156	9	138	20	72
64.62-65.53	7872	<10	1.0	137	12	233	32	63
65.53-66.44	7873b	28	1.0	132	16	248	42	57
66.44-67.67	7873	<10	1.9	135	15	333	65	64
67.67-69.19	7874	19	3.2	116	14	415	57	71
69.19-70.71	7875	244	3.2	103	15	443	55	72
70.71-72.24	7876	45	2.3	77	8	236	31	53
72.24-73.76	7877	34	2.5	87	12	324	31	60
73.76-75.29	7878	26	2.7	121	14	349	38	65
75.29-76.81	7879	38	3.9	193	27	548	58	123
76.81-78.33	7880	69	1.3	106	9	198	21	55
78.33-79.86	7881	29	1.2	115	5	191	23	78

Company: Nathan Minerals Inc.  
 Drillhole: 89-9  
 Azimuth: n/a  
 Inclination: -90 at collar  
 Length: 72.54 m  
 Core recovered: n/a  
 Core size: n/a  
 Downhole logs: none run

Property: Burwash Creek, Yukon  
 Location: Burwash Uplands near Lake One;  
 claim SUE 2  
 Coordinates: 760S along Sue Trench, 42 m E of  
 claim location line  
 Elevation: 1350 m (from 1:5000 topo map)  
 Drilled: 1989 11 16 to 23  
 Drilled by Klwane Drilling Ltd.  
 Logged by T. Yawnghwe

Purpose: To test the anomalous concentrations of platinum obtained in the percussion drilling along the Sue Trench in 1987.

Note: Drillhole 89-9 was abandoned at 72.54 m because of caving and sloughing overburden which prevented attempting to drill deeper. No samples from this hole were collected.

Metrage	Interval	Description
0- 72.54	72.54	<u>Overburden</u> , boulder till
72.54	-	End of hole

Company: Nathan Minerals Inc.  
 Drillhole: 89-10  
 Azimuth: n/a  
 Inclination:  $-90^{\circ}$  at collar  
 Length: 79.25 m  
 Core Recovery: 34.55 m; 63.0%  
 Core size: NQ  
 Downhole logs: none run

Property: Burwash Creek, Yukon  
 Location: Burwash Uplands near Lake One  
 Coordinates: 630S along Sue Trench, 15 m W  
 of claim location line  
 Elevation: 1350 m (from 1:5000 topo map)  
 Drilled: 89 11 23 to 89 11 26  
 Drilled by Kluane Drilling Ltd.  
 Logged by J. Gorham

Purpose: To test the anomalous concentrations of platinum in peridotite indicated by the percussion drilling in 1987, and to obtain stratigraphic and thickness information on the peridotite intrusion.

Note: Drillhole 89-10 was abandoned at 79.25 m because of caving serpentine which prevented attempting to drill deeper. Lost core can be assigned only to each drill run because much of the peridotite body is altered to serpentine, which results in poorly consolidated core.

Metrage	Interval	Description
0- 24.38	24.38	<u>Overburden</u> , boulder till, gravel; mainly fragments of fine-grained granodiorite, some peridotite, and gabbro; contact between overburden and underlying serpentinite uncertain due to poorly consolidated serpentinite and low core recovery
24.38- 27.13	2.75	<u>Serpentinite</u> , olive-green to brownish-green with a few light-grey-green partings to 1 cm, mainly very soft, friable to plastic and poorly consolidated, 30-70% yellowish-green flaky serpentine with 30-70% rounded to subangular grains ( $\frac{1}{4}$ -5 mm) of dark-grey to grey-brown or greenish-brown peridotite composed of fresh subhedral pyroxene and partly altered anhedral equant olivine and black subangular magnetite; some parts harder and better consolidated, but consisting of some rounded granules of peridotite in partly cemented serpentine matrix which will soften and disintegrate in water, some serpentine actually pseudomorphous after olivine and pyroxene, but magnetite remains unaltered (up to 10% of rock in places)  25.91-26.17 m soft, plastic dark-olive-green clay with 2-10% peridotite granules - possibly fault gouge
27.13- 33.22	6.09	<u>Serpentinite</u> , greenish-grey to brownish-green, lithologically similar to previous unit but harder - still can be disaggregated by soaking in water - granules of peridotite surrounded by light-green serpentine forming harder sections cut by fine network of braided fractures some with slickensides coated in rusty yellowish to brownish-green serpentine; abundant shearing and slickensides preserved in harder pieces  29.87-30.28 m solid core consisting of round to subround clasts of partly serpentinitized peridotite up to 5 cm across in soft darker-green serpentine and granular peridotite matrix, cataclastic texture as clasts appear rotated and crushed at the edges, several clasts with braided calcite veinlets cut off by serpentine seams at their margins

Company: Nathan Minerals Inc.  
Drillhole: 89-10

Property: Burwash Creek, Yukon  
Page: 2

Metrage	Interval	Description
		30.78-32.03 m more indurated, slightly calcareous, with 1-2% irregular white blebs of calcite to 1 cm
		32.03-33.22 m softer, darker-green than above, not calcareous becoming harder at base, with some slickensides with traces of asbestos
33.22-35.36	2.14	<u>Peridotite</u> , moderately hard, dark-grey, dark-greenish-grey and greyish-green, fine-grained, hypidiomorphic granular, showing cumulate texture in patches: 30-50% olivine, 30-50% pyroxene with some bronzite, 1-5% pyrite and magnetite, partly altered in patches up to 10 cm and along fractures (some with slickensides) to serpentine, in places pseudomorphous after olivine and pyroxene
		34.44-35.36 m black shiny slickensides very abundant, core blocky and fractured
35.36-36.12	0.76	<u>Fault Gouge</u> , grey-green to rusty-olive-green, angular to rounded fragments of partly altered peridotite to 2 cm, in matrix of rusty serpentine and rounded peridotite granules, slickensides abundant, basal 20 cm almost completely serpentinized
36.12-42.06	5.94	<u>Peridotite</u> , similar to 33.22-35.36 m, abundant slickensides 36.12-41.60 m 4.05 m lost core - blocky, broken and rounded especially 38.1-40.2 m (2.00 m lost in 2.15 m drilled), probably due to serpentinization
42.06-42.37	0.31	<u>Serpentinite</u> , similar to 27.13-33.22 m possibly a fault, grades in and out of peridotite
42.37-42.67	0.30	<u>Peridotite</u> , as in 36.12-42.06 m 42.52-42.67 m sheared, with abundant slickensides and serpentinization
42.67-43.59	0.92	<u>Olivine Gabbro</u> , dark-grey to grey-green, fine-grained, hard, holocrystalline, hypidiomorphic granular, 60-70% pyroxene (2 kinds - mainly black lath-shaped (ortho?) and 2-10% bronzite), 10-30% white partly albitized feldspar, 2-10% light-green to clear rounded granular partly serpentinized olivine, minor magnetite and/or other oxides, 2-5% disseminated pyrite; olivine decreases and feldspar increases downhole; unit is gradation between overlying peridotite and underlying gabbro; minor veinlets and blebs of white calcite, some serpentine alteration along fractures (some with slickensides) some silicification and epidote alteration along these fractures

Company: Nathan Minerals Inc.  
Drillhole: 89-10

Property: Burwash Creek, Yukon  
Page: 3

Metrage	Interval	Description
43.59- 46.33	2.74	<u>Gabbro</u> , grey to grey-green, fine-grained, fairly hard, hypidiomorphic granular, 50-60% black to green (chloritized) pyroxene, 30-50% white probably albitized feldspar, 5-10% olivine near top of unit in patches, 10-20% chlorite as groundmass, 1-5% disseminated pyrite, trace magnetite; fractures with slickensides many coated with serpentine and calcite, blebs and stringers of white calcite up to 5% of rock locally 45.26 m becoming increasingly fractured 46.02-46.33 m about 80% alteration to serpentine with relict granules of gabbro, soft and unconsolidated
46.33- 47.75	1.42	<u>Breccia</u> , gabbro as above, variably serpentinized, as angular to subrounded clasts up to 10 cm long in olive-green to grey-green serpentine matrix; core varies from hard well consolidated rock to soft friable serpentinite-becoming softer more serpentinized downhole
47.75- 53.64	5.89	<u>Breccia</u> , peridotite, dark-grey to grey-green, soft, similar to previous unit but in top 30 cm grades through olivine gabbro back to peridotite; some clasts contain 5-10% equant rounded black grains $\frac{1}{2}$ -1 mm, non magnetic - perhaps oxides (chromite?), calcite veinlets and blebs common; about 50% of rock is chlorite and/or serpentine 50.67-51.81 m heavily chloritized (dark-green), many slickensides and fractures coated with reddish-brown powdery hematite, few flecks of chalcopyrite, trace pyrite and acicular radiating brassy sulfide (millerite?) 53.03-53.64 m increasingly serpentinized
53.64- 55.17	1.53	<u>Serpentinite</u> , as 27.13-33.22 m
55.17- 56.45	1.28	<u>Breccia</u> , peridotite, dark-grey to grey-green as 47.75-53.64 m with blebs and stringers of white calcite and soft olive-green serpentine between clasts; black non-magnetic oxide altering to hematite makes up 5-10% of peridotite locally; alteration along incipient fractures where chlorite-serpentine alteration is present
56.45- 64.62	8.17	<u>Peridotite</u> , dark-grey to olive-grey, partly to nearly completely serpentinized or chloritized in places, similar to 32.22-35.36 m hematite and pyrite common along chloritized fractures, white calcite stringers as well, minor brecciation, several cross-cutting dykelets 5-10 cm thick of fresh hard black fine-grained pyroxenite with only 5-10% olivine

Company: Nathan Minerals Inc.  
 Drillhole: 89-10

Property: Burwash Creek, Yukon  
 Page: 4

Metrage	Interval	Description
		59.75-64.62 m peridotite harder, fresher but badly fractured
64.62-68.88	4.26	<u>Breccia</u> , peridotite, dark-grey to grey-green, partly serpentized, as 47.75-53.64 m becoming 80% serpentine with rounded peridotite clasts (granules) by 66.75 m
68.88-79.25	10.37	<u>Peridotite</u> , similar to 56.45-64.62 m, fairly hard, becoming softer, more serpentized below 79.98 m, trace pyrite, hematized black oxides disseminated throughout, white calcite as blebs and veinlets
		78.05-79.25 m mainly serpentinite poorly consolidated
79.25	-	End of hole

## CORE RECOVERY FOR DRILLHOLE 89-10

Interval (m)	Recovery (m)	Interval (m)	Recovery (m)
<u>Box 1</u> 24.38-29.87 m (80'-98')		<u>Box 5</u> 49.99-55.04 m (164'-180' 7")	
24.38-25.30	0.42*	49.99-50.29	0.30
25.30-25.91	0.51*	50.29-51.36	0.96
25.91-27.13	0.75*	51.36-52.12	0.74
27.13-28.04	0.53*	52.12-53.04	0.73
28.04-29.26	1.24	53.04-54.25	0.76
29.26-29.87	0.60	54.25-55.04	0.89
	<u>4.05</u>		<u>4.38</u>
<u>Box 2</u> 29.87-35.36 m (98'-116')		<u>Box 6</u> 55.04-60.35 m (180' 7"-198')	
29.87-30.78	0.57	55.04-55.17	0.10
30.78-31.70	1.04*	55.18-56.69	1.55
31.70-33.22	1.21*	56.69-57.61	0.82
33.22-34.14	0.46*	57.61-58.22	0.49
34.14-34.44	0.23*	58.22-58.83	0.46
34.44-34.90	0.36	58.83-59.74	0.44
34.90-35.36	0.33	59.74-60.35	0.09
	<u>4.20</u>		<u>3.95</u>
<u>Box 3</u> 35.36-44.70 m (116'-146' 8")		<u>Box 7</u> 60.35-67.67 m (198'-222')	
35.36-36.12	0.66*	60.35-61.57	0.23
36.12-36.58	0.26*	61.57-62.48	0.52
36.58-37.19	0.16*	62.48-62.79	0.26
37.19-38.10	0.28*	62.79-63.40	0.13
38.10-40.23	0.15*	63.40-64.01	0.28
40.23-41.15	0.26*	64.01 64.62	0.23
41.15-42.37	0.72*	64.62-65.84	0.86
42.37-42.67	0.53*	65.84-67.67	1.63
42.67-43.28	0.63		<u>4.14</u>
43.28-44.70	0.72		
	<u>4.37</u>		
<u>Box 4</u> 44.70-49.99 m (146' 8"-164')		<u>Box 8</u> 67.67-76.81 m (222'-252')	
44.70-44.81	0.11	67.67-68.88	0.61
44.81-46.33	1.07	68.88-69.80	0.33
46.33-47.55	1.09	69.80-70.71	0.47
47.55-48.46	0.79	70.71-71.63	0.51
48.46-49.99	1.42	71.63 72.69	0.15
	<u>4.48</u>	72.69-73.76	0.34
		73.76-74.98	0.33
		74.98-76.81	0.75
			<u>3.49</u>

\* Approximate only because of unconsolidated nature of core.

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Interval (m)	Recovery (m)
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Box 9 76.81-79.25 m (252'-260')

Total recovery 34.55 m

76.81-78.03 0.34

78.03-78.94 0.82

78.94-79.25 0.33

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1.49

$$\text{Recovery} = \frac{34.55}{79.25-24.38} \times 100 = 63.0\%$$

CORE SAMPLES AND ANALYSES FROM DRILLHOLE 89-10

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1

WHOLE ROCK ICP ANALYSIS

Halferdahl & Associates Ltd. File # 90-0583

18 - 10509 - 81st Ave, Edmonton AB T6E 1X7

Interval (m)	SAMPLE#	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Cu ppm	Zn ppm	Ni ppm	Co ppm	Sr ppm	La ppm	Zr ppm	Ce ppm	Y ppm	Nb ppm	Ta ppm	LOI %	S %	SUM %
24.38-27.13	7703	39.61	6.52	10.72	26.16	6.03	.34	.11	.39	.07	.17	.205	25	239	112	357	71	25	10	19	35	6	20	20	9.6	.01	100.04
27.13-29.26	7704	44.25	4.79	9.00	22.39	12.45	.14	.05	.40	.05	.16	.296	9	316	71	303	78	19	9	19	20	5	20	20	6.0	.01	100.09
29.26-31.70	7705	43.98	4.36	9.01	22.06	13.56	.16	.05	.42	.03	.16	.310	5	308	72	283	73	21	11	14	24	6	20	20	5.9	.01	100.11
31.70-33.22	7706	43.20	4.87	10.20	24.53	9.53	.14	.06	.40	.07	.15	.302	18	336	76	393	85	19	21	19	48	11	20	20	6.5	.02	100.09
33.22-35.36	7707	43.00	6.30	11.19	24.06	8.75	.21	.05	.38	.07	.17	.278	16	316	89	449	87	24	13	14	20	5	26	20	5.5	.03	100.09
35.36-36.12	7708	41.78	5.74	11.66	25.11	7.11	.11	.06	.35	.05	.17	.227	28	414	80	448	76	17	9	13	20	5	20	20	7.6	.02	100.11
36.12-42.06	7709	45.15	4.75	10.98	22.59	11.09	.15	.05	.45	.06	.16	.320	19	663	77	511	86	19	10	22	20	5	20	20	4.2	.08	100.14
42.06-42.67	7710	44.48	5.35	10.66	22.02	10.61	.18	.05	.43	.06	.16	.304	29	592	68	455	90	20	7	15	114	5	20	20	5.6	.04	100.09
42.67-43.59	7711	45.44	4.63	10.60	22.29	10.92	.12	.05	.42	.07	.16	.304	15	378	83	404	79	20	8	14	25	5	20	20	4.9	.07	100.04
43.59-46.33	7712	42.28	11.23	9.47	15.85	13.42	1.16	.16	.59	.09	.16	.157	84	201	56	216	38	1152	9	22	20	5	20	20	5.3	.03	100.09
46.33-47.75	7713	42.59	8.91	9.92	19.76	11.35	.91	.16	.50	.08	.17	.201	52	160	90	324	71	103	9	16	20	5	20	20	5.4	.04	100.06
47.75-49.99	7714	45.29	4.92	10.68	22.23	10.59	.17	.05	.44	.07	.17	.323	13	334	74	380	83	71	7	13	20	5	20	20	5.0	.08	100.06
49.99-51.81	7715	43.85	4.28	11.73	24.16	7.90	.10	.05	.32	.06	.18	.208	16	305	77	354	73	34	4	11	20	5	20	20	7.2	.08	100.16
51.81-53.64	7716	44.89	4.19	11.01	22.66	10.07	.10	.05	.39	.06	.19	.267	21	349	86	403	85	30	6	9	20	5	20	20	6.0	.10	100.01
53.64-55.17	7717	43.94	6.29	10.51	21.76	9.83	.33	.05	.48	.10	.19	.263	20	383	86	364	85	37	6	11	20	5	20	20	6.1	.08	99.98
55.17-56.45	7718	41.78	4.71	12.95	24.20	7.25	.13	.05	.39	.07	.20	.168	9	590	99	603	101	33	4	13	20	5	20	20	8.0	.12	100.09
56.45-57.61	7719	41.27	3.91	14.07	28.17	5.37	.07	.05	.33	.07	.20	.157	5	545	97	646	116	22	5	12	20	5	20	20	6.3	.07	100.16
57.61-59.75	7720	42.39	4.52	13.60	26.43	5.88	.08	.08	.33	.08	.20	.179	29	529	100	606	137	27	4	10	20	5	20	20	6.1	.06	100.06
59.75-62.48	7721	43.15	4.20	13.56	27.47	6.52	.10	.05	.34	.09	.20	.185	10	439	96	576	137	21	6	10	22	5	20	20	4.0	.05	100.04
62.48-64.62	7722	44.70	4.20	12.99	24.71	8.76	.14	.05	.39	.07	.20	.270	21	801	94	623	99	25	4	9	20	5	20	20	3.3	.08	100.00
64.62-66.80	7723	39.85	4.62	10.48	21.26	12.30	.12	.05	.38	.05	.23	.254	19	551	74	469	74	91	4	9	20	5	20	20	10.3	.06	100.07
66.80-68.88	7724	44.67	4.83	12.08	23.90	7.78	.22	.05	.39	.08	.18	.268	38	390	94	463	102	34	6	7	20	5	20	20	5.4	.04	100.00
68.88-71.63	7725	44.98	4.18	12.37	24.27	8.69	.21	.11	.41	.08	.19	.272	30	404	103	498	105	46	4	11	20	5	20	20	4.0	.11	99.92
71.63-74.98	7726	44.68	4.09	12.59	24.65	8.03	.19	.11	.39	.07	.19	.266	7259	456	97	508	109	40	4	10	20	5	24	20	3.3	.10	99.95
74.98-78.03	7727	43.85	4.83	11.62	23.36	9.47	.28	.10	.43	.08	.20	.271	113	404	84	470	95	58	4	15	20	5	20	20	5.3	.09	99.96
78.03-79.25	7728	43.53	5.40	11.86	23.60	7.81	.16	.05	.38	.07	.19	.238	96	524	92	479	78	40	4	20	20	5	20	20	6.5	.10	99.97
	std SO-4	67.37	10.72	3.31	1.06	1.58	1.37	1.96	.60	.21	.09	.007	819	9	114	30	19	175	33	315	130	26	22	20	11.3	-	99.82

A .2000 GRAM SAMPLE IS FUSED WITH 1.2 GRAM OF LiBO2 AND IS DISSOLVED IN 100 MLS 5% HNO3.  
- SAMPLE TYPE: Core

DATE RECEIVED: FEB 28 1990 DATE REPORT MAILED: Feb 28, 1990 SIGNED BY: *[Signature]* P. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Sample intervals added by Halferdahl & Associates Ltd.

## CORE SAMPLES AND ANALYSES FROM DRILLHOLE 89-10 (CONT.)

ACME ANALYTICAL LABORATORIES  
852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6  
PHONE 253-3158 DATA LINE 251-1011

DATE RECEIVED: FEB 28 1990

DATE REPORT MAILED: Feb 28, 1990

## GEOCHEM PRECIOUS METALS ANALYSIS

Halferdahl & Associates Ltd. FILE # 90-0583  
18 - 10509 - 81st Ave, Edmonton AB T6E 1X7

INTERVAL (m)	SAMPLE#	Au ppb	Pt ppb	Pd ppb	Rh ppb
24.38-27.13	7703	5	10	2	2
27.13-29.26	7704	11	9	4	2
29.26-31.70	7705	13	5	2	2
31.70-33.22	7706	18	10	3	2
33.22-35.36	7707	10	5	2	2
35.36-36.12	7708	13	13	6	2
36.12-42.06	7709	16	14	2	2
42.06-42.67	7710	17	8	2	2
42.67-43.59	7711	15	6	2	2
43.59-46.33	7712	8	1	2	2
46.33-47.75	7713	8	6	2	2
47.75-49.99	7714	13	11	2	2
49.99-51.81	7715	9	10	2	2
51.81-53.64	7716	14	8	2	3
53.64-55.17	7717	13	5	2	2
55.17-56.45	7718	15	23	3	2
56.45-57.61	7719	26	31	4	2
57.61-59.75	7720	20	33	4	2
59.75-62.48	7721	16	18	3	2
62.48-64.62	7722	38	24	5	2
64.62-66.80	7723	31	17	4	2
66.80-68.88	7724	13	12	2	2
68.88-71.63	7725	16	19	2	2
71.63-74.98	7726	16	13	2	2
74.98-78.03	7727	15	5	2	2
78.03-79.25	7728	15	11	2	2

10 GRAM SAMPLE FIRE ASSAY AND ANALYSIS BY ICP/GRAPHITE FURNACE.  
- SAMPLE TYPE: Core

SIGNED BY... *D. Toye* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Sample intervals added by Halferdahl & Associates Ltd.

APPENDIX 2: ANALYTICAL REPORTS ON SAMPLES FROM DIAMOND DRILLHOLES

November 3, 1989

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

ASSAY CERTIFICATE FOR SAMPLES PROVIDED

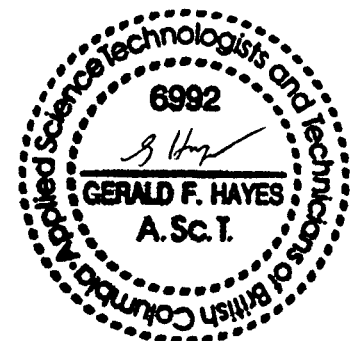
Work Order # 34504

File # 34504d

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm Mo	ppm Ni
6451	46	0.8	44	7	64	21	42
6452	34	0.1	72	14	33	3	25
6453	11	0.4	110	30	76	5	52
6454	37	0.1	79	81	201	2	68
6455	47	0.1	106	21	36	2	20
6456	67	0.2	187	51	283	2	23
6457	44	0.3	97	12	31	3	23
6458	31	0.3	98	5	15	2	30
6459	54	0.1	46	7	82	3	69
6460	35	0.1	116	6	23	3	28
6461	50	0.2	48	5	64	3	33
6462	47	0.2	50	4	49	2	33
6463	52	0.3	48	5	38	2	56
6464	47	0.1	55	9	47	3	43
6465	15	0.2	37	7	47	1	36
6466	30	0.3	70	9	69	3	52
6467	27	0.7	65	6	45	1	95
6468	45	0.5	110	43	66	4	72

Au -- 15g Fire Assay/AAS  
 Metals -- Aqua Regia Digestion/AAS

Note -- Mo digestion may not be complete



APPENDIX 2: CONTINUED

November 3, 1989

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

ASSAY CERTIFICATE FOR SAMPLES PROVIDED

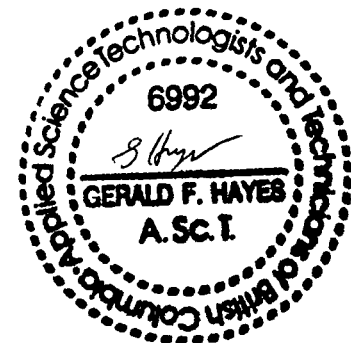
Work Order # 34504

File # 34504e

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm Mo	ppm Ni
6469	44	0.5	35	7	44	3	45
6470	97	0.5	27	5	40	3	46
6471	73	0.2	63	11	52	3	47
6472	17	0.3	28	13	36	3	42
6473	29	0.4	55	6	46	4	73
6474	29	0.5	68	15	34	2	89
6475	21	0.4	49	5	59	2	40
6726	31	0.4	21	8	28	4	44
6727	24	0.4	28	12	40	2	47
6728	35	0.5	62	19	81	3	53
6729	32	0.1	24	6	33	3	42
6730	27	0.1	26	7	43	2	51

Au -- 15g Fire Assay/AAS  
 Metals -- Aqua Regia Digestion/AAS

Note -- Mo digestion may not be complete



APPENDIX 2: CONTINUED

Halferdahl & Associates Ltd.  
 18, 10509 - 81 Avenue  
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ASSAY CERTIFICATE FOR SAMPLES PROVIDED

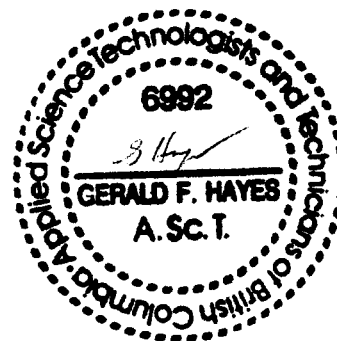
Work Order # 34512

File # 34512a

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm Bi	ppm Ni
8691	33	0.7	31	27	110	4	31
8692	39	0.8	80	9	39	4	84
8693	35	0.4	51	22	127	10	87
8694	16	0.2	48	6	31	5	44
8695	11	0.3	53	6	17	3	73
8696	10	0.7	65	6	30	2	105
8697	18	0.5	63	6	36	2	97
8698	10	0.7	40	6	47	1	32
8699	18	0.7	95	6	43	2	30
8700	19	0.6	52	3	59	3	41
8893	10	0.3	40	6	44	3	36
8899	626	0.8	41	6	42	5	37
8900	14	0.5	32	6	42	3	19
8731	10	0.4	26	6	48	3	25
8732	10	0.4	45	6	55	2	26
8733	10	0.6	34	6	71	3	46
8734	10	0.9	93	6	133	2	101
8735	13	0.7	62	7	192	15	182
8736	14	0.5	38	9	251	3	275
8737	10	0.6	40	8	233	4	281
8738	15	0.6	38	6	240	4	266

Au -- 15g Fire Assay/AAS  
 Metals -- Aqua Regia Digestion/AAS

Note -- No digestion may not be complete



APPENDIX 2: CONTINUED

November 14, 1989

Halferdahl & Associates Ltd.  
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ASSAY CERTIFICATE FOR SAMPLES PROVIDED

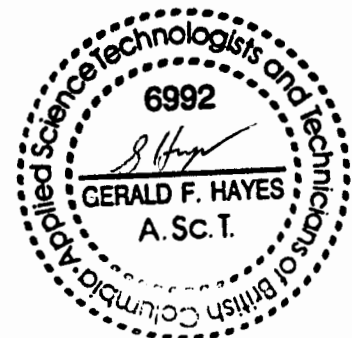
Work Order # 34520

File # 34520d

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm Mo	ppm Ni
6801	<10	<0.1	31	<1	29	18	32
6802	22	0.9	75	2	33	43	69
6803	13	<0.1	60	1	34	22	87
6804	19	<0.1	56	2	52	14	55
6805	24	0.2	65	1	17	2	180
6806	25	0.8	58	2	927	12	116
6807	18	0.1	92	3	132	7	76
6808	<10	<0.1	74	<1	14	3	103
6809	188	0.3	111	2	22	3	78
6810	18	0.4	109	<1	28	2	124
6811	27	0.1	73	<1	28	<1	272
6820	17	1.3	70	9	189	23	57
6821	23	1.4	111	10	280	28	77
6822	27	1.4	99	12	240	32	66

Au -- 15g Fire Assay/AAS  
 Metals -- Aqua Regia Digestion/AAS

Note -- Mo digestion may not be complete



APPENDIX 2: CONTINUED

December 5, 1989

Halferdahl & Associates Ltd.  
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 Edmonton, Alberta  
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ASSAY CERTIFICATE FOR SAMPLES PROVIDED

Work Order # 34529

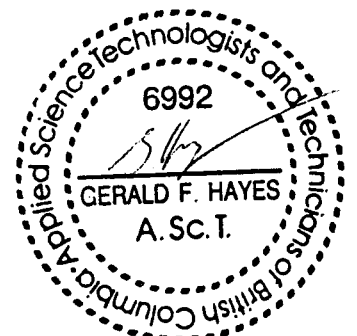
File # 34529a

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm Ni	ppm Mo
6823	93	0.6	68	30	93	62	10
6824	81	0.5	43	11	75	43	4
6825	76	0.5	64	9	71	46	3

6913	31	<0.1	425	22	76	98	5
6914	32	0.1	46	7	56	48	4
6915	48	0.1	25	1	41	51	4
6916	37	0.1	27	7	42	42	3
6917	34	<0.1	48	3	45	64	5

Au -- 15g Fire Assay/AAS  
 Metals -- Aqua Regia Digestion/AAS

Note -- Mo digestion may not be complete



APPENDIX 2: CONTINUED

December 5, 1989

Halferdahl & Associates Ltd.  
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Edmonton, Alberta  
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ASSAY CERTIFICATE FOR SAMPLES PROVIDED

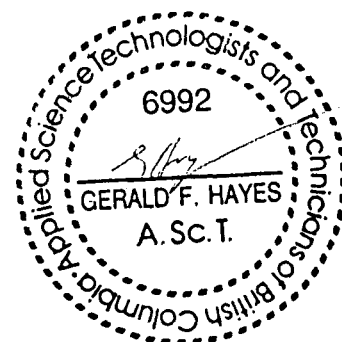
Work Order # 34529

File # 34529b

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm Ni	ppm Mo
6918	198	2.3	70	42	270	78	8
6919	45	1.5	46	5	118	59	3
6920	74	1.7	46	3	144	67	7
7831	135	0.3	103	3	79	33	4
7832	345	0.4	63	1	35	72	3
7833	346	0.2	25	1	73	15	2
7834	1025	0.4	75	2	51	67	3
7835	260	1.1	28	7	61	27	7
7836	203	1.2	36	6	108	74	5
7837	104	1.9	46	8	80	50	10

Au -- 15g Fire Assay/AAS  
Metals -- Aqua Regia Digestion/AAS

Note -- Mo digestion may not be complete



December 5, 1989

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

ASSAY CERTIFICATE FOR SAMPLES PROVIDED

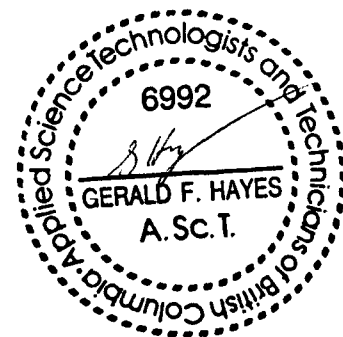
Work Order # 34529

File # 34529c

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm Ni	ppm Mo
7838	33	0.9	98	7	85	50	4
7839	21	0.3	70	1	88	131	7
7840	131	0.5	95	4	156	152	12
7841	31	0.4	77	6	221	65	6
7842	42	3.0	50	3	325	59	61
7843	48	1.5	53	1	307	43	38
7844	33	0.1	24	<1	43	41	3
7845	<10	<0.1	48	8	50	43	5
7846	26	<0.1	89	6	86	58	5
7847	43	0.3	194	15	143	96	11
7848	39	0.1	57	<1	52	44	8
7849	47	0.3	82	3	67	57	10
7850	161	0.1	61	1	55	47	7
7851	28	0.2	47	<1	58	53	7
7852	38	0.2	37	2	68	30	5
7853	43	0.1	56	2	66	39	6
7854	85	0.3	43	1	103	65	9
7855	57	0.3	86	15	92	67	10
7856	28	0.4	68	9	101	83	18
7857	35	0.9	56	9	93	58	9

Au -- 15g Fire Assay/AAS  
Metals -- Aqua Regia Digestion/AAS

Note -- Mo digestion may not be complete



APPENDIX 2: CONTINUED

December 5, 1989

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

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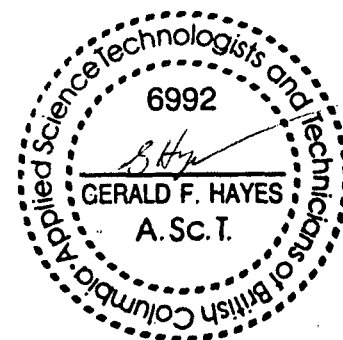
Work Order # 34529

File # 34529d

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm Ni	ppm Mo
7858	48	0.5	69	12	78	49	10
7859	50	<0.1	87	12	102	89	8
7860	30	0.4	94	8	116	74	7
7861	12	0.6	90	11	111	76	10
7862	23	0.8	91	10	135	48	9
7863	24	<0.1	78	10	84	67	10
7864	<10	0.2	95	10	116	89	14
7865	15	0.5	93	14	144	66	15
7866	<10	0.2	91	11	84	89	10
7867	20	0.1	87	13	92	49	12
7868	23	0.3	74	8	94	63	7
7869	33	0.1	75	11	91	49	8
7869b	10	<0.1	90	9	61	180	3
7870	<10	<0.1	90	9	79	92	9
7871	59	0.1	156	9	138	72	20
7872	<10	1.0	137	12	233	63	32
7873	<10	1.9	135	15	333	64	65
7873b	28	1.0	132	16	248	57	42
7874	19	3.2	116	14	415	71	57
7875	244	3.2	103	15	443	72	55

Au -- 15g Fire Assay/AAS  
Metals -- Aqua Regia Digestion/AAS

Note -- Mo digestion may not be complete



APPENDIX 2: CONTINUED

December 5, 1989

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

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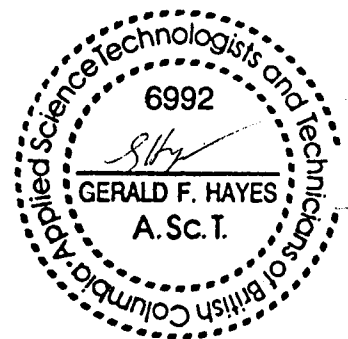
Work Order # 34529

File # 34529e

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm Ni	ppm Mo
7876	45	2.3	77	8	236	53	31
7877	34	2.5	87	12	324	60	31
7878	26	2.7	121	14	349	65	38
7879	38	3.9	193	27	548	123	58
7880	69	1.3	106	9	198	55	21
7881	29	1.2	115	5	191	78	23

Au -- 15g Fire Assay/AAS  
 Metals -- Aqua Regia Digestion/AAS

Note -- Mo digestion may not be complete



APPENDIX 2: CONTINUED

December 5, 1989

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

ASSAY CERTIFICATE FOR SAMPLES PROVIDED

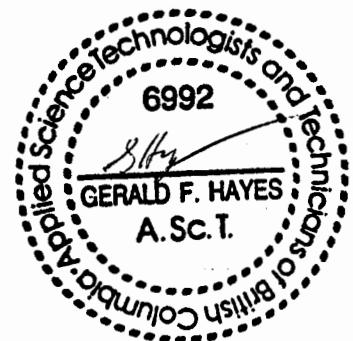
Work Order # 34530

File # 34530a

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm Ni	ppm Mo
7908	34	0.5	93	8	46	19	4
7909	83	0.3	56	11	38	33	5
7910	25	0.1	99	4	48	21	4
7911	27	<0.1	82	7	48	24	3
7912	35	<0.1	50	6	47	23	4
7913	34	0.3	58	8	41	25	3
7914	28	0.2	48	6	57	20	4
7915	16	<0.1	190	5	36	24	4
7916	15	0.1	117	3	29	26	4
7917	58	0.1	159	2	41	21	2
7918	43	<0.1	132	4	58	37	4

Au -- 15g Fire Assay/AAS  
 Metals -- Aqua Regia Digestion/AAS

Note -- Mo digestion may not be complete



Halferdahl & Associates Ltd.

File # 90-0827

18 - 10509 - 81st Ave, Edmonton AB T6E 1X7

Submitted by: L.B. HALFERDAHI

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
6451	18	47	9	94	.6	30	12	677	2.41	6	5	ND	1	42	2	2	3	129	4.63	.044	6	53	1.37	235	.07	5	1.46	.01	.39	1	2
6735	12	44	2	220	.7	141	22	295	2.77	9	5	ND	1	13	1	2	4	57	.56	.028	5	31	1.00	173	.09	2	1.59	.02	.47	1	3
6806	24	86	11	846	1.0	120	24	685	3.87	16	9	3	1	90	24	5	2	271	1.81	.045	5	322	3.17	65	.19	3	2.76	.04	.57	1	1
6899	3	45	12	96	1.0	21	6	143	3.15	2	5	ND	2	10	1	2	6	54	.04	.018	9	54	1.08	210	.08	2	1.65	.03	.48	1	340
6918	4	82	42	230	.5	60	16	427	4.14	2	5	ND	1	49	1	5	5	70	1.33	.043	9	61	1.18	201	.12	7	1.77	.04	.26	9	3
7840	6	70	12	137	.6	99	19	421	3.41	8	5	ND	1	61	1	2	7	94	1.84	.048	4	199	2.31	98	.09	5	2.43	.03	.31	1	2
7879	30	87	11	231	1.7	53	11	414	2.87	19	5	ND	3	66	4	4	2	194	2.98	.133	8	83	.84	110	.10	7	1.31	.08	.28	1	1
STD C/AU-R	19	57	40	133	7.1	71	32	1076	3.99	44	21	8	39	51	19	15	16	61	.51	.087	40	55	.89	188	.08	34	1.92	.06	.13	11	510

A .2000 GRAM SAMPLE IS FUSED WITH 1.2 GRAM OF LIBO2 AND IS DISSOLVED IN 100 MLS 5% HNO3.  
- SAMPLE TYPE: P1-P2 Pulp

DATE RECEIVED: APR 4 1990

DATE REPORT MAILED:

*April 6/90*

SIGNED BY: *C. Leong* D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

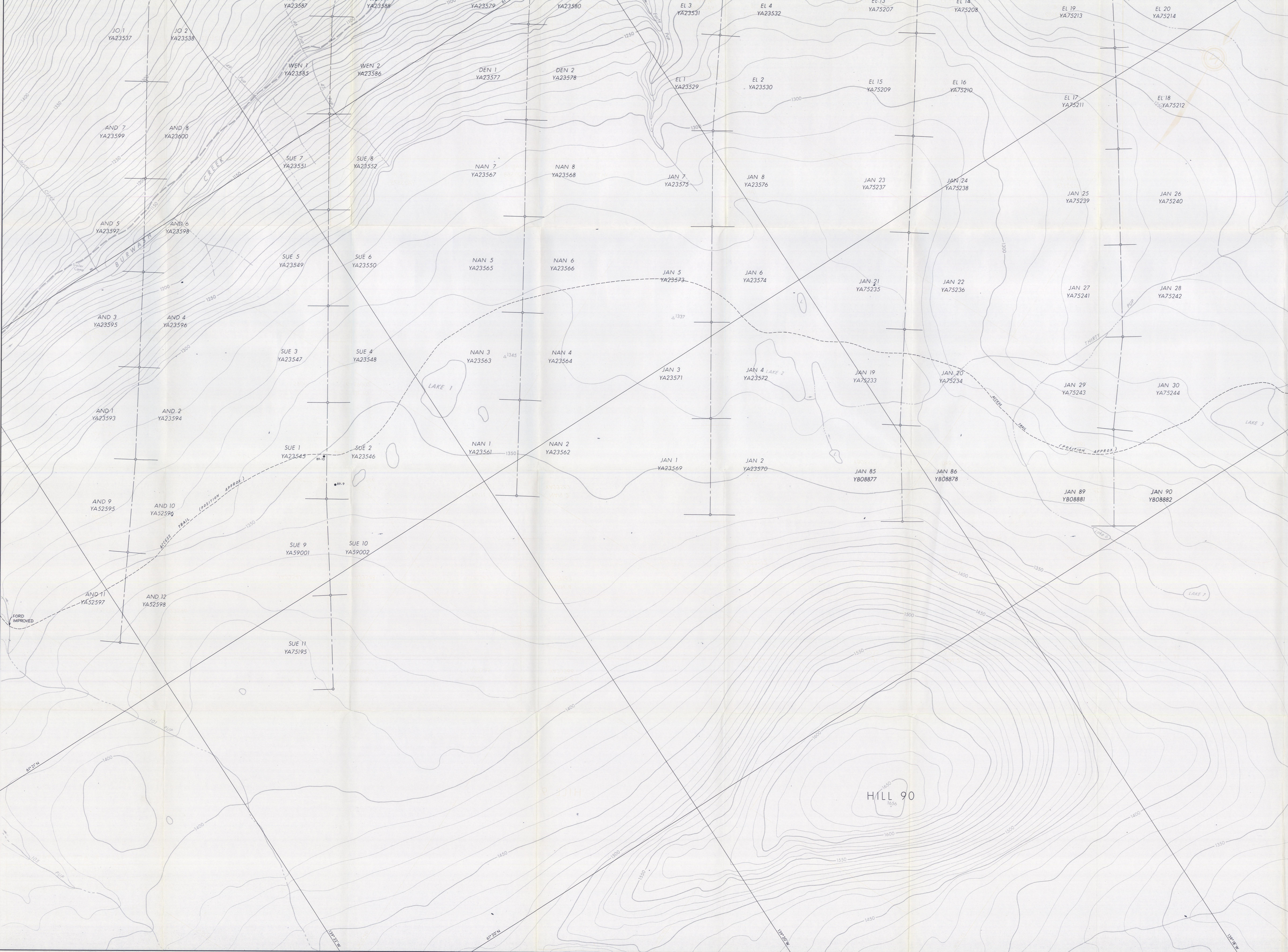
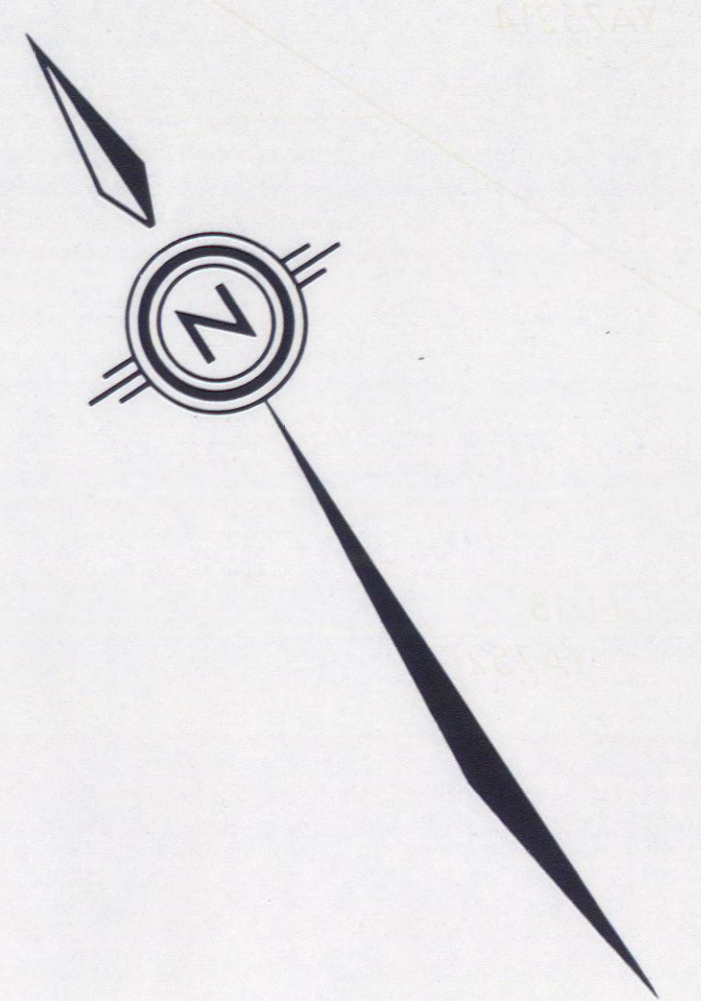
APPENDIX 3:                   BRIEF ACCOUNT OF WORK ON ACCESS TRAIL  
                                   TO DRILLSITES AT AND NEAR THE GOLDEN  
                                   GOPHER SLOPE AND NEAR LAKE ONE ON  
                                   THE BURWASH UPLANDS

Distances from the Bea Creek road to Frying Pan Creek were measured by means of a topofil. Beyond Frying Pan Creek they have been scaled from Fig. 3.1 and 3.2.

<u>Metrage</u>	<u>Description</u>
0	start of trail to Burwash Uplands at its intersection with road up Bea Creek
0-39	previous trail regraded and gravelled
39	log culvert across Bea Creek installed, and covered with fill and gravel
39-348	newly graded and ditched by pushing material up
348	intersection with old trail
348-411	old trail regraded and ditched
411	cross drain installed
411-588	old trail regraded and ditched
588-634	old trail regraded
625	intersection of old high trail
634	cross drain installed
634-763	old trail regraded
763-897	old trail regraded and ditched
897-930	old trail regraded
930-995	old trail regraded and ditched
995	cross drain installed
995-1228	old trail regraded
1228	previous log culvert on Martin Creek
1228-1381	old trail regraded
1381-1511	old trail regraded and ditched
1511	West Bea Creek (ford at present; culvert probably needed); original course of West Bea Creek diverted into ditch on west side of trail for about 90 m
1511-1561	old trail regraded
1561	low point (needs cross drain)
1561-1780	newly graded and ditched
1780	Gopher Creek (needs cross drain); location approximate
1780-1998	newly graded and ditched
1998-2607	old grade on sidehill (Golden Gopher Slope) widened and smoothed

<u>Metrage</u>	<u>Description</u>
2607-2655	old trail regraded and ditched
2655	low point (needs cross drain)
2655-2956	old trail regraded and ditched
2956-3184	constructed in 1988 by side cutting gravel ridge
3184	Frying Pan Creek just above confluence with Frying Pan Pup (ford at present: no plans to change because of gravelly bed and no water flowing even after heavy rains in 1988)
3184-3905	minor improvements of gradient mostly on gravel ridges
3905	intersection with old winter road
3905-4530	newly cut and bladed mostly along gravel ridge
4530-5625	newly graded by pushing material up and smoothing
5625	log culvert across Upper Frying Pan Creek installed, and covered with fill
5625-7345	newly graded mostly by pushing material up and smoothing, some sections bladed into gravel
7345	ford on 30 Pup: smooth gravel pavement about 10 m wide in creek bed
7345-7705	newly bladed to gravel
7705	intersection with old winter road
7705-8260	old trail recut to gravel mostly on ridge
8260-9800	newly graded by pushing material up and smoothing along route of old winter road
9800	beginning of grade constructed in 1987

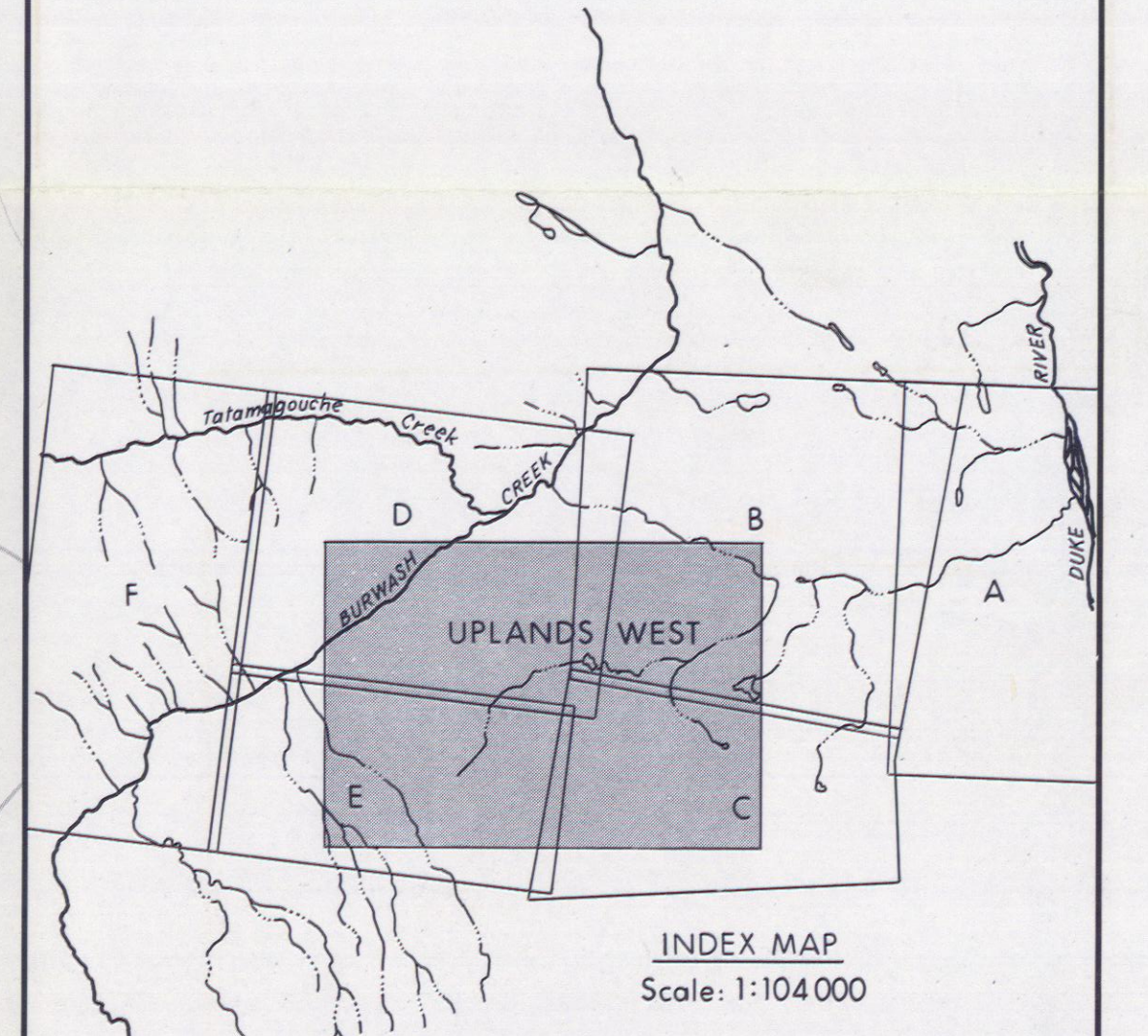




- SYMBOLS**
- Road .....
  - Quartz claim post .....
  - Claim line .....
  - Diamond drillhole location with number ...

**NOTES**

Elevation contours are metres a.m.s.l. Contour interval is 10m.



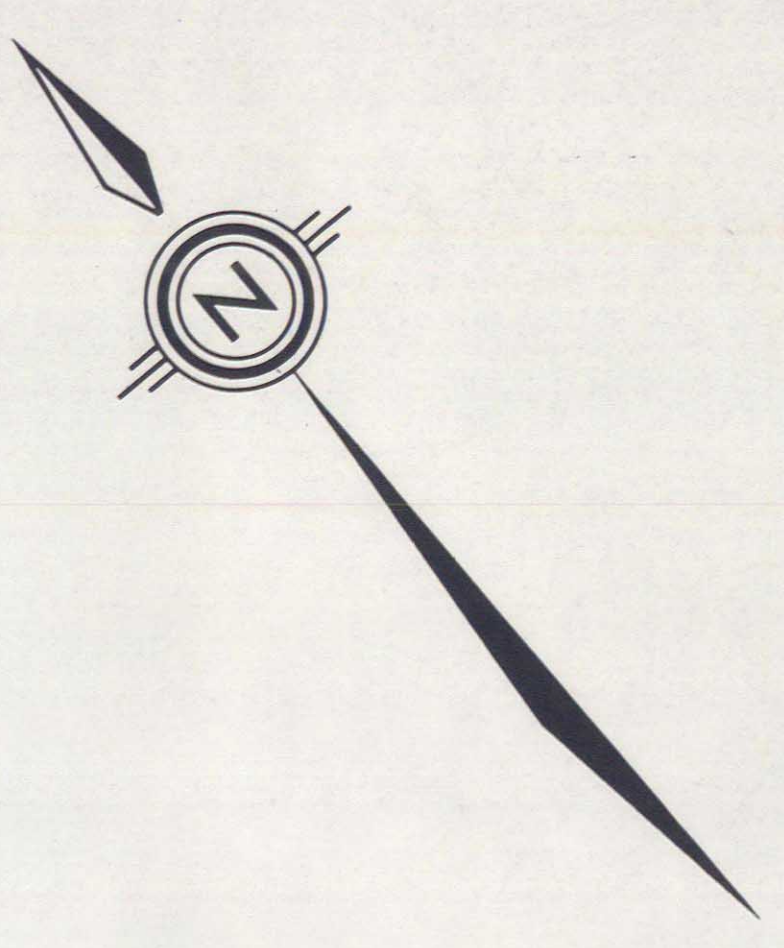
No. 01/11/92 Doc# 092838 (122) 092038

**NATHAN MINERALS INC.**  
**HALFERDAHL & ASSOCIATES LTD.**  
**EDMONTON, ALBERTA**

REVISIONS	BY	DATE

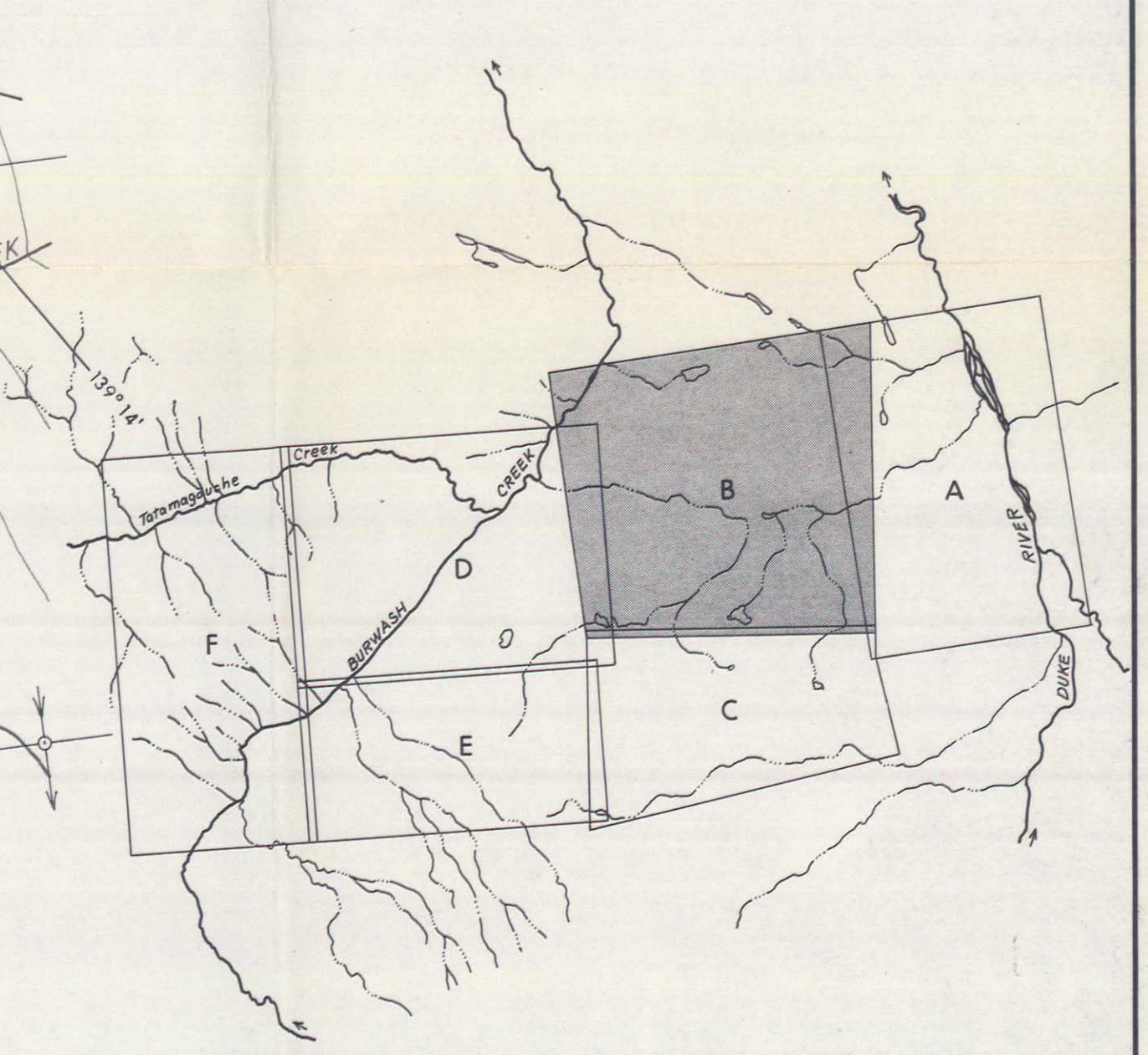
Fig. 3-2 Diamond Drillholes and Access Trail on Uplands West Sheet. BURWASH CREEK AREA, Y.T.

0 100 200 300 400 METRES Scale: 1:5000 1990.02



LEGEND  
See fig. 5.4

SYMBOLS  
Geological boundary, defined .....  
Geological boundary, approximate .....  
Area of outcrop .....  
Isolated outcrop .....  
Strike and dip of bedding .....  
Road, improved, unimproved .....  
Geophysical trench cut and flagged ..... LINE K



NATHAN MINERALS INC.  
HALFERDAHL & ASSOCIATES LTD.  
EDMONTON, ALBERTA

Fig. 3-3 Geology of Map Sheet B

REVISIONS	BY	DATE
	LBH	1985.12
	LBH	1986.12
	LBH	1988.09
	LBH	1989.04
	LBH	1990.04

BURWASH CREEK AREA, YUKON

SCALE: 1:5000

1984.10

133

Y23569

JAN 2 Y23570

Kgd

JAN 65 Y23535

JAN 63 Y23533

JAN 61 Y23531

JAN 59 Y23529

JAN 57 Y23527

JAN 55 Y23525

JAN 53 Y23523

JAN 51 Y23521

JAN 49 Y23519

JAN 47 Y23517

JAN 45 Y23515

JAN 43 Y23513

JAN 41 Y23511

JAN 39 Y23509

JAN 37 Y23507

JAN 35 Y23505

JAN 33 Y23503

JAN 31 Y23501

JAN 29 Y23500

JAN 27 Y23498

JAN 25 Y23496

JAN 23 Y23494

JAN 21 Y23492

JAN 19 Y23490

JAN 17 Y23488

JAN 15 Y23486

JAN 13 Y23484

JAN 11 Y23482

JAN 9 Y23480

JAN 7 Y23478

JAN 5 Y23476

JAN 3 Y23474

JAN 1 Y23472

JAN 68 Y23448

JAN 66 Y23446

JAN 64 Y23444

JAN 62 Y23442

JAN 60 Y23440

JAN 58 Y23438

JAN 56 Y23436

JAN 54 Y23434

JAN 52 Y23432

JAN 50 Y23430

JAN 48 Y23428

JAN 46 Y23426

JAN 44 Y23424

JAN 42 Y23422

JAN 40 Y23420

JAN 38 Y23418

JAN 36 Y23416

JAN 34 Y23414

JAN 32 Y23412

JAN 30 Y23410

JAN 28 Y23408

JAN 26 Y23406

JAN 24 Y23404

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JAN 20 Y23400

JAN 18 Y23398

JAN 16 Y23396

JAN 14 Y23394

JAN 12 Y23392

JAN 10 Y23390

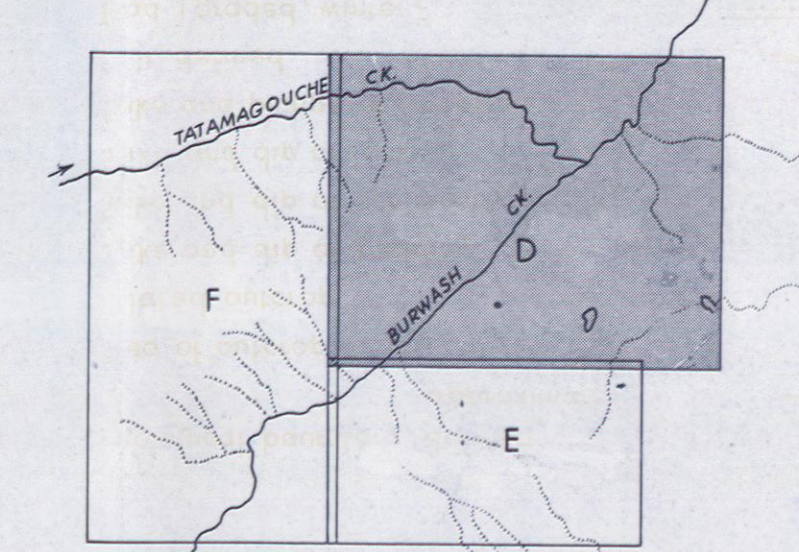
JAN 8 Y23388

JAN 6 Y23386

JAN 4 Y23384

JAN 2 Y23382

JAN 1 Y23380

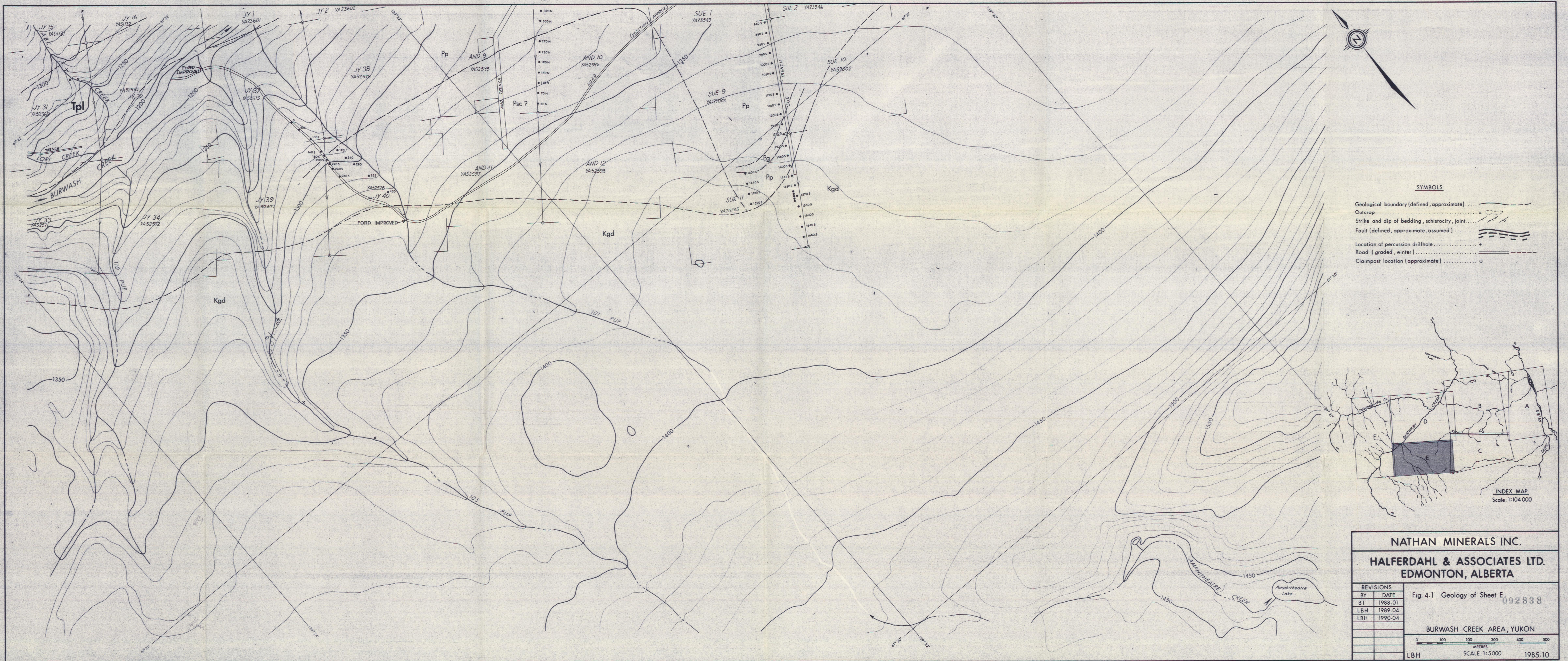


- LEGEND**
- TERTIARY**  
 Paleocene  
 [Tpl] Latite porphyry
- CRETACEOUS**  
 [Kgd] Granodiorite
- UPPER TRIASSIC**  
 [N] Nikolai Formation: basalt; cgl-conglomerate
- PERMIAN-TRIASSIC**  
 [Pd] Peridotite [Pg] Gabbro
- LOWER PERMIAN**  
 Skolai Group  
 Hosen Creek Formation  
 [Pfm] Main Member: argillite; rusty weathering argillite; ch-chert; ls-limestone
- Station Creek Formation**  
 [Psc] Volcanoclastic Member  
 [Psf] Volcanic Flow Member, [B] Basic dyke  
 [Psr] Rust Member

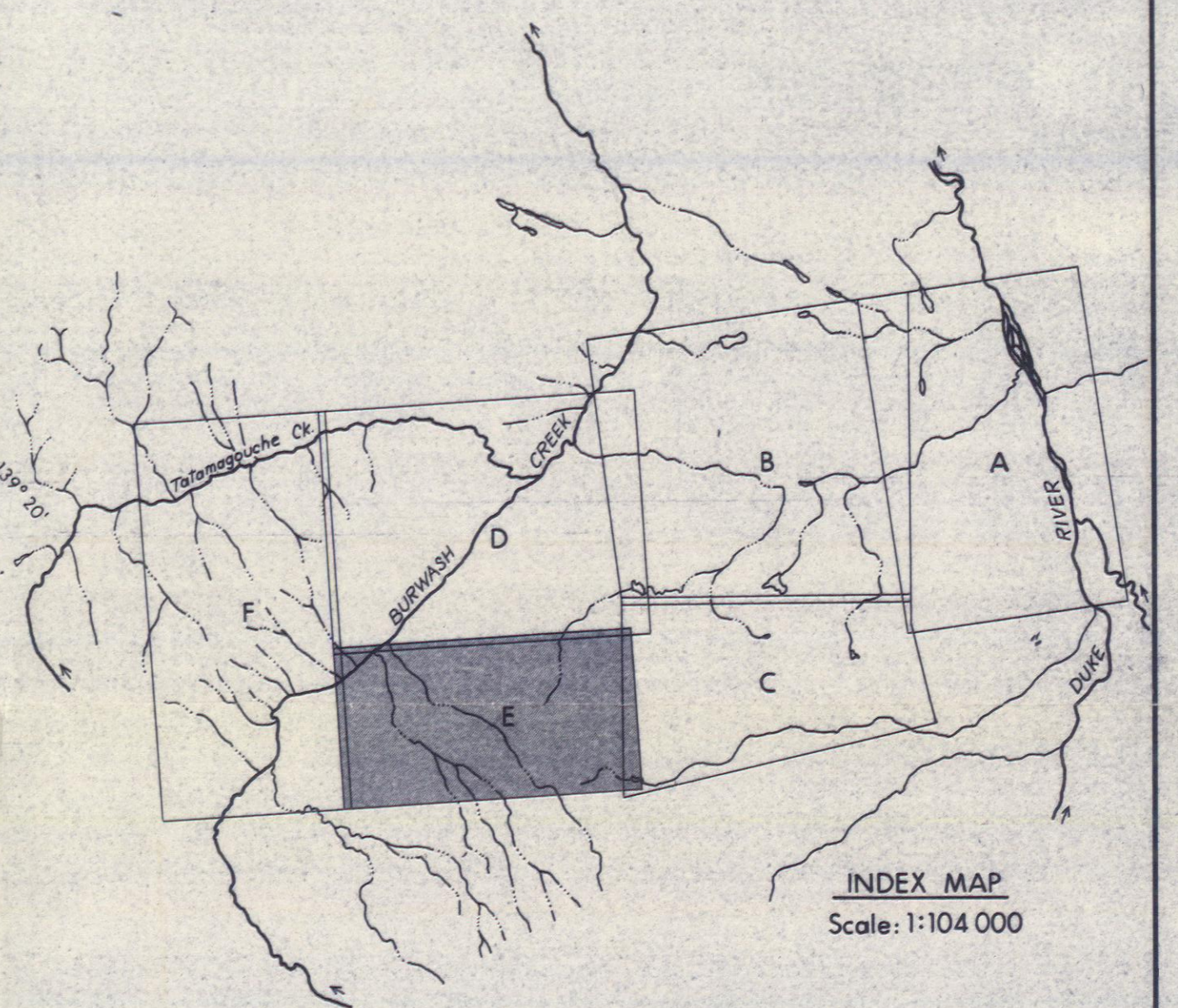
- SYMBOLS**
- Geological boundary, defined .....  
 approximate .....  
 Area of outcrop .....  
 Isolated outcrop .....  
 Strike and dip of bedding .....  
 Strike and dip of schistosity .....  
 Strike and dip of joint .....  
 Strike and plunge of lineation .....  
 Fault, defined .....  
 Road (graded, winter) .....  
 Contour line, interval 10 metres .....  
 Spot elevation in metres .....  
 Claim post .....  
 Claim boundary, location line .....  
 other .....  
 Claim name ..... WEN 3  
 Abandoned adit .....  
 Anticlinal axis .....  
 Location of percussion drillhole .....

<b>NATHAN MINERALS INC.</b>																			
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA																			
Fig. 3.4 Geology of Sheet D.																			
<b>092838</b>																			
BURWASH & TATAMAGOUCHE CREEKS, Y.T.																			
<table border="1" style="width: 100%;"> <thead> <tr> <th>REVISIONS</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>BH</td> <td>1980-08</td> </tr> <tr> <td>LH</td> <td>1981-04</td> </tr> <tr> <td>DBN</td> <td>1981-11</td> </tr> <tr> <td>LH</td> <td>1984-10</td> </tr> <tr> <td>LH</td> <td>1985-12</td> </tr> <tr> <td>LH</td> <td>1987-02</td> </tr> <tr> <td>LH</td> <td>1988-09</td> </tr> <tr> <td>LH</td> <td>1990-04</td> </tr> </tbody> </table>		REVISIONS	DATE	BH	1980-08	LH	1981-04	DBN	1981-11	LH	1984-10	LH	1985-12	LH	1987-02	LH	1988-09	LH	1990-04
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LH	1988-09																		
LH	1990-04																		
SCALE: 1:5000																			
1979.08																			

No. Map# Doc# 092838 (13)



- SYMBOLS**
- Geological boundary (defined, approximate) . . . . .
  - Outcrop . . . . .
  - Strike and dip of bedding, schistosity, joint . . . . .
  - Fault (defined, approximate, assumed) . . . . .
  - Location of percussion drillhole . . . . .
  - Road (graded, winter) . . . . .
  - Claimpost location (approximate) . . . . .



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**EDMONTON, ALBERTA**

REVISIONS

BY	DATE
BT	1988.01
LBH	1989.04
LBH	1990.04

Fig. 4.1 Geology of Sheet E, 092838

BURWASH CREEK AREA, YUKON

0 100 200 300 400 500  
METRES  
SCALE: 1:5000 1985.10