

COMINCO LTD

EXPLORATION

WESTERN DISTRICT

ASSESSMENT REPORT
PERCUSSION DRILLING
ON THE
AXE PROPERTY
NTS 92H/10

(work performed May 13 to May 28 1991)

Similkameen Mining Division
Annual Work Approval No. KAM 90-1500026-1024

Latitude: 49 39' N

Longitude: 120 30' W

June 30 1991

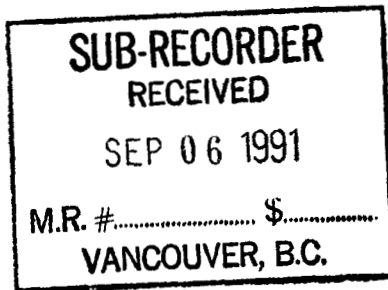
R. J. Aulis

21630

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**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

21,630

PERCUSSION DRILLING REPORT
ON THE
AXE GROUP OF MINERAL CLAIMS

SUMMERS CREEK AREA
SIMILKAMEEN MINING DIVISION, B.C.
NTS 92H/10

Latitude 49 38'N Longitude 120 31'W

SUMMARY

Eleven holes were proposed on the AXE property to test for porphyry Cu-Au on an undrilled portion of a large IP anomaly/hydrothermal alteration zone in the Summers Creek valley, 20 km north of Princeton B.C. The alteration zone has associated porphyry copper mineralization. Only four of the proposed drill holes intersected bedrock. This was due primarily to deep overburden and the limitations of the percussion drill used. Elevated copper values were found in the drill holes, though insufficient to be of immediate economic interest. A diamond drill program is recommended to finish testing favourable ground left open after the meager percussion program.

INTRODUCTION

The Axe property is an alkaline porphyry copper prospect located in the Princeton - Merritt copper belt of south-central B.C. It is underlain by Nicola (Triassic) group volcanic, intrusive and sedimentary rocks. In May of 1991 a percussion drill program was begun on the property. Eleven wide spaced 300' deep holes were proposed to test a very sparsely drilled area of high IP response within a large hydrothermal alteration zone. Due to bad ground and topographical conditions, only two of the eleven holes were completed to the target depth and two others were abandoned a short way into fractured bedrock. Work on the property was completed on May 29, 1991.

LOCATION AND ACCESS

The Axe property is located approximately 20 km north of Princeton B.C. in and west of Summers Creek valley (see Figure 1). The claims are easily accessible year-round from Princeton via the Merritt Highway then Summers Creek Road for 13 km. A road leading directly into the property then passes through a privately owned lot (#2419). The owner of the lot, Gunter Nienierza, lives on the property during the summer months and was amenable in allowing us access through his property.

PHYSICAL FEATURES

The Axe claims are located in the relatively arid interior belt of B.C. where approx 20" of precipitation falls annually. Relief in the area measures up to 1500 ft. with Summers Creek lying at 3000' ASL to Missezula Mt. at 4500' ASL. Slopes are moderately steep and covered with Jackpine and the occasional stand of fir. Overburden ranges from a few feet to greater than 90 feet in the valley bottom. Water needed for the drilling was obtained from Summers Creek.

CLAIMS/TENURE

The AXE property consists of 38 claims, 116 units - 100% Cominco owned. The claims are listed below (see also Figure 2).

The property is under a joint venture agreement with Mitsui. Drilling was done on the Pip 2,4,6 and 8 Mineral Claims

Claim	Size (#units)	Agreement (see below)	Recorded	Due Date
AXE 12000	6.0	E	1981/07/28	1991/07/28
AXE 13000	1.0	E	1981/07/28	1991/07/28
PIP 2	1.0	E,C	1967/07/31	1991/07/31
PIP 4	1.0	E,C	1967/07/31	1991/07/31
PIP 6	1.0	E,C	1967/07/31	1991/07/31
PIP 8	1.0	E,C	1967/07/31	1991/07/31
AXE 15000	5.0	E	1981/08/19	1991/08.19
BSM 1 FR.	1.0	E	1981/08/27	1991/08/27
BSM 3 FR.	1.0	E	1981/08/27	1991/08/27
AXE 15000 FR.	1.0	E	1981/08/27	1991/08/27
BSM 1 - 16	16.0	E,B	1979/11/08	1991/11/08
AXE 8000 FR.	1.0	E,A	1980/12/11	1991/12/11
AXE 9000 FR.	1.0	E,A	1980/12/11	1991/12/11
AXE 10000 FR.	1.0	E,A	1980/12/11	1991/12/11
AXE 11000 FR.	1.0	E,A	1980/12/11	1991/12/11
AXE 4000	16.0	E,A	1980/12/11	1991/12/11
AXE 5000	16.0	E,A	1980/12/11	1991/12/11
AXE 7000	10.0	E,A	1980/12/11	1991/12/11
BSM 6 FR.	1.0	E	1982/03/17	1992/03/17
BSM 9 FR.	1.0	E	1982/03/17	1992/03/17
AXE 3000	16.0	E,A	1980/12/11	1993/12/11
AXE 6000	16.0	E,A	1980/12/11	1993/12/11

116.0 UNITS TOTAL

120°45'

120°30'

120°15'



Aspen
Grove

Missoula
Lake

49°45'

AXE PROPERTY

Tulameen

Coalmont

49°30'

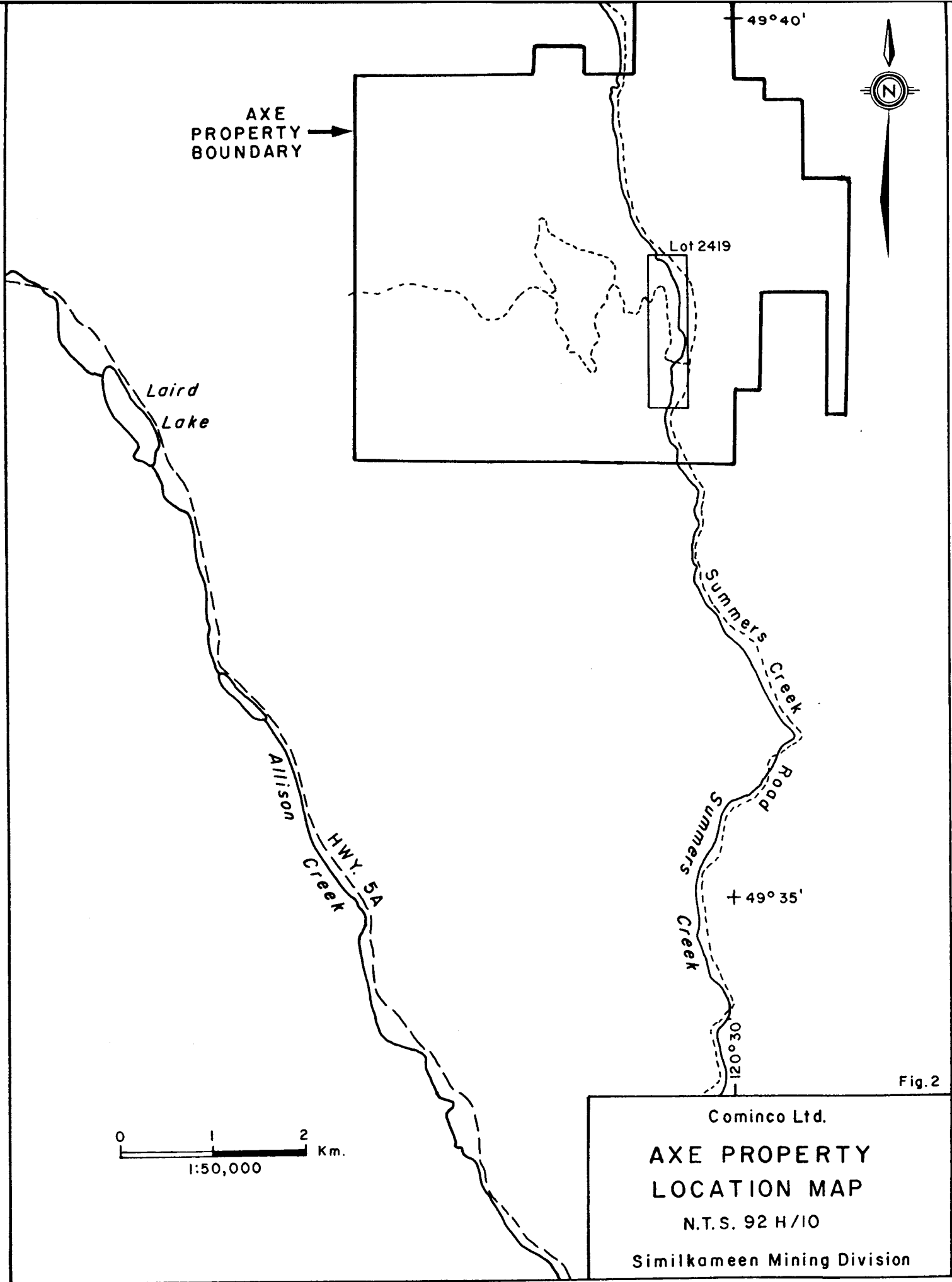
Princeton

0 2 4 6 Km.
1:250,000

Cominco Ltd.
AXE PROPERTY
LOCATION MAP

N.T.S. 92 H

Fig. 1



AGREEMENTS

- (A) These claims subject to a 10% NPP Agreement between Cominco and Global Energy Corp
- (B) These claims are subject to a 10% NPP Option Agreement between Cominco and Messrs. W. Stevens, G. Burr and E. Mullin
- (C) These claims are subject to a 10% NPP Option Agreement between Cominco and Messrs. G. Burr and E. Mullin.
- (D) These claims are subject to Agreement between Cominco and Mitsui & Co. Ltd.

GEOLOGY

The AXE property occurs in the Intermontane tectonic belt of south-central B.C.. Specifically, it lies in the Princeton - Merritt copper belt and is underlain by Upper Triassic Nicola volcanics and coeval intrusives of diorite and monzonite. Important faults in the area are the Allison and Summers Creek Faults - north to northwesterly trending, steeply dipping faults important in localizing intrusive rocks and copper mineralization. Alteration of the volcanic and intrusive Nicola rocks results in weak to strong chloritization, epidotization and calcite with minor secondary K-spar and biotite.

PAST WORK

The Axe property has been extensively explored since the original group of claims was staked by J. A. Stinson in 1966. Since that time numerous exploration programs have mapped, surveyed (geochem and geophysics), and drilled >15000m of percussion, rotary and diamond drill holes.

In 1980, Cominco Ltd. acquired the property from Global Energy Corp. (formerly Adonis Mines Ltd) who had made a previous agreement with the other owners of claims covering the old Axe property.

In 1981 and 1982 Cominco relogged old drill core, detail mapped the geology, analysed hundreds of rock, soil, chip, and core samples, ran ground magnetometer and VLF surveys and drilled 2512' of diamond drill core.

PERCUSSION DRILLING

A total of 11 percussion drillholes were planned for this year's program. The purpose of these holes was to test the undrilled portion of a large copper bearing hydrothermal alteration zone developed in Nicola volcanic rocks about one or more diorite intrusives. More specifically, the drillholes were targeted about an area of high IP response in the north-eastern portion of the anomaly, measuring 0.5 by 1 km. The drillholes planned were to be 100m deep (-90degs) and spaced approx 300m apart.

Of the 11 holes planned only two were drilled to their target depths. Another two were drilled into bedrock but abandoned due to fractured ground/loss of circulation. Seven holes did not make bedrock and one hole was abandoned due to inaccessibility. (see Table 1 below)

Bedrock chips were logged using a binocular microscope and samples were taken every 3.05m (10'). The chips were composed primarily of feldspars - plagioclase with pervasive K-spar, with sericite, chlorite and accessory epidote, magnetite, hematite and quartz. Mineralogy suggests an altered alkaline environment. Occasional intervals of fine dark green chips suggest dioritic intrusions. Sulphides occur only as <1% finely disseminated grains with occasional increases to several percent.

Geochemical analysis was done on all the samples for Cu and Au at Cominco Exploration Research Laboratory, 1486 E. Pender St., Vancouver. Analysis for copper and gold was done using aqua regia decomposition and atomic absorption spectrometry. The highest Cu value was 1850 ppm occurring as an isolated high in hole A-4. Copper values overall were anomalous, averaging between 200 - 300ppm. Gold values were, without exception, below detection limits.

TABLE 1. - DRILL HOLE DATA

Hole No.	Claim	OB(m)	Total Depth(m)	Sample Interval(m)
A-1	PIP 8	18.3	18.3	0
A-1A	PIP 8	14.6	21.3	0
A-2	PIP 6	24.4	24.4	0
A-3	PIP 6	21.3	21.3	0
A-4	PIP 6	13.7	91.5	77.8
A-5	PIP 4	1.2	91.5	90.3
A-6	PIP 4	5.2	27.4	22.2
A-7	PIP 4	22.2	22.2	0
A-9	PIP 2	22.2	22.2	0
A-10	PIP 4	2.4	12.2	9.8
A-11	PIP 4	22.2	<u>22.2</u>	0
			374.5	200.1m total

CONCLUSIONS AND RECOMMENDATIONS

Four percussion drill holes were completed over an undrilled portion of an IP anomaly. This anomaly occurs on the north-eastern edge of a large hydrothermal alteration zone known to host porphyry copper mineralization. Thick bouldery overburden and steep terrain resulted in seven of the planned holes failing to reach bedrock. Holes which reached bedrock intersected altered alkaline rocks with elevated copper contents. Although the copper and gold values obtained were too low to be of immediate economic interest, the drill hole spacing is too wide to have adequately tested the IP anomaly. The possibility of a porphyry copper-gold deposit of significant size still exists within the proposed area of exploration.

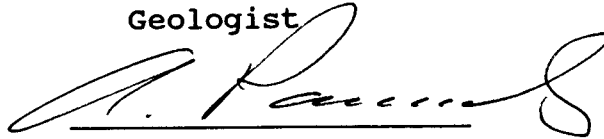
5.
A diamond drill program is recommended to finish testing the area of interest.

Report Written by:



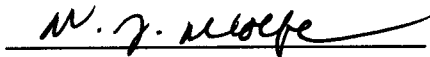
R. J. Aulis
Geologist

Endorsed by:



A. M. Pauwels
Sr. Geologist

Approved for
Release by:



W. J. Wolfe
Manager, Exploration
Western Canada

APPENDIX A

STATEMENT OF EXPENDITURES
on the AXE Claims in the Period
May 13 - May 29 1991

Salaries:

A.M. Pauwels, Sr. Geologist	5 days @ \$425/day	\$2125.00
A.P. Roberts, Technician	9 days @ \$270/day	\$2430.00
R.J. Aulis, Geologist	9 days @ \$270/day	\$2430.00
R.K. Hutchison Assistant	5 days @ \$160/day	<u>\$ 800.00</u>
	total	\$ 7785.00

Geology supplies.....\$525.00

Domicile

28 man days @ 90.00/day.....\$2520.00

Geochemical Analysis

66 samples for Cu, Au @ \$12.00 each.....\$792.00

Transportation

two 4x4 trucks - 9 days @ 200/day.....\$1800.00

Freight - transport truck to/from

Princeton - Robo Transport.....\$2765.00

Percussion Drilling (1340').....\$10,720.00

Drill Site Preparation..... \$5389.00

Report Writing

6 days @ \$270.00/day.....\$1620.00

Total \$33916.00 .

APPENDIX B
DRILL HOLE RECORDS

PERCUSSION DRILL HOLE RECORD

AXE BC.

page-1

Claim:
 Dates: MAY 25 1991
 Contractor: AL
 DRILLING LTD.

Coordinates:
 Length: 91.5 m.
 Azimuth/Dip: -90 deg.
 Size: Percussion 2"
 Elevation:

HOLE A-4
 Logged by: RJA
 Date: MAY 26 1991

Objective: test geochem/geophys anomalies for porphyry Cu

Summary: trace sulphides (cpy<<py) only

From To (m)	Description
0 - 13.71	overburden
13.71 - 18.30	med green fine grained (sub?)volcanic with minor epidote, abundant plag, some qtz, amphiboles repl by chlorite, calc, occ oxidized OB grains/sand. minor pyrite observed. scattered fine magnetite grains
18.30 - 21.35	as above, trace fine diss py or rare grain/cluster thin chlorite needles in plag matrix, K-Spar as pinkish-orange grains
21.35 - 24.40	as above, rock type appears to remain constant to bottom of hole. Variations in percentages of K-spar fine py and quartz, generally minimal.
24.40 -27.45	increase epidote light green grains.
27.45 -33.55	as above, occ magnetite
33.55 - 42.67	trace cpy?, 1 very fine speck
42.67 - 45,72	slight increase in py content as fine diss grains usually euhedral
45.72 - 51.82	diminished pyrite
51.82 - 54.90	as above, emphasize presence of epidote and salmon coloured K-spar grains
60.96 -70.10	extremely fine grained, difficult to see individual grains; probably result of sampling technique- wet portion of sample taken; basic constituents the same.
64.01 - 67.10	diminished pyrite
67.10 - 70.15	increased epidote
76.20 - 79.30	v fine chips/grains, abundant py, trace cpy?
79.30 - 82.35	above average epidote content and magnetite speck of bornite -tarnished grain
88.45 - 91.5	slightly darker-more mafic component
91.5	END OF HOLE

From m	To	Cu ppm	Mo ppm	Au ppb	Ag ppm
13.72	18.29	168		<10	
18.29	21.34	245		<10	
21.34	24.38	169		<10	
24.38	27.43	221		<10	
27.43	30.48	147		<10	
30.48	33.53	188		<10	
33.53	36.58	154		<10	
36.58	39.62	114		<10	
39.62	42.67	214		<10	
42.67	45.72	1850		<10	
45.72	48.77	980		<10	
48.77	51.82	520		<10	
51.82	54.86	431		<10	

From m	To	Cu ppm	Mo ppm	Au ppb	Ag ppm
54.86	57.91	276		<10	
57.91	60.96	352		<10	
60.96	64.01	435		<10	
64.01	67.06	500		<10	
67.06	70.11	269		<10	
70.11	73.15	325		<10	
73.15	76.20	349		<10	
76.20	79.25	403		<10	
79.25	82.30	272		<10	
82.30	85.34	290		<10	
85.34	88.39	254		<10	
88.39	91.44	242		<10	

PERCUSSION DRILL HOLE RECORD

AXE BC.

page-1

Claim:	Coordinates:	HOLE A-5
Dates: MAY 28 1991	Length: 91.5 m. Azimuth/Dip:	Logged by: RJA
Contractor: AL MILLER	-90 deg.	Date: MAY 29 1991
DRILLING LTD.	Size: Percussion 2"	
	Elevation:	

Objective: test geophys/geochem anomalies

Summary: all cpy values <0.05% (500ppm)

From To (m)	Description
0 - 1.22	Overburden
1.22 - 27.42	a wide variety of grains but dominated by grains of dark green dioritic(?) material composed of plag/amph/ and chlorite, fine grained, roughly equigranular. Accessory minerals are epid and trace K-spar with lesser amounts of py, mt, hematite. Abundant weathering and oxidization over top 20 ft. no cpy noted.
9.14 - 12.20	as above but with decreased py
12.20 - 15.25	trace molybdenum? as fine silver diss clots
27.42 - 45.72	sharp decrease in content of mafic minerals suggests a change in rock type
45.75 - 91.5	as above 27.42 to end of hole, weathering products no longer present, <1% diss py
91.5	End of Hole

From m	To	Cu ppm	Mo ppm	Au ppb	Ag ppm
1.23	6.09	199		<10	
6.09	9.14	336		<10	
9.14	12.19	362		<10	
12.19	15.24	196		<10	
15.24	18.29	223		<10	
18.29	21.34	194		<10	
21.34	24.38	208		<10	
24.38	27.43	464		<10	
27.43	30.48	159		<10	
30.48	33.53	83		<10	
33.53	36.58	85		<10	
36.58	39.62	78		<10	
39.62	42.67	80		<10	

From m	To	Cu ppm	Mo ppm	Au ppb	Ag ppm
42.67	45.72	83		<10	
45.72	48.77	133		<10	
48.77	51.82	179		<10	
51.82	54.86	125		<10	
54.86	57.91	124		<10	
57.91	60.96	172		<10	
60.96	64.01	249		<10	
64.01	67.06	193		<10	
67.06	70.11	144		<10	
70.11	73.15	138		<10	
73.15	76.20	164		<10	
76.20	79.25	304		<10	
79.25	82.30	215		<10	
82.30	85.34	134		<10	
85.34	88.39	131		<10	
88.39	91.44	132		<10	

PERCUSSION DRILL HOLE RECORD

AXE BC.

page-1

Claim:
 Dates: MAY 26 1991
 Contractor: AL
 DRILLING LTD.

Coordinates:
 Length: 27.45 m.
 Azimuth/Dip: -90 deg.
 Size: Percussion 2"
 Elevation:

HOLE A-6
 Logged by: RJA
 Date: MAY 28 1991

Objective: test IP high / geochem anomaly coincidence
 Summary: hole abandoned at 27.45m due to fractured ground/ loss of circulation
 all Cu values <0.05%.

From	To (m)	Description
0	5.18	Overburden
5.18	9.15	strong surface weathering, oxidation of primarily dark green mafic/intermediate grains of feldspar and dark amphiboles which are variably chlorite altered. Qtz K-Spar, epidote and calcite present also. traces only of fine diss py approx 30-40% leucocratic grains, higher than that of hole A-5
9.15	15.25	as above with abundant weathering and rusty oxide staining; minor finely dissem py
15.25	24.40	distinct fining of grain size related to sampling otherwise same as above with iron oxide staining and abundant orange K-spar grains in the dark green dioritic material. py rare, occ magnetite
24.40	27.45	gradual decrease of weathered, oxidized material and slight increase in py content, traces of tarnished cpy
27.45		END OF HOLE

From	To	Cu	Mo	Au	Ag
m	m	ppm	ppm	ppb	ppm
5.18	9.14	161		<10	
9.14	12.19	74		<10	
12.19	18.29	264		<10	
18.29	21.34	357		<10	
21.34	24.38	277		<10	
24.38	27.43	189		<10	

From	To	Cu	Mo	Au	Ag
m	m	ppm	ppm	ppb	ppm

PERCUSSION DRILL HOLE RECORD

AXE BC.

page-1

Claim:
 Dates: MAY 27 1991
 Contractor: AL
 DRILLING LTD.

Coordinates:
 Length: 12.20 m.
 AZimuth/Dip: -90 deg.
 Size: Percussion 2"
 Elevation:

HOLE A-10
 Logged by: RJA
 Date: MAY 28 1991

Objective: test high IP values found along NE edge of alt'n zone in bottom of Summers Creek valley

Summary: hole abandoned at 12.2m due to fractured ground and loss of circulation all Cu values <0.1%

From To (m.)	Description
--------------	-------------

0 - 2.44	Overburden
2.44 - 6.10	coarse grains of dark green fine grained diorite plagioclase and chloritized amphiboles predominate with minor amts of magnetite, hematite, epidote calcite, finely diss py (1-2%) and traces of cpy coating fracture surfaces or as fine clots
6.10 - 9.14	as above with finely disseminated euhedral py throughout also with reddish oxide staining on some grain surfaces
9.14 - 12.20	hole hit fracture zone evidenced by strong weathering of fragments, heavy oxidation gives rusty red-orange colour to otherwise green diorite. Loss of circulation resulted hole being abandoned.
12.20	END OF HOLE

From m	To	Cu ppm	Mo ppm	Au ppb	Ag ppm
2.43	6.09	204		<10	
6.09	9.14	515		<10	
9.14	12.19	774		<10	

From m	To	Cu ppm	Mo ppm	Au ppb	Ag ppm


APPENDIX C

AFFIDAVIT

In the matter of the B.C. Mineral Act and in the matter of a percussion drill program carried out on the AXE group of mineral claims located in the Similkameen mining division of British Columbia, specifically, in NTS sheet 92H/10E;

I Randal J. Aulis of the city of New Westminster in the province of British Columbia, do make oath and say:

1. that I am employed as a geologist by Cominco Ltd. and as such have personal knowledge of the facts to which I hereinafter depose.
2. that annexed hereto and marked as Appendix A to this my affidavit is a true copy of expenditures incurred in a percussion drill program on the AXE group of mineral claims.
3. that the said expenditures were incurred between the 13th day of May and the 30th day of June, 1991, for the purpose of mineral exploration on the above noted claims.



R. J. Aulis
Geologist,
Cominco Ltd.

APPENDIX D

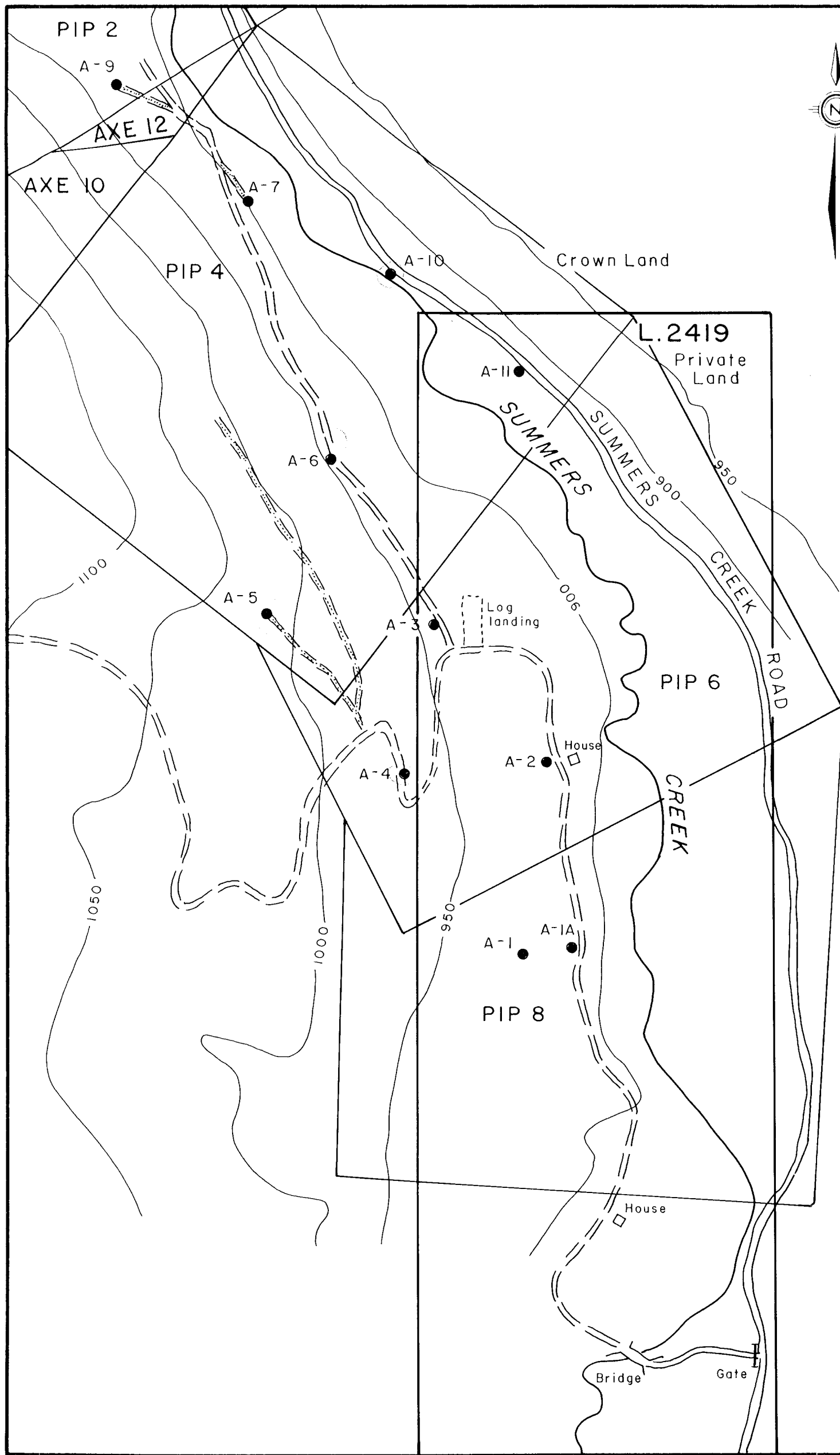
STATEMENT OF QUALIFICATIONS

I, Randal J. Aulis , with a business address in Vancouver, British Columbia and a residential address in New Westminster, British Columbia hereby certify that:

1. that I have been employed as a geologist since 1985 by Cominco Ltd. with a business address at 700 - 409 Granville St., Vancouver, British Columbia, V6C-1T2.
2. that I graduated with a B.Sc. (Hons) Earth Sciences degree from the University of Waterloo in 1986.
3. that I personally supervised the percussion drilling work on the AXE group of claims and have interpreted the data.



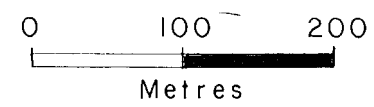
R. J. Aulis
Geologist
Cominco Ltd.



1991 DRILLING

HOLE NO.	O/B.	TOTAL DEPTH (Feet)
A-1	60	60
A-1A	48	70
A-2	80	80
A-3	70	70
A-4	45	300
A-5	4	300
A-6	17	90
A-7	90	90
A-9	90	90
A-10	8	40
A-11	90	90

Existing road
 1991 access road



GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,630

N.T.S. 92 H/9,10

AXE PROPERTY				
Drawn by: APR		Traced by:		1991 DRILLING
Revised by	Date	Revised by	Date	
Scale: 1:5000		Date: June, 1991		Plate: