

MAP NO.: ASSESSMENT REPORT
105B 3 PROSPECTUS
CONFIDENTIAL X
OPEN FILE

DOCUMENT NO: 093134
MINING DISTRICT: WATSON LAKE
TYPE OF WORK: DIAMOND DRILLING

REPORT FILED UNDER: COMINCO LTD.

DATE PERFORMED: MAY 20-JUNE 21, JULY 3-AUG 3, 1993 DATE FILED: OCT 22, 1993

LOCATION: LAT.: 60°08'N AREA: SWIFT RIVER

LONG.: 131°02'W VALUE \$: 54,400

CLAIM NAME & NO.: KEY 1-30 (YB09486-515), KEY 31-34 (YB14161-164), PARK 1-64 (YB09516-YB579)
LAKE 1-52 (YB09580-631), MINE 1-40 (YB16066-105), DAN 1-122 (YB14428-491, 494-551)
PINE 1-36 (YB09632-667), SAM 1-86 (YB15973-992, YB16013-036, YB16057-058,
YB33648-687), M 1-64 (YB15913-972, YB15735-738), STRATA (YB15595-617, YB16106-124)

WORK DONE BY: PAUL MACROBBIE

WORK DONE FOR: COMINCO LTD

DATE TO GOOD STANDING:	REMARKS: 8 HOLES DRILLED FOR TOTAL FOOTAGE OF 1581.4 M. FOUR HOLES WERE FILLED FOR ASSESSMENT PURPOSES.


026
027
029

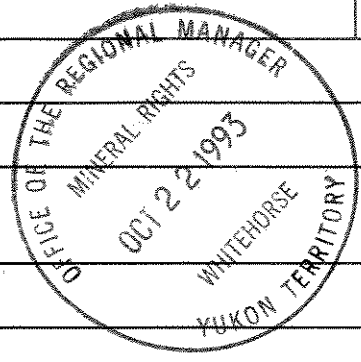
031, 078



M.R. file no.
R.M.M.R. file no.
Date forwarded <i>18 October 1993</i>

TRANSMITTAL FORM

From	▶ Mining Recorder at: <i>Watson Lake</i>		
To	▶ Regional Manager, Mineral Rights at Whitehorse, Y.T.		
For action are:			
<input type="checkbox"/> NEW APPLICATION FOR PLACER LEASE TO PROSPECT	Name		
<input type="checkbox"/> RENEWAL APPLICATION PLACER LEASE TO PROSPECT	Name	Lease no.	
<input type="checkbox"/> AFFIDAVIT OF EXPENDITURE ON PLACER LEASE	Name	Lease no.	
<input type="checkbox"/> SECURITY DEPOSIT			
<input type="checkbox"/> FINANCIAL ABILITY			
<input type="checkbox"/> ASSIGNMENT OF PLACER LEASE NO.	From	To	
<input type="checkbox"/> GROUPING APPLICATION UNDER SEC. 52(2) PLACER MINING ACT.	Owner		
<input checked="" type="checkbox"/> DIAMOND DRILL LOGS	Claims <i>KCV, PARK, M, MINE, SAM</i>	Claim sheet no. <i>105-B-03</i>	
<input type="checkbox"/> QUARTZ ASSESSMENT REPORT	Claims	Claim sheet no.	
	Type of report	Submitted by	
	Cis. work performed on	\$ req. for ren. application	
 Signature			



REPLY ACTION	Date returned
<i>093134</i>	
 Signature	



15 October, 1993

DIRECTOR GENERAL, YUKON REGION

Your file Votre référence

Our file Notre référence

ATTENTION: REGIONAL MANGER MINERAL RIGHTS

Enclosed are Drill Logs etc. submitted by Cominco Exploration for assessment on the KEY, PARK, M, MINE and SAM mineral claims located on 105-B-03.

Drilling was as follows:

Drill Hole SR93-01	PARK 43	93.3 m
Drill Hole SR93-02	KEY 13	215.2 m
Drill Hole SR93-03	KEY 13	279.2 m
Drill Hole SR93-04	KEY 15	<u>184.7 m</u>
TOTAL		772.4 m

Assessment credit requested is \$ 54,400.00. The drill core is stored at the property.

Yours truly,

Patti L. McLeod
Mining Recorder
Watson Lake Mining District
P. O. Box 269
Watson Lake, Yukon
Y0A 1C0

NJM
encl.(s)

cc: Regional Manager, Geological Services

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

NTS 105 B/3

1993 ASSESSMENT REPORT
SWIFT RIVER PROPERTY

LINECUTTING AND DIAMOND DRILLING

WATSON LAKE M.D., YUKON

093134

SWIFT RIVER/RANCHERIA AREA

LATITUDE: 60°08'N

LONGITUDE: 131°02'W

WORK PERIOD

MAY 20 - JUNE 21, JULY 3 - AUGUST 3, 1993

OCTOBER 14, 1993

PAUL A. MACROBBIE



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ATTACHMENTS

FIGURE 2	CLAIM MAP WITH 1993 GRID AND DRILL HOLE LOCATIONS (1:25,000)
PLATE 93-1	DRILL SECTION : SR93-01 (1:500)
PLATE 93-2	DRILL SECTION : SR93-02 (1:500)
PLATE 93-3	DRILL SECTION : SR93-03 (1:500)
PLATE 93-4	DRILL SECTION : SR93-04 (1:500)

1993 ASSESSMENT REPORT**SWIFT RIVER PROPERTY, YUKON TERRITORY****1. SUMMARY**

The property is situated about 15 km north of the Alaska Highway, 130 km west of Watson Lake, Y.T. and is accessed by a 21 km gravel road. The property comprises 9 claim groups optioned by Cominco Ltd. from First Yukon Silver Resources Inc. in 1992.

The original property was discovered in 1946 by Hudson Bay Mining and Smelting Co., and worked between 1952 and 1964. In 1966, Boswell River Mines Ltd. acquired and subsequently worked the area between 1967 and 1971. In 1987, the property was restaked by First Yukon Silver Resources Inc.

The Swift River property is underlain by Devono-Mississippian dark grey to black, locally carbonaceous mudstone/siltstone overlain by a sequence of Mississippian to Permian light grey mylonites, medium to dark maroon grey thin banded biotite hornfels, light green grey thin banded calc-silicate hornfels and minor light grey to white, massive to thin banded marble and massive to banded, stratabound skarn. Sphalerite, pyrrhotite, magnetite, pyrite and minor/trace chalcopyrite occur in a variety of textures ranging from medium to coarse-grained, irregular and discontinuous, massive lenses and thin to thick bands, accompanied by strong skarnification, to fine to medium-grained, irregular disseminations and blebs within slightly weaker skarnified intervals.

A total of 74.9 line kilometres were cut on the property between May 20 and June 21, 1993 by Bear Mountain Exploration Service Ltd. of Whitehorse, Yukon. Eight NQ holes (SR93-01 to SR93-08 inclusive), totalling 1581.4 metres were subsequently drilled in July, 1993. This report includes logs and sections for the first 4 holes being filed for assessment.

2. LOCATION AND ACCESS

The property is situated about 15 km north of the Alaska Highway, 130 km west of Watson Lake, Yukon and 300 km east of Whitehorse, Yukon (Figure 1). Access to the property is by a 21 km gravel road (Pine Lake and Crescent Lake Valley Roads) which begins at Mile Post 722 on the Alaska Highway. The Pine Lake airstrip (6 km north of the highway on the Pine Lake Road) also provides fixed wing, wheeled aircraft access.

3. PROPERTY AND OWNERSHIP

The optioned property consists of 9 claim groups totalling 540 units, optioned from First Yukon Silver Resources Inc. in December, 1992 (Figure 2). The claims, with due dates as of this filing, are found in Appendix 3.

The KEY, PARK, LAKE, MINE, DAN, SAM and M claims are contiguous; however, the PINE and STRATA are separate claims, not adjoining each other or the other group of claims.

4. PREVIOUS WORK

The original Dan showing was discovered in 1946 by Hudson Bay Mining and Smelting Co. and worked between 1952 and 1964.

The Dan showing area was restaked in 1966 and optioned to Boswell River Mines Ltd. Between 1967 and 1971 Boswell River Mines Ltd. worked the Dan area and areas to the south and southwest of the showing. During this period, skarn showings were discovered near Crescent Lake and several Zn soil anomalies and Mag anomalies defined a north-west trend between the DAN showing and Crescent Lake.

Between 1974 and 1983, the area was staked and restaked several times.

In 1987 the property was staked by First Yukon Silver Resources Inc. Since 1988, First Yukon Silver has conducted a program of trenching, road building and minor geological mapping. During 1991 and 1992, further road building and trenching in the Crescent Lake showing area and the Gossan Hill area has resulted in the discovery of a large area of mineralized float and occasional subcrop.

5. 1993 WORK

LINECUTTING

A total of 74.9 line kilometres were cut on the property between May 20 and June 21, 1993 by Bear Mountain Exploration Service Ltd. of Whitehorse, Yukon (Figure 2).

DIAMOND DRILLING

Eight NQ holes (SR93-01 to SR93-08 inclusive), totalling 1581.4 metres were drilled in 1993. Drill hole locations are shown on Figure 2. All the drilling was undertaken by Falcon Drilling Ltd. of Prince George, B.C.. The holes were drilled with a hydraulic, DMW 65 drill. Acid tests were taken at the bottom of each hole with the exception of SR93-01 and SR93-06. All drill core is stored on the property. Drill logs (Appendix 4) and drill sections (Plates 93-1 to 93-4) of the first 4 holes are included as these are the holes filed for assessment.

Reported by: *P. A. MacRobbie*

P. A. MacRobbie, P.Geo.
Geologist II

Approved for
release by: *John Hamilton*

J. M. Hamilton,
Manager Exploration,
Western Canada

PAM/

APPENDIX 1
STATEMENT OF EXPENDITURES

STATEMENT OF EXPENDITURES

AS OF AUGUST, 1993

COMMUNICATIONS		3,490.00
GEOLOGY STAFF/SUPPLIES/EXPENSE ACCOUNTS		68,189.00
LINECUTTING		34,862.00
GEOPHYSICS		33,934.00
DIAMOND DRILLING	DRILLING	129,714.00
	FUEL	2,072.00
	SUPPLIES	11,556.00
GEOCHEMISTRY		8,051.00
ORGAN. AND FEILD SUPERV.		3,478.00
TRANSPORTATION		12,438.00
DOMICILE		44,403.00
EXPEDITING		4,215.00
DRAFTING AND REPRODUCTION		1,580.00
 TOTAL		 357,982.00

For assessment purposes, Cominco is applying:

LINECUTTING		34,862.00
DIAMIND DRILLING	DDH SR93-01	7,900.00
	DDH SR93-02	18,000.00
	DDH S993-03	18,400.00
	DDH SR93-04	14,100.00
 TOTAL		 93,262.00

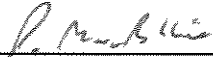
APPENDIX 2
STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Paul A. MacRobbie, of 11164 Southridge Rd., Delta, B.C. hereby declare that I:

1. Graduated from Carleton University, Ottawa, Ontario with a B.Sc. in Geology in May, 1986 and a M.Sc. in Geology in June, 1988.
2. Have been actively engaged in mineral exploration in Western Canada as a permanent geologist with Cominco Ltd. since June, 1988.
3. Am a registered member of The Association of Professional Engineers and Geoscientists of the Province of British Columbia.

Date: October 10, 1993



P.A MacROBBIE, P.Ge
GEOLOGIST II

APPENDIX 3

SWIFT RIVER OPTION CLAIM GROUPS

SWIFT RIVER OPTION CLAIM GROUPS

<u>NAME</u>	<u>UNITS</u>	<u>CLAIM NO.</u>	<u>DUE DATES</u>
KEY 1-34	34	YB09486-9515 YB14161-4164	Nov. 5/95 Jun.17/96
PARK 1-64	64	YB09516-9579	Nov. 5/95-97
LAKE 1-52	52	YB09580-9631	Nov. 5/93-96
MINE 1-40	40	YB16066-6105	Aug.16/95
DAN 1-122	122	YB14428-4491 YB14494-4551	Jul.13/95-96 Jul.14/95
PINE 1-36	36	YB09632-9667	Nov. 5/93-94
SAM 1-86	86	YB15973-5992, YB16013-6036, YB16057-6058 YB33648-3687	Aug.11/95-97 Oct.31/95
M 1-64	64	YB15913-5972, YB15735-5738	Aug.11/95-98, 2001
STRATA	42	YB15595-5617 YB16106-6124	Jan.12/94 Aug.18/93-94

APPENDIX 4

1992 DRILL LOGS WITH RUNS AND RECOVERIES

DRILL HOLE RECORD

COMINCO LTD.

Property: Swift River Option
 Commenced: July 4/93
 Completed: July 6/93
 Coordinates: 9+88E 0+54S
 Contractor: Falcon Drilling Ltd.
 Logged by: P.A.MacRobbie

District: Watson Lake
 Location: Yukon
 Core size: NQ
 Claim Reference:
 Claim Park 43 YB09558
 Elevation:
 Licence:

Hole No.: SR93-01
 Length: 93.3 m
 Cor. Dip: -55°
 True Brg.: 040°
 % Recovery.: 98
 Sample type:

Metres From	To	Description
0.0	16.4	OVERBURDEN
16.4	17.3	CALC-SILICATE SKARN (Boulder float or subcrop) Light to medium grey green, massive to well banded non-calcareous and unmineralized fine-grained skarn. Banding (2-5mm) defined by discontinuous light orange beige feldspar(kspar?)-silica rich bands within a dark to light green pyroxene-epidote-silica±feldspar groundmass. Skarn is undeformed. Skarn banding may reflect replacement of original bedding or replacement along a previously developed foliation.
17.3	17.5	OVERBURDEN
17.5	17.7	CALC-SILICATE SKARN (Boulder float or subcrop) As above, but with less well defined banding and relict dark grey patches of non-skarnified, well foliated feldspar porphyritic (whitish laths ≤1.5mm) intermediate dyke or flow containing 2-5% euhedral fine-grained disseminated pyrrhotite (after pyrite).
17.7	17.8	OVERBURDEN
17.8	18.3	CALC-SILICATE HORNFELS (Boulder float or subcrop) Medium to dark green grey unit comprising dark grey, thinly banded feldspar porphyritic intermediate dyke, flow or tuff or feldspathic wacke containing 40-60% ≤1mm subrounded to euhedral whitish feldspars and 5% euhedral pyrrhotite (≤3mm after pyrite porphyroblasts) within a non-calcareous, chloritic matrix. Unit is strongly foliated parallel banding/bedding? and has been altered to a light to medium green, fine-grained pyroxene-chlorite±epidote calc-silicate along bands adjacent to cross-cutting fractures. Fine biotite hornfels is locally developed. 18.0 foliation/CA 39°.
18.3	18.4	OVERBURDEN
18.4	20.5	BLEACHED, BIOTITE HORNFELS Dark grey to dark maroon, strongly foliated, massive to thinly banded biotite hornfelsed fine sediment (siltstone/mudstone?) containing 2-5% euhedral disseminated pyrrhotite (≤2.5mm after pyrite). Sediment becomes light grey and siliceous (bleached) in patches and halos about

abundant light grey to white quartz \pm feldspar-pyroxene-pyrrhotite-calcite-chlorite-pyrite veins/veinlets. Euhedral pyrrhotite within the bleached halos are variably replaced by silica. Veins parallel and cross-cut the foliation.

20.3-20.5 increased bleaching and sericitic? alteration.

20.5 21.9

QUARTZ VEIN

Coarse-grained, massive white quartz vein with minor fine-grained sericite and chlorite towards vein margins. A 2-4mm light green grey pyroxene? halo is present.

20.5 contact/CA 15°.

21.9 contact/ca 10°.

21.9 33.5

BLEACHED, BIOTITE HORNFELS

As above, with locally intense silicification \pm feldspar alteration associated with abundant quartz veins/veinlets/fractures containing 10-40% pyrrhotite. Protolith is likely thin to thick interbedded calcareous? siltstone/wacke with minor mudstone?

21.9-22.2 strong siliceous \pm sericitic halo adjacent to quartz vein.

22.2-23.4 abundant quartz-pyrrhotite-marcasite(after po)-chalcopyrite-chlorite veins. Host rock is very fine-grained siliceous and slightly chloritic containing 5% euhedral disseminated pyrrhotite.

23.4 decreased chlorite alteration and chlorite content of veins.

24.6-24.8 white quartz \pm chlorite-pyrrhotite vein.

26.0 foliation/CA 28°.

25.5-33.5 more bleached, light grey appearance giving the interval a more volcanic look.

26.3-27.0 abundant light grey to white quartz-feldspar? veins with 5% blebby disseminated euhedral to anhedral pyrrhotite, trace chalcopyrite and rare silvery grey platy mineral (molybdenite?). Host rock is variably bleached and biotitic with disseminated pyrrhotite and rare chalcopyrite.

27.9 foliation/CA 39°.

28.4, 28.6 quartz-pyroxene?(fine light green) vein with 5% fine to medium-grained blebby black sphalerite.

28.8, 29.3 10-20% very fine-grained disseminated pyrrhotite and chalcopyrite parallel foliation (46° to CA).

29.4-29.5 several 5-10cm quartz-pyroxene \pm feldspar? veins with 2-5% pyrrhotite, trace chalcopyrite and black sphalerite.

30.8 foliation/CA 47°.

31.0, 32.0-32.3 1-3cm quartz-pyroxene veins with 2-3% fine-grained black to reddish brown hematite (doesn't appear to be sphalerite).

32.5 foliation/ca 44°.

33.5 38.0

BRECCIATED MUDSTONE/SILTSTONE

Dark grey, tectonically brecciated/fragmented unit characterised by strongly developed shear bands. Fragments consist of \leq 1mm-2.0cm, light to dark grey fine-grained siliceous material set in a sheared dark

grey and locally carbonaceous, fine-grained matrix. Siliceous fragments may represent originally interbedded siltstone. Some "fragments" appear to be bleached alteration patches that have been boudinaged or alteration of previously boudinaged beds. Some biotite hornfels is present locally. Unit generally contains 2-5% disseminated fine to medium-grained pyrrhotite and trace chalcopyrite. Quartz-pyrite-pyrrhotite(20-40% sulphides) \pm chlorite-chalcopyrite veins often occur parallel to the shear bands.

33.5 upper contact occupied by veins and alteration.

34.0 shear bands/CA 50°.

34.3-38.0 shear bands less developed.

36.7 foliation/CA 55°.

37.7 foliation/CA 37°.

38.0

43.0

INTERBEDDED SILTSTONE/MUDSTONE

Somewhat gradational contact into this medium to dark grey interval of thinly interbedded to interlaminated noncalcareous, siliceous siltstone and lesser mudstone. Bedding is clearly recognisable with a well developed bedding parallel foliation. Bedding is locally sheared and boudinaged; a proportion of light grey, siliceous material appears to be boudinaged quartz veins. Increased light grey to white quartz dominant veins with tr-3% blebby pyrrhotite \pm pyrite-chalcopyrite and 1-5% light pinkish sericite (not sphalerite) and increased siliceous \pm feldspathic alteration and biotite hornfels gives this interval a slight light brownish to pinky colour.

40.9 bedding/CA 78°, foliation/CA 48°.

43.0

48.2

CARBONACEOUS, BRECCIATED/DISRUPTED MUDSTONE/SILTSTONE

Dark grey to black interval marked by increasing carbon content. Carbonaceous material comprises the matrix to medium to light grey siliceous boudins/fragments of brecciated/sheared siltstone/mudstone (and quartz veins?). This carbonaceous material is then transposed parallel a later foliation (S_2). Light to medium grey siliceous bands (deformed veins?) contain tr-10% fine-grained disseminated pyrrhotite; pyrrhotite also occurs in late fractures.

44.0 S_2 foliation/CA 61°.

44.1-44.3 ~ late quartz \pm sericite veins cross-cut early foliation but are deformed by S_2 foliation.

44.5-44.9, 45.5-45.8 heavy carbon content (possible EM conductor).

45.3-46.3 increased sericite and pyrrhotite in late discontinuous fractures.

46.4 S_2 foliation/CA 51°, S_1 foliation 42°.

47.1-48.2 decreasing carbon content.

48.2

69.4

INTERBEDDED MUDSTONE/SILTSTONE; MINOR FINE CONGLOMERATE

Medium to dark grey unit of foliated (S_1) and later crenulated (S_2) interbedded mudstone/silty mudstone, siltstone and rare thin

conglomerates containing 2-3% fine-grained disseminated pyrrhotite. Locally unit is tectonically disrupted. Early boudinaged quartz dominant veins and later quartz-sericite-pyrrhotite±pyrite-chalcopyrite veins are present throughout.

48.2-49.6 bedding is parallel CA.

49.0 crenulation/CA 48°; 1.5cm thick normally graded fine conglomerate with angular, light to dark grey siliceous fragments <4mm.

49.4, 49.6 medium grey radiolarian-bearing silty mudstone interbed.

49.8-51.5 increased quartz-pyrrhotite-sericite veining.

51.8 bedding/CA 33°, foliation/CA 48°.

52.7 dark grey to black carbonaceous mudstone interbed.

53.0-54.2 increased quartz-pyrrhotite-sericite veining in sheared/disrupted interval.

54.6-55.7 numerous late fractures (<1mm) containing pyrrhotite-chalcopyrite-arsenopyrite.

54.6-55.1 interval is finely laminated with noncalcareous, light grey to white material (chert/silica; possibly barite??).

55.3-61.2 very disrupted, sheared and broken interval with abundant sheared quartz-pyrrhotite±sericite-sphalerite veins.

56.2-56.9, 57.7-58.7 contorted black to dark grey mudstone with laminated very fine-grained pyrrhotite (after pyrite).

57.3 bedding/CA 34°, foliation/CA 62°.

62.1 bedding/CA 42°, foliation/CA 44°.

62.7 foliation/CA 52°.

63.1-64.2 interval contains several thin light to medium grey feldspar?? crystal tuff interbeds within locally pyrrhotitic and biotitic mudstone.

63.2 several pyrrhotite-chalcopyrite-arsenopyrite fractures.

64.2-69.4 badly contorted interval with no bedding preserved.

67.1 foliation/CA 61°.

68.5 foliation/CA 38°.

69.3 minor black sphalerite-pyrrhotite in veins.

69.4 72.8

CARBONACEOUS MUDSTONE; MINOR SILTSTONE

Dark grey to black finely laminated carbonaceous mudstone and minor siltstone containing 2-8% very fine-grained disseminated to laminated pyrrhotite.

71.3 foliation/CA 60°.

72.8 89.3

INTERBEDDED MUDSTONE/SILTSTONE; MINOR FINE CONGLOMERATE

As above 48.2-69.4 interval.

72.8-77.7 strongly contorted/sheared sediments and quartz-pyrrhotite±sericite veins with locally weak biotite development.

74.7 foliation/CA 51°.

77.7-77.9 fault (31° to CA); dark grey to black crushed zone with calcite-quartz veins.

Property: Swift

77.9-78.6 relatively consistent folded and crenulated bedding/banding at low angle to CA.
 78.6-81.5, 82.5-82.8, 83.2-83.6 interval with light beige, equant, euhedral, noncalcareous porphyroblasts (feldspar??, ≤ 1 mm) developed along calc-silicate hornfelsed bands.
 80.5 medium green, 4cm thick thin tuff?? interbed; bedding/CA 35°.
 80.7 foliation/CA 45°.
 81.5-82.5, 82.8-83.2 medium grey fine-grained silica-pyroxene-pyrrhotite + chalcopyrite veins and banded replacements parallel bedding/banding.
 83.6-84.5, 85.8-87.5 as above but with increased 2-10%, fine-grained pyrrhotite after laminated syngenetic pyrite.
 84.5-85.8 contorted and sheared interval with 2-5% pyrrhotite in veins.
 87.5-89.3 contorted and sheared with locally developed biotite and abundant quartz-pyrrhotite-sericite veins.
 87.6 foliation/CA 50°.

89.3

93.3
EOH

INTERBEDDED SILTSTONE/FINE SANDSTONE; MINOR MUDSTONE
 Medium grey unit with relatively consistent bedding? attitudes and containing tr-3% euhedral fine to medium-grained disseminated pyrrhotite and numerous quartz-pyrrhotite veins.

89.9 bedding/CA 39°.
 92.7 bedding/CA 48°.

Hole #SR93-01

Interval		Metres Indicated	Actual Meterage	% Recovery
From	To			
4.9	7.2	2.3	1.2	52
7.2	11.0	3.8	1.0	26
11.0	14.0	3.0	1.0	33
14.0	17.1	3.1	1.0	32
17.1	20.1	3.0	2.7	90
20.1	23.2	3.1	3.1	100
23.2	26.2	3.0	3.0	100
26.2	29.3	3.1	3.0	96
29.3	32.3	3.0	3.0	100
32.3	35.4	3.1	2.8	90
35.4	38.4	3.0	3.0	100
38.4	41.5	3.1	3.1	100
41.5	44.5	3.0	3.0	100
44.5	57.5	3.0	3.0	100
57.5	50.6	3.1	3.1	100
50.6	53.6	3.0	3.0	100
53.6	56.7	3.1	3.0	96
56.7	59.7	3.1	3.0	96
56.7	59.7	3.0	3.0	100
59.7	62.8	3.1	3.1	100
62.8	65.8	3.0	3.0	100
65.8	68.9	3.1	3.0	96
68.9	71.9	3.0	2.8	93
71.9	75.0	3.1	3.1	100
75.0	78.0	3.0	3.0	100
78.0	81.1	3.1	3.0	96
81.1	84.1	3.0	3.0	100
84.1	87.2	3.1	3.1	100
87.2	90.2	3.0	3.0	100
90.2	93.3	3.1	3.1	100
END OF HOLE		76.2 m	75.0 m	98%

DRILL HOLE RECORD

COMINCO LTD.

Property: Swift River Option
 Commenced: July 7/93
 Completed: July 12/93
 Coordinates: 26+97W 7+03S
 Contractor: Falcon Drilling Ltd.
 Logged by: P.A.MacRobbie

District: Watson Lake
 Location: Yukon
 Core size: NQ
 Claim Reference:
 Claim Key 13 YB09498
 Elevation:
 Licence:

Hole No.: SR93-02
 Length: 215.2 m
 Cor. Dip: -50°
 True Brg.: 064°
 % Recovery.: 95
 Sample type:

Metres From	To	Description
0.0	5.8	OVERBURDEN
5.8	8.5	<p>BLEACHED, BANDED HORNFELS Broken/rubbly core with abundant oxidized fractures. Unit is relatively unaltered (weakly biotitic) light to dark grey, fine banded (strongly foliated) siltstone/mudstone?? with 2% fine to medium-grained disseminated pyrrhotite (after pyrite). Light grey siliceous bleached halos, often containing trace fine euhedral arsenopyrite disseminations, occur about oxidized quartz-chlorite-pyrrhotite veins and pyrrhotite±chalcopyrite fracture fillings.</p> <p>7.0 foliation-banding/CA 64°. 8.2-8.5 weakly replaced parallel banding by fine-grained, medium green grey pyroxene-silica-pyrrhotite containing larger, irregular patches of medium-grained pyroxene-quartz-pyrrhotite-chlorite.</p>
8.5	9.0	<p>FAULT?? Lost core; broken/rubbly core with some sand. Sphalerite found in fractures/veins of one piece of core.</p>
9.0	9.7	<p>MINERALIZED CALC-SILICATE SKARN Light to medium green, fine-grained, locally weakly calcareous pyroxene±silica skarn replacing fine-grained medium grey recrystallized carbonate/marble. Unit is oxidized along fractures.</p> <p>9.0-9.2, 9.4-9.5 patchy oxidation reflecting disseminations and wisps of fine-grained sphalerite?±pyrrhotite. 9.5-9.7 relatively fresher, moderately siliceous, noncalcareous pyroxene skarn (possibly some minor retrograde amphibole/chlorite) with irregular disseminations of pyrrhotite (10%), sphalerite (5%) and trace chalcopyrite. 9.7 lower contact is an irregular 1cm thick alteration front into...</p>
9.7	12.2	<p>RECRYSTALLIZED CARBONATE/MARBLE Light grey/white to dark grey, fine to medium-grained, massive and locally weakly carbonaceous recrystallized carbonate/marble.</p> <p>9.7-10.0 dark grey carbonate 'breccia' comprising light grey carbonate fragments within a dark grey, soft carbonaceous and chloritic matrix. 10.0-10.4 numerous chlorite-sericite-calcite-epidote-</p>

		<p>sphalerite±pyrrhotite (minor talc??) veins. 10.4-12.2 relatively massive, fine-grained recrystallized marble with locally developed dark grey carbonaceous seams. Locally developed patchy alteration comprising fine-grained pyroxene with 2-5% pyrrhotite and trace chalcopyrite is present.</p>
12.2	13.9	<p>CALCITE VEIN/FAULT? Broken/rubbly zone with poor recovery consisting of coarse-grained calcite vein material containing 2-10%, coarse-grained pyrrhotite, trace chalcopyrite and minor fine to medium-grained pyrite.</p>
13.9	15.5	<p>CALC-SILICATE SKARN Medium to dark green, fine to medium-grained pyroxene±calcite-epidote-chlorite replacement skarn/vein.</p> <p>14.0-14.1 coarse-grained quartz-feldspar?-calcite-pyrite vein? 14.1 irregular massive patches of coarse-grained calcite within a fine to coarse-grained euhedral pyroxene 'matrix'. Minor patches of pyrrhotite (replaced locally by marcasite) contain trace sphalerite and chalcopyrite. 14.5 increasing chloritic alteration of pyroxenes. 15.1-15.2 strong chlorite-pyrrhotite alteration. 15.3, 15.5 coarse-grained calcite±epidote veins.</p>
15.5	16.3	<p>CALCITE VEIN/FAULT? Broken/rubbly, oxidized zone with poor recovery consisting of coarse-grained barren calcite vein material.</p>
16.3	17.0	<p>CALC-SILICATE SKARN Medium to dark green, fine to medium-grained pyroxene±calcite-epidote-chlorite replacement skarn (as above) with ≤1cm light to medium grey marble patches locally preserved.</p> <p>17.0 garnet-calcite±pyrite veins.</p>
17.0	19.1	<p>BROKEN ZONE/FAULT Broken zone with poor recovery of fine-grained garnet-calcite-pyrite skarn/vein? containing occasional patches of pyrrhotite±chalcopyrite.</p> <p>17.4-17.6 strongly oxidized interval of crudely banded black sphalerite-pyrrhotite within pyroxene skarn cut by oxidized chlorite-pyrrhotite veinlets. 17.6-19.1 fault; increased epidote content and some core pieces of pyroxene±sphalerite skarn.</p>
19.1	20.1	<p>CALC-SILICATE SKARN Massive to weakly banded, medium to dark brownish green, noncalcareous garnet-pyroxene-chlorite±epidote skarn containing minor carbonaceous material and tr-2% fine-grained disseminated pyrrhotite. Increasing pyrrhotite in oxidized fractures towards base of unit.</p>

20.1	21.5	<p>INTERBANDED CALC-SILICATE SKARN AND CALC-SILICATE HORNFELS Interbanded garnet-pyroxene-chlorite skarn and very fine-grained, light grey to purple green calc-silicate (silica-pyroxene(including purple diopside??)). Calc-silicate hornfels with preserved prior foliation/banding, appears to be alteration halo of the garnet-pyroxene skarn.</p> <p>20.1 2-3cm light green to purple grey hornfels grading into... 20.1-20.2 garnet-pyroxene-chlorite skarn. 20.2-20.3 light to medium grey, noncalcareous siliceous unit containing tr-2% fine-grained pyrrhotite developed parallel the foliation with an irregular replacement contact with... 20.3-21.2 medium green fine-grained, massive to well banded chlorite-pyroxene±garnet skarn. 21.0 foliation parallel banding/CA 62°. 21.2-21.5 bleached and fine calc-silicate hornfelsed interval with minor streaky fine-grained pyrrhotite disseminations. 21.3 banding/CA 70°. 21.5 decreasing alteration towards a sharp contact with underlying...</p>
21.5	28.3	<p>RECRYSTALLIZED CARBONATE/MARBLE Medium grey, fine-grained massive dolomitic marble containing carbonaceous-pyrrhotitic fractures which is locally recrystallized to light grey/white limy marble containing numerous carbonaceous-pyrrhotitic irregular seams and fractures.</p> <p>21.7 calcite-chlorite±pyrrhotite veins. 21.9-22.3 brecciated dolomitic marble with recrystallized limy marble matrix. 23.6-23.7 brecciated interval with calcite-chlorite-biotite veining and alteration. 26.6 increasingly fractured carbonate with sericite developed in seams and veins. 26.7 foliation/CA 59°. 27.6 foliation/CA 55°.</p>
28.3	30.3	<p>CALC-SILICATE SKARN Massive to well banded, medium green pyroxene±garnet-chlorite-epidote skarn comprising fine to medium-grained, locally calcareous pyroxene dominant matrix with locally developed medium to coarse-grained, light reddish brown garnet porphyroblasts. Unit contains tr-2% irregular patches and discontinuous disseminations of pyrrhotite. Mineralogical banding locally defined by pyroxene-calcite and pyroxene-chlorite.</p> <p>28.6 banding/CA 48°. 29.0 banding/CA 43°. 29.4 banding/CA 42°. 30.0-30.3 less intense replacement of underlying unit into a light grey green, finely banded, fine-grained pyroxene-silica skarn.</p>

	<p>30.2 medium-grained arsenopyrite occurring adjacent to a calcite±pyrrhotite vein.</p>
<p>30.3 39.6</p>	<p>BIOTITE HORNFELS Light grey to dark maroon unit of thin banded to massive, strongly sheared, locally bleached and veined and weakly calc-silicate hornfelsed biotite hornfelsed sediments? (volcanics??). Hornfels is generally noncalcareous and contains tr-2% fine to medium-grained disseminated pyrrhotite.</p> <p>30.3-32.2 foliated, biotitic massive wacke or feldspar porphyritic volcanic.</p> <p>30.8 1cm pyroxene-calcite-pyrrhotite±chalcopyrite veins with 1.5cm light green to purple grey (calc-silicate hornfels) alteration halos.</p> <p>30.9 foliation/CA 51°.</p> <p>32.2-33.2 broken zone of locally strongly bleached, fine-grained hornfels.</p> <p>33.2-39.6 interval contains occasional to 15%, 3mm-1.5cm euhedral cubic pyrite porphyroblasts locally altered to pyrrhotite±chalcopyrite.</p> <p>33.2-34.1 foliated, biotitic massive wacke or feldspar porphyritic volcanic.</p> <p>34.1-34.5 fault; rubbly core.</p> <p>34.5-39.6 very fine-grained biotite hornfels with occasional quartz-pyroxene-pyrrhotite-pyrite veins and boudined veins with bleached halos. A crenulation cleavage (S₂) is weakly developed at a low angle to the CA.</p> <p>34.6 foliation/CA 48°.</p> <p>35.3-35.5 fault (53° to CA); oxidized zone.</p> <p>35.5-35.9 disseminated fine-grained pyrrhotite and minor arsenopyrite adjacent to fault.</p> <p>36.3 increasing bleaching with large euhedral pyrite replaced by pyrrhotite±chalcopyrite, in turn replaced by silica-chlorite. Are these boudined pyritic veins??</p> <p>36.7 quartz-pyroxene-arsenopyrite-calcite veins/fractures with bleached halos. Foliation/CA 41°.</p> <p>37.9-38.1 several pyrrhotite-quartz veins with chloritic halos present.</p>
<p>39.6 44.8</p>	<p>CALC-SILICATE SKARN Medium green, well banded to massive fine to medium-grained pyroxene-silica±calcite-chlorite skarn containing 2-8% fine-grained disseminated pyrrhotite.</p> <p>39.6 sharp replacement contact with overlying calc-silicate hornfels.</p> <p>39.8 foliation/CA 54°.</p> <p>40.0-40.5 late? recrystallized calcite blebs (<2mm) disseminated throughout. Chlorite content along fractures increases.</p> <p>40.5-41.9 lighter coloured, more silica dominant, finer grained well banded pyroxene skarn.</p> <p>40.8, 41.0-41.2 calcite-quartz-feldspar veinlets with light yellowy, feldspathic? alteration halos.</p> <p>41.6 foliation/CA 45°.</p>

41.9-43.6 medium-grained, weakly calcareous pyroxene skarn.
 41.9-42.4 weak, beige to cream coloured feldspar? alteration developed parallel foliation.
 42.9 banding/CA 55°.
 42.9-43.6 medium to coarse-grained pyroxene skarn with 5-10% blebby disseminated pyrrhotite and chlorite.
 43.6-44.0 fine-grained finely banded pyroxene-silica skarn with occasional remanent biotite hornfels. ie. at 43.7.
 44.0-44.8 skarn becomes more massive and 'spotted'(garnets??) with increasing pyrrhotite replacement of 'spots' downhole.
 44.5 banding/CA 46°.
 44.7-44.8 several quartz-chalcopyrite ± arsenopyrite veins.
 44.8 replacement contact cross cutting banding/foliation with underlying unit.

44.8

103.1

BIOTITE HORNFELS

Light grey to dark maroon unit of thin banded to massive, strongly sheared, locally bleached and quartz-pyrrhotite-calcite veined and weakly calc-silicate hornfelsed, biotite hornfelsed sediments? (volcanics??), as above. Hornfels is generally noncalcareous and contains tr-2% fine to medium-grained disseminated pyrrhotite.

46.3-46.5 bleached and patchy feldspathic alteration.
 47.6 foliation/CA 43°.
 50.0 foliation/CA 48°, crenulation/CA 10°.
 54.1 trace chalcopyrite in deformed quartz veins and late fractures. Rock is strongly sheared, massive with either boudined quartz veinlet fragments or quartz clasts/phenocrysts?
 54.9 foliation/CA 39°.
 54.9-55.0 as above, medium-grained quartz in dark massive biotite hornfels with tr-1% disseminated pyrrhotite. These are deformed veins!
 56.4-56.9 badly broken/rubbly zone; no fault gouge.
 59.6-63.6 quartz 'eyes' appear in medium to dark grey green, thin banded to massive, weakly biotite hornfelsed volcanic/sediment?
 63.6-69.2 fine-grained, thinly banded biotite hornfelsed fine clastic?
 64.1 quartz-arsenopyrite-pyrrhotite veinlets.
 64.1-66.4 increased chlorite developed parallel banding/foliation.
 64.9 foliation parallel banding/CA 38°.
 67.1-67.5 light grey to green, weakly calc-silicate hornfelsed.
 69.2-70.8 medium to dark grey green, massive, foliated chloritic mafic flow/dyke?? (possibly feldspar phyrlic); locally biotite hornfelsed adjacent to quartz-pyrrhotite-marcasite veins.
 70.1-70.3 quartz vein material separated by dark green chlorite-magnetite bands.
 70.8-75.5 fine-grained biotite hornfels with locally developed coarse-grained quartz/feldspar? vein fragments and quartz 'eyes'.
 74.0 foliation parallel banding/CA 41°.
 75.5-82.3 medium to dark green, weakly biotitic, chloritic volcanic containing feldspar-quartz phyrlic interbands.
 76.4 foliation parallel banding/CA 53°.

80.9-82.3 increasing abundance of boudined quartz veins and crosscutting quartz-chlorite±pyroxene veins.
 82.3-84.0 strongly quartz-pyrrhotite±pyroxene veins and silicification; remanent biotite hornfelsed sediments? apparent.
 84.0-87.2, 88.0-90.2 strong biotite hornfels with abundant deformed quartz-pyrrhotite-chlorite veins.
 87.2-88.0, 90.2-90.4 increasing light green to purple green fine-grained calc-silicate hornfels; remanent biotite hornfelsed sediments? apparent.
 89.8 foliation parallel banding/CA 47°.
 90.4-91.4 locally bleached and weak calc-silicate hornfelsed biotite hornfels.
 91.4-92.0, 93.1-94.3, 96.5-98.0 medium to dark green grey, fine-grained banded to coarse-grained massive, weakly chloritic, pyrrhotitic and biotitic volcanic?
 92.0-93.1 fine calc-silicate hornfels with several garnet-pyroxene-quartz-pyrrhotite±calcite veins.
 97.4 foliation parallel banding/CA 51°; crenulation cleavage/CA 58°.
 98.0-99.5 increasing biotite development; several oxidized late pyrrhotite veinlets/fractures.
 99.5-100.9 increasing calc-silicate hornfels with patchy to vein related weak, fine-grained pyroxene-calcite skarn developed; remanent biotite hornfelsed sediments? are present.
 100.1 garnet-quartz-pyroxene vein.
 100.9-103.1 medium grey sheared volcanic?? with abundant bleached/biotitic halos about quartz±pyroxene-pyrrhotite veins. Sharp, bleached lower contact at low angle to foliation with underlying unit.

103.1 105.3

CALC-SILICATE SKARN
 Massive to weakly banded, medium to dark green, medium to coarse-grained garnet-pyroxene-chlorite-calcite skarn. Fine-grained medium to dark green pyroxene forms the matrix containing 30-95% medium to coarse-grained porphyroblastic medium reddish brown garnet. Occasional calcite occurs intergranular to garnets. Fine pyroxene is locally replaced by dark green to black chlorite. Trace-5% fine to medium-grained pyrrhotite (with associated trace chalcopyrite) occurs as blebby disseminations throughout. Late calcite-pyrrhotite-garnet-chlorite veinlets are present. The basal contact is an irregular replacement contact crosscut by garnet veins.

105.3 105.9

BLEACHED HORNFELS
 Light to dark grey, bleached/silicified, locally biotitic sediments?? with several garnet-pyroxene-chlorite-pyrrhotite±calcite veins.
 105.6 foliation parallel banding/CA 53°.

105.9 106.4

CALC-SILICATE SKARN
 Massive garnet-pyroxene skarn, as above, with 10% medium to coarse-grained blebby pyrrhotite and tr-0.5% associated chalcopyrite. Upper and lower contacts are relatively sharp with minor chlorite halos

		oriented at a low angle to the foliation.
106.4	106.8	CALC-SILICATE HORNFELS Fine-grained, thinly banded light purply green calc-silicate hornfels with several garnet-chlorite-pyroxene-quartz veins.
106.8	107.4	CALC-SILICATE SKARN Massive to weakly banded garnet-pyroxene skarn, as above, with 1-10% medium to coarse-grained blebby pyrrhotite and tr-0.5% associated chalcopyrite. Early, often banded, pyroxene-dominant skarn appears replaced by later, more massive garnet-pyrrhotite skarn (ie. at 107.0) and by fine-grained chlorite near upper and lower contacts.
107.4	108.0	CALC-SILICATE HORNFELS Fine-grained, thinly banded light purply green calc-silicate hornfels with several garnet-chlorite-pyroxene-quartz veins. Lower contact at low angle to foliation. 107.5 foliation parallel banding/CA 33°.
108.0	108.2	CALC-SILICATE SKARN Coarse-grained garnet-pyrrhotite±pyroxene-calcite skarn, as above. Lower contact crosscuts foliation/banding.
108.2	115.1	BIOTITE HORNFELS Light grey to dark maroon unit of thin banded to massive, strongly sheared, locally bleached and quartz-pyrrhotite-calcite veined and weakly calc-silicate hornfelsed, biotite hornfelsed sediments? (volcanics??), as above. 111.4 foliation parallel banding/CA 43°. 112.1-112.4 garnet-pyrrhotite±pyroxene-calcite replacing pyroxene skarn. Garnet veins crosscut earlier quartz-pyroxene-pyrrhotite veins with bleached halos. 114.4 foliation parallel banding/CA 45°. 114.8 increasing garnet veins.
115.1	115.4	CALC-SILICATE SKARN Coarse-grained medium brown garnet-pyrrhotite-calcite±pyroxene-chlorite-sericite skarn, as above. Pyrrhotite (2-5%) occurs as medium to coarse blebby disseminations, particularly near the skarn margins. Veined/irregular contacts with bleached halos crosscut foliation and locally replace discontinuously parallel banding/foliation.
115.4	118.1	BLEACHED HORNFELS Light to dark grey, silicified, finely banded sediment/volcanic?? 117.1-118.1 abundant garnet-quartz-pyroxene±pyrrhotite-calcite veins.
118.1	118.4	CALC-SILICATE SKARN

		Fine-grained pyroxene-dominant skarn.
118.4	118.6	<p>BLEACHED HORNFELS</p> <p>Light grey, silicified finely banded sediment/volcanic?? with abundant garnet-pyroxene±pyrrhotite-chlorite veins.</p>
118.6	118.9	<p>CALC-SILICATE SKARN</p> <p>Fine-grained pyroxene-dominant skarn replaced by patchy coarse-grained garnet-pyrrhotite(trace chalcopyrite)-calcite skarn.</p>
118.9	119.2	<p>BLEACHED HORNFELS</p> <p>Light grey, silicified finely banded sediment/volcanic?? with abundant garnet-pyroxene±pyrrhotite-chlorite veins.</p>
119.2	119.5	<p>CALC-SILICATE SKARN</p> <p>Coarse-grained garnet-pyrrhotite(trace chalcopyrite)-calcite skarn replacing earlier fine-grained pyroxene skarn. Retrograde chlorite replaces both pyroxene and garnet. Irregular crosscutting lower contact.</p>
119.5	120.6	<p>BLEACHED HORNFELS</p> <p>Light to dark grey, strongly contorted and variably silicified finely banded sediment/volcanic?? with abundant garnet-pyroxene±pyrrhotite-chlorite veins.</p> <p>120.1-120.2 thin garnet-pyrrhotite-calcite skarn. 120.2 foliation parallel banding/CA 44°.</p>
120.6	121.9	<p>MINERALIZED CALC-SILICATE SKARN</p> <p>Light to medium brown, medium to coarse-grained massive garnet-dominant skarn containing 5% medium to coarse-grained, blebby pyrrhotite with associated trace chalcopyrite, 2-5% medium to coarse-grained sphalerite associated with late 'vuggy', intergranular calcite. Irregular crosscutting lower contact.</p>
121.9	122.3	<p>CALC-SILICATE HORNFELS</p> <p>Light green to light purple maroon, very fine-grained banded calc-silicate hornfels with several garnet-pyrrhotite±pyrite veins and patchy alteration with fine pyroxene halos. Irregular lower contact with...</p>
122.3	124.3	<p>MINERALIZED CALC-SILICATE SKARN</p> <p>Light to medium green to medium brown unit comprising medium to coarse-grained massive garnet-dominant skarn containing 2-5% medium to coarse-grained, blebby pyrrhotite with associated trace chalcopyrite, tr-1% medium to coarse-grained sphalerite associated with late 'vuggy', intergranular calcite (locally containing dark pyroxene), which has replaced an earlier fine-grained pyroxene skarn. Both pyroxene and garnet dominant skarns are locally altered by black chlorite and crosscut by chlorite veinlets.</p> <p>122.5-122.6 'fragments'/remanents of hornfels altered to fine to</p>

		<p>medium-grained pyroxene skarn. 123.2-124.3 very fine-grained, medium to dark green chloritic patches (replacing earlier pyroxene skarn) contain fine to medium-grained, orangey brown garnet porphyroblasts and occasional medium to coarse-grained purple diopside. 123.4 late vuggy calcite with black sphalerite. 124.3 irregular crosscutting contact; chlorite-pyroxene-rich at contacts.</p>
124.3	124.4	<p>CALC-SILICATE HORNFELS As above.</p>
124.4	125.5	<p>MINERALIZED CALC-SILICATE SKARN Light to medium green to medium brown mottled, massive to crudely banded medium to coarse-grained massive garnet-diopside-pyrrhotite-calcite skarn with tr-1% medium to coarse-grained sphalerite, as above, with locally developed retrograde black chlorite. 124.5 banding/CA 44°. 125.2 remanent fragment of hornfelsesediment.</p>
125.5	125.7	<p>CALC-SILICATE HORNFELS As above.</p>
125.7	126.4	<p>MINERALIZED CALC-SILICATE SKARN Light to medium green to medium brown mottled, massive to crudely banded medium to coarse-grained massive garnet-diopside-pyrrhotite-calcite skarn with tr-1% medium to coarse-grained sphalerite, as above, with locally developed retrograde black chlorite.</p>
126.4	127.6	<p>BIOTITE HORNFELS Dark grey to light-medium maroon, biotite hornfelsesediments?? with late crosscutting garnet-pyroxene-quartz-pyrrhotite±calcite veins. 127.1-127.3 garnet dominant veins and quartz-pyrrhotite-purple diopside veins.</p>
127.6	128.5	<p>CALC-SILICATE SKARN Medium-grained, massive to banded garnet-pyroxene-pyrrhotite(trace chalcopryrite)-chlorite-calcite skarn. Banded conformable basal contact with some crosscutting veinlets and bleached halo. 128.3 trace medium to coarse-grained sphalerite; banding/CA 78°.</p>
128.5	129.0	<p>BLEACHED BIOTITE HORNFELS light to dark grey, weakly biotitic and bleached hornfels with several quartz-pyroxene-pyrrhotite±chlorite veins. 128.7-129.0 increasing skarn veins and associated alteration. 129.1 foliation parallel banding/CA 52°.</p>

129.0	129.2	<p>CALC-SILICATE SKARN Medium-grained, banded garnet-purply grey diopside-pyrrhotite(trace chalcopyrite)-chlorite-calcite skarn. Trace sphalerite at lower contact. Conformable but irregular basal contact.</p>
129.2	131.9	<p>BLEACHED BIOTITE HORNFELS Thin banded to massive variably bleached and veined biotite hornfels. Rare medium to dark brown grey pyrrhotitic mudstone appears as relatively unaltered remanents. Bleached silica-chlorite contacts.</p> <p>130.2-130.3 mottled garnet-pyroxene-calcite skarn with chloritic margins.</p>
131.9	134.4	<p>CALC-SILICATE SKARN Fine to coarse-grained, banded to massive medium green to brown pyroxene-garnet-chlorite skarn containing 5-10% medium to coarse-grained blebby pyrrhotite and minor calcite and epidote. Nil/trace sphalerite.</p> <p>132.2 banding/CA 49°. 132.5-132.7 remanent medium to dark grey sediment? altered to dark green fine-grained chlorite then to fine-grained pyroxene then to medium-grained pyroxene-chlorite with porphyroblastic garnets. 132.6 banding/CA 30°. 134.4 lower contact is conformable with a 1cm bleached, calc-silicate hornfelsed halo.</p>
134.4	146.7	<p>BIOTITE HORNFELS Finely banded, weakly biotitic and variably bleached/silicified and veined hornfelsed sediments?/volcanics?</p> <p>134.6-135.9 several oxidized quartz-calcite-chlorite-pyrrhotite veins and numerous garnet-pyrrhotite-pyroxene-chlorite veins. 135.7 dark grey magnetic sediment with very fine-grained disseminated pyrrhotite. 135.9-139.6 dark brown grey, pyrrhotitic, hornfelsed sediments? locally with diffuse quartz/feldspar? phenocrysts/fragments/vein fragments?? crosscut by and replaced adjacent to garnet-diopside-pyrrhotite-chlorite veins. 136.4 foliation parallel banding/CA 46°. 139.2 4-5mm garnet-calcite-sphalerite vein with silica-pyroxene-chlorite alteration halo. 139.6-139.7 dark grey magnetic sediment with very fine-grained disseminated pyrrhotite. 139.7-142.1 well banded, strongly bleached interval with increased sericitic alteration. 140.8-140.9 sphalerite-arsenopyrite in garnet-calcite-pyroxene vein. 142.1-145.2 interval of decreased veining and bleaching comprising dark brown grey sediments containing 2-8% very fine-grained disseminated and disseminated parallel the foliation/banding. 142.2 foliation parallel banding/CA 67°.</p>

		<p>144.0 foliation parallel banding/CA 64°.</p> <p>143.1-145.2 locally laminated pyrrhotite up to 30% locally; pyrrhotite locally mobilized into crenulation cleavage. Where unit is bleached - no pyrrhotite!</p> <p>145.1 foliation parallel banding/CA 53°, crenulation cleavage/CA 29°.</p> <p>145.2-146.7 increased quartz-chlorite-pyrrhotite and diopside-garnet-pyrrhotite-calcite(trace sphalerite) veining and associated bleaching. Crosscutting skarn veins locally parallel the crenulation cleavage.</p>
146.7	149.8	<p>CALC-SILICATE SKARN</p> <p>Medium green, fine to medium-grained pyroxene-chlorite±calcite dominant skarn with locally developed patchy garnet and 3-5% fine blebby pyrrhotite disseminations.</p> <p>145.7-147.9 brecciated medium to dark grey dolomitic? rock altered to chlorite-pyrrhotite±epidote.</p> <p>147.9-148.1 banded garnet-pyroxene skarn; banding/CA 58°.</p> <p>148.1-149.3 pyroxene skarn with calcite-pyrrhotite(altering to marcasite) in small 'vugs'.</p> <p>148.5-148.8 trace arsenopyrite and chalcopyrite associated with calcite-pyrrhotite.</p> <p>148.8 trace sphalerite.</p>
149.8	151.2	<p>CALC-SILICATE HORNFELS</p> <p>As above.</p>
151.2	152.8	<p>CALC-SILICATE SKARN</p> <p>Very coarse-grained (≤2cm) garnet-pyrrhotite skarn (replacements or veins?) containing irregular patches of coarse garnets within 10-40% coarse pyrrhotite and tr-2%(locally) chalcopyrite and minor calcite-chlorite±amphibole 'vugs'.</p> <p>151.2-151.4, 152.4-152.8 banded fine to medium-grained garnet-pyroxene with locally abundant chlorite-amphibole developed.</p> <p>151.3 fine to coarse arsenopyrite associated with blebby pyrrhotite.</p> <p>152.5 coarse-grained pyrrhotite-chalcopyrite-garnet vein.</p>
152.8	155.8	<p>BIOTITE HORNFELS</p> <p>Finely banded/sheared medium to dark brown grey, siliceous biotite hornfelsed sediments? with abundant quartz-pyroxene-pyrrhotite veins and associated alteration.</p> <p>154.6 foliation parallel banding/CA 69°.</p>
155.8	162.3	<p>CALC-SILICATE SKARN</p> <p>Medium brown, massive garnet-pyrrhotite±pyroxene skarn.</p> <p>155.8-156.0 fine-grained pyroxene skarn with fine to medium-grained garnet porphyroblasts.</p> <p>156.0-160.0, 159.3-160.0, 160.6-161.2 medium to coarse-grained, massive garnet-calcite-pyrrhotite(3-8%) skarn with minor chlorite and</p>

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		<p>amphibole associated with vuggy calcite.</p> <p>159.1-159.3, 160.0-160.6 crudely banded fine pyroxene-garnet skarn predominates.</p> <p>161.2-162.3 massive to banded garnet-pyroxene skarn with an irregular crosscutting lower contact.</p>
162.3	162.5	<p>CALC-SILICATE HORNFELS</p> <p>Bleached, fine-grained calc-silicate hornfelses sediments? with abundant garnet-pyroxene veins.</p>
162.5	164.2	<p>CALC-SILICATE SKARN</p> <p>Fine-grained pyroxene skarn crosscut by garnet-pyrrhotite-pyroxene veins and locally replaced by coarse-grained garnet-pyrrhotite-pyroxene.</p> <p>163.1 8cm coarse-grained pyrrhotite-garnet-calcite vein.</p>
164.2	164.4	<p>CALC-SILICATE HORNFELS</p> <p>Bleached, finely banded fine-grained calc-silicate hornfelses sediments? with abundant garnet-pyroxene veins.</p> <p>164.3 foliation parallel banding/CA 48°.</p>
164.4	166.9	<p>CALC-SILICATE SKARN</p> <p>Fine-grained pyroxene skarn crosscut by garnet-pyrrhotite-pyroxene veins and locally replaced by coarse-grained garnet-pyrrhotite-pyroxene, as above.</p>
166.9	170.5	<p>CALC-SILICATE HORNFELS/SKARN</p> <p>Bleached, fine-grained calc-silicate hornfelses sediments?, locally weakly pyroxene-silica skarned, with abundant garnet-pyroxene veins.</p> <p>168.0-168.1, 168.5-168.8 minor faults; crushed core adjacent to late calcite-quartz veins.</p>
170.5	179.6	<p>CALC-SILICATE SKARN</p> <p>Fine, medium to coarse-grained, medium green brown banded pyroxene-garnet skarn with tr-3% disseminated, blebby pyrrhotite.</p> <p>173.3-179.5 interbanded coarse-grained garnet and finer grained pyroxene dominant skarn.</p> <p>179.5-179.6 fine-grained pyroxene skarn. Sharp crosscutting lower contact with weakly developed calc-silicate hornfelses halo over several cm's.</p>
179.6	181.3	<p>THIN BEDDED MUDSTONE/SILTSTONE</p> <p>Light to medium grey, laminated to thin bedded, strongly foliated siliceous and weakly bleached mudstone/siltstone with numerous quartz-pyroxene-pyrrhotite veins at upper contact. Dark grey beds often contain abundant very fine-grained disseminated pyrrhotite (after pyrite). Pyrrhotite is mobilized into veinlets while bedding and veins</p>

		are transposed parallel the foliation (S ₂). Biotite is locally developed parallel the foliation.
		180.1 bedding/CA 79°, 59°; S ₂ foliation/CA 25°.
181.3	181.5	CALC-SILICATE SKARN VEIN Fine-grained pyroxene-garnet-pyrrhotite(10-15%) crosscutting vein subparallel to the S ₂ foliation.
181.5	182.0	SHEARED MUDSTONE/SILTSTONE Similar to above sediments but increased shearing reflected in intrafolial folding and shear band development.
182.0	183.4	CALC-SILICATE SKARN Medium green, generally fine-grained pyroxene-pyrrhotite±garnet-chlorite skarn. Pyrrhotite occurs as 10-20% fine-grained, spotty disseminations. Gradational lower contact into...
		182.8-183.0 fine vuggy calcite with pyrrhotite-pyroxene appears.
183.4	187.2	QUARTZ-FELDSPAR VEIN/FAULT? Light grey to white quartz-feldspar vein with fractures and patches of pyroxene-chlorite; locally interbanded with biotite hornfelsesediments??
187.2	188.0	BLEACHED, SHEARED SEDIMENT/VOLCANIC? Very siliceous, light to dark green grey, fine to medium-grained sheared unit containing diffuse quartz/feldspar?? grains representing an altered and sheared tectonic breccia or intrusive dyke??
		187.4 arsenopyrite in and adjacent to pyrrhotite veinlets. 188.0 gradational lower contact into...
188.0	189.3	BLEACHED, BIOTITE HORNFELS Strongly quartz-pyroxene-chlorite±pyrrhotite veined biotite hornfelsesediments?
189.3	189.5	FAULT Badly broken zone; lost core.
189.5	193.8	FRACTURED/BRECCIATED MUDSTONE/SILTSTONE Dark grey, weakly biotitic, siliceous mudstone/siltstone with banding defined by darker carbonaceous seams. Unit contains abundant boudined quartz-pyrrhotite veins.
		191.8, 192.0 trace arsenopyrite adjacent to quartz-pyrrhotite veins. 192.3 minor fault/CA 34°; strong brecciation/shearing. 192.3-193.8 less brecciated but still strongly sheared. 193.0 banding parallel foliation/CA 45°.
193.8	194.6	CALC-SILICATE SKARN

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194.6

215.2
EOH

Fine to medium-grained pyroxene-pyrrhotite-chlorite skarn with 10-15cm hornfelses margins.

THIN BEDDED MUDSTONE/SILTSTONE; MINOR SANDSTONE

Medium to dark grey, strongly foliated laminated to thin bedded mudstone/siltstone and minor thin sandstone interbeds crosscut by numerous deformed quartz±sericite-pyrrhotite-chlorite veins. Mudstones are noncalcareous, siliceous and contain 5-15% very fine-grained disseminated pyrrhotite throughout. Fragmented siliceous sandy/silty interbeds (or deformed veins??) are often biotitic.

196.8 foliation/CA 51°.

198.4-198.6, 199.0-199.2 strong biotite±sericite development in quartz-pyrrhotite-chlorite veins.

200.5 foliation/CA 46°.

201.2 decreasing pyrrhotite content.

201.8-202.0, 202.6 possible disrupted/boudined sandstone interbed; bedding/CA 32°.

203.4-203.6 fault; minor crushed zone with quartz-calcite-sericite developed.

203.6-204.6 increased chlorite on foliation planes.

204.6-204.9 increased biotite hornfels and quartz-pyrrhotite-biotite veining.

204.9-207.5 medium to dark grey mudstone±siltstone with tr-3% disseminated fine-grained pyrrhotite-pyrite.

207.5-207.8 deformed sandy interbed/CA 48°; also at 208.2-208.7 and 209.5-210.3.

210.3-215.2 boudined/stretched and fragmented silicic sandy interbeds?? within dark grey sheared mudstone matrix.

211.0 banding/bedding/CA 64°.

214.6 bedding/CA 60°.

Hole #SR93-02

Interval		Meters Indicated	Actual Meterage	% Recovery
From	To			
5.2	7.9	2.7	2.2	81
7.9	10.9	3.0	3.0	100
10.9	14.0	3.1	1.8	58
14.0	17.0	3.0	3.0	100
17.0	20.1	3.1	3.1	100
20.1	23.1	3.0	3.1	100
23.1	26.2	3.1	3.1	100
26.2	29.2	3.0	3.0	100
29.2	32.3	3.1	3.0	96
32.3	35.3	3.0	2.8	93
35.3	38.4	3.1	3.1	100
38.4	41.4	3.0	3.0	100
41.4	44.5	3.1	3.1	100
44.5	47.5	3.0	3.0	100
47.5	50.5	3.0	3.0	100
50.5	53.6	3.1	3.0	96
53.6	56.6	3.0	3.0	100
56.6	69.7	3.1	3.1	100
59.7	62.7	3.0	3.0	100
62.7	65.8	3.1	3.1	100
65.8	68.8	3.0	3.0	100
68.8	71.9	3.1	3.1	100
71.9	74.9	3.0	3.0	100
74.9	78.0	3.1	3.1	100
78.0	81.1	3.1	3.1	100
81.1	84.1	3.0	3.0	100
84.1	87.2	3.1	3.0	96
87.2	90.2	3.0	3.0	100
90.2	93.3	3.1	3.1	100
93.3	96.3	3.0	3.0	100
96.3	99.4	3.1	3.1	100
99.4	102.5	3.1	3.1	100
102.5	105.5	3.0	3.0	100
105.5	108.5	3.0	3.0	100
108.5	111.6	3.1	3.0	96
111.6	114.6	3.0	3.0	100
114.6	117.7	3.0	3.0	100
117.7	120.7	3.0	3.0	100
120.7	123.7	3.0	3.0	100
123.7	126.8	3.1	3.1	100
126.8	129.8	3.0	3.0	100
129.8	132.9	3.1	3.1	100
132.9	135.9	3.0	3.1	100
135.9	139.0	3.1	3.1	100
139.0	142.0	3.0	3.0	100

Hole #SR93-02 Con't

Interval		Meters Indicated	Actual Meterage	% Recovery
From	To			
142.0	145.1	3.1	3.1	100
145.1	148.1	3.0	3.0	100
148.1	151.2	3.1	3.1	100
151.2	154.2	3.0	3.0	100
154.2	157.3	3.1	3.1	100
157.3	160.3	3.0	3.0	100
160.3	163.3	3.0	3.0	100
163.3	166.4	3.1	3.1	100
166.4	169.5	3.1	3.0	96
169.5	172.5	3.0	3.0	100
172.5	174.0	1.5	1.5	100
174.0	175.5	1.5	1.1	73
175.5	178.6	3.1	3.0	96
178.6	181.6	3.0	3.0	106
181.6	184.7	3.1	2.9	93
184.7	187.8	3.1	2.8	90
187.8	189.3	1.5	1.4	93
189.3	190.8	1.5	1.5	100
190.8	193.9	3.1	2.9	93
193.9	198.0	3.0	3.0	100
196.9	199.9	3.0	2.8	93
199.9	203.0	3.1	3.0	96
203.0	204.5	1.5	1.4	93
204.5	206.0	1.5	1.5	100
206.0	209.0	3.0	3.0	100
209.0	212.0	3.0	3.0	100
212.0	215.0	3.0	3.0	100
END OF HOLE		215.2m	205.7m	95%

DRILL HOLE RECORD

COMINCO LTD.

Property: Swift River Option
 Commenced: July 12/93
 Completed: July 16/93
 Coordinates: 29 + 00W 6 + 48S
 Contractor: Falcon Drilling Ltd.
 Logged by: P.A.MacRobbie

District: Watson Lake
 Location: Yukon
 Core size: NQ
 Claim Reference:
 Claim Key 13 YB09498
 Elevation:
 Licence:

Hole No.: SR93-03
 Length: 279.2
 Cor. Dip: -50°
 True Brg.: 022°
 % Recovery.: 95
 Sample type:

Metres From	To	Description
0.0	5.7	OVERBURDEN
5.7	20.4	<p>BIOTITE HORNFELS Light to dark brown grey, siliceous, weakly biotitic, noncalcareous, strongly sheared/foliated, finely banded to massive sediments/volcanics?? cut by abundant quartz±pyrrhotite(tr-5%)-pyrite(tr)-sericite-chlorite boudinaged veins with thin biotitic halos. Strongly sericitic seams are locally developed parallel the foliation within bleached patches containing tr-1% very fine-grained disseminated pyrrhotite.</p> <p>6.5-7.4, 7.9-8.4, 10.7-11.0, 11.4-11.9 very rubbly and locally crushed (faulted) intervals with strong oxidation and poor core recovery.</p> <p>14.0-15.4 less finely banded, more siliceous/bleached interval with minor fine calc-silicate hornfels about quartz-pyroxene±pyrrhotite veins. Appears more like altered/sheared volcanics here.</p> <p>15.0 foliation parallel banding/CA 60°.</p> <p>15.4-16.6 badly broken/rubbly and locally crushed (faulted), oxidized zone with poor recovery.</p> <p>16.6-20.4 strongly sheared, finely banded biotitic±chloritic hornfels.</p> <p>18.7 foliation parallel banding/CA 60°.</p> <p>19.2 shear bands and deformed quartz±pyroxene-pyrrhotite veins.</p> <p>20.4 rubbly lower contact.</p>
20.4	22.5	<p>INTERMEDIATE DYKE Massive, medium grey green to blue grey, fine equigranular, relatively undeformed (weak foliation), moderately magnetic dyke containing 3-8% very fine-grained disseminated pyrrhotite.</p> <p>20.9 quartz-pyroxene±chlorite-sericite-pyrrhotite(tr marcasite,chalcopyrite)-arsenopyrite veins.</p> <p>22.4-22.5 trace arsenopyrite disseminations and in veins.</p> <p>22.5 chill sharp contact at slight angle to foliation; 42° to CA.</p>
22.5	23.6	<p>BIOTITE HORNFELS Medium to dark grey, weakly biotite hornfelsed, very fine-grained thin banded to fine to medium-grained thicker banded sediments/volcanics??</p> <p>23.0 strong shearing with locally developed intrafolial folds; foliation</p>

		parallel banding/CA 35°.
23.6	24.3	FELSIC DYKE Massive, light grey green, very siliceous fine-grained, weakly foliated felsic dyke cut by quartz-feldspar-pyroxene \pm chlorite-pyrrhotite (trace chalcopyrite) veins with bleached halos. Contacts not visible.
24.3	30.8	BIOTITE HORNFELS Light to dark brown grey, biotite hornfelsed, very fine-grained thin banded to fine to medium-grained, thicker banded to massive sediments/volcanics?? with tr-1% fine-grained disseminated pyrrhotite cut by numerous pyrrhotite-quartz \pm pyroxene veinlets with bleached halos. Locally biotitic hornfels appears porphyritic to fragmental?? 26.3 thin fault/CA 48°. 26.7 foliation/CA 56°. 29.5 foliation/CA 67°.
30.8	31.1	FELSIC DYKE As above, with thin chilled margins. 30.8 sharp upper contact/CA 46°.
31.1	65.3	BIOTITE HORNFELS Light to dark green grey to brown grey, biotite hornfelsed, very fine-grained thin banded to fine to medium-grained, thicker banded to massive sediments/volcanics?? with tr-1% fine-grained disseminated pyrrhotite cut by numerous pyrrhotite-quartz \pm pyroxene veinlets with light grey, silicified and medium to dark green chloritic halos, as above. 32.9 increasing veining, bleaching and biotite grain size. 35.5 foliation parallel banding/CA 61°. 37.1-37.5 fault; light grey sheared/crushed silica-sericite zone. 38.0 thin, crushed late chlorite-calcite vein. 38.4-41.3, 44.6-45.2 increased bleaching and quartz \pm feldspar-pyroxene-chlorite-pyrrhotite veining. 38.5 foliation (S ₁) parallel banding/CA 28-46°; crenulation cleavage (S ₂)/CA 47°. 43.8 foliation parallel banding/CA 62°. 45.2-49.0 biotite hornfels with biotite locally transposed parallel to S ₂ foliation. Patchy, medium blue grey material within biotitic hornfels is boudined and folded silica-pyrrhotite \pm pyrite alteration. 48.0 foliation/CA 51°. 48.9 foliation/CA 59°. 49.0-53.6 increased bleaching and quartz-calcite-pyrrhotite-pyroxene \pm chlorite and late calcite veining. 51.4 foliation/CA 55°. 54.1 foliation/CA 61°. 58.3 foliation/CA 65°. 59.1-61.0 quartz-pyrrhotite-chlorite \pm epidote veins appear in dark green grey, locally sericitic hornfels.

		59.7 foliation/CA 32°.
		61.0-62.0 bleached zone with weak, light pinky grey, fine calc-silicate hornfels developed.
		64.3 foliation/CA 54°.
		65.0-65.3 fault; broken, crumbly oxidized zone with calcite-quartz veins.
65.3	66.8	<p>CALC-SILICATE HORNFELS</p> <p>Light pinky grey, very fine-grained calc-silicate hornfelsed interval with patchy remanent biotite hornfels and abundant quartz-pyroxene-pyrrhotite ± calcite veinlets.</p> <p>65.9 tight kink folds developed with axial planar S₂ foliation 34° to CA; S₁ foliation/CA 58°.</p>
66.8	68.0	<p>BIOTITE HORNFELS</p> <p>As above.</p>
68.0	68.9	<p>CALC-SILICATE HORNFELS</p> <p>As above.</p> <p>68.3 minor oxidized calcite vein approx. parallel S₂ foliation.</p>
68.9	72.0	<p>BIOTITE HORNFELS</p> <p>As above.</p> <p>70.1 foliation parallel banding/CA 59°.</p> <p>70.2-72.0 increased bleaching and weak calc-silicate hornfels.</p> <p>70.3, 70.4 minor calcite-quartz-sericite-pyrrhotite veinlets.</p> <p>71.2-71.3 late calcite ± quartz-chlorite-pyroxene-sericite-pyrrhotite veinlets.</p>
72.0	74.9	<p>CALC-SILICATE HORNFELS</p> <p>As above.</p> <p>74.0 foliation parallel banding/CA 50°, late calcite veins/CA 44°.</p>
74.9	75.4	<p>CALC-SILICATE SKARN</p> <p>Dark green, massive fine-grained pyroxene-calcite ± garnet skarn containing tr-5% very fine to fine-grained disseminated pyrrhotite. Upper and lower contacts are weakly banded, strongly chloritic and appear conformable with banded hornfels.</p> <p>75.1 increasing fine to medium-grained porphyroblastic garnets.</p> <p>75.2 several calcite-pyroxene-pyrrhotite-chlorite veinlets.</p>
75.4	75.6	<p>BLEACHED BIOTITE HORNFELS</p> <p>Basal contact is sharp and approx. conformable to banding.</p>
75.6	81.1	<p>CALC-SILICATE-MAGNETITE SKARN</p> <p>Light green to black, well banded, fine to medium-grained pyroxene--</p>

garnet-calcite-magnetite skarn.

75.6-75.7 very crudely banded, massive pyroxene-calcite-garnet skarn (no magnetite).

75.7-75.8 decreased garnet content, increased pyrrhotite content over 2-3cm's into banded (2mm-1cm, irregular and generally discontinuous) fine-grained magnetite±calcite-pyrrhotite-pyroxene separated by pyroxene-calcite±pyrrhotite bands of similar thickness and texture. Banding/CA 56°.

75.8-76.8 decreasing magnetite content, increasing fine to medium-grained, medium to dark green pyroxene becoming a banded pyroxene-calcite±chlorite skarn with 3-8% very fine-grained disseminated pyrrhotite (trace marcasite and chalcopyrite).

76.0-76.2 well banded interval with several bands of deep blue green fine to medium-grained pyroxene? and purple grey pyroxene in matrix of other bands. Calcite-chlorite-pyrrhotite-pyroxene veins and light to medium brown garnet porphyroblasts are present.

76.7 4-5cm banded fine-grained magnetite.

76.8-77.0 white calcite-rich bands with pyrrhotite-pyrite tension gashes interbanded with pyroxene-calcite bands.

77.0-77.4 fine-grained interbanded calcite-pyroxene and pyroxene-calcite skarn with occasional discontinuous fine-grained magnetite-calcite-pyrrhotite bands.

77.4-77.9 abundant magnetite interbands.

77.7 banding/CA 55°.

77.9-78.2 decreased magnetite content; light to medium grey green crudely banded pyroxene-calcite skarn with minor black, chloritic alteration spots.

78.2-80.2 abundant magnetite bands comprising 30-80% of interval. Fine to medium-grained magnetite occurs as heavy disseminations within the irregular bands. Calcite-amphibole-chlorite locally replaces interbanded pyroxene-calcite skarn. Interval contains nil pyrrhotite.

79.4-80.2 decreasing magnetite (10-20%) as fine-grained disseminations; possibly weakly skarned carbonate remanent present! 79.5 banding/CA 59°.

80.2-81.1 banded pyroxene±calcite-magnetite becoming more massive banded with developing light orange brown garnets.

80.9-81.1 becomes increasingly chloritic.

81.1 relatively sharp lower contact approx. parallel banding.

81.1 81.6

BLEACHED BIOTITE HORNFELS

Siliceous, massive fine-grained light blue grey hornfels containing tr-2% fine-grained disseminated and blebby pyrrhotite and several pyroxene-garnet-calcite-pyrrhotite veins with 2-20mm bleached halos.

81.6 83.1

CALC-SILICATE SKARN

Fine-grained, crudely banded noncalcareous pyroxene-garnet skarn with tr-2% very fine-grained disseminated to blebby pyrrhotite and associated chlorite. No magnetite.

83.1 sharp lower contact at 47° to CA.

83.1	84.3	BLEACHED BIOTITE HORNFELS As above.
84.3	85.6	BLEACHED CARBONATE? Light grey to white strongly silicified carbonate? with 5% patchy, fine-grained calcite-pyrrhotite-pyroxene-chlorite replacements developed locally and minor pyrrhotite fractures. Upper and lower contacts are veined; basal 20cms appears brecciated with increased pyrrhotite-pyrite content.
85.6	85.8	CALC-SILICATE SKARN Very fine-grained pyroxene-chlorite skarn with medium-grained garnet porphyroblasts with an irregular, gradational alteration contact into the underlying unit.
85.8	94.3	RECRYSTALLIZED CARBONATE/MARBLE Light to medium grey to white, fine to medium-grained massive recrystallized carbonate. Dark grey to black carbonaceous material occurs within calcite-pyrrhotite \pm quartz-sericite-pyroxene veinlets and as disseminations adjacent to veins. 87.0 foliation/CA 40°. 89.6 foliation/CA 38°. 90.5-90.8, 91.7-92.9, 93.5-93.7 medium brown soft biotite-chlorite? seams appear parallel the foliation. 91.7 foliation/CA 48°. 94.3 sharp, silicified lower contact.
94.3	101.7	CALC-SILICATE HORNFELS Light grey, pinky grey to green grey, very fine-grained, well banded, strongly sheared calc-silicate hornfels with local biotite hornfels remnants. 94.3 banding parallel foliation/CA 56°. 94.3-96.8 abundant light grey, very fine-grained silica altered euhedral to massive/annealed porphyroblasts or spotty alteration?? of ??mineral growing parallel banding in siliceous calc-silicate hornfelsed interval. Porphyroblasts locally with fine pyrrhotite-pyrite centres or rims. 98.9 banding/CA 49°. 99.3-99.8, 100.2-101.1 numerous oxidized calcite \pm quartz-chlorite veins.
101.7	105.4	CALC-SILICATE SKARN Light to medium green, fine-grained massive pyroxene \pm calcite skarn with tr-1% fine-grained disseminated pyrrhotite and trace garnet development. 101.7-101.9 gradational contact with increasing calc-silicate hornfels to fine-grained skarn. 102.8-103.4, 104.7-104.9 patchy remnants of fine calc-silicate hornfels.

		103.9 foliation/CA 43°.
105.4	107.9	<p>CALC-SILICATE HORNFELS Well banded, fine calc-silicate hornfels to fine pyroxene skarn.</p> <p>105.7-106.3 fine-grained pyroxene skarn. 107.7 banding/CA 49°.</p>
107.9	158.4	<p>BIOTITE HORNFELS Light to dark green grey to brown grey, biotite hornfelsed, very fine-grained thin banded to fine to medium-grained, thicker banded to massive sediments/volcanics?? with tr-1% fine-grained disseminated pyrrhotite cut by numerous undeformed and boudined quartz-pyroxene-pyrrhotite veinlets with light grey, silicified halos.</p> <p>107.9-118.3 very fine-grained to fine-grained well banded interval of hornfelsed fine clastics? 111.6 foliation parallel banding/CA 44°. 116.7 foliation parallel banding/CA 21°. 118.0 foliation parallel banding/CA 49°. 118.2-118.4 folded/contorted quartz-pyroxene+pyrrhotite veins. 118.3-122.8 coarser grained, more massive sediment/volcanic? 122.5 foliation/CA 52°. 122.8-134.5 very fine to fine-grained, medium to dark grey fine to massive banded, locally bleached and calc-silicate hornfelsed about veins. Biotite is best developed adjacent to bleached vein halos. 128.6 foliation/CA 45°. 132.4 foliation/CA 38°, crenulation cleavage/CA 49°.</p>
134.5	137.8	<p>CALC-SILICATE HORNFELS Well banded, fine calc-silicate hornfels to fine pyroxene skarn.</p> <p>135.5-137.8 weakly developed fine-grained pyroxene-calcite skarn.</p>
137.8	158.4	<p>BIOTITE HORNFELS Light to dark green grey to brown grey, biotite hornfelsed, very fine-grained thin banded to fine to medium-grained, thicker banded to massive sediments/volcanics?? with tr-1% fine-grained disseminated pyrrhotite and variably developed veining and associated alteration.</p> <p>141.0 foliation/CA 29°. 142.0-143.5 fault; oxidized zone with numerous crushed/gouged calcite-quartz veins. 145.4 foliation/CA 44°. 149.1 foliation/CA 46°. 152.7 foliation/CA 52°. 153.1-153.2 weakly oxidized calcite-quartz vein at 34° to CA. 153.8-158.4 increasing fine calc-silicate hornfels and quartz-pyroxene veining. 157.4 foliation/CA 48°. 158.2-158.4 quartz-pyroxene-garnet veins. Lower contact crosscuts</p>

158.4	161.2	<p>foliation parallel banding.</p> <p>MINERALIZED CALC-SILICATE SKARN Well banded, early light blue grey to medium green, fine-grained pyroxene dominant skarn is replaced by a more massive, fine to coarse-grained, light brown garnet±sulphide-calcite-pyroxene skarn. Both phases of skarn are retrograde altered to patchy fine chlorite.</p> <p>158.7-159.1 thin interbanded fine pyroxene-silica skarn and fine to medium-grained garnet±calcite skarn with 2-5% very fine-grained disseminated pyrrhotite. 158.8 banding/CA 38°. 159.0-159.1 weakly pyroxene skarned, calc-silicate hornfels remanent. 159.1-159.2 more massive, fine to medium-grained garnet-pyroxene and retrograde chlorite patches in pyroxene dominant areas. Rare disseminated arsenopyrite found in pyroxene skarn. Grain size increases to 159.2. 159.2-159.3 coarse-grained pyrrhotite(60%)-sphalerite(10%)-pyroxene(10%)-calcite(10%)-chlorite(5%)-chalcopyrite(1-2%) vein or replacement? Coarse sphalerite crystalline masses contain pyrrhotite rims. 159.3-160.4 fine to coarse-grained, poorly banded garnet-pyroxene±calcite skarn with patchy retrograde chlorite and tr-1% disseminated sphalerite associated with calcite crosscut by numerous calcite-garnet-pyrrhotite±sphalerite-chlorite veins. 160.4-161.2 coarse-grained garnet±pyroxene-calcite-pyrrhotite-sphalerite(tr-1%)-chlorite and trace arsenopyrite replacing an earlier fine to medium-grained garnet-pyroxene skarn.</p>
161.2	162.0	<p>INTERBANDED CALC-SILICATE SKARN AND HORNFELS Several fine to medium-grained garnet-pyroxene skarn bands with irregular crosscutting, replacement type contacts and containing 2-5% very fine-grained disseminated pyrrhotite and patchy retrograde chlorite occur within thinly banded, light to dark grey, very fine-grained siliceous hornfels.</p>
162.0	167.9	<p>BLEACHED, VEINED AND VARIABLY HORNFELSED SEDIMENTS? Medium to dark grey, strongly sheared and variably veined and bleached, locally sulphidic (pyrrhotitic) sediments? Weak to nil biotite developed.</p> <p>162.2 crenulation cleavage (shear bands) at 37° to CA deform quartz-pyroxene veins and alteration halos. 162.7-162.9 coarse calcite vein with oxidation of adjacent rock. 162.9-163.4 fine-grained garnet-pyroxene±chlorite veins with calc-silicate hornfels alteration halos. 163.4-163.5 fine garnet±pyroxene-calcite-pyrrhotite-chlorite skarn. 163.5-163.6 dark grey sheared sediment containing 20-30% very fine-grained pyrrhotite; not laminated. 163.6-164.8 numerous garnet-pyroxene-pyrrhotite veins and calc-</p>

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		silicate hornfels alteration crosscutting sulphidic sediments. 165.4-167.9 increased calc-silicate hornfels and silicification. 166.4 foliation parallel banding/CA 36°.
167.9	169.0	CALC-SILICATE SKARN Light to medium green, fine-grained pyroxene±calcite-garnet skarn containing tr-2% fine-grained disseminated pyrrhotite and abundant banded biotite hornfels remanents. Towards base skarn is medium to coarse-grained garnet dominant with minor to trace sphalerite associated with late calcite and pyrrhotite. 168.1 banding/CA 32°.
169.0	176.2	BIOTITE HORNFELS Light to dark green grey to brown grey, strongly sheared biotite hornfelsed, very fine-grained thin banded to fine-grained, thicker banded to massive sediments/volcanics?? with tr-2% fine-grained disseminated pyrrhotite and variably developed veining and associated alteration. 170.0 3 foliations developed; foliation parallel banding S ₁ /CA 42°, crenulation cleavage/shear bands S ₂ /CA 43° and an S ₃ crenulation at 85° to CA is locally defined by biotite and sericite. 173.5, 174.2, 175.7 calcite-quartz veins post S ₂ but pre S ₃ . 174.4 S ₂ foliation/CA 23°, S ₃ foliation/CA 88°; S ₃ transposes S ₂ .
176.2	177.7	FAULT Broken/rubbly interval with poor recovery. Abundant, variably oxidized calcite-quartz veining and brecciation of bleached wall rocks.
177.7	179.5	BLEACHED BIOTITE HORNFELS Bleached and weakly calc-silicate hornfelsed biotite hornfels, as above. 179.0 increasing silicification and garnet-pyroxene-quartz-pyrrhotite veining. 179.3 trace sphalerite in veins. 179.5 lower contact is a crosscutting replacement contact with trace sphalerite blebs.
179.5	182.3	MINERALIZED CALC-SILICATE SKARN Massive, medium green brown garnet-pyroxene-calcite-sphalerite skarn. 179.5-180.3 medium green, fine-grained pyroxene-calcite skarn replaced by fine to medium-grained porphyroblastic to massive garnet with intergranular calcite-sphalerite(1-3%)-pyroxene-pyrrhotite±amphibole. 180.3-181.1 fine to coarse-grained garnet-pyroxene with 15-20% intergranular, coarse-grained sphalerite with associated pyrrhotite and chlorite. Minor to nil calcite. Locally matrix pyroxenes are chlorite altered with subsequent garnet porphyroblasts.

	<p>181.1-182.3 increased garnet content with 2-3% intergranular sphalerite±pyroxene-calcite-chlorite. 181.5-181.8 decreased sphalerite content and increasing chlorite alteration. 181.6-181.7 broken interval with calcite veining. 182.0-182.1 remanent silicified hornfels. 182.2 banding/CA 54°.</p>
<p>182.3 208.7</p>	<p>BLEACHED BIOTITE HORNFELS Bleached and weakly calc-silicate hornfelsed biotite hornfels, as above.</p> <p>182.3-184.3 euhedral, light pink grey silica porphyroblastic alteration often with cores of fine pyrrhotite-pyrite developed adjacent to quartz-pyroxene-pyrrhotite veins. 184.3-185.7 very silicic biotitic hornfels. 185.7-188.1 increased bleaching and pyrrhotite-silica-pyroxene veins. 188.1-198.6 tectonically fragmented or sheared coarse clastic textured biotite hornfels with <1-4mm quartz-feldspar? vein fragments. 190.5-190.8 pyrrhotite after coarse euhedral cubic, porphyroblastic pyrite (≤1.5cm; post deformation). 190.8-191.2, 192.7-193.7, 194.5-196.9 bleached/silicified. 195.3-195.4, 195.6-196.2 heavy pyrrhotite disseminations. 196.9-197.4 weak pyroxene-garnet calc-silicate hornfels. 198.6-199.5 fault; calcite-quartz breccia veins; broken and lost core. 199.5-208.7 fine banded biotite hornfels. 199.8 foliation/CA 46°. 205.5-206.5 cubic pyrite porphyroblasts replaced by pyrrhotite and silica. 206.1 banding/CA 24°. 208.4 S₂ foliation/CA 38°.</p>
<p>208.7 233.3</p>	<p>MINERALIZED CALC-SILICATE SKARN Massive, light to medium green brown garnet-pyroxene-calcite±calcite-sphalerite skarn.</p> <p>208.7-209.1 massive fine-grained pyroxene±calcite skarn cut by garnet veins and replaced by garnet in patches adjacent to veins. 209.1 increasing garnet replacement with 1-3% intergranular fine-grained blebby sphalerite. 209.2-209.5 increased calcite, decreased sphalerite and trace disseminated arsenopyrite in garnet dominated skarn. 209.5 banding/CA 31°. 209.5-212.9 fine-grained banded pyroxene (low sulphide) skarn replaced parallel banding by garnet porphyroblasts. 209.9-210.0 tr-1% disseminated sphalerite, pyrrhotite and trace arsenopyrite. 211.7 trace arsenopyrite disseminated in retrograde chlorite-pyroxene skarn. Late calcite-chlorite intergranular to patchy garnet replacements. 212.2-212.3 late, coarse-grained purple diopside in diopside-</p>

calcite±garnet veins and with calcite, intergranular to garnets.
 212.4, 212.9-213.2 trace disseminated, fine arsenopyrite and numerous calcite-pyroxene-pyrrhotite-sphalerite-arsenopyrite-chlorite veins.
 213.8 banding/CA 32°.
 213.2-213.6 coarse diopside with calcite intergranular to garnet.
 213.2-215.7, 217.7-217.9 increased chlorite alteration.
 215.0, 216.1-216.3, 216.5-216.7, 218.2, 221.5 diopside-calcite-garnet±epidote veins with chloritic halos.
 217.9-225.8 weakly banded pyroxene-calcite-chlorite-garnet skarn.
 219.2 banding/CA 47°.
 222.5-225.8 tr-3% disseminated fine arsenopyrite; trace sphalerite at 225.5 to 225.8.
 225.8 thin fault gouge.
 225.8-229.1 porphyroblastic garnet-pyroxene-calcite skarn.
 227.0 banding/CA 60°.
 229.1-229.3 increasing brecciation and chlorite alteration.
 229.3-230.3 strongly bleached and calc-silicate hornfelsed dark grey hornfels adjacent to abundant garnet-pyroxene-quartz veins.
 230.1 trace disseminated sphalerite.
 230.3-233.3 locally banded garnet-pyroxene-calcite skarn with tr-1% fine blebby disseminated sphalerite.
 232.9 diopside-calcite-sphalerite-pyrrhotite-garnet-epidote vein.
 232.9-233.3 trace arsenopyrite and increased sphalerite-pyrrhotite towards contact.

233.3

247.6

SHEARED MUDSTONE

Dark grey sheared mudstones with abundant deformed quartz veins.

233.3-234.0 very siliceous interval with abundant quartz-pyroxene±sericite veining.
 233.3-236.8 10-30% very fine-grained disseminated pyrite-pyrrhotite parallel S₂ foliation within dark grey mudstones.
 236.8-239.8 dark grey sheared mudstones with tr-5% very fine-grained pyrrhotite disseminated parallel the S₂ foliation. Slightly more biotite developed. Strong shearing has destroyed original bedding. Quartz vein material is sheared/boudined and folded.
 239.8-243.7 5-10% very fine-grained pyrrhotite particularly developed along foliation seams. Generally very siliceous, veined and sheared mudstone/siltstone??
 243.7-245.9 weak calc-silicate hornfelsing about calcite-quartz-pyroxene-pyrrhotite-arsenopyrite veins.
 245.8 foliation/CA 71°.
 245.9-247.6 weak biotite hornfels; badly sheared/brecciated and veined interval; minor crushed/gouged zone at 243.6 75° to CA.

247.6

279.2
EOH

SHEARED MUDSTONE/SILTSTONE

Dark grey to black sheared, locally chloritic mudstone/silty mudstone with minor interbedded medium to dark grey siltstone. Interval contains tr-5% very fine-grained disseminated to laminated pyrrhotite-pyrite and relatively minor quartz-pyroxene-pyrrhotite-biotite veins with

biotitic halos. Mudstones are not particularly carbonaceous. Bedding and parallel S_1 foliation are discernable and generally at a low angle to the CA. A high angle S_2 foliation is variably developed and locally destroys original textures.

252.9 S_1 foliation/CA 10° , S_2 foliation/CA 82° .

253.7-253.9, 254.2-254.6 increased fine to medium-grained biotite within siltstones (possibly quartz vein material??).

253.9-254.2 40-50% very fine-grained pyrrhotite disseminated/banded parallel S_2 or S_1 foliation reflecting synsedimentary pyrite. Also medium grey quartz vein material and tr-1% fine disseminated arsenopyrite.

254.6-258.7 black to dark grey, locally chloritic mudstone dominated section (laminated to thin bedded?) with tr-5% late pyrrhotite-pyrite fractures and minor quartz-pyrrhotite veining.

254.9 foliation/CA 63° .

257.8 S_1 foliation/CA 44° , S_2 foliation/CA 52° , S_3 foliation/CA 84° .

258.7-259.7 minor fault gouge in broken/sheared zone with increased carbon content.

259.7-265.5 laminated to thin bedded mudstone, siltstone and minor thin sandstone interbeds. Interval contains tr-3% fine disseminated pyrrhotite-pyrite.

261.4 bedding/CA 10° , S_2 foliation/CA 69° .

266.5 S_2 foliation/CA 63° .

265.5-272.0 dark grey mudstones predominate with slightly increased pyrrhotite-pyrite content (2-5%) and minor quartz-pyrrhotite veining with biotitic halos.

271.6 S_2 foliation/CA 56° .

272.0-279.2 increased medium grey siltstone, fine sandstone interbeds with strongly developed S_2 foliation at high angle to bedding.

273.1 S_2 foliation/CA 52° .

277.0 S_2 foliation/CA 56° .

Hole #SR92-03

Interval		Meters Indicated	Actual Meterage	% Recovery
From	To			
4.4	4.8	.4		
4.8	7.9	3.1	1.7	54
7.9	11.0	3.1	1.5	48
11.0	14.0	3.0	2.1	70
14.0	17.1	3.1	3.0	96
17.1	20.1	3.0	3.0	100
20.1	23.2	3.1	3.1	100
23.2	26.2	3.0	3.0	100
26.2	29.3	3.1	3.1	100
29.3	32.3	3.0	3.0	100
32.3	35.4	3.1	3.0	96
35.4	38.4	3.0	3.0	100
38.4	41.5	3.1	3.1	100
41.5	44.5	3.0	3.0	100
44.5	47.5	3.0	3.0	100
47.5	50.6	3.1	2.8	90
50.6	53.6	3.0	2.9	96
53.6	56.7	3.1	3.1	100
56.7	59.7	3.0	3.0	100
59.7	62.8	3.1	3.1	100
62.8	65.8	3.0	3.0	100
65.8	68.9	3.1	3.1	100
68.9	71.9	3.0	3.0	100
71.9	75.0	3.1	3.1	100
75.0	78.0	3.0	3.0	100
78.0	81.1	3.1	3.1	100
81.1	84.1	3.0	3.0	100
84.1	87.2	3.1	3.1	100
87.2	90.2	3.0	3.0	100
90.2	93.3	3.1	3.1	100
93.3	96.3	3.0	3.0	100
96.3	99.4	3.1	3.1	100
99.4	102.4	3.0	3.0	100
102.4	105.5	3.1	3.1	100
105.5	108.5	3.0	3.0	100
108.5	111.6	3.1	3.1	100
111.6	114.6	3.0	3.0	100
114.6	117.7	3.1	3.1	100
117.7	120.7	3.0	3.1	100
120.7	123.7	3.0	3.0	100
123.7	126.8	3.1	3.1	100
126.8	129.8	3.0	3.0	100
129.8	132.9	3.1	3.1	100
132.9	135.9	3.0	3.0	100
135.9	138.9	3.0	3.0	100

Hole #SR92-03 con't

Interval		Meters Indicated	Actual Meterage	% Recovery
From	To			
138.9	142.0	3.1	2.9	93
142.0	145.0	3.0	2.9	96
145.0	148.0	3.0	2.8	93
148.0	151.2	3.2	3.1	96
151.2	154.2	3.0	3.0	100
154.2	157.3	3.1	3.1	100
157.3	160.3	3.0	3.0	100
160.3	163.4	3.1	3.1	100
163.4	166.4	3.0	3.0	100
166.4	169.5	3.1	3.1	100
169.5	172.5	3.0	3.0	100
172.5	175.6	3.1	3.1	100
175.6	178.6	3.0	3.0	100
178.6	181.6	3.0	3.0	100
181.6	184.7	3.1	3.1	100
184.7	187.8	3.1	3.1	100
187.8	190.8	3.0	3.0	100
190.8	193.9	3.1	3.1	100
193.9	196.9	3.0	3.0	100
196.9	199.9	3.0	2.5	83
199.9	203.0	3.1	3.1	100
203.0	206.0	3.0	3.0	100
206.0	209.1	3.1	3.1	100
209.1	212.1	3.0	3.0	100
212.1	215.2	3.1	3.1	100
215.2	218.2	3.0	3.0	100
218.2	221.3	3.1	3.1	100
221.3	224.3	3.0	3.0	100
224.3	227.4	3.1	3.0	96
227.4	230.4	3.0	3.0	100
230.4	233.5	3.1	3.1	100
233.5	236.5	3.0	3.0	100
236.5	239.6	3.1	3.1	100
239.6	242.6	3.0	3.0	100
242.6	245.6	3.0	2.7	90
245.6	248.7	3.1	3.1	100
248.7	251.8	3.1	2.8	90
251.8	254.8	3.0	2.7	90
254.8	257.9	3.1	3.1	100
257.9	260.9	3.0	3.0	100
260.9	263.0	3.1	3.1	100
263.0	267.0	4.0	3.6	90
267.0	267.3	.3	.3	100
267.3	270.1	3.1	2.0	64
270.1	273.1	3.0	3.0	100
273.1	276.1	3.0	3.0	100
276.1	279.2	3.1	2.9	93
END OF HOLE		279.2	267.5	95%

DRILL HOLE RECORD

COMINCO LTD.

Property: Swift River Option
 Commenced: July 17/93
 Completed: July 19/93
 Coordinates: 24 + 28W 7 + 73S
 Contractor: Falcon Drilling Ltd.
 Logged by: P.A.MacRobbie

District: Watson Lake
 Location: Yukon
 Core size: NQ
 Claim Reference:
 Claim Key 15 YB09500
 Elevation:
 Licence:

Hole No.: SR93-04
 Length: 184.7 m
 Cor. Dip: -55°
 True Brg.: 028°
 % Recovery.: 98
 Sample type:

Metres From	To	Description
0.0	8.2	OVERBURDEN
8.2	11.9	<p>VOLCANIC FLOW/DYKE? Dark green grey, massive fine-grained siliceous and locally biotitic feldspar phyric volcanic dyke or flow containing 0-30% light to medium green (chlorite-pyroxene altered) diffuse feldspar phenocrysts, $\leq 1.5\text{mm}$ in size. Unit is possibly several dykes with chilled margins giving banded appearance. Numerous quartz-pyroxene-pyrrhotite (trace chalcopyrite) veins with and without bleached halos.</p> <p>9.6-11.2 strongly sheared and bleached, light green grey calc-silicate hornfelsed volcanic dyke or flow, as above. Phenocrysts are silica altered and milled into subrounded quartz 'eyes'. Interval has increased pyrrhotite content (2-3%) and veining. 9.7 foliation/CA 76°. 11.2-11.9 decreased bleaching and veining; biotite hornfelsed volcanic flow or dyke, as above. 11.3 foliation/CA 45°.</p>
11.9	12.1	<p>BIOTITE HORNFELS Sheared and variably bleached and veined, very fine-grained, well banded biotite hornfelsed to weakly calc-silicate hornfelsed sediments/volcanics?</p>
12.1	13.3	<p>BLEACHED VOLCANIC FLOW/DYKE? Strongly bleached, light green grey calc-silicate hornfelsed volcanic dyke or flow, as above. Phenocrysts are silica altered and milled into subrounded quartz 'eyes'. Interval contains tr-3% fine disseminated and fracture filling pyrrhotite.</p> <p>12.7-13.4 pyrrhotite(marcasite)-arsenopyrite-chalcopyrite-chlorite veins with bleached halos present.</p>
13.3	26.5	<p>BIOTITE HORNFELS As above. Unit contains numerous quartz-pyroxene-pyrrhotite veins with calc-silicate hornfels halos and locally contains numerous light grey to clear $\leq 2\text{mm}$ subrounded, internally fractured and recrystallized quartz 'eyes' and stretched "fragments", which likely reflect sheared quartz veins material.</p> <p>13.4 thin fault gouge.</p>

		<p>13.9 foliation parallel banding/CA 48°, weakly developed S₂ foliation/CA 64°.</p> <p>16.5-16.8 oxidized hornfels adjacent to quartz-pyroxene-pyrrhotite vein and thin fault at 16.6.</p> <p>17.1-17.3 'fragmental' interval; possibly volcanic??</p> <p>18.5 foliation/CA 57°.</p> <p>18.5-19.4 dark brown grey green chlorite±epidote altered finely banded volcanic tuff/flow??</p> <p>19.4-20.3 increased bleaching and fine calc-silicate hornfels with tight isoclinal folds present.</p> <p>21.2-21.7 possible sheared feldspar porphyritic volcanic flow/dyke, as above.</p> <p>21.7-26.5 strong folding with well developed axial planar cleavage. Quartz-pyrrhotite veins are also folded.</p> <p>25.1 S₁ foliation/CA low-45°, S₂ foliation/CA 54°.</p>
26.5	27.9	<p>CALC-SILICATE HORNFELS</p> <p>Strongly bleached very fine-grained, well banded light grey to purple green calc-silicate hornfels containing 2-5% fine disseminated pyrrhotite and numerous quartz-pyrrhotite-pyrite veins.</p>
27.9	30.7	<p>BIOTITE HORNFELS</p> <p>As above. Finely banded, light to dark grey to maroon, variably bleached unit.</p> <p>29.6-30.7 biotitic, fine to medium banded coarser grained, locally fragmental sediment (ie. wacke??). Foliation/crenulation defined by biotite.</p> <p>30.7 foliation parallel banding/CA 40°, crenulation cleavage/CA 37°.</p>
30.7	35.2	<p>CALC-SILICATE HORNFELS</p> <p>As above, containing 2-5% fine disseminated pyrrhotite and numerous quartz-marcasite (after pyrrhotite) veins and blebby sheared vein fragments.</p> <p>30.7-31.2 gradational increase in calc-silicate hornfelsing of overlying interval.</p> <p>33.2 begin to see dendritic manganese stain (pyrolusite) adjacent to quartz veins.</p> <p>33.5 possible fine-grained sphalerite in vein.</p> <p>34.1 foliation/CA 71°.</p> <p>35.0 trace arsenopyrite in pyrrhotite-quartz±pyroxene vein.</p> <p>35.2 irregular but sharp lower contact.</p>
35.2	42.9	<p>CALC-SILICATE SKARN?</p> <p>Light to medium grey green, locally banded very fine to fine-grained pyroxene-silica±calcite skarn with locally developed ≤1mm diffuse, light grey to white feldspar? phenocrysts?? Epidote is weakly developed giving unit a medium green colour. No garnets and nil-trace pyrrhotite are present.</p>

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		<p>36.4 banding/CA 52°.</p> <p>37.1-38.6 weaker light blue grey pyroxene-silica skarn.</p> <p>37.1-37.3 relict banding of altered hornfels?</p> <p>37.3 tr-3% very fine-grained disseminated and fracture filling pyrrhotite.</p> <p>37.4 relict dark grey pyrrhotitic sediment.</p> <p>38.3-38.5 purple diopside-chlorite-calcite veins and fracture fillings.</p> <p>38.6-39.8 fine pyroxene-silica skarn with porphyroblastic to massive, light orange brown medium to coarse-grained garnet and late intergranular/vuggy diopside-calcite.</p> <p>38.9 banding/CA 53°.</p> <p>39.8-40.2 lighter grey, siliceous pyroxene skarn with 3-8% fine disseminations and blebby pyrrhotite-pyrite.</p> <p>40.2-40.6, 41.4-41.7 medium green grey, crudely banded pyroxene-silica skarn with tr-3% fine-grained pyrrhotite blebby disseminations and strung out disseminations parallel to the foliation/banding.</p> <p>40.6-41.4 trace-5% fine-grained black sphalerite occurring as pyrrhotite did (blebby disseminations and foliation parallel disseminations) within the light to medium green grey, weakly calcareous pyroxene-silica skarn.</p> <p>41.7-42.9 weakly skarned interval comprising interbanded light purple green, finely banded calc-silicate hornfels and more massive, medium green pyroxene-silica-pyrrhotite(3-5%) skarn.</p> <p>42.1 foliation parallel banding/CA 48°.</p>
42.9	43.2	<p>BIOTITE HORNFELS</p> <p>As above. Finely banded, light to dark grey to maroon, biotite hornfels with irregular replacement contacts.</p>
43.2	46.4	<p>MINERALIZED CALC-SILICATE SKARN</p> <p>Light to medium grey green, locally banded very fine to fine-grained pyroxene-silica ± calcite skarn, as above.</p> <p>43.2-43.4 increasing pyroxene-silica skarning of banded calc-silicate hornfels.</p> <p>43.4-43.6 pyroxene-silica skarn with tr-3% fine black disseminated sphalerite.</p> <p>43.6-43.7 banded light orange brown garnet-pyroxene skarn with tr-5% disseminated sphalerite.</p> <p>43.7-44.7 weakly pyroxene-silica skarned, light green grey interval containing tr-3% disseminated pyrrhotite and trace arsenopyrite (to 44.8).</p> <p>44.7-46.0 fine-grained light to medium green pyroxene-silica to garnet-pyroxene skarn with low sulphides (trace disseminated sphalerite), minor chlorite-epidote and late feldspar?</p> <p>44.8 banding/CA 62°.</p> <p>45.1-45.7 garnet dominant skarn.</p> <p>45.6 oxidized quartz-sphalerite-pyrrhotite vein.</p> <p>46.0-46.2 trace-3% disseminated blebby fine-grained sphalerite and tr-3% disseminated blebby pyrrhotite in pyroxene-silica skarn.</p> <p>46.2-46.4 well banded, strong calc-silicate hornfels to weak pyroxene</p>

		skarn with gradational replacement contact into underlying unit.
46.4	48.0	BIOTITE HORNFELS Variably bleached and veined to weakly calc-silicate hornfelsed, very fine-grained and well banded biotite hornfels.
48.0	48.3	CALC-SILICATE SKARN Well banded, weakly calcareous light to medium green grey fine-grained pyroxene-silica skarn with tr-5% blebby disseminated fine pyrrhotite ± biotite-sphalerite.
48.3	49.2	BRECCIA VEIN White calcite(dolomite)-quartz-epidote-sphalerite(tr-5%) breccia vein with rubbly upper contact and sharp lower contact at 54° to CA.
49.2	50.9	MINERALIZED CALC-SILICATE SKARN Well banded, weakly calcareous light to medium green grey fine-grained pyroxene-silica skarn with tr-3% blebby disseminated fine pyrrhotite ± biotite-sphalerite. 49.6-49.9 increasing garnet bands within pyroxene-calcite-silica skarn. 49.9-50.9 decreased garnet content into a massive, light grey weakly calcareous siliceous rock with tr-2% fine to medium-grained sphalerite in calcite veinlets and disseminated crystalline (almost dendritic) blebs (similar to float at upper landing). 50.9 very strong chloritic breccia/vein with disseminated sphalerite at contact; 27° to CA.
50.9	54.5	RECRYSTALLIZED CARBONATE/MARBLE Light grey to white, medium-grained massive recrystallized carbonate/marble with local chloritic alteration patches and tr-1% fine pyrrhotite-pyrite in veinlets and fractures. 51.2 calcite ± sphalerite vein. 51.7 weak foliation/CA 52°. 54.4-54.45 blebby, banded and massive fine-grained magnetite(30-40%) and associated chlorite-silica replacing the carbonate. 54.45-54.5 very fine-grained chlorite and minor fault gouge.
54.5	55.0	MINERALIZED VEIN Calcite-silica-sphalerite(5-10%)-sericite-biotite ± chlorite vein with sphalerite occurring as fracture fillings and fine to medium-grained, intergranular disseminations in fine-grained grey to white calcareous matrix. Medium to coarse-grained sericite and biotite also present. Contacts are sharp and chloritic.
55.0	56.0	RECRYSTALLIZED CARBONATE/MARBLE Light grey to white, fine-grained massive recrystallized carbonate/marble with abundant calcite-carbon veinlets and fractures throughout.

56.0	58.5	<p>BRECCIA VEIN/VEIN</p> <p>56.0-56.7 fine to medium-grained calcite-sericite-pyrrhotite(5-10%)<u>±</u>pyrite breccia vein with occasional minor sericitic gouges. 56.0 upper contact 53° to CA. 56.7-57.0 increased very fine-grained apple green chlorite<u>±</u>talc alteration. 57.0-58.5 fine to very coarse-grained, banded calcite-quartz-chlorite-diopside-epidote-sericite vein with trace sphalerite, pyrolusite and biotite.</p>
58.5	65.3	<p>RECRYSTALLIZED CARBONATE/MARBLE</p> <p>Light grey to white, fine to medium-grained massive recrystallized carbonate/marble with abundant sericite-chlorite alteration patches and fracture fillings.</p> <p>58.5-60.4 interbanded weakly chlorite<u>±</u>pyroxene altered light green grey recrystallized carbonate and light to medium green garnet-pyroxene skarn crosscut by numerous epidote-calcite-garnet-pyroxene veins. Interval contains no sphalerite and tr-2% fine-grained disseminated pyrrhotite. 60.3 well banded/CA 38°. 62.7-62.8 pyrrhotite-calcite-chlorite veinlets. 64.1-65.3 very contorted bedding in carbonate defined by biotite-chlorite<u>±</u>pyrrhotite seams. Several calcite-quartz-pyrrhotite-sphalerite veins are present.</p>
65.3	68.9	<p>MINERALIZED CALC-SILICATE SKARN</p> <p>Light to medium green grey, banded, weakly calcareous pyroxene<u>±</u>garnet skarn with well developed crenulation cleavage axial planar to minor folds. Skarn contains tr-5% fine to medium-grained pyrrhotite(chalcopyrite) and tr-2% fine to medium-grained sphalerite disseminated, intercrystalline to blebby and disseminated parallel to banding.</p> <p>65.3-65.8 trace-5% sphalerite. 65.6 some garnet porphyroblasts developed. 65.8-66.0 low sphalerite content; still 1-5% disseminated pyrrhotite. 66.0-66.4 increased garnet and pyrrhotite(up to 10%) content within fine to medium-grained pyroxene<u>±</u>calcite skarn. 66.4-66.9 weak skarnification; strong calc-silicate hornfels with remanent banding evident. 66.8 banding/CA 48°. 66.9-67.3 weakly calcareous pyroxene skarn with 5% pyrrhotite and trace sphalerite. 67.3-67.8 increasing garnet content with associated increase in sphalerite(1-3%) and calcite content. 67.8-68.5 decreased garnet and sphalerite content into banded pyroxene-garnet skarn. 68.5-68.9 increased sphalerite content as disseminations and blebs to 5-10% at 68.9.</p>

DRILL HOLE RECORD

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COMINCO LTD.

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68.9	69.3	<p>BIOTITE HORNFELS Variably bleached and veined to weakly calc-silicate hornfelsed, very fine-grained and well banded biotite hornfels.</p> <p>69.0 foliation/CA 54°.</p>
69.3	69.7	<p>MINERALIZED CALC-SILICATE SKARN Light to medium green grey, banded pyroxene-calcite skarn.</p> <p>69.5-69.7 oxidized tr-3% blebby disseminations of sphalerite. Lower contact at low angle to S₂ foliation.</p>
69.7	69.8	<p>BIOTITE HORNFELS As above.</p>
69.8	72.9	<p>MINERALIZED CALC-SILICATE SKARN Medium green brown, massive coarse-grained garnet porphyroblastic replacement of earlier, light green fine pyroxene skarn-pyroxene-calcite skarn.</p> <p>70.4 calcite-garnet-sphalerite-pyroxene vein. 70.5-71.6 decreased garnet content into banded pyroxene skarn with tr-3% fine sphalerite disseminations and fine to medium-grained garnet porphyroblasts. 70.7 3-5% fine-grained disseminated sphalerite and as S₂ foliation parallel fracture fillings; S₂ foliation/CA 53°, foliation parallel banding/CA 54°. 71.4-71.8 3-5% fine to medium-grained disseminated blebby to crudely banded sphalerite. 71.6-71.8 irregular remanents of well banded calc-silicate hornfels. 71.8-71.9 5% glomeroporphyritic fine to medium-grained sphalerite in pyroxene skarn (similar to float at Upper Landing). 71.9-72.8 porphyroblastic garnet and late intergranular calcite-sphalerite and blebby disseminated sphalerite(2-5%). 72.8-72.9 strong calc-silicate alteration; gradational lower contact.</p>
72.9	73.1	<p>BIOTITE HORNFELS As above.</p>
73.1	73.3	<p>MINERALIZED CALC-SILICATE SKARN/HORNFELS Strong calc-silicate hornfels to weak pyroxene skarn with 2-3% disseminated fine-grained pyrrhotite and tr-2% fine disseminated sphalerite.</p>
73.3	140.3	<p>BIOTITE HORNFELS Dark to medium green grey, relatively massive sheared volcanics/sediments? cut by abundant quartz-pyroxene-pyrrhotite veins with bleached halos and by earlier deformed quartz veins without alteration halos.</p> <p>83.5 foliation/CA 57°.</p>

87.4 foliation/CA 53°.
 90.3-92.6 badly broken interval with increased chloritic alteration and weak biotite development.
 93.0 foliation/CA 45°.
 93.3-93.8 increased bleaching and fine calc-silicate hornfelsing about quartz-pyroxene-pyrrhotite veins.
 95.2 foliation/CA 52°.
 96.5 decreased biotite content; ≤ 2 mm diffuse feldspar-quartz? phenocrysts present over 10cms (tuff/flow??); also at 98.4.
 98.4 foliation/CA 63°.
 100.9-101.1 increased chlorite and sericite alteration with minor shears developed parallel foliation, 70° to CA.
 103.1-112.3 more biotitic massive to well banded section (volcanic/sediment mix).
 104.2 foliation/CA 51°, banding/CA 90°.
 105.9 banding/CA 51°.
 108.5 banding/CA 61°.
 112.3-134.9 badly broken zone with increased chlorite-sericite alteration, quartz-pyroxene-chlorite-pyrrhotite-pyrolusite veins and oxidized fractures.
 114.0 foliation/CA 38°.
 117.7 foliation/CA 51°.
 120.9-121.1 fault gouge.
 123.4-129.4 less broken; abundant quartz-pyrolusite-chlorite-pyrrhotite veins.
 123.9 foliation/CA 68°.
 126.2 foliation parallel banding/CA 65°, crenulation cleavage/CA 67°.
 129.7 foliation/CA 60°.
 130.0-130.8 increased bleaching and weak calc-silicate hornfels about calcite-quartz-chlorite \pm pyrolusite veins.
 134.5-134.7 minor oxidized fault gouge.
 134.7-137.1 siliceous, locally bleached/calc-silicate hornfelsed biotite hornfels.
 136.3 foliation/CA 65°.
 137.1-140.3 increased light purple calc-silicate hornfels due to increased veining.
 138.4 foliation/CA 55°.
 139.5-139.6, 139.8-140.0 trace-2% disseminated blebby arsenopyrite in pyroxene-garnet-quartz-chlorite-calcite veins.

140.3

141.4

MINERALIZED CALC-SILICATE SKARN

Massive, fine to medium-grained pyroxene-garnet-pyrrhotite-sphalerite \pm calcite-chlorite skarn with a sharp upper contact and a gradational replacement lower contact.

140.3-140.9 5-8% fine-grained disseminated to blebby sphalerite associated with heavy pyrrhotite (ie. 140.5-140.6 and 140.7-140.8) and trace disseminated fine arsenopyrite intergranular to banded, weakly calcareous and epidote altered pyroxene-garnet skarn.

140.7 banding/CA 53°.

140.9-141.4 weaker skarnified, light green calc-silicate hornfels and

		pyroxene \pm garnet-calcite dominant skarn with garnet occurring as late patchy replacements. Skarn contains tr-1% blebby disseminated sphalerite and tr-2% fine-grained disseminated pyrrhotite (to marcasite).
141.4	142.7	<p>BLEACHED/VEINED, CALC-SILICATE HORNFELED BIOTITE HORNFELED</p> <p>Strongly quartz-pyroxene \pm garnet veined with adjacent bleaching and fine-grained calc-silicate hornfelsing of medium to dark maroon grey biotite hornfels.</p> <p>142.3 trace sphalerite in veins. 142.5-142.7 trace fine-grained arsenopyrite in veins and adjacent alteration halos.</p>
142.7	145.2	<p>CALC-SILICATE SKARN</p> <p>Medium to dark green brown, fine to coarse-grained garnet-pyroxene-calcite-pyrrhotite-arsenopyrite skarn.</p> <p>142.7 top 5-10cms is fine to medium-grained pyroxene-silica \pm calcite-chlorite-epidote skarn with tr-3% fine to medium-grained disseminated pyrrhotite and trace arsenopyrite with gradational contact into... 142.8-143.4 coarse-grained dark brown massive, euhedral garnet(50-60%) with intercrystalline pyrrhotite(10-20%)-arsenopyrite(tr-10%)-chalcopyrite(tr-2%)-calcite(2-5%)-molybdenite?(tr)-pyrite(tr). No sphalerite. 143.4-143.7 increased purple grey diopside and calcite content and decreased garnet content; still coarse-grained. 143.7-144.5 fine to medium-grained garnet-pyroxene-calcite skarn with 5-10% pyrrhotite and minor-trace arsenopyrite and chalcopyrite. 144.5-144.6 unaltered thinly banded sheared bleached hornfels; banding/CA 42°. 144.6-145.0 tr-1% fine-grained disseminated sphalerite and tr-1% fine to medium-grained arsenopyrite associated with 5-10% pyrrhotite intergranular to pyroxene-calcite-chlorite skarn. 145.0-145.2 medium to coarse-grained pyroxene-calcite-chlorite skarn with tr-1% coarse-grained arsenopyrite-pyrite. Lower contact irregularly crosscuts foliation/banding.</p>
145.2	151.7	<p>BLEACHED/VEINED, CALC-SILICATE HORNFELED BIOTITE HORNFELED</p> <p>Strongly quartz-pyroxene-pyrrhotite \pm feldspar? veined with adjacent bleaching and fine-grained calc-silicate hornfelsing of medium to dark grey, locally biotitic hornfels.</p> <p>147.4-148.8 strongly calcite-quartz \pm pyrrhotite-pyrite fractured/veined with chloritic alteration halos. 150.5 foliation/CA 44°.</p>
151.7	152.4	<p>CALC-SILICATE SKARN</p> <p>Fine to medium-grained, medium green brown, massive garnet-</p>

		pyroxene with tr-3% late, intergranular blebby pyrrhotite and trace arsenopyrite-sphalerite-chalcopyrite with late calcite.
152.4	154.3	<p>BLEACHED/VEINED, CALC-SILICATE HORNFELSED SEDIMENTS Strongly garnet-pyroxene-quartz-pyrrhotite \pm calcite-sphalerite veined with minor bleached halos and fine-grained calc-silicate hornfelsing of medium to dark grey, pyrrhotitic(5-15% very fine-grained after pyrite) hornfelsed fine clastics.</p> <p>153.3-153.5 minor medium-grained garnet-pyroxene skarn with 5-10% fine to medium-grained pyrrhotite and trace chalcopyrite and arsenopyrite. 154.3 irregular patchy replacement contact into underlying unit.</p>
154.3	165.9	<p>CALC-SILICATE SKARN Medium green, fine to medium-grained pyroxene-silica-pyrrhotite \pm garnet-calcite skarn.</p> <p>154.3-154.6 fine to coarse-grained massive pyroxene with minor fine to medium-grained garnet with 10-15% massive blebby intercrystalline pyrrhotite with trace chalcopyrite and rare sphalerite and calcite. 154.6-154.8 remanent banding apparent in pyroxene (low garnet) skarn containing 5-10% pyrrhotite and trace disseminated sphalerite, as above. 154.8 banding/CA 50°. 154.8-155.6 as above, but with 15-25% fine to coarse-grained massive, blebby pyrrhotite (often altered to marcasite) with tr-2% disseminated sphalerite and chalcopyrite. 155.6-156.3 as above, but with decreased chalcopyrite and sphalerite contents in a weakly banded pyroxene-silica \pm garnet skarn. 156.3-156.5 as above with increased chalcopyrite content. 156.5-156.6 increasing porphyroblastic garnet and chloritic alteration of skarn. 156.6-157.0 coarse to medium-grained garnet-pyroxene-calcite-chlorite with tr-1% disseminated sphalerite and chalcopyrite. 157.0-159.2 medium to dark green, massive pyroxene-silica \pm garnet skarn containing 15-25% fine disseminated to coarse massive blebs of pyrrhotite \pm pyrite (altered to marcasite locally) with associated chalcopyrite. Numerous pyrrhotite-chlorite fractures/veinlets. 159.2-162.1 locally banded, weaker skarnified light medium blue green fine-grained pyroxene-silica \pm calcite skarn with minor garnet porphyroblasts and 5% pyrrhotite. 160.2 banding/CA 52°. 162.1-165.9 patchy to spotted garnet-feldspar(white silica??) \pm chlorite-epidote replacing very fine-grained pyroxene-silica-calcite skarn with tr sulphides. Possibly altered carbonate?? 162.1-162.2 light grey silica-pyroxene \pm garnet interbanded with medium grey pyroxene-pyrrhotite \pm silica. 162.2-162.4 skarn changes into a more massive light to medium blue grey pyroxene-silica \pm calcite skarn with irregular patchy replacement by medium-grained pyroxene-garnet(orange brown) \pm silica skarn. Both</p>

		<p>skarns are weakly altered to chlorite±epidote.</p> <p>162.4-163.1 increasing white feldspar? associated with pyroxene-garnet±silica skarn. Light orange brown garnets also replacing pyroxene-silica±calcite skarn. Tr-1% sphalerite±pyrrhotite associated with garnet replacements.</p> <p>163.1-163.3 increased garnet content with silica-feldspar?-pyroxene and trace sphalerite.</p> <p>163.3-164.4 5-10% fine pyrrhotite within fine pyroxene-silica±calcite skarn associated with dark, fine to coarse-grained late pyroxene.</p> <p>164.2-165.9 late porphyroblastic dark to medium brown garnet replacements with silica±calcite locally replacing garnet cores.</p>
165.9	167.9	<p>BLEACHED/VEINED CALC-SILICATE HORNFELSED SEDIMENT</p> <p>Strongly garnet-pyroxene-quartz-pyrrhotite±calcite-sphalerite veined with minor bleached halos and fine-grained calc-silicate hornfelsing of medium to dark grey, pyrrhotitic(30-40% very fine-grained after pyrite) hornfelsed fine clastics.</p> <p>166.2 strong S₂ foliation/CA 66°, S₃ crenulation cleavage/CA 14°.</p>
167.9	170.8	<p>CALC-SILICATE SKARN</p> <p>Fine-grained medium green pyroxene-pyrrhotite-silica±calcite skarn containing fine to medium-grained garnet porphyroblasts locally. Upper contact is sharp and crosscuts foliation.</p> <p>168.2-168.4 medium to coarse-grained garnet-calcite-pyrrhotite-chlorite replacement/vein.</p> <p>168.4-169.5 increasing garnet content to local massive garnet patches with intercrystalline pyrrhotite.</p> <p>169.5-169.8 5-15% coarse pyrrhotite with 1% chalcopyrite and rare sphalerite developed in garnet.</p>
170.8	174.6	<p>BLEACHED/VEINED HORNFELSED SEDIMENTS</p> <p>As above. Most skarn veins and banding parallel replacements have light grey to white silica-feldspar? alteration halos/fronts. Late garnet veins developed parallel S₃ foliation.</p> <p>170.9-171.1, 171.3-171.6, 171.8-172.1, 172.3-172.8 fine to medium-grained garnet-pyroxene-silica replacements.</p> <p>172.8-174.6 strongly bleached and sheared interval with abundant quartz-pyroxene-pyrrhotite-chlorite veins, weak biotite development and pyrrhotite-pyrite mobilized parallel S₃ foliation.</p> <p>173.0 S₂ foliation/CA 74°, S₃ foliation/CA 28°.</p> <p>174.6 lower contact is sharp but irregular, crosscutting banding.</p>
174.6	180.0	<p>CALC-SILICATE SKARN</p> <p>Medium green, massive fine-grained pyroxene-silica±calcite skarn replaced by patchy to massive red brown fine to coarse-grained garnet-pyrrhotite(5-8%)-calcite skarn. Chlorite-calcite locally replaces cores to garnets.</p>

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180.0

184.7
EOH

175.6-176.4, 176.6-177.7 5-15% coarse-grained pyrrhotite with tr-1% chalcopyrite.

176.0-177.7 tr-2% fine to medium-grained sphalerite often associated with late chlorite-calcite replacements of garnet porphyroblast cores.

177.2-179.6 decreased garnet porphyroblast content; still tr-2% sphalerite disseminated in garnets, as above, and in late vugs and fractures. Also 5-10% coarse-grained pyrrhotite.

179.6-180.0 well banded moderately skarned sediment with tr-3% disseminated blebby sphalerite; banding/CA 10°, S₃? foliation/CA 56°.

MUDSTONE/SILTSTONE

Light to dark grey, silicified and tightly folded mudstone/siltstone with well developed S₃ fabrics and abundant quartz-pyrrhotite veins with no alteration halos. Unit contains 10-25% very fine-grained pyrrhotite (after pyrite) disseminated parallel S₂ and S₃ foliations.

180.3-180.5 thin banded fine-grained pyroxene-silica±calcite replacement.

Hole #SR92-04

Interval		Meters Indicated	Actual Meterage	% Recovery
From	To			
7.6	7.9	.3	.3	100
7.9	11.0	3.1	2.9	93
11.0	14.0	3.0	3.0	100
14.0	17.1	3.1	3.0	96
17.1	20.1	3.0	3.0	100
20.1	23.2	3.1	3.1	100
23.2	26.2	3.0	2.6	86
26.2	29.3	3.1	3.0	96
29.3	32.3	3.0	3.0	100
32.3	35.4	3.1	3.1	100
35.4	38.4	3.0	3.0	100
38.4	41.5	3.1	3.1	100
41.5	44.5	3.0	3.0	100
44.5	47.5	3.0	3.0	100
47.5	50.6	3.1	3.1	100
50.6	53.6	3.0	1.0	100
53.6	56.7	3.0	3.0	100
56.7	59.7	3.1	3.1	100
59.7	62.8	3.1	3.1	100
62.8	65.8	3.0	3.0	100
65.8	68.9	3.1	3.1	100
68.9	71.9	3.0	3.0	100
71.9	75.0	3.1	3.1	100
75.0	78.0	3.0	3.0	100
78.0	81.1	3.1	3.1	100
81.1	84.1	3.0	3.0	100
84.1	87.2	3.1	3.1	100
87.2	90.2	3.0	3.0	100
90.2	93.3	3.1	3.0	96
93.3	96.3	3.0	3.0	100
96.3	99.4	3.1	3.1	100
99.4	102.4	3.0	3.0	100
102.4	105.5	3.1	3.1	100
105.5	108.5	3.0	3.0	100
108.5	111.6	3.1	3.1	100
111.6	114.6	3.0	2.3	76
114.6	117.7	3.1	3.1	100
117.7	120.7	3.0	3.0	100
120.7	123.7	3.6	2.6	86
123.7	126.8	3.1	3.1	100
126.8	129.8	3.0	3.0	100
129.8	132.9	3.1	3.0	96
132.9	135.9	3.0	2.4	80
135.9	139.0	3.1	3.0	96
139.0	142.0	3.0	3.0	100
142.0	145.1	3.1	3.1	100
145.1	148.1	3.0	3.0	100
148.1	151.2	3.1	3.1	100
151.2	154.2	3.0	3.0	100
154.2	157.3	3.1	3.1	100

Hole #SR92-04 con't

Interval		Meters Indicated	Actual Meterage	% Recovery
From	To			
157.3	160.3	3.0	3.0	100
160.3	163.4	3.1	3.1	100
163.4	166.4	3.0	3.0	100
166.4	169.5	3.1	3.1	100
169.5	172.5	3.0	3.0	100
172.5	175.6	3.1	3.1	100
175.6	178.6	3.0	3.0	100
178.6	181.7	3.1	3.1	100
181.7	184.7	3.0	3.0	100
END OF HOLE		177.1m	174.3m	98%



DWG 190

SWIFT RIVER OPTION

105 B/3



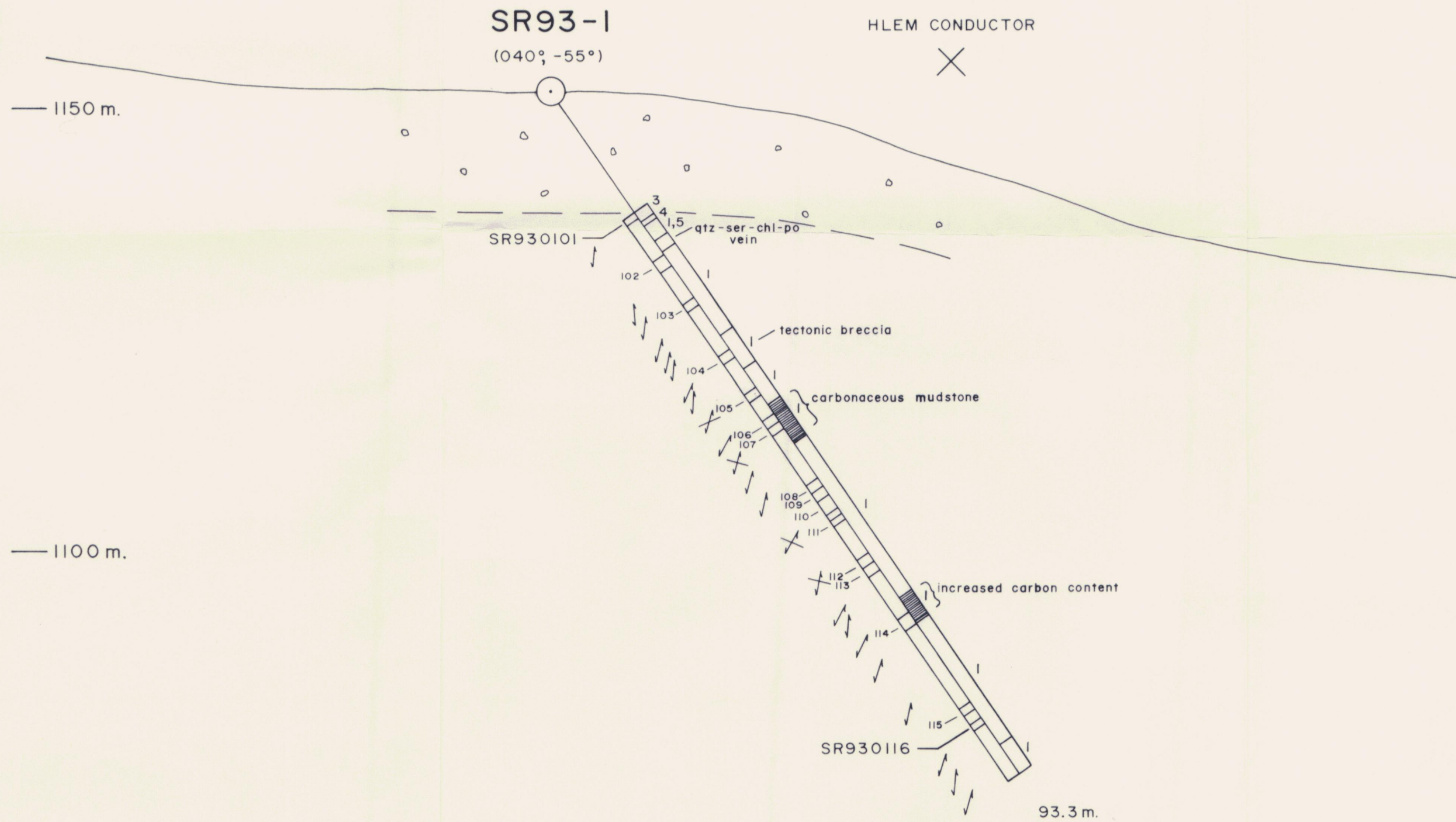
Drawn by:	P.A.M.	Traced by:	a.m.a.
Revised by:		Revised by:	
Date:		Date:	

CLAIM MAP with 1993 GRID and
DRILL HOLE LOCATIONS

WATSON LAKE M.D., YUKON
Scale: 1 : 25,000 Date: Oct, 93 Figure: 2

SW.

NE.



LEGEND

INTRUSIVES

LATE CRETACEOUS - TERTIARY

10 light grey to white, aphanitic to quartz-feldspar porphyritic felsite dykes

MIDDLE CRETACEOUS SEAGULL BATHOLITH

9 equigranular, fine to medium-grained quartz monzonite stock

PALEOZOIC - JURASSIC (LATE DEVONIAN - PERMIAN)

8 weakly foliated, fine to medium-grained, equigranular to feldspar porphyritic diorite sills and dykes

ALLOCHTHONOUS TERRANES?? (YUKON CATACLASTIC COMPLEX, INTERMONTANE BELT) OR OUTBOARD, DISPLACED AUTOCHTHONOUS TERRANES??

DORSEY TERRANE (SLIDE MOUNTAIN EQUIVALENT?) MISSISSIPPIAN - PERMIAN

7 light to medium grey, thin banded quartz-feldspar amphibole ± biotite-chlorite "mylonite" (sheared intrusives/volcanics/sediments?)

6 light grey to white, strongly sheared, thin to massive banded quartz ± feldspar phyrlic to aphyric siliceous and sericitic schists (volcanic flow/tuff/cherty tuff?); includes minor, more mafic volcanic flow/dyke/tuff

5 medium to dark maroon, strongly sheared, thin banded fine-grained to massive banded medium-grained biotite hornfels (fine sediments; minor volcanics/intrusives?), variably bleached (silicified) about quartz-pyrrhotite ± pyroxene veins

4 light green to purple green, strongly sheared, thin banded and very fine-grained calc-silicate (silica-pyroxene) hornfels (pervasive to vein related, progressive alteration of pre-existing biotite hornfels)

3 light to dark grey green to brown, fine to coarse-grained, thin banded to massive skarn progressing from pyroxene-calcite-silica to pyroxene ± garnet-calcite to garnet ± pyroxene-calcite-pyrrhotite-sphalerite-chalcopryrite-arsenopyrite with variably developed chlorite-amphibole-epidote

2 light grey to white, fine to medium-grained, massive recrystallized carbonate/marble; minor dolomite

DISPLACED AUTOCHTHONOUS TERRANES (OMINECA BELT)

CASSIAR TERRANE LATE DEVONIAN - MISSISSIPPIAN

1 recessive black, locally carbonaceous and pyrrhotitic (after pyrite), siliceous and variably veined and hornfelsed, strongly sheared mudstone, silty mudstone; minor fine sandstone

SYMBOLS

- bedding orientation with respect to core axis
- foliation(s) orientation(s) with respect to core axis

SULPHIDE/OXIDE/SILICATE MINERALOGY

- sp sphalerite
- ga galena
- cpy chalcopryrite
- po pyrrhotite
- py pyrite
- mag magnetite
- aspy arsenopyrite
- gar garnet
- pyx pyroxene
- amp amphibole
- chl chlorite
- cal calcite
- epd epidote
- qtz quartz
- ser sericite

DWG 188

SWIFT RIVER OPTION

COMINCO N.T.S. 105 B/3

Drawn by: P.A.M. Traced by: g.k.g.

Revised by	Date	Revised by	Date

**D.D.H. SR93-1
DAN TRENCH AREA
(Looking Northwest)**

WATSON LAKE M.D., YUKON

Scale: 1:500 Date: September 1993 Plate: 93-1

SW.

NE.



LEGEND

INTRUSIVES

LATE CRETACEOUS - TERTIARY

10 light grey to white, aphanitic to quartz-feldspar porphyritic felsite dykes

MIDDLE CRETACEOUS SEAGULL BATHOLITH

9 equigranular, fine to medium-grained quartz monzonite stock

PALEOZOIC - JURASSIC (LATE DEVONIAN - PERMAN)

8 weakly foliated, fine to medium-grained, equigranular to feldspar porphyritic diorite sills and dykes

ALLOCHTHONOUS TERRANES? (YUKON CATACLASTIC COMPLEX, INTERMONTANE BELT) OR OUTBOARD, DISPLACED AUTOCHTHONOUS TERRANES??

DORSEY TERRANE (SLIDE MOUNTAIN EQUIVALENT?) MISSISSIPPIAN - PERMAN

7 light to medium grey, thin banded quartz-feldspar-amphibole-biotite-chlorite "mylonite" (sheared intrusives/volcanics/sediments?)

6 light grey to white, strongly sheared, thin to massive banded quartz-feldspar phyrlic to aphyric siliceous and sericitic schists (volcanic flow/tuffaceous tuff?); includes minor, more mafic volcanic flow/dyke/tuff.

5 medium to dark maroon, strongly sheared, thin banded fine grained to massive banded medium-grained biotite hornfels (fine sediments; minor volcanics/intrusives?); variably bleached (silicified) about quartz-pyroxene veins

4 light green to purple green, strongly sheared, thin banded and very fine-grained calc-silicate (silica-pyroxene) hornfels (pervasive to vein related, progressive alteration of pre-existing biotite hornfels)

3 light to dark grey green to brown, fine to coarse-grained, thin banded to massive, alternating from pyroxene-calcite-silica to pyroxene-garnet-calcite to garnet-pyroxene-calcite-pyrrhotite-sphalerite-chalcopryite-arsenopyrite with variably developed chlorite-amphibole-epidote

2 light grey to white, fine to medium-grained, massive recrystallized carbonate/marble, minor dolomite

DISPLACED AUTOCHTHONOUS TERRANES (OMINECA BELT)

CASSIAR TERRANE LATE DEVONIAN - MISSISSIPPIAN

1 recessive black, locally carbonaceous and pyrrhotitic (after pyrite), siliceous and variably veined and hornfelsed, strongly sheared mudstone, silty mudstone, minor fine sandstone

SYMBOLS

bedding orientation with respect to core axis
 foliation(s) orientation(s) with respect to core axis

SULPHIDE/OXIDE/SILICATE MINERALOGY

sp	sphalerite	gar	garnet
ga	galena	pyx	pyroxene
cpy	chalcopryite	amp	amphibole
po	pyrrhotite	chl	chlorite
py	pyrite	cal	calcite
mag	magnetite	epd	epidote
asp	arsenopyrite	qtz	quartz
		ser	sericite

DW6 189

SWIFT RIVER OPTION				N.T.S. 105 B/3
Drawn by	P.A.M.	Traced by	g.k.g.	
Revised by		Revised by		
Date		Date		
D.D.H. SR93-2				
GOSSAN HILL: MAIN TRENCH AREA				
L 27+00W (Looking Northwest)				
WATSON LAKE M.D., YUKON				
Scale	1" = 500'	Date	September 1993	Plate 93-2

SW.

NE.

TIELINE

6+50S

6+00S

5+00S

1400 m.

SR93-3
(022°, -50°)

MAG

HLEM CONDUCTOR

1300 m.

SR930301

abundant banded mag
bleached

po, trace sp, aspy

3 trace sp

3 trace - 15% sp

3 trace - 3% sp,
trace aspy

3 trace - 3% sp,
trace aspy

SR930340

279.2 m.

LEGEND

INTRUSIVES

LATE CRETACEOUS - TERTIARY

10 light grey to white, aphanitic to quartz-feldspar porphyritic felsite dykes

MIDDLE CRETACEOUS

9 equigranular, fine to medium-grained quartz monzonite stock

SEAGULL BATHOLITH

8 weakly foliated, fine to medium-grained, equigranular to feldspar porphyritic diorite sills and dykes

ALLOCHTHONOUS TERRANES? (YUKON - CATACLASTIC COMPLEX, INTERMONTANE BELT) OR OUTBOARD, DISPLACED AUTOCHTHONOUS TERRANES?

DORSEY TERRANE (SLIDE MOUNTAIN EQUIVALENT?)

MISSISSIPPIAN - PERMIAN

7 light to medium grey, thin banded quartz-feldspar amphibole-biotite-chlorite "mylonite" (sheared intrusives, volcanic sediments?)

6 light grey to white, strongly sheared, thin to massive banded quartz-feldspar phytic to aphyric siliceous and sericitic schists (volcanic flow/tufficherty tuff?); includes minor, more mafic volcanic flow/dyke/tuff

5 medium to dark maroon, strongly sheared, thin banded fine-grained to massive banded medium-grained biotite hornfels (fine sediments, minor volcanics/intrusives?), variably bleached (silicified) about quartz-pyrrhotite-pyroxene veins

4 light green to purple green, strongly sheared, thin banded and very fine-grained calc-silicate (silica pyroxene) hornfels (per se to vein related, progressive alteration of pre-existing biotite hornfels)

3 light to dark grey green to brown, fine to coarse-grained, thin banded to massive skarn progressing from pyroxene-calcite-silica to pyroxene-garnet-calcite to garnet-pyroxene-calcite-pyrrhotite-sphalerite-chalcopyrite-arsenopyrite with variably developed chlorite-amphibole-epidote

2 light grey to white, fine to medium-grained, massive recrystallized carbonate/marble; minor dolomite

DISPLACED AUTOCHTHONOUS TERRANES (OMINECA BELT)

CASSIAR TERRANE

LATE DEVONIAN - MISSISSIPPIAN

1 recessive black, locally carbonaceous and pyrrhotitic (later pyrite), siliceous and variably veined and hornfelsed, strongly sheared mudstone, silty mudstone, minor fine sandstone

SYMBOLS

bedding orientation with respect to core axis
foliation(s) orientation(s) with respect to core axis

SULPHIDE/OXIDE/SILICATE MINERALOGY

sp	sphalerite	gar	garnet
gr	galena	px	pyroxene
cp	chalcopyrite	amp	amphibole
py	pyrrhotite	chl	chlorite
py	pyrite	cal	calcite
mag	magnetite	epd	epidote
aspy	arsenopyrite	qtz	quartz
		ser	sericite

DWG 191

SWIFT RIVER OPTION

Drawn by	P.A.M.	Traced by	g.k.g.
Revised by		Revised by	

D.D.H. SR93-3
GOSSAN HILL L29W
(Looking Northwest)
WATSON LAKE M.D., YUKON

Scale: 1:500 Date: September 1993 Plate: 93-3



SW.

NE.



LEGEND

- INTRUSIVES**
- LATE CRETACEOUS - TERTIARY**
- 10 light grey to white, aphanitic to quartz-feldspar porphyritic felsite dykes
- MIDDLE CRETACEOUS**
- SEAGULL BATHOLITH
- 9 equigranular, fine to medium-grained quartz monzonite stock
- PALEOZOIC - JURASSIC (LATE DEVONIAN - PERMIAN)**
- 8 weakly foliated, fine to medium-grained, equigranular to feldspar porphyritic diorite sills and dykes
- ALLOCTHONOUS TERRANES? (YUKON CATACLASTIC COMPLEX, INTERMONTANE BELT) OR OUTBOARD, DISPLACED AUTOCHTHONOUS TERRANES??**
- DORSEY TERRANE (SLIDE MOUNTAIN EQUIVALENT?)**
- MISSISSIPPIAN - PERMIAN
- 7 light to medium grey, thin banded quartz-feldspar-amphibole ± biotite-chlorite "mylonite" (sheared intrusives/volcanics/sediments?)
- 6 light grey to white, strongly sheared, thin to massive banded quartz ± feldspar phytic to aphyric siliceous and sericitic schists (volcanic flow/tuff/cherty tuff?); includes minor, more mafic volcanic flow/dyke/tuff
- 5 medium to dark maroon, strongly sheared, thin banded fine-grained to massive banded medium-grained biotite hornfels (fine sediments; minor volcanics/intrusives?); variably bleached (silicified) about quartz-pyrrhotite-pyroxene veins
- 4 light green to purple green, strongly sheared, thin banded and very fine-grained calc-silicate (silica-pyroxene) hornfels (pervasive to vein related, progressive alteration of pre-existing biotite hornfels)
- 3 light to dark grey green to brown, fine to coarse-grained, thin banded to massive skarn progressing from pyroxene-calcite-silica to pyroxene ± garnet-calcite to garnet ± pyroxene-calcite-pyrrhotite-sphalerite-chalcopyrite-arsenopyrite with variably developed chlorite-amphibole-epidote
- 2 light grey to white, fine to medium-grained, massive recrystallized carbonate/marble; minor dolomite
- DISPLACED AUTOCHTHONOUS TERRANES (OMINECA BELT)**
- CASSIAR TERRANE**
- LATE DEVONIAN - MISSISSIPPIAN
- 1 recessive black, locally carbonaceous and pyrrhotitic (after pyrite), siliceous and variably veined and hornfelsed, strongly sheared mudstone, silty mudstone; minor fine sandstone

SYMBOLS

- bedding orientation with respect to core axis
- foliation(s) orientation(s) with respect to core axis

SULPHIDE/OXIDE/SILICATE MINERALOGY

- | | | | |
|------|--------------|-----|-----------|
| sp | sphalerite | gar | garnet |
| ga | galena | pyx | pyroxene |
| cpy | chalcopyrite | amp | amphibole |
| po | pyrrhotite | chl | chlorite |
| py | pyrite | cal | calcite |
| mag | magnetite | epd | epidote |
| aspy | arsenopyrite | qtz | quartz |
| | | ser | sericite |

DWG 192

SWIFT RIVER OPTION				N.T.S. 105 B/3
Drawn by: P.A.M.	Traced by: g.k.g.	D.D.H. SR93-4		
Revised by: _____	Date: _____	GOSSAN HILL : UPPER LANDING		
		L 2400W (Looking Northwest)		
		WATSON LAKE M.D., YUKON		
		Scale: 1:500	Date: September 1993	Plate: 93-4

**YUKON MINFILE
STANDARD REPORT
EXPLORATION AND GEOLOGICAL SERVICES DIVISION, DIAND
WHITEHORSE**

NAME(S): Atom (Crescent)	NTS MAP SHEET: 105 B 3
MINFILE #: 105B 026	LATITUDE: 60°11'34"N
MAJOR COMMODITIES: Zn	LONGITUDE: 131°12'36"W
MINOR COMMODITIES: -	DEPOSIT TYPE: Skarn
TECTONIC ELEMENT: Yukon Tanana Terrane	STATUS: Prospect

CLAIMS (PREVIOUS AND CURRENT)

ATOM, BLACKSTONE, BRAVE, BUD, DELL, FALL, KEY, LAKE, LORI, PARK, QUEEN, REG, SAM

WORK HISTORY

Staked as Atom cl (56254) in Sep/46 by Hudson Bay Mg & S, which explored with trenching and drilling in 1947. Restaked as Dell cl (89445) in Oct/65 by Babwick and Armstrong for Gulliver Mg & EL; and as Twins cl (Y7390) and Von cl (Y13110) in May-June/66 and Bud cl (Y22939) in May/68 by Boswell River ML, which performed bulldozer trenching later in the year. Restaked as Reg cl (Y83208) in Aug/74 by M. Pollard who trenched in 1980.

The north and east showings were restaked as Brave cl (YA33740) in July/78 by J. Weins, and as Lori & Lake cl (YA50351) in Jul/80 by J.G. Robertson for the Flame Synd, which added Fall & Park cl (YA69132) in Oct/82 and transferred the property to Flame Petro-Mls Corp later in the year. The north showing was restaked as Queen cl (YA70704) in Oct/83 by D. Schellenberg, who trenched in 1984, and as Blackstone cl (YA99870) in Sep/86 by R. Stack and as Key cl (YB9486) in Nov/87 by First Yukon Silver Res Inc, which trenched in 1989 and tied on 84 Sam cl (YB15973) to the north in Aug/89.

First Yukon trenched on the Park 43 and 45 claims and on the Key 3, 13 and 15 claims in July and August, 1992. Cominco Ltd. optioned the property and conducted a program of linecutting, trenching and diamond drilling on the Park and Key claims in July/93. In Dec/93, the Key, Park, Lake, Dan, M, Sam, and Mine claims were transferred from Cominco to First Yukon Silver Resources Inc.

GEOLOGY

Black sphalerite occurs with pyrrhotite, pyrite, magnetite and lesser amounts of galena and chalcopyrite in garnet-diopside-actinolite calc-silicate hornfels developed in limy bands within metavolcanic rocks of the Anvil Allochthon south of Crescent Lake. An early grab sample assayed 2.5% Zn, 68.6 g/t Ag, 0.1% Pb, and 0.4% Bi.

Excavator trenching exposed two main showings 800 m apart. The east (Upper) showing consists of a 2 m wide layer of massive sulphide skarn with a strike length of about 50 m, hosted by a finely banded calc-silicate hornfels. A sample of mineralized float from this area contained 8.95% Zn, 67.2 ppm Ag and anomalous Cu, Pb, As, Sb, Ba and Au.

The north (Lower) showing consists of garnet-magnetite-sphalerite skarn associated with massive garnet-pyrrhotite-chlorite skarn containing two generations of garnet. Banded hornfels in this area consists of alternating layers of garnet-epidote and quartz-chlorite. A weakly magnetic massive sulphide specimen from this area assayed 7.0% Zn and 55 ppb Au.

Boswell River Mines showed that both of the Crescent Lake showings are associated with strong magnetic anomalies and anomalous soil containing more than 600 ppm Zn. The base metals were emplaced with actinolite, magnetite and chlorite during retrograde thermal metamorphism which may be related to the intrusion of a small quartz monzonite stock 3 km to the east. The Crescent Lake showings closely resemble the Bar (Dan) prospect (Minfile 105B 027) 6 km along strike to the east.

GEOLOGY (CONTINUED)

Strong zinc soil anomalies are associated with large areas of pyrrhotite gossan in the "Gossan" zone, which is located mid-way between the Atom (Crescent) and Bar (Dan) showings. Trenching on the Gossan zone in 1991 exposed large boulders of grey-green meta-tuff containing variable amounts of sphalerite and chalcopyrite in an overburden-covered area immediately downslope from outcrops of magnetite-diopside-calcite skarn.

REFERENCES

BOSWELL RIVER MINES LTD, Aug/71. Assessment Report #060879 by H. Wober.

COMINCO LTD., Oct/93. Assessment Report #093134 by P. MacRobbie.

DAWSON, K.M., and DICK, L.A., 1978. Regional metallogeny of the Northern Cordillera: tungsten and base metal-bearing skarns in southeastern Yukon and southwestern Mackenzie. Geological Survey of Canada, Paper 78-1A, p. 291.

DICK, L.A., 1980. A comparative study of the geology, mineralogy, and conditions of formation of contact metasomatic mineral deposits in the northeastern Canadian Cordillera. Unpublished PhD thesis, Queen's University, p. 8, 163-166, 194, 205, 409.

POOLE, W.H., 1956. Geology of the Cassiar Mountains. Unpublished Ph.D. Thesis, Princeton University, 1956, p. 241.

WESTERN MINER, Dec/47, p. 35.

YUKON EXPLORATION 1990, p. 25, 26; 1991, p. 9, 10.

YUKON GEOLOGY AND EXPLORATION 1979-80, p. 144.