

6254

ASSESSMENT REPORT
DIAMOND DRILLING
on the
FX-21 and FX-22
Mineral Claims

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT

NO: _____

REPORT BY:

K.L. Daughtry, P. Eng.
A.H. Taylor
W.R. Gilmour

MAY 1, 1977

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I. DETAILS OF DIAMOND DRILLING PROGRAM

This report supports the assessment work filed on the FX-21 (Record No. 16561) and the FX-22 (Record No. 16562) at Vernon, B.C., between April 4 and April 12, 1977.

Details

- A. Drilling Contractor - Apex Drilling Ltd.
C/- Simon A. Jutras
N. Broadview Road
Salmon Arm, B.C.

Size of Core - AQ wireline (diamond drilling)

Contract Price - \$10.50 per foot

Dates of Drilling Program - October 4 to December 21, 1977

Total Amount Drilled during this Period - 3,725 feet in 24 holes numbered 76-01 to 76-24

- B. Supervision - K.L. Daughtry and Associates
202-2910 - 30th Avenue
Vernon, B.C.

K.L. Daughtry, P. Eng.
W.R. Gilmour, Geologist

- C. Core Logging - A.H. Taylor, M.Sc. (Pend)
Union Oil Company of Canada Limited
P.O. Box 999
Calgary, Alta.

W.R. Gilmour, Geologist
K.L. Daughtry and Associates
202-2910 - 30th Avenue
Vernon, B.C.

The drill core is currently stored in a warehouse in Vernon. Plans are to move the core back up to the campsite on the property during the early summer of 1977.

II. SUMMARY OF EXPENSES

Drilling Program - October 4 to December 21, 1977

Contract footage cost for AQ wireline diamond drilling - \$10.50 per foot

Supervision and Logging

Wages - W.R. Gilmour, B.Sc. Geologist	21 days @ \$100 =	\$2,100
K.L. Daughtry, P. Eng.	15 days @ \$150 =	\$2,250
A.H. Taylor, M.Sc.	17 days @ \$125 =	\$2,125

TOTAL \$6,475

Expenses - Truck rental, gas	\$750.00
Telephone	\$185.64
Maintenance of access road -	
Ganzeveld Lumber Product Ltd.	\$171.00
CJ Smith Bulldozing	\$270.00

TOTAL \$1,376.64

GRAND TOTAL \$7,851.64

Therefore, pro-rated over the program the cost of supervision and logging amounted to - $\frac{\$7,851.64}{3,725 \text{ ft.}} = \2.10 per ft.

Therefore, for this assessment report the inclusive footage cost is $\$10.50 + \$2.10 = \$12.60.$

III. APPLICATION OF DRILLING EXPENSES TO WORK FILED

- A. Amount of work applied on Mineral Claim FX-21
(Record No. 16561).

\$8,600

			<u>Core logged by</u>
76-01	212 feet	64.7 metres	A.H. Taylor
76-02	88 feet	26.8 metres	W.R. Gilmour
76-03	169 feet	51.5 metres	W.R. Gilmour
76-04	58 feet	17.7 metres	W.R. Gilmour
76-24	201 feet	61.3 metres	A.H. Taylor

TOTAL 728 feet x \$12.60/ft. = \$9,172.80

SEE Appendix A for logs of drill holes.

- B. Amount of work applied on Mineral Claim FX-22
(Record No. 16562).

\$13,400

			<u>Core logged by</u>
76-14	155 feet	47.2 metres	A.H. Taylor
76-19	115 feet	35.1 metres	A.H. Taylor
76-20	132 feet	40.3 metres	A.H. Taylor
76-21	244 feet	74.4 metres	A.H. Taylor
76-22	197 feet	60.0 metres	A.H. Taylor
76-23	328 feet	100.0 metres	A.H. Taylor

TOTAL 1171 feet x \$12.60/ft. = \$14,754.60

SEE Appendix B for logs of drill holes.

IV

STATEMENTS OF QUALIFICATIONS

W.R. Gilmour, B.Sc., Geologist
A.H. Taylor, M.Sc., Geologist

Statement of Qualifications

I, Albert H. Taylor, of Calgary, Alberta, have performed the drill-core logging work, records of which are attached herewith.

I hereby certify that:

1. I have been employed as a geologist by Union Oil Company of Canada Limited, Calgary, Alberta, since October 1973. My experience prior to 1973 includes geological field work for both the mineral exploration industry and the Geological Survey of Canada.
2. I hold the B.Sc. degree in geology, with first class honours, from Carleton University, Ottawa, Ontario, and I have been accepted for graduation with the M.Sc. degree in geology from the same university in May 1977.
3. I am a member of the Canadian Institute of Mining and Metallurgy-Calgary Branch, the Mineral Exploration Group - Calgary, the Society of Economic Paleontologists and Mineralogists, and other professional societies.

Albert H. Taylor

Albert H. Taylor
April 5, 1977

AHT/dmg

STATEMENT OF QUALIFICATIONS

I, William R. Gilmour, of the city of Vernon in the province of British Columbia, hereby certify that:

- 1.) I am a geologist with residence at 3806, 30th Avenue, Vernon, B.C., V1T 2E9
- 2.) I am a graduate of the University of British Columbia, Bachelor of Science (geology), 1970.
- 3.) I am a member of the Geological Association of Canada.
- 4.) I have practiced as a geologist in mineral exploration for 6 years in British Columbia and the Yukon.

Dated at Vernon, B.C.
May 4, 1977


William R. Gilmour

APPENDIX 'A'

Note: Location of Collar of Drill Holes
based on Grid cut on English System.

CORE LOG FORM
UNION OIL - MINERALS DEPARTMENT

Project Colby-Kingfisher
Property Kingfisher
Started October 5, 1976
Completed October 8, 1976
Logged by A.H. Taylor - March 1977

Bearing Az. 107°
Inclination -34°

Depth 212 feet (64.7 metres)

Sheet 1 of 3 Hole No. 76-01
Coordinates 7 + 05 S, 1 + 55 E

Elevation _____

A.H. Taylor

Footage		Core Rec	% Rec	Metres												Remarks	
0	13			0	3.9												Casing
12				3.7													Bedrock surface (approximately)
12	32		90	3.7	9.8												- Quartzite: rel. pure; foliation mostly 10° to 30° to core axis, increasing angle near base.
32	80.5			9.8	24.6												- Quartzite with sulphides: pyrrhotite, mostly less than 5%, sphalerite, mostly less than 3%. Middle part of unit drilled partly parallel to foliation. Possible fold closures.
80.5	82.5			24.6	25.2												- Quartzite: abundant calc-silicate minerals and very minor sulphides. Possible minor late faults at 80 ft. and 81.6 ft.
82.5	87			25.2	26.5												- Calc-silicate rock: calc-silicate minerals, calcite and minor quartz; very minor pyrrhotite and sphalerite.
87	87.4			26.5	26.7												- Pegmatite
87.4	92.5			26.7	28.2												- Calc-silicate rock: as above pegmatite but with increasingly abundant pyrrhotite and sphalerite.
92.5	97.5			28.2	29.7												- Intergrading impure marble and calc-silicate rock: composition calc-silicate minerals and calcite with minor pyrrhotite and sphalerite. Pyrrhotite less than 7%; sphalerite less than 4% except locally.
97.5	99			29.7	30.2												- Quartz - calc-silicate rock, and calc-silicate rock. Combinations of quartz, calc-silicate minerals and calcite in parts.
99	100.5			30.2	30.7												- Quartzite with minor calc-silicate minerals and pyrrhotite and traces of sphalerite near top.
100.5	102			30.7	31.1												- Pegmatite and partially pegmatized quartzite, possibly a remobilized cross cutting vein, may be an early fault
102	107.5			31.1	32.8												- Quartzite, relatively clean, as at about 20 ft. Foliation ranging from 10 to 35 degrees.

HOLE NO. 76-01
Sheet 1 of 3

Footage	Core Rec	% Rec	Metres							Remarks
107.5	110		32.8	33.6						- Coarse crystalline quartz-calc-silicate rock, partially pegmatized; contains coarse crystalline, heavy, light green calc-silicate mineral and quartz. Grades to interfingering pegmatite, (quartz and feldspar.)
110	110.6		33.6	33.7						- Quartzite, relatively clean, as at 105 etc.
110.6	120.5		33.7	36.8						- Quartzite with sulphides; blebs of pyrrhotite and sphalerite along foliation. Pyrrhotite less than 10%; sphalerite less than 5%. Foliation 35 to 55 degrees near top, decreasing angle below; drilled essentially parallel to foliation from 116 to 120.5 feet.
120.5	123.7		36.8	37.7						- Quartz feldspar pegmatite; relatively sharp, probably cross-cutting contacts.
123.7	125		37.7	38.1						- Quartzite, relatively clean, translucent.
125	135		38.1	41.2						- Quartzite with sulphides; trace to minor pyrrhotite and sphalerite, locally richer. Drilled essentially parallel to the foliation in the edge of mineralized zone. Probably gentle closure overall.
135	140.5		41.2	42.9						- Relatively clean quartzite, as above the quartzite with sulphides. Gradual transitions; still drilling nearly parallel to foliation.
140.5	146.5		42.9	44.7						- Quartzite with sulphides as at 130 feet. Drilled essentially parallel to foliation. Possible gentle closure, same mineralized zone as above.
146.5	148.5		44.7	45.3						- Pegmatite quartz, and feldspar. Abrupt irregular contacts.
148.5	153		45.3	46.7						- Quartz-calc-silicate rock. Quartz and calc-silicate mineral with minor calcite in parts. Medium to fine crystalline; moderate foliation angles.
153	155.3		46.7	47.4						- Calc-silicate rock and impure marble.
155.3	159		47.4	48.5						- Quartz-calc-silicate rock and quartz-biotite-feldspar gneiss. Gneiss is infolded in a gentle S-fold.
159	160		48.5	48.8						- Quartz-biotite-feldspar gneiss. Typical; almost no foliation. No garnet.
160	162		48.8	49.4						- Quartz-calc-silicate rock as described previously. Medium to fine crystalline. Trace of quartz-biotite-feldspar gneiss. Abrupt foliation reversal at bottom, probably a drag fold.
162	163		49.4	49.7						- Pegmatite as previous

Footage		Core Rec	% Rec	Metres							Remarks	
163	167	3'	60	49.7	50.9							-Calc-silicate rock and impure marble. Calcite, calc-silicate minerals, minor quartz in part, minor phlogopite in part.
167	174			50.9	53.1							-Gneissic-feldspathic-quartzite: quartz, feldspar, lesser to minor biotite, minor garnet; fine crystalline, weakly foliated.
174	175.4			53.1	53.5							-Feldspathic quartzite, coarser than above, little to no biotite, no garnet; probably partially pegmatized; gradational contacts.
175.4	176.5			53.5	53.8							-Quartz-feldspar-biotite gneiss: foliated, partly pegmatized and distorted.
176.5	177.5			53.8	54.1							-Pegmatite, typical
177.5	198.5		95	54.1	60.5							-Quartz-biotite-feldspar gneiss, minor garnet, typical of the most common form of this rock. Top 3 to 4 feet drilled at very low angle to foliation. Foliations variable below.
198.5	199.4			60.5	60.8							-Pegmatite: typical; quartz and feldspar
199.4	202.5			60.8	61.8							-Quartz-calc-silicate and calc-silicate rock. Quartz, calc-silicate minerals and calcite in parts. Coarse crystalline at top near pegmatite; finer below. Core at 202 feet is badly broken. No evidence of shear or brecciation.
202.5	207			61.8	63.1							-Calc-silicate rock, marble and quartz-calc-silicate rock intergrading. Coarse crystalline, quartz-calc-silicate at bottom near pegmatite.
207	212			63.1	64.7							-Pegmatite: coarse quartz and feldspar, typical
201	212	8.5'		61.3	64.7							
212				64.7								-End of hole, in pegmatite.

Co-Ords: 7+05 S 1+55 E

K. L. DAUGHTRY & ASSOCIATES LTD.

Hole No. 76-2

Azimuth: 287°

Diamond Drill Record

Property: COLBY - KINGFISHER

Dip: -60°

Drill Type & Size: BBS1 AQ

Location: RIDGE ZONE

Elevation:

Dip Tests:

Date Started: 9/10/76

Date Completed: 10/10/76

Length: 26.8 m. (88 feet)

Logged By: W. R. GILMOUR

Section:

Date Logged: 6/12/76

Purpose:

W. R. Gilmour

Footage metres		Description	Sample No.	Footage		Length				metres	angle to core axis
From	to			from	to						
0	1.5	ob. & broken rock									
1.5	7.5	Sulphide zone (similar to 76-1, 10.1-24.4)								1.5	50°
		- in quartzite								2.0	50
		- variable amounts of sulphide mineralization								2.4	50
		- medium to coarse grained								3.0	55
		- sp, po, ga (up to 30%)								3.7	fold axis
		- po varies up to 10% with average about 15%								4.1	40
		- about 5% green silicates								4.6	fold
		- diopside noted								6.7	35
		- blebs of sulphides & carbonates(?) show foliation								7.5	45
		5.5-7.3									
		- increase in grey-green silicate									
		- po 20%									
		- almost no carbonates									
		1.5-3.7 - 80% core recovery									

ve to axis

// fold

Co-Ords: 6+705 1+93 E

K. L. DAUGHTRY & ASSOCIATES LTD.

Hole No. 76-3Azimuth: 0°

Diamond Drill Record

Property: COLBY - KINGFISHERDip: -90°Drill Type & Size: BBS1 AQLocation: RIDGE ZONE

Elevation:

Dip Tests:

Date Started: 10/10/76Date Completed: 12/10/76Length: 51.5 m. (169 feet)Logged By: W. R. GILMOUR

Section:

Date Logged: 6/12/76

Purpose:

W. R. Gilmour

Footage metres		Description	Sample No.	Footage		Length					metres	angle to core axis
From	to			from	to							
0	3.7	o.b. of broken ground (sulphides)										
3.7	8.2	<u>Sulphide zone (Sp, po)</u>									4.3	45°
		3.7-5.8 (similar to 76-1, 10.1-24.4)									4.9	65°
		- in quartzite									5.2	65°
		5.8-7.3 (similar to 76-1, 25.0-30.9)									5.3	20°
		- impure marble (mostly calc-silicates)									5.4	35°
		- > in po (20%)									5.6	50°
		7.3-8.2 (similar to 76-2 (5.5-7.3))									6.7	40°
8.2	11.6	c. grained to v. c. grained feldspar, pale greenish mineral, quartz									7.6	45°
		(similar to 76-1, 32.9-33.7)									7.9	45°
		- Idocrase?										
		- minor mica & calcareous sections										
11.6	51.5	<u>gneiss (similar to 76-1, 53.0-61.3)</u>									11.6	50°
		- py noted on some fractures									12.0	70°
											12.7	45°
											13.1	50°

Sheet No. 1 of 2

Footage metres		Description	Sample No.	Footage		Length				metres	angle to core axis
from	to			from	to						
										14.0	40°
		24.7-25.6								14.5	65
		- pegmatite								15.4	45
		- surrounding gneiss is altered & soft.								16.3	35
										17.7	30
										18.6	45
										19.2	15
		at 41.5 & 50.9 minor shearing noted								19.5	complex
										19.8	25
										20.4	60
										21.3	50
		END OF HOLE								22.0	35
										22.3-22.6	complex
										23.5	65
										23.8	complex
										24.2	55
										29.3	55
										30.2	55
										31.1-33.2	complex
										33.8	45
										34.5-34.8	complex
										35.2	50
										36.6	55
										37.8	45
										38.4	30
										40.5	60
										42.1	60
										43.9	55
										44.8	complex
										45.3	50
										45.7	50
										46.3	50
										46.6	20
										47.6	35
										48.2	40
										50.0	40
										50.6	45

Co-Ords: 6+60S 2+79E

K. L. DAUGHTRY & ASSOCIATES LTD.

Hole No. 76-4

Azimuth: 290°

Diamond Drill Record

Property: COLBY - KINGFISHER

Dip: -45°

Drill Type & Size: BBSI AQ

Location: RIDGE ZONE

Elevation:

Dip Tests:

Date Started: 13/10/76

Date Completed: 16/10/76

Length: 177 m (58 feet)

Logged By: W. R. GILMOUR

Section:

Date Logged: 10/12/76

Purpose:

W. R. Gilmour

Footage metres		Description	Sample No.	Footage		Length				metres	Dip to core axis
From	to			from	to						
0	3.7	o.b. & broken rock									
3.7	6.1	impure marble (similar to 76-1, 45.4 - 50.9)								3.7	50°
		- greenish color								4.6	30°
		- mottled appearance common								5.5	40°
		- "hanging wall" rock								6.1	50°
		- diss. fr. (5%) in siliceous sections									
		- calc-silicate minerals common									
6.1	9.0	pegmatite (similar to 76-1, 36.6 - 37.8)									
		- white & grey color									
		- contact approximately conformable									
	8.1-8.7	(similar to 76-1, 32.9 - 33.7)									
		- heavy green mineral (Idocrase?) with pegmatitic texture									
		- no apparent contact or textural change, with surrounding pegmatite									

Footage metres		Description	Sample No.	Footage		Length					metres	angle to core axis
from	to			from	to							
9.0	11.4	<u>sulphide zone</u> (similar to 76-1, 96-101)									9.0	30°
		- in quartzite									9.4	35°
		- 5% pc, < 1% sp									10.4	45°
		- minor, soft, greenish-colored mineral										
11.4	13.6	<u>impure marble</u> (similar to 37-61)									12.5	40°
		12.5-13.0 (similar to 81-87)										
		- pegmatitic section (i.e. very coarse grained)										
13.6	17.7	<u>gneiss</u> (similar to 76-1, 530-613)									13.7	40°
		- biotite, garnet									14.3	55°
		- typical "foc-wall gneiss"									14.9	30°
											15.5	55°
											16.2	65°
											16.5	minor fold
											16.8	65°
											17.4	65°
		End of Hole										

CORE LOG FORM
UNION OIL - MINERALS DEPARTMENT

Project Colby-Kingfisher
Property Kingfisher
Started December 20, 1976
Completed December 22, 1976
Logged by A.H. Taylor - February 1977

Bearing Az. 290°
Inclination -50°
Depth 201 feet (61.3 metres)

Sheet 1 of 3 Hole No. 76-24
Coordinates 4 + 70 S, 2 + 20 E
Elevation _____

A. H. Taylor

Footage	Core Rec	% Rec	Metres							Remarks
0	7.5		0	2.3						-Casing
7.5			2.3							-Bedrock surface (approximately); apparently spotted on exposed showing.
7.5	12		2.3	3.7						-Impure marble: abundant pyrrhotite; greater than 10% in part; minor calc-silicate minerals and phlogopite.
12	13		3.7	3.9						-Quartzite with pyrrhotite; partly pegmatized in top few inches.
13	19.5		3.9	5.9						-Quartzite: quite clean; trace of calc-silicate minerals; minor probable altered feldspar.
19.5	22.8		5.9	6.9						-Quartzite and quartz-calc-silicate rock: fold closure at 20 feet with grey quartzite and disseminated fine pyrrhotite in core of fold; reverse closure at 21 feet, approximately.
22.8	24.6		6.9	7.5						-Quartz-calc-silicate rock: quartzite and calc-silicate rock intergrading; small S-fold here.
24.6	26		7.5	7.9						-Calc-silicate rock and marble
26	27.5		7.9	8.4						-Quartz-feldspar-biotite-gneiss: note that effect of paired folding is drilling essentially down dip from about 19 feet to 28 feet.
27.5	33.5		8.4	10.2						-Pegmatite: quartz, feldspar, traces of biotite, typical; local remnants of quartz-feldspar-biotite-gneiss.
33.5	50.5		10.2	15.4						-Quartz-feldspar-biotite-gneiss; typical of this lithology. Considerable folding; probably several closures; several fractured and altered zones; possible fault at 44 feet with fracturing, calc and other calc-silicate minerals in apparent small mylonite layer
50.5	57.5		15.4	17.5						-Quartzite breccia: quartzite fragments with quartz, carbonate, calc-silicate, mineral matrix and calcite veinlets; fault zone
57.5	59		17.5	17.9						-Calc-silicate rock and quartz-calc-silicate rock: calcite, calc-silicate minerals grading to quartz and calc-silicate minerals. About 1 foot of core lost between 56 and 59 feet.

Hole No. 76-24
Sheet 1 of 3

Footage	Core Rec	% Rec	Metres										Remarks	
59	64		17.9	19.5										-Impure marble; calcite with minor calc-silicate minerals and phlogopite.
64	77		19.5	23.5										-Marble: quite pure; trace of white mica.
77	78		23.5	23.8										-Impure marble, as above pure marble section; plunging fold closure; probable traces of graphite as well as phlogopite and calc-silicate.
78	80		23.8	24.4										-Marble: quite pure
80	81.5		24.4	24.9										-Quartz-calc-silicate rock and quartz-feldspar-biotite-gneiss interbanded. May be double fold closure.
81.5	85		24.9	25.9										-Impure marble and minor calc-silicate rock. Impurities are calc-silicate minerals and phlogopite.
85	85.8		25.9	26.2										-Marble; some phlogopite
85.8	86.3		26.2	26.3										-Quartz-calc-silicate rock with one inch talc zone at top contact (fault)
86.3	88.5		26.3	26.9										-Marble: relatively pure.
88.5	89.5		26.9	27.3										-Quartz-feldspar-biotite-gneiss band with garnet, bordered by quartz-calc-silicate to calc-silicate rock.
89.5	114		27.3	34.8										-Marble: impure above 98 feet with calc-silicate minerals and phlogopite and occasional calc-silicate rock bands and purer bands. Relatively pure below 98 feet with local impure bands; cross cutting pegmatite bands at 104.5 to 105.4 feet. Very coarse crystalline marble near bottom of unit. Probably folded.
114	118		34.8	35.9										-Quartz-calc-silicate rock: fine crystalline to medium crystalline; grades to very impure quartzite; closure in middle with minor quartz-feldspar-biotite-gneiss folded in.
118	119		35.9	36.3										-Marble: probable closure here.
119	123.5		36.3	37.7										-Quartz-calc-silicate rock: fine crystalline; and quartz-feldspar-biotite-gneiss interlayered and intergrading. Considerable back and forth folding, particularly complex near bottom, probably two phase.
123.5	128.6		37.7	39.2										-Quartz-calc-silicate rock with trace calc-silicate rock and local quartz-feldspar-biotite-gneiss bands. Small scale folding,
128.6	132.8		39.2	40.5										-Quartz-feldspar-biotite-gneiss; trace garnet; much folding in upper and middle parts; may be closure.
132.8	134.3		40.5	40.9										-Quartz-calc-silicate rock and calc-silicate rock: medium and fine crystalline.

APPENDIX 'B'

Note: Location of Collar of Drill Holes
based on Grid cut on English System.

Footage	Core Rec	% Rec	Metres							Remarks
134.3	135.6		40.9	41.4						Pegmatite with coarse crystalline calc-silicate mineral at border.
135.6	139.4		41.4	42.5						Quartz-calc-silicate rock: coarse crystalline; local calcite rich zone.
139.4	142.3		42.5	43.4						Quartzite; largely translucent and clean; minor white blebs.
142.3	150.5		43.4	45.9						Quartzite with sulphides: impurities are calc-silicate minerals, pyrrhotite and lesser sphalerite.
150.5	151.2		45.9	46.1						Pegmatite: probably cross-cutting.
151.2	155		46.1	47.3						Calc-silicate rock and marble: minor quartz-calc-silicate material at top; impurities below are phlogopite and pyrrhotite with minor sphalerite.
155	157.8		47.3	48.1						Pegmatite; quartz, feldspar; typical; coarse quartz and calc-silicate minerals at borders.
157.8	181.3		48.1	55.3						Quartzite with sulphides: calc-silicate minerals and pyrrhotite in many parts; minor traces of sphalerite distributed unevenly throughout; probably considerable folding; foliation dips variable. Six inches badly broken pegmatite core just above bottom contact.
181.3	184.7		55.3	56.3						Quartzite; relatively clean; no sulphides.
184.7	187		56.3	57						Quartz-calc-silicate rock and pegmatite: coarse crystalline; light green, heavy mineral local pegmatite fingers.
187	189.2		57	57.7						Quartzite: relatively clean, no sulphides.
189.2	196.2		57.7	59.8						Quartzite with sulphides: pyrrhotite throughout; minor to nearly 10%; minor sphalerite unevenly distributed, locally abundant.
196.2	197.6		59.8	60.3						Quartz-calc-silicate rock with minor calcite-rich bands; considerable pyrrhotite and traces of sphalerite.
197.6	200		60.3	61						Marble: impure with pyrrhotite and phlogopite. Traces of sphalerite locally.
200	201		61	61.3						Quartz-calc-silicate rock: fine crystalline, grading to impure quartzite with finely disseminated pyrrhotite and a one inch marble band; no sphalerite; also traces of fine micas.
201			61.3							End of hole in very impure quartzite with calc-silicate minerals fine pyrrhotite and trace of mica.

CORE LOG FORM
UNION OIL - MINERALS DEPARTMENT

Project Colby-Kingfisher
 Property Kingfisher
 Started November 9, 1976
 Completed November 11, 1976
 Logged by A.H. Taylor, March, 1977

Bearing --
 Inclination 90 degrees
 Depth 155 feet

Sheet 1 of 2 Hole No. 76-14
 Coordinates 7+43N 1+42E
 Elevation _____

A.H. Taylor

Footage		Core Rec	% Rec	Metres								Remarks	
0	9			0	2.7								Casing.
	8				2.4								Bedrock surface.
8	13			2.7	4.0								Recovery only 6 inches. Pegmatite here, fairly fresh.
13	39.6			4.0	12.0								Quartz-feldspar-biotite gneiss, minor garnet: much alteration (greyish) especially near the top, minor more-or-less pegmatized layers, some highly quartzose bands especially in upper part.
39.6	67			12.0	20.4								Marble: mainly quite pure, calc-silicate and phlogopite in top foot, foliation here 27 degrees to core axis; top contact marked by two inches massive, slightly greenish quartz, may mark early fault; some twisting of foliation and abrupt decrease of foliation angle from above to below contact.
65	66			19.8	20.1								Zone of network fractures and one or two inches of crumbled core with minor talc. Bottom 7 inches of unit contains calc-silicate mineral (diopside)
67	130.4			20.4	39.8								Quartz-feldspar-biotite gneiss, minor garnet: much alteration especially above 89 feet, occasional small pegmatites, locally partly cross-cutting, no obvious foliation closures. Not checked in detail.
130.4	131.3			39.8	40.0								Calc-silicate rock grading downward to impure marble, conformable upper contact as well.
131.3	133			40.0	40.6								Marble: relatively pure, white.
133	144.5			40.6	44.1								Quartz-calc-silicate and calc-silicate rock with marble bands and layers. Thin marble bands near 134 feet, impure marble layers at approximately 136 to 137 feet, 140 to 140.3 feet, 142 to 143 feet. Dominant lithologies are calc-silicate rock and interbedded fine to medium-fine crystalline quartzose calc-silicate rock. A few traces of quartz-feldspar-biotite gneiss also occur. A possible oblique closure of an early conical

Sheet 1 of 2

Footage		Core Rec	% Rec	Metres										Remarks
														fold near 136 feet. Some symmetry and similarity in marble bands suggests other possible fold repetition.
144.5	146.5		44.1	44.7										Pegmatite: quartz, feldspar, trace of garnet near top, very coarse-crystalline below top.
146.5	153.5		44.7	46.8										Quartz-calc-silicate rock and calc-silicate rock: minor interbanded impure marble below 150 feet; 7 inch impure marble band at base.
153.5	155		46.8	47.3										Quartz-feldspar-biotite gneiss: partly altered, greyish, elsewhere blacker than normal, no garnet, biotite darker than normal.
155			47.3											End of Hole.

CORE LOG FORM
UNION OIL - MINERALS DEPARTMENT

Project Colby-Kingfisher
Property Kingfisher
Started November 28, 1976
Completed November 30, 1976
Logged by A.H. Taylor - March 1977

Bearing Az. 350°
Inclination 55°
Depth 115 feet (35.1 metres)

Sheet 1 of 2 Hole No. 76-19
Coordinates 7 + 50 N, 2 + 60 E
Elevation _____

A. H. Taylor

Footage	Core Rec	% Rec	Metres							Remarks
0	9		0	2.7						Casing
8			2.4							Bedrock surface
8	20	9'	2.4	6.1						Calc-silicate rock with lesser bands of quartz-calc-silicate and a few thin quartz-feldspar-biotite-gneiss bands. Calc-silicate rock composed of calcite, calc-silicate minerals +/- quartz. Gneiss bands have minor garnet.
20	22		6.1	6.7						Impure marble; calcite with phlogopite.
22	28		6.7	8.5						Calc-silicate rock as described above and quartz-calc-silicate rock. Quartz-calc-silicate rock is predominately quartz and calc-silicate minerals; green; trace of quartz-feldspar-biotite-gneiss at the bottom contact of this unit.
28	29		8.5	8.8						Gneissic-feldspathic-quartzite and pegmatite: quartz, feldspar, minor biotite; weak foliation in very fine crystallinity in the gneissic-feldspathic-quartzite but composition similar to pegmatite
29	33.5		8.8	10.2						Quartz-calc-silicate rock and quartz-feldspar-biotite-gneiss in subequal amounts; repeatedly interbanded; very minor calc-silicate rock with calcite and minor quartz. Quartz-calc-silicate rock is fine crystalline.
33.5	35		10.2	10.7						Calc-silicate rock: calcite, calc-silicate minerals, lesser quartz in varying amounts.
35	36.5		10.7	11.1						Coarse crystalline calc-silicate minerals and lesser quartz with fingers and patches of pegmatite.
36.5	38.5		11.1	11.7						Impure marble: calcite with minor calc-silicate and white mica.
38.5	40.2		11.7	12.3						Quartzite: relatively pure; no sulphides; gradational bottom contact.

HOLE NO. 76-19
Sheet 1 of 2

CORE LOG FORM
UNION OIL - MINERALS DEPARTMENT

Project Colby-Kingfisher
 Property Kingfisher
 Started December 1, 1976
 Completed December 2, 1976
 Logged by A.H. Taylor - March 1977

Bearing Az. 330°
 Inclination 55°

Sheet 1 of 3 Hole No. 76-20
 Coordinates 8 + 30 N, 2 + 50 E

Depth 132 feet (40.3 metres)

Elevation _____

A. H. Taylor

Footage	Core Rec	% Rec	Metres								Remarks
0	2		0	0.6						Casing	
1			0.3							Bedrock surface	
1	11	2.8'	28	0.3	3.4					-Quartz-calc-silicate rock and calc-silicate rock: probably with minor quartzite at the top. Recovered only badly ground-up rubble of about 10.6 feet. Quartz-calc-silicate rock includes quartz and green calc-silicate minerals. Calc-silicate rock includes calcite and calc-silicate minerals with minor to trace quartz.	
11	40			3.4	12.2					-Marble: mostly quite pure and unfoliated. Locally phlogopite-rich. A few thin calc-silicate bands.	
40	42			12.2	12.8					-Quartz-feldspar-biotite-gneiss.	
42	43			12.8	13.1					-Fine crystalline to medium crystalline quartz-calc-silicate and calc-silicate rock with marble and quartz-feldspar-biotite-gneiss bands.	
43	48.7			13.1	14.9					-Marble: very impure with calc-silicate bands; marble contains phlogopite, yellow calc-silicate minerals (probably partly garnet) and green calc.	
48.7	52.8			14.9	16.1					-Calc-silicate rock and quartz-calc-silicate rock both as described previously. Ill-defined, thin quartz-feldspar-biotite-gneiss bands in central part.	
52.8	56.3			16.1	17.2					-Impure marble	
56.3	57.8			17.2	17.6					-Calc-silicate rock with minor quartz: main constituents calcite and calc-silicate minerals.	
58.8	59.8			17.9	18.2					-Marble	
59.8	60.3			18.2	18.4					-Intergrading calc-silicate rock, fine quartz-calc-silicate rock without calcite, and impure marble.	
60.3	66.2			18.4	20.2					-Pegmatite: quartz +/- feldspar, minor biotite and garnet. Coarse crystalline to medium-fine.	

HOLE NO. 76-20
Sheet 1 of 3

Footage	Core Rec	% Rec	Metres								Remarks
66.2	81.4		20.2	24.8							-Interbanded quartz-calc-silicate rock, calc-silicate rock and lesser quartz-feldspar-biotite-gneiss bands. Bands mostly one to eight inches thick; gradational contacts; minor garnet in gneiss bands.
81.4	81.9		24.8	24.9							-Fault zone; sheared and healed; includes soft gouge and calcite veinlets.
81.9	84.9		24.9	25.9							-Hard marble; impure; partly leached and altered; several well-developed stylolites.
83.9	91.3		25.6	27.8							-Major fault zone. Recovered 3.5 feet of broken core. Core loss apparently in top of zone. Several soft gouge zones, much calcite and talc veining, abundant dark talc over eight inches near bottom. Fault orientation uncertain, probably about 25 degrees to core axis.
91.3	99.6		27.8	30.4							-Marble: impure, abundant pyrite and trace of sphalerite in top few inches. Pyrrhotite-rich bands and trace of sphalerite.
99.6	104.4		30.4	31.8							-Calc-silicate rock and impure marble: grading near bottom to partly quartz-calc-silicate rock with coarse crystalline light green mineral and abundant pyrite. Coarse patches, possible early fault zone at 102 to 103 feet.
104.4	105.4		31.8	32.1							-Quartzite with sulphides: minor to abundant pyrrhotite; minor sphalerite in upper part. Considerable pyrrhotite also in top two feet of calc-silicate unit above. Minor to trace sphalerite throughout calc-silicate unit above. Foliation at 45 degrees in quartzite with sulphides unit.
105.4	108.9		32.1	33.2							-Quartzite: quite clean, minor to trace calc-silicate minerals, and whitish streaks along foliation; whitish mineral may be altered feldspar.
108.9	109.8		33.2	33.5							-Quartz-calc-silicate rock as previously described: coarse crystalline, light green mineral abundant, probably minor dragfold at top of this unit.
109.8	110.8		33.5	33.8							-Quartzite: relatively clean, as above quartz-calc-silicate unit.
110.8	111.7		33.8	34.1							-Quartz-mica-gneiss: quartz; abundant bronze colored mica, +/- feldspar. Not typical of quartz-biotite-feldspar-gneiss as noted elsewhere.
111.6	114.2		34.0	34.8							-Quartz-calc-silicate rock consists of partly altered and replaced quartzite, coarse crystalline quartz and calc-silicate minerals; traces of thin marble bands.

Footage	Core Rec	% Rec	Metres	Remarks
				sphalerite.
53.9	55.9		16.417.0	-Calc-silicate rock with minor pyrrhotite and sphalerite.
55.9	58.2		17.017.8	-Quartzite with sulphides: pyrrhotite, minor sphalerite in the upper part.
58.2	63.		17.819.2	-Quartzite: fairly clean, some calc-silicate impurities. Seven inch quartz-mica-gneiss band with some feldspar at 61 feet. Not typical of quartz-feldspar-biotite-gneiss seen elsewhere.
63	64.3		19.219.6	-Calc-silicate rock as described previously.
64.3	65		19.619.8	-Quartzite: relatively clean; brown-grey, foliated.
65	65.6		19.820.0	-Marble
65.6	94		20.028.7	-Quartz-feldspar-biotite-gneiss with minor garnet throughout. Typical of this rock type. Foliation at around 60 degrees except smaller angle near bottom.
94	95.5		28.729.1	-Calc-silicate rock: S-fold here repeats contact with gneiss above.
95.5	97.5		29.129.7	-Quartzite as at 60 feet; grading downward to pegmatite below through calc-silicate minerals overprint.
97.5	101		29.730.8	-Pegmatite, quartz, feldspar; typical.
101	104.5		30.831.9	-Quartzite, relatively clean as at 59 to 60 feet. Five inch pegmatite band below 102 feet.
104.5	106.5		31.932.5	-Quartzite with sulphides: abundant pyrrhotite, considerable sphalerite
106.5	107		32.532.6	-Fault zone. Talc and other calc-silicate minerals, calcite veinlets pyrite and sphalerite.
107	107.8		32.632.9	-Calc-silicate rock with pyrrhotite, no sphalerite.
107.8	127.5		32.938.9	-Marble with occasional pyrrhotite-rich bands in top half: trace of sphalerite in pyrrhotite rich bands. Six inch fault zone at 106.1 to 106.7 feet. Minor dark talc and gouge plus pyrite here.
127.5	128.8		38.939.3	-Quartzite: relatively clean, no sulphides.
128.8	136.2		39.341.5	-Quartz-feldspar-biotite-gneiss with minor garnet. Typical lithology. Three-inch pegmatite band at top contact could be prepegmatite fault.
136.2	138		41.542.1	-Quartzite with sulphides: broken at top contact, with some core loss. Bottom of overlying gneiss broken, altered and highly calcareous. Possible fault, quartzite contains abundant pyrrhotite in bottom 1.2 feet, minor sphalerite in the same zone.

Footage	Core Rec	% Rec	Metres							Remarks
178.0	182		54.3	55.5						-Interbanded gneissic-feldspathic-quartzite, impure quartzite, and trace of calc-silicate rock near top. Gneiss is atypical; quartz, mica, minor feldspar, gneissic-feldspathic-quartzite has pegmatite composition.
182	187		55.5	57.0						-Quartz-feldspar-biotite-gneiss, typical of this lithology; badly broken, crumbly, altered, minor missing core. Gneiss broken and crumbled at bottom contact.
187	213.2		57.0	65						-Marble: quite pure, white with some light greyish; a few thin calc-silicate-rich bands between 211.5 and 213.5 feet.
213.2	217.5		65	66.3						-Marble: less pure than above; high in mica; cut by numerous fractures; mostly at low angles to core axis; irregular network.
217.5	218		66.3	66.5						-Calc-silicate rock: highly calcareous;
218	229		66.5	69.8						-Quartzite with calc-silicate bands and impure marble bands; seven inch pegmatite band below 226 feet; highly pyritic in middle and lower part of quartzite. No pyrrhotite; slight trace of sphalerite locally.
229	233		69.8	71.1						-Marble: quite pure.
233	234		71.1	71.4						-Quartz-calc-silicate rock, calc-silicate minerals, quartz: fine crystalline and coarse crystalline; minor calc-silicate rock with calcite.
234	234.9		71.4	71.6						-Pegmatite or micro-pegmatite; quartz, feldspar, no biotite. Very fine to medium fine crystalline
234.9	237.8		71.6	72.5						-Marble: Mostly white with a zone rich in phlogopite and traces calc-silicate minerals.
237.8	239.5		72.5	73						-Pegmatite: quartz, feldspar, trace biotite; coarse, typical.
239.5	240		73	73.2						-Calc-silicate rock with considerable quartz.
240	242.5		73.2	73.9						-Pegmatite: quartz, feldspar; typical; traces of remnants of calc-silicate rock.
242.5	243.1		73.9	74.1						-Marble
243.1	244		74.1	74.4						-Quartz-feldspar-biotite-gneiss with minor garnet; typical of this lithology.
244			74.4							- End of hole in quartz-feldspar-biotite-gneiss.

CORE LOG FORM
UNION OIL - MINERALS DEPARTMENT

Project Colby-Kingfisher
Property Kingfisher Property
Started December 7, 1976
Completed December 10, 1976
Logged by A.H. Taylor, March, 1977

Bearing 330°
Inclination -50°

Sheet 1 of 4 Hole No. 76-22
Coordinates 10+00N 17+50E

Depth 197 feet

Elevation _____

A. H. Taylor

Footage	Core Rec	% Rec	Metres								Remarks
0	4		0	1.2							Casing
	3			0.9							Bedrock surface.
3	10.3		0.9	3.1							Recovery about 1 foot broken and ground core: Calc-silicate and quartz calc-silicate rock.
10.3	11.4		3.1	3.5							Quartz-feldspar-biotite gneiss minor garnet, conformable contacts, foliation here 70 degrees to core axis.
11.4	15.8		3.5	4.8							Marble: relatively pure, white, conformable contacts, surrounding pattern suggests possible closure in marble, no foliation here.
15.8	17		4.8	5.2							Quartz-feldspar-biotite gneiss, minor garnet: as at 11 feet; conformable contacts.
17	20.3		5.2	6.2							Marble: relatively pure, white; very thin pegmatite band with calc-silicate alteration at borders at 19 feet, Slip surface at 19.5 feet with 1.5 inches talc-rich and crumbly marble; thin quartz-feldspar-biotite gneiss layer at bottom of unit (20 to 20.3 feet). Nature of marble-gneiss contact unknown, minor missing core and badly broken core.
20.3	22.1		6.2	6.7							Marble: impure; phlogopite and calc-silicate mineral; top contact probably conformable
22.1	23.6		6.7	7.2							Andesite dyke as described in other holes.
23.6	26.7		7.2	8.1							Marble: impure, much phlogopite and green calc-silicate (diopside and lesser talc).
7											
26.7	27.1		8.1	8.3							Pegmatite: very fractured at bottom; from 27.1 to 28 feet this passes into breccia and mylonite, part gouge and part lithified;
27.1	28		8.3	8.5							breccia shows at least two stages of brecciation followed by cementation in each case.
28	28.3		8.5	8.6							Marble as above fault zone and pegmatite.
28.3	29		8.6	8.8							Andesite dyke as previously described, badly ground core.
29	52.7		8.8	16.1							Marble: mainly quite pure, minor calc-silicate minerals locally

NOTE NO. 7
Sheet 1 of 4

Footage	Core Rec	% Rec	Metres										Remarks
													variable amount of muscovite.
52.754			16.1	16.5									Pegmatite, atypical; quartz, feldspar, trace of calc-silicate minerals; abrupt, apparently conformable contacts, essentially a medium to medium-fine crystalline, whitish rock of pegmatite composition, well foliated due to quartz crystal elongation and traces of calc-silicate mineral; could be a sill.
54	55.2		16.5	16.8									Marble, as above, pegmatite.
55.257			16.8	17.4									Calc-silicate rock; calcite, calc-silicate minerals (diopside), gradational conformable contacts.
57	63.5		17.4	19.4									Quartz-feldspar-biotite gneiss, minor garnet, some pegmatite bands and some alteration, bottom contact suggestive of some brecciation, recrystallization and healing; slip surface occurs just below this, may be early fault or conformable.
63.5	65.3		19.4	19.9									Marble: relatively pure.
65.3	66.3		19.9	20.2									Calc-silicate rock composed of calcite, diopside (green calc-silicate mineral); a slip surface and minor calcite veinlets within this unit.
66.3	67.6		20.2	20.6									Marble, as previous marble, foliation 57 degrees to core axis here, Also note foliation 64 degrees to core axis, above, at 63 feet.
67.6	70		20.6	21.3									Pegmatite; quartz, feldspar, trace of altered biotite, fairly coarse-crystalline.
70	72.8		21.3	22.2									Quartz-calc-silicate rock and quartz-feldspar-biotite gneiss composed of intergrading bands of these lithologies with minor calc-silicate rock containing calcite; probably considerable tight F-1 folding here, some calcite veinlets in lower parts, foliation 70 degrees to core axis at 72.5 feet
72.8	74.3		22.2	22.7									Calc-silicate rock composed of diopside, calcite and minor quartz locally.
74.3	75.3		22.7	23.0									Impure marble, phlogopite rich especially near bottom.
75.3	78		23.0	23.8									Interbedded calc-silicate rock, impure phlogopite-rich marble and quartz-calc-silicate rock grading to quartz-feldspar-biotite gneiss. Probable fold closures, 3 closures likely.
78	84.5		23.8	25.8									Marble: relatively pure.
84.5	85.5		25.8	26.1									Quartz-feldspar-biotite gneiss; badly crumbled, possibly crushed may or may not be conformable

Footage	Core Rec	% Rec	Metres										Remarks
85.5	98		26.1	29.9									Marble: quite pure, very minor calc-silicate-rich bands.
98	101.5		29.9	31.0									Andesite dyke: thickness approximate; considerable amount of core lost in dyke and a little in underlying pegmatite.
101.5	114.5		31.0	34.9									Pegmatite, 4-inch marble band at top contact with dyke, minor calc-silicate mineral (mainly talc) in top 3 feet, trace biotite below this; extensive alteration of feldspar down to 111 feet, minor talc in bottom 1.5 feet.
114.5	128.7		34.9	39.3									Marble: relatively pure; considerable white to light brown mica locally; trace of calc-silicate minerals and possibly graphite; calc-silicate band at 120.5 to 121 feet, bottom contact probably conformable.
128.6	131.5		39.3	40.1									Quartz-feldspar-biotite gneiss as described previously. Tight closure at 130 feet, could be others.
131.5	132.5		40.1	40.4									Calc-silicate rock, top contact is soft and crumbled core, may be fault, bottom contact gradational.
132.5	136.6		40.4	41.7									Atypical pegmatite; quartz, feldspar, minor biotite, minor garnet in part, somewhat calcareous, foliated in part.
136.6	138.7		41.7	42.4									Impure marble, grading to calc-silicate rock, small fold at 138 feet, has axis plunging approximately along dip of foliation with respect to core axis.
139	140		42.4	42.7									Calc-silicate rock as at 72 to 74 feet, including a trace of quartz-feldspar-biotite gneiss, foliation here 65 degrees.
140	141.2		42.7	43.1									Marble and calc-silicate rock
141.2	142		43.1	43.3									Calc-silicate rock as at 139 to 140 feet, including a trace of quartz-feldspar-biotite gneiss. Dips not reversed above to below marble, probably an S-1 isoclinal closure from 139 to 142 feet. Foliation 50 degrees to core axis at 141.8 feet.
142	145.2		43.3	44.3									Pegmatite: typical.
145.2	146.3		44.3	44.6									Gneiss; composition feldspar, biotite, lesser quartz, not typical of quartz-feldspar-biotite gneiss, soft and crumbly.
146.3	158.2		44.6	48.3									Intergrading quartz-calc-silicate rock and lesser quartz-feldspar-biotite gneiss, calc-silicate rock and minor quartzite. Late minor fault may occur at 150 feet. Top part of this unit is apparently very impure quartzite with very heavy overprint of dark green talc and diopside without calcite, also considerable feldspar, grades downward to same with thin biotite-rich

76-22
4 of 4

Footage	Core Rec	% Rec	Metres	Remarks
				bands, occasionally with garnet; several open fractures about 10 degrees to core axis from 149 to 152.5 feet; fractures are at about 35 degrees to foliation. There is considerable shear on one of these. Several small folds visible between 151 and 160 feet. Foliation is approximately constant across these.
158.2	162.5		48.349.6	Calc-silicate rock as previously, gradational contacts.
162.5	165		49.650.3	Marble: impure, with phlogopite
165	171		50.352.2	Calc-silicate rock and quartz-calc-silicate rock; composition is calcite, calc-silicate minerals, minor phlogopite in part, minor quartz, minor feldspar in part; between 168.4 and 170 feet is quartz-calc-silicate with interspersed quartz-feldspar-biotite bands.
171	173		52.252.8	Quartz-calc-silicate rock and calc-silicate rock, quartz-calc-silicate phase is coarse-crystalline with much coarse diopside and some quartz; probably conformable contacts.
173	174		52.853.1	Quartzite: clean, no sulphides
174	180		53.154.9	Quartzite with sulphides. Pyrrhotite to about 8%. Sphalerite to about 4%. Conformable contacts.
180	186.2		54.956.8	Marble: impure, with calc-silicate minerals and abundant pyrrhotite and minor sphalerite.
186.2	195.2		56.859.5	Quartz-feldspar-biotite gneiss, minor garnet; typical; foliation is 65 degrees at 188.5 feet, bottom contact is a gradation to fine-crystalline quartzo-feldspathic rock, probably a partly mobilized transition to pegmatite.
197			60.1	End of Hole, in transitional lithology as above.

CORE LOG FORM
UNION OIL - MINERALS DEPARTMENT

Project Colby-Kingfisher
Property Kingfisher
Started December 12, 1976
Completed December 13, 1976
Logged by A.H. Taylor, March, 1977

Bearing 147°
Inclination -50°

Sheet 1 of 7 Hole No. 76-23
Coordinates 11400N 0145W

Depth 328 feet

Elevation _____

A.H. Taylor

Footage	Core Rec	% Rec	Metres				Remarks
0 20			0	5.1			Casing Bedrock surface not noted by driller, lies somewhere above 18 feet. Preliminary note: most of this hole is drilled nearly, and part exactly, along the foliation. Thus only a relatively small stratigraphic thickness is intersected. Core recovery starts at approximately 18.5 feet.
18.5 19.5			5.6	5.9			Pegmatite: badly ground core but not weathered.
19.5 36.8			5.9	11.2			Marble: relatively pure, minor micas in top two feet. Drilled at very low angle to foliation. Late fracture at 24.5 feet lies at 25 degrees to core axis. Leached rock occurs adjacent to this.
36.8 42.3			11.2	12.9			Quartz-calc-silicate rock grading to quartz-feldspar-biotite gneiss; highly quartzose, grades back and forth from no biotite to abundant biotite. Foliation 8 degrees at 38.2 feet, foliation angles up to about 45 degrees locally.
42.3 44			12.9	13.4			Quartz-calc-silicate rock and very impure quartzite with calc-silicate minerals and trace of calcite. Quartz-calc-silicate is coarse-crystalline, top contact gradational.
44 44.5			13.4	13.6			Marble band; true thickness about 2 inches but cut obliquely; lies at steeper angle than the surrounding foliation.
44.5 46			13.6	14.0			Quartzite with minor calc-silicate minerals; badly broken core in part, several talc coated slip surfaces but no gouge or crushing.
46 47.2			14.0	14.4			Quartzite to quartz-calc-silicate rock with dark talc. Foliation 27 degrees at 47 feet.
47.2 48.2			14.4	14.7			Quartzite with minor light green diopside.

Hole No. _____
Sheet of _____

Footage	Core Rec	% Rec	Metres							Remarks
										quartzose, tan grey color and not whitish. Cut in one place by a very thin pegmatite vein. Unit could be an acidic dyke.
102	125		31.1	38.1						Pegmatite: essentially typical, mostly coarse quartz and feldspar crystals up to 3 to 4 inches long locally, trace of pyrite, minor biotite, minor calc-silicate locally. Top contact sharp and planar, no finer crystalline zone in feldspathic quartzite-type rock above this contact. About 113.5 to 114 feet is a 9 inch calc-silicate and impure marble wedge in pegmatite cutting obliquely across the core, could be an inclusion or a remnant fold core more or less in place.
125	131		38.1	40.0						Quartz-calc-silicate rock: top contact is gradational with pegmatite containing zones of coarse-crystalline diopside and coarse quartz grading downward to coarse quartz and diopside with traces-to-remnants of fine-crystalline foliated grey quartzite with very fine crystalline calc-silicate mineral and minor mica impurities.
131	131.8		40.0	40.2						Calc-silicate rock; foliation here is 16 degrees at 131.5 feet.
131.8	142		40.2	43.3						Quartz-biotite rock with lesser feldspar and traces of pyrite disseminated in parts. This unit drilled at 0 degrees to 10 degrees to foliation, mostly 0 to 5 degrees. This is abnormal quartz-biotite-feldspar gneiss with relatively weak foliation due to orientation of minerals and virtually no mineral segregation banding; highly quartzose and quite uniform, increasingly feldspathic in bottom few feet, much of so-called biotite is more or less bronze-colored, no garnet.
142.5	143		43.3	43.6						Planar, open contact surface cutting obliquely across core at 6 degrees to core axis, minor slip on this surface, minor talc and slickensides in this surface at 85 degrees to core axis. Foliation in gneiss nearly parallel to slip surface.
142	146		43.6	44.5						Quartz-feldspar rock; pegmatite-type composition, trace biotite and possibly chlorite, but medium-fine to fine crystalline, and weakly foliated to unfoliated; bottom contact apparently conformable at about 5 degrees to core axis.
146	156		44.5	47.6						Quartz-biotite rock with minor feldspar, essentially like 132 to 142 feet but also with considerable fine-crystalline calc-

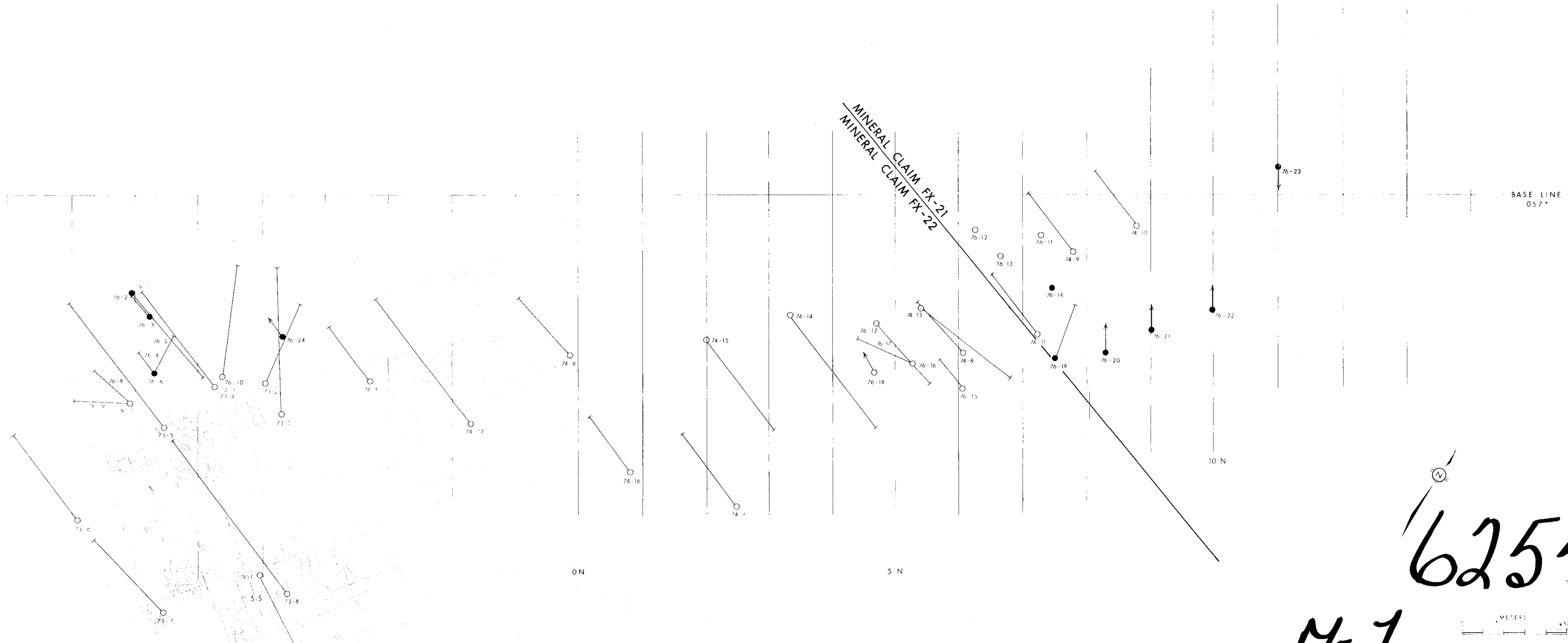
Hole No. 76-23
 Sheet 30

Footage	Core Rec	% Rec	Metres								Remarks
											parallel to core axis. Much of this unit is drilled essentially parallel to foliation, variable to about 15 degrees maximum angle to core. Fine-crystalline quartz-calc-silicate rock with considerable disseminated mica grades locally to quartz-biotite ± feldspar gneiss 186 feet to 190 feet.
212.7	217		64.9	66.2							Quartz-feldspar rock with minor biotite, possible chlorite, like 191 to 197 feet, etc.; probably essentially conformable contacts; about 8 inches of core lost in fractured rock in bottom 2 feet of unit.
217	218		66.2	66.5							Quartz-feldspar-biotite gneiss, minor calc-silicate locally, no garnet, otherwise essentially typical, minor missing core at bottom contact.
218	228.2		66.5	69.0							Quartzite; 4.2 feet of core lost in this unit. Essentially clean light colored, translucent quartzite, with minor calc-silicate impurities as at 156 to 159 feet, very badly broken core especially near base of unit, probably no significant fault, bottom contact conformable.
228.2	230.2		69.6	70.2							Gneiss like 180 to 190 feet, but grading to more like typical quartz-feldspar-biotite gneiss.
230.2	232.2		70.2	70.8							Core lost, however, contact with gneiss above is probably sharp and not faulted.
232.2	235.5		70.8	71.8							Quartz-feldspar rock essentially as previously called gneissic-feldspathic quartzite; much core loss at 233.5 to 235 feet.
235.5	237.8		71.8	72.5							Pegmatite; essentially typical, contacts approximate, some core lost in bottom 1.8 feet.
237.8	246		72.5	75.0							Quartzite; heavy overprint of coarse-crystalline diopside in upper part, grading downward to abundant fine calc-silicate mineral to about 243.5 feet. 243.5 to 244.5 feet clean quartzite; 244.5 to 245.2 feet sulphide rich quartzite, abundant pyrrhotite, sphalerite; foliation at 245 feet is 51 degrees. Sulphides occur as blebs plus sphalerite and pyrite on fractures. Minor mica and fine calc-silicates then clean quartzite below sulphides.
246	249.7		75.0	76.2							2-inch pegmatite bands at top contact, then relatively coarse quartz-feldspar rock still too fine for pegmatite. Quartz-feldspar-biotite gneiss band at 248 feet with garnet and abrupt contacts; bottom of unit is pegmatite with trace of garnet in part. Pegmatite partly foliated near parallel to core axis.

76-23
6 of 7

Footage	Core Rec	% Rec	Metres								Remarks
249.7	250.8		62.6	76.5							Quartz-calc-silicate rock grading downward to impure quartzite and then fine quartz-calc-silicate and traces of calc-silicate.
250.8	252		76.5	76.9							Impure marble, gradational top contact and bottom, minor phlogopite and calc-silicate minerals.
252	253.5		76.9	77.3							Calc-silicate rock with minor quartz-calc-silicate.
253.5	255.2		77.3	77.8							Quartz-biotite-feldspar gneiss with minor garnet; gradational contacts; very irregular kink foliation.
255.2	255.8		77.8	78.0							Quartz-calc-silicate rock; transition.
255.8	261.6		78.0	79.8							Marble: white, quite pure.
261.6	300.5		79.8	91.6							Quartz-feldspar rock with minor biotite, somewhat like gneissic-feldspathic-quartzite; could be called micro-pegmatite. This unit drilled straight along foliation, bottom half, and a low angle to foliation in the rest; mostly medium and medium-fine crystalline. Within the bottom of this unit at 296.2 to 299.0 feet is a probable quartz vein consisting of very pure, quite fine-crystalline quartz, sharp and cross cutting contacts.
300.5	301.2		91.6	91.9							Quartzite; pure, probably vein; gradational bottom contact.
301.2	308.3		91.9	94.0							Coarse-crystalline quartz-calc-silicate rock composed of diopside and quartz; probable vein as at 297 feet occurs at 306 to 306.8 feet.
308.3	312		94.0	95.2							Calc-silicate rock; gradational upper contact, coarse-crystalline. Composition is diopside and calcite with minor fine calc-silicate mineral in part.
312	313		95.2	95.5							Essentially sharp contact cuts obliquely across core, irregular in detail but at approximately 4 degrees core axis.
313	319		95.5	97.3							Marble: quite pure, white, minor phlogopite and calc-silicate in bottom two feet.
319	319.6		97.3	97.5							Quartz-calc-silicate rock with biotite, conformable gradational contacts.
319.6	321		97.5	97.9							Impure marble with phlogopite and calc-silicate minerals.
321	321.4		97.9	98.0							Quartz-feldspar-biotite gneiss; very biotite rich band, no garnet, highly quartzose.
321.4	324.2		98.0	98.9							Marble: impure, with phlogopite and trace of calc-silicate; small closure at 323 feet may not be significant.
324.2	325.1		98.9	99.2							Quartz-feldspar-biotite gneiss, no garnet.
325.1	328		99.2	100							Pegmatite; medium to coarse crystalline, minor biotite in part,

Hole No.
Sheet of

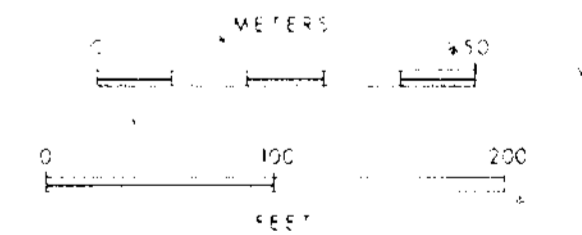


MINERAL CLAIM FX-21
MINERAL CLAIM FX-22

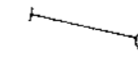
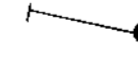
BASE LINE
057°

6254


M-1

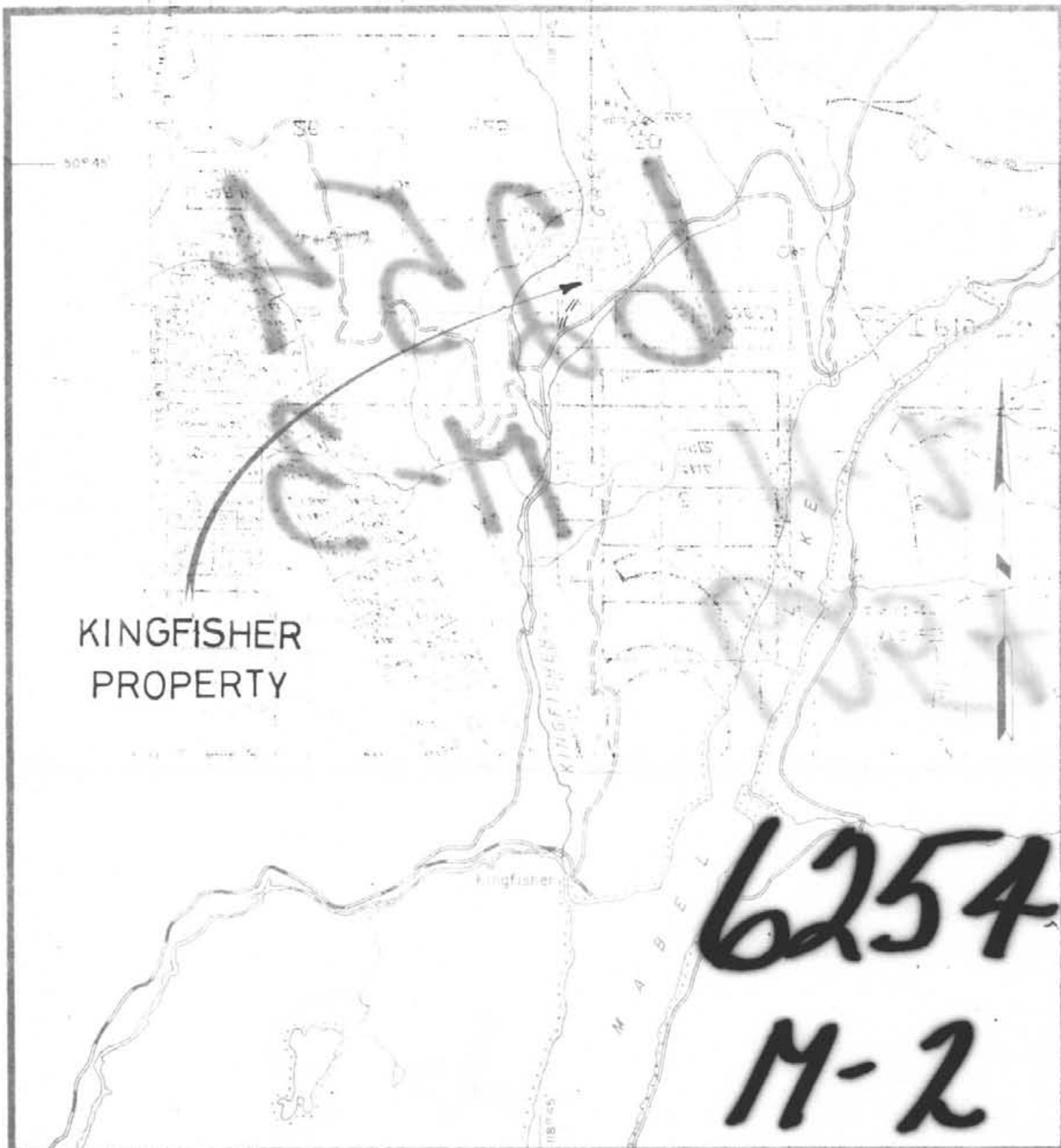


LEGEND

-  DIAMOND DRILL HOLES
-  DIAMOND DRILL HOLES
(Logs included in assessment report)

TO ACCOMPANY ASSESSMENT REPORT
ON FX-21 AND FX-22 MINERAL CLAIMS
DATED MAY 1, 1977.

	KINGFISHER PROPERTY BRITISH COLUMBIA	
	SKETCH MAP OF RIDGE ZONE GRID AND DIAMOND DRILL HOLE LOCATIONS (FROM K.L. DAUGTRY & ASSOCIATES)	
<small>AUTHOR</small> DATE November, 1976 <small>SCALE</small> 1:1,000 <small>CORNER INTERVAL</small> DRAWN BY S.S. ROONEY <small>APPROVED</small>	<small>FILE NO.</small> P-909 <small>N.S. NO.</small>	<small>UNION OIL COMPANY OF CANADA LIMITED</small> CALGARY ALBERTA



K.L. DAUGHTRY & ASSOC. LTD.

LOCATION MAP
OF

KINGFISHER PROP.

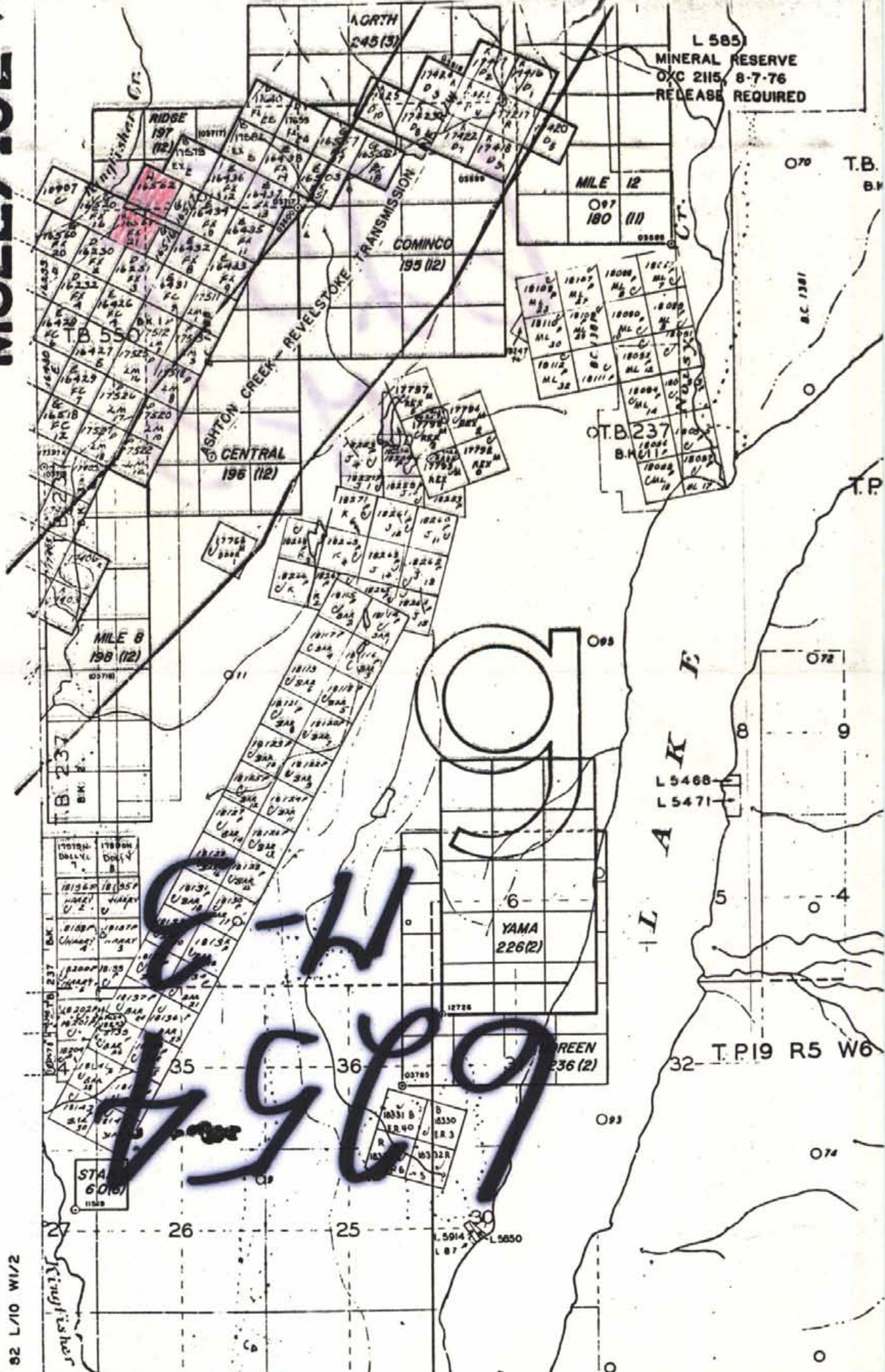
VERNON MINING DIVISION

BRITISH COLUMBIA



WRG.

M82L/10E1



92 L/10 W1/2

4589

L 585
MINERAL RESERVE
OXC 2115, 8-7-76
RELEASE REQUIRED

L 5468
L 5471

YAMA
226(2)

GREEN
236(2)

STAR
6016

L 5914
L 5850

T.P. 19 R5 W6

IDAHO

MILE 12
180 (11)

MILE 8
198 (12)

MILE 10
237 (11)

COMINCO
195 (12)

CENTRAL
196 (12)

RIDGE
197 (12)

AGORTH
245 (5)

T.B. B.M.

T.P.

B.C. 1381

072

8 9

5 4

074

093

095

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26

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