DRILLING REPORT

ON THE

POPLAR GROUP 1

IN THE OMINECA MINING DIVISION

50 KILOMETERS SOUTHWEST OF HOUSTON, B.C.

54° N 127° W, SW

NTS 93-L/2

OWNED BY F. ONUCKI, C. CRITCHLOW, M.J. CALLAGHAN

AND UTAH MINES LTD.

OPERATED BY UTAH MINES LTD.

BY

B.K. BOWEN, P. ENG.

G.L. HOLLAND

OF UTAH MINES LTD.

1600-1050 WEST PENDER STREET

VANCOUVER, B.C.

MARCH 1980

WORK PERFORMED BETWEEN

18TH NOVEMBER AND 2ND DECEMBER, 1979

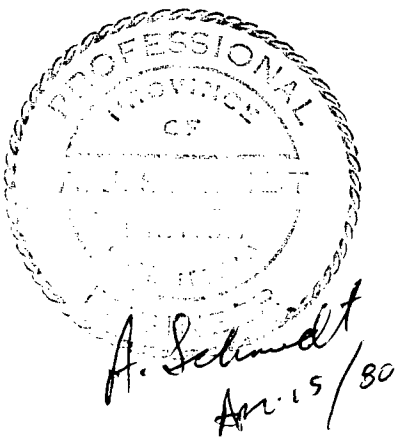
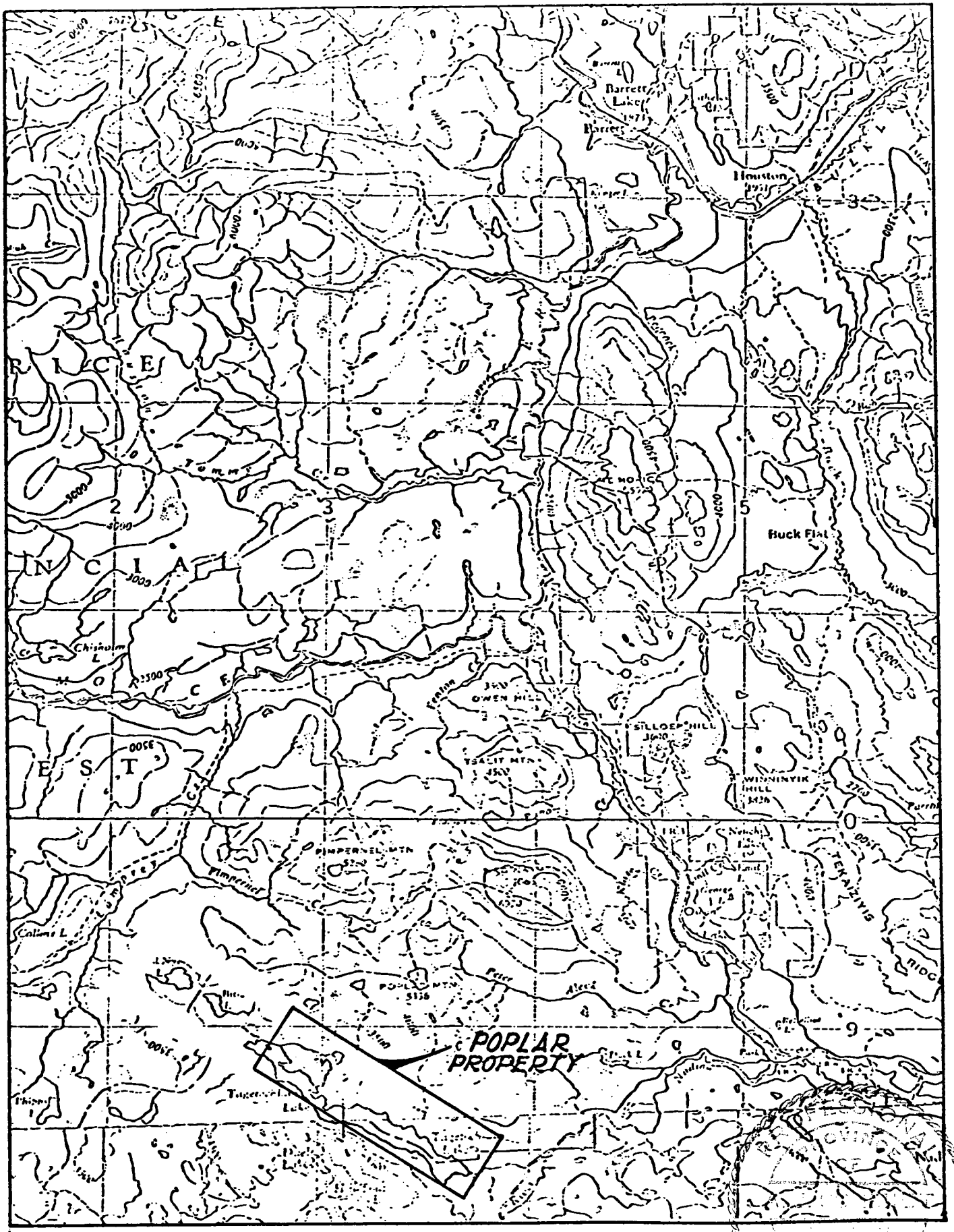


TABLE OF CONTENTS

ILLUSTRATIONS (Map Pocket)



INDEX MAP

POPLAR CLAIMS

OMINECA MINING DIVISION

5 0 5 Miles

1:250,000

A. Schmidt
Apr. 15/80

POPLAR GROUP 1

Claim		Units	Present Expiry Date	Years Claimed	New Expiry Date
Poplar	13	1	Aug. 14/87	4	Aug. 14/91
	14	"	"	"	"
	62	"	Sept. 23/87	"	Sept. 23/91
	63	"	"	"	"
	65	"	"	"	"
	67	"	"	"	"
	69	"	"	"	"
Poplar	71	"	"	"	"
Dave Fr. No.	4	"	Nov. 27/87	"	Nov. 27/91
Don	15	"	Oct. 3/87	"	Oct. 3/91
Pine	12	"	Oct. 10/87	"	Oct. 10/91
	14	"	"	"	"
	15	"	"	"	"
	16	"	"	"	"
	17	"	"	"	"
	18	"	"	"	"
	19	"	"	"	"
	20	"	"	"	"
	21	"	"	"	"
Pine	22	"	"	"	"
Lake	9	"	Oct. 16/85	6	Oct. 16/91
	10	"	"	"	"
	11	"	"	"	"
	12	"	"	"	"
	13	"	"	"	"
	14	"	"	"	"
	15	"	"	"	"
	16	"	"	"	"
	25	"	"	"	"
	26	"	"	"	"
	27	"	"	"	"
	28	"	"	"	"
	29	"	"	"	"
	30	"	"	"	"
	31	"	Oct. 16/84	7	"
Lake	32	"	"	"	"
War	1	4	May 27/85	24	May 27/91

INTRODUCTION

A three (3) hole diamond drilling programme was conducted on the Poplar Lake prospect between 18th November and 2nd December, 1979.

This report will claim as assessment work the direct diamond drilling costs, necessary camp costs, and geologic supervision charges related to the detailed logging of the drill core and spotting of drill holes.

Drilling was confined to the following claim:

Poplar #13

LOCATION AND ACCESS

Tagetochlain Lake (local name Poplar) lies approximately thirty (30) miles southwest of Houston, British Columbia. Vehicle access from Houston is along the Morice River, Owen Lake and Tahtsa Reach Forest Service access roads, a distance of about forty-five (45) miles. A rough four-wheel drive road extends from the Tahtsa road along the north shore of Poplar Lake, through the Poplar Groups of mineral **claims, to the drill camp.**

The Poplar claims studied are underlain by volcanic and sedimentary rocks of the Hazelton Group which are intruded by several feldspar porphyry, or feldspar biotite porphyry stocks and dikes. A unique granodioritic biotite porphyry stock contains pyrite, chalcopyrite and molybdenite mainly as fracture fillings. A late NNW porphyry dike system intrudes all above rocks.

Dominant structural trends are northwest, parallel to the Poplar Lake lineament and north-northwest, parallel to the porphyry dike system. The mineralized biotite porphyry stock is contained within the latter structural belt.

Sulphides, mainly pyrite, are concentrated within and adjacent to the biotite porphyry stock and the NNW structural belt.

DIAMOND DRILLING PROGRAMME

A contract was let to D. W. Coates Enterprises Limited, on November 7th, 1979, to perform the required diamond drilling. One (1) unitized, longyear "Super 38" drill was used and was equipped to drill NQ size core. The move onto the property began November 17th, with actual drilling commencing on November 21st, 1979. The camp facilities and cook were provided by D. W. Coates and camp construction was done by the five (5) man drill crew. The drill rig was moved during the job by a HD-11 crawler, owned by R. Orsetti of Endako, on prepared drill roads.

Drilling was completed on December 1st and the move out completed on December 2nd 1979. Core logging and supervision, provided by Utah Mines Ltd., included the following personnel: B.K. Bowen, Senior Geologist; G.L. Holland, Geologist; and J. Howe, Field Assistant. All core was logged in detail, by the staff geologists, then split in half, with one half of the core sent for analysis via Pacific Western Airlines to Chemex Labs Ltd., Vancouver. The remaining half of the core, including core from previous programmes, is presently stored in two sturdy plywood storage buildings located in the main camp area, on the property. All core is stored in wooden core trays and all boxes carefully labelled with hole no. and meterage contained.

Total meterage drilled in 1979 was 746.0 metres (2448 feet). Note that all measurements are in metres, including the grid co-ordinations.

A summary of diamond drill holes drilled during the period 21st November to 1st December, 1979 is given below:

Hole No.	Co-ords(M) N.	E.	Elev. (M)	Date Start/Finish	Angle	Depth Drilled (M)	Hole Depth (M)
PC-33	6096.09	12301.29	915.80	Nov 20-23	-90°	157.6	370.0*
PC-41	6200.00	12200.00	920.00	Nov 23-26	-90°	300.8	300.8
PC-42	6200.00	12400.00	919.00	Nov 27-Dec 1	-90°	287.6	287.6
				TOTAL METERAGE		746.0	

PC-33, 41, 42 are located on Poplar #13 claim
*PC-33 was deepened from depth 212.40m to 370.0m.

Data accompanying this drill report consists of completed diamond drill logs and assays for diamond drill holes PC-33, PC-41 and PC-42, (appendices A & B) and Diamond Drill Collar Location Plan (Plate No. 1). Statement of Qualifications and Statement of Costs are given in Appendices C & D respectively. Major invoices and a copy of the drilling contract are given in Appendices E and F respectively.

B.K. Bowen, P.Eng
Senior Geologist

G.L. Holland
Geologist

Vancouver, B.C.
March, 1980

APPENDIX A

DRILL LOGS

D.D.H. - P.C. - 33

HOLE NO.: 33
COLLAR ELEV.: 915.88m
GROUND ELEV.: 915.80m
COORDINATES: N. 6096.09m E. 12301.29
INCLINATION: 090°
BEARING:

PROJECT: Poplar
DATE STARTED: Oct. 16, 1976
DATE FINISHED: Oct. 17, 1976
TOTAL DEPTH: 697' or 212.4m.

REF. TO CLAIM CORNER:
SCALE: 1cm : 1m.
LOGGED BY: G.E.N. + E. Bohn

SECTION	ALTERATION: Silica	clay	sericite	K_2O Bio	FRACTURING	MINERAL	GEOLOGY	COMMENTS / DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu

AVE CORE REC'Y / HOLE: 99.47%

Core size: NQ

0-3.6 OVER BURDEN

3.6-21.0 *Biotite Porphyry*
plag phen s - 15-20%, str Kaol, 2.5cm - closely packed. - euhedral to subhed.
ground mass - qtz - clay.
Most silica present appears as a flooding rather than veining, very high silica content.
No biotite present → clay.?
In places little remenant texture.
Rx has a vuggy text - due to metasomatism shrinkage.
Traces of fine cpy present, Py occurs at dissem & vnlts w/ qtz., fine dissem hematite.

Comments:
- 2mm calc. vnlt.
- mod - str py - & qtz py vnlts.
- dissem py trace cpy
- calc vnlt w/ py. (3mm).
- 3.5 cm qtz vn w/ py
- trace dissem cpy
- 1cm black gouge (crushed py).
- bx and healed
- 1.5 cm qtz vnlt w/ py
- str py on frac.

Fracturing: mod; strong
Mineral: cpy; py +; hematite; py + cpy; py +

DRILLING INTERVAL	% CORE RECOVERED	SAMPLE INTERVAL (to)	SAMPLE INTERVAL	% REC'Y SAMP. INT.
3.6				
5.2	100	6	2.4	99
8.2	98	9	3	98
11.3	98	12	3	98
14.3	99	15	3	99

HOLE NO.: 33
COLLAR ELEV.:
GROUND ELEV.:
COORDINATES: N. E.
INCLINATION: 90°
BEARING:

PROJECT: Poplar
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH: 212.5m

PAGE NO.: 2 OF 15
REF. TO CLAIM CORNER:
SCALE: 1cm: 1m
LOGGED BY: G. E. N

SECTION	ALTERATION: Silica / clay / Sericite / K₂O Bio	FRACTURING	MINERAL	GEOLOGY	COMMENTS / DESCRIPTIVE GEOLOGY	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu
15		mod	cpy		← mod py & qtz-py vnlts. Biotite Porphyry Cont'd.		[redacted]	17.4	98	NQ	3 (15–18)	98	[redacted]
18		strong	py		← 1.5 cm py-qtz vnlt. ← sharp cont.		[redacted]	20.4	97		3 (18–21)	97	[redacted]
21		weak	magn		← fragment B.P.? ← dissem magn → hem. ← 1mm dol vnlt ← sharp cont. 21.0 - 24.2 TRACHYTIC Dacite-Hnd Porphyry phenos - 7% large sub anhedral plag → clay upto 1.5cm. 15-20% smaller plag phenos → clay <.5cm. lath like plag alinement give trachytic texture. - sparse biotite phenos. grndmass - aphanitic - qtz - plag. some fragments, dissem. magn. (maroon color)		[redacted]	23.5	97				
24		mod / strong / mod	Magn		24.2 - 39.0 Quartz Feldspar Porphyry phenos - 10% str fract qtz - 5% plag → clay (some kaol ! others green clay) grndmess - aphan. - clay - qtz sparse mafic phenos. trace py. slightly vuggy text due to Plag → clay and clay washed out. 27.1 - 27.9 Fault Zone ← specks magn → hem		[redacted]	26.5 / 29.6	99 / 99				
30													

HOLE NO.: -33 | PROJECT: Popl | PAGE NO.: 3 OF 15

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE: 1cm : 1m.

INCLINATION: 90° | BEARING: | TOTAL DEPTH: 212.5 | LOGGED BY: GEN

ALTERATION: silica, clay, sericite, K_2O Bio | FRACTURING | MINERAL | GEOLOGY

COMMENTS:

AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

SECTION

Quartz Feldspar Porphyry Cont'd

FRACTURING: mod — weak — mod — strong

MINERAL: py

← Small slip.

← Sheared cont.

← 1m qtz vnlt offset by dol. vnlt.

← .5 cm py vnlt.

← 6cm brrx & gouge

← good qtz-py stockwork vnlts 2.1m.

← .5cm py vnlt.

39.0 - 67.5 Argillite

tt grey - yellow brown. rx

- most of rx is a mixture of qtz-clay.
- str fract w/ a strong stock work of qtz - py vnlts., some local zones of kool altern.

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED %
	32.6	98	NQ			
	35.7	97				
	38.7	98		39		
	41.8	100		3	100	2.1
	44.8	100		42 3 45	100	

HOLE NO.: [redacted]-33 | PROJECT: Pop[redacted] | PAGE NO.: 4 OF 15 [redacted]

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE: 1cm : 1m

INCLINATION: 090° | BEARING: | TOTAL DEPTH: 212.5 | LOGGED BY: GEN.

ALTERATION: silica, clay, sericite, K_2O Bio | FRACTURING | MINERAL | GEOLOGY | COMMENTS: | AVE CORE REC'Y / HOLE

SECTION: 45 – 60

DESCRIPTIVE GEOLOGY

Argillite Cont'd

Fracturing: strong
Mineral: py+; cpy MoS₂ trace

- healed 1cm bx
- good qtz py stockwork, trace dissem fine cpy.
- 1cm qtz vnlt w/ py on troc ⊥ to vn wall and down center
- ½ cm gouge
- <1mm gypsum vnlts.
- good py & qtz-py stockwork.
- later qtz-py vnlt.
- 3mm py-qtz vnlt.
- Gypsum along fault.
- Fault Zone. 10cm. - healed.
- 2mm py vnlt, trace MoS_2 & dissem cpy
- str qtz-py stockwork w/ dissem py & cpy
- qtz-dol.
- 2cm healed broken rx
- small slip 2mm gouge

% Sulphides	Drilling Interval	% Core Recovered	Core Size	Sample Interval	% Rec'y Samp. Int.	Estimated %Cu
[redacted]	47.9	100	NQ	3 (48)	100	[redacted]
[redacted]	50.9	99		3 (51)	99	[redacted]
[redacted]	54	98		3 (54)	98	[redacted]
[redacted]	57	98		3 (57)	98	[redacted]
[redacted]	60	99		3 (60)	99	[redacted]

HOLE NO.: | PROJECT: | PAGE NO.: 5 OF 15

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY:

ALTERATION: silica, clay, sericite, K_2O, Bio | FRACTURING | MINERAL | GEOLOGY | COMMENTS: | AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

SECTION	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
0				NQ			
			100		3	100	
		63.0			63		
3			99		3	99	
		66.1			66		
6			98		3	98	
		69.2			69		
9			99		3	99	
		72.3			72		
2			97		3	97	
					75		
5							

Argillite Cont'd.

2 cm healed bx zone
Gypsum along fault.
fine cpy dissem
str qtz-py ± cpy vnlts.
3mm py vnlt.
1mm gypsum vnlt.
1mm py vnlt
2mm gypsum vnlt.
sharp cont. - silified
honey color to black sphal in dol vn.
str pyr qtz-py stockwork
1mm gypsum vnlt.

67.5 - 69.6 Biotite feldspar porphyry
phenos - 30-40% plag → clay ± 1/2 8 cm, ragged.
grndmass. - qtz.
mod-str qtz-pyr ± py stockwork.

B.P. .1 m.

69.6 - 72.5 Argillite.
color - grey tan to lt brn
v-str sil. ± patchy clay
alter and the str fract
gives bx texture,

str qtz-py ± py stockwork.
sec. biot.
Texture of B.P indistinct contact

Hybrid Zone B.P ± Argillite.
- contacts between B.P ± argillite are grad and zones in between distinguishable B.P look also like fragments of argill. w/ B.P. matrix not distinct?

dk patch - secondary biot.
B.P .5m. - 30-40% lt green plag → clay → biot. in aphan qtz matrix ± patch sec biot, indistinct contact

Strong
Strong
mod
Strong
cpy pyr

HOLE NO.: K 33 | PROJECT: Poplar | PAGE NO.: 6 OF 15

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE: 1cm : 1m

INCLINATION: -90° | BEARING: | TOTAL DEPTH: 212.5 | LOGGED BY: GEN

ALTERATION: silica, clay, sericite, K2O Bio | FRACTURING | MINERAL | GEOLOGY | COMMENTS: | AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

SECTION | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | % REC'Y. SAMP. INT. | ESTIMATED %

75

Hybrid B.P. ? Argillite

- small patches sec biot. ± minor vnlts
- 8mm cpy-py vnlt cut by qtz-gypsum vnlt
- argillite - v-str silic. gypsum on fract.
- gypsum ± py on fract.

75.3 | 96 | NQ | 3 | 96

78.3

78

18

- indistinct argillite frag?

79.2 - 85.6 Biotite Porphyry

phenos - 30-40% plag → clay ∠.5cm
2-3% biot → hem → ser

grndmass - plag, qtz sec biot.
color varies from grey green to dk grey in sec biot rich zones.

- .5cm qtz vnlt.
- small slip - gypsum-qtz-py
- good qtz-vning. some dol
- ∠1m qtz-py vnlts
- 1-1.5 cm fragments of argillite. (str clay).

78.3 | 99 | 3 | 99

81

31

- Fault Zone 81.9 - 82.5 partially healed str. ground.

81.9 | 98 | 3 | 98

84

Argillite 82.5 - 83.1
slightly gritter unit. more clay altern

- primary bio pheno → ser - weak sec biot + ser.
- 2mm qv vnlt.
- slight increase in cpy w/ sec biotite altern ± silica

84.1

34

- mod to weak qtz-py stockwork
- small slip P dissem mdgn → hem
- 2.5cm qtz vn

98 | 3 | 98

87

85.6 - 89.2 Sandy Argillite
color - lt grey to tan
v-f-g- grainy text. of mostly silica with grains of clay
probably a impure argillite.

87.5

27

- Gypsum on fract
- mod qtz ± qtz-py vnlts

99 | 3 | 99

90

- gradual contact
- gypsum ∠2mm.

89.2 Biotite Porphyry

90

HOLE NO.: 33 | PROJECT: Poplar | PAGE NO.: 7 OF 15

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: -90° | BEARING: | TOTAL DEPTH: 212.5 | LOGGED BY: G.E.N.

ALTERATION: silica | clay | sericite | K_2O B_{io} | FRACTURING | MINERAL | GEOLOGY

COMMENTS:

AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

SECTION | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | % REC'Y. SAMP. INT. | ESTIMATED % Cu

90

3cm gouge py & crushed py

1mm gypsum vnlts

mod qtz-py vnlts

poor recovery very broken rx.

4cm gouge zone replaced by py. then later movement

biot → ser

magn → hem vnlt.

v-f-g patches sec. biot & clay.

93

96

gypsum vnlts

qtz & qtz-py vnlts <.4cm. mod vning.

15 cm qtz vnlt.

99

Argillite fragments

sandy Argillite. gradational cont.

patch block v-f-g sec. bio.

gypsum vnlts

mod qtz & qtz-py vning fine diseem cpy.

102

2cm gouge.

105

Biotite Porphyry Cont'd

Alteration changes very rapidly from clay-silica altern & sec biot; sil w/very little clay.

plag → clay in groundmass qtz-clay sec. biot.

SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
	90.5		NQ			
		98		3	98	
				93		
	93.6					
		98		3	98	
				96		
	96.6					
		99		3	99	
				99		
	99.7					
		100		3	100	
				102		
	102.7					
		100		3	100	
				105		

HOLE NO.: [redacted]-33 | PROJECT: Poplar [redacted] | PAGE NO.: 8 OF 15

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE: 1cm: 1m

INCLINATION: 090 | BEARING: | TOTAL DEPTH: 212.5. | LOGGED BY: G.E.N.

SECTION	ALTERATION: silica	clay	sericite	K_2O Bio	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

105

- v-f-g biot-ser blebs in grndmass primary biot → ser.
- gypsum vnlts
- gypsum offsets py vnlts
- .5cm py vnlt.
- fragment of argillite

Biotite Porphyry

- lt green plag → clay
- biot phenos → ser
- in a matrix of qtz-sec biot-ser.
- dissem py cpy ± magn → hem
- mod qtz ± qtz ± py vnlts.

108

- micro vnlts py < .5mm
- < .1m B.P

v-f-g sec biot in silic grndmass.

109.7-112.5 Sandy Argillite probably an assimilated block within the B.P.
- appears to be metasomatized

111

- sharp cont.
- weak qtz ± qtz pyvnlts

112.5 - 114.8 Biotite Porphyry
20-80% plag phenos < 5cm → clay.
5% primary biot phenos → ser-
grnd mass - qtz+ - ser- - sec biot-

114

- .1m argillite

114.8-119.1 Sandy Argillite.
appears to an assimilated block

- grndmass - qtz - bio - ser.

117

- gypsum.

plag → clay
biot → clay
ground mass qtz ser

119.1-120.1 Biotite Porphyry

120

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
	105.8		NQ			
		100		3	100	
	108.8			108		
				3	100	
	111.9	100		111		
				3	99	
	114.9	99		114		
				3	98	
	118.0	98		117		
				3	98	
		98		120		

HOLE NO.: 33 | PROJECT: Poplar | PAGE NO.: 9 OF 15

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

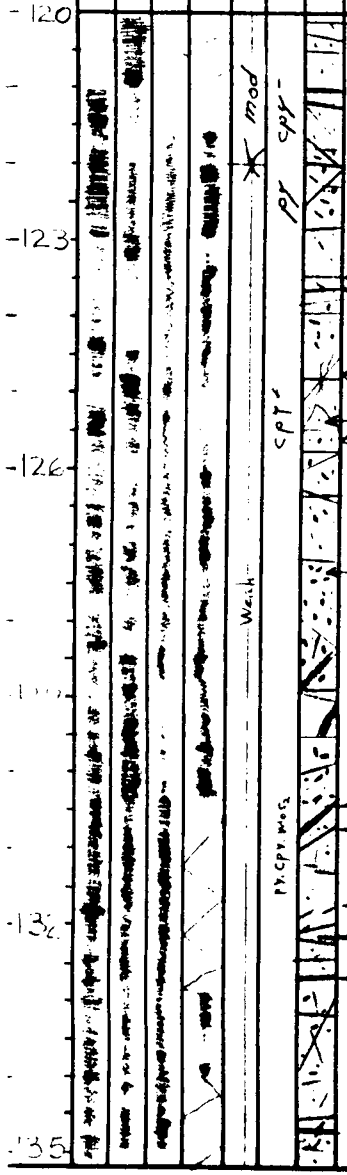
COORDINATES: N. E. | DATE FINISHED: | SCALE: 1cm = 1m.

INCLINATION: -70° | BEARING: | TOTAL DEPTH: 673' | LOGGED BY: E. Bohn

COMMENTS:

AVE CORE REC'Y / HOLE

SECTION | ALTERATION (Silica, Clay, Sericite, K_2O-Bio) | FRACTURING | MINERAL | GEOLOGY



DESCRIPTIVE GEOLOGY

120.1 - 123. Sandy Argillite

mod to weak qtz & qtz-py vnlts.

123.- Biotite Porphyry

altern is very variable.

1mm gypsum

1mm py vnlt.

str qtz & qtz-py vnlts < .25cm.

argillite frag.

good dissem cpy.

magn → hem w/ cpy surrounding

abrupt end to 2nd bio alt at qtz vlt.

0.2cm py vlt.

Loc. pkish hem stain

+8cm qtz zone w/ py, cpy vlts ±

strong qtz-py vlts.

random, loc^{+} gyp vlts

py vlt. w/ gyp

strong qtz-py vlts loc.

strong pk hem stain

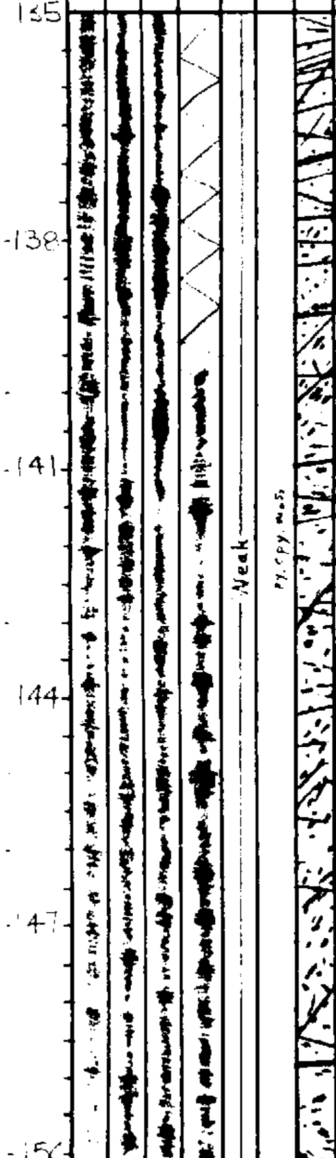
R bo.

py > cpy by 3-5:1

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu
	121.0	99	NQ	3.0 (123.0)	99	
	124.0	99		3.0 (126.0)	99	
	127.1	98		3.0 (129.6)	98	
	130.2	99		3.0 (132.0)	99	
	133.2	100		3.0 (135.0)	100	

HOLE NO.: [redacted] 33 | PROJECT: Poplar | PAGE NO.: 10 OF 15
COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:
COORDINATES: N. E. | DATE FINISHED: | SCALE: 1cm.=1m
INCLINATION: 70° | BEARING: | TOTAL DEPTH: 697′ | LOGGED BY: F. Bohn

SECTION | ALTERATION (Mag, Clay, Silicification, K_2O-Bio) | FRACTURING | MINERAL | GEOLOGY | COMMENTS: | AVE CORE REC'Y / HOLE



DESCRIPTIVE GEOLOGY

Biotite Porphyry Contd.

py-cpy % variable. loc v.f.g. MoS2 very wk.

- sphal.± loc.
- qtz-py, qtz,+py vlts+ loc.+ silica.
- py+, cpy− w/ qtz vlts.
- py+, cpy−, mag+ ± hem
- 2nd bio clots+
- % sulfides lower
- K_2O loc.± w/ qtz vlts.
- 5.0 cm qtz vlt. w/ py± cpy−
- cpy reduced
- mi. cpy 2nd bio+
- mag+ ± hem, cpy±, py+ w/ qtz vlt.
- alt very complex qtz-K_2O-bio-seri-cl-gyp-mag w/ py-cpy
- 2nd bio patchy

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu
			NQ			
[redacted]	136.3	99		3.0 (138.0)	99	[redacted]
[redacted]	139.3	98		3.0 (141.0)	98	[redacted]
[redacted]	142.3	100		3.0 (144.0)	100	[redacted]
[redacted]	145.4	100		3.0 (147.0)	100	[redacted]
[redacted]	148.4	100		3.0 (150.0)	100	[redacted]

HOLE NO.: [redacted] 33
PROJECT: Poplar [redacted]
PAGE NO.: 11 OF 15 [redacted]

COLLAR ELEV.:
GROUND ELEV.:
DATE STARTED:
REF. TO CLAIM CORNER:

COORDINATES: N. E.
DATE FINISHED:
SCALE: 1cm = 1m

INCLINATION: -90°
BEARING:
TOTAL DEPTH: 697'
LOGGED BY: E. Bohn

ALTERATION: Silica | Clay | Sericite | K_2O-Bio
FRACTURING: Weak
MINERAL: py, cpy, MoS_2
GEOLOGY

COMMENTS:

AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

Section -150 to -165

Biotite Porpyry Contd.

- py > cpy by ~3:1
- 0.2cm qtz-spec. vlt.
- spotty, thin mag ± hem vlts.
- 2nd bio as ovoid patches
- zone of strong 2nd bio (patches + vlts), seri+, and qtz-K_2O vlts+. Mag+, py+, cpy−
- gyp vlts+ loc, sht to steep, gen < 0.2 cm. Dolo. vlts−.
- strong vning w/ py+, cpy−
- cpy slightly stronger, gen as v.f.g. diss.
- zones of irreg qtz+ vlts to 5cm, w/ mag+ as hairline vlts & patches. py+, cpy±
- 0.2cm qtz vlt. w/ py+, cpy±
- cpy loc. stronger as diss.
- MoS_2− w/ 0.3cm. qtz vlt.
- loc. mag vlts < 0.1cm.
- 0.1cm. mag vlt.
- 0.3cm qtz–dolo. vlt. w/ cpy+, py−, MoS_2±, sphal±

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu
[redacted]	151.5	100	NQ	3.0 (to 153.0)	100	[redacted]
[redacted]	154.5	100		3.0 (to 156.0)	100	[redacted]
[redacted]	157.6	99		3.0 (to 159.0)	99	[redacted]
[redacted]	160.6	99		3.0 (to 162.0)	99	[redacted]
[redacted]	163.7	100		3.0 (to 165.0)	99	[redacted]

HOLE NO.: 33 | PROJECT: Poplar | PAGE NO.: 12 OF 15

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE: 1cm.=1m.

INCLINATION: -90° | BEARING: | TOTAL DEPTH: 697' | LOGGED BY: E. Bahn

SECTION	ALTERATION: Silica	Clay	Sericite	K-Spar - Bio	FRACTURING	MINERAL	GEOLOGY	COMMENTS: / DESCRIPTIVE GEOLOGY	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
165								Biotite Porphyry Contd.					NQ			
								strong loc. qt$_3$, qt$_3$-mag vlts.				98				
											166.7			3.0	99	
								cpy± as v&g diss. 0.4cm qt$_3$-py vlt. patchy bio.								
168														168.0		
								strong 0.4cm irreg py vlt w/ gyp, qt$_3$.				100				
								ph. hem stain to clay alt plag.						3.0	100	
								strong 0.3cm qt$_3$-py, py vlts. w/ poikly.			169.8					
171														171.0		
								strong qt$_3$, qt$_3$-py vlts, gen<0.4cm; cpy± loc.				100				
											172.8			4.7	100	
174								mag±hem w/ 0.4cm hem vlt., py±								
								0.7cm. gyp vlt.				100				
								Contact: BP/QFP								
								175.7 - 180.9m Quartz Feldspar Porphyry - as before. Contact marked by fresh of BP, QFP, and py. Plag phenos loc. very bright yel gn, clay. ₹ diss. py, mag, spec. Post ore.			175.9			175.7		
177												100				
								very late min. w/ calcite + stilbite: mos$_2$±, cpy^, spec, mag, all along late frac. in QFP						—	100	
											178.9					
								Loc. narrow shear and bx zones w/ yel-gn clay gouge.								
180																

Weak

HOLE NO.: P…33
COLLAR ELEV.:
GROUND ELEV.:
COORDINATES: N. E.
INCLINATION: -90°
BEARING:

PROJECT: Poplar
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH: 697'

PAGE NO.: 13 OF 15
REF. TO CLAIM CORNER:
SCALE: 1cm = 1m
LOGGED BY: E. Bohn

SECTION	ALTERATION: Silica	Clay	Sericite	K2O-Bio	FRACTURING	MINERAL	GEOLOGY	COMMENTS / DESCRIPTIVE GEOLOGY	AVE CORE REC'Y / HOLE
					Wk - Mod	py, cpy, moS2			

COMMENTS:

DESCRIPTIVE GEOLOGY

Quartz Feldspar Porphyry Contd.

180.9-212.4m Biotite Porphyry - as before.

- 0.6 qtz-py vlts, w/ cpy?, moS2°, po anhy⁻
- cpy⁻ sem.
- qtz vlts⁺ loc. w/ mag ± hem, or as hairline vlts.
- dolo⁻ w/ qtz vlts.
- gyp vlts ±
- 2nd bio⁺ as ovoid patches, loc w/ seri ±. Cpy stronger.
- mag⁺ w/ qtz vlts.
- MoS2⁺ w/ 0.8cm. qtz-py vlt.
- 2 d bio f.g.
- strong qtz vlts w/ loc⁺ mag vlts & diss. Py strongest w/ qtz vlts, cpy strongest as diss. Loc. gyp vlts, po anhy⁺ loc. w/ qtz vlts.
- stag frac zone w/ qtz, gyp, cl. and py.
- py±, cpy⁻, sphal⁻ w/ steep qtz vlt. Nontronite⁺, po anhy⁺

Mag very strong - loc. +1% total, pred. as vlts and w/ qtz.

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu
		99	NQ	180.9		
[redacted]	182.0			3.1	99	[redacted]
		99		184.0		
[redacted]	185.0			3.0	98	[redacted]
		98		187.0		
[redacted]	188.0			3.0	99	[redacted]
		100		190.0		
[redacted]	191.1			3.0	99	[redacted]
		99		193.0		
[redacted]	194.2			3.0	99	[redacted]

HOLE NO.: [redacted] 33

COLLAR ELEV.:

GROUND ELEV.:

COORDINATES: N. E.

INCLINATION: -70°

BEARING:

PROJECT: Poplar [redacted]

DATE STARTED:

DATE FINISHED:

TOTAL DEPTH: 697'

PAGE NO.: 14 OF 15 [redacted]

REF. TO CLAIM CORNER:

SCALE: 1cm.=1m.

LOGGED BY: E Rohn

SECTION	ALTERATION: Silica	Clay	Sericite	K_2O-Bio	FRACTURING	MINERAL	GEOLOGY
					Weak	cpy, py, MoS₂, sphal	

COMMENTS:

AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

Biotite Porphyry Contd

- strong kaoline. qt₃, mag vlts ± anom
- cpy⁺ loc. as diss
- 2nd bio±, cpy±
- Bio... strong loc. w/ qtz vlts.
- mag vlts.⁺
- 2nd bio⁺
- gyp vlts± loc.
- Unusual vein: 199.8-199.9m. Complex w/ bx text.⁺ Grades downward from: th... qt₃ w/ gal⁻, to 2.0cm. qt₃-calcite w/weak sphal + MoS_2 + comb structure, to strong qt₃-dolo zone w/ bx and "taffy" text – strong broken sphal. grains, intergrown py-cpy-sphal and/or spec. w/ MoS_2⁻, to vuggy chalcedony w/ graded bedding argillite frags (to 2.5cm) w/ sphal and py replacing bedding, to zone of bx sphal frags (to 1.5cm) w/ qt₃-dolo. Margins of vn show silic. shear texts; cl-serit ±, Gyp±. Sample not split - saved.
- continued strong qt₃-py vlts, diss cpy± loc. 2nd bio⁺ loc., K_2O gen. alter. Loc⁺ mag vlts.
- mag vlts⁺
- near vert. qt₃ vlt to 2 cm. w/ py⁺ c.g.
- strong 2nd bio
- crushed py⁺ along frac. zone
- parallel mag vlts⁺
- K_2O moving into groundmass loc.
- 2.0cm qt₃ vlt. w/ py⁺

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
		99	NQ	See ... 196.0		
[redacted]	197.2			3.0	100	[redacted]
		100		199.0		
[redacted]	200.3			3.0	100	[redacted]
		100		202.0		
[redacted]	203.3			3.0	100	[redacted]
		100		205.0		
[redacted]	206.4			3.0	99	[redacted]
		99		208.0		
[redacted]	209.4			4.45	98	[redacted]

HOLE NO.: [illegible]33
COLLAR ELEV.:
GROUND ELEV.:
COORDINATES: N. E.
INCLINATION: -70°
BEARING:

PROJECT: Poplar
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH: 697'

REF. TO CLAIM CORNER:
SCALE: 1cm = 1m.
LOGGED BY: E. Balon

SECTION	ALTERATION: Silica	Clay	Sericite	K₂O - Bio	FRACTURING	MINERAL	GEOLOGY	COMMENTS / DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
210					Wk	cpy, py, moss		Biotite Porphyry Contd. cpy + or s.g. diss. 0.8 qtz vlt w/ py centre (0.2 cm)			98	NQ	From Prev. Page 4.45	98	
								End Hole at 697' or 212.45 m. End hole in BP w/ gen+ qtz vlts, [illegible], [illegible] vltst, zones of spotty [illegible] and K₂O. Seri prod after bio, plag; clay after plag. [illegible] gyp vlts.		212.5			212.45		
213															

HOLE NO.: 33
COLLAR ELEV.: [illegible]
GROUND ELEV.: 915.80 m
COORDINATES: N. 6096.09 E. 12301.29
INCLINATION: [illegible]
BEARING:

PROJECT: Popl[illegible]
DATE STARTED: [illegible] 16 1979
DATE FINISHED: Nov. 23, 1979
TOTAL DEPTH: 370 metres

REF. TO CLAIM CORNER:
SCALE: [illegible]
LOGGED BY: GLH

COMMENTS: \ – gypsum

AVE CORE REC'Y / HOLE

SECTION	ALTERATION	FRACTURING	MINERAL	GEOLOGY	DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED Cu %
					See L. Bohn's log of 1976							
		mod; strong to mod	Py-cpy-Mo	212.4	**Biotite Feldspar Porphyry**		215.5; 218.5; 221.6; 224.6		NQ wireline	212.4; 215; 218; 221; 224		

Geology column notes:
- 2cm, w/Py-Mt-Cpy x?
- 4×2m w/Qtz-Mt-Py.
- Str. H/L Mt vlts 1mm
- 1mm w/Py
- 2×3mm w/Py-(Cpy)
- 3mm w/Cpy-Mt-Gyp. trace MoS2
- 1cm w/Hem-Py-Cpy Qtz-kspar.
- 5mm w/ white mod hd. min(?)
- 3mm dk grey gouge w/ slickens. Py.
- 1.5 cm Qtz vlt w 2×50mm Py (cpy)
- clay developed on ftrs.
- H/L Hem-Mt vlts

Descriptive geology:

Clay alt'n selective after fspar phenos.
212.4-217.5 Mod kspar as envel on Mt and Qtz vlts.

Scattered H/L (<1mm) Py @ 40-50° CA.

217.5-220 Mod flesh kspar after plag.
216.5-253.5 Qtz s/w mod-str.

Alot of qtz s/w contains py and/or mt. in core

HOLE NO.: -33 | PROJECT: Paplar | PAGE NO.: 16 OF 25

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G.L.H.

SECTION

ALTERATION: Silica | Clay | Sericite | K-Spar

FRACTURING: Strong

MINERAL: Py - cpy - MoS_2

GEOLOGY

COMMENTS:

AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

B.F.P. cont

224.8 - 225.5 - Several scattered H/L Mt-Hem v/lts

226 - 227 - increase in quant. of small (1mm) py (cpy) v/lts

Rock Discription:
- Clay alt'n selective after fspar phenos
- H/L Mt-Hem v/lts common
- bio. present only as books.
- most K-spar fresh after plag. Few kspar envelopes.
- minor gyp along frte.
- S/W continues to be strong

227.7 - 228.1 - increase in bio books

Note - most of larger v/lts appear to be parallel to sub-parallel at 45° to C.A.

231 - 232.6 - increase in amount of H/L Mt-Hem v/lts. Angle is quite variable

233.7 - 236 - str clay alt'n selective after fspar. phenos.

233.6 - 233.9 - increase in bio. books

235.5 - 235.7 - Kspar primarily as envelopes ⊼ qtz v/lts

236.8 - 237.2 - str altered - structures faint

237 - 238 - secondary bio envelopes py v/lts

238.7 - 239.6 - Increase in py (2mm) v/nlts

239.4 - 239.6 - str altered, slight brecciated and vuggy

239.6 - 239.8 - Fault zone ⊼ gouge and clay. A lot of frags contains in the clay. A 3cm. zone of intense alteration occurs below, slightly brecciated.

Scattered H/L (<1mm) Mt.-Hem v/lts

1.5cm qtz v/lt ⊼ py-cpy throughout
kspar envelope

1cm gouge zone ⊼ qtz.
.8cm Py (cpy) band in qtz v/lt

1.5cm qtz v/lt ⊼ py-mt.-cpy and a creamy wht, med hard min.

Gyp vn. - up to 1cm wide

Trace MoS_2

small v/lt of Hem

2cm qtz v/lt ⊼ py-cpy

4 x 1cm parallel qtz vienlets

Increase in Mt-Hem v/lts

2cm qtz vn/lt. ⊼ py (cpy)

2.5cm qtz v/lt ⊼ py-cpy - has a weak kspar envelope.

Sericite after fspar in frt.

Trace MoS_2

2 x 50mm qtz v/lts ⊼ py-cpy-Mt

2mm Mt vn/lt

1mm py vn/lt.

scattered H/L Mt vn/lts.

1cm qtz v/lts ⊼ py-cpy

secondary bio. envel. on S/W

1.5cm qtz vn/lt ⊼ py-cpy

trace MoS_2

2cm qtz vn/lt ⊼ py-cpy

str altered ⊼ mt vn/lts - slight breccia

fault zone ⊼ gouge and clay

str. altered - slightly brecciated

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED Cu %
	227.7		NQ wireline	227		
	230.7			230		
	233.8			233		
	236.8			236		
	239.9			239		

HOLE NO.: [illegible]83
COLLAR ELEV.:
GROUND ELEV.:
COORDINATES: N. E.
INCLINATION:
BEARING:
PROJECT: Popla[illegible]
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:

REF. TO CLAIM CORNER:
SCALE:
LOGGED BY: G.L.H

SECTION	ALTERATION (K₂O Bio / sericite)	FRACTURING	MINERAL	GEOLOGY	COMMENTS	DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
240		strong	py - cpy - MoS_2		1.5cm qtz vnlt ū py; 2mm py vnlt ū 1cm 2nd bio envelopes; clay altn on frt.	B.F.P cont. 240.9 - Secondary bio envelope in qtz ū py vnlt. - amount of H/L Mt-Hem vnlts is very small. - s/w still strong	[redacted]						[redacted]
242					2mm py vnlt ū 2nd bio. envelopes; 3 x .5cm qtz vnlts ū py-cpy; 1.2 cm qtz vnlt; str. altered - bio. rich. zone; creamy white vnlt. ??	242 - 1eg. secondary bio, envelope. * cpy is primarily diss. but also occurs in py vnlts.		242.9			242		
244					1cm qtz vnlts ū py; 1cm qtz vnlt ū py	244.1 - small cluster of H/L (<1mm) py vnlts	[redacted]						[redacted]
245					.8cm qtz vnlt ū py core and Mt-Hem scattered around						245		
246					Pre-mineral dyke; trace MoS_2; scattered H/L Mt-Hem vnlts; increase in bio booklets	246-246.1 - Pre Mineral Dyke - bio. rich, salt + pepper texture, roughly 10 cm wide, mineralized - py-cpy, Kspar phenos in bio-qtz matrix, s/w strong.		246					
247					1cm qtz vnlt ū py core	246.8-247 - Kspar after plag. pheno's	[redacted]						[redacted]
248					2cm qtz vnlt ū py-cpy; bio envelope; H/L Mt-Hem vnlts; 1cm PMD ū clay alt'n along contact and containing a cream color mineral	247-249 - Bio. occurs as envelopes around larger (1cm) qtz vnlts.				NQ wireline	248		
249					1cm qtz vnlt ū py (cpy); clay altn along frt.; 2cm qtz vnlt ū py-cpy		[redacted]	249					[redacted]
250					2.5cm qtz vnlt ū py (cpy); trace MoS_2; scattered H/L py (cpy) vnlts								
251					trace MoS_2; H/L - Hem. vnlts.						251		
252						* Qtz s/w still strong		252.1					
253					a lot of 2nd bio. and increase in sus	253.5 - Rhyodacite (PMD) - brecciated contact - lgt grn. color, aphanitic groundmass, porphritic - rounded qtz, round to angular fspars, tracytic feldspars, weak clay alt'n of larger feldspars present, possible sericitic altn. Pheno's up to .8cm in diameter. No sulphides.	[redacted]				253.5		[redacted]
254		weak			brecciated contact - very irreg		[redacted]						[redacted]
255													

HOLE NO.: ~~C~~ 33 | PROJECT: Popla | PAGE NO.: 18 OF 25

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G.L.H.

ALTERATION: Si O2 | clay | Sericite | K2O Bio — FRACTURING — MINERAL — GEOLOGY — COMMENTS — AVE CORE REC'Y / HOLE — % SULPHIDES — DRILLING INTERVAL — % CORE RECOVERED — CORE SIZE — SAMPLE INTERVAL — % REC'Y. SAMP. INT. — ESTIMATED % Cu

DESCRIPTIVE GEOLOGY

Fracturing / Mineral columns: weak / none (to ~259.8); V. strong / Py-Cpy-MoS2 (259.8–262.1); weak / none (262.1–264.9); V. strong / Py Cpy (264.9–265.3); weak / none; V. str / Py Cpy (266–266.8); weak / none.

Comments:
- H/L vnlt with creamy white mineral
- 2.5 cm breccia zone
- trace MoS_2
- small (<1cm) gouge zones
- 2cm breccia zone at contact.
- 2mm py (cpy) vnlt.
- brecciated BFP with rhyodac frags
- 12 cm gouge zone
- lgt & dk patches
- BFP with rhyodacite gouge
- 1cm of clay gouge
- 10cm of clay gouge in breccia
- BFP with rhyodacite frags
- 10cm of clay gouge in breccia
- .8 cm vnlt with qtz & white creamy min.
- clay alt'n in frt.
- clay alt'n in frt.

Rhyodacite PMD cont

* contains several H/L BK (poss. a clay) units that contain minor py

257.1 - Breccia (2.5 cm wide) - frags of qtz, sericitized plag and rhyodacite in an altered bio. rich groundmass. Frags up to 1.2cm in size. Minor clay on contact surface. Contains py (cpy)

258.8 - 258.9 - Breccia zone - similar to above plus more cpy and trace MoS_2.

259.8 - 261 - B.F.P.
- very potassic, weak s/w

261 - 262.1 - Breccia with BFP potassic groundmass,
- alot of clay altered frts.

262.1 - 264.9 - rhyodacite that shows patches of dark potassic alteration. Same texture with darker groundmass.

264.9 - 265.3 - Breccia with BFP potassic groundmass. Frags up to 2cm in length.

266 - 266.8 - Breccia with BFP potassic gndmass. Alot of clay filled frts.

Drilling intervals: 255.1, 258.2, 261.2, 264.3, 267.3

Core size: NQ wireline

Sample intervals: 259.8, 262.1, 264.9, 265.3, 266, 266.8

HOLE NO.: [illegible]-83 | PROJECT: Popla | PAGE NO.: 19 OF 25

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: — | BEARING: | TOTAL DEPTH: | LOGGED BY: BKB.

ALTERATION: SILICIC	SERICITE	CHL	Bi - KSPAR	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
			NQ WL	273.3		
				276		
				279		
				282		
				285		

POST MINERAL DIKE - CONT'D.

weak — clay altn along frt

none

Contact @ 50° w/ 2mm gouge.

BIOTITE FELDSPAR PORPHYRY

273.3 -

2mm w/ Py - Cpy - Gal.

273-278 Alternating sections of rel. fresh BFP, mod arg'd, mod ser'd. Ser'd zones ass'd w/ stronger Qtz vning. 1° Bi books present in fresh and alg'd sections.

5mm w/ Py - (Cpy) - (a)

12mm w/ Py + Cpy.

2mm w/ 3mm @ envel.

278 - Increase in Qtz vning and Mt H/L s/w along w/ increase perv. ser - waxy off-white. Flesh-tan kspar common as envel or @ Mt or Mt H/L veinlets. Qtz veinlets gen < 1mm. Increase Cpy as H/L ff w/ Py.

3mm Mt w/ (Cpy) + kspar envel.

2mm w/ 3mm @ envel.

4cm w/ str Cpy - Py diss'd.

2cm w/ Py - Cpy. x-cut by late carb.

15mm w/ Cpy - Py - (Mt) Tr. MoS2.

282-282.6 Loc. minor perv kspar after plag.

1cm w/ Cpy - Py.

1cm w/ Py - Cpy - Carb - w/ flakey 2° Bi envel.

2 x 3mm cream carb? w/ Qtz - Cpy - Py - Mt.

HOLE NO.: -33 | PROJECT: Poplar | PAGE NO.: 20 OF 25

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: RLB.

SECTION	ALTERATION: SILICIC / SERICITE / CLAY / BI-KSPAR	FRACTURING	MINERAL	GEOLOGY	COMMENTS	DESCRIPTIVE GEOLOGY	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
285		Mod	Py-MH-Cpy-Hem								NQWL	285		

Section 285 to 290 (Mineral: Py-MH-Cpy-Hem; Fracturing: Mod, St)

BIOTITE FELDSPAR PORPHYRY - CONT'D.

Alteration quite variable over a few 1/10's of meters. Short sections relatively fresh; w/ arg'd fspars and fspar envel on fract; w/ waxy ser after fspar, better devel'd in zones of str. Qtz flw; patches 2° Bi; and kspar as envel and loc perv. or repl. fspar. Textures become oblit twds DWD. Grade of alt'n is potassic - intensity wk - mod. MH s/w variable. MH diss'd.
Some visible Cpy w/ Py H/L ff.
S/W increases past 290.5 Cpy : Py 2 to 3:1
cuts 8mm Qtz vlt. w/ Cpy - Py.

Comments:
- 2cm sh. w/ carb.
- 1cm w/ Py - MH - Q + white creamy gangue.
- clay after fspar on fr.
- 2x3cm w/ Py - MH - Cpy
- 2x1cm w/ Py - Cpy - kspar.
- 2cm w/ MH - Cpy - Py.
- MH w/ 3mm kspar envel.
- 2x2mm carb w/ Cpy - Py - MH.
- 1cm carb + chl gouge — cuts 8mm Qtz vlt.
- Contact sharp @ 55°.

Sample intervals: 285, 288, 291, 292.6, 293.5, 296, 299

POST MINERAL DIKE 292.6 - 293.5

Dk brn in colour, v.f.gr'd w/ 5% subrounded calcite amygdules. At contacts, dike perv. clay alt'd, lt tannish green, for 6 cm.

Comment: Cont. sharp @ 40°.

BIOTITE FELDSPAR PORPHYRY 293.5 -

Str. Qtz, Qtz - MH, or MH - Hem. micro vlt (≤1mm) s/w. Str Qtz - Ser perv. Textures gen. oblit.

294.7 - 295 Minor slip @ 295 w/ .3 m pre-mineral brecciation (Py - Cpy - MH interstitial)

295- Intense Qtz - MH s/w continues. Text. oblit. Str. Qtz flooding, perv. ser. Short sections of arg'd BFP w/ interstitial 2° Bi. Cpy v. str. diss'd and in vlts w/ Py and MH up to 1cm.

Comments (Fracturing: Intense; Mineral: MH-Py-Cpy-Hem):
- Py 3-50, 6/.5m H/L
- 3cm w/ Cpy Py. kspar envel.
- 2cm clay - chl. gouge w/ carb.
- 3cm w/ Cpy - Q - MH
- 2cm gyp @ 40°.
- 3cm
- 2cm w/ Cpy - Py - MH
- 4cm w/ Cpy - Py - MH
- str MH in gm.
- 2x H/L Cpy - (Py)
- Py H. w/ good Cpy.

Section marks: 285, 290, 295, 300

HOLE NO.: 33 | PROJECT: Popla | PAGE NO.: 21 OF 25

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: BLB.

SECTION	ALTERATION: SILICA	SERICITE	CLAY	K-FELDSPAR	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
								DESCRIPTIVE GEOLOGY								

BIOTITE FELDSPAR PORPHYRY - CONT'D.

2cm w/ Gry-MM-Py. w/ Gry-Gal. 2×2mm w/Gry.
Intense Alt2 s/w w/ str. Gry diss'd, as vHs and in Alt2 vHs continues.

2mm Gry.
Numerous H/L Py-Gry.
302.5-303 MM intense as micro s/w and perv.

3mm Gry.

Str. MM-Gry-Py vning to 1cm.

1cm Alt2 x-cut by Gry H/L.
Gry w/ Py HA PMD envel.
@ 307 5mm Alt2 w/ cream gangue and spec Gal.

Intense Alt2 s/w is truncated by contact @ 40° CA. @ 308.4

Locally cs amor Py diss'd.
3mm w/Gry + Alt2 envel.
308.4 - 310.6 Arg'd (fspars) and wkly Ser'd (Bi) BFP. Texturally and compositionally appears similar to less alt'd sections of min'd BFP above.

Mod. Ser. Alt2 s/w w/ Py + (Gry) diss'd.
310.6 - 310.9 Str. gouge. Fault - Alt2 vn frags w/ Gry w/in.

0.1m PMD.
310.9 - 311 PMD - Rhyodacite.

BFP w/ Alt2 frags x-cut by wk Py HA.
311 - 311.1 Bx of PMD + BFP frags.

4cm w/ Gry-Py-MM.
311.1 - 311.4 Str. Alt2-MM s/w w/ Gry as above @ 311.4 s/w again truncated by BFP dike which continues to 312.2m.

6mm w/ Py-Q-(Gry)
312.2 - 314.6 Alt2 MM s/w w/ Gry again truncated by BFP dike @ 314.6 (contact @ 25° CA)

302
305
308
311
314

NQ WL

HOLE NO.: [illegible]-83 | PROJECT: Popla[illegible] | PAGE NO.: 32 OF 25

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: BKB.

SECTION	ALTERATION: [illegible] / SERICITE / CLAY / BI-KSPAR	FRACTURING	MINERAL	GEOLOGY	COMMENTS / DESCRIPTIVE GEOLOGY	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu
		Wk	Py-(Cpy)		'LATE PHASE' BFP 314.6-					NQ WL			
					3mm w/ [illegible] envel. — Gen. arg'd (+ser) BFP w/ short sections of perv. ser ass'd w/ Qtz-Py-(Cpy) veining.								
					3mm w/ Qtz-carb (Cpy-MH). — @316.1 3 cm gouge - Minor fault.						317		
					2×2mm w/ Py-carb (Cpy-MH) — 318-320 Rel. fresh BFP								
					2mm blebs Cpy. — 321.5 1st appearance of MH vlts again, w/ increase in Qtz veining, but no abrupt change as noted above.								
					str. Py (Cpy) diss'd in ser. selvege. 1cm.						320		
					320-320.5 5×3mm @ 40° cream vlt, mod hd. w/ Qt (Py-Cpy)-carb?								
					3mm w/ Qtz-Py-Hem Cpy.								
					MH H/C vlts w/ kspar [illegible]						323		
					→ clay + chlorite								
					1cm w/ Py-(Cpy) — 323-323.4 .4m gouge + bx'd @ 80° Ca. Fault. w/ crushed qtz vn mat. contain. Py-Cpy.								
	Mod. lo str.	Py-MH-Cpy-Hem			← Qtz-[illegible] s/w mod locally str.						326		
					326.4-327 Mod Hem soaking.								
					3cm sh. w/ cream gouge + chl-clay alt'n.						329		
					1 cm gouge — Minor faults. Rock lightly sh'd w/ chl alt'n								
					2 cm gouge. — 328.5-								

HOLE NO.: [redacted] 33
COLLAR ELEV.:
GROUND ELEV.:
COORDINATES: N. E.
INCLINATION:
BEARING:

PROJECT: Poplar [redacted]
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:

 [redacted]
REF. TO CLAIM CORNER:
SCALE:
LOGGED BY: BKB.

Columns: SECTION | ALTERATION (SILICIC, EPIDOTE, CLAY, B: KSPAR.) | FRACTURING | MINERAL | GEOLOGY | COMMENTS | DESCRIPTIVE GEOLOGY | AVE CORE REC'Y / HOLE | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | % REC'Y SAMP. INT. | ESTIMATED % Cu.

FRACTURING: Wk-Mod. / Weak
MINERAL: Py-Mt-Cpy-hem
CORE SIZE: NQWL

COMMENTS:

5mm w/ Sphal + Cpy.
Narrow (≤5mm) chloritic slips.
Mt loc. str intersti.
5mm w/ carb + Py.
Numerous Py vlts @ 60 w/ 1cm Ser. envel. w/ (Cpy)
3mm w/ Mt - (Cpy)
2×2mm w/ Qtz Carb + 3mm Mt halo.
3mm Py w/ 5mm Ser envel. w/ f. diss Py.
xc. Cpy along Fract. w/

DESCRIPTIVE GEOLOGY

BIOTITE FELDSPAR PORPHYRY - CONT'D.

330 - 332 Chlorite in gouge slips and poss. mixed in w/ ser to give waxy green app. of fspar.

332 - 335.4 Str. arg'd BFP plag phenos white, conspicuous. Approx same conc. of Qtz, Py, Mt vlts. generally wk-mod.
331 - 331.5 Bx zone containing altered BFP (w/ Cpy) and PMD (Qtz porph) frags.

335.4 - Rel. fresh w/ clay alt'n on narrow fr. envelopes and ser up to 1cm envelopes on Qtz and Py vlts. Wkly fractured.

Zone characterized by min./alt'n features dom. fr. controlled.

SAMPLE INTERVAL	% SULPHIDES	ESTIMATED % Cu
–332	[redacted]	[redacted]
332–335	[redacted]	[redacted]
335–338	[redacted]	[redacted]
338–341	[redacted]	[redacted]
341–344	[redacted]	[redacted]

HOLE NO.: [redacted]-33 | PROJECT: Popla[redacted] | PAGE NO.: 24 OF 25 [redacted]

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: BKB.

SECTION	ALTERATION: SILICA / SERICITE / CLAY / BI-K-SPAR	FRACTURING	MINERAL	GEOLOGY	COMMENTS	DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
345		Wk	Py-Gpy		2mm. / 2cm w/ Qtz-TF MoS2 / w/ Gpy.? / Str. Qtz-MH vning w/ str. part. MH.	BIOTITE FELDSPAR PORPHYRY CONT'D. 'LATE PHASE'. 346.7-347.4 Str. alt'd and min'd (Gpy)					347		
		Int. / Weak	Py-(Gpy-MH)		5mm w/ Py-Gpy. / Contact sharp @ 10°.						351		
		Intense	Gpy / Py-Hem / MH-Py		3mm kspar vlt. / 1cm w/ MH-Py-Gpy and 3mm kspar ... / 4mm w/ MH-Gpy-Py. / 2×3mm w/ minor Gpy. / 2×4cm w/ MH-Gpy-Py.	ALTERED BFP - 351 - 'EARLY PHASE'. Qtz-MH vning intense, texture vague. Str. 2° k-spar as envel., perv patches and as veinlets. Also str. Qtz flooding. Py-Gpy as ff. 358.3-358.5 Short section of 'LATE PHASE' with included frag of well min'd (Gpy) 'EARLY PHASE.' Chloritic alt'n last .3m twds. fault zone.				NQWL	354 / 356.5 / 358.5		
355													
360		St.			Chlorite alt'n w/ clay	358.5-362.3 FAULT ZONE Bx'd + clay-chlorite gouge up to .5m - rock sim to 358.3-358.5							

HOLE NO.: [illegible]-33 PROJECT: Popl[illegible] PAGE NO.: 25 OF 25

COLLAR ELEV.: GROUND ELEV.: DATE STARTED: REF. TO CLAIM CORNER:

COORDINATES: N. E. DATE FINISHED: SCALE:

INCLINATION: BEARING: TOTAL DEPTH: LOGGED BY: BKB.

SECTION	ALTERATION: SILICA	SERICITE	CLAY	BI-KSPAR	FRACTURING	MINERAL	GEOLOGY	COMMENTS / DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu
360					- Strong -	- Py-Cpy -		BIOTITE FELDSPAR PORPHYRY - 'LATE PHASE'.					361		
								Fault continues to 362.3 FW contact @ 40° CA.							
					Mod. - Strong	(Mt)		3mm w/ 5mm Ser en.					364		
365						Py-Cpy-		4mm cream+white carb w/ minor Py Cpy-Mt.				NQWL			
								Ser on Fr.					367		
								Py 3mm w/ Ser envel.							
370								E.O.H. @ 370 m.					370		
375															

D.D.H. - P.C. - 41

HOLE NO.: PC-41 | PROJECT: Pop | PAGE NO.: 1 OF 21

COLLAR ELEV.: 920.08 | GROUND ELEV.: 920.0 | DATE STARTED: NOV 23, 1979 | REF. TO CLAIM CORNER: Poplar 13

COORDINATES: 62 - N. 122. E. | DATE FINISHED: NOV 26, 1979 | SCALE: 1:100

INCLINATION: 090° | BEARING: — | TOTAL DEPTH: 300.8m | LOGGED BY: G.L.H. & B.K.B.

COMMENTS:

1 - gypsum vnlts.

AVE CORE REC'Y / HOLE: 97%

SECTION	ALTERATION: Silica	clay	sericite	K_2O Bio	FRACTURING	MINERAL	GEOLOGY	DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
0								0 - .08 - stick-up							
1															
2								.08 - 9.96 - overburden							
3															
4								3.96 - Quartz-Eye Porphyry (PMD)							
5							clay filled frt	- aphanitic groundmass varies in color from lgt. grn to brnish, depending on degree of alteration. Porph phenos are predominantly rounded qtz, ∓ some feldspar. The qtz phenos range up to 4mm in diameter. Fspars are often subjected to clay altn 10% phenos 90% groundmass		5.2	91	NQ wireline			
6							15cm gouge zone (clay)	- alot of sheared gouge (clay) zones are present in this unit, with several dk vnlts occurring throughout.							
7							clay filled frt	- altn is predom clay ∓ lesser sericitic			86				
8								- contains mod-weak vuggy texture. No sulphides.		8.2					
9							small pod of BFP								
0					weak	none	faulted contact								
							9.7m						9.7		
							py mass - 1cm diam.	Biotite Feldspar Porphyry. (B.F.P.)			100				
11							2mm py vnlt ∓ .5cm qtz-bio. envels.								
							increase in s/w ∓ py (cpy)	10.9 - 11.1 - increase in s/w ∓ py		11.3				100	
							1cm qtz vnlt.	11.3 - - 2nd Bio. predom in grdmass but also found along sulph. vnlts as envel.							
2							2mm py vnlt.	* s/w - mod to strong					12.0		
							2mm py vnlt ∓ .6cm qtz envel.	** clay altn selective after fspar phenos							
							2mm byp vnlt	12.9 - start of freq. 2mm byp. vnlts			100				
3							2mm py vnlt ∓ .3cm qtz envelopes	* Not many larger qtz vnlts							
							trace MoS_2							100	
4							3mm byp vnlts			14.3					
							trace galena								
							2.5cm qtz vnlt.								
5							H/L alt'n rich vnlts				100		15		
							2mm byp vnlt								

HOLE NO.: [redacted]-41
COLLAR ELEV.:
GROUND ELEV.:
COORDINATES: N. E.
INCLINATION:
BEARING:

PROJECT: Popla[redacted]
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:

REF. TO CLAIM CORNER:
SCALE:
LOGGED BY: G.L.H

SECTION	ALTERATION: silica	clay	sericite	K_2O Bio	FRACTURING	MINERAL	GEOLOGY	COMMENTS / DESCRIPTIVE GEOLOGY	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu
15–30					weak to mod (15–20.5); mod to strong (20.5–30)	py – cpy – MoS_2		see below		[redacted]	17.4, 20.4, 23.5, 26.5, 29.6	100, 100, 100, 100, 98	NQ wireline	18, 21, 24, 27, 30	100, 100, 100, 100, 98	[redacted]

Geology annotations (with depth marks 15–30):

- 1mm py vnlt ū qtz. envel. ~ .3cm wide
- Scattered H/L py vnlts.
- 2-3mm gyp. vnlts
- slight increase in S/W
- 3mm py (cpy) vnlt.
- 2cm gouge (clay) zone
- .5cm py vnlt cut off by fault.
- 1cm gouge zone ū alot of chl.
- trace MoS_2
- H/L chl vnlts
- 1cm gyp vnlt
- 1cm qtz vnlt.
- trace MoS_2
- .5cm gouged out
- 1% mass py at frt end.
- 2cm qtz vnlt.
- weak gyp S/W
- small frt ū clay
- 3cm gouge fault zone
- scattered chlor. vnlts
- weakly gouged zone
- gouge zone ū alot of chl. & qtz ~5cm wide
- 1cm pinkish gyp. vnlt.
- trace MoS_2
- .8cm qtz vnlt
- Gouge in fault
- 3mm py band ū .3cm qtz envel.
- scattered H/L py vnlts
- 1cm gouge zone
- .5cm qtz vnlt
- 4mm py vnlt ū a creamy white min.
- .5cm qtz vnlt.
- 1cm gouge zone
- trace MoS_2
- 2mm py vnlt.
- weak gouge zone

DESCRIPTIVE GEOLOGY

B.F.P. cont

15.6–20.5 – S/W weak to mod.
16.0 – – gypsum vnlts becoming quite abund.
* clay alt'n after fspar phenos.

20.5 – S/W mod. to strong
* Alot of small faults & frts that have a clay gouge in them.

23.5 – 5cm wide gouge zone ū alot of chlorite layers and qtz vnlts.

25.5–25.9 – fault zone ū clay gouge

28.8–30.5 – red hem. staining after fspar.

HOLE NO.: C-41 | PROJECT: Poplar | PAGE NO.: 3 OF 21

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G. L. H

ALTERATION: silica, clay, sericite, K_2O Bio | FRACTURING | MINERAL | GEOLOGY | COMMENTS: | AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

SECTION	DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
30	Hem stain on fspar potassic alt'n envel. on small qtz vnlt							
31	.9cm py vnlt.			100			100	
32	mass py sharp alt'n contact - potassic on bottom 1cm qtz vnlt ⊃ py s/w of H/L py vnlts.		32.6			33		
33	strong s/w							
34	3cm gouge zone ⊃ a ser envelope scattered H/L py vnlts 1cm gouge zone 2x4mm py vnlts ⊃ qtz envel. 2x50mm qtz vnlts. clay along f.t.			93			93	
35	2cm orangy gyp. vnlt.		35.5			36		
36	scattered H/L py vnlts ⊃ argillic alt'n envelopes in a potassic vnlt							
37	increase in s/w and py vnlts,			100	NQ wireline		100	
38	2x1cm qtz vnlt ⊃ py s/w of 2mm py vnlts							
39	3mm py vnlt		38.7			39		
40	3x2mm vnlts ⊃ .1cm qtz envel. 3cm PMD							
41	increase in s/w 1cm qtz vnlt ⊃ py.			96			96	
42	py ⊃ qtz ? creamy white min ?		41.8			42		
43	3cm PMD 1cm gyp vnlt.			100			100	
44	5cm PMD		44.8					
45	trace MoS_2 2@.8cm qtz. vnlts.					45		

B.F.P. cont.

* s/w weak to mod

31.9 - Very sharp contact between argillic and potassic alt'n. Goes from lgt to blackish with depth. Kspar is sericitized in both phases.

32.6 - sharp contact - out of potassic into argillic alt'n.

* Alt'n oscillates between argillic and potassic with contacts being quite gradual in most cases. Potassic forms the majority of the section, as indicated by the K_2O alt'n. column.

* clay alt'n selective after fspar phenos.

* alt'n of the fspars varies from piece to piece - from clay to sericitic.

36.6 - several small qtz vnlts that contain argillic envelopes in the potassic B.F.P. May be seeing obliteration of the potassic alt'n by the argillic and phyllic alt'n.

* There is an increase in s/w in the argillic/phyllic sections but very little in the potassic alt'n sections.

39.7 - 3 cm rhyodacite porphyry dyke.

*2 more small PMD

HOLE NO.: [redacted]-41
COLLAR ELEV.: [redacted]
GROUND ELEV.:
COORDINATES: N. E.
INCLINATION:
BEARING:

PROJECT: Popl[redacted]
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:

REF. TO CLAIM CORNER:
SCALE:
LOGGED BY: G. L. H.

COMMENTS:

AVE CORE REC'Y / HOLE

ALTERATION: silica | clay | sericite | K_2O BIO

FRACTURING: mod to strong

MINERAL: Py - cpy - MoS_2

GEOLOGY:

Section: 15, 16, 17, 18, 19, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60

Geology annotations:
- gouge zone ū alot of chl.
- .5cm py vnlt.
- .8cm gyp. vnlt. ū gouge around
- increase in s/w
- 1cm qtz vnlt ū py.
- 1cm py vnlt.
- .5cm py vnlt.
- .7cm qtz vnlt ū py.
- minor chl along gyp. vnlt.
- scattered H/L chl. vnlts
- .3cm qtz vnlt ū .6cm argillic alt'n
- py masses
- chl. along a 4cm gouge zone
- cluster of gyp vnlts
- mottles of sericite & qtz
- scattered H/L py vnlts
- .5cm py vnlt
- 2x .4cm py. vnlts
- scattered H/L chl vnlts
- .2cm py vnlts
- py masses.
- 1cm qtz vnlt.
- scattered H/L py vnlts
- trace MoS_2
- gyp vnlt ū chl.
- H/L gal. vnlt
- Small clay gouge zone
- .8cm qtz vnlt.
- .3cm qtz vnlt ū py
- trace MoS_2
- s/w - strong
- scattered py vnlts (H/L)

DESCRIPTIVE GEOLOGY

B.F.P cont

45.3 - Out of strong potassic alt'n. into phyllic alt'n
* s/w increases to mod-strong

47.3 - 48.9 - Alot of pinkish hem. staining of the fspars.

49.8 - 51.0 - argillic alt'n envel. around small (<4mm) qtz vnlts. Host rock is phyllic alt'n.

* clay alt'n selective after fspar phenos.

52.6 - Several mottles of sericite ū minor qtz - 1cm in diam

55.5 - Out of phyllic alt'n into potassic alt'n.

* clay alt'n confined to envel. around py vnlts

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% RECY. SAMP. INT.	ESTIMATED % Cu
[redacted]	–47.9	100	NQ wire line	–48	100	[redacted]
[redacted]	47.9–50.9	100		48–51	100	[redacted]
[redacted]	50.9–53.9	100		51–54	100	[redacted]
[redacted]	53.9–57.0	98		54–57	98	[redacted]
[redacted]	57.0–60.0	100		57–60	100	[redacted]

HOLE NO.: C-41 | PROJECT: Pop1 | PAGE NO.: 5 of 21

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G.L.H

ALTERATION: silica, clay, sericite, K-spar Bio | FRACTURING | MINERAL | GEOLOGY | COMMENTS: | AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

BFP cont

* clay alt'n selective of fspar phenos - still confined to envel. around qtz and py vnlts.
* amount of py vnlts greatly increased
* s/w - mod to strong

64.3 - out of potassic alt'n, into phyllic alt'n.

66.2 - 67.2 - Intensely frtd shear zone w alot of clay gouge and qtz vnlts

67.5 - 73.0 - s/w - strong

71.6 - 72.4 - Pinkish Hem. staining on fspar

FRACTURING: mod-str | strong | mod-str

MINERAL: py-cpy-MoS2

GEOLOGY:
- .8cm py vnlt
- Scattered H/L py vnlts. w qtz envel.
- Scattered H/L py vnlts w qtz envel.
- qtz vnlt w py
- .6cm qtz vnlt w py.
- .8cm py vnlt
- 3 x 1cm qtz vnlts
- small gouge zone
- large py mass
- Scattered H/L py vnlts.
- 2 x 2mm py vnlts
- qtz vnlts loaded w py.
- .3cm py vnlt
- H/L MoS2 vnlt
- Scattered H/L py vnlts
- .2cm gyp vnlt
- intense frt gouge zone
- chl.
- .3cm gyp vnlt. w chl. around - mass of cpy
- .5cm qtz vnlt w py (cpy)
- .5cm py vnlt.
- 2 x 1cm qtz vnlt w py.
- 1cm py vnlt w, 1cm qtz envel. & Scattered H/L py vnlts.
- 3cm gouge (clay) zone
- py vnlt w argillic alt'n envel.
- 1cm qtz vnlt.
- trace MoS2
- 4cm gouge zone & chl/gyp-qtz.
- gouge zone w chl.
- 1cm gouge zone.

SECTION	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
61							
62			100			100	
		63.1			63		
64							
			100			100	
66		66.1		NQ wireline	66		
67							
68			100			100	
		69.2			69		
71			100			100	
72		72.2			72		
73			98			98	
75					75		

HOLE NO.: ?-41 | PROJECT: Popl | PAGE NO.: 6 OF 21
COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:
COORDINATES: N. E. | DATE FINISHED: | SCALE:
INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G.L.H.

ALTERATION: silica, clay, sericite, K_2O Bio | FRACTURING | MINERAL | GEOLOGY | COMMENTS: | AVE CORE REC'Y / HOLE

Fracturing: mod-str (75–77); moderate (77–90)

DESCRIPTIVE GEOLOGY

Core annotations:

- 2X .3cm py vnlt.
- small gouge zone
- shear zone
- start of potassic alt'n.
- 2-3 cm py vnlts ϖ arg. alt'n
- qtz vnlt ϖ py
- 1.8cm qtz vnlt ϖ py
- H/L py vnlt ϖ arg. alt'n envel.
- 3x .5cm qtz vnlt ϖ py
- .8cm qtz vnlt.
- 1cm py vnlt in an arg. zone.
- trace MoS_2
- scattered H/L py vnlts.
- 1cm qtz vnlt.
- H/L chl vnlt.
- qtz vnlts ϖ py.
- 1cm gyp vnlt.
- 2x 1cm py vnlts
- 1.5cm gouge zone
- 3x .9cm qtz vnlts
- strong s/w
- py vnlt ϖ arg. alt'n.

B.F.P cont

76.0 - End of phyllic alt'n.

76-76.6 - sheared zone ϖ alot of clay gouge

76.6 - start of very potassic alt'n.

* s/w decreases in potassic alt'n

* Clay alt'n selective after fspar pheno's - confined to envel.s around py or qtz vnlts.

86.2-86.4 - Bio books present

SECTION	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu
75–78	[redacted]	75.3	100	NQ wireline	75–78	100	[redacted]
78–81	[redacted]	78.3	100	NQ wireline	78–81	100	[redacted]
81–84	[redacted]	81.4	100	NQ wireline	81–84	100	[redacted]
84–87	[redacted]	84.4	100	NQ wireline	84–87	100	[redacted]
87–90	[redacted]	87.5	103	NQ wireline	87–90	103	[redacted]

HOLE NO.: PC-41 | PROJECT: Popla | PAGE NO.: 7 OF 21

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G.L.H

SECTION	ALTERATION: silica	clay	sericite	K_2O Bio	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
10								DESCRIPTIVE GEOLOGY								

B.F.P cont.

- 1cm gouge zone
- .8cm qtz vnlt
- 1cm qtz vnlt ⊃ py
- increase in s/w
- trace MoS_2
- 1cm qtz vnlt ⊃ py - creamy wht. min
- numerous py masses
- H/L qtz vnlt ⊃ Kspar alt'n envel
- .6cm py vnlt.
- 1cm Bpy vnlt
- 3cm gouge zone ⊃ clay
- H/L py vnlts.
- .8cm qtz vnlt.
- Scattered H/L py vnlts.
- chl. vnlts (.8cm)
- 1cm gouge zone ⊃ 1.5cm vnlt of chl. basalt.
- Scattered H/L py vnlts.
- Qtz s/w increases
- .6cm py vnlt
- 1cm gouge zone ⊃ creamy wht min.
- py vnlt cuts 2x .8cm qtz vnlts
- Kspar envels around H/L qtz vnlts.
- 2mm py vnlts ⊃ [illegible] envels.
- 15cm qtz vnlt ⊃ py
- .5cm py vnlt ⊃ Kspar envels.
- .4cm py vnlt ⊃ .6cm qtz envel.
- H/L gypsum vnlts.
- cluster of .5cm qtz vnlts
- 1cm RY vnlt.
- 3cm qtz. vnlt.

moderate py - cpy - MoS_2

* clay alt'n selective after fspar pheno's
* In most parts. S/W weak to mod

92.3 - 93.0 - increase in s/w in phyllic alt'n section

94.5 - Kspar envel. around qtz vnlts.

* Alt'n between phyllic & potassic

* Gyp vnlts becoming a lot smaller (<1mm) and more abundant

98.0 - 99.1 - increase in qtz s/w

101.2 — Kspar becoming abundant after plag pheno's

104 - 1st sign of hem. - in bio. books.

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.
90.5	94	NQ wireline	93	94
93.6	106		96	106
96.6	103		99	103
99.6	97		102	97
102.2	100		105	100

HOLE NO.: C - 41 | COLLAR ELEV.: | GROUND ELEV.: | COORDINATES: N. E. | INCLINATION: | BEARING:

PROJECT: Pop | DATE STARTED: | DATE FINISHED: | TOTAL DEPTH:

REF. TO CLAIM CORNER: | SCALE: | LOGGED BY: G.L.H

SECTION | ALTERATION (silica, clay, sericite, K_2O Bio) | FRACTURING | MINERAL | GEOLOGY | COMMENTS: | AVE CORE REC'Y / HOLE | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | % REC'Y. SAMP. INT. | ESTIMATED % Cu

Fracturing: mod - strong

Section: 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120

DESCRIPTIVE GEOLOGY

Geology column notes:

- .2cm py (cpy) vnlt
- H/L Hem vnlt.
- .8cm qtz vnlt ū potassic alt'n envel.
- .6cm qtz vnlts ū py
- 8.5cm pinkish gyp vnlt ū H/L Hem vnlt
- 25cm shear zone
- .3cm py vnlts ū qtz.
- s/w increases
- .2cm py vnlt
- small gouge zone.
- .6cm qtz vnlt
- .3cm py vnlts
- .4cm py vnlt ū 1cm qtz envel.
- small gouge zone
- .3cm py vnlts along qtz vnlts
- 1.5cm qtz vnlt ū lots of diss py
- alot of Kspar envel. on qtz vnlts.
- 1cm qtz vnlt cut off by .8cm gyp. vnlt
- Kspar envel. on qtz vnlts
- 1cm qtz vnlt. ū py (cpy)
- .2cm gouge zone
- .5cm py (cpy) vnlt
- scattered Mt vnlts
- rich pervasive Kspar zone
- 1cm qtz vnlt ū py
- 1cm qtz vnlt ū py
- 1cm gyp vnlt
- small shear zone
- strong s/w
- .6cm py vnlt ū 1cm qtz envel.
- concentration of gyp vnlts
- incr. in s/w ū Kspar envel.

Descriptive geology:

B.F.P. cont.

106.5 - 1st Hem. vnlt

* s/w - moderate

* increase in H/L py vnlts

107.4 - 107.6 - shear zone ū py - gyp vnlts bound the zone

* clay alt'n selective after fspar pheno's

112 - 112.4 - increase in s/w - strong

113.1 - 115.2 - strong potassic alt'n ū clay alt'n of the fspar pheno's

* Kspar alt'n in very strong potassic sections is confined to qtz vnlt envelp.

115.2 - 119 - phyllic alt'n ū lesser 2nd bio. grdmass

* Kspar alt'n in less potassic sections is both in qtz envels and after plag. pheno's (pervasive).

119 - 122 - strong potassic alt'n. ū strong sericite alt'n of the fspar pheno's

% Sulphides	Drilling Interval	% Core Recovered	Core Size	Sample Interval	% Rec'y. Samp. Int.	Estimated % Cu
[redacted]	105.2	103	NQ wireline	105	103	[redacted]
[redacted]	108.2	97		108	97	[redacted]
[redacted]	111.3	97		111	97	[redacted]
[redacted]	114.5	97		114	97	[redacted]
[redacted]	117.7	103		117	103	[redacted]
				120		

HOLE NO.: [redacted]-41

COLLAR ELEV.:

GROUND ELEV.:

COORDINATES: N. E.

INCLINATION:

BEARING:

PROJECT: Popla[redacted]

DATE STARTED:

DATE FINISHED:

TOTAL DEPTH:

REF. TO CLAIM CORNER:

SCALE:

LOGGED BY: G.L.H.

ALTERATION: Silica | Clay | Sericite | K2O Bio

FRACTURING: mod - str (120–124.6); strong (124.6–130); mod - str (130–135)

MINERAL: Py - cPy - MoS2

COMMENTS:

AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

B.F.P cont

- .3cm py vnlt ⊼ 1cm Kspar envels.
- strong S/W
- 1cm qtz vnlt ⊼ py (cpy)
- 1cm qtz vnlt
- 2cm qtz vnlt ⊼ py
- .8cm qtz vnlt ⊼ py
- 2x .4cm py vnlts
- 2cm qtz vnlt
- .4cm vnlts over 4cm
- 2 py vnlts ⊼ .5cm qtz envels
- small shear zone
- 1cm gouge zone
- trace MoS_2
- .8cm chl vnlt
- creamy wht min vnlts.
- 1cm gouge zone
- 2x .4cm vnlts.
- .6cm gouge zone
- 2x 1.5cm gouge zones ⊼ chl.
- .8cm gouge zone
- 1cm gyp vnlt
- 1cm qtz vnlt ⊼ py.
- .8cm gyp vnlt ⊼ [redacted] alt'n.
- 1cm qtz vnlt.
- 1.5cm gyp vnlt
- scattered H/L py vnlts.
- 2x 1.5cm qtz vnlts

* Alot of Kspar envels. around qtz vnlts in potassic rich rock.

* S/W increasing ⊼ depth.

123.8 - 124.6 - strong potassic alt'n ⊼ sericitic alt'n of fspar pheno's

124.6 - 130 - very strongly sericitized intrusive. structures etc often obliterated
- qtz S/W becomes strong

131 - 134.1 - strong potassic alt'n ⊼ sericite alt'n of fspar phenos.

CORE SIZE: NQ wire line

DRILLING INTERVAL	% CORE RECOVERED
120.7	100
123.8	100
127.0	100
130.1	89
132.9	97

SAMPLE INTERVAL	% RECOVERY SAMP. INT.	% SULPHIDES	ESTIMATED % Cu
to 123	100	[redacted]	[redacted]
123 – 126	100	[redacted]	[redacted]
126 – 129	100	[redacted]	[redacted]
129 – 132	90	[redacted]	[redacted]
132 – 135	95	[redacted]	[redacted]

HOLE NO.: T[illegible]-91 | PROJECT: Popi | PAGE NO.: 10 OF 21

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G L H

ALTERATION: silica, clay, sericite, K₂O Rio | FRACTURING | MINERAL | GEOLOGY

COMMENTS:

AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
B.F.P cont.		136.9					
* s/w - mod - strong							
136.7 - 138.9 - strong potassic alt'n ± sericite after fspar pheno's.			100		138	100	
* clay alt'n selective after fspar pheno's.		139					
140.2 - Intersection of 2 py and 1 qtz mlts. Py vnlts out the qtz vnlt.			103		141	103	
143.7 - End of pervasive 2nd bio.		142					
143.7 - 149 - In phyllic alt'n ± combined clay & sericite alt'n of fspar pheno's			100	NQ wire line	144	100	
		145.1					
			103		147	101	
		148.1					
149 - 152.3 - strong potassic alt'n ± sericitic alt'n of fspar pheno's.			94		150	98	

mod - strong py - cpy - MoS₂

- 2mm py vnlt
- 1cm qtz vnlt.
- .5cm py vnlt.
- .6cm py vnlt.
- H/L mt vnlt.
- 1cm qtz vnlt ± py
- .2cm py vnlt ± .8cm qtz envel.
- scattered H/L py vnlts.
- intersect of 1.5cm qtz vnlt and 2x .4cm py vnlts
- large fspar alt'n envels.
- 1cm qtz vnlt.
- 2x 8cm qtz vnlts ± py
- trace MoS_2
- 10 cm shear zone ± gyp ± 8cm chl.
- scattered H/L py vnlts.
- H/L chl vnlt
- 1cm py vnlt
- H/L py vnlt ± .8cm potassic envels
- 1cm qtz vnlt.
- scattered py vnlts.
- .8cm py vnlt ± 1cm qtz envels.
- .8cm py vnlt.
- .5cm Alt-Hem vnlt.
- scattered H/L py vnlts
- .2cm Alt-Hem vnlt.

HOLE NO.: C-41 | PROJECT: Popla | PAGE NO.: 11 OF 21

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: GLH

ALTERATION: silica, clay, sericite, K_2O Bio | FRACTURING | MINERAL | GEOLOGY

COMMENTS:

AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

SECTION	GEOLOGY	DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
50	scattered H/L Mt-Hem vnlt.	B.F.P cont			94				
51	.8cm py vnlt.	* S/W - mod to strong						97	
52	H/L Hem-Mt vnlts			151.4					
	.8cm qtz vnlt ⊽ py								
53	1cm qtz vnlt ⊽ py				100		153		
	1cm qtz vnlt ⊡ 1.5cm pot envels	* Clay alt'n selective after fspar phno's.							
54	1cm qtz vnlt.								
	scattered H/L Mt-Hem vnlts.			154.4				98	
55	1cm py vnlt ⊡ pot envels	154.7 - 156.0 - scattered H/L py. vnlts ⊽ potassic envelle.							
	scattered H/L py vnlts								
56	trace MoS_2				97		156		
	.7cm gyp vnlt.								
57	alot of Kspar alt'n								
	gyp vnlt ⊽ py								
	scattered H/L Mt and py vnlts.			157.6				98	
58	py - cpy - MoS_2								
	3x .3cm py (cpy) vnlts ⊽ qtz envel.								
59	.3cm py (cpy) vnlt ⊽ .15cm qtz envel	158.1 - 162.2 - Alot of .3 to .5 cm py vnlts			100				
	.4cm py (cpy) vnlt ⊽ 1cm qtz envel.								
60	.8cm py (cpy) vnlt	160.4 - 160.8 - Very strongly sericitized rock							
	small gouge zone (10cm)								
	.8cm py (cpy) vnlt			160.6				98	
61	1cm vnlt of cpy ⊽ py	* Alot of hem staining of fspar phno's							
	scattered H/L py vnlts.								
	scattered H/L Mt-Hem vnlts								
62	.5cm py (cpy) vnlt				97		162		
	.5cm py (cpy) vnlt.								
	small gouge zone ⊽ chl.								
63	scattered H/L py vnlts								
	small gouge zone								
	H/L Mt-Hem vnlts.							100	
64	.2cm py vnlt.	164.3 - 165.5 - PMD (Rhyodacite)		163.7					
	.8cm gyp vnlt								
	PMD.								
65	small gouge zones						165		

NQ wireline

HOLE NO.: [illegible]-41 | PROJECT: Pop | PAGE NO.: 12 OF 21

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G.L.H

SECTION	ALTERATION: Silica	clay	sericite	K_2O B/O	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
65					Mod-str			1cm gouge zone py (cpy) masses								
66								1.5cm qtz vnlt w py (increase in qtz s/w) H/L chl vnlt.				103				
67											166.7				100	
68								scattered py-cpy vnlts, H/L Mt-Hem vnlts 2x1cm qtz vnlts .3cm py-cpy vnlt w 1.6cm qtz envel's.								
69								scattered Mt-Hem vnlts.				97				
70								trace MoS_2 2x.8cm py-cpy vnlts w .6cm qtz envels. 2cm gouge zone w chl.			169.8				98	
71								small gouge zone scattered py vnlts (H/L)				100		168		
72								3cm gouge zone w clay small gouge zone								
73						py-cpy-MoS_2		intersect of several vnlts. 50cm gouge zone w chl-gal-sph. 2cm qtz vnlt.			172.8			171	99	
74					strong			.3cm py-cpy vnlt.				97	NQ wireline	174		
75								trace MoS_2								
76								H/L chl. vnlt alot of pervasive Kspar			178.9				100	
77								2cm qtz vnlt w py-cpy						177		
78								.9cm gyp vnlt. .8cm cpy w py vnlt 1cm qtz vnlt cut by min. vnlt.				103				
79								Py vnlt w 1cm qtz envel.			178.9				100	
80								H/L Mt-Hem vn Hs.				97		180		

B.F.P cont

* s/w - mod to strong

166.5 - marked increase in qtz s/w - strong

* Alot of Hem staining of fspar pheno's

* Cpy content increases dramastically in the strong s/w section

172.8 - 173.3 - shear zone w clay gouge & chl; gal-sph

* Kspar both pervasive and as envelopes around qtz and min. vnlts.

HOLE NO.: PC-41 | PROJECT: Popla | PAGE NO.: 13 OF 21

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G L H

SECTION	ALTERATION: Silica	Clay	Sericite	K_2O Bio	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
80					strong py-cpy			DESCRIPTIVE GEOLOGY								
81								1cm qtz vnlt.				97			98	
82								H/L py-cpy vnlts @ .5cm qtz envel. small shear same			182					
83								.3cm py vnlt @ Kspar envels.								
84								.2cm py vnlt				103				
85								1cm qtz vnlt @ py								
86								.2cm gyp vnlt cuts qtz vnlt								
87								.8cm qtz vnlt @ cpy-py								
88								1cm qtz vnlt			185				95	
89								.3cm py-cpy vnlt @ .5cm qtz envels.								
90																
91								* Disseminated hem-Mt.				87				
92								.2cm gyp vnlt.								
93															97	
94								.3cm py vnlt @ qtz envels			188.2					
95								.3cm py-cpy vnlt.								
96																
97												107				
98								.3cm gyp vnlt cuts qtz vnlt								
99								.3cm Mt-Hem vnlt			190.8				109	
100																
101								1cm py vnlt				111				
102																
103								scattered H/L Mt vnlts 2cm qtz vnlt								
104											193.6				105	
105								2 2cm qtz vnlts								
106								.3cm py vnlt @ qtz envel's.				97				

B.F.P cont

S/W - strong

* In stronger potassic sections bio booklets are abundant

* Kspar alt'n pervasive and envelopes

* Disseminated hem-Mt.

* S/W decreases abit in more potassic sections

193.3 - 195.1 - Bio. books up to 1cm in diameter and give a mottled appearance.

NQ wire line

SAMPLE INTERVAL: 183 | 186 | 189 | 192 | 195

HOLE NO.: Pc-41 | PROJECT: Pop[illegible]r | PAGE NO.: 14 OF 21

COLLAR ELEV: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: BKB.

ALTERATION: SILICA | SERICITE | CLAY | Bi. KSPAR — FRACTURING — MINERAL — GEOLOGY

COMMENTS:

AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

Geology column notes (section 195–210):

- .6cm chl w qtz
- scattered Mt vnlts
- 4cm qtz vnlt w py-cpy
- trace MoS_2
- 1.5cm qtz vnlt w py-cpy
- small shear zone
- w/ Hem vnlts
- 1.2 cm qtz vnlt w cpy-py
- 3mm w/ Cpy-Mt -Qtz
- w/ Py-Gyp-(Cpy)
- 6mm w/ Py-Cpy-Mt
- 5cm clay-chl. gouge — Fault.
- 1cm gol. w/ Cpy-Py
- 4 cm chl. gouge Fault.

Fracturing: Mod. strong s/w

Mineral: Py-Mt-Cpy

BIOTITE FELDSPAR PORPHYRY.

Predominant alt'n is sil'n as veinlets and perv. and 2° kspar as envel. on Qtz vlts and Mt vlts, as patchy perv. and after fspar. Locally clay alt'n plag w/ minor 2° bi interstitial. Mod H/L Mt & sulphides in Qtz vlts, as ff and diss'd. Ratio Py : Cpy 2:1 to 1:1

Chloritic alt'n for last 1 m. twds. PMD dike contact @ 210.4

% Sulphides	Drilling Interval	% Core Recovered	Core Size	Sample Interval	% Rec'y Samp. Int.	Estimated % Cu
[illegible]	–196.9	97	NQ wireline	–197	97	[redacted]
[illegible]	196.9–200	103		197–200	103	[redacted]
[illegible]	200–203	103		200–203	103	[redacted]
[illegible]	203–206.2	100		203–206	100	[redacted]
[illegible]	206.2–209.4	100		206–209	100	[redacted]
	209.4–	100			100	

HOLE NO.: [redacted]
COLLAR ELEV.:
GROUND ELEV.:
COORDINATES: N. E.
INCLINATION:
BEARING:

PROJECT: Pop [redacted]
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:

PAGE NO.: 15 OF 21 [redacted]
REF. TO CLAIM CORNER:
SCALE:
LOGGED BY:

SECTION	ALTERATION: SILICA	SERICITE	CLAY	BI-KSPAR	FRACTURING	MINERAL	GEOLOGY	COMMENTS	DESCRIPTIVE GEOLOGY	SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu
10					S					[redacted]				210.4		[redacted]
					Wk	Nil			POST MINERAL DIKE 210.4-211.5 Typical QFP w/ pale green g.m. 2 cm chlor. gouge @ contact.	NIL		100			N/S	
					St	Cpy								211.5		
									BFP w/ chl + clay alt'n. Qtz-MH vlt w/ Cpy.	[redacted]	212.4			212.8		[redacted]
								Contact sharp @ 30.	POST MINERAL DIKE 212.8-234.7 Typical QFP. Clay alt'd fspars and g.m. Sme ser w/ clays.							
								2cm	Minor faults as shown.			94				
13					Crackled, weak	Nil		5cm.		NIL	215.5		NQWL		NOT SAMPLED.	
												100				
											218.5					
20												100				
								.1m gouge.			221.6					
												100				
25											224.6					

HOLE NO.: [illegible]-41
COLLAR ELEV.: GROUND ELEV.:
COORDINATES: N. E.
INCLINATION: BEARING:

PROJECT: Pop [illegible]
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:

REF. TO CLAIM CORNER:
SCALE:
LOGGED BY: BKB.

SECTION	ALTERATION: SILICA	SERICITE	CLAY	BI-KSPAR	FRACTURING	MINERAL	GEOLOGY	COMMENTS	DESCRIPTIVE GEOLOGY (AVE CORE REC'Y / HOLE)	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu.
225					Fractured, irreg. - Weak	NIL		Minor Gyp on Fract.	QFP - CONT'D	NIL	227.7	100	NBWL	NOT SAMPLED		
								0.1 m sheared			230.7	100				
230											233.8	100				
								Minor sh. @ contact.						234.7		
235								Qtz as veinlets and as anvel. w/ Ser on Py-(Cpy) vlts. 6mm w/ Cpy-Py. 5mm w/ Py-Cpy.	BIOTITE FELDSPAR PORPHYRY 234.7- Weak to mod. alt'd w/ porph text. gen. s.w. vague to distinct. Weak-mod Qtz-Py vlts (Li mor) w/ minor Py. Fspar phenos white to waxy greenish-yellow. Wk Fr. s/w devel. Py, minor Cpy diss'd.	[illegible]	236.8	100			100	[illegible]
								3.5 cm w/ st. Py (Cpy-Mt).	@ 237.2 15 mm Bx 'dike' w/ BFP frags and chl-ser matrix w/ diss'd Py-Cpy.					238		
240								5 cm chl. gouge fault.	239-239.4 Fspar st. clay alt'd and minor 2° Bi' in gm.	[illegible]	239.9	100			100	[illegible]

HOLE NO.: [redacted]-41
COLLAR ELEV.:
GROUND ELEV.:
COORDINATES: N. E.
INCLINATION:
BEARING:

PROJECT: Pop[redacted]-
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:

REF. TO CLAIM CORNER:
SCALE:
LOGGED BY: BKB.

ALTERATION: SILICA | SERICITE | CLAY | Bi-KSPAR
FRACTURING: Mnl @ 60° and as wk-mod shr
MINERAL: Py-Cpy (Tr Sphal-Gal)
GEOLOGY

COMMENTS:

AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

BIOTITE FELDSPAR PORPH - CONT'D.

Past 242.0 Alt'd rel. fresh to arg'd BFP w/ str. zones of Ser and 2° Kspar related to stronger Qtz s/w development. Minor 2° Bi interstitial. Low total sulphides as ff. and diss. Occ. narrow vnlt Gypsum.

v.f.gr'd w/f. Bi.

Structure notes:
- 5mm w/ Kspar envel.
- 3cm gouge + bx'd.
- 2× 50cm gouge.
- 3×5cm w/ Gal, Sphal Cpy-Py.
- 2cm chl. shear.
- Orange should be fresh-Kspar.
- 1cm w/ (Py-Cpy)
- 1cm w/ Py-Mt.
- 5mm w/ Py-Mt-(Cpy)
- 5cm bx+gouge.
- 2×6mm w/ Sphal Py-Cpy-Gal)
- 1cm w/ Py-(Sphal-Cpy) + carb.
- 7cm premin. dikelet.

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu
				241		
[redacted]	242.9	100	NQWL		98	[redacted]
				244		
[redacted]	246	97			99	.[redacted]
				247		
[redacted]	249	100			98	[redacted]
				250		
[redacted]	252.1	97			99	[redacted]
				253		
[redacted]	255.1	100			100	[redacted]

HOLE NO.: [redacted]- 41
COLLAR ELEV.: [redacted] GROUND ELEV.:
COORDINATES: N. E.
INCLINATION: BEARING:

PROJECT: Po[redacted]r
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:

PAGE NO.: 18 OF 21 [redacted]
REF. TO CLAIM CORNER:
SCALE:
LOGGED BY: BKB.

SECTION | ALTERATION: SILICA, SERICITE, CLAY, BI-KSPAR | FRACTURING | MINERAL | GEOLOGY | COMMENTS: | AVE CORE REC'Y / HOLE

FRACTURING: Mod - lo str. S/W.

MINERAL: Py - Cpy

DESCRIPTIVE GEOLOGY

BFP - CONT'D.

- 5mm Gyp.
- 5cm w/ Hem-Cpy Qtz.
- Chl. slip w/ slicken. Cpy.
- 5cm w/ str. diss'd Cpy.
- Minor Gyp vning locally.
- 3.5cm w/ Py-Cpy-Hem Qtz.
- 4mm kspar vlt.
- 8cm bx'd Qtz-Carb w/ Py-Cpy-Gal
- 4mm w/ 4cm Ser envel.
- 2cm w/ Py-Cpy-Gal.
- 1cm clay-chl. gouge.

Minor Hem vning past 261.

4cm w/ Cpy-Py.

Past 265, as PMD is approached, ser becomes to str. perv.

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu
	255.1					
				256	100	
[redacted]		100			99	[redacted]
	258.1			259		
[redacted]		97			99	[redacted]
	261.2			262		
[redacted]		103	NQWL		101	[redacted]
	264.2			265		
[redacted]		100			98	[redacted]
	266.4			268		
[redacted]		97			97	[redacted]
	269.6					

HOLE NO.: [redacted]-41 | PROJECT: Pop [redacted] | PAGE NO.: 19 OF 21

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: BKB.

SECTION	ALTERATION: SILICA	SERICITE	CLAY	BI-FELDSPAR	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
								DESCRIPTIVE GEOLOGY								
70						py-cpy		1cm w/ sphal · py 1cm gouge.		[redacted]		97		272	97	[redacted]
								BFP - CONT'D.								
					fractured - weak.	Nil		POST MINERAL DIKE 272 - 287.8 Typical BFP. - grading locally to sections w/ decrease in PH eyes and aligned fspars in gm. Latter still pale green in colour (? clay alt'n).		N/L	272.8	100	NQ WL	NOT SAMPLED.		
13											279.8	100				
											278.9					
30								Minor clay-chl. on irreg. fract.				100				
											281.9					
												100				
35								5cm clay-chl.			285					

HOLE NO.: [redacted]
COLLAR ELEV.: GROUND ELEV.:
COORDINATES: N. E.
INCLINATION: BEARING:

PROJECT: Po[redacted]
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:

REF. TO CLAIM CORNER:
SCALE:
LOGGED BY:

SECTION	ALTERATION: SILICA	SERICITE	CLAY	Bi. K-SPAR	FRACTURING	MINERAL	GEOLOGY	COMMENTS	DESCRIPTIVE GEOLOGY	SULPHIDES %	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu.
285					As 84	Nil			PMD (QFP) - CONT'D. Fault at contact.	NIL		100		N/S		—
									BIOTITE FELDSPAR PORPHYRY 287.8-300.8		288			287.8		
290										[redacted]		97			97	[redacted]
					Mod 40-60, plus irreg	Py-Cpy-(Asp)		0.25 m Bx+ gouge.	Diss'd Cpy noted in both BFP frags and in chl.-clay intersti gouge.					291		
									Green in clay alt'n column denotes chlorite ass'd w/ faults and slips and also mixed in w/ clay and ser. after fspar to give latter a dk grnish cast.	[redacted]	291.1	94			94	[redacted]
								2x3cm w/ Py-Cpy diss'd.	291.4-292.3 - as per Bx zone imm. above.							
								0.2m gouge.	Qtz veining wk-mod, Py vlts @ 40-60° and irreg. w/ minor Cpy.				NQWL	294		
295								4mm w/ Cpy.			294.1					
								3cm gouge w/ Cpy.		[redacted]		100			100	[redacted]
								1mm w/ Py-(Cpy)						297		
								2cm w/ sphal.			297.1					
								5mm w/ Py-Cpy.								
									@300 0.1 m PMD - pale green w/ minor Qtz eyes.	[redacted]		100			100	[redacted]
300								2cm w/ Py-Cpy.	290-299.4 0.4 m bx'g w/ frags min'd BFP, Qtz vn and PMD.							

HOLE NO.: [redacted]-41 | PROJECT: Pop [redacted] | PAGE NO.: 21 OF 21

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: BKB.

SECTION	ALTERATION: SILICA	SERICITE	CLAY	BI-KSPAR	FRACTURING	MINERAL	GEOLOGY	COMMENTS: / DESCRIPTIVE GEOLOGY	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
300		-					:/:	End of Hole @ 300.8m.		[redacted]	300.8	100		300.8	100	[redacted]
305																

D.D.H. - P.C. - 42

HOLE NO.: P-42
COLLAR ELEV.: 919.09 GROUND ELEV.: 919.0
COORDINATES: 6210 N. 12400 E.
INCLINATION: -90° BEARING: —

PROJECT: POPLAR 2 LAKE
DATE STARTED: Nov 27/79
DATE FINISHED: Dec 1/79
TOTAL DEPTH: 287.6 m.

PAGE NO.: 1 OF 20
REF. TO CLAIM CORNER: Poplar 13
SCALE: 1 cm = 1m
LOGGED BY: BKB. & G.L.H

SECTION	ALTERATION: SILICA	ALTERATION: SERICITE	ALTERATION: CHL	ALTERATION: BI-K SPAR	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	DESCRIPTIVE GEOLOGY	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu.
0									STICK-UP 0 - .09								
									OVERBURDEN .09 - 4.0						4		
5					Strong - shatter zone	Py - (Cpy)		Qtz envel. on sulphide vlts.	BIOTITE FELDSPAR PORPHYRY 4.0				100	NQ WL		100	
									From 4.0 - , core mod. to strongly broken and blocky, w/ abundant Py on Ft. surfaces. Rock shattered. Alt'n mod: clay (ser) after feldspars; ser (a) in gm and ser occ. after 1° Bi. Py vlts, Ft. and diss'd. Tr Cpy diss'd. Ratio clay : ser : Qtz = 2:2:1			7.0			7		
								Minor gm Bi.	No evidence of gouge thru shatter zone.				100			100	
10												10.1			10		
													102			102	
								5mm w/ Py.	Tr Py noted on fract and diss'd.			12.5			13		
													100				
15												14.3				100	
													100				

HOLE NO.: PC-42
COLLAR ELEV.: GROUND ELEV.:
COORDINATES: N. E.
INCLINATION: BEARING:
PROJECT:
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:
PAGE NO.: 2 OF 20
REF. TO CLAIM CORNER:
SCALE:
LOGGED BY: BKB.

ALTERATION: SILICA | SERICITE | CLAY | BI-KSPAR — FRACTURING — MINERAL — GEOLOGY — COMMENTS — AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

SECTION 15

BIOTITE FELDSPAR PORPHYRY

Shattered blocky core continues.

Slight increase ser at expense of clay. Ratio Ser : Q : Clay = 2:1:1. Minor 2° grn. Bi loc.

Fracturing: St. - shattered. Mineral: Py - (Gy)

Comments: 0.1m shear. Minor gouge.

Most Fract. str. Py coating.

20

Comments: 1cm w/Py-Gy.

Post 23, core solid. Distinct change in alt'n Fspar → str. clay (ser), alt 1° Bi → Ser. Overall colour creamish-white in colour.

Comments: 0.1m str gouge. 3×5mm w/Tr Gy-MoS2 and str Ser envel.

25

Comments: 1cm w/Py-Mt-Gy -Gal. 10cm str gouge. 5cm w/ Py-Gy-Sphal-(Gal). 2cm w/Py. Gyp veining common 50-70° Ca. Tr Mt (Hem) in Py vlts.

Fracturing: Mod dom @ 30 + irreg. Mineral: Py - Gy - Mt - Gal - Sphal.

Post 27.7 textures became s/w obscure, ser perv, clay rel. minor, slight increase in Qtz vlts.

* Only copper in section in 5 cm carb vlt @ 26.3

30

% Sulphides	Drilling Interval	% Core Recovered	Core Size	Sample Interval	% Rec'y Samp. Int.	Estimated
		100		16		
[redacted]	16.5	90			93	[redacted]
	18.5			19		
[redacted]		100			100	[redacted]
	20.1	100	NQ wireline	22		
[redacted]	23.0	97		25	98	[redacted]
[redacted]	26.2	100		28	99	[redacted] *
[redacted]	29.3	103			101	[redacted]

HOLE NO.: [redacted] 91-42
COLLAR ELEV.: GROUND ELEV.:
COORDINATES: N. E.
INCLINATION: BEARING:

PROJECT: [redacted]
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:

REF. TO CLAIM CORNER:
SCALE:
LOGGED BY: BKB.

ALTERATION: SILICA | SERICITE | ? | BI-KSPAR — FRACTURING — MINERAL — GEOLOGY

COMMENTS: — AVE CORE REC'Y / HOLE

SECTION	ALTERATION / FRACTURING / MINERAL	COMMENTS	DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu.
30	Mod loc. str. H/L s.w. ; Bi. AH-Gy	H/L AH w/ Tr Gy.	BFP - CONT'D. AH'D as 34. Gyp vning still abundant.			103	NQ wireline	31		
		4mm w/ clay-ser envel.		[redacted]	32.8				95	[redacted]
		3cm Gyp.	Porphyritic textures continue to be s.w. vague. Si'D weak as vlts, but mod perv. Ser strong perv. Kspar noted as envel. and loc. perv. Minor 2° Bi locally.			92		34		
35		3cm Gyp.	Post 34, increase in AH H/L w. str.	[redacted]	35.6				95	[redacted]
		Late Gyp vning common.				97		37		
				[redacted]	38.7				100	[redacted]
40		1cm Gyp.				103		40		
			43.5 - 98 AH'D as per 23 - 27.7	[redacted]	41.7				100	[redacted]
						98		43		
45				[redacted]	44.8				98	[redacted]

HOLE NO.: [redacted]-42
COLLAR ELEV.:
GROUND ELEV.:
COORDINATES: N. E.
INCLINATION:
BEARING:

PROJECT: [redacted]
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:

 [redacted]
REF. TO CLAIM CORNER:
SCALE:
LOGGED BY: BKB.

SECTION | ALTERATION (SILICA, SERICITE, CLAY, BI-KSPAR) | FRACTURING | MINERAL | GEOLOGY | COMMENTS: | AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

Section: 45 – 60

Fracturing: Mod, loc. str. H/L SW.
Mineral: Py, Mt - Gy

Comments:
- 5mm chl. slip.
- 1cm clay-chl.
- 1cm w/Gy + Ser envel.
- 3cm patches 2° Bi'
- 1mm w/Mt-Q,
- 6mm w/Py.
- 1cm w/Tr Py.
- Abundant late H/L Gyp vns.
- w/Gyp.
- Py-Mo w/ Ser envel. @ 60.
- 1cm cream carb vnl.
- 5mm.

BFP - CONT'D.

48-53.1 As per 27.7 to 43.5 w/ short sections of clay alt'd fspars. 2° Bi locally. Sil'd mod perv.

53.1-58 As per 43.5-48.

Slight increase in vlt Q ass'd w/ Py and Mt vlts. Minor 2° kspar as envel. and locally interstitial.

Decrease in Gyp vlts.

Py-Gy ass'd w/ Mt ming.

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
			NQWL	46		
[redacted]	47.8	103			101	[redacted]
				49		
[redacted]	50.9	100			101	[redacted]
				52		
[redacted]	53.9	103			102	[redacted]
				55		
[redacted]	56.9	101			102	[redacted]
				58		
	60.0	103			103	

HOLE NO.: [redacted] 42
COLLAR ELEV.: GROUND ELEV.:
COORDINATES: N. E.
INCLINATION: BEARING:

PROJECT: [redacted]
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:

PAGE NO.: 5 OF 20 [redacted]
REF. TO CLAIM CORNER:
SCALE:
LOGGED BY:

SECTION	ALTERATION: SILICA	SERICITE	CLAY	Bi-KSPAR	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	DESCRIPTIVE GEOLOGY (AVE CORE REC'Y / HOLE)	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED
60					Mod, 40-60° Common to s/w	Py - Mt - Gy			BFP - CONT'D.		60.0		NQWL		61	
								Mt @ 60° Common	Py - Gy ass'd w/ H/L Mt's vlts.	[redacted]		100		100		[redacted]
								Decrease Mt.	Past 63 Str. clay (ser) alter kspar. Porph text distinct. Short sections stronger Ser ass'd w/ Py (Alb) veining. Decrease in Mt vlts. Minor 2° Bi interstitial.		63.1				64	
65								Late Gyp veining continues.		[redacted]		93		96		[redacted]
								kspar envel.			65.8					
								H. shear. 5 mm w/ Py.	Past 67.5, alt'n mod., porph. text. gen. intact w/ short sections of white clay (ser) alt'd plag alternating w/ sections of waxy green ser. (clay) alt'd plag. Minor 2° gm Bi. kspar locally as envel and patchy after kspar phenos. Mt veining wk-mod, Alb veining wk, increasing slightly past 71.5.			100			67	
								1cm w/ Py.		[redacted]				100		[redacted]
								vlts common @ 40-60° Ca.								
								5mm Gyp-Py.			68.9					
70															70	
								3×3cm gouge w/ str. clay-chlorite.	Fault.			100				
								patch of perv. kspar-Alb.		[redacted]	71.9			100		[redacted]
															73	
								.30m py vnlt w/ qtz envelt		[redacted]		100		100		[redacted]
75											74.7					

HOLE NO.: [illegible]-42 | PROJECT: Popl | PAGE NO.: 6 OF 20

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G.L.H.

ALTERATION: silica, clay, sericite, K_2O B.O | FRACTURING | MINERAL | GEOLOGY | COMMENTS: | AVE CORE REC'Y / HOLE | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | % REC'Y. SAMP. INT. | ESTIMATED % Cu

SECTION

DESCRIPTIVE GEOLOGY

FRACTURING: mod - wk to mod S/W

MINERAL: Py = Mt - QSV - MoS

GEOLOGY:
- trace MoS_2
- .3cm Mt vnlt ∃ numerous H/L vnlts around
- increase in H/L py vnlts around a .5cm qtz vnlt
- H/L gyp vnlt.
- scattered H/L qtz vnlts ∃ arg. envels
- trace MoS_2
- 1cm qtz vnlt
- H/L Gauge zone ∃ 1cm gyp vnlt
- .4cm py (cpy) vnlt.
- highly frted - H/L py vnlts.
- scatt. H/L Mt vnlts ∃ fspar envels.
- H/L py vnlt offsets .3cm qtz vnlt
- scatt H/L Mt vnlts
- .3cm py vnlt ∃ .4cm qtz envels.
- .4cm py vnlt ∃ qtz & gyp envels.
- .5cm py vnlt ∃ small qtz envels.
- scatt. H/L py vnlts.
- 3x .3cm Mt vnlts ∃ py.
- scatt. H/L gyp. vnlts.
- .4cm py vnlt ∃ Mt
- .8cm py vnlt ∃ 1.5cm fspar envels
- 1.5cm gyp vnlt ∃ scatt. .5cm gyp vnlts.
- small gouge zone

BFP cont

75.4 - - Alot of pervasive and bio. (pot alt'n) obscurrs the distint porph text. Small sections still prevail in the potassic zone.

* s/w weak
* Mt vnlts quite abundant
* Most of silica alt'n in vnlt. form, very little replace of fspars. Vnlts commonly 40-55°.
* clay alt'n selective after fspar phenos
* In pot alt'n sericite selective after fspar phenos. In less pot sections, commonly found in grdmass

80.5-81.0 - highly frted rock. - mainly due to H/L py vnlts

* Alot of diss. Mt-Hem. ≈ 1%

88.5 - - strong porph. text. ∃ clay (ser) alt'n of the fspar phenos

89.0 - 2 x 1.5cm gyp vnlt ∃ scatt. smaller vnlts.

DRILLING INTERVAL: 77.7 | 81.1 | 84.1 | 87.2

% CORE RECOVERED: 106 | 91 | 87 | 100 | 94

CORE SIZE: NQ wireline

SAMPLE INTERVAL: 76 | 79 | 82 | 85 | 88

% REC'Y. SAMP. INT.: 100 | 89 | 92 | 97 | 97

HOLE NO.: [redacted]C-42 | PROJECT: Pop[redacted]r | PAGE NO.: 7 OF 20 [redacted]

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: GLH

SECTION	ALTERATION: silica	clay	sericite	K_2O Bio	FRACTURING	MINERAL	GEOLOGY
90–105					(s/w - weak to mod); mod	py - Mt - cpy	

COMMENTS:

AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

→ 1cm qtz. vnlt. w py
→ Scatt. H/L py & Mt. vnlts
→ .2cm py vnlts w pot. alt'n envel's
→ small gouge zone.
→ 1.5cm gouge zone. w qtz.
→ small gouge zone
→ 1cm py vnlt,
→ .4cm py vnlt.
→ .8cm qtz vnlt w Mt.
→ .3cm Mt vnlt
→ .3cm gyp vnlt.
→ .2cm py vnlt w Kspar envel's
→ 1cm qtz vnlt w some gyp
→ 4x.3cm Mt vnlts
→ small gouge zone
→ chl on gyp vnlts.
→ scattered H/L Mt vnlts
→ trace chl
→ 1cm gouge zone
→ Scatt H/L py vnlts.
→ .4cm py-cpy vnlt.
→ Scatt. H/L Mt vnlts
→ 1cm qtz vnlt w Mt-hem.
→ .3cm gyp vnlt cuts .3cm py vnlt.
→ 2x1cm qtz vnlts
→ 1.5cm chl. vnlt

B.F.P cont

* clay alt'n selective after fspar pheno's

90.2 - 91.2 – Pink hem. staining of fspar pheno's – very strong.

* S/W - weak to mod.

* Porph. text. prominent in weak and Bio sections

* Alot of H/L Mt. vnlts

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu
[redacted]	90.5		NQ wireline	91		[redacted]
[redacted]	93.6	100		94	100	[redacted]
[redacted]	96.6	103		97	103	[redacted]
[redacted]	99.7	100		100	100	[redacted]
[redacted]	102.7	100		103	100	[redacted]
[redacted]		100			100	[redacted]

HOLE NO.: PC-41 | PROJECT: Pop | PAGE NO.: 8 OF 20

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G.L.H.

ALTERATION: silicate, clay, sericite, K_2O B_2O | FRACTURING | MINERAL | GEOLOGY | COMMENTS: | AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

SECTION | % SULPHIDES | DRILLING INTERVAL | % CORE RECOVERED | CORE SIZE | SAMPLE INTERVAL | % REC'Y. SAMP. INT. | ESTIMATED % Cu

FRACTURING: mod. (S/W weak to mod.)

MINERAL: Py - Mt - CPy

GEOLOGY:
- 5cm gyp vnlt.
- Scatt py-cpy vnlts.
- Scatt Mt vnlts.
- strong perv Kspar
- 2x 1-4 cm qtz vnlt.
- Alot of hem. stain of fspar phenos
- .4cm py vnlt w 1cm gyp envel's
- .8cm Mt. vnlt
- Scatt H/L gyp vnlts
- .2cm qtz vnlt w Kspar envel's
- 1cm py-cpy vnlt
- 1cm qtz-gyp vnlt
- Scatt. H/L py vnlts.
- Scatt H/L py-cpy vnlts.
- .5cm py vnlt w 2cm pot envel's.
- 1cm gyp vnlts
- 2x 1cm qtz vnlt w gyp.
- 2x .3cm Mt vnlts
- Scatt H/L py vnlts.
- 1cm py vnlt

B.F.P cont

* S/W - weak to mod.
* Kspar pervasive and minorly as envel's.
* Intermittent pot. rich and pot. poor sections.
* Clay alt'n selective after fspar phenos

Mt vnlt are throughout most of the rock with several sections of strong concentration.

108 - 110.4 - Alot of pink hem staining of fspar phenos

113.8 - 119.2 - Alot of pink hem. staining of fspar phenos

DRILLING INTERVAL	% CORE RECOVERED	SAMPLE INTERVAL	% REC'Y. SAMP. INT.
105.8		106	
108.8	100	109	100
111.9	100	112	100
114.9	103	115	103
118.0	97	118	97
	103		103

CORE SIZE: NQ wireline

HOLE NO.: C-92 | PROJECT: Pop | PAGE NO.: 9 OF 20

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G L H

SECTION	ALTERATION: silica	clay	sericite	K_2O 8.0	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
20																
21					mod (S/W - weak to mod)	PY - Mt - apy		2x .3cm Mt vnlts			121			121		
22								3x M/L py vnlts ū Kspar envels								
23												103			103	
24											124			124		
25								.3cm py vnlt ū .6cm qtz envel's								
26								.7cm chl vnlt.				97			97	
27								lam py vnlt ū .6cm qtz vnlts			127.1					
28								4cm qtz vnlt								
29					mod to strong	Ga		sharp contact.				100				
30											130.1					
31												97				
32								trace Gal.								
33											138.2					
34												100				
35																

DESCRIPTIVE GEOLOGY

B.F.B. cont

120.1 - 120.3 - Breccia - contains PMD (Rhyodacite) phenos in a B.F.P, chl-rich matrix.

* S/W - weak to mod

* Clay alt'n selective after fspar pheno's.

127 - 127.5 - Pink hem. stain on fspar pheno's

127.7

POST MINERAL DIKE

Typical Q.F.P - clay alt'n of fspar phenos and grdmass
- highly weathered.
- several chl. sections

Nil

NQ wireline

Not sampled

HOLE NO.: [redacted] - 42
COLLAR ELEV.:
GROUND ELEV.:
COORDINATES: N. E.
INCLINATION:
BEARING:
PROJECT: Pop[redacted]
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:
[redacted]
REF. TO CLAIM CORNER:
SCALE:
LOGGED BY: G.L.H.

ALTERATION: silica | clay | sericite | KO Bo
FRACTURING: moderate (135–147.7); mod (147.7–150)
MINERAL: Py - Mt - Cpy (147.7–150)
GEOLOGY: breccia symbols (136.7–147.7); B.F.P. (147.7–150)

COMMENTS:

AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

SECTION 135–150

PMD cont.

136.7 - 137.1 - Breccia - PMD frags in a dk f.g. grdmass.

142.3 - 147.7 - Breccia - PMD frags in a dk f.g. grdmass.

146.3 - 147.7 - PMD frags in the the porph text. B.F.P.

147.7

147.7 - 159.3 - B.F.P.

→ .5cm py vnlt ῶ 1cm pot. alt'n envels.
→ 1cm gouge zone
→ seqwr. H/L Mt-hem vnlts.

* porph. text very prominent throughout most of section

* s/w weak to mod

Section	% Sulphides	Drilling interval	% Core recovered	Core size	Sample interval	% Rec'y samp. int.	Estimated % Cu
135–148	Nil			NQ wireline			Not sampled
to 136.2		136.2					
136.2–139.3		139.3	100				
139.3–142.3		142.3	103				
142.3–146.4		146.4	100				
146.4–148.4		148.4	94				
148.4–150	[redacted]		106		150	100	[redacted]

HOLE NO.: - 42 | PROJECT: Pop1 | PAGE NO.: 11 OF 20

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G.L.H.

SECTION	ALTERATION: Silica	Clay	Sericite	K_2O Bio	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
150								DESCRIPTIVE GEOLOGY								

.8cm qtz vnlt
1.8 cm gouge zone
Scatt H/L Mt-hem vnlts
.6cm s/p vnlt
H/L gouge zone ± chl.
1cm qtz vnlt
.7cm qtz vnlt ± py
.3cm Mt vnlt
.2cm py vnlt
py vnlts cut qtz vnlts
H/L gouge zone
3cm Mt-hem vnlt.
10cm PMD
.6cm gouge zone
.3cm qtz vnlt in gouge zone
PMD.
2cm gouge zone
3cm shear zone at contact

mod - s/w weak to mod
py - Mt - cpy
weak

B.F.P. cont

* s/w - weak to mod

153.5 - 155.5 - Alot of pinkish hem staining of fspar pheno's.

157.9 - 157.5 - PMD.

158.3 - 158.5 - PMD.
158.5 - 159.3 - Breccia ± PMD frags in the B.F.P

159.3

159.3 - - P.M.D.
- typical Q.F.P., contains H/L Mt vnlts
- pheno's of qtz-eyes and alt'd fspars

163.0 - 163.2 - Breccia ± obliterated BFP groundmass

Nil

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.
151.3	106	NQ wireline	153	100
154.5	94		156	98
157.6	103		159.3	103
160.6	103			
163.7	97			
	103			

Not samples

HOLE NO.: [illegible]-42 | PROJECT: Popl[illegible] | PAGE NO.: 12 OF 20

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G.L.H

SECTION	ALTERATION: silica	ALTERATION: clay	ALTERATION: sericite	ALTERATION: K-spar	FRACTURING	MINERAL	GEOLOGY	COMMENTS: / DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
165					crackled, weak	Mt.	2cm gouge zone	P.M.D. cont.	Nil			NQ wire line			Not sampled
6								* Minor clay (ser) alt'n selective of pheno's			103				
7							1cm gouge zone	* Mt vning common - M/L.		166.7					
8							2cm gouge zone.				97				
9										169.8					
170							.7m shear zone	170.5 - 171.2 - shear zone ⊃ chl.			100				
1										172.8					
2							1cm chl/ calt.				100				
3										175.9					
4							4cm gouge zone ⊃ chl.								
5								177 - 177.3 - shear zone ⊃ some breccia.			103				
6								178 - 179.7 - periodic breccia zones.							
7								179.4 - 179.7 - shear zone ⊃ breccia		178.9					
8											97				
9															
180															

HOLE NO.: P 42 | PROJECT: Poplar | PAGE NO.: 13 OF 20

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G.L.H

ALTERATION: silica, clay, sericite, K_2O B.O | FRACTURING | MINERAL | GEOLOGY | COMMENTS: | AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

P.M.D cont

- .5cm gouge zone
- clay-sericite alt'n of fspar pheno's
- 2cm gouge zone
- scatt H/L Mt vnlts
- brx ⊃ chl. matrix

183.6 - 183.8 - Breccia ⊃ fine chl. matrix and trace Py

- .5cm gouge zone
- 2x 1cm gouge zones
- chl vnlt
- 3cm chl rich gouge zone

188.1 - 188.7 - Breccia

190.7 - 193.5 - Kspar alt'n of fspar pheno's

- .4cm Gyp vnlt

193.5 - 198.8 - solely clay alt'n of fspar pheno's

- 1cm qtz vnlt

weak

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
Nil	182	97	NQ wireline			Not sampled
	185	100				
	188.1	100				
	191.1	100				
	194.2	97				

HOLE NO.: 92 | PROJECT: Popla | PAGE NO.: 14 OF 20

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G L H

SECTION	ALTERATION: silica	clay	sericite	K_2O Bio.	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE CORE REC'Y / HOLE	DESCRIPTIVE GEOLOGY	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
95										PMD cont.							
96													100				
97								3cm gouge zone		* Scatt H/L Mt vnlts		197.2					
98																	
99										198.8 - - clay ± lesser sericite altn of fspar pheno's			100				
200																	
01												200.3					
2								1cm gouge zone					100				
03								2cm chl. vnlt.		202-212 - Mod of small gouge zones	Nil						
4								2cm gouge zone				203.3					
5								15 cm chl. vnlt					97				
06								H/L gouge zone									
7								1cm gouge zone				206.1					
8								3cm gouge zone.					100				
9								1cm gouge zone									
10												209.4					

NQ wireline

Not sampled

HOLE NO.: :-92 | PROJECT: Pop(.- | PAGE NO.: 15 OF 20

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REP. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G.L.H

SECTION	ALTERATION: silica	clay	sericite	K_2O Bio	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
210								DESCRIPTIVE GEOLOGY								
211								PMD cont .7m shear zone				100				
212								* clay alt'n of fspar phenos most prominant, minor ser. alt'n.			212.4					
213																
214												97				
215								215.2 - Mt. unlts tapering off								
216											215.5					
217												103				
218																
219										Nil	218.5		NQ wireline			Not sampled
220					weak							97				
221								1cm gouge zone.								
222											221.6					
223								1cm gouge zone.				100				
224								3x .4cm chl unlts.								
225											224.6					

HOLE NO.: C-42 | PROJECT: Pop[illegible]r | PAGE NO.: 16 OF 20

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G L H

SECTION	ALTERATION: silica	clay	sericite	K_2O Bio	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	DESCRIPTIVE GEOLOGY	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
225							3cm gouge zone w chl.		PMD cont.								
26							trace sph.						97				
27									* numerous H/L chl vnlts								
28							1.4cm gouge zone					227.7					
29									229 - 230.7 - highly sheared zone.								
30							highly sheared zone						100				
31												230.7					
32							4x4cm gouge zones						97				
33											nil						
34							2cm gouge zone		233.7 - 235.7 - PMD gets a little darker in color			233.8					
35							1.2cm gouge zone										
							1cm gouge zone						100				
									235.7 B.F.P.						238.7		
36							Breccia -		235.7 - 236.4 - Breccia - PMD frags in the B.F.P.								
37							2cm Mt vnlt		* S/W - mod.			236.8					
							1cm gouge zone										
38							Sentt. H/L Mt. vnlt		236.8 - 237.2 - Breccia				100			100	
							1cm qtz vnlt										
							.8m breccia zone										
39							.7cm qtz vnlt w chl.					239			239		
							1.5cm chl. vnlt.									98	
40					mod							239.9					

HOLE NO.: PC-92 | PROJECT: Poplar | PAGE NO.: 17 OF 20

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G L H

ALTERATION: silica | c/o | sericite | K2O Bio | FRACTURING | MINERAL | GEOLOGY

COMMENTS:

AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

B.F.P. cont

- Scatt. H/L Mt vnlts.
- 1cm qtz vnlt ⊃ py
- increase in s/w
- .5cm py-cpy vnlt.

141-142 - s/w - strong

- Scatt H/L Mt-hem vnlts
- .5cm py-cpy vnlt ⊃ pot alt'n envels.

244.0

244.0 - 248.4 - PMD.
Typical QF.P.

- contact ~45°
- breccia zone.
- H/L gouge zone.

* clay alt'n selective after fspar pheno's

248.4
B.F.P.

- 30cm shear zone
- .3cm Mt vnlt.
- .6cm gouge zone.
- 25cm shear zone
- 1cm gouge zone
- 1cm gouge zone

* s/w - mod.

* clay alt'n selective after fspar pheno's

% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
		97	NQ wire line	242	98	
	242.9				97	
		97		249		Not sampled
Nil	246					
		100		248.4		
	249				100	
		100		252		
	252.1				100	
		100		265		

HOLE NO.: P[illegible]-42
COLLAR ELEV.: GROUND ELEV.:
COORDINATES: N. E.
INCLINATION: BEARING:

PROJECT: Poplar
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:

REF. TO CLAIM CORNER:
SCALE:
LOGGED BY: GLH

ALTERATION: Silica | Clay | Sericite | KO Bio — FRACTURING: mod - strong — MINERAL: Mt - Cpy - Py — GEOLOGY

COMMENTS:

AVE CORE REC'Y / HOLE

- .3cm gyp vnlt
- 1cm gouge zone
- 20cm shear zone
- 10m shear zone
- 3cm Mt vnlt
- 2cm chl. vnlt
- .3cm gyp. vnlt
- .2cm chl. vnlt
- Scatt H/L Mt vnlts
- .1cm py vnlt
- H/L py vnlt = .6 cm qtz envelo.
- Scatt .5-.8 cm qtz vnlts
- 1cm gouge zone
- .3cm chl vnlt
- Scatt H/L Mt vnlts.
- 2cm gouge zone.
- 1cm qtz vnlt.
- 5cm gouge zone
- Breccia
- .4cm red hem vnlt
- H/L gouge zone.

DESCRIPTIVE GEOLOGY

BEP cont

256.7-256.9 - shear zone

S/W increase - mod to strong

* Alot of H/L Mt vnlts

267-268.2 - Breccia - PMD frags in the BEP

% Sulphides	Drilling Interval	% Core Recovered	Core Size	Sample Interval	% Rec'y Samp. Int.	Estimated % Cu
[redacted]	255.1–258.1	103	NQ wire line	–258	103	[redacted]
[redacted]	258.1–261.1	100		258–261	100	[redacted]
[redacted]	261.1–263.5	97		261–264	97	[redacted]
[redacted]	263.5–266.7	94		264–267	95	[redacted]
[redacted]	266.7–269.7	103		267–270	103	[redacted]

HOLE NO.: P 42
COLLAR ELEV.:
GROUND ELEV.:
COORDINATES: N. E.
INCLINATION:
BEARING:

PROJECT: Popla
DATE STARTED:
DATE FINISHED:
TOTAL DEPTH:

PAGE NO.: 19 OF 20
REF. TO CLAIM CORNER:
SCALE:
LOGGED BY: G L H

ALTERATION: Silica | clay | sericite | K2O Bio — FRACTURING — MINERAL — GEOLOGY

COMMENTS:

AVE CORE REC'Y / HOLE

DESCRIPTIVE GEOLOGY

Fracturing: strong (to 279.5); weak (279.5–283.1); v strong (283.1–end)

Mineral: Mt-cpy-py (to 279.5); gal-sph (279.5–283.1)

Geology annotations:
- 1cm qtz vnlt
- gyp vnlt cut by chl vnlt
- 40cm shear zone
- Scatt H/L py vnlts.
- 40cm shear zone.
- 3cm py vnlt
- H/L gouge zond
- Breccia
- H/L gouge zone
- Scatt. H/L hem vnlts
- 1cm qtz vnlt
- small shear zone
- Scatt H/L Mt. vnlts
- 2cm cpy vnlt c̄ py
- Breccia.
- 4cm chl, vnlt
- H/L gouge zone.
- 3cm gouge zone
- H/L gouge zone.
- < 1cm gouge zones.
- mass of sph & gal.
- 1cm gouge zone
- 3 cm shear contact zone
- chl vnlts - highly frt'd
- shear zone

B.F.P cont

* S/W - strong
271.1-271.5 - shear zone
* clay alt'n selective after fspar pheno's
272-272.4 - shear zone.
273-273.5 - pot alt'n strong - obliterates the porph. text.
273.9 - 274.4 - Breccia c̄ PMD frags in B.F.P. matrix
277-277.2 - Breccia - c̄ PMD frags in B.F.P matrix

279.5

279.5 - 283.1 - PMD
-typical Q.F.P.

283.1

B.F.P.
283.1 - End of hole - shear zone.

SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT.	ESTIMATED % Cu
[redacted]	–272.8	100	NQ wireline	–273	100	[redacted]
[redacted]	272.8–275.8	106		273–276	106	[redacted]
[redacted]	275.8–278.3	108		276–279.5	108	[redacted]
Nil	278.3–281.3	106		279.5–283.1		Not sampled
[redacted]	281.3–284.5	97		283.1–	70	[redacted]

HOLE NO.: C-42 | PROJECT: Popla | PAGE NO.: 20 OF 20

COLLAR ELEV.: | GROUND ELEV.: | DATE STARTED: | REF. TO CLAIM CORNER:

COORDINATES: N. E. | DATE FINISHED: | SCALE:

INCLINATION: | BEARING: | TOTAL DEPTH: | LOGGED BY: G L H

SECTION	ALTERATION: silica	clay	sericite	K-spar	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE CORE REC'Y / HOLE	% SULPHIDES	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y. SAMP. INT.	ESTIMATED % Cu
285								DESCRIPTIVE GEOLOGY								
86	/	/	/		V strong	Qtz-Py-MoS2	shear zone	BFP cont shear zone		[redacted]	48		NQ w/		70	[redacted]
87							trace MoS_2	287-6 End of hole						287.6		
88																

APPENDIX C

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

The field work for this report was done by the following persons, whose qualifications are outlined below:

B.K. Bowen, P.Eng., Senior geologist for Utah Mines Ltd., Vancouver, British Columbia. Completed B.A.Sc. at the University of British Columbia in 1970; worked as a student during the summer field seasons with Cominco Ltd. in 1967 and 1968 and with Wayland S. Read, Consulting Geologist, Vancouver, British Columbia in 1969; employed as a Field Geologist, Gilbralter property, May, 1970 to October, 1970 by Placer Development Ltd.; employed as a Field Geologist, Alice Springs, N.T., Australia, from March, 1971 to December, 1971 by Central Pacific Minerals, N.L.: employed as Mine Geologist, Tungsten, Northwest Territories, Canada from May, 1972 to March, 1974 by Canada Tungsten Mining Corporation; employed by Utah Mines Ltd. from March 1974 to date as a geologist under the supervision of A.J. Schmidt, P.Eng.

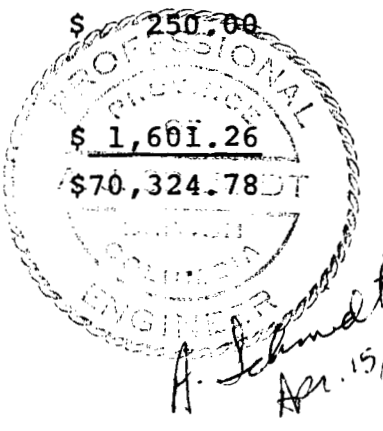
G.L. Holland, Geologist for Utah Mines Ltd., Vancouver, British Columbia. Completed B.Sc (Geology) at the University of British Columbia in 1978; employed as a temporary Geological Assistant during the summer field seasons in 1973, 1974 and 1975 by Noranda Exploration Co. Ltd.; employed as a temporary Geological Assistant during the summer field seasons of 1976 and 1977 by Utah Mines Ltd.; employed as a Geologist by Utah Mines Ltd. from May 1st, 1978 to date, under the supervision of A.J. Schmidt, P.Eng.

APPENDIX D

STATEMENT OF COSTS

STATEMENT OF COSTS

Salaries			
B.K. Bowen	26 days @ $92.30/day	$2,400.00	
G.L. Holland	24 days @ $63.40/day	$1,521.60	
J. Howe	24 days @ $38.40/day	$ 921.60	
D. Crowe	6 days @ $57.70/day	$ 346.20	
	Total Salaries	$5,189.00	$ 5,189.00
Gas (Bulk & Credit Card)			
Total cost		$ 351.08	$ 351.08
Maintenance (Vehicle)			
Total Cost		$ 40.87	$ 40.87
Diamond Drilling			
D.W. Coates Enterprises Ltd.		$ 52,080.06	
		5,601.46	
		$ 57,681.52	$57,681.52
H.D. -11 Crawler			
R. Orsetti		$ 3,060.00	$ 3,060.00
Air Freight			
Pacific Western Airlines		$ 302.25	$ 302.25
Assay Cost			
Chemex Labs Ltd		$ 1,848.40	$ 1,848.40
Report Cost			
Total cost		$ 250.00	$ 250.00
Miscellaneous			
Total cost		$ 1,601.26	$ 1,601.26
	Total Drilling Costs		$70,324.78



APPENDIX E

MAJOR INVOICES

INVOICE

12/7/79

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: [redacted] 984-0221
AREA CODE: 604
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

RECEIVED
DEC 6 - 1979
UTAH MINES LTD.
EXPLORATION DEPT.

TO: Utah Mines Ltd.
1600 - 1050 W. Pender St.
Vancouver, B.C.
V6E 3S7

ATTN:

CERTIFICATE NO. 67093 & 67094
INVOICE NO. 34201
DATE Dec. 6/79

	DESCRIPTION	SUB-TOTAL	TOTAL
80	Assayed for Cu & Mo @ $11.00	$880.00	
	Less 20%	176.00	
			$704.00

TERMS—NET 30 DAYS

78-040

1½% Per Month (18% Per Annum) Charged on Overdue Accounts

Coded 12/12/79

Sent 12/19/79

INVOICE

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: [redacted] 984-0221
AREA CODE: 604
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

TO: Utah Mines Ltd.
1600 - 1050 W. Pender St.
Vancouver, B.C.
ATTN: V6E 3S7

RECEIVED
DEC 11 1979
UTAH MINES LTD.
EXPLORATION DEPT.

CERTIFICATE NO. 67095

INVOICE NO. 34232

DATE Dec. 11/79

	DESCRIPTION	SUB-TOTAL	TOTAL
35	Assayed for Cu & Mo @ $11.00	$385.00	
	Less 20%	77.00	
			$308.00

TERMS—NET 30 DAYS

1½% Per Month (18% Per Annum) Charged on Overdue Accounts

78-040

12/14/79
Sent 12/19/79

INVOICE

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: [redacted] 384-0221
AREA CODE: 604
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

DEC 13 1979

UTAH MINES LTD.
EXPLORATION DEPT.

TO: Utah Mines Ltd.
1600 - 1050 W. Pender St.
Vancouver, B.C.
V6E 3S7

ATTN: B. K. Bowen

CERTIFICATE NO. 67115 & 67116

INVOICE NO. 34252

DATE Dec. 12/79

	DESCRIPTION	SUB-TOTAL	TOTAL
41	Assayed for Cu & Mo @ $11.00	$451.00	
	Less 20%	90.20	
			$360.80

TERMS—NET 30 DAYS

78-040

1½% Per Month (18% Per Annum) Charged on Overdue Accounts

INVOICE

12/18/79

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: [redacted] 984-0221
AREA CODE: 604
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

TO: Utah Mines Ltd.
1600 - 1050 W. Pender St.
Vancouver, B.C.
V6E 3X7

ATTN:

CERTIFICATE NO. 67135

INVOICE NO. 34269

DATE Dec. 14/79

	DESCRIPTION	SUB-TOTAL	TOTAL
38	Assayed for Cu & Mo @ $11.00	$418.00	
	Less 20%	83.60	
			$334.40

RECEIVED
DEC 17 1979
UTAH MINES LTD.
EXPLORATION DEPT.

TERMS—NET 30 DAYS

78-040

1½% Per Month (18% Per Annum) Charged on Overdue Accounts

Folio ______ Statement

DEC 3rd. 1979

Enclosed 12/11/79

M UTAH MINES LTD.

EXPLORATION DEPATMENT

In Acc't With R. ORSETTI

Terms # MOBILIZATION FOR CRAWLER.

TO + FROM JOB.		
ENDAKO B.C. TO		
POPLAR LAKE B.C.		
HD 11 CRAWLER		
TOTAL MOBILIZATION		$ 500 —

Reno Orsetti
Box 6.
Endako B.C.
V0J 1L0

D.W. Coates G.W. Lyons

RECEIVED
DEC 10 1979
UTAH ...
EXPL...

Folio ______ Enclosed & Sent copy of the inv. Statement

12/19/79 DEC 3rd 1979

M UTAH MINES LTD.

EXPLORATION DEPARTMENT

In Acc't With R. ORSETTI

Terms 40 $ PER HR. ✓ HD 11 CRAWLER

DAY	STANDBY	HRS. WORKED
NOV 19/79	4 HRS	
" 20/79	" "	2 HRS
" 21/79	" "	
" 22/79	" "	
" 23/79	" "	
" 24/79	" "	
" 25/79	" "	
" 26/79	" "	
" 27/79	" "	
" 28/79	" "	
" 29/79	" "	
" 30/79	" "	
DEC 1/79	" "	
DEC 2/79	" "	2 HRS
DEC 3/79	" "	56 HRS
TOTAL	60 HR +	4 HRS. = ~~64~~ HRS
		$ 40 $ PER HR

Reno Orsetti
Box 6.
Endako B.C.
V0J 1L0

D.W. COATES G.W. Lyons

TOTAL STANDBY + WORKHRS X 40 $ = $ ~~2560.00~~ 256[illegible]

~~2240.00~~

(~~The hours was~~ changed by Mr. Schmidt)

D.W. COATES ENTERPRISES LTD.

2560 A Simpson Road,
Richmond, B.C. V6X 2P9

INVOICE NO.: 1639
JOB NO.: 391
DATE: Dec 11/79

Utah Mines Ltd.
Suite 1600 - 1050 W. Pender St.
Vancouver, B. C.
V6E 3S7

RECEIVED
DEC 12 1979
UTAH MINES LTD.
EXPLORATION DEPT.

RE: Houston, B. C. Area Drilling

PERIOD: November 17 - 30, 1979

Drilling Detail	$45,494.90
Water Supply	1,894.25
Mobilization	3,269.40
Drill Site Preparation	305.20
Drilling with Mud	76.92
Core Boxes	247.39
Board & Lodgings	792.00
	$52,080.06

OK to pay this - will make adjustment on next invoice.
ADS
Dec 19/79

UTAH MINES LTD. -- EXPLORATION DEPT.					
DISTRIBUTION					
Location	Major	Minor	Act.	Exp.	Amount
00	A288	040 0	0	0	45,494 90
00	A288	041 0	0	0	6585 16
00		0	0	0	
00		0	0	0	
00		0	0	0	
Date Received		Invoice Amount			52,080.06
Ext. & Prices		Discount			
Approved by A. Smith		Amount Payable			
		Check No.			

1: 12/1/79

D.W. COATES ENTERPRISES LTD.

2560 A Simpson Road.
Richmond, B.C. V6X 2P9

INVOICE NO.: 1644
JOB NO.: 391
DATE: Dec 19/79

RECEIVED
DEC 20 1979
UTAH MINES LTD.
EXPLORATION DEPT.

Utah Mines Ltd.
Suite 1600 - 1050 W. Pender St.
Vancouver, B. C.
V6E 3S7

RE: Houston, B. C. Drilling

PERIOD: December 1 - 4, 1979

Drilling Detail	✓	$1,199.70
Demobilization	✓	2,569.60
Material Left in Holes		340.52
Board & Lodgings		64.00
Core Boxes		228.09
Other Charges		1,199.55
		$5,601.46

BK | KM

Pender

UTAH MINES LTD. -- EXPLORATION DEPT.

DISTRIBUTION

Location	Major	Minor	Act.	Exp.	Amount
00	A288	040 0	0	0	1199.70
00	A288	041 0	0	0	4401.76
00		0	0	0	
00		0	0	0	
00		0	0	0	

Date Received	Invoice Amount	5601.46
Ext. & Prices	Discount	
Approved by	Amount Payable	
	Check No.	

APPENDIX F

DIAMOND DRILLING CONTRACT

D.W. COATES
ENTERPRISES LTD.
diamond drilling contractors
2560 A Simpson Road, Richmond, B.C. V6X 2P9 — Phone: (604) 273-0985

October 30, 1979

Mr. A. J. Schmidt
District Geologist
Utah Mines Ltd.
Suite 1600 - 1050 W. Pender St.
Vancouver, B. C.
V6E 3S7

Dear Andy:

Re: Your Drill Project
Poplar Lake Property

We submit herewith for your perusal and consideration, our tender on your drill program near Houston, B. C.

Comments:

We have tendered your drilling project on the basis of employing a unitized Longyear Super 38 drill rig which is presently employed in the Endako area. We expect this drill to finish approximately November 15 to 22, and it would then be available to move over to the Poplar Lake property.

At this time, we have not included a price for the tractor as we have not been able to make local arrangements to rent the required D-5 to D-6 (or equivalent size) on short notice. We will continue our efforts to find a suitable tractor in the Houston area which would be available to meet your timing.

Job Definition:

Core Size	:	NQ
Min. Contract	:	2000 feet
No. of Holes	:	3 inclined holes (-60^{o})
Overburden	:	Variable up to 100 feet
Rock Types	:	Altered instrusives
Water Supply	:	Within 1000 feet
Camp	:	Contractor supplies tents, Company supplies frames
Moving	:	By tractor on existing roads
Tractor	:	Company supplies or Contractor supplies at cost
Timing	:	Mid to late November.

1. Schedule of Rates - Coring:

From		To	Price/Foot($-60^{o}$to-90^{o})
0'	-	500' in depth	$18.25
500'	-	1000' in depth	$19.35

2. Overburden:

From		To	Price/Foot
0'	-	25' in depth	$18.00
25'	-	50' in depth	$19.00
50'	-	100' in depth	$21.50
100' plus			Field Cost

3. Moving Between Holes - Setting Up - Tearing Down:

The above schedule includes the first 20 man hours spent moving between holes. Should the time spent moving be greater, then that time over 20 man hours would be charged on a field cost basis.

The Contractor would supply a tractor at actual cost or the Company would supply the tractor to aid in moving between holes.

4. Water Supply:

The above schedules include the supplying of the water up to a distance of 1000 feet and/or lift of 150 feet. Should the distances ever be greater, then the supplying of the water would be pro rated: the above distances to the Contractor's account and the "over" to the Company on a field cost basis.

5. Mobilization - Demobilization:

The Contractor would move his men, equipment and supplies from his base to truck unload point and return from truck load point to his base for the lump sum of $2000.00.

The movement of men, equipment and supplies from truck unload point to first hole site and return from last hole site to truck load point would be performed on a field cost basis.

The Company would supply a tractor (D-6 size or equivalent) to aid in mobbing and demobbing the drill equipment, at no cost to the Contractor.

The erection and teardown of suitable camp would be performed on a field cost basis.

The Company would supply the tent frames for the camp accommodation for the Contractor's crew, at no cost to the Contractor.

6. Access and Drill Site Preparation:

If ever required, preparation of access and levelling drill sites would be for the Company's account.

7. Reaming Casing and Cementing:

If ever necessary to help prevent cave-ins, and maintain circulation, reaming casing and cementing would be performed on a field cost basis.

8. Mud and Additives:

Mud and additives required to help penetrate the overburden and/or aid in core recovery, would be supplied at cost on job site, plus fifteen percent.

Time spent mixing mud and stabilizing the hole if ever necessary would be charged on a field cost basis.

9. Core Boxes:

If requested, by the Company, core boxes and lids would be supplied at actual cost on job site plus ten percent.

10. Fuel:

The schedule of rates inlcudes the fuel required for operation of the Contractor's drill equipment.

11. Acid Tests:

If requested by the Company, the Contractor would take acid tests at the rate of three feet drilled at the depth the test was taken.

12. Board & Lodging:

The schedule of rates includes the board and lodging for the Contractor's crew.

Board would be supplied to Company personnel at the rate of $8.00 per meal.

13. Radio Communications:

The Company would supply adequate radio telephone communications.

14. Travelling Time:

The above schedule includes the first one-half hour spent walking or riding to job site per man per shift. Should the time be greater than one-half hour per man/shift, the "over" would be charged on a field cost basis.

15. Operating Field Costs:

When functions as noted above are performed on a field cost basis, the following schedule would apply:

Labour----------$21.80 per man hour
Drill with Tower----------$22.00 per hour
Pump----------$ 1.35 per hour
Coil Stove (when applicable)----------$ 1.25 per hour + fuel consumed

Mud Mixer (when applicable)----------$ 1.25 per hour
Tractor----------At actual cost
4 x 4 Truck (when applicable)----------$ 8.00 per hour
Materials Consumed----------At cost on job site plus 15 percent.
Reaming Casing----------$ 1.00 per foot reamed to cover wear & tear on casing.

Note: No charge is made for drills or pumps when moving between holes, mobbing or demobbing into job site.

16. Non-Operating, Standby Rate:

Waiting for instructions from the engineer, waiting for cement to set, etc.

Labour (max 8 hrs/shift)----------$18.50 per man hour
Drill and Equipment(max 10 hrs/day)-----$20.00 per hour
Tractor----------At actual cost

17. Inflation:

The above schedule includes: (1) the labour costs that will prevail during the course of this job, and (2) the cost of diamonds, fuel, tubing, and food as of October 31st, 1979.

Should there be any marked increase greater than 5% in (2), then the schedule of rates would be adjusted to compensate for such increases.

Thank you for giving us this opportunity to tender on your project. Should there be any questions, please do not hesitate to contact us.

Yours very truly,
D. W. COATES ENTERPRISES LTD.

J. R. Forsythe

J. R. Forsythe

POPLAR NO. 20
POPLAR NO. 18
POPLAR NO. 16
POPLAR NO. 60
POPLAR NO. 62
POPLAR NO. 19
POPLAR NO. 17
POPLAR NO. 14
DAVE NO. 4 Fr.
POPLAR NO. 12
POPLAR NO. 15
DAVE NO. 5 Fr.
POPLAR NO. 13
DAVE NO. 1 Fr.
POPLAR NO. 1 Fr.
POPLAR NO. 1
BASELINE
POPLAR NO. 11
POPLAR NO. 3
POPLAR NO. 2
DAVE NO. 2 Fr.
POPLAR NO. 5
POPLAR NO. 7
POPLAR NO. 4
POPLAR NO. 9
POPLAR NO. 6
POPLAR NO. 2 Fr.
POPLAR NO. 8
POPLAR NO. 10
CANYON CREEK
EAST CREEK
Main Access Road
High Water Mark
TAGETOCHLAIN LAKE
DON NO. 33
DON NO. 34
DON NO. 35
DON NO. 36
PC-41
PC-42
PC-33
Base Line G100 N

LEGEND

○ PC-16 Diamond drill hole drilled prior to November 1, 1979

○ PC-35 Diamond drill hole drilled during period November 18 - December 1, 1979

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 7983
Part 1 of 2

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A.J. SCHMIDT
Apr. 15/80

Plate No. 1

UTAH MINES LTD.
EXPLORATION DEPARTMENT
VANCOUVER BRITISH COLUMBIA

POPLAR PROPERTY

DIAMOND DRILL HOLE
COLLAR LOCATION PLAN

Work by: BKB, GLH	Date: May 1979	NTS Ref.
Drawn by: C. Donders	Revised March 1980	E-6

SCALE IN METERS
50 0 50 100 150