



STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES

Alaska Geologic Materials Center *Data Report No. 390*

No. 390

Millrock Resources 2011, Drill logs (1987) from the
Cominco Upper Discovery DDH-1 and Lower Discovery
DDH-1 through DDH-5 boreholes, Mt. Estelle Prospect,
Tyonek Quadrangle

Received February, 2011

All data reports may be downloaded free of charge from the [DGGs website](#).

Estelle-Timber Creek
Drilling
Upper Discovery DDH-1
1988 Dill Logs
AK Tvonek D-8

AK-061150-8
Technical

map: Tyonek

3

maps
1/10/87



Shadow G
500'

S 12 W | -45

S 37 W | -45

Shadow G
600'

S 15 W | -45

S 24 W | -45






Shadow 6
400'

S 12 W | -45
S 37 W | -45



Shadow 6
600'

S 15 W | -45
S 40 W | -45



Shadow 6
200'

S 15 W | -45
S 40 W | -45



HOLE # DDH-UD-1 PROPERTY: Upper Discovery GRID COORDINATES: _____

COMINGO ALASKA																																																	
DEPTH	% RECOVERY	GRAPHIC LOG	COLOR	Open Fract.	Filled Fract.	Fracture Filling	Dip	Structure	DESCRIPTION	ALTERATION						MINERALIZATION						SAMPLE NOS. (SPLITS)	ASSAY RESULTS																										
										K ⁺	SiO ₂	Sr	SiO ₂	CaO	Clay	Py	Ap	Po	As	Moss	Au		Ag	Ag	Cu																								
										CH	SiO ₂	Sr	SiO ₂	CaO	Clay	Py	Ap	Po	As	Moss		ppb	ppb	ppm	ppm																								
0	100	0.0							OVERBURDEN																																								
1	100								M.G. equigranular to weakly feldspar perthite 5-7% fresh biotite 3-5% chloritized matrix in matrix locally "flow" foliated. sparse sulfidic qz veins as noted: 2-5' 2mm qz vein 40° d/a w 1-2% clasp																																								
5		REDRILL							5% 1/8" - 1/2" biotized xenoliths																																								
8									Hx ↑ Nx ↓																																								
16	100						40°																																										
17				cp qz 1/ft																																													
20	100			5/ft			40°		@ 20' 5/ft ft qz veinlets w 1% cp																																								
24																																																	
30	100						40°																																										
34				cp qz 6/ft over 4'					30-34' haul line: mm qz veins w cp ~ 4/ft alteration around fr - fuzzy ground mass Sr altered to fuzzy 1/4-1/2" feld spars																																								
40	100			2/ft			40°		weary foliated? w haul line cp-qz veinlets - sparse cp																																								
45																																																	
50	100			qz (cp) 2/ft			40°																																										
55	105			cp qz 1/ft			40°																																										
60				(cp) qz 2/ft			40°																																										
65	100			cp qz 5/ft			40°		matic content decreases slightly from 65'-72' to 5-1% 2-5' close spaced ~ 3'ft																																								
70				cp qz 2/ft			40°																																										

Box #1

Box #2

Box #3

Box #4

Box #5

Box #6

Box #7

Box #8

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COMINCO ALASKA

PROPERTY: <u>Timber Creek</u>	HOLE NO.: <u>DDH-UD-1</u>	LOCATION.: <u>Upper Discovery</u>
ELEVATION: <u>4400'</u>	ANGLE: <u>-45°</u>	BEARING: <u>S30W</u>
TOTAL DEPTH: <u>600'</u>	DATE STARTED: <u>8/19/88</u>	DATE COMPLETED: <u>8/28/88</u>
DRILLER: <u>Foreman Cole</u>	DRILL: <u>BB-15</u>	LOGGED BY: <u>MAN</u>
GRID COORDINATES:	SCALE: <u>1" = 10'</u>	Sheet <u>1</u> of <u>9</u>

DEPTH	% RECOVERY	GRAPHIC LOG	COLOR	Open Fract.	Filled Fract.	Fracture Filling	Dip	Structure	DESCRIPTION	ALTERATION										MINERALIZATION	SAMPLE NOS. (SPLITS)	ASSAY RESULTS				
										Chl	Sil	Sr	So	Carb	Clay	Pu	Op	Py	Mal			Au	Ag	Cu		
70										/	/	/	/	/	/		tr			70						
100				Op qz	1-2/ft	/	40		hairline qzcp fr coatings 1-2/ft Weak foliation fr? throughout - not all mineralized	/	/	/	/	/	/		tr			405874(90)	182		1.4	249		
79										/	/	/	/	/	/		tr			79						
80										/	/	/	/	/	/		tr									
100										/	/	/	/	/	/											
89										/	/	/	/	/	/											
90										/	/	/	/	/	/					91	405875(50)	76		1.4	125	
95										/	/	/	/	/	/					96	405876(60)	200		1.1	520	
96				qzcp	2-5/ft	/	40		Foliation / fr 6-8/ft same as cp-chl	/	/	/	/	/	/		tr			102						
100										/	/	/	/	/	/											
105										/	/	/	/	/	/											
110										/	/	/	/	/	/		tr									
115									~ 115' - Veinlets decrease to 1/10' or so	/	/	/	/	/	/		tr									
120										/	/	/	/	/	/											
124										/	/	/	/	/	/		tr									
130										/	/	/	/	/	/					128						
131.5				qz:chl-cp	1/ft	/	40			/	/	/	/	/	/		tr			405877(100)	712		1.1	271		
137'										/	/	/	/	/	/		tr			138						
140										/	/	/	/	/	/											

COMINCO ALASKA

PROPERTY: <u>Timber Creek</u>	HOLE NO.: <u>DDH 00-1</u>	LOCATION: <u>Upper Discovery</u>
ELEVATION: <u>4400'</u>	ANGLE: <u>-450</u>	BEARING: <u>S30W</u>
TOTAL DEPTH: <u>600'</u>	DATE STARTED: <u>8/19/88</u>	DATE COMPLETED: <u>8/24/88</u>
DRILLER: <u>Foreman/Coel</u>	DRILL: <u>BB-15</u>	LOGGED BY: <u>MM</u>
GRID COORDINATES:	SCALE: <u>1" = 10'</u>	Sheet <u>2</u> of <u>9</u>

DEPTH	% RECOVERY	GRAPHIC LOG	COLOR	Open Fract.	Filled Fract.	Fracture Filling	Dip	Structure	DESCRIPTION	ALTERATION	MINERALIZATION	SAMPLE NOS. (SPLITS)	ASSAY RESULTS				
													Au	Ag	Cu		
Box #16 140																	
142	100								146'-151.5' - qz-spr. chl-carb bleached & altered qz m ₂ 1-3% py ir ep			405878 (80)	1242	0.6	551		
Box #17 150	100																
152									large + 2-3" dk ? igneous xenolith - fig 5 feldspar phenos								
Box #18 160	100																
164									162.5 - 169 - lt grey green ss-qz-chl altered qz m ₂ some carb veinlets & diss CaCO ₃ 2-3% diss py @ 164 - qp-po veinlet			405880 (55)	92	2.4	276		
Box #19 170	100																
174	100								some 1-2mm clay alt fr > feldspars bleached white								
Box #20 180	100																
Box #21 190									188-194 1" to 6" zones of pervasively altered country qz m ₂ light green-gray; weak CaCO ₃ @ 188 - a 2mm o.dk green-black band ? chl			405881 (36)	184	0.8	318		
Box #22 197.5																	
200	90								cp + dk chl an fr 3/10' 4.0% <div>SSW 1-45 corrected 53001-45</div>			405882 (45)	124	0.5	151		
Box #23 207	100																
210																	

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COMINCO ALASKA

PROPERTY: <u>Timber Creek</u>	HOLE NO.: <u>DDH UD-1</u>	LOCATION: <u>Upper Discovery</u>
ELEVATION: <u>4400'</u>	ANGLE: <u>-45°</u>	BEARING: <u>5300</u>
TOTAL DEPTH: <u>600'</u>	DATE STARTED: <u>8/19/88</u>	DATE COMPLETED: <u>8/28/88</u>
DRILLER: <u>Foran and Co.</u>	DRILL: <u>BB-15</u>	LOGGED BY: <u>MAM</u>
GRID COORDINATES:	SCALE: <u>1" = 10'</u>	Sheet <u>3</u> of <u>9</u>



Cominco Alaska

HOLE # DDH-UD-1

PROPERTY: Upper Discovery

GRID COORDINATES: _____

Comino Alaska																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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COMINCO ALASKA

PROPERTY: <u>Timberline Canyon</u>	HOLE NO.: <u>DDH UD-1</u>	LOCATION: <u>Upper Discovery</u>
ELEVATION: <u>4160'</u>	ANGLE: <u>-45°</u>	BEARING: <u>536W</u>
TOTAL DEPTH: <u>600'</u>	DATE STARTED: <u>8/19/88</u>	DATE COMPLETED: <u>8/29/88</u>
DRILLER: <u>Foreman/Cole</u>	DRILL: <u>BB-15</u>	LOGGED BY: <u>MAM</u>
GRID COORDINATES:	SCALE: <u>1" = 10'</u>	Sheet <u>4</u> of <u>9</u>

DEPTH	% RECOVERY	GRAPHIC LOG	COLOR	Open Fract	Filled Fract	Fracture Filling	Dip	Structure	DESCRIPTION	ALTERATION						MINERALIZATION					SAMPLE NOS. (SPLITS)	ASSAY RESULTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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COMINCO ALASKA

PROPERTY: <u>Timber Creek</u>	HOLE NO.: <u>DDH-1</u>	LOCATION: <u>UPPER Discovery</u>
ELEVATION: <u>4400'</u>	ANGLE: <u>~45°</u>	BEARING: <u>S30W</u>
TOTAL DEPTH: <u>600'</u>	DATE STARTED: <u>8/19/88</u>	DATE COMPLETED:
DRILLER: <u>FOREMAN / COLE</u>	DRILL: <u>BB-15</u>	LOGGED BY: <u>MAM</u>
GRID COORDINATES:	SCALE: <u>1" = 10'</u>	Sheet <u>5</u> of <u>9</u>

DEPTH	% RECOVER	GRAPHIC LOG	COLOR	Open Fra	Filled Fra	Fracture Filling	Dip	Structure	DESCRIPTION	ALTERATION						MINERALIZATION						SAMPLE NOS. (SPLITS)	ASSAY RESULTS			
										K ⁺	SiO ₂	Sr	SiO ₂	carb	Chy	Px	Qz	Po	Mo	Mo ₂	Au		Ag	Cu	Au	Ag
350	100								zones of pervasive st-carb chl alt w/ 1/4" feldspar phenos highlighted in v.f. grey green groundmass	Ch	SiO ₂	Sr	SiO ₂	carb	Chy	Px	Qz	Po	Mo	Mo ₂	405897 (5.0)	118		0.9	244	
351	100								@ 358- soft & gummy							1/1	tr				405898 (5.0)	100		0.5	157	
359																					405899 (6.0)	120		1.4	323	
360																										
370	100								Same equigranular to weakly porphyritic qz mzt @ 3-5% 1/2" biotized Xenoliths; 5-7% biotite + chloritized mafics							tr										
377																										
380	100															tr										
386																1/1					405900 (4.5)	60		1.4	974	
390	100															1/1		tr			411601 (6.0)	220		1.9	678	
396									393' 1" qz vein w/ qz, Moqz @ 400'							1/1		tr			411602 (6.0)	756		2.5	415	
400	80																									
403.5	100								Bands of py 1/4" thick to c/a 399-400' w/ lt grey green ser alt. qz mzt							5/1					411603 (5.5)	232		5.0	513	
407																										
410	100								equigr. qz mzt (same as above)							tr										
416																										
420																										

Box #37

Box #38

Box #39

Box #40

Box #41

Box #42

Box #43

52W/-45 corrected

52W/-45

GMC Data Report 390

GMC Data Report 390

COMINCO ALASKA

PROPERTY: Timber Creek

ELEVATION: 1400'

TOTAL DEPTH: 600'

DRIILLER: Foreman/Cole

GRID COORDINATES:

HOLE NO.: DDH-1

ANGLE: -45°

DATE STARTED: 8/19/88

DRIILL: BB-15

SCALE: 1" = 10'

LOCATION.: UPPER Discovery

BEARING: S30W

DATE COMPLETED: 8/20/88

LOGGED BY: MAM

Sheet 6 of 9



PROPERTY: *UPPER Discovery* GRID COORDINATES :

GMC Data Report 390

PROPERTY: <i>Timber Creek</i>	HOLE NO.: <i>DDH-1</i>	LOCATION: <i>Upper Discovery</i>
ELEVATION: <i>4400'</i>	ANGLE: <i>-46°</i>	BEARING: <i>S30W</i>
TOTAL DEPTH: <i>600'</i>	DATE STARTED: <i>8/19/88</i>	DATE COMPLETED: <i>8/23/88</i>
DRILLER: <i>Foeyman / Cole</i>	DRILL: <i>DB-15</i>	LOGGED BY: <i>MAM</i>
GRID COORDINATES:	SCALE: <i>1" = 10'</i>	Sheet <i>2</i> of <i>9</i>



Cominco Alaska

HOLE # DDH-1

PROPERTY: UPPER Discovery GRID COORDINATES: _____

PROPERTY: OTHER DISCOVERY GRID COORDINATES:																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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COMINCO ALASKA

PROPERTY: <u>Timber Creek</u>	HOLE NO.: <u>DDH-1</u>	LOCATION: <u>UPPER Discovery</u>
ELEVATION: <u>4400'</u>	ANGLE: <u>-45°</u>	BEARING: <u>S30W</u>
TOTAL DEPTH: <u>600'</u>	DATE STARTED: <u>8/19/88</u>	DATE COMPLETED: <u>8/28/88</u>
DRILLER: <u>FOREMAN/COLE</u>	DRILL: <u>3B-15</u>	LOGGED BY: <u>MAM</u>
GRID COORDINATES:	SCALE: <u>1" = 10'</u>	Sheet <u>9</u> of <u>9</u>

Estelle-Timber Creek
Drilling
Lower Discovery DDH-1
1987 Drill Log
AK, Tyonek D-8

AK-061150-8
Technical

map: Tyonek

AS

18
12
36
18
218

50°
submerg
8

4
17 10
17 7 17

342

5.6 1/2 220
224

5.9

27.7

232-324

DEPTH

0
10
20
30
40
50
60
70very competent
≥ 100%
Recov.

≥ 100%

Recov.
very comp.
some broken
material
≥ 100%

Graphic Log

OPEN Fract. A-H-H-H-H

OPEN Fract. A-H-H-H-H

OPEN Fract. A-H-H-H-H

OPEN Fract. A-H-H-H-H

OPEN Fract. A-H-H-H-H

OPEN Fract. A-H-H-H-H

OPEN Fract. A-H-H-H-H

OPEN Fract. A-H-H-H-H

OPEN Fract. A-H-H-H-H

OPEN Fract. A-H-H-H-H

OPEN Fract. A-H-H-H-H

OPEN Fract. A-H-H-H-H

DESCRIPTION

NO OVERBURDEN

Biotite GRANITE: equigranular to slightly porphyritic
O-: twinned plagioclase, K-spar, quartz, and biotite in sub-equal amounts, biotite as euhedral to ragged $\frac{1}{16}$ " grains and as chloritized xenolithic aggregates $\frac{1}{4}$ to $\frac{1}{2}$ " diameter, free biotite is variably chloritized, 4.6-5.1% of biotite doubles in zone of either 1) alteration 2) dike 3) xenolith, hbl. probably originally present, but now altered to chlorite

Beginning at 17.8 notable increase in alteration. 17.8-20.8: chloritic, and mod. sericitically alt. granite, possible K-spar alt., much less fresh biotite, sericitization increasing downwards, 21" zone of $\frac{1}{4}$ " Qtz + csp (?) fracts at 19.4, becomes mildly calcareous in this interval. 20.8-22: intensely sericitized, possible silvery chlorite, dissem clots of csp, 22-23.2: as per 17.8-20.8, less chlorite, poss. more sericitic alt.

23.2-23.4: min. fracts. evenly spaced average 9/ft., mainly Qtz + csp to 27.7, then csp + Qtz fracts. become common, locally a few Qtz + csp fracts cross cut the main set acutely. Zones of weakly dissem. csp between fractures

23.4-23.4: zone of mod sericitization as above, but without fracts

23.4-35.1: Qtz + csp + csp + Qtz in flat fracts.

35.1-44.4: weakly alt. biotite granite, ext. minor silts, fresher than rocks so far, but basically as per top of hole

44.4-45.7: sharp increase in sericity, dissem csp.

47.9-48.4: , 48.7-50.2: 63.0-63.6:

sericitic zones, min. csp upper two, minor csp in lower interval all zones weakly calcareous

45.4-100: other than zones mentioned above, this is xenolithic, weakly chloritized granite, minor sulfidic fracts, traces of dissem. csp. competent, good recovery, looks barren overall

New W, M, St or % or trace

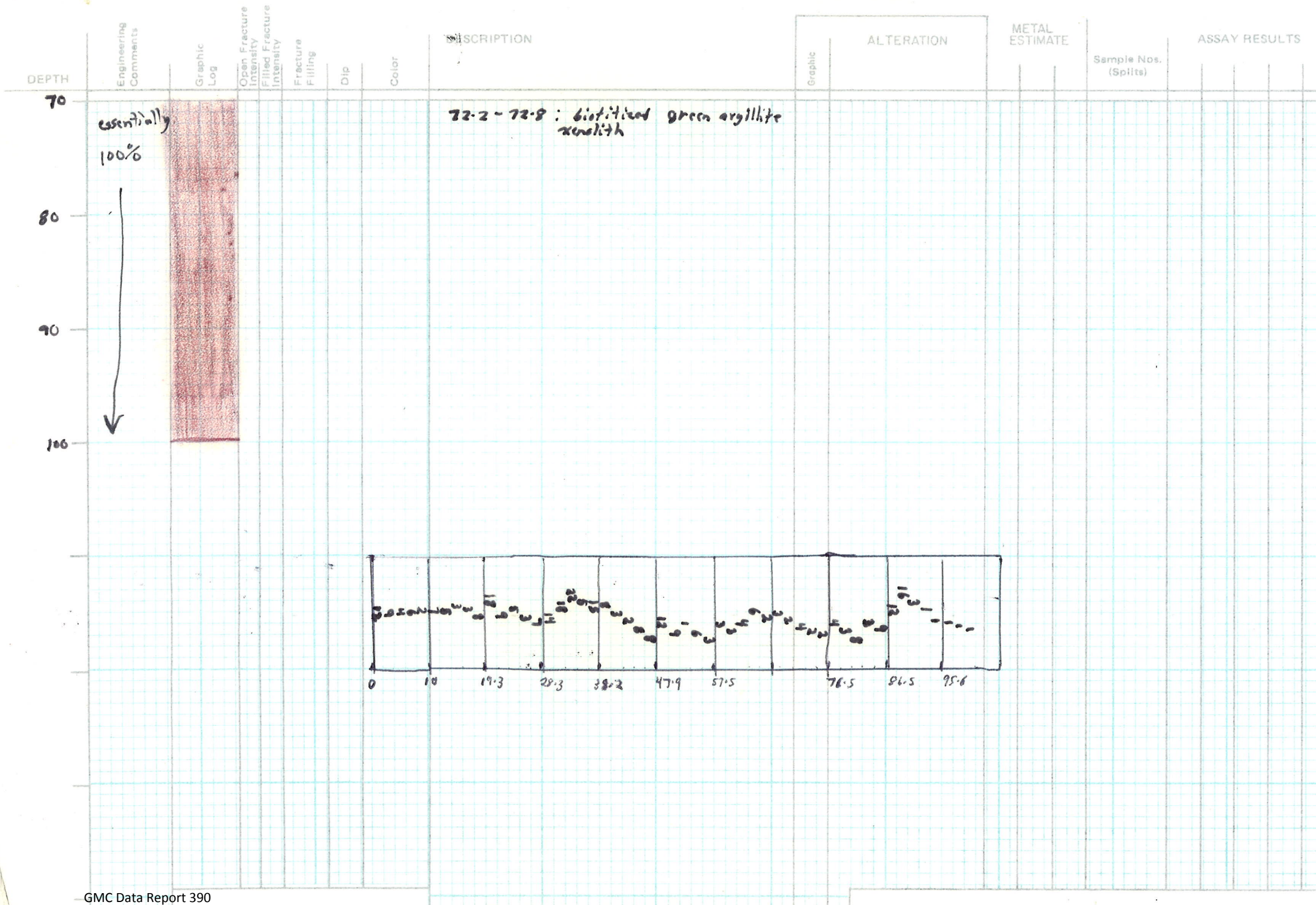
Biotite
Sericitic
K-spar
chloritic
carb.
silica
clay
SULF.
ESTIMATE
%
CCP aspy pyr

Sample Nos.
(Splits)

ASSAY RESULTS

COMINCO ALASKA

PROPERTY: <u>TIMBER CK.</u>	HOLE NO: <u>L.D. # 1</u>	LOCATION: <u>LOWER DISC.</u>
ELEVATION: <u>100'</u>	ANGLE: <u>45°</u>	BEARING: <u>45° @ N50E</u>
TOTAL DEPTH: <u>100'</u>	DATE STARTED: <u>7/14/87</u>	DATE COMPLETED: <u>7/17/87</u>
DRILLER: <u>Gary</u>	DRILL: <u>Hydrowink</u>	LOGGED BY: <u>LEY</u>
GRID COORDINATES: _____	SCALE: <u>1"=10'</u>	Sheet <u>1</u> of <u>2</u>



COMINCO ALASKA

PROPERTY:	HOLE NO:	LOCATION:
ELEVATION:	ANGLE:	BEARING:
TOTAL DEPTH:	DATE STARTED:	DATE COMPLETED:
DRILLER:	DRILL:	LOGGED BY: <u>LEY</u>
GRID COORDINATES:	SCALE:	Sheet <u>2</u> of <u>2</u>

Don

MT ESTELLE

PER DPS
7/15/87

TRAIL HOLE #1 20+26^EN 29+59^EE

DRILL HOLE #2/ 20+63^EN 29+38E

#3/ 20+63N 29+33^EE

#4/ 19+69N 29+78E

#5/ 19+75N 30+05E

Lower Discovery L.D.1 Assay Compilation

ADD AS
LAST COLUMN

Hole #	Sample #	Interval	Thickness	Au ppm	ft. ppm	Ag ppm	ft. ppm	Cu %	ft. %		First Assay Au oz/ft
L.D. 1	200301	0-5'	5.0	.920	4.6	<.4		.037			0.0321
	302	5-10	5.0	1.154	5.77	<.4		.025		15' of .022oz/ft Au	0.0381
	303	10-15	5.0	1.304	6.52	1.0		.060			0.0421
	304	15-17.8	2.8	.664	1.92	0.8		.017			
	305	17.8-20.8	3.0	.724	2.17	<.4		.055			
	306	20.8-22	1.2	.102	0.122	1.4		.001			
	307	22-23.2	1.2	.520	0.62	<.4		.024			
	308	23.2-28.3	5.1	1.584	8.08	0.6		.014			0.046
	309	28.3-30.2	1.9	1.602	3.04	1.3		.050		10' of .057oz/ft Au	0.052
	310	30.2-32.4	2.2	2.830	6.23	0.5		.099			0.094
	311	32.4-33.4	1.0	1.396	1.39	<.4		.034			0.046
	312	33.4-35.1	1.7	.120	0.20	<.4		.008			
	313	35.1-40.1	5.0	.106	0.53	0.4		.005			
	314	40.1-44.4	4.3	.146	0.60	0.8		.006			
	315	44.4-45.7	1.3	.024	0.03	0.4		.001			
	316	45.7-47.9	2.2	.080	0.18	0.8		.017			
	317	47.9-48.4	0.5	.032	.016	<.4		.001			
	318	48.4-49.7	1.3	.054	0.07	0.6		.001			
	319	49.7-50.2	0.5	<10	—	<.4		.001			
	320	50.2-63	12.8	.024	0.30	0.5		.006			
	321	63-63.6	0.6	.094	0.06	0.5		.006			
	322	63.6-65	1.4	.048	0.07	<.4		.006			

Geologic log

Sulfides

Alteration: sericite
quartz
chlorite } % of rock in 1 to 5
intervals

Try to quantify minerals then give rock name.

Estelle-Timber Creek

AK-061150-8

Drilling

Technical

Lower Discovery DDH-2

1987 Drill Log

AK, Tyonek D-8

map: Tyonek

#6

18/6/12

031

open fr/ft.

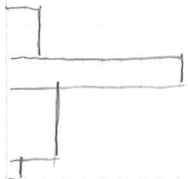
SHEET 1 of 2

DESCRIPTION

biotite		seric.		chlor.		K-spar		silica		carb.				ccp		% SULFIDE ESTIMATE	
W?	M	W	10	?	W									0.1			
?	st	<5	W-st	W-st										0.2			
?	M	<5	W-M?	W-M										0.1			
	V. wk to M.	5	0 to WK?											tr			
	W to M	5	0. WK											tr			
	W to M	<5	0. WK											tr			
	M	<5?	WK?											0.2			
	W to WK	5												tr			
	0? to V. WK	<5?												<< tr			
	0 to WK	<5 to 5?												tr			

**SAMPLE
NUMBER**

49
102



Lower Discovery Assay Summary L.D. 2

add ag
last column

Hole #	Sample #	Interval	Thickness	Au		Ag		Cu			oz/ft est. grade by fire Assay (ppm) = 34.3 x 1.2
				ppm	ft-ppm	ppm	ft-ppm	%	ft-%		
L.D.2		0-10	10	Overburden							
	200235	10-10.9	0.9	460	0.414	<.4		.033		.460	
	236	10.9-13.5	2.6	1890	4.914	1.8		.094		1.89	.07 Au
	237	13.5-14.8	1.3	6400	8.320	9.2	11.96	.68	.88	5.4' of 2.094 oz/ft (1.09) Au	.196
	238	14.8-18.9	4.1	2000	8.200	2.6	10.66	.182	.75		.062
	239	18.9-19.8	0.9	.796	0.716	0.8		.089			
	240	19.8-24.5	4.7	.918	4.315	<.4		.029			.014
	241	24.5-25.8	1.3	.142	0.185	<.4		.012			
	242	25.8-28.2	2.4	.680	1.632	<.4		.041		46.2' @	
	243	28.2-31.1	2.9	1.564	4.536	.6		.092		0.453	.056
	244	31.1-35.2	4.1	.588	2.411	<.4		.029			
	245	35.2-45	9.8	.204	1.999	<.4		.010			
	246	45-55	10	.232	2.320	<.4		.023			
	247	55-64.2	9.2	.280	2.576	<.4		.013			
	248	64.2-65.1	0.9	.246	0.221	<.4		.017			
	249	65.1-70	4.9	3.240	15.876	<.4		.016		5.8' of 3.134 (1.09) Au	.010
	250	70-70.9	0.9	2.560	2.304	<.4		.006			.092
	200351	70.9-75	4.1	.160	0.656	<.4		.020			
	352	75-77.4	2.4	2.690	6.456	<.4		.007			.008
	353	77.4-78.7	1.3	.812	1.057	<.4		.002		32.4' @ .421	
	354	78.7-86.1	7.4	.304	2.249	<.4		.013			
	355	86.1-96	9.9	.190	1.881	.4		.019			
	356	96-98.1	2.1	.188	0.395	.5		.035			
	357	98.1-98.9	0.8	.094	0.075	.6		.012			
			4.4	.202	0.889	.7		.041			

Summary

Interval	Thickness	Au		Ag	Cu %
		ppm	opt		
0-10	10	Overburden			
10-10.9	0.9	.460		Tr	Tr
10.9-13.5	2.6	1.890		< D	D
13.5-18.9	5.4	3.059		4.19	0.30
18.9-65.1	46.2	.453		< D	D
65.1-70.9	5.8	3.134		< D	D
70.9-103.3	32.4	.421		< D	D
	<u>103.3</u>				

ppm = Geochem Analysis

opt = Fire Assay

D = Detactable

< D = Less Than Detactable

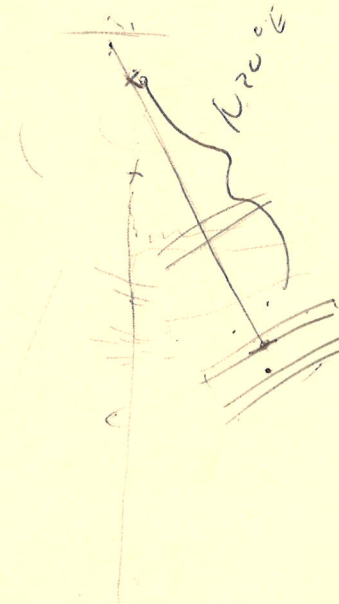
Tr = Trace

Estelle-Timber Creek
Drilling
Lower Discovery DDH-3
1987 Drill Log
AK, Tyonek D-8

AK-061150-8
Technical

map: Tyonek

#7



PROPERTY Timber CK. ELEVATION DATE STARTED DATE ENDEDLOGGED BY LEY DRILLER Gary ORIENTATION 45° @ 550' TOTAL DEPTH 101.0

COMING

HOLE DDH LD-3PROPERTY: TIMBER CK.

GRID COORDINATES:

SHEET 1 of 2DDH Lower Discovery 3
COMINCO ALASKA

ALTERATION

% SULFIDE
ESTIMATE

ASSAY RESULTS

SAMPLE
NUMBER

DESCRIPTION

biotite

seric.

chlor.

K-spar

silica

CIA

Cgab

ccp

ccp

ccp

ccp

ccp

ccp

ccp

ccp

ccp

ccp

ccp

ccp

ccp

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ccp

0-13: overburden, possibly
some rubble crop, but difficult
to tell13-26: mod. to strongly seric-
itized intrusive, mostly bleached
white, probably at least
some K-spar alteration and minor
clay, gill, non-calc. to weakly
calciferous, near 70° dip, less
silica, more chlorite/montmor-
illonite with an almost microcrystalline
texture26-42.4: xenolithic biotite-
granite, with cloudy feldspar
also, looks like (very massive) but
more porphyritic, and appears
than LD1 or LD2, intrusive, pass-
more than matrix (darkish),
may be 20-25% 2-2.5" and this all
contributes to darker aspect
sparse sericitized fractures and
some of sericitized intrusive
-assy at 36.2-37.8, and 40.7
41.4, aplitic fractures at 38.5,
Calc. + sericite fracture at 37.0,
other sericitic fractures not
broken out42.4-46.2: sericitized interval, green
cloudy, cloudy feldspar, and a
porphyritic, apparently abundant
parallel fractures of po-cp-assy,
some calcareous fracs46.2-53.4: decrease in overall
sericitization, subtle, parallel 2-2-
cep-po-assy fracs with sericitic
polyags. spaced 2 to 2" apart, note
that alt. selvages are very weak
53.4-56: similar to above interval, but
with pervasive sericitization, less
parallel fracs, and cross-fracturing
at 55'56-60.4: mod. fresh xenolithic biotite-
granite, sparse cep-assy (?) 2-2-
fracs, one 1" ser. fracture60.4-79: fairly fresh xenolithic
biotite-granite, some sericitic alt. on
fractures, possible clay on fracture
at 71.6, v. sparse cep on fracs,
mafic-rich intrusive xenolith at 82'

biotite

seric.

chlor.

K-spar

silica

CIA

Cgab

ccp

ccp

ccp

ccp

ccp

ccp

ccp

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ccp

DEPTH

open fr/ft.

dip

GRAPHIC
LOG

% recov.

closed fr.

filling

-dip, # ft.

closed fr.

filling

-dip, # ft.

closed fr.

filling

-dip, # ft.

closed fr.

filling

-dip, # ft.

closed fr.

filling

-dip, # ft.

closed fr.

filling

-dip, # ft.

closed fr.

filling

-dip, # ft.

closed fr.

filling

-dip, # ft.

closed fr.

filling

-dip, # ft.

closed fr.

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closed fr.

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-dip, # ft.

closed fr.

filling

-dip, # ft.

closed fr.

filling

-dip, # ft.

closed fr.

filling

-dip, # ft.

closed fr.

filling

-dip, # ft.

2

25

70-80°

100%

43%

2

100%

70° to 80°

2-2

sparse

70° to 80°

2-2

sparse

70° to 80°

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70° to 80°

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sparse

2

25

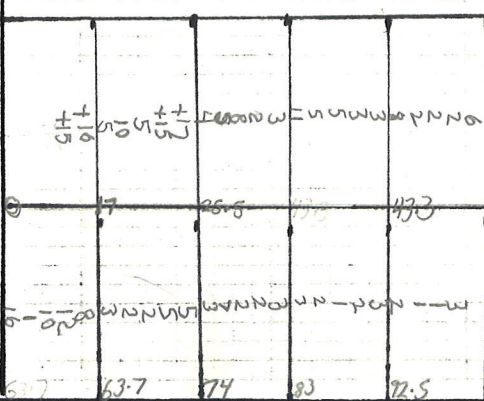
70-80°

100%

43%

DEPTH		GRAPHIC LOG	% recov. closed fr. filling -dip, # ft.	closed fr. filling -dip, # ft.	closed fr. filling -dip, # ft.	COMINCO ALASKA	ALTERATION					% SULFIDE ESTIMATE	ASSAY RESULTS					SAMPLE NUMBER		
open fr./ft.	dip						DESCRIPTION	biotite	seric.	chlor.	K-spar		silica	ccp						
70						79-101: one shade lighter than overlying interval - color change caused by one or combination of listed factors: 1) loss of 2% slightly finer grain size 3) subtle clouding of feldspars due to sericitization. Hardness tests suggest this interval is more sericitized.														
80																				
90	10°																			
100	20°																			
110	30°		100% 40% very sparse																	
120																				
130																				
140																				
150																				
160																				
170																				
180																				
190																				
200																				
210																				
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690																				
700																				
710																				
720																				
730																				
740																				
750																				
760																				
770																				
780																				

PROPERTY _____ ELEVATION _____ DATE STARTED _____ DATE ENDED _____
LOGGED BY _____ DRILLER _____ ORIENTATION _____ @ _____ TOTAL DEPTH _____



Lower Discovery
Assay Compilation
L.D. 3

omit

Est.
oz/t
Est. grade
by fire
Assay (ppm)
÷ 31.13 1.2

Hole #	Sample #	Interval	Thickness	Au		Ag		Cu		
				ppm	ft. ppm	ppm	ft. ppm	%	ft. %	
L.D. 3		0-13	13'	Overburden						
	200327	13-17.1	4.1			.6		.003		
	328	17.1-21.9	4.8	.020	.096	<.4		.001		29.4' @ <.10
	329	21.9-26	4.1	<.010	.040	<.4		.001		
	330	26-31	5.0	<.010	.050	<.4		.002		
	331	31-36.2	5.2	<.010	.052	<.4		.002		
	332	36.2-37.3	1.1	.020	.022	<.4		.005		
	333	37.3-42.4	5.1	.080	.408	<.4		.006		
	334	42.4-46.2	3.8	.666	2.531	1.1		.055		
	335	46.2-49.8	3.6	.828	2.981	.7		.083		27.9' @ .688
	336	49.8-53.4	3.6	.920	3.312	.4		.058		
	337	53.4-56	2.6	.614	1.596	1.3		.027		
	338	56-60.4	4.4	.060	.264	<.4		.011		
	339	60.4-70.3	9.9	.860	8.510	<.4		.009		
	340	70.3-79	8.7	<10	.870	<.4		.002		30.7 @ <.10
	341	79-89	10.0	<10	1.00	<.4		.003		
	342	89-101	12.0	.040	.480	<.4		.003		

Summary						
Interval	Thickness	Au ppm	Au opt	Ag ppm	Ag opt	Cu %
0-13	13	Overburden				
13-42.4	29.4	<.10		N.D.		Tr
42.4-70.3	27.9	.688		Tr		Tr
70.3-101	30.7	<.10		N.D.		Tr

Estelle-Timber Creek

Drilling

Lower Discovery DDH-4

1987 Drill Log

AK, Tyonek D-8

AK-061150-8

Technical

map: Tyonek

78

87

PROPERTY Timber Ck.

LOGGED BY LEY
DRILLER Gary ORIENTATION 45° @ 50' TOTAL DEPTH 50.0

HOLE Lower Disc. 4 PROPERTY: TIMBER C.K.

GRID COORDINATES:

SHEET 1 of 1

LD-DDH-4
COMINCO ALASKA

ALTERATION

**% SULFIDE
ESTIMATE**

ASSAY RESULTS

**SAMPLE
NUMBER**

DESCRIPTION

0-8.5: overburden
-12.8: pervasively moderately
crystallized biotite granite, frequent
muscovite staining - though sulfides
poor minor, mpr. Qtz-cp-asp on fracts,
minor Qtz veins, chloritized
matrix, strong sericitization at 10.3
with dissem. ep - ccp - asp?
w. weakly calcareous (locally)

12.8-14.7 bio tite \pm Kf, granite,
massive, partially chloritized,
sparsely parallel, parallel fractures
with ccp asp qtz
14.7-20.6 gs above, bnt with
mod to abundant parallel qtz \pm ccp asp
 pp spaced 3" to 14" sub li
sericitic alteration, asp veins, pm
mineralized fractures, sparse asp qtz xls.

21.0-23.4: dense parallel fronds.
as above but flz-dominant
+ esp. non-sec. to weakly secund
alt. selvages

23.4 - 30.7 : mixed qtz - dominant
and po - ccp - aspx dominant parallel veinlet
variable density

30.7 = 32.0 - similar to above many
of the parilis virelets are twice
as thick - 1/2 gtz - dominant virelets,
some 40-csp virelets

3273p.7 as above; but also over
printed with pervasive weak to mod.
sericification, minor development of
ladder lam. textures.

33.7-34.8: v. weakly alt. intensive
34.8-38.0: pseudo-microbreccia texture
signals change to moderately to intensely
saccharized, intensive local dissem. PU+ASP

in gouged (?) intensely crystallized with
spotted m. achite stains occurs at
35.5 to 36.5, few parallel gtz-lz
fracts at base of interval, zone is

38-40-1: $\frac{1}{4}$ " - 1" spaced $2\pm$ cup frags in
intrusive visibly less sericitized than
above, fracture density decreases away
from contact interval.

40.1 - 42.9 - dissem. sulfs. on biotite, spotted texture of oxidized sulfide/biotite grains,

42.9-50 : relatively fresh biotitic
granite, blackshot xenoliths,
minor sulfide at biotite sites, v.
sparse Qtz-po-ccp + asph. frags.

	biotite	seric.	chlor.	K-spar	silica	carb.
M		5-25%	?		0 to 10%	WK
		55				
W		5	?	?		
W		5 to 25%				
		5				
W		5				
W to M		15	?			
M to S		<5	?			0 to 10% M
v. WK		<5				
v WK		<5				

ср

% SU
ES

ULF 11
STIMM

DE -
TE
1

1

10

1

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1

1



AS.

SAY

RE

SUL

TS

SAMPLE

NUMBER

(42.4)
 37.8-39.2D 17mm. H.
 zone of growth of
 plus more clearly
 greenish over to
 dark blue or green
 very rough copy of parallel lines

20.0

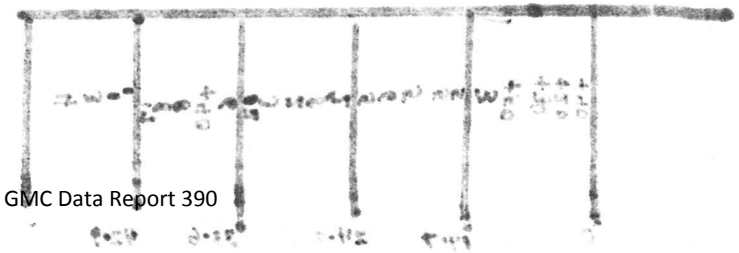
42.4

42.4

42.4

42.4

16.7



Lower Discovery
Assay Compilation
L. D. 4

omit
↓

Hole #	Sample #	Interval	Thickness	Au		Ag		Cu		Au ppm (opt)	Est. grade by fire assay (ppm) $\div 34.3 \div 1.2$
				ppm	ft. ppm	ppm	ft. ppm	%	ft. %		
L.D. 4		0-6.5	6.5	Overburden							
	200359	6.5-10	3.5	1.652	5.78	.5		.068		6.3' of .0416 oz/T Au	.044
	360	10-12.8	2.8	1.064	2.98	.4		.089			.048
	361	12.8-14.7	1.9	1.038	1.97	.5		.064		16.9' @ 1.09 (603)	
	362	14.7-16.6	1.9	.618	1.17	.6		.067			
	363	16.6-18.6	2.0	.880	1.76	.6		.056			
	364	18.6-21	2.4	1.392	3.34	1.8		.112		3.8' of 0.0446 oz/T Au	.050
	365	21-23.4	1.4	1.004	1.41	1.8		.106			.034
	366	23.4-24.2	1.8	.560	1.01	.4	.72	.046			
	367	24.2-26.5	2.3	.572	1.32	.6	1.38	.041		5' @ 1.504 (4449)	
	368	26.5-28.5	2.0	.122	0.24	E386.5	773.0	.056			
	369	28.5-30.7	2.2	1.094	2.41	1.1	2.42	.066			.048
	370	30.7-32	1.3	2.520	3.28	5.2	6.76	.100		6.3' of .0602/T Au	.068
	371	32-33.9	1.9	3.080	5.85	2.7	5.13	.109			.084
	372	33.9-34.8	0.9	1.060	0.95	.6	.54	.026			.034
	373	34.8-37.2	2.4	.254	0.61	1.8	4.32	.015			
	374	37.2-38	0.8	.800	0.64	1.4	1.12	.059		15.2' @ 1.282	
	375	38-38.7	0.7	1.624	1.14	5.5	3.85	.224			.054
	376	38.7-40.1	1.4	.652	0.91	2.3	3.22	.121			
	377	40.1-42.9	2.8	.136	0.38	<.4	—	.023			
	378	42.9-50	7.1	.084	0.60	<.4	—	.009			

GMC Data Report 390

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Summary (L.D. 4)

Interval	Thickness	Au		Ag		Cu %
		ppm	opt	ppm	opt	
0-6.5	6.5	Overburden				
6.5-23.4	16.9	1.090		Tr		Tr
23.4-28.5	5.1	1.504		151.98		Tr
28.5-34.8	6.3	1.983		2.36		Tr
34.8-50	15.2	1.282		Tr		Tr

or

26.5-34.8	8.3	1.534		94.92		Tr
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Estelle-Timber Creek

|AK-061150-8

Drilling

Technical

Lower Discovery DDH-5

1987 Drill Log

AK, Tyonek D-8

map: Tyonek

5

PROPERTY **Tinback**

ELEVATION

DATE STARTED

DATE ENDED

LOGGED BY **LEY**DRILLER **Gary P.**ORIENTATION **45° @ 550'**TOTAL DEPTH **98**

COMINCO

HOLE **40-5**PROPERTY: **TIMBER CR.**

GRID COORDINATES:

SHEET **1** OF **2**

COMINCO ALASKA

DESCRIPTION

ALTERATION

% SULFIDE
ESTIMATE

ASSAY RESULTS

SAMPLE
NUMBER

0-8.9: Xenolithic biotite -
granite, near-vertical mineralized
fractures are frequent

8.9-21.9: weakly to mod. ser.
intrusive with vertical to steeply-
dipping fractures - veinlets spaced
5 to 11' apart, latter structures
locally developed in thicker veinlets

21.9-24.7: decrease in biotite alt.,
thinner, parallel, veinlets with less
silica, spaced by 4 to several
inches apart

24.7-47.0: relatively fresh
xenolithic biotite - g. granite
etc. + po. csp. veinlets (subparallel)
to comp. alt. 39-44' and
43.6-44.7

47.0-48.9: several 0.1 to 0.2
inch veins of moderate silicification
in this interval (35-40°), qtz + po. csp.
on faults

48.9-52.1: as per 24.7-47.0, then
etc. etc. qtz + csp. veinlets at 57.8

52.1-98: see next page

biotite

seric.

chlor.

K-spar

silica

ccp

DEPTH
open fr./ft.
-dipGRAPHIC
LOG% recov.
closed fr.
filling
-dip, # ft.
closed fr.
filling
-dip, # ft.
closed fr.
filling
-dip, # ft.60
to
70°
2
to
40°
3
to
60°
70
ext
40
var
ind
60
to
70°
30
to
40°
1/22
to
100
0%
90°
50°
912
+
csp
70°
to
90°
277
24
100
20-70
+6
100
qtz
+
po
csp
70°
very
minor
(also @
25°)
100
qtz
+
po
csp
70°
very
minor
35-40
4
35-40
4

PROPERTY _____ ELEVATION _____ DATE STARTED _____ DATE ENDED _____
LOGGED BY _____ DRILLER _____ ORIENTATION _____ @ _____ TOTAL DEPTH _____

COMING

open fr/ft.
dip

GRAPHIC
LOG

%'recov.	closed fr.	closed fr.
	filling	filling
	--dip, # ft.	--dip, # ft.

HOLE LD-5 PROPERTY: Timber CK. GRID COORDINATES: _____ SHEET 2 of 2

COMINCO ALASKA

DESCRIPTION

82.1 = 98° Fresh and basically
unmineralized, intrusive,
this is lighter colored than phre-
zeal due to slightly less biotite,
and smaller aggregates of biotite,
more frequent sedimentary
xenoliths in the 5 to 4" range,
- similar at 85.4 2" in core cap

01/11/2014 10:11:11 AM

0	10	18.7	37.8
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2-263-5-2-263-5

57.8	66.6	76.3	85.8
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ALTERATION

biotite
seric.
chlor.
K-spar
silica

**% SULFIDE
ESTIMATE**

ССР

ASSAY RESULTS

**SAMPLE
NUMBER**

Lower Discovery Assay Compilation L.D. 5

unit
↓

Hole #	Sample #	Interval	Thickness	Au		Ag		Cu		(opt) ppm Au	Est grade by fire assay (ppm) ÷ 1.2
				ppm	ft-ppm	ppm	ft-ppm	%	ft-%		
L.D. 5	200379	0-4.6	4.6	.824	3.79	1.0		.069		8.9' ① .87	.026
	380	4.6-8.9	4.3	.960	4.13	.7		.073		(.026)	.030
	381	8.9-10.6	1.7	4.200	7.14	6.7	11.39	.452	.768		.190
	382	10.6-13.2	2.6	6.000	15.60	3.3	8.58	.157	.408	15.8' ③	.130
	383	13.2-16	2.8	4.980	13.94	6.0	16.80	.307	.860	4.36 (13)	.140
	384	16-18	2.0	4.600	9.20	11.6	23.20	.556	1.112	24.7' ⑥	.166
	385	18-20	2.0	4.840	9.68	6.8	13.60	.336	.672	.094 ② 17 Au	.148
	386	20-21.9	1.9	4.920	9.35	3.4	6.46	.186	.353	13' ④ 15 0.21 Au	.122
	387	21.9-24.7	2.8	1.398	3.91	2.2	6.16	.110	.308		.054
	388	24.7-35	10.3	.608	6.26	<.4		.026			
	389	35-45	10.0	.478	4.78	<.4		.021		35.30	
	390	45-47	2.0	.578	1.16	<.4		.019		.127	
	391	47-48.9	1.9	.400	0.76	<.4		.011			
	392	48.9-60	11.1	.192	2.13	<.4		.030			
	393	60-70	10.0	.024	0.24	<.4		.004			
	394	70-80	10.0	.026	0.26	<.4		.014		38.4 ③	
	395	80-82.1	2.1	<.01	0.02	<.4		.008		.018	
	396	82.1-90	7.9	<.01	0.08	<.4		.011			
	397	90-98	8.0	<.01	0.08	<.4		.004			

Summary (L.D.5)

Interval	Thickness	Au		Ag		Cu %
		ppm	opt	ppm	opt	
0-8.9	8.9	.890		Tr.		Tr.
8.9-24.7	15.8	4.360		5.46		0.28
24.7-60	35.3	.427		N.D.		Tr
60-98	38.0	Tr.		N.D.		Tr
	<hr/> 98.0					