STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES

Alaska Geologic Materials Center *Data Report* *No. 376*

No. 376: 1973 and 1974 NWE drill logs for the Orange Hill Property, Nabesna Quadrangle, Alaska: Drill holes No. 112 through No. 123

A) Explanation of Core Log Designed for Computerization
B) Diamond Drill Hole Data, Hole 112 through Hole 114 by Wally McGregor – 1973 Field Season (Diamond Drill Hole Descriptive and Computerized Geologic Logs)
C) Assay Logs for Hole 112 through Hole 114 (Revised with new coordinates in 1974)
D) Assay Logs for Hole 115 through 118 (Revised with new coordinates in 1974)
E) Assay Logs for Hole 119 (Revised with new coordinates in 1974) Includes attached graph of %Cu vs. $\%MoS_2$ and graphic depiction of rock type, assay data and alteration mineralogy.
F) Diamond Drill Hole Data, Hole 122 through 123 (Holes 120 and 121 missing) by W. McGregor – 1974 Field Season (Diamond Drill Hole Descriptive and Computerized Geologic Logs)
G) Assay Logs for Hole 120 through 123 (Revised with new coordinates in 1974)

Received *March, 2010*

AMEX - Venture 96

Explanation of Core Log Designed for Computerization (E. Foord) Decimal points can occur anywhere in indicated fields.

Graphic Log - for quick geologic reference. Key is as follows:

 : Diorite (medium grained Hornblende-biotite-qtz diorite).

 : Mafic, dark fine grained porphyritic Biotite-qtz diorite.

: Metasediments and/or metavolcanics (pre-mineral)

 : Post-mineral basalt-andesite dikes associated with Wrangell vulcanism.

 : Silicic and potassic porphyry. Qtz-feldspar porphyry dikes.

 : Zones of admixed diorite and metasediment/metavolcanics.

Recovery - given in %

Total sulphide present - given in % also. Includes pyrite, chalcepyrite, molybdenite, sphalerite, bornite, etc.

Modal Rock Analysis - Given as % to the nearest 10%. E.G.: 1 (1-10%), 2 (11-20%), 3 (21-30%), 4 (31-40%), etc. A blank indicates that that particular mineral is extremely minor or absent. Numbers sum to 10 for each interval. 0 is sometimes used to indicate the absence of a mineral group (clay).
% of total rock altered - 1 (0-10% of rock is composed of alteration minerals), 2 (11-20%), and 3 (greater than 21% of the rock is composed of alteration minerals). Alteration minerals are: Epidote, chlorite, carbonate, gypsum and anhydrite, secondary quartz, secondary biotite, sericite and clay. The other minerals are considered primary.

Veins - (veinlets) Key: A-epidote, B-chlorite, C-carbonate, D-gypsum/anhydrite, Q-quartz, F-biotite, G-amphibole, H-Potassium feldspar, I-sericite, J-clay, K-zeolite, M-molybdenum, P-pyrite, E-magnetite, S-sulphide, and L-plagioclase.

Angle from Hole - attitude of veins as angle measured from the core axis: 1-less than or equal to 10^{o}, 2-less than or equal to 20^{o}, 3-less than or equal to 30 degrees, etc.

Texture-Grain size - A - phaneritic, B - aphanitic, C - porphyritic, D - aplitic, E - pegmatitic, F - flow layered, G - pilotaxitic, H - amygdaloidal, I - foliated, J - lineated, K - hornfelsic, L - cataclastic, M - clastic.

Continuation of explanation of Core Log form designed for V-96

Grain Size - 1 - less than or equal to 1 mm, 2 - less than or equal to 2 mm, 3 - less than or equal to 3 mm, 5 - less than or equal to 5 mm, 7 - less than or equal to 7 mm, 8 - less than or equal to 3 cm, 9 - larger than 3 cm.

∠: Plane-hole angle - measured between planar feature of rock and core axis. 1 - less than or equal to 10 degrees, 2 - less than or equal to 20 degrees, 3 - less than or equal to 30 degrees, etc.

Rock Type - 1 - gabbro, 2 - diorite, 3 - granodiorite, 7 - alaskite, 8 - basalt, 9 - andesite, 12 - felsite, 13 - tuff, 14 - porphyry, 15 - aplite, 25 - hornfels, 26 - skarn, 31 - wacke, 32 - graywacke, 33 - mudstone, 38 - metasediment, 39 - metavolcanic, 40 - meta-andesite.

Modifiers - Q - quartz, F - feldspar, K - potassium feldspar, Pl - plagioclase, B - biotite, H - hornblende, P - pyroxene, E - epidote, M - magnetite, C - calcite, G - garnet, Ch - chlorite.

% of Rock Type - 1 (10%), 2 (20%), 3 (30%), 4 (40%), etc.

Metallization - Indicate for chalcopyrite, pyrite and molybdenite whether: D - disseminated or, V - vein, and if latter indicate angle between core axis and vein: 1 - less than or equal to 10 degrees, 2 - less than or equal to 20 degrees, 3 - less than or equal to 30 degrees, etc.

Other - B - bornite, S - sphalerite, T - tennantite or tetrahedrite, P - pyrrhotite, M - magnetite, H - hematite, I - ilmenite, R - rutile, etc.

Faulting - Gouge - indicate thickness: O - no gouge, 1 - less than or equal to 1 inch, 3 - less than or equal to 3 inches, 8 - less than or equal to 8 inches, 9 - greater than 8 inches.

∠ To Hole - Angle of fault to core axis - 1 - less than or equal to 10 degrees, 2 - less than or equal to 20 degrees, 3 - less than or equal to 30 degrees, etc.

BX - Brecciated zone with thickness as follows: 1 - less than or equal to 1 inch, 3 - less than or equal to 3 inches, 8 - less than or equal to 8 inches, 7 - less than or equal to 1 foot, 9 - greater than 1 foot.

∠ To Hole - Angle of BX zone to core axis: 1 - less than or equal to 10 degrees, 2 - less than or equal to 20 degrees, 3 - less than or equal to 30 degrees, etc.

General Location: ORANGE HILL ALASKA   Date Collared: AUG 2, 73   Date Completed: 8-9-73

V-96 DRILL LOG

Logged by: W. McGREGOR   Date: ______   Page 1 of 2

HOLE NUMBER	COLLAR COORDINATES NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
112	909.65	8027.0	2925 ±	646	115	60	2		112

CORE SIZE SIZE	FROM	TO
NX	2	36
BX	36	646

INTERVAL & GRAPHIC LOG / SAMPLING-ASSAYINGS (notes): Must show decimals except where recovery = 100

FEET From (2-6)	To (7-12)	RX. TYPE	COLOR	ALTERATION	STRUCTURE	SAMPLE NUMBERS	% Cu (13-18)	% Mo (19-22)	Other Metals % or Oz (23-27)	Au / Ag (28-32)	Est. Grade	RECOVERY (integer) (33-34)	TOTAL S" PRESENT (35-36)
0 (2)	10 (10)		MED	PY		4551	0.079	0.013				95	1
10	20		"	"		4552	0.140	0.010				90	1
20	30		"	"		4553	0.086	0.012		TL / 0.3		90	1
30	40		"	"		4554	0.160	0.017				95	1
40	50		DARK GRN	"		4555	0.065	0.025				90	1
50	60		"	"		4556	0.130	0.028				99	1
60	70		"			4557	0.110	0.013				90	1
70	80		"			4558	0.240	0.015		N / 0.2		74	1
80	90		ORANGE MED			4559	0.160	0.011				96	1
90	100					4560	0.346 0.390	0.033 0.028				95	1
100	110					4561	0.230	0.027				94	2

MODAL ROCK ANALYSIS (visual)

From	To	Epidote (37)	Chlorite (38)	Carbonates (39)	Gypsum & Anhyd. (40)	P. Quartz (41)	S. Quartz (42)	P. Biotite (43)	S. Biotite (44)	Amphibole (45)	Potash. Feldspar (46)	Plag Feldspar (47)	Sericite (48)	Clay (49)	% of Total Rx. Alt. (50)
0	10				2		2	2			1	3			3
10	20				1		2	2			1	3		1	3
20	30				1		2	2			1	3			3
30	40				1		2	2			1	3			3
40	50				1		2				1				3
50	60				-		2				1				3
60	70				1		2				1				3
70	80				1		2				1				3
80	90				1		2				1				3
90	100				1		1				1				3
100	110				1		2				1				3

METALL'ZTN (L=LETTER, N=NUMBERS) / FAULTING SHEARING

From	To	Veins (51-52)	∠: From Hole (53)	Texture (54-56)	Grain Size (57)	∠: Plane Hole (58)	Rock Type: Type (59-60)	Modif's (61-62)	% of Rx Type (63)	Rock Type: Type (64-65)	Modif's (66-68)	% of Rx Type (69)	Chalcopy. (70-71)	Pyrite (72-73)	Molybd't (74-75)	Others (76)	Gouge (77)	∠: To Hole (78)	Breccia (79)
0	10	QH	-	A		-	2	B		+			D/V	D		M			
10	20	QH	-	A		-	2	B		[illegible]			I	D		M			
20	30	QH	-	A		-	2	B		+			D	D		M			
30	40	QH	-	A		-	2	B		+			D	D		M			
40	50	QH	-	KI		-	2	B	1	39		9	V/L		V/r	M			
50	60	QH	-	KI			39		9							M			
60	70	QH		KI			39									M			
70	80	QH					2	B	6	39		4	D			M			
80	90	QH					39	B	4	2		6	D			M			
90	100	QH														M			
100	110	QH											V/L			M			

Remarks: IT SHOULD BE ASSUMED THAT THE HOLE FLATTENED AT THE RATE OF 3°/100 ft.

check 90-100 | 1281 | 0.355 | 0.045

General Location: ORANGE HILL ALASKA Date Collared: 8-2-73 Date Completed: 8-9-73

V-96 DRILL LOG

Logged by: W.H.C.C. Date: Page 2 of 6

HOLE NUMBER	COLLAR COORDINATES NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
1 12	909.65	8027.0	2925.#	646.	115.	60.	2.		112.

CORE SIZE		
SIZE	FROM	TO
NX	2	30
BX	30	646

INTERVAL & GRAPHIC LOG — SAMPLING-ASSAYINGS (notes): Must show decimals except where recovery = 100 — MODAL ROCK ANALYSIS (visual) — METALL'ZTN L=LETTER N=NUMBERS — FAULTING SHEARING

FEET (integer format) From	To	RX. TYPE	COLOR	ALTERATION	STRUCTURE	SAMPLE NUMBERS	% Cu	% Mo	Other Metals % or Oz Au/Ag	Est. Grade	RECOVERY (integer)	TOTAL S" PRESENT	Epidote	Chlorite	Carbonates	Gypsum & Anhyd.	P. Quartz	S. Quartz	P. Biotite	S. Biotite	Amphibole	Potash. Feldspar	Plag Feldspar	Sericite	Clay	% of Total Rx. Alt.	Veins	L: From Hole	Texture	Grain Size	L: Plane Hole	Rock Type Type	Rock Type Modif's	% of Rx Type	Rock Type Type	Rock Type Modif's	% of Rx Type	METALL'ZTN Chalcopy. L/N	Pyrite L/N	Molybd't L/N	Others	FAULTING SHEARING Gouge	L: To Hole	Breccia
2 6	7 12						13 18	19 22	23 27 28 32		33 34	35 36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51 52	53	54 56	57	58	59 60	61 62	63	64 65	66 68	69	70-71	72-73	74-75	76	77	78	79
110	120					4562	0.360	0.028			99																																		
120	130					4563	0.500	0.022	N/0.04		99																																		
130	140					4564	0.350	0.020			99																																		
140	150					4565	0.470	0.067			97																																		
150	160					4566	0.200	0.040			98																																		
2 6	7 12						13 18	19 22	23 27 28 32		33 34	35 36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51 52	53	54 56	57	58	59 60	61 62	63	64 65	66 68	69	70-71	72-73	74-75	76	77	78	79
160	170					4567	0.230	0.012			99																																		
170	180					4568	0.280	0.020	N/N		99																																		
180	190					4569	0.275	0.015			99																																		
190	200					4570	0.094 / 0.105	0.015 / 0.012			99																																		
200	210										99																																		
210	220										99																																		

Remarks: 190-200 1282 0.115 0.022

check

V-96 DRILL LOG

General Location: Orange Hill Alaska
Date Collared: ______
Date Completed: ______
Logged by: WMcC
Date: ______
Page 3 of 6

HOLE NUMBER	COLLAR COORDINATES NORTH	COLLAR COORDINATES EAST	COLLAR COORDINATES ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
112	90765	80270	2925	646	115	2			112

CORE SIZE		
SIZE	FROM	TO
NX	2	36
BX	36	646

INTERVAL & GRAPHIC LOG — SAMPLING-ASSAYINGS (notes): *Must show decimals except where recovery = 100* — MODAL ROCK ANALYSIS (visual) — METALL'ZTN (L=LETTER, N=NUMBERS) — FAULTING SHEARING

FEET From	FEET To	RX. TYPE	COLOR	ALTERATION	STRUCTURE	SAMPLE NUMBERS	% Cu	% Mo	Other Metals % or Oz		Est. Grade	RECOVERY (integer)	TOTAL S= PRESENT	Epidote	Chlorite	Carbonates	Gypsum & Anhyd.	P. Quartz	S. Quartz	P. Biotite	S. Biotite	Amphibole	Potash. Feldspar	Plag Feldspar	Sericite	Clay	% of Total Rx. Alt.	Veins	∠: From Hole	Texture	Grain Size	∠: Plane Hole	Rock Type (Type)	Rock Type (Modif's)	% of Rx Type	Rock Type (Type)	Rock Type (Modif's)	% of Rx Type	Chalcopy. (L/N)	Pyrite (L/N)	Molybd't (L/N)	Others	Gouge	∠: To Hole	Breccia
2-6	7-12						13-18	19-22	23-27	28-32		33-34	35-36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51-52	53	54-56	57	58	59-60	61-62	63	64-65	66-68	69	70-71	72-73	74-75	76	77	78	79
220	230					4571	0.185	0.030				99																																	
230	240					4572	0.225	0.015		N / 0.2		77																																	
240	250					4573	0.120	0.020				95																																	
250	260					4574	0.150	0.018				95																																	
260	270											99																																	
270	280											99																																	
280	290											99																																	
290	300											96																																	
300	310											95																																	
310	320											99																																	
320	330											99																																	

Remarks:

General Location: KAKE HILL ALASKA Date Collared: Date Completed:

V-96 DRILL LOG

Logged by: WMC Date: Page 4 of 6

HOLE NUMBER	COLLAR COORDINATES NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
112	9096.5	8027.0	2925.4	646	115	60.	2.		112

CORE SIZE		
SIZE	FROM	TO
NX	2	36
BX	36	646

INTERVAL & GRAPHIC LOG — SAMPLING-ASSAYINGS (notes): Must show decimals except where recovery = 100 — MODAL ROCK ANALYSIS (visual)

FEET (integer format) From	To	RX. TYPE	COLOR	ALTERATION	STRUCTURE	SAMPLE NUMBERS	% Cu	% Mo	Other Metals % or Oz	Est. Grade	RECOVERY (integer)	TOTAL S" PRESENT	Epidote	Chlorite	Carbonates	Gypsum & Anhyd.	P. Quartz	S. Quartz	P. Biotite	S. Biotite	Amphibole	Potash. Feldspar	Plag Feldspar	Sericite	Clay	% of Total Rx. Alt.	Veins	L: From Hole	Texture	Grain Size	L: Plane Hole	Rock Type Type	Rock Type Modif's	% of Rx Type	Rock Type Type	Rock Type Modif's	% of Rx Type	METALL'ZTN L=LETTER N=NUMBERS Chalcopy. L/N	Pyrite L/N	Molybd't L/N	Others	FAULTIN SHEARIN Gouge	L: To Hole	Breccia
330	340										99																																		
340	350										99																																				
350	360										99																																				
360	370										99																																				
370	380										99																																				
380	390										99																																				
390	400										99																																				
400	410										99																																				
410	420										Ts																																				
420 (419 432)	430					4575	0.12	0.013			99																																				
430	440					4576	0.08	0.017	N/0.2		99																																				

Remarks:

V-96 DRILL LOG

General Location: ORANGE HILL Alaska
Date Collared: 8-2-73
Date Completed: 8-7-73

Logged by: W McG
Date:

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HOLE NUMBER	COLLAR COORDINATES NORTH	COLLAR COORDINATES EAST	COLLAR COORDINATES ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
1-10	11-20	21-30	31-40	41-48	49-56	57-61	62-68	69-74	75-80
112	90905	80270	2725 ft	646	115	60	2		112

CORE SIZE		
SIZE	FROM	TO
NX	2	36
BX	36	646

INTERVAL & GRAPHIC LOG — SAMPLING-ASSAYINGS (notes): Must show decimals except where recovery = 100 — MODAL ROCK ANALYSIS (visual) — METALL'ZTN (L=LETTER, N=NUMBERS) — FAULTING & SHEARING

FEET From (2-6)	FEET To (7-12)	RX. TYPE	COLOR	ALTERATION	STRUCTURE	SAMPLE NUMBERS	% Cu (13-18)	% Mo (19-22)	Other Metals % or Oz (23-27, 28-32)	Est. Grade	RECOVERY (integer) (33-34)	TOTAL S= PRESENT (35-36)	Epidote (37)	Chlorite (38)	Carbonates (39)	Gypsum & Anhyd. (40)	P. Quartz (41)	S. Quartz (42)	P. Biotite (43)	S. Biotite (44)	Amphibole (45)	Potash. Feldspar (46)	Plag Feldspar (47)	Sericite (48)	Clay (49)	% of Total Rx. Alt. (50)	Veins (51-52)	∠: From Hole (53)	Texture (54-56)	Grain Size (57)	∠: Plane Hole (58)	Rock Type: Type (59-60)	Rock Type: Modif's (61-62)	% of Rx Type (63)	Rock Type: Type (64-65)	Rock Type: Modif's (66-68)	% of Rx Type (69)	Chalcopy. L N (70-71)	Pyrite L N (72-73)	Molybd't L N (74-75)	Others (76)	Gouge (77)	∠: To Hole (78)	Breccia (79)	∠: To Hole (80)
440	450					4577	0.145	0.028			99																																		
450	460										99																																		
460	470										99																																		
470	480										99																																		
480	490										99																																		
490	500										99																																		
500	510										99																																		
510	520										99																																		
520	530										99																																		
530	540										99																																		
540	550										99																																		

Remarks:

General Location: Orange Hill Alaska Date Collared: 8-2-73 Date Completed: 8-9-73

V-96 DRILL LOG

Logged by: W Mc Date: ______ Page 6 of 6

HOLE NUMBER	COLLAR COORDINATES NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
112	9096.5	8027.0	2925.	646	115	60	2		112

CORE SIZE: SIZE	FROM	TO
AX	2	36
BX	36	646

From	To	Rx. Type	Color	Alteration	Structure	Sample Numbers	% Cu	% Mo	Other Metals % or Oz	Est. Grade	Recovery (integer)	Total S= Present	Epidote	Chlorite	Carbonates	Gypsum & Anhyd.	P. Quartz	S. Quartz	P. Biotite	S. Biotite	Amphibole	Potash. Feldspar	Plag Feldspar	Sericite	Clay	% of Total Rx. Alt.	Veins	∠: From Hole	Texture	Grain Size	∠: Plane Hole	Rock Type: Type	Rock Type: Modif's	% of Rx Type	Rock Type: Type	Rock Type: Modif's	% of Rx Type	Chalcopy.	Pyrite	Molybd't	Others	Gouge	∠: To Hole	Breccia
550	560										99																																	
560	570										99																																	
570	580										97																																	
580	590					4578	0.075	0.012			99																																	
590	600					4579	0.210	0.0015			99																																	
600	610					4580	0.175	0.008	0.1		99																																	
610	620					4581	0.075	0.007			99																																	
620	630					4582	0.100	0.007			99																																	
630	640										99																																	
640	646	END OF HOLE.									99																																	

Remarks: 600-610 1283 0.200 .008

check

General Location: Orange Hill
Date Collared: 8-18-73
Date Completed: 8-19-73

V-96 DRILL LOG

Logged by: W. McGregor Date: Page 1 of 5

HOLE NUMBER	COLLAR COORDINATES NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
113	36010.	13960.	3990.	456.	115.	50.	21.		113

CORE SIZE	FROM	TO
NQ	0	21
NQ	21	146
BQ	146	456

3960 / 3910

INTERVAL & GRAPHIC LOG; SAMPLING-ASSAYINGS (notes): Must show decimals except where recovery = 100

From	To	Rx. Type / Color / Alteration / Structure	Sample Numbers	% Cu	% Mo	Other Metals % or Oz (Au / Ag)	Est. Grade	Recovery (integer)	Total S= Present
0	10								
10	20								
			OVERBURDEN						
20 (21)	30 (30)		4585	0.372	0.027		.3/.02	60	4
30	40		4584	0.240	0.015		.3/.02	80	4
40	50		4585	0.210	0.030	N/0.4	.3/.02	70	4
50	60		4586	0.175	0.020		.3/.03	70	4
60	70		4587	0.423	0.032		.3/.01	80	4
70	80		4588	0.140	0.015		.2/.01	50	3
80	90		4589	0.165	0.018		.2/.01	80	3
90	100		4590	0.214 / 0.233	0.015 / 0.018	N/0.1	.2/.02	80	3
100	110		4591	0.222	0.040		.2/.03	85	4

MODAL ROCK ANALYSIS (visual)

From	To	Epidote	Chlorite	Carbonates	Gypsum & Anhyd.	P. Quartz	S. Quartz	P. Biotite	S. Biotite	Amphibole	Potash. Feldspar	Plag Feldspar	Sericite	Clay
20	30		2			1	1	1	1		1	2		1
30	40		2			1	1	1	1		1	2		1
40	50	r	2		r	1	1	1	1		1	2		1
50	60		3		r	1		1			1	2		1
60	70		3			1		1			1	2		1
70	80		2			1	1	1	1			3	1	
80	90	P	1			1	1	2	1		1	2		.1
90	100		3			1	-	1			1	3		1
100	110		3			1	1	1				3		1

From	To	% of Total Rx. Alt.	Veins	∠: From Hole	Texture	Grain Size	∠: Plane Hole	Rock Type (Type / Modif's)	% of Rx Type	Rock Type (Type / Modif's)	% of Rx Type	Chalcopy.	Pyrite	Molybd't	Others	Gouge	∠: To Hole	Breccia
20	30	3	95	8	A	2		2 B9	9			D V4	D V4	V4				
30	40	3	95	4	A	2		2 B9	9			D	D	V4				
40	50	3	95	4	A	2		2 B9	9			D	D	V	M			
50	60	3	95	4	A	2		2 B9	9			D V4	D V4	V 9				
60	70	3	95	4	A	2		2 B9	9			D V4	D V4	V4				
70	80	3	95	4	A	2		2 B9	9			D V4	D V4	V4				
80	90		95	4	A	2		2 B9	9			D V4	D V4	V4	H			
90	100		95	4	A	2		2 B9	9			D V4	D V4	V4				
100	110		95	4	A			2 B9	9			D V4	D V4	V4				

Remarks: check 90-100 1284 0.245 0.028

V-96 DRILL LOG

General Location: ORANGE HILL, ALASKA   Date Collared: ______   Date Completed: ______

Logged by: W McG   Date: ______   Page 2 of 5

HOLE NUMBER	NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
113	96010	83960	3990	456	115	50	21		113

CORE SIZE

SIZE	FROM	TO
HQ	0	21
NQ	21	146
BQ	146	456

INTERVAL & GRAPHIC LOG; SAMPLING-ASSAYINGS (notes): Must show decimals except where recovery = 100; MODAL ROCK ANALYSIS (visual); METALL'ZTN (L=LETTER, N=NUMBERS); FAULTING SHEARING

From	To	Rx. Type	Color	Alteration	Structure	Sample Numbers	% Cu	% Mo	Other Metals % or Oz (Au/Ag)	Est. Grade	Recovery (integer)	Total S= Present	Epidote	Chlorite	Carbonates	Gypsum & Anhyd.	P. Quartz	S. Quartz	P. Biotite	S. Biotite	Amphibole	Potash. Feldspar	Plag Feldspar	Sericite	Clay	% of Total Rx. Alt.	Veins	∠: From Hole	Texture	Grain Size	∠: Plane Hole	Rock Type: Type	Rock Type: Modif's	% of Rx Type	Rock Type: Type	Rock Type: Modif's	% of Rx Type	Chalcopy.	Pyrite	Molybd't	Others	Gouge	∠: To Hole	Breccia
110	120					4592	0.220	0.025		.1 / .02	85	3		3			1	1	1			1	2		1		QS	4	A	2		2	BQ	9				D V4	D V4	V4	M H.	3	3	9
120	130					4593	0.185	0.010		.15 / .01	80	2	P	3			1	1	1			1	1		2		QS	4	A	2		2	BQ	9				D V4	D V4	V4	M.	1	1	
130	140					4594	0.165	0.028		.15 / .02	75	2	1	3			1	1	1			1	2				QS	4	A	2		2	BQ	9				D V4	D V4	V4	M.			
140	150					4595	0.240	0.033	N / 0.2	.1 / <.01	90	2	P	2			1	1	2				4				QS	4	A	2		2	BQ	9				D V4	D V4					
150	160					4596	0.105	0.007		.1 / <.01	75	2	P	2			1	1	2			1	3				QS	4	A	2		2	BQ	9				D V4	D V4					
160	170					4597	0.210	0.018		.1 / <.01	85	2		3			1	1	1	1			3				QS	5	A	2		2	BQ	9				D V5	D V5					
170	180					4598	0.115	0.013		.1 / <.01	95	2	P	3			1	1	1	1			3				QS	5	A	2		2	BQ	9				D V5	D V5					
180	190					4599	0.160	0.010		.15 / .01	97	3		3			1	1	1	1			3				QS	5	A	2		2	BQ	9				D V2	D V2	V2				
190	200					4600	0.135	0.020	N / 0.2	.15 / <.01	80	3		3		P	1	1	1	1			3				QS	2	A	2		2	BQ	9				D V2	D V2	D V2				
200	210					4601	0.185	0.025		.2 / .01	85	3		3		P	1	1	1	1			3				QS	2	A	2		2	BQ	9				D V2	D V2	D V2				
210	220					4602	0.737 0.85	0.022 0.028		.7 / .03	75	6	1	1			1	4	1				2				QS	2	A	2		2	BQ	7				D V2	D V2	D. V2	M			

Remarks:

Sample 141-151'	1279	0.363	0.017
Sample 151-161'	1280	0.150	0.010
Check 190-200'	1285	0.135	0.007

3860

3810

V-96 DRILL LOG

General Location: [illegible] HILL, ALASKA Date Collared: ______ Date Completed: ______

Logged by: WMcG Date: ______ Page 4 of 5

HOLE NUMBER	COLLAR COORDINATES NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
1.3	7601.0	8396.0	3990.	456	1.15	50	21		1.13

CORE SIZE: SIZE	FROM	TO

3660 | 3610

From	To	Rx. Type	Color	Alteration	Structure	Sample Numbers	% Cu	% Mo	Other Metals % or Oz	Au/Ag	Est. Grade	Recovery (integer)	Total S= Present	Epidote	Chlorite	Carbonates	Gypsum & Anhyd.	P. Quartz	S. Quartz	P. Biotite	S. Biotite	Amphibole	Potash Feldspar	Plag Feldspar	Sericite	Clay	% of Total Rx. Alt.	Veins	∠: From Hole	Texture	Grain Size	∠: Plane Hole	Rock Type: Type	Rock Type: Modif's	% of Rx Type	Rock Type: Type	Rock Type: Modif's	% of Rx Type	Chalcopy.	Pyrite	Molybd't	Others	Gouge	∠: To Hole	Breccia
330	340					4614	0.23	0.017			.2 / .02	90	3	1	3		P		1	1			2	2		1		QSH DA	5	AK			3	K Ch.	5	39	E	4	D V1	D V1	V1		1	3	
340	350					4615	0.262	0.023		N / 0.3	.1 / .02	90	2	1	3		P	1	1	1			1	2		1		QSH A		AK			3	K ch	8	39	E	2	D V1	D V	V1				4
350	360					4616	0.280	0.040			.15 / .02	85	3	P	3		P		1									QSW		AK			39		9	3	K	1	D V1	D V3			1	3	
360	370					4617	0.49 / 0.50	0.066 / 0.103			.15 / .02	95	3	P	3		P		1									Q5 H		AK			39		8	3	K	2	D V3	D V3	V2	M.	1	3	
370	380					4618	0.170	0.012			.1 / .02	97	3		3		P	1	1	1			2	2				Q5 H					39		6	3	K B.C.	4	D	D					
380	390					4619	0.145	0.017			.1 / .01	99	2		3		1	1	1	1			1	2				Q5 H		A			3	Q ChK	9										
390	400					4620	0.135	0.005		N / 0.3	.1 / .01	99	2		3		P	1	1	1			2	2				Q5		A			3	Q ChK	9										
400	410					4621	0.135	0.062			.15 / .01	95	4		3		P	1	2				2	1		1		Q5		AK B			3	Q ChK	6	39	Q	3					9	4	9
410	420					4622	0.385	0.008			.20 / .01	97	3	P	3		1	1	1				2	1		1		Q5 HA	4	A			3	Q ChK	9										
420 (420-	433 431.5)					4623	0.160	0.025			.2 / .03	95	3	P	3		P	1	1				2	1		2		Q5 H	4	A			3	Q ChK	9										9
433	44[illegible]										- / -	90	3		3		1	1	1				1	1		2		Q5 H		BC.			3	Q ChK	2	9		8							

Remarks:

General Location: Orange Hill, Alaska — Date Collared: — Date Completed:

V-96 DRILL LOG

Logged by: WMcG — Date: — Page 3 of 5

HOLE NUMBER	NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
113	96010	83960	3990	456	115	50	21		113

CORE SIZE

SIZE	FROM	TO
HQ	0	21
NQ	21	146
BQ	146	456

INTERVAL & GRAPHIC LOG — SAMPLING-ASSAYINGS (notes): Must show decimals except where recovery=100 — MODAL ROCK ANALYSIS (visual) — METALL'ZTN (L=LETTER, N=NUMBERS) — FAULTING SHEARING

3760

From	To	Rx. Type	Color	Alteration	Structure	Sample Numbers	% Cu	% Mo	Other Metals % or Oz		Est. Grade	Recovery (integer)	Total $S^=$ Present	Epidote	Chlorite	Carbonates	Gypsum & Anhyd.	P. Quartz	S. Quartz	P. Biotite	S. Biotite	Amphibole	Potash Feldspar	Plag Feldspar	Sericite	Clay	% of Total Rx. Alt.	Veins	∠: From Hole	Texture	Grain Size	∠: Plane Hole	Rock Type: Type	Rock Type: Modif's	% of Rx Type	Rock Type: Type	Rock Type: Modif's	% of Rx Type	Chalcopy.	Pyrite	Molybd't	Others	Gouge	∠: To Hole	Breccia
220	230					4603	0.38	0.067			.6 / .03	78	4	1	2			1	2	1				3				QS MA	2	A	2		2	BQ	9				D V2	D V2	D V2	M			
230	240					4604	0.03	0.010			.2 / .01	50	6	1	2			1	1	1	1			3				QS EA	2	A			2	BQ	9				D V2	D V2		M			
240	250					4605	0.235	0.020		N / 0.3	.4 / <.01	60	6	1	2			1	1	1	1			3				QS EA		A			2	BQ	9				D V2	D V2		M.			
250	260					4606	0.140	0.010			.2 / <.01	40	5	P	2			1	1	1	1			4				QS E.D		A			2	BQ	9				D V2	D V2					
260	270					4607	0.04	0.018			.5 / <.01	60	5	1					2									QS AE		BC.			39	Q	9				D V2	D V3		M			
270	280					4608	0.275	0.015			.4 / .01	50	4	1					2									QS AE		BC			39	Q	9				D V3	D V3		M			
280	290					4609	0.50	0.012			.2 / .01	90	3	2					1									QS AE		BC			39	Q	8	2	BQ	1	D V	D V		M			
290	300					4610	0.138 / 0.140	0.007 / 0.006		N / N	.15 / <.01	95	4	1					1									QS A.		BC			39	Q	9				D V3	D V3					
300	310					4611	0.140	0.005			.15 / <.01	95	3	1					1									QS A		BC			39	?	9				D V3	D V3					
310	320					4612	0.175	0.010			.2 / .01	99	3	1					1									QS AE		BC			39	Q	9				D V3	D V3	V1	M			
320	330					4613	0.43	0.042			.2 / .02	79	3	1					1									QS AE		BC			39	Q	5	3	BQ	5	D V1	D V1	V1	M			

3710

Remarks:

MIS LABEL	232-238	1277	0.074	0.010
SLUDGE	270-276	1278	0.140	0.013
CHECK	260-270	1286	0.041	0.015

3560 1

General Location: GRANGE HILL
Date Collared:
Date Completed:

V-96 DRILL LOG

Logged by: WMcG
Date:
Page 5 of 5

HOLE NUMBER	COLLAR COORDINATES NORTH	COLLAR COORDINATES EAST	COLLAR COORDINATES ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
1–10	11–20	21–30	31–40	41–48	49–56	57–61	62–68	69–74	75–80
113	96010	83960	3990.	456	115	50	21		113

CORE SIZE: SIZE	FROM	TO

INTERVAL & GRAPHIC LOG · SAMPLING-ASSAYINGS (notes): *Must show decimals except where recovery = 100* · MODAL ROCK ANALYSIS (visual) · METALL'ZTN (L = LETTER, N = NUMBERS) · FAULTING SHEARING

FEET From (2–6)	FEET To (7–12)	RX. TYPE	COLOR	ALTERATION	STRUCTURE	SAMPLE NUMBERS	% Cu (13–18)	% Mo (19–22)	Other Metals % or Oz (23–27)	Other Metals % or Oz (28–32)	Est. Grade	RECOVERY (integer) (33–34)	TOTAL S= PRESENT (35–36)	Epidote (37)	Chlorite (38)	Carbonates (39)	Gypsum & Anhyd. (40)	P. Quartz (41)	S. Quartz (42)	P. Biotite (43)	S. Biotite (44)	Amphibole (45)	Potash. Feldspar (46)	Plag Feldspar (47)	Sericite (48)	Clay (49)	% of Total Rx. Alt. (50)	Veins (51–52)	∠: From Hole (53)	Texture (54–56)	Grain Size (57)	∠: Plane Hole (58)	Rock Type: Type (59–60)	Rock Type: Modif's (61–62)	% of Rx Type (63)	Rock Type: Type (64–65)	Rock Type: Modif's (66–68)	% of Rx Type (69)	Chalcopy. L/N (70–71)	Pyrite L/N (72–73)	Molybd't L/N (74–75)	Others (76)	Gouge (77)	∠: To Hole (78)	Breccia (79)
446	450										-/-	99							—											B			9		9										
~~452.6 - 456~~ 450	456					4024	0.210	0.010			.2/.02	97			3																		9		3	9	9K	7							
END OF HOLE																																												

HOLE TERMINATED IN BRYNER FAULT - CAVING IN FAULT ZONE WITH ARTESIAN FLOW

Remarks:

General Location: ORANGE HILL, ALASKA   Date Collared: 8-20-73   Date Completed: 9-1-73

V-96 DRILL LOG

Logged by: W McGREGOR   Date: ______

HOLE NUMBER	COLLAR COORDINATES NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
114	92630	82420	3343			90	57		114

CORE SIZE	FROM	TO
HQ	0	14
NQ	14	130
RQ	130	808

INTERVAL & GRAPHIC LOG — SAMPLING-ASSAYINGS (notes): Must show decimals except where recovery = 100 — MODAL ROCK ANALYSIS (visual) — METALL'ZTN (L=LETTER, N=NUMBERS) — FAULTING & SHEARING

Feet From	Feet To	Rx. Type / Color / Alteration / Structure	Sample Numbers	% Cu	% Mo	Other Metals % or Oz (% Zn)	Est. Grade	Recovery (integer)	Total S= Present	Epidote	Chlorite	Carbonates	Gypsum & Anhyd.	P. Quartz	S. Quartz	P. Biotite	S. Biotite	Amphibole	Potash. Feldspar	Plag Feldspar	Sericite	Clay	% of Total Rx. Alt.	Veins	∠: From Hole	Texture	Grain Size	∠: Plane Hole	Rock Type: Type	Rock Type: Modif's	% of Rx Type	Rock Type: Type	Rock Type: Modif's	% of Rx Type	Chalcopy.	Pyrite	Molybd't	Others	Gouge	∠: To Hole	Breccia	∠: To Hole
0	10																																									
10	20																																									
20	30																																									
30	40																																									
40	50																																									
50	60 (57)	OVERBURDEN					.2 / .01	15	2	P	2				1		2		2	1		2							3						D V	D V	V					
60 (57)	70 (72)		4625	.240	0.030	.025	.2 / .01	15	2		2				1		2		2	1		2							3						D V	D V	V					
70 (72)	80		4626	.200	0.017	.150	.2 / .01	15	3	P	2		P	1	1				5			1							14	K cl.	7	3	K ch.	3	V	V	V		1	2		
80	90		4627 / SLUDGE	.450 / .312	0.010 / 0.03	.008	.4 / .01	7	3	2	2				2					?									38	E M	8	3	K ch.	2	D V	D V		M				
90	100		4628 / SLUDGE	.170 / .285	0.010 / 0.040	.009	.5 / .01	17	3	1	2		1		1				1	2		1							26	E M.	9	3	K ch	1	D V	D V		M				
100	110		4629 / SLUDGE	.061 / .245	0.003 / .032	.011	.3 / .01	15	3	2	2				1					2	P								26	E M	9						D.	M.				

Remarks:
SLUDGE SAMPLE ASSAYS:

Feet	Sample No.	% Cu	% Mo	% Zn
80-85	1254	0.315	0.130	0.011
85-90	1255	0.310	0.020	0.010
90-97	1256	0.135	0.038	0.009
100-105	1258	0.270	0.055	0.012
80-85 REAM	1266	0.465	0.035	0.020
110-115 REAM	1267	[illegible]	0.023	0.025

3210 | 3260 | 3310

V-96 DRILL LOG

General Location: ORANGE HILL ALASKA
Date Collared: 8-20-73
Date Completed: 9-1-73
Logged by: WMC
Date:

HOLE NUMBER	NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY	HOLE NAME
114	9263.0	82420	3343			90		114

CORE SIZE	FROM	TO
HQ	0	14
NQ	14	130
BQ	130	808

INTERVAL & GRAPHIC LOG / SAMPLING-ASSAYINGS (notes): Must show decimals except where recovery=100 / MODAL ROCK ANALYSIS (visual) / METALL'ZTN (L=LETTER, N=NUMBERS) / FAULTING SHEARING

From	To	Sample Numbers	% Cu	% Mo	Other Metals % or Oz (Au/Ag)	Est. Grade	Recovery	Total S= Present	Epidote	Chlorite	Gypsum & Anhyd.	S. Quartz	% of Total Rx. Alt.	Rock Type (Type)	Rock Type (Modif's)	% of Rx Type	Rock Type (Type)	Rock Type (Modif's)	% of Rx Type	Chalcopy.	Pyrite	Others	Breccia
110	120	4630	0.140 0.340	0.010 0.070	.030	.25/.01	5	2	2	2		1	4	26	E M.	9				D V	D V	M	
120	130	4631	0.350	0.023	.040	.3/.01	4	3	4	2		1	8	26	EG N	9				D V	D V.	M	
130	140					.3/<.01	8	3	4	2	—	1	8	26	EG M	9				D V	D V	M	
140	150	4632	0.075	0.003	.025	.3/?	16	3	5	2	—	1	6	26	EG M	9				D V	D V	M	
150	160	4633	0.240	0.005	.205	.4/?	49	4	6	2		1	8	26	EG N	9				D V	D V	B. M	
160	170	4634	0.140	0.003	.095	.5/?	44	5	3	2		1	9	26	EG M	9				D V4	D V	M	
170	180	4635	0.110	0.003	.055	.1/<.01	98	1	4	1		1	9	26	EG M	9				D V	D V	N	
180	190	4636	0.250	0.017	.170	.3/<.01	99	3	1	2	2	2	9	26	EG M	9				D V	D V	N	9
190	200	4637	0.321 0.420	0.007 0.007	.110 N/0.1	.1/?	98	1	1	3	2	2	7	26	EG M	8	25	ch.	2	D V4	D V4	M	9
200	210	4638	0.860	0.013	.099	1.2/<.01	99	7	P		1	1		25	E M	9				D	D	N	1
210	220	4639	0.350	0.007	.080	.7/<.01	99	5	P	+	1	2	8	25	E M	8	26	EG M	1	D	D	M	

Remarks:

105-110	1272	0.223	0.010	0.018
110-115	1259	0.322	0.013	0.018
115-120	1260	0.190	0.067	0.030
120-125	1261	0.453	0.048	[illegible]

(?) 125-132	1263	0.220	0.027	0.022
132-133	1264	0.390	0.023	0.035
120-125	12??	0.1??	0.018	0.0??

Margin notes: 3210, 3160, 3110

General Location: ORANGE HILL, ALASKA Date Collared: 8-20-73 Date Completed: 9-1-73

V-96 DRILL LOG

Logged by: WMcC Date: Page 5 of 8

HOLE NUMBER	COLLAR COORDINATES NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
114	92630	82420	3343			90			114

CORE SIZE	FROM	TO
HQ	0	14
NQ	14	130
BQ	130	808

INTERVAL & GRAPHIC LOG					SAMPLING-ASSAYINGS (notes): Must show decimals except where recovery = 100							MODAL ROCK ANALYSIS (visual)																								METALL'ZTN L=LETTER N=NUMBERS				FAULTING & SHEARING			
FEET (integer format) From	To	RX. TYPE	COLOR	ALTERATION	STRUCTURE	SAMPLE NUMBERS	% Cu	% Mo	Other Metals % or Oz Ag / Au	Est. Grade	RECOVERY (integer)	TOTAL S= PRESENT	Epidote	Chlorite	Carbonates	Gypsum & Anhyd.	P. Quartz	S. Quartz	P. Biotite	S. Biotite	Amphibole	Potash. Feldspar	Plag Feldspar	Sericite	Clay	% of Total Rx. Alt.	Veins	L: From Hole	Texture	Grain Size	L: Plane Hole	Rock Type		% of Rx Type	Rock Type		% of Rx Type	Chalcopy.	Pyrite	Molybd't	Others	Gouge	L: To Hole	Breccia	L: To Hole
2 6	7 12					13 18	19 22		23 27	28 32		33 34	35 36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51 52	53	54 56	57	58	59 60	61 62	63	64 65	66 68	69	70-71	72-73	74-75	76	77	78	79	80
220	235					4603	0.410	0.010	0.120	.2 / <.01	98	4	2	3		P		1							5			K			25	M	5	2C	M	5	D V	D V		M				
230	245					4604	0.580	0.047		.25 / .01	99	3		1			1	1	1	3			P		3			A B			25	EC M	4	2	BQ	6	D V	D V	V	M	1	2		
240	250					4605	0.280	0.017	N / 0.3	.25 / .01	99	4		1		P	1	1	1	2		P	2		2			A			2	BQ	6	25		4	D V	D V	V	M				
253	260					4606	0.280	0.023		.1 / <.01	99	3		P			1	1	2	2		P	3		1			A			2	BQ	9				D V	D V						
260	270					4607	0.540	0.043		.15 / <.01	99	3						2										AB			2	BQ	5	28	ch.	5	D V	D V						
2 6	7 12					13 18	19 22		23 27	28 32		33 34	35 36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51 52	53	54 56	57	58	59 60	61 62	63	64 65	66 68	69	70-71	72-73	74-75	76	77	78	79	80
270	280					4608	0.320	0.050		.15 / .01	99	3						2										B			28		9				D V	D V	V					
280	290					4609	0.290	0.037		.20 / .03	99	3		1		P	1	1	3	1		P	1		2			AB			28		1	2	BQ	9	D V	D V	V					
290	300					4610	0.321 0.360	0.033 0.040	N / 0.2	.35 / .02	99	3						3										AB			2	BQ	1	28		9	D V	D V	D V				4	2
300	310					4611	0.340	0.057		.35 / .02	99	4		3		P		2	P	1		1			3			A			2	BQ	5	28		5	D V	D V	D V					
310	320					4612	0.300	0.010		.35 / .02	99	3		3		P		2	P	1		1			3			A			2	BQ	9				D V	D V	D V	M				
320	330					4613	0.200	0.013		.1 / .01	99	3						3										B			2	BQ	1	28		9	D V	D V	D V					

Remarks:

130-135 REAM 1270
REDRILL — 115-132 1271
CUTTINGS 144-146 1274

0.215	0.018	0.020
0.270	0.020	0.025
0.225	0.015	

7:20

V-96 DRILL LOG

General Location: Orange Hill, Alaska
Date Collared: 8/20/73
Date Completed: 9/1/73
Logged by: WACG
Date:
Page 5 of 8

HOLE NUMBER	NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
1 1 4	72630	52420	3343			70			1 1 4

CORE SIZE	FROM	TO
NQ	0	14
NQ	14	130
BQ	130	808

12910

INTERVAL & GRAPHIC LOG / SAMPLING-ASSAYINGS (notes): Must show decimals except where recovery = 100

FEET From	FEET To	RX. TYPE	COLOR	ALTERATION	STRUCTURE	SAMPLE NUMBERS	% Cu	% Mo	Other Metals % or Oz	Est. Grade	RECOVERY (integer)	TOTAL S= PRESENT
440	450					4662	0.160	0.028	N/0.2	.20/.02	99	3
450	460					4663	0.335	0.013		.25/.02	99	3
460	470					4664	0.370	0.017		.5/.02	99	5
470	480					4665	0.340	0.008		.5/.02	99	5
480	490					4666	0.230	0.020		.35/.02	91	3
490	500					4667	0.237 / 0.245	0.018 / 0.038	N/0.2	.20/<.01	99	2
500	510					4668	0.305	0.040		.25/<.01	99	4
510	520					4669	0.230	0.038		.2/.02	99	3
520	530					4670	0.405	0.020		.2/.01	99	3
530	540					4671	0.280	0.028		.15/.01	99	2
540	550					4672	0.250	0.038	N/N	.14/.03	99	2

MODAL ROCK ANALYSIS (visual)

FEET From	Epidote	Chlorite	Carbonates	Gypsum & Anhyd.	P. Quartz	S. Quartz	P. Biotite	S. Biotite	Amphibole	Potash. Feldspar	Plag Feldspar	Sericite	Clay	% of Total Rx. Alt.	Veins	∠: From Hole
440	P	2			1	2		2		P	1		2		Q5	
450		2			1	1		2		1	1		2		Q5	
460		3		P	1	1	P	2			1	P	2		ΔQ5	
470						1						P	1		Q5	
480		1			1	1		3			2		1		Q5	
490		1			1	1	1	3			1		2		Q5	
500		1			1	1		3			2		1		Q5	
510		1			1	1		3		P	2		1		Q5	
520		1			1	1		3		P	2		1		Q5	
530		1			1	1		3		P	2		1		Q5	
540		2			1	2		2		P	1		2		Q5	

Texture / Rock Type / METALL'ZTN (L=LETTER, N=NUMBERS) / FAULTING SHEARING

FEET From	Texture	Grain Size	∠: Plane Hole	Rock Type: Type	Rock Type: Modif's	% of Rx Type	Rock Type: Type	Rock Type: Modif's	% of Rx Type	Chalcopy.	Pyrite	Molybd't	Others	Gouge	∠: To Hole	Breccia
440	A			2	BQ	9				D V	D V4	D V4	M			
450	A			2	BQ	9				D V	D V	V	M	1	2	
460	A			2	B4	7	38		3	D V	D V	✓				
470	A			2	BQ	6	38		4	D V	D V	V4				
480	A			2	BQ	9				D V4	D V1	V3		1	4	5
490	A			2	BQ	9				D	D					
500	A			2	BQ	9?				D	D	V3		1	3	
510	A			1	BQ	9				D	D		M			
520	A			2	BQ	9				D	D					
530	A			2	BQ	9				D V3	D V3					
540	A			2	BQ	9				D	D	V2				

2860

Remarks:

General Location: ORANGE HILL ALASKA Date Collared: 8/20/73 Date Completed: 9-1-73

V-96 DRILL LOG

Logged by: WHC Date: Page 4 of 8

HOLE NUMBER	COLLAR COORDINATES NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
114	92630	52420	3343			-70			114

CORE SIZE	FROM	TO
HQ	0	14
NQ	14	130
BQ	130	508

INTERVAL & GRAPHIC LOG — SAMPLING-ASSAYINGS (notes): Must show decimals except where recovery = 100 — MODAL ROCK ANALYSIS (visual)

FEET (integer format) From	To	RX. TYPE	COLOR	ALTERATION	STRUCTURE	SAMPLE NUMBERS	% Cu	% Mo	Other Metals % or Oz	Est. Grade	RECOVERY (integer)	TOTAL S" PRESENT	Epidote	Chlorite	Carbonates	Gypsum & Anhyd.	P. Quartz	S. Quartz	P. Biotite	S. Biotite	Amphibole	Potash. Feldspar	Plag Feldspar	Sericite	Clay	% of Total Rx. Alt.	Veins	L: From Hole	Texture	Grain Size	L: Plane Hole	Rock Type Type	Rock Type Modif's	% of Rx Type	Rock Type Type	Rock Type Modif's	% of Rx Type	METALLIZTN L=LETTER N=NUMBERS Chalcopy. L/N	Pyrite L/N	Molybd't L/N	Others	FAULTING SHEARING Gouge	L: To Hole	Breccia
2 6	7 12						13 18	19 22	23 27 28 32		33 34	35 36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51 52	53	54 56	57	58	59 60	61 62	63	64 65	66 68	69	70-71	72-73	74-75	76	77	78	79
33	34					4651	0.190	0.030		.15/.01	77	3				—		3									95		A B			28		9	2	84	1	D V	D V	D L	H			
34	35					4652	0.240	0.027	N/0.3	.2/.015	99	2		1		P	1	2	1	2		F			3		95		A			2	BQ	9	—			D	D	V	H			
35	36					4653	0.215	0.083		.2/.01	99	2		2				1	1	1		1			3		95		A			2	BQ	9	—			D V	D V	V				
36	37					4654	0.270	0.057		.3/.01	99	2		1		P	1	2	1	2		P	1		2		95		AB C			2	BQ	8	14		2	D V	D V	V				
37	38					4655	0.370	0.087		.25/.01	99	4				—		1									95		B			14		9				D V2	D V2		S			
2 6	7 12						13 18	19 22	23 27 28 32		33 34	35 36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51 52	53	54 56	57	58	59 60	61 62	63	64 65	66 68	69	70-71	72-73	74-75	76	77	78	79
38	39					4656	0.250	0.047		.35/.01	99	5		3				3		P					4		95		AB			14		5	2	84	5	D	D		M H			
39	40					4657	0.491 0.530	0.033 0.063	N/0.2	.4/.02	99	6		3				3						1	3		95		A			2	BQ CA	9	—			D V4	D V2		H	1	3	
40	41					4658	0.430	0.072		.6/.02	99	6		2				3		1				1	3		95		A			2	BQ Cu	9	—			D V4	D V4		H	1	3	
41	42					4659	0.270	0.060		.3/.01	99	2		1			1	2		3					3		95		A			2	BQ	9	—			D V4	D V4	D V4	H M			
42	43					4660	0.170	0.040		.35/.01	99	2		1			1	2		3					3		95		A			2	BQ	5	—			D V4	D V4	V				
43	44					4661	0.220	0.030		.25/.02	99	2	P	2			1	2		2					3		95		A			2	BQ	5	—			D V4	D 4	V	M			

Remarks:

General Location: ORANGE HILL ALASKA Date Collared: 8-20-73 Date Completed: 9-1-73

V-96 DRILL LOG

Logged by: WHC Date: Page 2 of 8

HOLE NUMBER	COLLAR COORDINATES NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
1 1 C	92630	82420	3343			TP			114

CORE SIZE		
SIZE	FROM	TO
HQ	0	14
NQ	14	150
BQ	150	608

INTERVAL & GRAPHIC LOG — SAMPLING-ASSAYINGS (notes): Must show decimals except where recovery = 100 — MODAL ROCK ANALYSIS (visual)

FEET (integer format) From	To	RX. TYPE	COLOR	ALTERATION	STRUCTURE	SAMPLE NUMBERS	% Cu	% Mo	Other Metals % or Oz	Est. Grade	RECOVERY (integer)	TOTAL S= PRESENT	Epidote	Chlorite	Carbonates	Gypsum & Anhyd.	P. Quartz	S. Quartz	P. Biotite	S. Biotite	Amphibole	Potash. Feldspar	Plag Feldspar	Sericite	Clay	% of Total Rx. Alt.	Veins	∠: From Hole	Texture	Grain Size	∠: Plane Hole	Rock Type Type	Rock Type Modif's	% of Rx Type	Rock Type Type	Rock Type Modif's	% of Rx Type	METALL'ZTN L=LETTER N=NUMBERS Chalcopy. L	Chalcopy. N	Pyrite L	Pyrite N	Molybd't L	Molybd't N	Others	FAULTI SHEAR Gouge	∠: To Hole	
600	670					4684	.200	0.018		.10 / .01	99	2		2			1	2		3		P	1	P	1		QS					2	BQ	9				D V	D V								
670	680					4685	.215	0.037		.15 / .01	98	3		3			1	1		1				P	4		QS					2	BQ	9				D V4	D V4	V4	5						
680	690					4686	.170	0.027		.1 / .01	99	1		2			1	2		2		P	1	P	2		Q					2	BQ	9				D	D								
690	700					4687	.163 / .180	0.015 / 0027	N/N	.1 / .015	99	1		3			1	1		1		P	1	P	2		QS					2	BQ	9				D V3	D V3	D							
700	710					4695	.200	0.025		.1 / .01	97	1		3		P	1	2		1		P	1	P	2		QS					2	BQ	9				D V3	D V3						1	3	
710	720					4688	.195	0.043		.15 / .01	99	2		3			1	3		P		P	P		3		QS					2	BQ	9				D V3	D V3								
720	730					4689	.130	0.070		.2 / .02	99	2		1		P	1	3		3		P	1		1		QS					2	BQ	9				D V3	D V3	V3							
730	740					4690	.120	0.018		.15 / .01	99	1		1			1	2	1	2				P	2		QS					2	BQ	9				D	D		H						
740	750					4691	.200	0.030		.1 / .01	99	1		1		P		2	1	2		P	1		3		QS					2	BQ	9				D	D								9
750	760									.1 / .01	97	1		3		P	1	2							4		Q					2	BQ	9				D U	D V3	V3							9
760	770									.1 / —	97	1				—		2				—	—		5		Q					2	BQ	9													9

Remarks:

2560 1 2610 1 2660

General Location: PEARCE HILL ALASKA Date Collared: 8/20/73 Date Completed: 9/4/73

V-96 DRILL LOG

Logged by: _____ Date: _____ Page 6 of 8

HOLE NUMBER	COLLAR COORDINATES NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
114	92630	82420	3343			-90			114

CORE SIZE	FROM	TO
HQ	0	14
NQ	14	133
BQ	132	808

INTERVAL & GRAPHIC LOG — SAMPLING-ASSAYINGS (notes): Must show decimals except where recovery = 100 — MODAL ROCK ANALYSIS (visual)

FEET (integer format) From	To	Rx. TYPE / COLOR / ALTERATION / STRUCTURE	SAMPLE NUMBERS	% Cu	% Mo	Other Metals % or Oz	Est. Grade	RECOVERY (integer)	TOTAL S" PRESENT	Epidote	Chlorite	Carbonates	Gypsum & Anhyd.	P. Quartz	S. Quartz	P. Biotite	S. Biotite	Amphibole	Potash Feldspar	Plag Feldspar	Sericite	Clay	% of Total Rx. Alt.	Veins	∠: From Hole	Texture	Grain Size	∠: Plane Hole	Rock Type Type	Rock Type Modif's	% of Rx Type	Rock Type Type	Rock Type Modif's	% of Rx Type	METALL'ZTN L=LETTER N=NUMBERS Chalcopy. L / N	Pyrite L / N	Molybd't L / N	Others	FAULTIN SHEARI Gouge	∠: To Hole	Breccia
2 6	7 12			13 18	19 22	23 27 28 32		33 34	35 36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51 52	53	54 56	57	58	59 60	61 62	63	64 65	66 68	69	70-71	72-73	74-75	76	77	78	79
553	562		4673	.330	0.038		.35/.02	99	4		3			1	2		1			1	P	2		QS					2	BQ	5				D / V3	D / V4	V3	M			
562	573		4674	.255	0.047		.1/.02	97	2		2			P	2		2			1	P	3		QS					2	BQ	5				D	D		M	1	5	8
573	583		4675	.210	0.033		.15/.02	95	2		1			1	1	1	1		P	2	P	1		QS					2	BQ	5				D / V2	D / V2	V1	M			
583	593		4676	.250	0.030		.35/.02	99	3		1			1	2	1	2		P	2		1		QS					2	BQ	5				D / V3	D / V3	D / V2				
593	602		4677	.107 .115	0.015 0.047		N/0.2 .2/.01	99	2		2			1	2	1	1		P	2		1		QS					2	BQ	5				D / V3	D / V3	V2				
602	610		4678	.140	0.020		.1/.015	99	<2		2		P	1	2	1	1		P	1		2		QS					2	BQ	5				D / V	D / V	V		1	3	
610	620		4679	.240	0.075		.2/.02	98	2		2		P	1	1	1	2		1	1	P	1		QS					2	BQ	5				D / V	D / V	V				
620	63		4680	.330	0.017		.15/.02	99	2		1		P	1	1	1	3		P	1	P	1		QS					2	BQ	5				D / V	D / V	V				
63	643		4681	.280	0.023		.15/.02	99	2		1		P	1	1	1	3		P	1	P	1		QS					2	BQ	5				D / V	D / V	V				
643	653		4682	.168	0.045		N/0.3 .2/.02	99	2		1			1	5		1			1	P	1		QS					2	BQ	5				D / V	D / V	V				
653	663		4683	.120	0.022		.15/.01	99	2		2			1	2		3		P	1	P	1		QS					2	BQ	5				D / V	D / V	V	M			

Remarks:

sample 2560

1

V-96 DRILL LOG

General Location: ORANGE HILL ALASKA
Date Collared: 8-20-75
Date Completed: 9-1-75
Logged by: [illegible]
Date:
Page 8 of 8

HOLE NUMBER	NORTH	EAST	ELEVATION	DEPTH	AZIMUTH	DIP	DEPTH TO 1st ASSAY		HOLE NAME
114	72630	82420	3343			90			114

CORE SIZE

SIZE	FROM	TO
HQ	0	12
NQ	12	132
BQ	132	848

INTERVAL & GRAPHIC LOG / SAMPLING-ASSAYINGS (notes): Must show decimals except where recovery=100 / MODAL ROCK ANALYSIS (visual) / METALL'ZTN (L=LETTER, N=NUMBERS) / FAULT SHEAR

From (2-6)	To (7-12)	Rx. Type	Color	Alteration	Structure	Sample Numbers	% Cu (13-18)	% Mo (19-22)	Other Metals % or Oz (23-32)	Est. Grade	Recovery (integer) (33-34)	Total S= Present (35-36)	Epidote (37)	Chlorite (38)	Carbonates (39)	Gypsum & Anhyd. (40)	P. Quartz (41)	S. Quartz (42)	P. Biotite (43)	S. Biotite (44)	Amphibole (45)	Potash. Feldspar (46)	Plag Feldspar (47)	Sericite (48)	Clay (49)	% of Total Rx. Alt. (50)	Veins (51-52)	∠: From Hole (53)	Texture (54-56)	Grain Size (57)	∠: Plane Hole (58)	Rock Type: Type (59-60)	Rock Type: Modif's (61-62)	% of Rx Type (63)	Rock Type: Type (64-65)	Rock Type: Modif's (66-68)	% of Rx Type (69)	Chalcopy. (70-71)	Pyrite (72-73)	Molybd't (74-75)	Others (76)	Gouge (77)	∠: To Hole (78)
770	780									.1	99	2		2			1	2	1	1		P		P	3		QS					2	BQ	9				D V	D V				
780	790					4692	.153	0.013		.15 / 2		1		1			1	2	2	1				P	3								BQ	9				D V3	D V3				
790	800					4693	.080	0.013		.1 / <.01		1		1			1	2	2			P		P	4								BQ	9				D V3	D V3				
800	848					4694	.095	0.012		.15 / <.01		2		1			1	2	P					P	5								BQ	9				D V8	D V8				
						E.O.H.																																					

Remarks:

Revised 10/3/74

PROJECT ORANGE HILL AREA ALASKA

HOLE NO. 112 inclination -50° bearing S 65° E SCALE: 1"=50' DATE 8-9-73

COORDINATES N 71,055.5 E 50,256.0 ELEVATION 2,904.1

Rock Type 2-10

Assays

	Cu	MoS_2	Au	Ag
0	.069	.013		
	.119	.010		
	.088	.012	Tr	0.3
	.138	.017		
	.056	.025		
50	.107	.028		
	.100	.013		
	.214	.015	N	0.2
	.151	.011		
	.346	.028		
100	.226	.027		
	.333	.028		
	.497	.022	N	0.4
	.327	.020		
	.472	.067		
150	.195	.040		
	.207	.012		
	.245	.020	N	N
	.252	.075		
	.094	.012		
200				
	.157	.030		
	.201	.013	N	0.2
	.107	.020		
250	.132	.018		
300				
350				
400				

Rock Type

Assays

	Cu	MoS_2	Au	Ag
400				
	.113	.013		
	.075	.017	N	0.2
450	.126	.028		
500				
550				
	.069	.012		
600	.182	.013		
	.157	.008	N	0.1
	.069	.007		
		.007		
646 T.D.				
650				
700				
750				
800				

Assayer: Union Assay Office (Cu, Au, Ag) Resource Assoc. of Alaska (MoS_2)
Sample No.'s: 4551 - 4582, 1281 - 1283

NOTES TO ACCOMPANY LOG FOR DDH 112

0 - 2 feet, Overburden.

2 - 41 feet, Dark gray porphyritic biotite diorite. Qtz-K-spar-gypsum veins and veinlets approximately 10%. Sulfides as dissem. 1% with cpy greater than py. Foliated in zones and phenos. aligned at 20% to core axis. Qtz, magnetite, cpy veinlets minor. At 23.5 feet, gyp vein at 75° carries isolated fluorite crystals. At 26-27 feet, qtz-moly vein at 0°. At 30 feet, qtz-moly vein begins as horsetail stringer and expands to 1/2 inch wide qtz-K-spar vein without MoS_2 within 1 foot. From 31.5 feet to 41 feet, diorite takes on darker color. At 34 feet, gritty gouge 1/2 inch wide at 40°, 1/8 inch gyp vein on one wall.

41 - 72 feet, Dark gray to black metasediment. Upper contact is 1-1/2 inch gyp vein at 40°. Qtz-K-spar veins 5 to 10%. Sulfides predominantly cpy as dissem and clots as well as fine irregular fracture filling. Total sulfides 1%. Cpy greater than py by ratio of 3:1. At 56.5 feet, 2 inch diameter mass of qtz-K-spar with clots of MoS_2 and blebs of cpy. At 62 feet, 1/4" anhydrite vein at 40°. At 66.3 - 67 feet, 1/4 inch qtz vein with MoS_2 and minor py and cpy. Below 59.5 feet appears to be metavolcanic phenocrysts in most 1 foot intervals. Sulfides minor.

72 - 86 feet, Dark to medium gray porphyritic diorite. Contact is gradational over 4 feet interval to 76 feet. At 72 feet, 3 inch breccia zone at 20° to 30°. Some sulfides as cement in zone, moly with qtz may be earlier than brecciation, appears as fragment. Cpy and py as dissem. and irregular masses within ground mass. Cpy greater than py total sulfides 1%. Qtz-K-spar veins 10%. K-spar 20% of veining. At 78-78.4 feet irregular qtz, magnetite, moly vein at 0°. At 79.5 feet, 2 inch breccia zone fragments include vein qtz as well as monzonite with dissem cpy. Below approximately 78 feet, diorite becomes progressively more normal biotite qtz diorite appearing.

86 - 90.8 feet, Metavolcanic (?) Black, dense intervals of phenos otherwise aphanitic. Upper contact sharp but irregular. Lower contact along 3/8 inch gouge - gypsum - K-spar zone at 30°. Sulfides as dissem and blebs 2%. Cpy predominant. Qtz-K-spar veins 10%.

90.8 - 113 feet, Dark to medium gray diorite phases into granodiorite to monzonite in interval 93-97 at which point it is faulted at 30°. Gouge and crushed zone 2.5 feet. Interval 93-97 feet, 1-1.5% cpy as dissem. Interval 99-113 feet minor dissem of cpy and py. Some fracture filling with cpy as well as cpy with qtz from 111 to 113.

113 - 115.5 feet, Metavolcanic. Broken zone cemented with 50% qtz bearing cpy as blebs and streaks. Cpy 1%.

115.5 - 127 feet, Porphyritic diorite and metasediments intercalated, with metasediments predominating. Qtz, cpy, MoS_2 veins and qtz cpy veins throughout. Metasedimentary unit is particularly well cpy mineralized as dissem and as fine fracture filling. Cpy 2%, associated pyrite less than 0.5%. Appearance of weak foliation at 40°-50°. Magnetite content as streaks and blebs with qtz 2% - 3%.

127 - 145.8 feet, Medium gray porphyritic diorite. Qtz veining 5%. More important qtz-K-spar veins carry heavy magnetite. Magnetite strong at 130, 130-135.5, 142-142.3. Cpy as dissem and blebs and as irregular qtz-cpy veins. Foliation at 30° at 135-136 feet, at 40° at 142-142.5 feet.

145.8 - 148.7 feet, Graywacke. Gray, dense with narrow qtz veining. Cpy in narrow qtz veins. Total sulfides less than 5%.

148.7 - 154.7 feet, Gray porphyritic diorite. Qtz veins 5% Cpy and py as dissems and veinlets with qtz. Total sulfides 1-1.5%, Cpy:py 2:1.

154.7 - 178 feet, Metasediment - volcanic (?) Qtz veining 7-10%. Cpy and py as dissems and irregular veins with qtz and as fracture fillings. Total sulfides 1%, Cpy greater than pyrite. At 169 feet, shearing at 20°, shear zone at 40°. At 172 feet magnetite vein with qtz at 25°. Blotches of pervasive silica 176.3 - 177 feet.

178 - 205 feet, Porphyritic diorite. Variable textures some admixing of metasediments. Qtz veining 5% with some veins also K-spar. Sulfides are as dissem. variable 1%-2%. Cpy to pyrite ratio also varies with general decline of cpy with depth. Below 187 feet, sulfides less than 1% and mainly py. At 186 feet sulfides associated with epidote. At 188 feet qtz-moly vein 1/4 inch at 20°. At 192 feet 1 inch wide qtz-magnetite vein at 40°. Also gyp-hematite vein at 60°. At 199.5-200 feet shear zone foliated at 20°. At 202.3 feet qtz-moly vein at 25°. Traces of sulfides below vein to dacite dike.

205 - 216.3 feet, Dacite (Andesite ?) dike gray colored. Porphyritic. Fractures at 6 inch intervals at 30°. Upper contact irregular approximately normal to core axis. Lower contact irregular and brecciated to depth of 217 feet.

216.3 - 259 feet, Metavolcanic. Porphyritic, medium gray to black. Where black, slightly porphyritic and dense. Generally the best mineralized. Dacite dike seems to have modified sulfide content of metavolcanic wall rock. As with the upper contact, sulfides are minimal for distance of approximately 7 feet from contact and are restricted to pyrite although a qtz-moly vein occurs within the interval. Qtz veins 5-10%. Sulfides dissem with some fracture filling. Interval is fractured in many irregular seams each gypsum cemented. At 221.5 - 222.4 feet breccia zone. Recemented and cut by qtz-moly vein and qtz vein both at 20° both veins of which are cut by gypsum vein at 50°. At 223 feet, qtz-moly vein at 20°. At 226 feet

qtz-moly vein at 20°. Predominant and strongest gypsum veining at 55°. Interval 224 to 259 feet sulfides vary from 2% to 5% over 1 foot intervals. Cpy approximately equals pyrite. Average cpy equals 5%. At 239.5 - 254 feet shattered zone oxidation and some leaching evidence.

259 - 272 feet, Porphyritic diorite. Gradational with porphyritic metavolcanic. Sulfides less than .5%. Blebs and veinlets of cpy and py in equal amounts. Epidote present. Qtz veins 5% to 6%. Lower limit of diorite is gradiational with metavolcanic suggesting that the diorite may be an alteration of the metavolcanic. At 268 feet, 1/2 inch wide gypsum vein at 20°.

272 - 307.5 feet, Metavolcanic. Porphyritic dark gray. Qtz veins variable in density and width 5% - 10%. Some K-spar with vein qtz. Irregular alteration halos of gray bleaching adjacent to most significant sulfide bearing veins. Cpy as veinlets with qtz generally but not always. Total cpy less than .3%. At 273.8 feet 1/4 inch qtz-moly vein at 20° seem to be offset by gyp veinlet at 80°. Some K-spar also associated. Flow (?) breccia at 271.7 - 272.3 feet. Cpy dissems at 275 - 277 feet, 287 - 289 feet. At 283 feet qtz vein with MoS_2 blebs. At 285.5 - 286.1 feet qtz vein with 2% MoS_2 at 20°. At 293.8 feet qtz-moly vein at 40° cut by gyp-pyrite vein at 0°. At 298.5 - 307.5 feet core is shattered.

307.5 - 332.5 feet, Dacite-andesite dike, porphyritic no qtz. No sulfide.

332.5 - 368.0 feet, Metavolcanic, porphyritic, medium gray colored. Biotite somewhat chloritized. Qtz veining 7%. Some orthoclase with qtz, veins almost totally barren. Light dissems of sulfides less than 0.5%. Cpy 0.2%, MoS_2 trace. Interval 359 - 365 feet chloritized. At 359.5 feet 3 inch brecciated zone at 25° to 40°. Slips at 15°in interval. At 364.3 feet sheared at 25°.

368.0 - 383.5 feet, Metasediment, dark gray, fine grained. Fractures in irregular fine lines, some of which are cpy filled. Average cpy less than .5%. Qtz veins less than 5%, mostly narrow veins less than 1/8 inch wide. Interval 369.5 - 370.6 feet porphyritic metavolcanic. At 369 feet 2 inch qtz-moly vein at 30°.

383.5 - 392 feet, Metasediment, as above, broken or brecciated, re-cemented with silica with intervals of granodiorite appearing (alteration ?) rock. At 390.1 - 390.3 feet brecciated zone at 50°-65°. Interval has 10% qtz and trace of sulfides.

392 - 419 feet, Metasediments and metavolcanics intercalated. Dark gray colored. Predominant sedimentary origin or brecciated. Foliation of biotite around clasts. Qtz 5% - 10%. Magnetite with some qtz veins. At 405.5 and 407 feet, qtz-moly veins. Foliation at about 30°. Traces of cpy as dissem and blebs. At 416 - 419 feet, broken and shear zone - chloritic. Slip planes at 15°.

419 - 449.5 feet, Graywacke. Dense, gray colored. Quartz veined along irregular fractures. Qtz 25%. Sulfides as dissem in blebs 1%, predominantly cpy. At 423 feet, cpy, magnetite with qtz. Epidote also associated with sulfides. General appearance of core is that of fractured recemented zone which occurred in two stages, one before metamorphism and the other some time after. The latter event healed by qtz veins.

449.5 - 460 feet, Granodiorite, probably a hybrid resulting from alteration. Interval contains qtz-K-spar veins and K-spar is seen to spread from veins. Veining extends above and below interval. Maybe porphyritic diorite that has been altered. Sulfides less than 5%. Cpy .2%, trace MoS_2.

460 - 463 feet, Silicified metasediment as in interval 419 - 449.5.

463 - 485 feet, Porphyritic diorite, gray colored. Qtz veining 15% - 20%. At 472 - 476 feet intercalated metasediments as in interval 460 - 463 feet. Contact and talcy structures at 10° to 15°. Minor cpy on fractures. At 479 - 480 feet, hybrid granodiorite, shown to be result of alteration by phenocrysts crossing contact. Consider diorite and granodiorite in hole to be alterations. Py and cpy less than 0.5% but up to 2% over 1 foot intervals. Traces of MoS_2.

485 - 510 feet, Metasediments. Fractured and qtz veined. Prominent fracture plane at 10°. Interval starts with 2 foot bull qtz carrying MoS_2 at 10°. Scattered sulfides as dissem and blebs and with qtz total less than 1%. Py greater than cpy.

499 - 501 feet, Hybrid granodiorite. Chloritized.

510 - 567 feet, Porphyritic diorite. Qtz veining 5%. Some veins contain magnetite. Sulfide 0.5%, cpy equals py. At 519.7 feet, 1 inch wide fluorite filled zone at 20°. Sulfide content of associated 2 foot interval 3% with cpy equal py as dissem and fracture filling. Cpy predominant in fracture filling. At 541 - 545 feet pyrite as dissems 4%. At 550 feet 1/2 inch wide breccia-gypsum zone at 20°. At 557.5 - 558 feet sheared zone chloritized at 20° - 35°. At 564 - 565 feet, qtz-gyp brecciated zone 20° - 35°. Some MoS_2. Foliation of diorite at 35° at lower contact.

567 - 574 feet, Metasediment qtz veining 20% chloritized. At 569 feet, 1/2 inch qtz-MoS_2 vein at 85°.

574 - 574.5 feet, Breccia zone chloritized. Fragments include qtz, K-spar, metasediments. Contacts at about 45°.

574.5 - 626 feet, Metasediments and metavolcanics intercalated. Weak foliation developed at 20°. Qtz veining 10%. Some veins also carry K-spar. At 577 - 578 feet, talc structure with py and gypsum at 10° - 15°.

At 578 - 580 feet granodiorite alteration. Sulfide content picks up below diorite. Variable 0.5% - 2% Cpy equals pyrite. At 593 - 602.5 feet gypsum veining irregular and in swirls conforms in general to structures at 5° - 15°. At 598 - 599 feet, 3/4 inch gypsum vein with breccia texture at 15°. Gypsum interval carries cpy and py as fracture filling and blebs. At 600 feet, qtz with MoS_2 vein.

626 - 635 feet, Porphyritic diorite showing alteration to granodiorite with introduction of K-spar. Qtz veins 5%. Py and cpy with qtz veins less than .5%. Py greater than cpy. At 635 feet fluorite vein.

635 - 646 feet, Metasediment. Chloritized to 639 feet with some shearing at 25°. Dissem py 1% pervasive silicification to end of hole. Qtz veining 15%.

646 feet, END OF HOLE.

Revised 10/3/74

PROJECT ORANGE HILL — AREA ALASKA

HOLE NO. 113 — Inclination -60° Bearing S 65 E — SCALE: 1"=50' — DATE 8-19-73

COORDINATES N 76,054.2 E 53,818.4 — ELEVATION 3,903.1

	Rock Type	Assays			
		Cu	MoS_2	Au	Ag
0					
21-30		.327	.027		
		.214	.015		
50		.176	.030	N	0.4
		.151	.020		
		.396	.032		
		.195	.015		
		.088	.018		
100		.214	.018	N	0.1
		.195	.040		
		.170	.025		
		.176	.010		
		.138	.028		
150		.207	.033	N	0.2
		.088	.007		
		.182	.018		
		.100	.013		
		.144	.010		
200		.113	.006	N	0.2
		.252	.025		
		.737	.028		
		.333	.067		
			.010		
250		.214	.020	N	0.3
		.119	.010		
			.018		
		.233	.015		
		.447	.012		
300		.138	.006	N	N
		.119	.005		
		.138	.010		
		.365	.042		
			.017		
350			.023	N	0.3
			.040		
		.0491	.103		
			.012		
			.017		
400			.005	N	0.3

	Rock Type	Assays		
		MoS_2	Au	Ag
400		.062		
		.008		
		.023		
450				
452.8-456		.010		
456 T.D.				
500				
550				
600				
650				
700				
750				
800				

Assayer: Resource Assoc. of Alaska (MoS_2)
Union Assay Office (Cu, Au, Ag)

NOTES TO ACCOMPANY LOG FOR DDH 113

0 - 21 feet, Overburden.

21 - 271 feet, Biotite quartz diorite. Chloritized. Introduced K-spar or furruginous plagioclase evident to the extent of up to 30% in intervals. Total sulfides about 3% as disseminations and vein filling. Qtz veins 5%, some of which irregularly course the rock carrying cpy, py and MoS_2. Minor magnetite with qtz veins. Epidote present. Rock broken with limonite staining on fractures to depth of 143 feet. Bornite coatings on some cpy crystals. At 59 - 61 feet, 3/4 inch qtz-moly-cpy vein at 5° - 10°. At 68 - 70 feet, 1/4 inch moly-cpy vein at 0°. At 73.5 feet, 1/8 inch qtz-moly vein at 70°. At 74.3 - 76 feet, qtz cemented breccia zone. 75% quartz. Cpy and py 2%. At 90 feet, 1/4 inch gray clay gouge seam at 30° with parallel fractures. At 99 feet, 1 inch qtz hemotite, pyrite vein at 5°. At 102 feet, shear zone with some gouge at 35°. At 103.5 feet, 6 inch wide crushed zone with gouge. At 105.5 - 106 feet, 1 inch qtz vein with py, cpy, hem on margin of qtz. Quartz is somewhat druzzy. Bornite on cpy. At 110 feet, 1/4 inch qtz, cpy, py, MoS_2, magnetite vein at 20°. At 116 - 117.5 feet, brecciated and gouge filled zone. At 120 - 121 feet, core lost due to mislatch of core barrel. At 140 - 141 feet, 1 inch qtz-epidote vein with cpy. Blebs of epidote make out into the wall for several inches from vein. Below 143 feet, rock firms up. Believe to be close to the bottom of oxidation although evidence of leaching persists with Fe and Cu oxides to 146 feet. Plagioclase fresh looking, hornblende as well as biotite as mafics. At 150 feet, epidote associated with qtz veining and cpy, py, MoS_2. At 151 - 156 feet, 2 feet of core lost due to mislatch of core barrel. At 164 - 166.5 feet, qtz, cpy, MoS_2 vein at 10°. At 193 feet, bornite coating on cpy. Below 195 feet, pink gypsum coats fractures. At 231 - 236 feet, 4 feet of core lost due to mislatch of core barrel. At 236 feet, sulfides equal 6% as blebs. Epidote with qtz and as epidotization carries associated py and some cpy. At 246 - 248 feet, Magnetite rich zone 30% magnetite with 3% cpy.

271 - 325 feet, Porphyritic diorite. Gray colored, aphanitic. May be metavolcanic or later stage of dioritic intrusion. Sulfides as fracture fillings and as disseminations 4%. Cpy equals .5 - 1%. Epidotization of plagioclase phenocrysts. Chloritized. Qtz veining 3%, most of which is sulfide bearing.

325 - 348 feet, Interval is a mixture of epidotized porphyritic diorite, monzonite, diorite to granodiorite with 7 - 10% quartz veining. Some qtz veins carry K-spar. The monzonite bearing rock is the result of introduced K-spar as the K-spar is most intense adjacent to veins. The epidote occurs as clots and masses in the porphyritic diorite. Pyrite is the predominant sulfide totalling 2%. Cpy less than .5%. In the dioritic

phase, chloritization is strong. At 335.5 feet, 1/4 inch gouge seam at 30°. At 336 feet, 1 inch qtz, gyp, Moly vein at 15°. Crinkled broken character of vein indicates later movement. At 348 feet, 4 inch wide breccia zone at 40° carries 7% sulfides, 3% cpy.

348 - 376.3 feet, Porphyritic diorite. Epidote replaces phenocrysts. Qtz veining is less than 5%, but almost all carries sulfides of pyrite and cpy and some MoS_2. Introduced K-spar and accompanying alteration produces granodioritic appearing rock in 1 and 2 foot intervals as at 361.5 - 362.5, 373 - 375.5 feet. At 349 - 352 feet, 1/4" qtz-cpy-MoS_2 vein at 10°. At 354 - 362.5 feet, sheared with a number of clay seams at approximately 25°. At 362 - 364 feet, 1/2 inch qtz-cpy-MoS_2-magnetite vein at 20°. At 368 feet, 1/2 inch irregular qtz-K-spar-MoS_2-cpy vein.

376.3 - 403.3 feet, Granodiorite. K-spar content varies and is definitely related to veining. Contact with underlying porphyritic diorite is gradational over 3 inch width. Fluorite seems to be associated with the more intensely feldspathized zones. Qtz veining 2%. Sulfides 2% as disseminations with some veining. 403.3 feet, qtz veining with shearing at 35° - 40°.

403.3 - 406 feet, Breccia zone with qtz sulfide cementing.

406 - 408 feet, Fault zone, gouge. Slips at 40°. Sulfides 5%.

408 - 431.5 feet, Quartz monzonite. Heavy introduction of K-spar. Chloritized. Gyp and qtz veined. Sulfides 4% as disseminations and fracture fillings. Predominately pyrite. At 415 feet, 6 inch gyp vein adjacent to 1/4 inch qtz-cpy-py-MoS_2 vein at 30°. At 415.7 feet, Blebs of py and cpy. At 421 feet, 1/2 inch gyp vein at 35°. At 428 to 431.5 feet, Brecciated zone recemented with qtz and gyp. With disseminations and blebs of py, cpy and MoS_2.

431.5 - 452.8 feet, Andesite porphyry dike. Post mineral massive.

452.8 - 456 feet, Quartz monzonite as in interval 408 - 431.5 feet. At 456 feet, intersected the Bryner fault. Unable to drill through fault because of caving and artesian water flow.

456 feet, END OF HOLE

Revised 10/3/74

PROJECT ORANGE HILL AREA ALASKA

HOLE NO. 114 SCALE: 1"=50' DATE 9-1-73

COORDINATES N 72,633.9 E 52,199.8 ELEVATION 3,353.2

Rock Type		Cu	MoS_2	Au	Ag
	0				
	50				
57-72	*	.216	.030		
72-82	*	.180	.017		
82-92	*	.405	.010		
92-102	*	.153	.010		
	100				
102-112	*	.055	.003		
112-122	*	.126	.010		
	*	.315	.023		
122-142					
142-152	*	.068	.003		
	150				
152-162	*	.216	.003		
162-172	*	.126	.003		
172-180		.107	.003		
	*	.225	.017		
		.321	.007	N	0.1
	200				
	*	.775	.013		
	*	.315	.007		
	*	.369	.010		
	*	.522	.047		
	*	.252	.017	N	0.3
	250				
	*	.252	.023		
	*	.486	.043		
	*	.288	.050		
	*	.261	.037		
		.321	.040	N	0.2
	300				
		.308	.057		
		.264	.010		
		.182	.013		
		.176	.030		
		.214	.027	N	0.3
	350				
		.195	.083		
		.245	.057		
		.365	.037		
		.245	.047		
		.491	.063	N	0.2
	400				

Assays not reliable
Core recovery less than 15%
See drill log for sludge assays

Rock Type		Cu	MoS_2	Au	Ag
	400				
		.415	.042		
		.277	.060		
		.144	.040		
		.176	.030		
	450	.138	.028	N	0.2
		.296	.043		
		.340	.017		
		.321	.008		
		.207	.020		
	500	.239	.038	N	0.2
		.252	.040		
		.201	.038		
		.365	.020		
		.245	.028		
	550	.214	.038	N	N
		.289	.038		
		.226	.047		
		.170	.033		
		.195	.030		
	600	.197	.047	N	0.2
		.126	.020		
		.207	.075		
		.283	.017		
		.239	.023		
	650	.144	.043	N	0.3
		.100	.022		
		.157	.018		
		.195	.037		
		.144	.027		
	700	.163	.027	N	N
		.157	.025		
		.170	.043		
	*	.117	.070		
	*	.108	.018		
	750	.180	.030		
	*	.139	.013		
	800	.072	.013		

Assayer: Resource Assoc. of Alaska (MoS_2)
Union Assay Office (Cu, Au, Ag)

808 T.D. 800-808* .086 .012

* Cu assay shown is RAA assay x .9

NOTES TO ACCOMPANY LOG FOR DDH 114

0 - 52 feet, Overburden.

52 - 57 feet, Probably bedrock mixed with overburden because of caving.

57 - 72 feet, Core recovery 15%. Granodiorite resulting from introduced K-spar. Argillic and chloritic alteration. Qtz veining less than 10%. Dissem cpy and py 2%. Some fracture coating by sulfides. MoS_2 with qtz vein.

72 - 77 feet, Possibly qtz feldspar porphyry but poor core recovery in small pieces makes identification uncertain. Appears to be in fault zone. Heavy K-spar as flooding (?) cpy and py as veinlets.

77 - 82 feet, Igneous appearing, may be altered porphyritic diorite but difficult to identify because of small pieces. Silicified, feldspathized, chloritized. Dissem sulfides 3%, cpy greater than py.

82 - 93 feet, Metasediment. Silicified medium gray colored strongly epidotized and chloritized. Epidote in masses. Rock fractured and recemented with cpy and py as well as with qtz sulfide veinlets. Cpy greater than py. Total sulfides 2% - 3%. MoS_2 with qtz veinlets. Magnetite disseminated.

93 - 186 feet, Skarn. Silicified metasediment with epidote and magnetite. Chloritized. Cpy and py primarily as fracture coating but disseminated as well. Total sulfides 3%. Cpy greater than py. Magnetite heavy 5% - 20%. Below 122 feet, garnet becomes important constituent of skarn. At 151 feet, bornite with cpy may be secondary. To a depth of 169.5 feet, the rock is broken with evidence of oxidation and minor leaching. At 160 - 176 feet, garnet is the predominant mineral. Where fractured and broken as down to a depth of 169.5 feet, cpy equals 2% - 3% as disseminations and fracture filling. Disseminations very fine. At 176.5 - 181 feet, 80% epidote. 1/4 inch wide qtz - calcite veins at 20 - 45°. Disseminations of cpy, py and magnetite. Py predominant estimated 0.1% Cu. At 181 - 186 feet, predominantly garnet cut by qtz-sulfide veinlets. At 183.5 feet, 2 inch blebs of cpy, py and magnetite.

186 - 197 feet, Breccia zone. Upper contact at 15° along calcite - qtz - sulfide vein 3/8 inch wide. Gypsum in interval equals 15% - 20%, cementing fragments as do calcite and qtz. In the interval 189 - 191.5 feet, angular, rotated and mixed rock type fragments compose breccia. Minor sulfide mainly pyrite. At 191.5 - 197 feet, strong argillic alteration with pink anhydrite as veins and masses as last to invade zone. Character of lower 5 feet is that of altered rock with many irregular fractures. Garnet persists in the zone but is well broken.

197 - 202 feet, Garnet fractured and recemented with magnetite and sulfide. Magnetite 4%, sulfides 4%. Cpy 2%. At 198 feet, irregular gyp masses and veins.

197 - 214 feet, Hornfels. Dark green. Broken and recemented with qtz and sulfides. At 206 - 206.8 feet, masses of cpy and magnetite. At 207 - 209.8 feet, irregular gyp vein at 20°. At 209 - 211 feet, cpy with py in blebs and masses. At 211 - 212 feet, limestone block in breccia zone. Sulfide content of interval 197 - 214 feet 6% in masses mainly associated with qtz. At 211 - 213 feet, epidote blebs.

214 - 219.8 feet, Development of garnet skarn. Irregular gyp veins parallel core and cross from hornfel into skarn. Magnetite rich as fracture filling and veinlets.

219.8 - 222.5 feet, Predominantly hornfels - dark green colored. Fractured, qtz veins with epidote 20% and some garnet. Sulfides 2%. Py greater than cpy.

222.5 - 231 feet, Hornfels - skarn. Epidote and garnet. Chloritized, laced with magnetite veinlets. Qtz with magnetite. Sulfides as blebs, dissem and veins 3%. Predominant fracturing at 40°.

231 - 235 feet, Hornfels grading into granodiorite appearing rock. (introduced K-spar) back to metasediments. Metasediment is qtz veined 20%. Sulfides 3% with cpy greater than py. Magnetite as blebs in qtz 2%. Metasediments brecciated and qtz cemented at contact.

235 - 239 feet, Biotite quartz diorite, argillic alterations strong. Plagioclase almost completely gone. Biotite both primary and secondary. At 236 feet, fault 2 inches wide at 20°. Sulfides mainly dissem. 4%.

239 - 242 feet, Metasediment (graywacke ?) dark gray. Contact with diorite sharp at 30°. Many irregular qtz veins totalling 20%. Most have associated sulfides of cpy, py and MoS_2. Total sulfides as dissem and veinlets 5%. cpy 2%. Magnetite blebs 2%.

242 - 244.3 feet, Biotite quartz diorite. Argillic alteration strong. Cpy as dissem and veins 2%. Qtz veins 10%. At 243 feet, 1/4 inch qtz - MoS_2 vein at 40°.

244.3 - 246 feet, Metasediment. Dark gray. Qtz veinlet 15%. Cpy and py as dissem and veinlets 4%. Upper contact with diorite brecciated and intrusive appearing. Lower contact less definite.

246 - 265 feet, Biotite quartz diorite. Argillic alteration moderate. Most biotite secondary. Some chlorite. Qtz veining 10%. Total sulfide 3%. At 246 - 248 feet, Anhydrite vein irregular general parallel to core pinches out.

265 - 280.6 feet, Metasediment. Generally dark gray but bleached in zones where it is also chloritic as at 265 - 266.5 feet, 276 - 277 feet. Bleaching is also evident adjacent to individual qtz veinlets particularly so as the lower contact with diorite is approached. Qtz veining 15%. Sulfides are dissem and associated with qtz 3%. Cpy less than py. At 278.8 feet, 1 inch qtz - MoS_2 vein at 30°.

280.6 - 291 feet, Biotite quartz diorite. Highly altered. Argillized and chloritized. At 286.5 - 287.5 feet, remnants of metasediments have same character as interval 265 - 280.6. Metasediments much more prone to fracturing, consequently more quartz veined than diorite, however, veining occurs after emplacement of diorite because essentially all veins cross contact. At 289 feet, qtz vein or mass with MoS_2. Some qtz veining apparently took place before argillization with the prior veining soaking into the wall rock so that the vein margins are not discrete. With the argillization, the veins then show as non altered criss-crossing bands in the core.

291 - 305 feet, Metasediment. Dark gray. Fractured and silicified. Qtz veins 30% with many carrying sulfides. Sheeting at 20 to 25°. Qtz and sulfide filled. Total sulfides 3%, cpy 1%. At 294.5 feet, 4 inch wide brecciation with garnet as cement. Brecciated after qtz veining. Fragments contain cpy and py with cpy greater than py. At 298.8 and 304 feet, chloritic zones associated with gyp. The margins of most veins and veinlets are bleached into the country rock. At 301 feet, 1/4 inch qtz - moly vein.

305 - 320.7 feet, Biotite quartz diorite. The first two foot interval is heavy in iron stained K-spar with 6% sulfides scattered on fractures and as blebs. Cpy 2 - 3%. Gyp as irregular veinlets. Below 307 feet, K-spar is present in varying amounts averaging 5% - 10%. Considered to be introduced. At 308.5 feet, 2 inch qtz gyp MoS_2 vein at 35°. MoS_2 is on margins of both qtz and gyp. At 312 feet, qtz - K-spar vein cut by qtz-cpy vein. At 313 - 316 feet, ragged but persistent qtz - magnetite veinlet cuts other qtz veins. Qtz is about 1/4 inch wide and grades into wall. Magnetite is 1/16 inch wide and feathers through the middle of the qtz. Total sulfides 3%, cpy 1%.

320.7 - 337 feet, Metasediment. Dark gray. Somewhat bleached and cut by many qtz veins. Interval is broken by fractures poorly cemented with gyp. Prominent fracture plane at 15° - 25°. Sulfides 2% mainly pyrite. At 324 feet, 1-1/2 inch qtz vein with MoS_2.

337 - 368 feet, Gradiational contact into biotite quartz diorite over a 2 foot interval. Core becomes progressively lighter colored. Clots of primary biotite and secondary biotite become distinguishable. Plagioclase moderately to intensely altered. Qtz and Qtz-K-spar veins 15%. Some gyp vein. At 338 - 339 feet, 1/4 inch qtz vein with hematite is the same mode of occurrence as magnetite described in interval 313 -316 feet. At 341 feet, 1 inch qtz vein with cpy, py, MoS_2 and clots of hematite. Slightly magnetic. At 342.8 feet, 2 inch qtz gyp vein at 20°. At 348.5 feet, hematite blebs

with qtz slightly magnetic. At 347.5 - 349 feet, Chloritic alteration strong. At 351 - 353 feet, 1/2 inch qtz-K-spar vein with MoS_2 on margins. Vein is offset by fracture at 20°. Fault is normal with displacement about 3 inches. At 362 - 364 feet, Chloritized and sericitized patches of porphyritic diorite. At 364 feet, 1/2 inch wide qtz-cpy-MoS_2 vein. At 365 feet, shear structure at 20° carries cpy and Zn. At 367 - 368 feet, 3/8 inch to 1/2 inch wide qtz-K-spar-fluorite vein irregular.

368 - 384.7 feet, Porphyritic diorite. Biotite quartz diorite contact at about 15°. Very definite contact in part on either side of 1/4 inch qtz vein. Questions: 1) how to determine the relationship between the biotite quartz diorite and porphyritic diorite? 2) Why the sericite developed within the porphyry and biotite quartz diorite where the porphyry seems to be within the biotite quartz diorite. It seems the biotite quartz diorite is chloritized at the contact zone suggests that the biotite quartz diorite was altered by the introduction of the porphyry and would indicate that the porphyry is a later stage intrusive and not of metavolcanic origin as earlier thought. 3) Is there any significance in the occurrence of sphalerite at the contact and the fact that it occurs in the porphyry as well as the biotite quartz diorite? Sulfides are disseminated throughout the porphyritic diorite with the cpy content greater at the lower end. At 383 feet, 3/8 inch qtz-moly vein at 15° within chloritic shear at 35°. Lower contact of porphyry with biotite quartz diorite is at 20° and is again associated with a qtz vein.

384.7 - 467.3 feet, Biotite quartz diorite highly chloritized at contact with porphyry. Qtz vein at contact bears magnetite, cpy and py. Diorite is sheared for a few inches at 20°. Moderate to strong argillic alteration. Qtz-K-spar veins 7%. K-spar alteration makes out from K-spar veinlets. Below 393.5 feet to 408.5 feet, intense chloritic alteration with sericite and qtz flooding. Sulfide content 6% as dissem and veinlets. Hematite - magnetite with qtz and in diorite as stringers and blebs. At 397.5 - 398 feet, porphyritic blocks though not necessarily porphyritic diorite. Blocks are bleached. At 399.5 - 400.3 feet, porphyritic diorite. Dark black groundmass with smaller phenos than previous porph. Upper contact at 45°. Lower contact at 25°. Fine dissem cpy 3%. Structures within the chloritic zone are 15 - 20° as at 395 feet, 402 feet, 405.5 feet and 408 feet. Such structures offset sulfide mineralization. Total sulfides 6%. Hematite 2% weakly magnetic in places. At 408.5 feet, fine moly vein. Below 408.5 feet, the diorite remains argillically altered. Chlorite and sericite are intense in zones and along fractures. Mafics are mainly secondary biotite with dissem cpy closely associated. Sulfides 2%. Vein sulfides predominately cpy. Hematite is a predominate iron oxide. Individual veins carry either hematite or magnetite. At 429 feet, 3/4 inch qtz magnetite-hematite-cpy-py vein at 10°. Zone also chloritic. At 431 - 433 feet, 1/2 inch qtz magnetite-cpy-py vein at 15° epidote on margin. At 436 feet, 1 inch cpy-py vein at 35° associated py and MoS_2 with 1/16 inch gouge on hanging wall of vein. Interval 445 - 447 feet, K-spar or iron stained plagioclase more abundant. Sulfide content 1% - 2% as fine disseminations cpy equals py. At 449.7 feet, 1 inch qtz-py

vein at 25°. At 454 - 455 feet, qtz vein chloritic zone with cpy-py and MoS_2. Slip planes at 25° and 40°. From about 443 to 467.3 feet, one and two foot zones of K-spar alteration at intervals. At 459 feet, 1/2 inch cpy-py vein at 20°. At 462.5 - 464.5 feet, qtz, gyp, cpy, py zone. cpy and py as blebs. Zone continues to 466 with less qtz. 4 Foot interval highly chloritized.

467.3 - 474 feet, Metasediments. Dark gray aphanitic. Suggestive igneous textures in zones so may be metavolcanic. Predominant fracture set at 25°. Cpy and py as dissem and veinlets with cpy greater than py. Total sulfides 4%. Estimated copper .6% - .7%.

474 - 484 feet, Biotite quartz diorite. Contact with metasediments at 40°. 1/4 inch calcite vein at contact. Alteration moderate argillic and chloritic. To depth of 484 feet, generally darker in color and finer grained may be digested metasediment. Some pervasive silicification and chloritization. Seritization with good dissem and blebs of cpy. Definite association of the copper mineralization with this type of alteration. Zone should average .5% Cu. At 482 feet, qtz-MoS_2 vein at 50°. At 483 feet, cpy vein at 15°. Lower dark zone limit at 45° at different strike than structure.

484 - 519 feet, Biotite quartz diorite. Argillic alteration moderate increasing to intense in interval from 491 to 493 feet. Sulfides decrease to 1%. At 493 - 494.5 feet, fault zone with qtz, cpy, py at 25° to 55°. Interval 499.5 -506 feet, Light argillic alteration. Dissem cpy-py 4%.

519 - 524 feet, Granodiorite to monzonite due to K-spar alteration. At 521 feet, dioritic with fine veinlets of py at 25°. Dissem py and cpy 1% - 2%.

524 - 749 feet, Biotite quartz diorite. Intervals of granodiorite to monzonite composition rock persists but are restricted to zones adjacent to fracture planes along which K-spar has been introduced. Qtz veining in interval 529 - 543 feet is less than 10%. At 543 feet, strong 3/4 inch qtz-K-spar-magnetite-MoS_2 vein along fault plane at 15°. At 547 - 547.5 feet, qtz-MoS_2 vein at 15° lays parallel to barren qtz vein. Age relationship unknown. Below 544 feet, chloritization increases as does vein quartz to 15% - 20%. Argillization also increases to moderately intense below 549 feet. 551.5 - 561 feet, chloritized and sericitized with 25% qtz vein. Sulfides 3% - 4% as dissem and veins. Some associated MoS_2 and magnetite. Cpy 1%. At 564 - 565 feet, brecciated zone at 45° within which slips at 30°. At 561 - 570.5 feet, chloritization persists with more intense argillization diminishing below 570.4 feet to moderate argillization. Spotty K-spar mostly with qtz veins or as K-spar veinlets. Sulfides 1% - 2% mainly as vein filling. Cpy equal to 0.5%. At 570.5 - 571 feet, qtz, magnetite, MoS_2 vein. Dissem mineralization picks up to 2% in interval 583 - 589 feet. Cpy equals py. Chlorite varies 15% - 20%. At 605 feet, 1/4 inch qtz-cpy-py-MoS_2 vein at 20° with sericitic alteration for 1/4 inch to 1/2 inch on either side of vein. Below 604 feet, general

chlorite content increases and degree of argillic alteration increases to moderately intense. At 604.7 feet, 1/4 inch slip at 25°. Sulfide content declines to 1.5% as minor dissem, blebs and veinlets. At 607 - 608 feet, Irregular qtz-gyp vein (up to 1/4 inch wide) with py and chloritization along margins at 5° to 10°. At 610 feet, qtz-MoS_2 vein. Interval 608 - 618 feet, K-spar content up, in zones and along fractures total 10% accompanied by chlorite and sericite in interval 616 - 617 feet and along individual qtz-sulfide veins at up to 25°. Interval 607 - 627 feet, has some general dissem sulfides, cpy most prominent as blebs and irregular stringers. 627 - 629 Feet, siliceous chloritic zone with dissem cpy and py 6%. Cpy equals py. At 628 feet, structure with gyp-cpy-zns at 20°. At 638 - 644 feet, dissem sulfide 3% with some stringers of cpy. At 643.5-649 feet, 75% bull qtz with walls at 25°. MoS_2 as blebs and chlorite in streaks with minor cpy and py. Bottom terminated at slip at 30°. Sericite associated with sulfide veinlets forming halo into wall rock. At 658 - 659 feet, 3 inch qtz-sulfide vein at 25°. Chlorite-sericite halo. Minor slip plane through sulfides at 35°. At 663.5 feet, chlorite and sericite intensity increases sharply in company with vaguely outlined qtz-cpy-py veins and below 665.5 feet, mafics totally altered to chlorite and plagioclase altered to green hued clay (mont. ?) At 665 feet, fluorite vein cuts gyp vein. Cpy:py ratio 1:2. Alteration continues to depth of 669.5 feet, with about 7 foot interval at 668 feet that is veined with sericite. For 2-1/2 feet to 672 feet, rock is normal Biotite quartz diorite and then alteration advances to almost total bleaching to 677.7 feet at which depth it grades back to chloritic argillic alteration over 2 foot interval. At 674.5 feet, 1/4 inch cpy,zns vein. For a foot on each side of the bleached zone, cpy-py-zns equals 7% with cpy 1% to 1.5%. At 677.7 feet, fault zone with gyp coating at 40°. Many late slip planes at 35° - 40° carry smears of sulfides predominantly py. Associated cpy and sericite along margins cut barren qtz. Relationships in core indicate that displacement along fault has probably been normal with right lateral movement. At 682 - 694 feet, K-spar influx approx. 10%. Below 693.5 feet mafics totally chlorite to 696 feet and then grades back to 50% biotite at 697 feet reversing to totally chlorite at 697.5 feet and remains essentially so to 704 feet. Some associated sericite. At 694.5 feet, 2 inch diameter inclusion of metasediments. At 695 feet, slip plane at 25° bordered by 1/4 inch qtz vein and sulfides. At 700 - 701.5 feet, core is broken with 1/2 inch brecciated zone carrying gyp plates at 25°. At 702.5 feet slip plane at 35°. From 704 - 709.5 feet, chloritic alteration lessens but then intense to depth of 716 feet. Interval also has increased sulfide content as dissem and veinlets 2%. Below 710 - 735 feet, vein qtz increases to 20% to 25% mainly as wide veins. Argillic alteration moderate to intense. At 711.5 - 713 feet, broken and brecciated zone with some gouge at 40°. At 732 - 734 feet, intense chloritic alteration. At 734 - 749 feet, argillized and chloritized with minor dissem py. Some veinlets of py and cpy. Total sulfides 1%.

749 - 771.5 feet, Breccia zone. Bleached. Argillized, chloritized and sericitized. Minor py and cpy. At 750.2 feet, broken with qtz vein at 20°. Interval 753 - 757 feet, altered but not very broken. Qtz vein

at 40°. Some cpy , py and MoS_2 with qtz. Py predominent. At 766 feet, wavy slickensides at 5 - 15°.

771.5 - 808 feet, Biotite quartz diorite. Intensely chloritic and argillic altered to 776.5 feet grading to moderately intense chloritic alteration to depth of 795 feet below which influence of breccia zone at 795.5 feet causes intense argillic and chloritic alteration. Qtz generally barren 15%. Sulfides as blebs 1.5%. Sericite associated with cpy-py veinlets. Py greater than cpy. Intense argillic alteration to end of hole. Some biotite survives in interval 805 - 806 feet.

808 feet, END OF HOIE.

PROJ. CODE NO. ASSAY SUMMARY **DRILL HOLE LOG** HOLE NO. 115

REVISED 11/9/74 PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV 3351'	BEARING N65W	LAT 71618' N	STARTED 5-30-74	LOGGED BY C. TRAUTWEIN DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ -70°	DEP 52,302 E	COMPLETED 6-16-74	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE HQ 0-20' BQ 20-887'
LEVEL	LENGTH 887'	LOCATION	DRILLER T. GILLESPIE	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	% Cu	% MoS2	Ag oz/T	Au oz/T	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	UNION ASSAY OFFICE % Cu	RAA ASSAY % MoS2	UNION ASSAY (%, OZ) Ag oz/T	UNION ASSAY (%, OZ) Au oz/T
											7961	20 - 30	10'	0.138	0.003		
											7962			0.126	0.028		
											7963			0.094	0.018		
											7964	50		0.075	0.008		
											7965			0.107	0.005		
											7966			0.239	0.008	0.1	N
											7967			0.239	0.013		
										CORE SHATTERED	7968			0.126	0.008		
										CORE LOST 100'-103'	7969	100		0.239	0.003		
											7970			0.094	0.023		
											7971			0.113	0.010	0.1	Tr
											7972			0.056	0.005		
											7973			0.253	0.007		
											7974	150		0.415	0.010		
										CORE LOST 100-164' 167-170'	7975			0.214	0.030		
											7976			0.107	0.025	N	Tr
											7977			0.075	0.018		
											7978			0.182	0.075		
											7979	200		0.170	0.019		
											7980			0.144	0.018		
											7981			0.144	0.008	N	Tr
										CORE LOST 235'-240'	7982			0.214	0.028		
										CORE LOST 6'	7983	250		0.163	0.003		

R.A.A. CHECK SAMPLE # 8047 = 7970 0.11% Cu, 0.003 % MoS2

PROJ. CODE NO. ASSAY SUMMARY DRILL HOLE LOG HOLE NO. 115

REVISED 11/9/74

PROPERTY ORANGE HILL

STATE ALASKA. COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	MINOR ASSAY OFFICE % Cu	RAA. ASSAY % Mo	HIGH ASSAY (%., OZ) Ag oz/T	Au oz/T.
						Core Loss 3'	7984	250-260	10'	0.189	0.003		
							7985			0.472	0.015		
							7986			0.548	0.020	N	N
							7987			0.422	0.010		
							7988			0.176	0.008		
							7989	300		0.264	0.005		
							7990	CK ASSAY		0.3' 0.285	0.017		
							7991			0.289	0.022	0.1	N
							7992			0.277	0.009		
							7993			0.352	0.028		
							7994	350-360	20'	0.182	0.018		
							7995	370		0.340	0.006	N	N
							7996			0.214	0.011		
							7997			0.233	0.009		
							7998	400'		0.252	0.008		
							7999			0.214	0.005		
							8000	CK ASSAY		0.4' 0.195	0.012	0.2	N
							8001			0.277	0.017		
							8002			0.285	0.016		
							8003	450		0.239	0.009		
							8004			0.252	0.026		
							8005			0.138	0.014	0.1	N
							8006			0.195	0.013		
							8007	500'		0.132	0.013		

PROJ. CODE NO. ASSAY SUMMARY DRILL HOLE LOG HOLE NO. 115

REVISED 11/9/74 PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS. TYPE DRILL. SAMPLES. CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	UNION ASSAY OFFICE %Cu	RAA ASSAY (%, OZ) %MoS2	RAA ASSAY (%, OZ) Ag oz/T	RAA ASSAY (%, OZ) Au oz/T
							8008	500-510	10	0.182	0.022		
							8009			0.220	0.022		
							8010			0.207	0.008	N	TR.
							8011			0.258	0.037		
							8012			0.365	0.056		
							8013	550		0.283	0.037		
							8014			0.253	0.025		
							8015			0.157	0.007	N	N
							8016			0.226	0.008		
							8017			0.252	0.017		
							8018	600		0.245	0.017		
							8019			0.207	0.005		
							8020			0.201	0.018	0.1	N
							8021			0.176	0.032		
							8022			0.151	0.022		
							8023	650		0.182	0.015		
							8024			0.270	0.020		
							8025			0.253	0.017	N	N
							8026			0.270	0.013		
							8027			0.214	0.007		
							8028	700		0.144	0.017		
							8029			0.245	0.008		
							8030			0.163**	0.017	N	N
							8031			0.201	0.008		
							8032	750		0.214	0.012		

CHECK SAMPLES # 8048 - 8014 0.037% MoS_2

PROJ. CODE NO. ASSAY SUMMARY DRILL HOLE LOG HOLE NO. 115

RELEASED 11/9/74

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS. TYPE DRILL. SAMPLES. CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	UNION ASSAY OFFICE % Cu	RAA ASSAY % MoS_2	UNION ASSAY (%., OZ) Ag oz/T	UNION ASSAY (%., OZ) Au oz/T
							8033	750-760	10'	0.132	0.017		
							8034			0.151	0.010		
							8035			0.163	0.007	N	N
							8036			0.201	0.008		
							8037			0.214	0.008		
							8038	800		0.163	0.013		
							8039			0.151	0.020		
							8040			0.107	0.010	N	N
							8041			0.126	0.012		
							8042			0.113	0.007		
							8043	850		0.138	0.008		
							8044			0.220	0.008	0.1	Te.
							8045			0.264	0.017		
						END OF HOLE 887'	8046	882-887	7'	0.176	0.020		

CHECK SAMPLE #8047 - #8039 0.023 % MoS_2

PROJ. CODE NO. ASSAY SUMMARY — DRILL HOLE LOG — HOLE NO. 116

REVISED 11/9/74

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV 2898	BEARING N25°E	LAT 71,938 N	STARTED 6-9-74	LOGGED BY C TRAUTWEIN DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ -65	DEP 49,674 E	COMPLETED 6-16-74	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE NQ 0' - 40' BQ 40 - 591'
LEVEL	LENGTH 591'	LOCATION	DRILLER H. HICKEY	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	RESOURCE ASSOC. OF ALASKA. ASSAY (%, OZ) % Cu	% Mo	Ag oz/T	Au oz/T
						OVERBURDEN 0-13'							
							7901	13-20	7	0.051	0.004		
							7902	20-30	10	0.053	0.007	0.03	0.002
							7903			0.088	0.005		
							7904			0.053	0.007		
							7905	50		0.084	0.009		
							7906			0.100	0.018		
							7907			0.092	0.017		
							7908			0.054	0.007		
							7909			0.100	0.013	0.02	0.022
							7910	100		0.100	0.008		
							7911			0.150	0.014		
							7912			0.110	0.005		
							7913			0.120	0.057		
							7914			0.190	0.020	0.026	<0.003
							7915	150		0.090	0.017		
							7916			0.17	0.017		
						PORE DIKE	7917	170-174'	4'	0.22	0.017		
						PORE DIKE	7918	185.5-190	4.5	0.16	0.007		
							7919			0.08	0.003	0.034	<0.003
							7920	200		0.049	0.017		
							7921			0.09	0.007		
							7922			0.11	0.008		
							7923			0.07	0.005		
							7924	250		0.15	0.018	0.016	<0.003
							CK SAMPLE #7959-7911			0.10	0.013		

(ASSAYOR: RESOURCE ASSOCIATES OF ALASKA)

PROJ. CODE NO. ASSAY SUMMARY DRILL HOLE LOG HOLE NO. 116

REVISED 11/9/74 PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	RESOURCE ASSOC. OF ALASKA ASSAY (%., OZ) % Cu	% Mo Sc	Ag oz/T	Au oz/T.
							7925	250-260	10'	0.10	0.007		
							7926			0.06	0.007		
							7927			0.13	0.010		
							7928			0.10	0.012		
							7929			0.07	0.007	0.017	<0.003
							7930	300		0.07	0.010		
							7931			0.07	0.005		
							7932			0.07	0.008		
							7933			0.10	0.077		
							7934			0.08	0.033	0.020	<0.003
							7935	350		0.15	0.010		
							7936			0.11	0.015		
							7937			0.13	0.010		
							7938			0.13	0.015		
							7939			0.17	0.015	0.017	<0.003
							7940	400		0.11	0.008		
							7941			0.14	0.015		
							7942			0.15	0.013		
							7943			0.13	0.053		
							7944			0.16	0.023	0.023	<0.003
							7945	450		0.07	0.030		
							7946			0.14	0.023		
							7947			0.17	0.018		
							7948			0.11	0.010		
							7949	500		0.08	0.007	0.017	<0.003

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 110

REVISED 11/9/74

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	RESOURCE ASSOC. OF ALASKA ASSAY (%, OZ) % Cu	% Mo Sx	Ag oz/T.	Au oz/T.
							7950	500-510	10	0.13	0.023		
							7951			0.100	0.005		
							7952			0.110	0.077		
							7953			0.160	0.108		
							7954			0.150	0.133	0.041	(0.003
							7955	550		0.068	0.002		
							7956			0.120	0.002		
							7957			0.064	0.002		
							7958	580-591	11	0.08	0.002		
						END OF HOLE 591'							

CHECK SAMPLE # 7960 = # 7951 0.100% Cu 0.007% Mo Sx

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. DDH 117

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV 2911'	BEARING —	LAT 70669 N	STARTED 6-17-74	LOGGED BY C. TRAUTMAN DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ VERTICAL	DEP 49656 E	COMPLETED 7-9-74	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE HQ 0 85' NQ 85-200' BQ 200-1245'
LEVEL	LENGTH 1245'	LOCATION	DRILLER T. GILLESPIE	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM–TO	INTERVAL	ASSAY (%., OZ)
								0		
						OVERBURDEN RIVER GRAVELS				
								50'		
								100'		
								150'		
						BED ROCK 195'				
								200'		
						POST ORE DIKE				
								250		

PROJ. CODE NO. ASSAY SUMMARY DRILL HOLE LOG HOLE NO. 117

PROPERTY ORANGE HILL

STATE _____ COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS. TYPE DRILL. SAMPLES. CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ) % Cu	ASSAY (%., OZ) % MoS2
							8095	255-270	15	.	0.027
							8096	270-280	10	.	0.027
							8097			.	0.025
							8098			.	0.023
							8099	300		.	0.040
							8100			.	0.025
							8101			.	0.040
							8102			.	0.022
							8103			.	0.022
							8104	350		.	0.025
							8105			.	0.025
							8106			.	0.022
							8107			.	0.058
							8108			.	0.042
							8109	400		.	0.012
							8110			.	0.030
							8111			.	0.005
							8112			.	0.043
							8113			.	0.045
							8114	450		.	0.060
							8115			.	0.045
							8116			.	0.043
							8117			.	0.050
							8118	500		.	0.023

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 117

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%, OZ) % Cu	ASSAY (%, OZ) % MoS_2
							8119	500-505	5	.	0.013
							8120	525-530	2	.	0.022
							8121			.	0.063
							8122			.	0.027
							8123	550-554	4	.	0.027
							8124	561.5-570	8.5	.	0.012
							8125			.	0.022
							8126			.	0.020
							8127			.	0.070
							8128	600		.	0.025
							8129			.	0.058
							8130			.	0.075
							8131			.	0.017
							8132			.	0.015
							8133	650-651 653.5-660	7.5	.	0.040
							8134			.	0.042
							8135			.	0.027
							8136			.	0.088
							8137			.	0.020
							8138	700		.	0.043
							8139			.	0.017
							8140			.	0.158
							8141			.	0.259
							8142	750		.	0.113

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 117

PROPERTY ORANGE HILL

STATE _____ COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ ▸	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%, OZ) % Cu	% Mo S	Ag oz/T	Au oz/T
							8143	750-757	9'	.	0.142		
							8144	783-790	7'	.	0.038		
							8145			.	0.030		
							8146	800		.	0.017		
							8147			.	0.022		
							8148			.	0.020		
							8149			.	0.017		
							8150			.	0.017		
							8151	850		.	0.025		
							8152			.	0.013		
							8153			.	0.020		
							8154			.	0.050		
							8155			.	0.013		
							8156	900		.	0.028		
							8157			.	0.017		
							8158			.	0.043	0.32	
							8159			.	0.042		
							8160			.	0.055		
							8161	950		.	0.017		
							8162			.	0.015		
							8163			.	0.015	0.07	
							8164			.	0.042		
							8165	1000		.	0.058		

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 117

PROPERTY ORANGE HILL

STATE _____ COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%, OZ) % Cu	% Pb/Zn	Ag oz/T	Au oz/T
							8166	1000		.	0.012		
							8167			.	0.018		
							8168			.	0.017	0.03	
							8169			.	0.018		
							8170			.	0.013		
							8171	1050		.	0.028		
							8172			.	0.025		
							8173			.	0.015	0.04	
							8174			.	0.017		
							8175			.	0.012		
							8176	1100		.	0.020		
							8177			.	0.010		
							8178			.	0.015	0.04	
							8179			.	0.017		
							8180			.	0.023		
							8181	1150		.	0.003		
							8182			.	0.012		
							8183			.	0.022	0.07	
							8184			.	0.027		
							8185			.	0.005		
							8186	1200		.	0.005		
							8187			.	0.041		
							8188			.	0.008	0.03	
							8189			.	0.005		
						END OF HOLE	8190	1240-1245	5'	.	0.003		

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 118

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV 3700.0'	BEARING —	LAT 72,234'N	STARTED 6-17-74
BOTTOM ELEV 3009.0'	VERTICAL ANGLE FROM HORIZ	DEP 53,470'E	COMPLETED 6-25-74
LEVEL	LENGTH 691'	LOCATION	DRILLER H. HICKEY

LOGGED BY C TRACTMEIN DATE _____

REMARKS. TYPE DRILL. SAMPLES. CORE SIZE
NQ 0-18'
BQ 18-691'

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	FROM-TO	INTERVAL	ASSAY (%., OZ) % Cu	ASSAY (%., OZ) % MoS2
						CORE MISSING	8050	11 31'	20'	0.016	TR
						CORE MISSING 31'-36'	8051	31-40'	9'	0.074	TR
							8052	40-50	10'	0.180	TR
						CORE MISSING.	8053	50		0.021	TR
							8054			0.037	TR
							8055			0.030	TR
							8056			0.008	TR
							8057			0.018	TR
							8058	100		0.018	TR
							8059			0.021	TR
							8060			0.015	0.002
							8061			0.019	0.001
							8062			0.009	TR
							8063	150		0.019	TR
							8064			0.015	TR
							8065			0.034	TR
							8066			0.011	TR
							8067			0.010	TR
							8068	200		0.013	0.001
							8069			0008	TR
							8070			0.016	0.001
							8071			0.023	TR
							8072	250		0.006	0.001

ASSAYER: RESOURCE ASSOCIATES OF ALASKA - GEOCHEMICAL ANALYSE - AA.

Assay Summary

DRILL HOLE LOG

PROJ. CODE NO. _____

HOLE NO. DDH 118

PROPERTY _____

STATE _____ COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS. TYPE DRILL. SAMPLES. CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM–TO	INTERVAL	ASSAY (%., OZ) Cu	MoS_2	Ag oz/T.	Au oz/T.
							8073	250' – 260'	10'	0.013	Tr.		
							8074	260' – 270'	10'	0.025	Tr.		
							8075	270' – 280'	10'	0.022	0.001	0.03	
							8076	280' – 290'	10'	0.011	0.001		
							8077	290' – 300'	10'	0.070	0.001		
							8078	300' – 310'	10'	0.022	Tr.		
							8079	310' – 320'	10'	0.032	0.001		
							8080	320' – 330'	10'	0.034	0.001	0.03	
							8081	330' – 340'	10'	0.026	0.001		
							8082	340' – 350'	10'	0.017	0.001		
							8083	350' – 360'	10'	0.048	0.001		
							8084	360 – 370'	10'	0.034	0.001		
							8085	370' – 380'	10'	0.025	0.001	0.03	
							8086	380' – 390'	10'	0.048	0.001		
							8087	390' – 400'	10'	0.054	0.001		
							8088	400' – 410	10'	0.013	0.001		
							8089	410' – 420'	10'	0.012	0.001		
							8090	420' – 430'	10'	0.036	0.001	0.02	
							8091	430' – 440'	10'	0.036	0.001		
							8092	440' – 450'	10'	0.033	0.001		
							8093	450' – 460'	10'	0.075	0.003		
							8094	460' – 470'	10'	0.210	0.002		
							8356	470 – 480	10'	0.023	0.020	0.04	<0.03
							8357	480 – 490	10'	0.029	0.022	"	
							8358	490 – 500	10'	0.035	0.001		

Sample numbers 8072 thru 8092 Batch number 326 &
" " 8093 and 8094 " " 446

SHEET 2 OF 2 SHEETS

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. DDH 11

PROPERTY

STATE COUNTY SEC. TWP. RANGE LOT TRACT

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY DATE
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%, OZ) Cu	MoS_2	Ag oz/T.	Au oz/T.
							8359	500-516	16'	0.031	0.001		
							8360			0.033	<0.001		
							8361			0.028	<0.001	0.03	<.003
							8362			0.042	<0.001		
							8363			0.035	<0.001		
							8364	550		0.035	<0.001		
							8365			0.021	<0.001		
							8366			0.050	<0.001	0.023	<0.003
							8367			0.038	<0.001		
							8368			0.057	<0.001		
							8369	600		0.034	<0.001		
							8370			0.022	<0.001		
							8371			0.060	<0.001		
							8372			0.030	<0.002		
							8373			0.040	<0.001		
							8374	650		0.040	0.001		
							8375			0.120	0.001		
							8376			0.040	0.001		
							8377	650-691	11'	0.060	0.001	0.04	<0.003
						END OF HOLE 691'							

Check Sample # 8378 = # 8058 Cu 0.030 MoS_2 0.001
" " " 8379 = # 8359 Cu 0.040 MoS_2 0.002

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 119

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV 3,248'	BEARING —	LAT 71,635' N	STARTED 6-26-74	LOGGED BY C. TRAUTMAN DATE _____
BOTTOM ELEV 1,227'	ANGLE FROM HORIZ VERT. (SEE SURVEY)	DEP 51,170' E	COMPLETED 8-1-74	REMARKS. TYPE DRILL. SAMPLES. CORE SIZE BXWL 0-202.1'
LEVEL	LENGTH 2,021'	LOCATION	DRILLER H. HICKET	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ) % Cu	ASSAY (%., OZ) % MoS_2
							8194	0 - 10	10'	0.002	0.001
							8195			0.072	0.015
							8196			0.043	0.013
							8197			0.038	0.162
							8198			0.035	0.030
							8199	50'		0.014	0.037
							8200			0.052	0.025
							8201			0.108	0.007
							8202			0.075	0.017
							8203			0.029	0.002
							8204	100		0.019	0.005
							8205			0.159	0.008
							8206			0.070	0.007
							8207			0.054	0.105
							8208			0.175	0.038
							8209	150		0.150	0.010
							8210			0.155	0.005
							8211			0.044	0.025
							8212			0.180	0.015
							8213			0.084	0.037
							8214	200		0.079	0.279
							8215			0.103	0.047
							8216			0.078	0.010
							8217			0.068	0.005
							8218	200-250		0.060	0.022

PROJ. CODE NO. ASSAY SUMMARY DRILL HOLE LOG HOLE NO. 119

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS. TYPE DRILL. SAMPLES. CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ) % Cu	% MoS2	Ag oz/T	Au oz/T
							8244	500-570	10	0.156	0.164		
							8245			0.115	0.015		
							8246			0.122	0.007		
							8247			0.106	0.005		
							8248			0.156	0.025		
							8249	550		0.174	0.012		
							8250			0.128	0.048		
							8251			0.217	0.225		
							8252			0.160	0.003		
							8253			0.155	0.013		
							8254	600		0.140	0.005		
							8255			0.130	0.022		
							8256			0.100	0.012	0.005	<0.003
							8257			0.290	0.012		
							8258			0.200	0.007		
							8259	650		0.170	0.002		
							8260			0.096	0.007		
							8261			0.220	0.003	0.003	<0.003
							8262			0.094	0.002		
							8263			0.100	0.005		
							8264	700		0.100	0.002		
							8265			0.140	0.002		
							8266			0.200	0.013	0.02	<0.003
							8267			0.130	0.002		
							8268	750		0.200	0.008		

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 119

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS. TYPE DRILL. SAMPLES. CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ) % Cu	ASSAY (%., OZ) % Mo
							8219	250-260	10	0.089	0.053
							8220			0.072	0.023
							8221			0.080	0.028
							8222			0.184	0.005
							8223			0.085	0.007
							8224	300		0.075	0.067
							8225			0.047	0.005
							8226			0.046	0.002
							8227			0.012	0.023
							8228			0.023	0.007
							8229	350		0.120	0.027
							8230			0.032	0.033
							8231			0.041	0.028
							8232			0.004	0.097
							8233			0.026	0.008
							8234	400		0.031	0.028
							8235			0.047	0.023
							8236			0.030	0.012
							8237			0.105	0.023
							8238			0.121	0.012
							8239	450		0.093	0.150
							8240			0.283	0.028
							8241			0.125	0.028
							8242			0.135	0.132
							8243	500		0.122	0.010

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 119

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED
LEVEL	LENGTH	LOCATION	DRILLER

LOGGED BY _____ DATE _____

REMARKS, TYPE DRILL, SAMPLES, CORE SIZE

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ) % Cu	% Mo S2	Au oz/T	Ag oz/T	% Mo S2
							8269	750-760	10	0.065	0.077			0.058
							8270			0.090	0.013			
							8271			0.077	0.002	0.01	<0.005	
							8272			0.062	0.002			
							8273			0.080	0.050			
							8274	800		0.094	0.187			0.165
							8275			0.094	0.018			
							8276			0.070	0.002	0.003	<0.005	
							8277			0.074	0.007			
							8278			0.264	0.027			
							8279	850		0.110	0.070			
							8280			0.120	0.013			
							8281			0.100	0.004	0.003	<0.005	
							8282			0.150	0.023			
							8283			0.220	0.007			
							8284	900		0.150	0.005			
							8285			0.470	0.107			0.120
							8286			0.250	0.005	0.005	<0.005	
							8287			0.140	0.013			
							8288			0.160	0.012			
							8289	950		0.180	0.010			
							8290			0.077	0.267			0.267
							8291			0.078	0.008	0.003	<0.005	
							8292			0.180	0.005			
							8293	1000		0.150	0.304			0.185

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 119

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM–TO	INTERVAL	ASSAY (%, OZ) % Cu	% MoS2	Au oz/T	Au oz/T.	% MoS2
						POST ORE DIKE	8319	1250-1260	10'	0.070	0.008			
							8320	1260-1261	1'	0.040	0.011			
							8321	1293-1300	7'	0.065	0.013			
							8380	1300		0.070	0.018			
							8381			0.060	0.009			
							8382			0.070	0.012			
							8383			0.070	0.017			
							8384			0.040	0.028			
							8385	1350		0.012	0.057			
							8386			0.100	0.035			
							8387			0.120	0.022			
							8388			0.100	0.052			
							8389			0.070	0.025	0.01	<0.005	
							8390	1400		0.060	0.022			
							8391			0.090	0.018			
							8392			0.040	0.012			
							8393			0.050	0.010			
							8394			0.050	0.009			
							8395	1450		0.090	0.013			
							8396			0.050	0.007			
							8397			0.040	0.005			
							8398			0.040	0.007			
							8399	1500		0.090	0.234	0.02	<0.005	0.200

PROJ. CODE NO. ASSAY SUMMARY **DRILL HOLE LOG** HOLE NO. 119

PROPERTY ORANGE HILL

STATE ALASKA COUNTY ______ SEC. ____ TWP. ____ RANGE ____ LOT ____ TRACT ____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY ______ DATE ______
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS. TYPE DRILL. SAMPLES. CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM–TO	INTERVAL	ASSAY (%., OZ) % Cu	% MoS2	Au oz/T	Ag oz/T	Skyline % MoS2
							8294	1000-1010	10'	0.120	0.108			0.102
							8295			0.140	0.002			
							8296			0.082	0.003	0.005	<0.003	
							8297			0.068	0.005			
							8298			0.100	0.002			
							8299	1050		0.220	0.010			
							8300			0.110	0.002			
							8301			0.053	0.172	0.01	<0.003	
							8302			0.150	0.003			
							8303			0.160	0.010			0.020
							8304	1100		0.085	0.244			0.110
							8305			0.087	0.007			0.005
							8306			0.082	0.007	0.003	<0.003	
							8307			0.088	0.012			
							8308			0.090	0.005			
							8309	1150		0.100	0.013			
							8310			0.110	0.032			
							8311			0.051	0.020	0.003	<0.003	
							8312			0.047	0.008			
							8313			0.098	0.017			
							8314	1200		0.160	0.022			
							8315			0.080	0.007			
							8316			0.037	0.011			
							8317			0.034	0.112			0.065
							8318	1250		0.046	0.009			

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 119

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS. TYPE DRILL. SAMPLES. CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ) % Cu	% Mo	Ag oz/t	Au oz/t
							8429	1751-1753	2'	0.003	0.002		
							8430	1779-1780	1'	0.007	0.002		
							8492			0.028	0.017		
							8493			0.016	0.002	0.003	<0.003
							8494	1800		0.036	0.003		
							8495			0.053	0.007		
							8496			0.027	0.008		
							8497			0.041	0.003		
							8498			0.069	0.005		
							8499	1850		0.072	0.001		
							8500			0.067	0.007		
							8501			0.087	0.005		
							8502			0.106	0.003		
							8503			0.071	0.002	0.003	<0.003
							8504	1900		0.023	0.012		
							8505			0.066	0.008		
							8506			0.065	0.001		
							8507			0.110	0.008		
							8508			0.038	0.001		
							8509	1950		0.065	0.003		
							8510			0.051	0.005		
							8511			0.030	0.003		
							8512			0.017	0.001		
							8513	2000		0.058	0.002		

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 119

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS. TYPE DRILL. SAMPLES. CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ) % Cu	% Mo S	Ag oz/T.	Au oz/T.
							8400	1500-1510	10'	0.050	0.027		
							8401			0.050	0.002		
							8402			0.030	0.008		
						POST ORE DIKE	8403	1530-1533	3'	0.040	0.003		
							8404	1553-1555	2'	0.040	0.032		
							8405	1562-1570	8'	0.030	0.003		
							8406			0.030	0.015		
							8407			0.090	0.001		
							8408			0.070	0.001	0.01	<0.005
							8409	1640		0.004	0.002		
							8410			0.003	0.002		
							8411			0.040	0.002		
							8412			0.040	0.003		
							8413			0.040	0.002		
							8414	1650		0.010	0.025		
							8415			0.010	0.002		
							8416			0.020	0.002		
							8417			0.020	0.002		
							8418	1690-1694	4'	0.050	0.042		
								1700					
						POST ORE DIKE							
								1750					

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 119

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ)				
							8514	2020-2010	10'	0.082	0.016			
							8515			0.082	0.001			
							8516	2020-2021	1'	0.083	0.001			
						END OF HOLE 2021'								

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. DDH 120

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV 3340'	BEARING SEE SURVEY	LAT 72440N	STARTED 7-16-74	LOGGED BY C. TIKHOMIROV DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ VERTICAL SEE SURVEY	DEP 50820E	COMPLETED 8-19-74	REMARKS. TYPE DRILL. SAMPLES. CORE SIZE HQ SURFACE CASING NQ 0-10' BQ 10-2014'
LEVEL	LENGTH	LOCATION	DRILLER T. GILLESPIE	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ) Cu	MoS_2	Ag oz/T.	Au oz/T.
							8420	0 - 10	10'	0.040	0.002		
							8421			0.050	0.002		
							8422			0.040	0.005		
							8423			0.004	0.002		
							8424			0.003	0.002		
							8425	50		0.04	0.002		
							8426			0.05	0.002		
							8427			0.05	0.002		
							8428			0.05	0.002		
							8429			0.04	0.003		
							8431	100		0.03	0.002	0.01	<0.003
							8432			0.041	<0.001		
							8433			0.046	<0.001		
							8434			0.060	0.002		
							8435			0.080	<0.001		
							8436	150		0.055	0.002		
							8437			0.085	0.014		
							8438			0.120	0.005		
							8439			0.130	0.014		
							8440			0.003	<0.001	0.006	<0.003
							8441	200		0.060	0.003		
							8442			0.041	<0.001		
							8443			0.075	0.002		
							8444			0.055	0.192		
							8445	250		0.040	0.018		

CHECK SAMPLE 8672 - 8431 0.019 % Cu 0.006 % MoS_2

PROJ. CODE NO. ASSAY SUMMARY DRILL HOLE LOG HOLE NO. DDH #20

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ) Cu	MoS_2	Ag oz/T.	Au oz/T.
							8446	250		0.170	0.018		
							8447			0.045	0.006		
							8448			0.047	0.007		
							8449			0.060	0.003		
							8450			0.042	0.001	0.003	<0.005
							8451	300		0.155	0.001		
							8452			0.056	0.003		
							8453			0.047	0.001		
							8454			0.055	0.003		
							8455			0.065	0.001		
							8456	350		0.039	0.003		
							8457			0.075	0.003		
							8458			0.036	0.001		
							8459			0.055	0.004		
							8460			0.048	0.003	0.003	<0.005
							8461	400		0.055	0.004		
							8462			0.055	0.003		
							8463			0.37	0.001		
							8464			0.045	0.003		
							8465			0.085	0.008		
							8466	450		0.049	0.001		
							8467			0.060	0.002		
							8468			0.040	0.002		
							8469			0.036	0.003		
							8470	500		0.060	0.003	0.009	<0.005

CHECK SAMPLE NO. 8673 • 8461 0.036% Cu 0.003% MoS_2

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 120

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ) %Cu	%MoS2	Ag oz/T	Au oz/T.
							8471	500		0.070	0.003		
							8472			0.060	<0.001		
							8473			0.030	0.001		
							8474			0.036	0.002		
							8475			0.025	0.003		
							8476	550		0.046	0.003		
							8477			0.048	0.002		
							8478			0.034	<0.001		
							8479			0.033	0.003		
							8480			0.055	<0.001	0.009	<0.003
							8481	600		0.055	0.004		
							8482			0.042	0.003		
							8483			0.049	<0.001		
							8484			0.041	0.003		
							8485			0.053	0.003		
							8486	650		0.046	0.003		
							8487			0.028	<0.001		
							8488			0.055	0.005		
							8489			0.043	0.019		
							8490			0.070	0.048	0.012	<0.003
							8491	700		0.053	0.011		
							8524			0.038	0.003		
							8525			0.043	0.001		
							8526			0.037	0.003		
							8527	750		0.053	0.002		

CK. SAMPLE #8674 = #8491 0.044% Cu 0.012% MoS2

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. DDH 120

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS. TYPE DRILL. SAMPLES. CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ) % Cu	% MoS2	Ag oz/T	Au oz/T.
							8528	750		0.054	0.003		
							8529			0.058	0.003		
							8530			0.050	0.008		
							8531			0.064	0.003		
							8532			0.040	0.003	0.015	0.003
							8533	800		0.062	0.002		
							8534			0.037	0.002		
							8535			0.080	0.005		
							8536			0.066	0.007		
							8537			0.078	0.017		
							8538	850		0.215	0.013		
							8539			0.051	0.007		
							8540			0.078	0.017		
							8541			0.147	0.012		
							8542			0.017	0.005	0.006	0.003
							8543	900		0.011	0.007		
							8544			0.030	0.005		
							8545			0.048	0.012		
							8546			0.027	0.001		
							8547			0.025	0.005		
							8548	950		0.067	0.007		
							8549			0.044	0.005		
							8550			0.065	0.001		
							8551			0.026	0.008		
							8552	-1000		0.015	0.004		

PROJ. CODE NO. ASSAT SUMMARY

DRILL HOLE LOG

HOLE NO. 120

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%, OZ) % Cu	ASSAY (%, OZ) % MoS2
							8578	1250-1255	5'	.024	.002
							8579	1288-1290	2'	.027	.018
							8580			.016	.006
							8581	1300		.041	.002
							8582			.038	.002
							8583			.021	.001
							8584			.025	.001
							8585			.068	.021
						5' LOST 5' LOST	8586	1350		.089	.020
							8587			.046	.005
							8588			.038	.002
							8589			.055	.002
							8590			.054	.002
							8591	1400		.061	.023
							8592			.025	.002
							8593			.018	.004
							8594			.010	.001
							8595			.031	.005
							8596	1450		.012	.002
							8597			.026	.011
							8598			.068	.003
							8599			.028	.007
							8600	1500		.022	.053

CHECK SAMPLE NO. 8676 = NO 8581 0.039 % Cu 0.002 % MoS2

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 120

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ) % Cu	ASSAY (%., OZ) % MoS2
							8553	1000		0.013	.031
							8554			.030	.033
							8555			.050	.004
							8556			.043	.004
							8557			.040	.003
							8558	1052-1060	8'	.034	.002
							8559			.034	.008
							8560			.012	.001
							8561			.011	.004
							8562			.023	.004
							8563	1100		.028	.017
							8564			.018	.007
							8565			.019	.TR
							8566			.026	.003
							8567			.038	.003
							8568	1150		.027	.TR
							8569			.029	.TR
							8570			.051	.025
							8571			.024	.019
							8572			.030	.003
							8573	1200		.022	.007
							8574			.021	.002
							8575			.030	.002
							8576			.018	.003
							8577	1250		.021	TR

CHECK SAMPLE NO 8675 = 8553 0.012 % Cu 0.022 % MoS2

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 120

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS. TYPE DRILL. SAMPLES. CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ) % Cu	ASSAY (%., OZ) % MoS2
							8646	1750-1760	10'	0.180	0.006
							8647			0.008	0.001
							8648			0.012	0.005
							8649			0.017	0.005
							8650			0.038	0.005
							8651	1800		0.010	0.002
							8652			0.002	0.001
							8653			0.005	0.001
							8654			0.003	0.001
							8655			0.006	0.004
							8656	1850		0.006	0.006
							8657	1860-1866	6'	0.005	0.006
							8658	1879-1890	11'	0.028	0.002
							8659			0.060	0.007
							8660	1900		0.009	0.006
							8661			0.002	0.003
							8662	1920-1923 1926-1930	7'	0.018	0.037
							8663			0.057	0.037
							8664			0.011	0.001
							8665	1950		0.034	0.001
							8666			0.007	0.015
							8667			0.008	0.001
							8668			0.004	0.001
							8669			0.005	0.001
							8670	2000		0.020	0.009
							8671	2010-2014		0.012	0.001

CK. SAMPLE #8678 - #8660 0.007% Cu 0.006% MoS2

END OF HOLE 2014'

SHEET 2 OF 2 SHEETS

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 120

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS. TYPE DRILL. SAMPLES. CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ) % Cu	ASSAY (%., OZ) % MoS2
							8601	1500		0.036	0.005
							8602			0.042	0.007
							8603			0.048	0.012
							8604			0.060	0.045
							8605			0.020	0.005
							8606	1550		0.050	0.007
							8607			0.017	0.003
							8608			0.050	0.002
							8609			0.067	0.003
							8610			0.090	0.001
							8611	1600		0.023	0.003
							8632			0.005	0.001
							8633			0.048	0.046
							8634			0.031	0.004
							8635			0.046	0.002
							8636	1650		0.086	0.012
							8637			0.033	0.006
							8638			0.027	0.002
							8639			0.033	0.001
							8640			0.021	0.002
							8641	1700		0.014	0.002
							8642			0.012	0.003
							8643			0.005	0.006
							8644			0.003	0.002
							8645	1750		0.014	0.003

CHECK SAMPLE No. 8677 • No. 8611 0.012 % Cu 0.002 MoS2

PROJ. CODE NO. ASSAY SUMMARY **DRILL HOLE LOG** HOLE NO. 121

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV 2915	BEARING —	LAT 70540 N	STARTED 7-9-74	LOGGED BY C. TRAITWEIN DATE _____
BOTTOM ELEV	VERTICAL ANGLE FROM HORIZ	DEP 50169E	COMPLETED 7-14-74	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE HQ 0-85' NQ 85-112' BQ 112-495'
LEVEL	LENGTH 495'	LOCATION	DRILLER GILLESPIE	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM–TO	INTERVAL	UNION ASSAY OFFICE	RESOURCE ASSOC. OF AK ASSAY (%, OZ)			
								0 - 10						
						RIVER GRAVELS		50						
0	107							100						
						SKYLINE LABS 2nd SPLIT: %Cu 0.36, 0.80; %MoS2 0.011, 0.047 — AVERAGE: %Cu 0.58, 0.85; %MoS2 0.011, 0.038 — POST ORE DIKE — 3' CORE LOST; 4' " "; 5' " "; 2' " "; 5' " "		150						
						POST ORE DIKE →	8322	180-184	4'	0.08	0.006			
							8323	194-199	5'	0.270	0.020			
							8324	205-210	5'	0.214	0.013			
							8325		10'	0.233	0.016			
							8326			0.321	0.012	0.050	<0.003	
							8327			0.409	0.013	0.20 UNION	NO ANOMALY	
							8328	250		0.894	0.033			

SAMPLE #7410 205'-210' BRECCIA 0.252 %Cu 0.018% MoS_2

SHEET 1 OF 2 SHEETS

REVISED 11/4/74

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 121

PROPERTY ORANGE HILL

STATE _____ COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED
LEVEL	LENGTH	LOCATION	DRILLER

LOGGED BY _____ DATE _____

REMARKS. TYPE DRILL. SAMPLES. CORE SIZE

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	SKYLINE LABS 2nd SPLIT % Cu	SKYLINE LABS 2nd SPLIT % MoS_2	AVERAGE % Cu	AVERAGE % MoS_2	DESCRIPTION	SAMPLE NO	FROM–TO	INTERVAL	UNION ASSAY OFFICE % Cu	UNION ASSAY OFFICE % MoS_2	RESOURCE ASSOC. OF ALASKA ASSAY (%, OZ) Ag oz/T	RESOURCE ASSOC. OF ALASKA ASSAY (%, OZ) Au oz/T
						0.52	0.015	0.77	0.021		8329	250		1.014	0.033		
						0.32	0.020	0.37	0.014		8330	RAA CHECK		8.459	0.011		
						0.38	0.033	0.44	0.030		8331			0.491	0.033	0.064	<0.003
											8332			0.554	0.007	TR	N
											8333			1.197	0.013		
						0.26	0.025	0.35	0.028		8334	300		0.258	0.007		
											8335			0.484	0.038		
											8336			0.283	0.018	0.052	<0.003
											8337			0.285	0.023	TR	N
											8338			0.724	0.043		
											8339	350		0.757	0.051		
											8340	RAA CHECK		8.340	0.042		
											8341			0.477-0.146		0.061	<0.003
											8342			0.471	0.064	TR	N
											8343			0.485	0.109		
											8344	400		0.264	0.045		
											8345			0.296	0.013		
											8346			0.844	0.080	0.05	<0.003
											8347			0.321	0.038	0.4	N
											8348			0.245	0.015		
											8349	450		0.259	0.027		
											8350			0.214	0.034		
											8351			0.315	0.034	0.05	<0.003
											8352			0.390	0.051	N	N
										END OF HOLE 495	8353	490-495	5	0.560	0.087		

SHEET 2 OF 2 SHEETS

REVISED 11/4/74

PROJ. CODE NO. ASSAY SUMMARY DRILL HOLE LOG

HOLE NO. 122

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV 3,339'	BEARING VERT.	LAT 12,378 N	STARTED 8-7-74	LOGGED BY TRAUTWEIN McGREGOR DATE _____
BOTTOM ELEV 2578'	ANGLE FROM HORIZ	DEP 51,455 E	COMPLETED 8-24-74	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE HQ 0-33' NQ 33-761'
LEVEL	LENGTH 761'	LOCATION	DRILLER HICKEY	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%, OZ) % Cu	% MoS2
						OVERBURDEN					
							8612	41-50		.063	.003
							8613	50		.062	.002
							8614			.047	.015
							8615			.072	.009
							8616			.051	.002
							8617			.026	.001
							8618	100		.120	.005
							8619			.042	.001
							8620			.054	.001
							8621			.031	.002
							8622			.042	.004
							8623	150		.041	.002
						3' LOST	8624			.100	.001
						4' "	8625			.074	.002
						4' "	8626			.055	.002
						9' "	8627			.043	.004
							8628	200		.033	.002
						2' LOST	8629			.028	.004
							8630			.043	.002
							8631			.067	.001
							8679	250		.097	.003

CHECK SAMPLE No. 8721 = NO. 8618 0.027% Cu 0.004% MoS2

ASSAYOR: RESOURCE ASSOCIATES OF ALASKA.

GEOCHEMICAL ANALYSES BY A.A.

PROJ. CODE NO. ASSAY SUMMARY DRILL HOLE LOG HOLE NO. 122

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV 3337	BEARING	LAT 72, 378 N	STARTED 8-7-74	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP 57, 455 E	COMPLETED 8-24-74	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE HQ 0-33' NQ 33 761'
LEVEL	LENGTH 761'	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%, OZ) % Cu	ASSAY (%, OZ) % MoS2
							8680	250		.065	.004
							8681			.024	.001
							8682			.044	.005
							8683	280-290		.041	.002
						POST ORE DIKE		300			
							8684	321-330		.052	.004
							8685			.046	.001
							8686			.043	.001
							8687	350		.042	.002
							8688	360-365		.023	.TR
						POST ORE DIKE					
								400			
							8689	430-440		.026	.TR
							8690			.050	.002
							8691	450		.054	.005
							8692			.053	.001
							8693			.081	.007
							8694			.067	.002
							8695	500		.045	.002

CHECK SAMPLE NO. 8722 = 8685 0.030% Cu, 0.001% MoS2

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 122

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	ASSAY (%., OZ) % Cu	ASSAY (%., OZ) % MoS2
							8696	500		.065	.004
							8697			.120	.004
							8698			.330	.003
							8699			.180	.004
							8700			.055	.002
							8701	550		.042	.001
							8702			.070	.002
							8703			.060	.007
							8704			.053	.002
							8705			.020	.001
							8706	600		.026	.002
							8707			.042	.002
							8708			.064	.001
							8709			.050	.003
							8710			.056	.002
							8711	650		.059	.003
							8712			.022	.001
							8713			.	.
							8714			.079	.001
							8715			.047	.001
							8716	700		.059	.001
							8717			.022	.001
							8718			.031	.006
							8719			.050	.008
							8720			.096	.005

CHECK SAMPLES NO. 8723 = 8716
0.045 % Cu 0.002 % MoS2

END OF HOLE 761'

LOG OF DIAMOND DRILL HOLE 122
(364 ft. to T. D.)
ORANGE HILL, ALASKA
Logged by W. McGregor, September, 1974

364 - 429 feet, Post mineral dike, gray colored, porphyritic, upper contact at 60°, lower contact at 50° irreg.

429 - 471 feet, BQD qtz veined 60%-70%, light argillic alteration, some sericite.

at 432'-440', Intermixed metavolcanics. Sulfides <1%, tr Cu.

below 443', argillic and sericitic alteration increasing to moderate qtz vns 50%, py and cpy in fractures <1%.

at 468.5'-469.2', Breccia, angular fragments. Matrix is fine grained intrusive with fine pyrite dissem throughout.

at 469.7'-171.0', Fine intrusive breccia containing rounded particles of mixed rock types. Predominant sulfide in fragments is cpy, some MoS2. Upper contact obscured, lower contact at 30°.

471 - 687 feet, QFP moderate to strong argillic and sericitic alteration, some lesser sulfides of py-cpy veinlets. Total sulfides <1%. Secondary qtz 50%-60%.

at 477'-502', pink mineral prevalent in part believed to be orthoclase, where alteration is less intense porphyry takes on gray appearance from fine dissem of black mineral in ground mass. Qtz phenos generally lacking below 490'.

at 453'-454, shear zone which is responsible for greater alteration and loss of pink mineral to 507'. Angle of shear is 15°. Below shear qtz phenos again appear.

at 524.3'-527.8', qtz sericitized zone with dissem cpy. Est. cpy 1% - 2%. Minor MoS2.

at 528', Generally moderate argillic arteration. Where sericitized along fractures and zones carries cpy and MoS2. Total sulfides <1% with predominantly cpy.

at 546', 1/8" dia bleb of sulfides 1/3 each of py, cpy, sphal.

at 549', cpy and bornite in qtz-sericite vn.

at 555', 563', MoS2, cpy in assoc. with qtz-sericite structures at 55°.

at 566', 2" qtz, sericite, MoS2, cpy, py vein at 40°.

at 566.3', sericitized shear at 15°.

at 582', qtz MoS2, cpy at 55°.

at 583'-584', Intensive breccia, upper contact irreg approx. 50°. Mixed fragments, matrix 5% fine sulfides, predom. py. Lower contact at 60°.

at 584', Post mineral dike 1" wide and contact with breccia.

at 609', 1/2" qtz, MoS2 vn at 40°.

at 611', qtz, ser. MoS2, cpy zone at 40°.

at 628', MoS2, py slip at 50°.

at 637', 1" qtz-ser. MoS2-cpy vn at 50°.

at 650.5', 2" qtz-py vn at 80°.

at approx 660'-679', rock takes on dark gray cast, ground mass is dense and on the whole less porphyritic.

at 679', argillic alteration develops over 2 ft interval to intense.

at 681', qtz sericite pyrite invades rock. Texture almost destroyed. Sulfides 1%.

687 - 706 feet, BQD (believed to be contact) Rock is qtz-sericite. Altered qtz diorite becomes more obvious with depth. Residual biotite in patches below 695'. Pyrite as fine grains on irreg fractures 2%.

706 - 714.5 feet, Metasediment-metavolcanics (?) Qtz vng 70%. Pink mineral (K-spar ?) on margins of some qtz vns. Feathers of MoS2 in qtz from 711'-713'.

714.5 - 750.5 feet, BQD some mixed meta sed to depth of 719'. Secondary qtz 70% to 80%. Intensity of argillic alteration varies. Moderate on the average. Sulfides as veins and blebs. Some dissems mainly py. Minor cpy.

at 745.5'-747', Breccia, qtz fragments sub angular. Cementing with fine grained pyrite.

750.5 - 761 feet, Post mineral dike, porphyritic, gray colored, upper contact irreg.

at 755.7'-556.5', inclusion of silicified BQD with 10% py as masses and blebs. Contacts are irreg. Upper and lower dipping in opposite directions.

at 761', End of Hole.

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 125

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV 3302.5	BEARING VERT.	LAT 73,763 N	STARTED 8-25-74	LOGGED BY W.A.G. DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP 51,470 E	COMPLETED 9-8-74	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE NQ 0-10' BQ 10-1016'
LEVEL	LENGTH 1016'	LOCATION	DRILLER HICKEY	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM–TO	INTERVAL	UNION ASSAY OFFICE ASSAY (%, OZ) % Cu	R.A.A. ASSAY (%, OZ) % MoS2
							8724	0 - 10		0.053	0.002
							8725			0.064	0.033
							8726			0.140	0.016
							8727			0.050	0.002
							8728			0.063	0.013
							8729	50		0.170	0.004
							8730			0.079	0.005
						POST ORE DIKE	8731	70 - 72		0.057	0.005
										"	
							8732	96-100		0.018	0.002
							8733	100		0.075	0.003
							8734			0.113	0.007
							8735			0.075	0.005
							8736			0.044	0.002
							8737			0.081	0.003
							8738			0.100	0.042
							8739			0.069	0.008
							8740			0.081	0.010
							8741	180-183.5		0.081	0.002
						POST ORE DIKE		200			
							8742	227-230		0.081	0.005
							8743	230-240		0.074	0.010
						POST ORE		250			

CHECK SAMPLE No 8755 = No. 8733 0.094 % Cu 0.005 % MoS2

ASSAYERS: UNION ASSAY OFFICE % Cu SHEET 1 OF 5 SHEETS RESOURCE ASSOC. OF ALASKA % MoS2

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 123

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM–TO	INTERVAL	UNION ASSAY OFFICE % Cu	RAA ASSAY (%, OZ) % Mo	% Sb
								250'				
							8744	281-290'	9'	0.287	0.000	
							8745			0.081	0.008	
							8746	300'		0.088	0.002	
							8747			0.018	0.005	
							8748			0.044	0.003	
							8749			0.245	0.002	
							8750			0.058	0.008	
							8751	350'		0.075	0.003	
							8752			0.050	0.002	
							8753			0.050	0.003	
							8754			0.050	0.012	
							8755			0.050	0.003	
							8756	400'		0.075	0.045	
							8757			0.087	0.008	
							8760			0.012	0.003	
							8761			0.025	0.005	
							8762			0.075	0.008	
							8763	450'		0.050	0.010	
							8764			0.025	0.025	
							8765			0.037	0.027	
							8766			0.044	0.023	
							8767	500'		0.201	0.132	

CHECK SAMPLE NO. 8759 = #8756 0.044 % Cu 0.053 % Mo

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 123

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM–TO	INTERVAL	UNION ASSAY OFFICE % Cu	RAA ASSAY (%, OZ) % MoS2
							8765	500'		0.214	0.045
							8769			0.018	0.018
							8770			0.075	0.022
							8771			0.069	0.013
							8772			.044	0.025
							8773	550'		0.069	0.023
							8774			0.056	0.023
							8775			0.075	0.255
							8776			0.075	0.033
							8777			0.088	0.060
							8778	600'		0.151	0.023
							8779			0.094	0.053
							8780			0.138	0.017
							8781			0.182	0.003
							8782			0.176	0.008
							8783	650'		0.119	0.007
							8784			0.396	0.003
							8785			0.132	0.015
							8786			0.378	0.058
							8787			0.081	0.055
							8788	700'		0.094	0.023
							8789			0.056	0.125
							8790			0.018	0.017
							8791			0.132	0.052
							8792	750'		0.088	0.070

CHECK SAMPLE #8798 = #8788 0.094% Cu, 0.030% MoS2

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 123

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS, TYPE DRILL, SAMPLES, CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM–TO	INTERVAL	UTAH ASSAY OFFICE % Cu	R.W.A. ASSAY (%., OZ) % Mo S			
							8793	750'		0.158	0.028			
							8794			0.088	0.010			
							8795			0.075	0.003			
							8796			0.044	0.013			
							8797			0.037	0.027			
							8798	800'		0.018	0.013			
							8800			0.089	0.042			
							8801			0.561	0.007			
							8802			0.195	0.022			
							8803			0.056	0.032			
							8804	850'		0.353	0.015			
							8805			0.126	0.007			
							8806			0.894	0.060			
							8807			0.144	0.008			
							8808			0.037	0.002			
							8809	900'		0.012	0.062			
							8810			0.107	0.003			
							8811			0.075	0.027			
							8812			0.189	0.003			
							8813			0.759	0.217			
							8814	950'		0.050	0.012			
							8815			0.138	0.010			
							8816			0.119	0.017			
							8817			0.069	0.010			
							8818	1000'		0.069	0.038			

PROJ. CODE NO. ASSAY SUMMARY

DRILL HOLE LOG

HOLE NO. 123

PROPERTY ORANGE HILL

STATE ALASKA COUNTY _____ SEC. _____ TWP. _____ RANGE _____ LOT _____ TRACT _____

COLLAR ELEV	BEARING	LAT	STARTED	LOGGED BY _____ DATE _____
BOTTOM ELEV	ANGLE FROM HORIZ	DEP	COMPLETED	REMARKS. TYPE DRILL. SAMPLES. CORE SIZE
LEVEL	LENGTH	LOCATION	DRILLER	

FOOTAGE FROM	FOOTAGE TO	INTERVAL	RECOV FL.	RECOV %	GRAPHIC LOG	DESCRIPTION	SAMPLE NO	FROM-TO	INTERVAL	UNION ASSAY OFFICE ASSAY (%., OZ) Au	UNION ASSAY OFFICE ASSAY (%., OZ) Ag			
							8819	1000'		0.151	0.47			
							8820	1010-1016	6'	0.119	0.008			

SHEET 5 OF 5 SHEETS

LOG OF DIAMOND DRILL HOLE 123
ORANGE HILL, ALASKA
Logged by W. McGregor, September, 1974

0 - 72 feet, Biotite quartz diorite (BQD), intensely silicified, secondary qtz. 75% to 95% as veins. Iron oxides to depth of 26 ft., but with residual sulfides of pyrite, Cpy and MoS2 at the surface. Pyrite and chalcopyrite as fracture coatings and with qtz veins. Total sulfides <1%, Cu <0.1%, MoS2 as fracture coatings and along margins of some qtz vns. Plagioclase altered to clay supergene (?). Sericite with sulfide veins.

at 21', MoS2 coated fractures at 30° and qtz MoS2 vn at 80° to core axis.

at 23', friable qtz. MoS2 vn at 20°.

at 43'-46', (approx.) Quartz Feldspar Porphyry (QFP) extreme silic and argillic alteration obscure contacts.

at 45'-60', irreg. fractures at 0°-20° sulfide coated.

at 63', Qtz MoS2 vn at 30°

at 69'-72', brecciated zone recemented with qtz and pyrite, possibly some MoS2

72 - 95 feet, Post mineral dike upper contact at 25°, porphyritic, gray colored, lower contact at 30°-40°.

95 - 98 feet, Brecciated zone, crushed and gouge filled.

98 - 113.8 feet, Quartz Feldspar Porphyry (QFP), intense argillic and sericitic alteration, sulfides as blebs and disseminations almost totally pyrite 1%, secondary qtz 30%.

at 106'-107.3', intensive breccia upper contact at approx. 80°, lower contact at 75°-80°. Fragments sub-angular, mixed rock types including quartz with MoS2. Also pyrite, Cpy and bornite (?) dissem. and blebs in frags.

at 108', intensity of sericitic alteration, secondary qtz and pyritization increases. Sec. qtz 50-60%, pyrite 2%, MoS2 as fracture filling and blebs within sericite. MoS2 .01%, tr. Cu.

at 112'-''3.8', qtz veining increases to 80%-90%.

113.8 - 118.2 feet, Metavolcanics (possibly BQD) dark gray colored, dense, fractured and cut by qtz vns. Total sec. qtz 60%.

118.2 - 172.5 feet, QFP. Almost totally qtz. 90% with clay and sericite random pyrite vns, some MoS2. Total sulfides 2%

at 126', grades into less qtz (60%) and more green clay, pyrite as dissem. and veins.

at 129-130.5', brecciated, poorly cemented with pyrite.

at 132' and below, qtz 80%-90% pyrite as blebs and fracture coatings. Unknown mineral, clear with cleavages, hardness of knife.

at 152'-154', MoS2 vn at 5° to core axis.

at 158', qtz veining lessens to 30% with the remainder of rock completely argillized and sericitized. Pyrite as beinlets with some associated MoS2.

at 168', 1/8" druzzy qtz vn with cpy and sphalerite at 5° to core axis.

172.5 - 183.5 feet, BQD, intensely altered, identification tentative, qtz 85%, 13% clay-sericite, 2% pyrite, MoS2. MoS2 .02%.

at 172'-174', breccia mostly qtz fragments, matrix non descript sulfides both py and cpy contacts at 60°.

at 180.9'-181.4', breccia same character as at 172'-174'.

183.5 - 226.0 feet, Post mineral dike, porphyritic, purple gray color, contact at approx 70°.

226 - 230.5 feet, BQD Upper contact irreg. at approx. 45°, chloritized with about 40% qtz vns intensifying to 80% qtz within 2'.

230.5 - 241.4 feet, QFP Intense clay alteration phenos of plagioclase altered to green clay. Qtz variable (from 25% to 60%) pyrite as veinlets.

at 233'-236', MoS2 on fractures.

at 240.3'-241.3', Breccia (Intrusive ?) Fragments mostly angular and mostly of qtz. Some foreign fragments upper contact at 25° - 30°. Lower contact at 55°.

241.4 - 281 feet, Post mineral dike, porphyritic, purple, grades out of phenos. Lower contact at 20°.

281 - 297 feet, QFP Intensely argillically and sericitically altered qtz vng variable from 20% to 90%. Sulfides py, cpy and MoS2 1%-2%.

at 281.5', irreg. qtz-cpy vn.

at 286', 3/8" qtz-MoS2 vn at 20°.

at 295', MoS2 coated slip.

297 - 298.5 feet, Structure recemented with at least two ages of sulfides, predominantly pyrite but also sphalerite, courser grained pyrite and sphalerite later invaded by fine grained pyrite. Upper contact at 25°, lower contact at 25° offset by slips at about 50°.

298.5 - 354 feet, BQD Intensely argillically and sericitically altered. Qtz vng 70%. Less than .5% sulfides. Tr cpy at 320' and below secondary qtz increased to 80% - 90%. Sulfides <1% but numerous smears of MoS2/or fine pyrite.

at 335' - 339', fractured zone with py and sphalerite cementing.

354 - 364 feet, QFP Intensely argillically and sericitically altered. Aver. qtz vng 50% but variable.

364 - 381 feet, BQD Intense argillic and sericitic alteration qtz vng 50%-60%. Below 368' biotite appears (in part secondary) in restricted zones (1"-2" diameter) sometimes with dissem pyrite as at 376'. Also at 375.5' pink mineral (K-spar?) first appears on margins of qtz vn.

at 369', and below, qtz veining increases to 80%-90%

at 377'-378.5', a 1/2" orthoclase vn with qtz clasts within vn cuts core at 15° to core axis. It both predates and post dates the qtz veins with most vns cutting the orthoclase.

at 378.5', 1" QFP argillically altered.

381 - 401 feet, QFP Intense argillic and sericitic alteration. Secondary qtz 30%-90%. Ave. 50%. Sulfides < 1% as pyrite.

at 383.5'-389', inclusions of altered BQD, sericite and clay. Some chlorite.

401 - 409 feet, BQD Intense silicification, 90% qtz. hematite dissem. Total sulfides 1% as py, cpy, MoS2. Est. MoS2 .02%.

409 - 429 feet, QFP Moderately argillically and sericitically altered. Contact relationship not clear because core had been split. 30% pink mineral (K-spar?) Secondary qtz down variably 15% to 50%. Ave. 30%. Sericite in zones and particularly ground mass altered. Feathers of chlorite in less altered ground mass. Less altered also has gray colored ground mass. < 1% sulfides.

at 421'-424', more intense argillic and sericitic alteration. Bleached.

429 - 459 feet, BQD (?) Alteration intensifies. Secondary qtz 80%-90%. Interval may be mixed BQD and QFP bleached white. Clay and sericite. Sulfides <1%. Slips of MoS2.

459 - 530.3 feet, QFP Intense argillic and sericitic alteration.

at 459.5, Sec. qtz lessens to 50% in interval to 464'.

at 463', MoS2-py slip at 25°

at 464'-475.5', secondary qtz 15%, alteration is green clay and sericite, <1% sulfides.

at 468'-469', brecciated zone ravelly, some fine py and MoS2 on slips.

at 475.5'-478.5', secondary qtz 60% blebs py.

at 480'-486', moderate argillic alteration with pink mineral (probably Fe stained clay) secondary qtz 20%.

at 487'-495.5', secondary qtz increases to 80%. Rock texture obliterated, gray hackley appearance, py and cpy and MoS2 as dissem and veinlets, cpy 0.5%.

at 491', 1" py-gypsum vn at 25°.

at 494.9'-495.2', qtz sericite zone with dissem. cpy and MoS2.

495 - 530.5 feet, QFP Mod. argillic alteration. Zone shows dark ground mass.

at 498.5'-500.4', qtz sericite zone with dissem cpy and MoS2 structure at 30°.

at 500.6', qtz-ser. MoS2 vn 1/4" at 55°.

at 501.5', qtz-ser. MoS2 vn 1/2" at 60°.

at 504'-507.6', argillic and sericitic with qtz alteration Dissem and blebs py, cpy, some MoS2. Same at 508.2'-508.7', with structures at 40° to core axis.

at 511'-511.8', qtz-py, sphalerite vn at 20°.

at 516', 3" qtz, pyrite, cpy, MoS2 vn at 50°.

at 519', structure at 20° below which QFP is intensely argillically altered secondary qtz 30%-40%.

at 525.7'-528.8', qtz, py, MoS2 vn at 15°.

530.5 - 553.5 feet, BQD 80% Secondary qtz, argillic and sericitic alteration. 1% dissem. py, tr. cpy.

at 533.5', MoS2 vn at 40°

at 535.8'-536.7', altered QFP.

at 539', remnant biotite going to sericite. There appears to be a general lessening of alteration.

at 545', MoS2 vn at 25°.

at 547', qtz vng reduces from 90% to 50%. Dissem sulfides 1%.

553.5 - 561 feet, Metased.-metavol. (?) dark gray to light green gray. Secondary qtz 70%. In the interval 558'-561', there are up to 1/4" vns of orthoclase (?) displaced and offset by later qtz vns.

at 557', MoS2 vn at 65°.

561 - 638.6 feet, BQD variable intensity of argillic and sericitic alteration, moderate to strong. Dissem hematite, secondary qtz 60%.

at 564', MoS2 scattered thru sericitized zone, mineralized fractures all have sericitized margins.

at 565.7', 1/4" pyrite-qtz structure at 20°.

at 568'-569.5', remnant biotite zone.

at 570.5'-573.0', qtz-MoS2 vn. Minor py. MoS2 0.5% structure at 25°-30°.

at 572.2', MoS2 coated slip at 50°.

at 576', MoS2 - qtz at 60°.

at 577.7'-578.8', QFP intense argillic alteration.

at 580', 1/2" MoS2-qtz vn at 45°. Interval 570/-580', est. 0.1% MoS2.

at 590', MoS2 on margin of qtz vn at 60°.

at 594', qtz vn with scattered MoS2.

at 596.5', 1-1/2" brecciated zone with gypsum and pyrite.

at 596.5'-600', QFP moderate argillic alteration cut by qtz sericite-py-cpy zones.

at 599.3', 1" qtz vn with MoS2 and cpy on margins at 30°.

at 601', 1/2" qtz vn with 1/8" cpy-MoS2 vn on center refracture at 35°.

at 609'-610', qtz vn with MoS2-py coated slip at 50°.

at 611', late irreg fracture mineralized with MoS2 hairline at 35°.

at 612.5', 3/8" qtz vn with MoS2 on margins at 25°.

at 615.5', cpy and MoS2 blebs with qtz.

at 615.8'-638.6', rock freshens, biotite remains in 20% of rock, otherwise sericitized. Total sulfides 1% mainly in veinlets of cpy and MoS2. MoS2 .015%, Cu 0.1%.

at 634.0'-635', qtz vn broken and cut by MoS2 vns at 50°. Irreg cpy blebs.

635.6'-636.2', QFP moderate argillic alteration cut by cpy-MoS2 vn with sericite in margins at 5°.

638.6 - 645.5 feet, QFP moderate argillic alteration, qtz vng 25%, pink mineral (K-spar ?) 15% mainly along fractures and margins of qtz. Cut by sericite zones with cpy and py.

645.5 - 670.5 feet, BQD mixed alteration, moderate to strong argillic, generally sericitized but with remnants of biotite qtz vng 40% but qtz vn contacts are wavy and not of the same thru cutting character as most qtz vns up hole.

at 646.5', 1/4" py-qtz vn at 20°.

at 657' -660', less well sericitized.

at 657' and 658', 1/4" gyp vns with cpy and MoS2 at 30°.

at 658.5', rock generally well sericitized and argillized cpy and py dissem and on fractures. Total sulfides 3%, cpy 1%.

at 662', 1" rhodochrosite (?) zone with dissem cpy, py and sphl.

at 663', 1" gyp vn with fine py and MoS2 at 15°.

at 667', 1/2" gypsum vn carries course py crystals.

670.5 - 674 feet, QFP lightly argillically altered secondary qtz 15%, qtz sericite zones carry cpy and MoS2 at 70°. Pink mineral 40%.

674 - 678 feet, BQD Intense sericitic alteration but with zones of biotite remaining.

at 676.5', instance of break from biotite to sericite on either side of 1/8" qtz vn, lower contact with QFP obscured by alteration.

678 - 1016 feet, Identification of QFP becomes certain at 681'. It does not appear to be the same as QFP at 670.5' to 674'. Qtz phenos are smaller. Plagioclase forms matrix not phenos, secondary qtz veins 10%-15%.

at 681', 1/2" cpy vn with qtz slickensided at 50°. Silicifided zone extends from 678' to 681' and has gypsum zone with py crystals, also shows of MoS2.

at 685', MoS2 on margins of qtz-sericite zone at 70°.

at 685.4'-686.3', qtz sericite vn with MoS2 and Cpy. Margins of vn indefinite.

at 688', QFP grades into gray matrix porphyry. Matrix has dark appearance due to whispy chlorite (?). Pink mineral (K-spar ?) on qtz margins and along fractures. Secondary qtz 20% - 30%.

at 688.3', 692', 692.4', 694', 1/4" to 1/2" qtz-sericite-MoS2-Cpy zones at 70°. In addition general sericitic alteration carries cpy and MoS2 disseminations.

at 699.3', 2" dia. bleached zone, qtz sericite alteration has dissem. cpy - MoS2. On one margin, demarcation of alteration is along hairline qtz vn. Other qtz ser.-MoS2-cpy zones in interval are less well defined but at about 25°.

at 709', 4" brecciated zone with fine pyrite coated slip surfaces.

at 711.5-713.0', qtz-MoS2 vn at 25°. MoS2 aligned on sub parallel fractures within qtz which itself appears multiply veined.

at 714'-715', 2" qtz-MoS2 vn (MoS2 on margins) Vein is contorted into S shape in part offset. Some MoS2 scattered in qtz, also one MoS2 band cuts across older MoS2 band.

at 715', 718', 721, 722', 1/4" - 1/2" qtz sericite vns with cpy and MoS2 at 50°-70°.

at 726'-756', argillic alteration moderate to intense with zones and streaks of sericitic alteration.

at 725', 4" sericite zone with MoS2 and cpy.

at 731.5', 4" broken zone with cpy qtz sericite at 70°.

at 737'-738', Qtz sericite with MoS2 cpy at 20°.

at 741.5'-742.3' Qtz sericite with MoS2 and cpy at 40°-65°.

at 749'-751', Gyp-qtz-MoS2 vein. Irreg. contact at approx. 20°.

at 754.3'-755.5', Qtz sericite, MoS2 Cpy at 25°, crossing structures at 35°.

at 756'-809', QFP less well altered patchy dark matrix.

at 760.5' 1/4" qtz sericite MoS2 Cpy vn at 50°. Other flat (50°-70°) structures at .5'-2' intervals, similarly mineralized qtz veining also with irreg. attitudes.

at 786.3' Gyp slip at 20°.

at 795.7', Argillized zone with 2" qtz sericite MoS2 vein at 70°.

at 809'-823', Argillic alteration, intense for 1ft. to 4 foot intervals with intervening rock moderately altered.

at 811', 1/4" cpy vn at 50°.

at 816.3'-817', 1/2" qtz sericite MoS2 vn at 10°.

at 818'-818.5', 2 qtz sericite MoS2 vns at 50° within intense argillic zone.

at 823'-828', Intense argillic alteration brecciated in zones at 30° large clasts of cpy, also associated MoS2 with qtz and sericite.

at 830'-837', Zone similar to 823'-828' structures at 20°, 30° (cpy) and 65°.

at 838.5', 4" qtz-sericite cpy zone at 50°.

at 846'-848', Irreg qtz ser cpy, MoS2 zone at 5°-15° terminated by 6" qtz-MoS2 vn at 70°.

at 854'-856', Qtz sericite cpy-py zone within which qtz MoS2-cpy vn at 50°-70°.

at 858'-862', Intense argillic alteration with random zones of qtz sericite-cpy.

from 858'-865', rock is general bleached gray matrix, moderately argillized with intense zones of up to 1' cut by random irreg qtz sericite cpy and MoS2 veinlets.

at 863'-865', orthoclase (?) qtz and coarse sericite with MoS2 on margins of qtz sub parallel to core also purple crystals of anhydrite (?).

at 865.5', qtz-sericite-MoS2-cpy at 50°.

at 868'-871', as in interval 863'-865'.

at 871'-875', qtz sericite-MoS2 cpy veinlets at 30°-70° at 1/2 ft intervals.

at 875'-884', argillic alteration moderate to intense, cut by qtz sericite MoS2, cpy, py, veins at 876', 877', 880' 890'.

at 883', One foot of qtz sericite py, cpy, minor MoS2 sulfides fine grained but as blebs. Total sulfides 6%.

at 884'-908', Rock alteration variable but generally light to moderate with ground mass retaining dark color in 30%-50% of rock. Secondary qtz veining 15%, Random qtz sericite MoS2 cpy py vns every 2 to 3 ft.

at 886', two 1/2" qtz sericite MoS2 vns intersect. Strikes are at 90° to each other with the one at 15° to core axis offset 1/2" by one at 25° to core axis. Area of sericite adjacent to veins carries cpy-MoS2.

at 902', qtz sericite MoS2 with minor cpy at 50° and irreg. at 0°.

at 908'-917', Intense argillic alteration.

at 908'-911', zone of qtz sericite with gyp and minor py, cpy and MoS2 fractures irreg at 20°-30°.

at 915'-917', qtz sericite with cpy and MoS2. Main structure at 70°.

at 925', 1/4" qtz sericite cpy MoS2 vn.

at 925'-931', grades into variable mod. to strong argillic alteration cut by irreg masses and stringers of sericite-qtz containing dissem of cpy, py and MoS2. Most generally sulfides are structurally controlled.

at 935', alteration intense and pervasive rock totally gray. Some crystals have purple cast. Sulfides 3%, cpy 1% some MoS2. No qtz veins other than sulfide associated in interval 942'-946'.

at 945', 5" zone of 40% sulfide, cpy, py, sphl, below which 8" bull quartz zone carries MoS2. Upper contact at 30°. Lower contact at 20°.

at 946'-947.5', contact with qtz vein. Gray altered rock continues grading into normal green colored argillic alteration.

at 949', 3/8" qtz-sericite MoS2 vn at 70°. Also MoS2 at 951.3' and 953.4'.

at 953.5', 1/8" qtz-cpy-sphl vn at 70°.

at 954.8', qtz MoS2-cpy vn at 70° below which strong argillic alteration grades to weak within 1 ft.

at 963'-965', irreg qtz sericite cpy vn at 5°.

at 970', 1/2" qtz-sericite-MoS2-cpy vn at 25° also in interval 969'-971' qtz ser cpy vn irreg at 5° slightly offset by MoS2 vn.

at 973.5' Dry structure 1/2" wide at 25° below which alteration is sericitic with dissem and blebs of py and cpy.

at 976.5'-979', six 1/8" qtz-sericite-MoS2-cpy veinlets at 50° to 80° within QFP with cloudy plagioclase phenos. Similar zones in interval 990.5'.

at 990.5'-991.4', qtz sericite gyp MoS2 cpy, py controlling structure at 60°.

at 991.4'-993.3', irreg qtz-sericite MoS2 cpy vns at 0° to 30°. MoS2 and cpy with sericite at margins of vns. As in other instances, the 1/2" qtz mineralized vn at 993' is crooked, making a sharp 30° angle. MoS2 veinlets persist on projection and cut thru the bent portion of vn.

at 1000', 3" wide irreg qtz sericite MoS2 vn 5° to 30°.

at 1000.5'-1006', wall rock alteration pervasive argillic color is gray. Zone has gypsum and dissem py, cpy and MoS2.

at 1001', gypsum structure at 25°.

at 1006', irreg 1/4" qtz sericite, cpy, py, MoS2 vn at 15°.

at 1006'-1016', Country rock is lightly argillically altered QFP as from 1000.5'. Cut by qtz-sericite wandering discontinuous vns. Sulfide is mainly cpy with some py and MoS2. Vns sub parallel to core are cut by vns at 50° to 70° all carry cpy.

at 1016', E.O.H.