

BETHLEHEM COPPER CORP.

EXPLORATION

WESTERN DISTRICT

ASSESSMENT REPORT

DIAMOND DRILLING

ON THE

HH 16 Fr, Al 1 Fr, DF 1 & 2

MINERAL CLAIMS

KAMLOOPS M.D., NTS 92 I

LATITUDE: 50°28'N

LONGITUDE: 121°05'W

OWNER: BETHLEHEM COPPER CORP.

PERIOD: May 20 - June 14, 1982

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**10,690**

SEPTEMBER 1982

K.M. NEWMAN

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MAPS

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### Location

The Valley Copper deposit is located in the Highland Valley porphyry copper district which is situated 34 km southeast of Ashcroft and 54 km southwest of Kamloops. It is within the central portion of the Upper Triassic Guicheon Creek batholith and lies within the Bethsaida Phase of the batholith.

### Summary of Work

Access road construction and drill site preparation for the infill drilling program was contracted out to Big Pine Logging of Savona, B.C. This work was done from May 14th to May 28th inclusive and June 10th and 11th.

Between May 21st and June 15th, twenty-seven vertical N.Q. holes were drilled. Depths of holes were 91.44 m (300 feet) and 106.68 m (350 feet). Drilling was done on two 12 Hour Shifts and the average penetration rate was 50.60 m (166 feet) per shift. The drilling was done by J. L. Thomas Diamond Drilling (1980) Ltd. of Smithers, B.C.

Core logging and sampling were completed July 13th. Assaying for Cu, Mo, CuO, Au and Ag was done by Bethlehem Copper Corporation's assay laboratory personnel.

The infill drilling program was done on the western half of the orebody.

### Regional Geology

Valley Copper is within the central portion of the Guicheon Creek batholith. The batholith consists of four phases of intrusive activity which are progressively younger from the border inward. The intrusive phases, from oldest to youngest, are:

1. Hybrid
2. Highland Valley
3. Bethlehem
4. Bethsaida.

Differentiation sequences and intermixing of magmas prior to the cooling of older phases produced varieties of magma within the various phases after the emplacement of the Hybrid phase.

The Valley Copper orebody lies within the youngest phase of the batholith; the Bethsaida. It crosscuts rocks of the Bethlehem phase and forms dykes and small plugs within it. The Skeena variety was formed when the Bethsaida phase magma intruded the older Bethlehem before crystallization was complete.

## Geology of the Valley Copper Orebody

The following observations are based on logging the drill core obtained from the May 21st to June 15th drill program.

### Alteration:

The Bethsaida granodiorite has been strongly altered to sericite, kaolinite, K-feldspar and crosscut by numerous quartz veins. The alteration of biotite crystals appears to be erratic and, as yet, not well defined. In certain zones of strong kaolinization or K-feldspar alteration, the biotite appears to have been completely immune to alteration. In other zones with the same intensity of alteration, the biotite has been completely altered to sericite and/or chlorite.

Sericite alteration is of two types: a pervasive, massive variety which is emerald green and is usually associated with fault zones. The most common is a silvery, flaky variety which envelopes quartz veins as well as dissemination in kaolinized zones.

K-feldspathic alteration is pervasive to veined-type. K-feldspar also occurs as an intergrowth and wall lining in late stage quartz veins.

Kaolinization of the plagioclase feldspars is, in most cases, moderate to intense. Strong argillic alteration of the plagioclase likely released silica which was then deposited in shear and fracture zones. At the same time when the stockwork of quartz veins was being formed, it appears that copper sulphides were also being deposited.

### Mineralization:

Bornite and chalcopyrite are the main, important copper sulphides. They occur within the quartz vein stockwork as well as in the various alteration zones as small veins and disseminations. The bornite to chalcopyrite ratio is higher in the strong, flaky sericite zones. Chalcopyrite to bornite ratio is higher in zones of compact emerald green sericite. Molybdenite and pyrite appears to be restricted to the fringes of the ore zone.

Oxidization is variable in thickness; ranging from 1 meter to 20 meters. Within the oxide zone goethite is the main iron oxide. Malachite and minor azurite are the copper oxides. Manganese oxide is common in the form of dendrites along fractures as well as an infilling of boxwork type weathered and leached zones. Immediately below the goethite zone, hematite is prevalent along fracture planes.

### Dykes:


The variety of dykes encountered during the drilling program are: quartz feldspar porphyry, aplite, Bethsaida Porphyry and lamprophyre.

The lamprophyre dyke is the only variety that is not mineralized. This situation was also noted in the East Jersey Expansion pit at Bethlehem Copper. Intrusion of lamprophyre dykes is post ore and although they are, in part, highly sheared and fractured, they are barren of copper sulphides

WRITTEN BY:

K. M. Newman  
K.M. Newman

RELEASED BY:

  
W.P. Armstrong

APPENDIX "A"

STATEMENT OF QUALIFICATIONS

I, Kevin M. Newman, of the Village of Ashcroft, British Columbia hereby certify:

1. That I am a geologist residing at 604 Pine Drive, Ashcroft, British Columbia with a business at Bethlehem Copper Corporation, P.O. Box 520, Ashcroft, British Columbia.
2. That I graduated with a B.Sc. degree with Major in geology in 1956 from St. Frances Xavier University, Antigonish, Nova Scotia.
3. That I am a registered Professional Geologist in the Association of Professional Engineers, Geologists and Geophysicists of Alberta.
4. That I have practised geology since 1956 and have been employed by Cominco Ltd. from 1969 to the present.

Dated this 28th day of July 1982 at Ashcroft, British Columbia.

Signed: Kevin M. Newman  
KEVIN M. NEWMAN, B.Sc., P.Geol.

APPENDIX "B"

EXPENDITURES

Diamond Drilling	\$139,755.65
Assays	10,407.00
Access and Site Preparation	6,023.15
Labour - Core Splitting	4,484.83
Core Shed Renovations	2,257.53
Core Boxes and Covers	2,500.00
Supplies, Repairs, etc.	977.22
Geologist - Salary	<u>9,637.37</u>
 TOTAL	 <u>\$176,042.75</u>

Signed:

K. M. Newman

K. M. Newman  
Project Geologist



APPENDIX "C"

In the matter of the B.C. Mineral Act and in the matter of a Diamond Drill Programme carried out on portions of the Lake Zone Orebody located in the Highland Valley of British Columbia.

STATEMENT

I, Kevin M. Newman, of the Village of Ashcroft, in the Province of British Columbia, make oath and say:

That the annexed hereto and marked as "Appendix B" to this statement is a true copy of expenditures incurred on the Lake Zone Diamond Drill Program.

Signed: Kevin M. Newman  
KEVIN M. NEWMAN  
Project Geologist

APPENDIX D  
DRILL LOGS for  
HOLE NOS. 82-01 - 82-27



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## DIAMOND DRILL HOLE LOG

Latitude: 96,947.15 Hole No. 82-01  
 Departure: 98,662.11 Commenced: May 25/82  
 Elevation: 4088.16 Completed: May 25/82  
 Length: 106.68 m Logged by: K.M. Newman  
 Overburden: 27.60 m Sheet No. 1 of 4

Property LAKE ZONE Az. Dip -90°  
 Area: Highland Valley, B.C. Horiz. Vert.  
 Purpose: Infill

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms Ser.	Cl K'Spar	Ep G.Ser.			Frac Den	%			Cu %	Mo %	CuO	REMARKS Rock Hardware	
0.00-27.60 - Overburden - 17 cm of 2-5 cm. Guichon recovered		2:1		S		-	Dominant ser. qtz. veins 1-5cm with Bn Cp @ 45° Ser @ 20°		32			27.60	.34	.005	0.00		Soft
27.60 - Bethsaida G.D.							Widely spaced with		60°			30.60					
27.60-32.06 - weak limonite staining on fracture planes. No visible Cu oxide.		2:1		S		-	milky qtz veins 2-3 cm @ 20° & 60° at		45°			2184					
27.60-43.90 - Moderate K-Spar, strong kaolinization, uniform K'Spar veining & argillic alt. @ 45° to C.A. 50% of biotite alt. to chlorite & muddy ser. unaltered biotite has anhedral.							32.60 2 cm qtz @ 60° with moly		12			30.60	.56	.008	0.00		Soft
							"		45°			33.60					
		2:1		S		W	"		60°			33.60	.41	.005			Soft
							"		20°			36.60					
		2:1		S		W	"		60°			2186					
							"		20°			36.60	.28	.006			Soft
							"		60°			39.60					
		2:1		S		W	"		20°			42.60					.19, .008
							"		60°			2188					2189 check
43.90-44.50 - very intense ser.-qtz. veining @ 45° to core axis & cut by 10° qtz. vein with Bn, Cp.		2:1		S		W	"		15			42.60	.45	.005			Soft
							"		45°			45.60					
							"		80°			2190					
Strong emerald green sericite & resi- dual qtz. associated with fault gouge @ 48,40		2:1		S		M	"		17			45.60	.44	.008			Very Soft
							"		45°			48.80					
							"		60°			48.60					
							"		80°			2191					



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## DIAMOND DRILL HOLE LOG

Latitude: Hole No. 82-01  
 Departure: Commenced:  
 Elevation: Completed:  
 Length: Logged by: K.M. Newman  
 Overburden: Sheet No. 2 of 4

Property: Az. Dip  
 Area: Horiz. Vert.  
 Purpose:

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den	%			Cu %	Mo %		REMARKS	
		3:1		S	M	M	Dom.Ser.Qtz. vein with Cp.Bn. @ 45° & 30°.Milky qtz.mainly @ 45°.Mo in Qtz.		23			48.60 to 51.60 2192	.71	0.29			Soft
		3:1		S	M	W	"		16			51.60 to 54.60 2193	.37	.009			Soft
From 56.60-60.10 abundant milky qtz. veins - 2 to 5 cm wide at 40° & 20° to core axis.		2:1		S	M	W	Dom.Ser.Qtz. veins with Bn.Cp. @ 45°	55.38- 55.80 Strong 20° Gouge	19 40° 45° 60°			54.60 to 57.60 2194	.46	.002			Soft
58.70-60.10 - 20° qtz. veins 2-4 cm wide with patchy & dias. moly.		2:1		S	M-S	W	"	59.50- 59.95 20° Shr. & qtz. vein	20 60° 45° 20°			57.60 to 60.60 2195	.46	0.62			Soft
From 64.90-94.25, 95% of biotite is altered to muddy sericite & chlorite		3:1		S	M	M	"	with Moly	24 60° 40° 80°			60.60 to 63.60 2196	.46	.006			Soft
		3:1		S	M	W	"		12 45° 60°			63.60 to 66.60 2197	.46	.029			Soft
		2:1		S	M	W		69.40- 70.10 Intense Gouge @ 40°	10 45° 60° 80°			66.60 to 69.60 2198	.30	.004			Very Soft



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-01
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. 3 of 4

Property	Az.	Dip:
Area:	Horiz.	Verl.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac Den.	%			Cu %	Mo %	REMARKS	
Highly altered to friable kaolin (argillic)		2:1		S	S	W	Dom. Qtz.Ser. with Bn.Cp. @ 40° & 60°	71.70-44.37	17			69.60	.49	.008		Very Soft
							Intense 40° gouge	11e1				72.60				71.93-74.37 25%Rec
at 74.77 - hematite stain		2:1		S	S	W	Dom.Ser.Qtz. at 40° & Shr. to core axis. Secondary @ 60°		23			72.60	.78	0.65		Soft
									40°			75.60				.50, 0.25. 2201 check
									60°			2200				
From 78.50-94.25 - intense kaolinization combined with mod. K'spar separated by strong emerald green sericite & residual qtz. Green ser. zones contain diss. cp. K'spar-kaolinized zones are at: 80.30-81.38, 82.40-84.60, 89.10-89.80. Only Bn. noted in green ser. zones is in widely spaced shattered qtz. veins. Scattered Hem.		3:1		S	S	-	"		8			75.60	.30	.003		Soft
									20°			to				
									45°			78.60				
									40°			2202				
		3:1		S	patchy S	S	"		14			78.60	.33	.003		Very Soft
									45°			to				
									30°			81.60				
									60°			2203				
94.25-106.68 - strong to moderate kaolinization weak K'spar. Approx. 10% of biotite is altered to muddy Ser. Strong Ser.Qtz. veining. Weak hematite on fracture planes.		1:3		S	"	S	83.40-84.00 Qtz.Ser. vein 3 cm wide with Bn.Cp. @ 20° cut by 10cm barren Qtz.		15			81.60	.35	.003		Very Soft
									40°			to				
									60°			84.60				
									80°			2204				
		1:3		S	"	S	vein @ 45° at 85.75, 3cm Cp-Py vein in Qtz. @ 30° to core axis.		16			84.60	.81	.005		Very Soft
									40°			to				
									60°			87.60				
												2205				
		1:3		S	"	S		88.75-89.00 chloritic Shr. @ 40°	13			87.60	.50	.003		Very Soft
									40°			to				
									80°			90.60				
												2206				



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-01
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 4 of 4

Property	Az.	Dip.	Elevation:
Area:	Horiz	Vert.	Length:
Purpose:			Overburden:

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG		
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			REMARKS
Strong kaolinization & emerald green Ser. Alt.		1:2		S	W	S	Patchy-diss. cp.	91.28-	12			90.60	.61	.009			Very Soft
								91.42	45°			to					
								Strong	20°			93.60					
								20° Shr.	11 e1			2207					
Weakly mineralized milky Qtz. veins with K' spar walls are at 20° to core axis.		1:2		S	W	S	Dom. Ser. Qtz. veins 2-3 cm wide @ 45° & 20°		15			93.60	.48	.003			Very Soft
									60°			to					
									45°			96.60					
From 94.25-106.68 - the core is not blocky or highly fractured.		3:1		S	W	-	"		13			96.60	.28	.004			Soft
									80°			to					
									20°			99.60					
												2209					
		3:1		S	W	-	"		13			99.60	.52	.004			Soft
									80°			to					
									20°			102.60					
												2210					
		3:1		S	W	-	"	105.46	11			102.60	.30	.012			Soft
								20° Shr.	80°			to					
									40°			105.60					
		3:1		S	W	-	"		7			105.60	.12	.004			Soft
									80°			to					
									20°			106.68					
									45°			2212					End of Hole
											to						



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## DIAMOND DRILL HOLE LOG

Latitude: 96,797.42 Hole No 82-02  
 Departure: 98,811.55 Commenced: May 24/82  
 Elevation: 5,087.37 Completed: May 24/82  
 Length: 106.68 Logged by: K.M. Newman  
 Overburden: 27.50m Sheet No. 1 of 4

Property Lake Zone Az. Dip. 90°  
 Area: Highland Valley, B.C. Horiz. Vert.  
 Purpose: Infill

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms S	Cl K'Sp	Ep G.S.			Frac. Den.	%			Cu %	Mo %		REMARKS Hardness	
0.0-27.50 Overburden - 15 cm of diorite float recovered.		4:1		M	M-S	W	Stockwork of min. Ser. Qtz. veins 1-2 cm wide with Bn. Cp @ 20°, 45°, 60°		15 60°			27.50 to	.39	.009	0.00		Med. Soft
27.50-106.68 - B.G.D. No copper oxide evident, some hematite on fracture planes. Abundant Ser. Qtz. veining with moderate to strong K'spar. Most of biotite has been alt. to sericite.		4:1		M-S	M	W	Strong Ser. Qtz. veining with Bn Cp @ 20°, 40°, 60°	30.50- 30.78	20 11 e1			30.50 to 33.50	.58	.003	0.00		29.57-30.78, 25m of core rec. Medium Soft
Moderate kaolinization. Qtz. veins 2-3 cm wide. A few hematite specks. Starting at 37.80 the core is less shrd., and kaolinization increases.		3:1		S	M-S	M	Abundant Qtz. & Ser. @ 80°, 40° & 45° with coarse Bn.	shr. . 11 e1 shr. 11e1	30 60°			33.50 to 36.50	.40	.004	0.00		Medium Soft
Strong kaolinization		3:1		S	M	W	"	37.10 20° & 40° gouge	25 60°			36.50 to 39.50	.63	.003			Medium Soft
Qtz. Ser. veining less abundant		3:1		S	W-M	W			22 60° 80°			39.50 to 42.50	.57	.021			
Starting at 46.00 and down to 50.90 emerald green ser. abundant.		3:1		S	W-M	W-M	Qtz. veining & Ser. with Bn. Cp. 40°, 20° 60° Qtz. 2-4 cm wide.		17 60° 20°			42.50 to 45.50	.59	.006			Medium Soft .68, .006 1603 check
Scattered hematite staining.		2:1		M-S	W	S	Min. veining at 45°, 20°	47.50- 47.90	18 45°			45.50 to 48.50	.45	.011			Soft
								Strong 20° 60° 11 e1 Shr.				1604					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-02
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 2 of 4

Property	Az.	Dip.
Area:	Horiz	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl K' Sp.	Ep G.S.			Frac. Den.	%			Cu %	Mo %	<input type="checkbox"/>	REMARKS
Emerald green ser. associated with or due to shr. zone		2:1		S	-	S	45 & 20° qtz.ser.	48.70 -	20			48.50	.43	.005		Soft
							veining with Bn, Cp	49.10	30°		to					
							In part fract.	Gouge &	45°		51.50					
								Shr. @ 30-			1605					
		2:1		S	-	M-S	"	45°	15			51.50	.57	.006		CIL sample Soft
									20°		to					
									80°		54.50					
									45°		1606					
Mod. kaolinization. Coarse Bn. associated with qtz. veining at 40° to core axis.		3:1		S	W	M	"		26			54.50	.63	.007		Soft-Med
									40°		to					
									60°		57.50					
											1607					
Mod. to strong kaolinization 2-5 cm Ser. qtz. veins. Core strongly fract.		2:1		S	W-M	M	"		30			57.50	.59	.003		Soft
							at 58.50-58.75 Py		20°		to					
							& Cp replacing Qtz		40°		60.50					
							vein		60°		1608					
Strong kaolinization core is less fract. <] cm silver ser. veining at 20° & 40° with fine Bn. Cp.							Coarse Bn. in Ser.		21			60.50	.47	.005		Soft
							Qtz. veins @ 20°		20°		to					
									60°		63.50					
											1609					
									15			63.50	.56	.003		Soft
									20°		to					
									60°		66.50					
											1610					
									12			66.50	.41	.007		Soft
									40°		to					
									60°		69.50					
											1611					





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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-02
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 3 of 4

Property	Az.	Dip.
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac Den.	%			Cu %	Mo %	⊗	REMARKS Rock Hardness
		3:1		S	M	W-M	70.10-70.50. Qtz. with 40° moly slip at 72.50. moly Bn. Cp. in 45° Qtz. Ser	71.63	20			69.50 to 72.50 1612	.41	.034		Soft
Qtz. veining becoming abundant. Veins up to 10 cm wide & avg. 40 cm. intervals. Emerald green ser. content increasing, K'Spar decreasing. 75.00-75.50 myloni- tized, green ser. & strongly kaolinized		3:1		S	-W	W-M	Vein. 45°, 60° & 20° Min Qtz veins	74.50 5cm gouge @ core axis	15			72.50 to 75.50 1613	.53	.006		Soft
Moly in gouge. 72.50-84.00 Qtz. veins up to 10 cm wide. Average silver sericite K'spar & emerald green sericite veining at 45° to core axis. Most of Bn & Cp veining parallels the direction from 81.40 to 87.10		3:1		S	W-M	S	10 cm Qtz veins @ 30° to core axis. Bn, Cp. mainly on contacts.		12			75.50 to 78.50 1614	.47	.004		Soft
		3:1		S	W	S	Min. Qtz Veining @ 45° and 60° to core axis.	80.77	11			78.50 to 81.50 1615	.56	.002		Soft
85° fractures are likely due to torque failure rather than fractures due to shring or joint systems. 87.50 - 92.20 specks of hematite stain- ing.		3:1		S	W-M	M	"		9			81.50 to 84.50 1616	.72	.003		Mod.
87.10 - 91.75 Bn & Cp associated in part with silver ser. veins 1 cm wide and at 30° to core axis.		3:1		S	M	M	" also 1 cm ser. veins @ 30° to core axis		8			84.50 to 87.50 1617	.61	.003		Mod-Soft Soft
		2:1		S	M	M-S	"		7			87.50 to 90.50 1618	.40	.003		



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-02
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 4 of 4

Properly	Az.	Dip:
Area:	Horiz	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %		REMARKS	
		2:1		S	M	M-S	3-4 cm Qtz veins @ 20° to core axis with patchy Cp & Bn	91.45	15			90.50 to 93.50 1619	.71	.007			Soft
Qtz. vein @ 93.30 contains irregular Py & Cp stringers and patches @ 45°- 80° to core axis.				S			93.30-94.85 large qtz vein @ 20° contacts (1)		16			93.50 to 96.50 1620	1.33	.007			Hard due to Qtz vein
From 94.85 to 106.68, the core is relatively unfractured, uniform textured moderate to strong kaolinization - scattered green ser. patches up to 15- 20 cm wide. Dominant Ser. Qtz. veins 1-2 cm wide with Bn, Cp at an average angle to the core of 30°-40°, 2-4 cm Qtz. veins are 30° & 45°.				S	W-M	M	Veining of Qtz & Ser. at 30°, 40°, 45°		11			96.50 to 99.50 1621	.39	.003			" .46 .002 1625 check
				S	M	M	"		17			99.50 to 102.50 1622	.53	.002			"
				S	M	S	"	103.30	9			102.50 to 105.50 1623	.36	.003			"
					M	M-S	"	strong 20° & 40° Shr	11 e			105.50 to 106.68 1624	.83	.002			"
									8			106.68 to 1624					End of Hole



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## DIAMOND DRILL HOLE LOG

Latitude: 96,609.07	Hole No. 82-03
Departure: 99,044.26	Commenced: May 23/82
Elevation: 4,052.56	Completed: May 24/82
Length: 106.68	Logged by: K.M. Newman
Overburden: 18.60m	Sheet No. 1 of 5

Property: Lake Zone	Az.	Dip:
Area: Highland Valley	Horiz.	Vert.
Purpose: Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms Ser	Cl K'Sp	Ep G.S.			Frac. Den.	%			Cu %	Mo %		REMARKS	
0.0 - 18.60 Overburden 0.31 m of + 5 cm of cobbles recovered.				S	M	-	2-3cm ser. qtz. veins @ 30° to core axis		36			18.60	.27	.004	.21		Botryoidal Mal. in qtz vugs.
18.60-33.65 B.G.D.									60°			to					light pyrolucite fract. coatings.
From 18.60-46.20. Limonite along fractures and staining kaolinized zones. Malachite oxidization from 18.60-44.10.				M	M	-			27			21.60	.65	.003	.57		Moderate qtz veining
From 18.60 to 20.00 biotite mainly chloritized. 20.00 to 33.40 the biotite is largely alt. to ser. Between 20.00 & 29.60 strongly kaolinized & stained with limonite. K'lpar. largely limonite stained down to 38.40. 33.40-49.50 about 50% of the biotite is chloritized & 50% is alt. to ser. 49.50-63.50, 70% of biotite alt. to ser. Below the limonite zone (46.20) hematite stain is random in vugs & fracture planes down to 61.75.									60°			to					
									80°			24.60					
									20°			1566					
	3:1			S	M	-	Strong qtz. veining @ 20° to core axis.		24			24.60	.61	.006	.58		Strong qtz. veining.
							Qtz. highly shattered. coarse Bn.		60°			to					
									80°			27.60					
									20°			1567					
	3:1			S	M	-	Mod. stockwork of qtz. veining @ 20° & 80° to core axis.	27.80 - 28.40 shr @ 05-10°	21			27.60	.41	.014	.39		Minor chalcocite..
									60°			to					
									11	el		30.60					
									05-10°			1568					
	3:1			S	M	-			15			30.60	.53	.003	.47		
									60°			to					
									30°			33.60					
									80°			1569					
63.50 - strong emerald green sericite alteration starts. Mainly diss. Cp.	2:1			M-S	M	-	Mod. qtz veining at 20° & 80° to core axis.		23			33.60	.47	.003	.37		
									70°			to					
									40°			36.60					
									10°			1570					
	3:1			M-S	M	-	Weak ser. qtz. veining.		20			36.60	.63	.004	.50		
									60°			to					
									40°			39.60					
												1571					



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-03
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 2 of 5

Property	Az.	Dip:
Area:	Horiz.	Verl.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %		REMARKS	
Moderate kaolinization		2:1		S	M	-	Mod. Qtz veining @ 20°, 40° & 80°		26			39.60	.61	.003	.29		
									60°			42.60					
									80°			42.60					
									20°			1572					
		3:1		S	S	W	Shattered qtz. veins		33			42.60	.44	.003	0.01		
									60°			42.60					
									40°			45.60					
									05°			1573					
Qtz. veins with unknown vein @ 20° & 60° to core axis.		2:1		S	S	W	Qtz. veins with stockwork system outline		31			45.60	.41	.004	0.00		45.10-47.00 galena grey, mineral ass. with Cp. Bn. in Qtz vein. 1575 check
									60°			48.60					
									0.5-parallel			1574					
Strong-intense kaolinization from 48.00 to 53.20. In part the core is quite friable. Fabric of ser. K'spar @ 30° to core axis. Silver sericite veining increasing.		3:1		S	M-S	W-M	2 cm Qtz. veins @ 15° & 45° to core axis. (49.00) Coarse Cp. Bn. in veins.		28			48.60	.39	.005			assay, .46, 005 Qtz vein shattered fract. pattern. Contains
									60°			48.60					
									40°			51.60					
									20°			1576					
		2:1		S	W-M	M	Strong qtz. veining @ 58.55 Qtz with Bn @ 05° to core axis.		24			51.60	.46	.005			K'spar & Ser. Ser. foliation @ 45° to CA with Bn Cp. parallel to fol
Mod. to strong kaolinization. Strong silvery ser. veining at 40° to core axis with diss. bn, cp. parallel to ser. veins.									60°			51.60					
									40°			54.60					
									10°			1577					
		3:1		S	W-M	M	Ser. qtz with Bn & Cp. @ 45° to core axis.		30			54.60	.48	.003			iation. Spotty hem. stains
									60°			54.60					
									40°			57.60					
									15°			1578					
Strong kaolinization.		3:1		S	W	M-S	2-3 cm qtz. vein with Bn, Cp. @ 05° to core axis.		24			57.60	.39	.003			@ 60.40 Ser. fol. with Bn, @ 45° to core axis.
									40°			57.60					
									20			60.60					
									parallel			1579					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-03
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 3 of 5

Property	Az.	Dip
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			REMARKS
Flecks of hematite.		2:1		S	-	M-S	1-2 cm min. Ser. Qtz veins @ 45° to CA		25			60.60	.26	.002			
									40°			to					
									20°			63.60					
									60°			1580					
Strong to intense kaolinization and emerald green ser. alt. At 65.23-65.83 & 66.30-66.65 intense kaolinization within emerald green ser. zone.		1:1		S	-	S	1-2 cm Ser-Qtz veins @ 45° to CA with Bn Cp.	63.60- 63.80	17			63.60	.39	.005			
									40°			to					
									60°			66.60					
									45°	parallel		1581					
From 67.10-71.60 biotite alt. is about 70° alt. to ser. and the remaining 30° of the pheno. are alt.-chlorite. Mod- erate patchy kaolinization.		2:1		S	W	S-M	Ser. Qtz. veins @ 45° to CA with Bn Cp	Strong 10 to 15° shrs from 67.10 to 67.90	16			66.60	.48	.003			
									20°			to					
									40°			69.60					
									60°			1582					
71-60-81.00 the biotite pheno. are largely alt.-chlorite. No pronounced Qtz. veining.		3:1		S	W	W	1 cm Ser. veins with Bn @ 45° to CA	70.50- 71.02 Shrs @ 20°	20			69.60	.23	.002			
									15°			to					
									60°			72.60					
									45°			1583					
Weak to mod. kaolinization.				S	M	W	1-2 cm Ser. Qtz. veins. @ 80° & 20° with Bn & Cp.	73.75- 74.37 Shrs @ 20° to core axis	28			72.60	.32	.006			
									60°			to					
									20°			75.60					
									45°			1584					
"				S	M	W	Bn. Cp. in Ser. Qtz. stockwork veins @ 45°, 20° & 80°		30			75.60	.11	.003			
Strong keolinization - patchy emerald green sericite.									20°			to					
									40°			78.60					
									60°			1585					
				S	M-S	W	"		35			78.60	.31	.002			
									45°			to					
									60°			81.60					
									0.5-parallel			1586					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-03
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 4 of 5

Properly	Az.	Dip.
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	ROD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	<input checked="" type="checkbox"/>	REMARKS
82-80-83.30 - 90° Qtz. 10% Ser&country rock. Qtz highly fract. Open fractures partly filled with Bn, Cp. Ser. @ 45°&20° 83.65-84.25 - Bethesda Porphyry Salt Pepper text. (held&biotite). Upper contact @ 45°(1), bottom contact(3). Highly fractured and cemented with Ser. Qtz. veins.		2:1		M	M	W	82.80-83.30. Qtz vein @ 45°&20°. 83.65- 84.25 Min. Qtz. veins @ 45°, 60° & 20°		23			81.60 to 84.60 1587	.34	.006		
84.25-97.84 - B.G.D. 84.60-92.60 - Biotite pheno(80% are black & partly chloritic. 20% sericitic) Mod. to strong kaolinization. 92.60 biotite mainly alt. to ser.		3:1		M-S	M	W-M	1-2 cm. Min. Ser. Qtz. veining @ 30° 60°		24			87.60 to 90.60 1589	.22	.003		
Fracturing 12 @ 45°&60° then intersect fault zone @ 95.58. Top contact @ 45°(1) Gouge mylonitized gouge & Shr. @ 30° Sericitic, soft.		3:1		M-S	M	M	Strong Min. Ser. Qtz. @ 92.55 veins @ 20°, .05°, .45° argillic. Shra. @ 45°		19			90.60 to 93.60 1590	.37	.004		To 92.84 gouge
97.84-99.90 - Q.F.P. Dyke. Upper & Lower Cont. (3) Rock is hard, Plag. pheno partly ser. & kaolinized. Cp. in irreg. fract. veins & replacing feld. pheno..				S	M	M	@ 93.75 - 5cm. Qtz vein & 90° to CA with stringers of Cp. parallel to contact.	95.58 - 106.68 Major Fault.				93.60 to 96.60 1591	.59	.012		
												96.60 to 97.84 1592	.69	.014		Fract.
												97.84 to 99.90 1593	.21	.005		Fract. in QFP @ 30°. Weak vein & diss. Cp.



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-03
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 5 of 5

Property	Az.	Dip.
Area:	Horiz	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE	HOLE	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%	REC. %	DEPTH TAG NO.	Cu %	Mo %		<input type="checkbox"/>	REMARKS
99.90-105.67 - B.G.D. in fault zone. Highly sheared & gouged, horsts + 1.5m has strong ser.qtz. veining at 30° & 60° with coarse Bn.Cp. Strong emerald green ser.alt. Starting at 101 and ending at 102.91. Py&Cp. in milky qtz. veins. Py:Cp. 2:1 - irreg. patches & veins replacing Qtz. Intense kaolinization and emerald green ser. alt.							Relic shattered Qtz veins					99.90 to 102.90 1594	1.36 .012				S
							20°, 30° & 60°-Qtz.	105.37 -				102.90 to 105.90 1595	.63 .007				S
								106.68 Gouge				105.90 to 106.68 1596	.35 .009				S 30 cm of core rec.
												to					
105.67-105.87 - Q.F.P. Dyke contacts(3) in fault gouge.												to					
105.87-106.68 - Highly gouged B.G.D. gouge also has Q.F.P. frag.												to					
												to					End of Hole @ 106.68
												to					
												to					



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## DIAMOND DRILL HOLE LOG

Latitude: 96,273.13	Hole No. 82-04
Departure: 99,224.73	Commenced: May 22/82
Elevation: 4,053.70	Completed: May 23/82
Length: 106.68m	Logged by: K.M. Newman
Overburden: 10.00m	Sheet No. 1 of 5

Property Lake Zone	Az.	Dip: -90°
Area: Highland Valley, B.C.	Horiz.	Veri.
Purpose: Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms Ser.	Cl K'Sp	Ep G.S.			Frac. Den.	%			Cu %	Mo %		<input checked="" type="checkbox"/>	REMARKS
9.14-10.00 - Overburden. Recovered Boulders & hardpan.				S	?	M			20			10.00	.36	.005	.29		No visible Bn,Cp.
10.00-106.68 Bedrock B.G.D. From 10.00 to 34.75 variable malachite oxidization along with limonite & pyrolucite. From 10.00-17.78 intensely weathered friable strong kaolinization.				S	M	M			45° 80°			13.00 1532					
17.78-38.10 Limonite staining of kaolin Biotite mainly alt. to Ser. but at 1.5 metre intervals 10-20 cm of unalt. biotite clusters.				S	M	W	Qtz. at 20°, patches of Bn,Cp. @ 21.70 Bn,Cp. vein @ 20° in Shr.		16 80° 20°			13.00 to 16.00 1533	.20	.009	.11		Scattered Bn & Cp
Patchy green sericite, K-spar in part masked by limonite staining				S	W-M	S	Qtz. vein stockwork at 20° & 80° to CA		23 80° 45° 20°			16.00 to 19.00 1534	.56	.005	.51		Sulphides coated with pyrolucite
Difficult to see sulphides except in qtz. veins.				S	M	W-M			24 80° 40°			19.00 to 22.00 1535	.35	.006	.25		"
Sulphides less oxidized but malachite still present. After 27.50 biotite 90% sericitized.				S		W	Qtz. vein stockwork at 20° & 80° to CA		25 80° 25°			22.00 to 25.00 1536	.28	.003	.09		
				S		W	Qtz. vein stockwork at 27.35 pyrolucite in 20° shear		24 80° 40°			19.00 to 22.00 1535	.35	.006	.25		
				S		W	Qtz. veins @ 20° & 80°.		25 80° 45° 05°			22.00 to 25.00 1536	.28	.003	.09		
				S		W	Qtz. veins @ 20° & 80°.		12 40° 80°			25.00 to 28.00 1537	.33	.002	.13		
				S		W	Qtz. veins @ 20° & 80°.		17 80° 45° 05°			28.00 to 31.00 1538	.35	.003	.15		





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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-04
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 2 of 5

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE	HOLE	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%	REC. %	DEPTH TAG NO.	Cu %	Mo %			REMARKS
Bn, Cp slightly oxidized. Limonite staining of kaolins decreasing mainly confined to fracture surfaces.		2:1		S	M	W	4-5 cm Qtz @ 60° & 80°		22			31.00	.55	.004	.07		
									80°			to					
									45°			34.00					
									20°			1539					
Patchy emerald green Ser.Alt. Qtz. veins fractured, limonite stained. Biotite completely sericitized. Malachite rims Bn, Cp.		2:1		S	M	M	5 cm Qtz. veins @ 70° to CA		20			34.00	.39	.005	.18		
									80°			to					
									45°			37.00					
												1540					
From 37.70-42.00 about 70% of the biotite is fresh to partly chloritic: 30% sericitized. K'spar & ser. foliation @ 60° to CA		3:1		S	W-M	W	Ser. veining with Bn, Cp. @ 45° to CA. Qtz veining @ 20°, with Bn, Cp.		23			37.00	.36	.007	0.00		Minor hematite 38.91 (Just beyond end of limonite zone)
									45°			to					
									80°			40.00					
												1541					
Sericite fabric at 60° to CA which controls part of Bn, Cp mineralization. Intensity of Qtz. veining increasing. Biotite completely sericitized.		3:1		S	W	M	Qtz. @ 20° & 80° to CA		18			40.00	.40	.003			Dusty Moly assoc. with Qtz. veins
									45°			to					
									60°			43.00					
												1542					
Emerald green sericite prominent.		4:1		S	W	M-S	80° & 15° Qtz. veining with coarse Bn. Dusty Mo.	45.70-45.90 20" Gouge	14			43.00	.39	.004			Bn:Cp ratio increasing
									40°			to					
									80°			46.00					
									20°			1543					
Strong kaolinization. K'spar & sericite foliation at 60° to CA.		3:1		S	M	W	Qtz. @ 80° & 20°		17			46.00	.58	.003			
									20°			to					
									80°			49.00					
									45°			1544					
49.00-50.00 about 30% of biotite not sericitized.		2:1		S	M	M			32			49.00	.33	.004			Where there is strong emerald green Ser.Cp. is stronger.
									60°			to					
									45°			52.00					
												1545					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-04
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 3 of 5

Property	Az.	Dip:
Area:	Horiz	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	ROD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			REMARKS
Intensity of Qtz veining increasing K'spar associated with Qtz. veins. Strong kaolinization. Rare non-sericitized biotite.		2:1		S	M	W	Qtz. @ 80° & 25°. Dusty Mo. in Qtz. veins.		30			52.00	.41	.009			Coarse Bn, Cp with Qtz. veins as well as diss. in seri- cite.
								60°			55.00						
Strong kaolinization. Good diss. Bn, Cp		2:1		S	M	W		Strong 20° Shear @ 55.56	15			55.00	.78	.002			
								20° 80°				58.00					
Between 57.00 & 65.75 Qtz. veining strong at 20°, 60° & 05°. About 80% of the bio- tite is sericitized & chloritized. K' spar roughly parallels the Qtz. veining 60° Qtz veins cut often Qtz. veins (20° & 05°). Strong kaolinization. 62.50-65.40 speckled with Imm hematite		2:1		S	M	M	Qtz. veins @ 60°, 20° & 05°.		30			58.00	.39	.010			Dusty Mo. in Qtz.
								80° 20° 45°				61.00					
		3:1		S	M	M	"		16			61.00	.72	.008			Moly slips on Qtz. fractures & Qtz. vugs.
								45° 65°				64.00					
Where not associated with Qtz veining Bn & Cp veins & diss. parallel at 60° sericite-K'spar alt. fabric.		3:1		S	M	M-S	"		17			64.00	.59	.004			"
							Strong 2-3cm Qtz. veins Bn. veins @ 60°		40° 60° 80°			67.00					
From 65.75-68.50 intense emerald green sericite alt.		2:1		S	M	S	Strong Qtz. @ 60° parallel @ 20°		18			67.00	.62	.004			Coarse Bn, Cp
									60° 45° 85°			70.00					
68.50-73.00 green ser. decreases strong kaolinization, Mod. K'spar 90° of biotite sericitized.				S	M	W-M	"					73.00					Moly on Shrs.
								70.00 - 72.00 Strong Shc 05°-CA				70.00	.69	.001			
												73.00					
												1552					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-04
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 4 of 5

Property	Az.	Dip:
Area:	Horiz.	Verl.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	<input type="checkbox"/>	REMARKS
73.00-79.80 Except for fractured Qtz. veining the core is intensely alt. to green sericite & strongly kaolinized. Coarse Bn, - Cp. veins at 60 & 20° to CA				S		S						73.00	.31	.003		
												to				
												75.00				
												1553				
79.80-84.00 - Weak to restricted patchy emerald green ser. alt. 75° of biotite alt. to ser. - 25% partly chloritized. Ser. K'spar & Qtz. veining with Cp & Bn at 45° to CA. Secondary set of Qtz. veins at 20° and 80° to CA.												75.00	.44	.002		
												to				
												78.00				
												1554				
84.00-88.05 - intensity and width of Qtz. veins increasing & silvery sericite veins are common. Biotite strongly alt. to sericite. Coarse Bn-Cp associated with Qtz. veins however the better mineralization is diss. in the ser. kaolin K'spar.				S	M	W						78.00	.78	.002		
												to				
												81.00				
												1555				
88.05-89.17 intense emerald green sericite & kaolin alteration, only Qtz phenocrysts remain from the original rock. Cp appears to be related to ser. alt. while Bn is at a lower ratio.				S	M	W						81.00	.37	.003		
												to				
												84.00				
												1556				
89.90-90.50 20° & 80° coarse Bn & Cp.							Qtz. veins up to 6 cm wide.	@ 85.04	15			84.00	.64	.024		
								Strong 20°	parallel			to				
								Shr.	60°			87.00				
									45°			1557				
10cm Gouge @ 20°-91.80 Shr. @ 05°				S	M	M-S	Qtz. veins @ 60°		18			87.00	.53	.004		
							20° & 80°, with		45°			to				
							coarse Bn & Cp.		80°			90.00				
												1558				
Moly on 05° Shear.								10cm Gouge	10			90.00	.41	.005		Moly on 05°
								@ 20°-91.80	parallel			to				Shear.
												93.00				
												1559				



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-04
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 5 of 5

Property:	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	⊗	REMARKS
89.17-92.15 - zone of intense Qtz. veining, kaolinization & K'spar veining. Relic biotite				S	W-M	S	20°, 60°					93.00	.28	.023		
												to				
										parallel		96.00				
										80°		1560				
92.15-95.00 Biotite - 60% alt. to chlorite 40% to ser. Strong kaolinization.												96.00	.39	.002		
												to				
										45°		99.00				
95.00-98.60 - Intense emerald green sericite alt. plus original Qtz. and secondary Qtz. As before Cp has affinity for this alteration type.				S	W-M	W						1561				
										14		99.00	1.28	.002		
										20°		to				
										05°		102.00				
98.60-106.68 - Strong quartz veining mod. to strong kaolinization on K'spar. Widely scattered chloritized biotite. Coarse patches of Bn-Cp. up to .2 cm wide in the Qtz. veins.				S	M	W						1562				
										17		102.00	.54	.006		
										45°		to				
										20°		105.00				
End of Hole				S	M-S	W	Qtz. veins 5 cm wide @ 20°, 60° and irreg. parallel to core axis.			5		105.00	.61	.004		
										80°		to				
										20°		106.68				
										60°		1564				
											to					
											to					



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## DIAMOND DRILL HOLE LOG

Latitude: 96,273.13 Hole No. 82-05  
 Departure: 99,224.73 Commenced: May 22/82  
 Elevation: 4,053.70 Completed: May 22/82  
 Length: 91.44m Logged by: K.M. Newman  
 Overburden: 12.60m Sheet No. 1 of 4

Property Lake Zone Az. Dip:  
 Area: Highland Valley Horiz. Vert.  
 Purpose: Infill

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms Ser.	Cl K'Sp	Ep G.S.			Frac. Den.	%			Cu %	Mo %	CuO %	REMARKS	
0.0-12.60 Overburden - 50 cm of till recovered. Bedrock B.G.D. 12.60-91.44		1:1		S	W	W	@ 13.50 shr. @ 20° filled with pyro- lucite		33 80° 20°			12.60 to 15.60 1503	.61	.006	.48		
12.60-18.59 Oxide zone-mainly limonite. 12.60-18.59 malachite-not too intense. Within limonite zone shears at 30° & 80° covered with pyrolucite. 5-8 cm Qtz. veins @ 20°. Strong kaolinization.		1:1		S	W	W	Qtz. Veining @ 20°	18.29 a 5cm gouge @ 45°	21 80° 45°			15.60 to 18.60 1504	.35	.003	.12		
18.59-26.00 zone of weathering. Strongly kaolinized, crumbly, hematite staining on fractures 70% of biotite altered to sericite and chlorite.		2:1		S	W-M	W-M			33 20° 80°			18.60 to 21.60 1505	.30	.009	.003		
				S	W-M	M		@ 20.25- 20.35 Gouge	30 20° 60° 80°			21.60 to 24.60 1506	.50	.003	.003		
Strongly kaolinized weathered. Core less fractured - more competent.		1:1		S	M	W-M	Qtz. Ser. Stockwork @ 20°, 45°-80° 5-20 cm. Cp, Bn in Qtz.		20 80° 10° 60°			24.60 to 27.60 1507	.46	.010	.000		
Biotite alt. 60% Ch, 40% Ser. Pervasive ser. with coarse Cp & Bn. Mod. to strong K'spar.		2:1		S	W-M	M	Qtz. Ser. @ 10° & 80° to core axis.		25 10° 80° 60°			27.60 to 30.60 1508	.56	0.23			
Starting at 32m ending at 49m, the core is less blocky, more competent with fractures up to 50 cm intervals.		2:1		M	M	M	Qtz. Ser. @ 10° & 80°		20 20° 10° 80°			30.60 to 33.60 1509	.61	.004			



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# DIAMOND DRILL HOLE LOG

Latitude: \_\_\_\_\_ Hole No. 82-05  
 Departure: \_\_\_\_\_ Commenced: \_\_\_\_\_  
 Elevation: \_\_\_\_\_ Completed: \_\_\_\_\_  
 Length: \_\_\_\_\_ Logged by: K.M. Newman  
 Overburden: \_\_\_\_\_ Sheet No. 2 of 4

Property: \_\_\_\_\_ Az. \_\_\_\_\_ Dip: \_\_\_\_\_  
 Area: \_\_\_\_\_ Horiz \_\_\_\_\_ Vert. \_\_\_\_\_  
 Purpose: \_\_\_\_\_

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			REMARKS
60% of biotite is alt. to Ser. 40% partly alt. to Chlorite. Stockwork of Ser. Qtz veining.	2:1			M-S	M	M	2-3 cm Qtz @ 10° & 60°	34.50 - 35.05 Gouge & Shr. @ 20°	16 20° 70°			33.60 to 36.60 1510	.50	.036			Moly in Qtz. vugs
Tiny flecks of hematite are starting to appear. Strong kaolinization.	2:1			S	W-M	M		@ 37.65m 5cm Gouge @ 20°	20 20° 60°			36.60 to 39.60 1511	.47	.006			
From 32-49m there is a pronounced fabric of alt. at 45° which is cut by ser. qtz. veins at 20°. Intense ser. alt. Starting at 40.30 and ending at 46.50 is hematite staining on fractures and is solution vugs.	2:1			S	M	M	Cp, Ser., Qtz. at 15-20° & 80°		17 45° 80°			39.60 to 42.60 1512	.44	.003			.55, .003, 1515 check
	3:1			S	W-M	M			15 85° 45°			42.60 to 45.60 1513	.58	.004			Course Bn in veins & ser. alt.
Strong kaolinization, strong but patchy green ser. alt. Ground becoming blocky.	2:1			S	W	M-S	Qtz veins up to 2 cm wide		17 80° 45°			45.60 to 48.60 1514	.27	.004			
Biotite 60% alt. to Ser. 40% partly chloritized. Strongly kaolinized.	3:1			S	M	M	5 cm Ser. Qtz. @ 20° to core axis	@ 50.40 Shr. parallel to CA for 40 cm.	24 50° 80°			48.60 to 51.60 1516	.45	.004			K'spar & Bn. Cp veining at 45°
Strong Qtz. veining.	3:1			S	M-S	W	53.10-53.62 Qtz. vein 20° to CA. K'spar in vein as well.	53.95 20° Shr.				51.60 to 54.60 1517	.41	.005			chalcocite & Bn.



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-05
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. 3 of 4

Property	Az.	Dip
Area:	Horiz.	Vert.
Purpose		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			REMARKS
Moderately sheared, strong kaolinization Patched emerald green ser. Weak hem- staining. Between 57.15 & 59.18. Strong fract-gouge zone leached kaolin, res- istant Qtz. phen.		3:1		S	M-S	M	2-3cm Qtz.veins @ 40° & 80° to CA	55.45 - 55.60	20 40°			54.60 to 57.60	.39 .	.005			
Core less fractured from 59.50-60.60		3:1		S	M	M	Strong flaky ser. veining at 20° with Bn, Cp	57.30 Gouge	17 20°			57.60 to 60.60	.50 .	.008			
Strong Qtz. veining @ 20° to C.A. Emerald green ser. in irreg. patches K'spar-erratic, pervasive.		3:1		S	W-M	W	2-3 cm Ser. Qtz. Coarse Bn.	20 10°				60.60 to 63.60	.53 .	.007			
70% of biotite is alt. to sericite. From 65.50m to the end of the hole the intensity of alteration increases. Most of the biotite is altered to sericite or completely obliterated. The stock- work of Qtz veining increases. Green sericite alt. becomes intense starting at 77.00. K'spar becomes less intense as the emerald green sericite increases.		2:1		M-S	M	M	3 cm Qtz.veins @ 80° to CA	21 80°				63.60 to 66.60	.48 .	.004			
		3:1		S	M	M	2-3 cm Qtz.veining @ 20 & 90°. Coarse to dusty Bn.	19 50° 80° 05°				66.60 to 69.60	.41 .	.005			
		3:1		S	M	M	Silver Ser.veins @ 20-10° to CA with coarse Bn, Cp.	16 45° 80° 20°				69.60 to 72.60	.29 .	.006			
		3:1		S	W-M	M	4-5 cm Qtz.veining at 20° to 80° coarse Bn & Cp.	20 45° 05° 80°				72.60 to 75.60	.61 .	.006			



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-05
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. <u>4</u> of <u>4</u>

Property	Az.	Dip:	Elevation:
Area:	Horiz.	Vert	Length:
Purpose:			Overburden:

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %		
Strong emerald green ser. alt. starting intense kaolinization. Rare hematite stains.		2:1		S	W	M-S	20° & 60 Qtz.	76.25 -	25			75.60	.68	.004		
							with Bn. Cp.	77.11 05-	45°			to				
								parallel	75°			78.60				
Relic, sericitized biotite		2:1		S	W	S	"	Shrs.	parallel			1525				
									26			78.60	.36	.002		
									45°			to				
Massive patchy emerald green ser. Biotite completely sericitized. Strong stockwork of Qtz. veining.									90°			81.60				.45, .001
									parallel			1526				1531 check
												81.60	.49	.004		
Coarse silvery sericite veins.		2:1		S	W	S	"	83.00 -	23			to				
							25° & 60° Qtz. stockwork	83.82	45°			84.60				
								Gauge @	80°			1527				
Minor moly in Qtz. veins				S	W	S	"	30° to CA	parallel			84.60	.45	.002		
									27			to				
									20°			87.60				
Strong kaolinization, pitted.									45°			1528				
				S	-W	S	"		80°			87.60	.39	.003		
									20			to				
Too dull to est. grades.									10°			90.60				
									40°			1529				
				S	W	S	2-3cm Qtz. veins almost parallel to core.		8			90.60	.22	.013		
								85°			to					
								40°			91.44					
								45°			1530					End of Hole





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## DIAMOND DRILL HOLE LOG

Latitude: 96,220.52	Hole No 82-06
Departure: 99,480.78	Commenced: May 21/82
Elevation: 4,021.46	Completed: May 21/82
Length: 91.44m	Logged by K.M. Newman
Overburden: 21.34m	Sheet No. 1 of 5

Property Lake Zone	Az.	Dip. -90°
Area: Highland Valley	Horiz.	Vert.
Purpose: Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE	HOLE	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms Ser.	Cl K'Sp	Green Ep Ser.		Shr.	Frac. Dan.	%	REC. %	DEPTH TAG NO.	Cu %	Mo %	CuO %	REMARKS	
0.00-21.34 Overburden		1:1		M	W	W	Shrd. Qtz. 22.56 -	20° @ Shr	30			21.34	.83		.005		Chalcocite patches Shrd. Qtz.
21.34-53.60 Bethsaida G.D. From 21.34 to 23.50 visible malachite. Limonite and weathering dies out at 31.50. MnO covering cp. infilling vugs. Scattered bornite patches rimmed with chalcocite. Biotite largely alt. to silver ser. Friable due to kaolinization. Limonite residue. Friability strong to 30.74, ie base of weathering.							22.96. Bn,Cp,Cc in less than 20°.Qtz. S.vein @ 20°(1)	22.65				to 24.34 1476					Fract. Sets 85° dom. 20° Secondary
												to	.51		.006		
				M	W-M	W	@ 24.90 2 cm S.Qtz.vein @ 45°	@ 25 Shr. @ 10°	17			24.34 to 27.34 1477	1.02		.022		Moly slips Fract. dom @ 30° - core axis.
At 27.83-28.03 fault gouge at 30°. Qtz. vein at 28.33 min. mainly Cp in Shr vugs. Mn. coating Cp in open vugs.							28.33-28.83(50 cm) Qtz.vein @ 10°. Fract. 28.03 @ 10° with Cp & Bn	27.83 - 28.03	32			27.34 to 30.34 1478	.30		.006		Dom. fract. @ 30°
29.78 Qtz vein T-3, B-1 @ 45° Cp, filled Fract. vugs Mod-strong kaolinization Minor gypsum on fracture planes MoS <sub>2</sub> in Qtz veins.		1:2		M	M	W	29.78-30.24 Qtz vein					to					
Min. ser. veins @ 45° & 20° to CA. Starting at 31.09 the biotite is only weakly sericitized but where alt. it is chloritic mod. kaolinization. Patchy ser. alt. mainly diss. bn & cp. Lr of MoS <sub>2</sub> . Alt. of biotite to chlorite 31.03 - 36.98.				M	M	W		30.34-30.74 Pos Fault gouge(3)	29			30.34 to 33.34 1479 to 33.34 1479 to 36.34 1480	.28		.011		Dom. fract. 60° Sec. 20
												to	.28		.004		



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-06
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. 2 of 5

Property	Az.	Dip
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %		REMARKS	
Mod. kaolinized, 36.98-37.28 strong emerald sericite. From 36.98 to about 40% of biotite is alt. to ser. 38.30-38.45 aplite dike-contacts(?) Min.Ser. Qtz. veining @ 30°.		1:1		M	M	W	Weak @ 30°		34			36.34 to 39.34 1481	.20	.004			Fract.Dom. 60° Sec. 45
50:50 Chl. & Ser. alt. of biotite Felds. pitted. Kaolinization moderate at 42.34 - 05° shr. with hem. or zeol.		2:1		M-S	M	W	Qtz-Ser-Min. 40° and 20°		37			39.34 to 42.34 1482	.42	.002			Fract.Dom. 60° Sec. 20
Mod. kaolinization - pitted field. Foliation of ser. mainly at 20°. Chl & Ser. alt. of feld about 50%-50%. Patchy emerald green ser. alt.		2:1		M-S	M	W	Weak Ser. Qtz vein- ing @ 20°		30 40° & 20°			42.34 to 45.34 1483	.24	.000			
Biotite strongly alt. to chlorite. Strong ser. along fractures @ 20°. At 47.28 patch of emerald green ser. K'spar increasing.		2:1		M-S	M-S	W	Scattered Ser. Qtz. @ 20°. With Bn & Cp in vugs.		37			45.34 to 48.34 1484	.28	.003			Fract.Dom. 45° Sec. 20
Pred. Chl. Alt of biotite, Strong kaolinization. At 51.00, 1 cm dacite dyke at 45°.		2:1		S	M	-	At 51.61 coarse Br in Ser. Qtz vein @ 20°		38			48.34 to 51.34 1485	.22	.008			45° 20
Pervasive sericite & qtz. content increasing with increase in Bn. content. Pred. Chl. alt. of biotite. Pred. min. & fol. @ 20°-CA. Core is less fractured.				S	W	W	Qtz & Ser. veining @ 70° and 20		27			51.34 to 53.60 1486	.52	.003			2.6m sample



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-06
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. 3 of 5

Property	Az.	Dip.
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	REMARKS
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			
53.60-54.96 Q.F.P. Dyke. Grey aphanitic Feld. pheno. ser &/or kaolinized also in part leached giving pitted texture. Mo same as on scattered fracture planes. Chilled top cont. @ irreg. 80° bottom ground.		0:1					Weak Cp on 40° fracture.		14			53.60 to 54.96 1487	.13	.008			Sampled dyke Fract. 40 & 60°
54.96-91.44 Bethsaida G.D. Biotite strong Chl. alt. (90% of pheno alt. to biotite). Stockwork of Ser.Qtz veining. Qtz. veins avg. 5cm. Strong kaolinization. Emerald green sericite alt. increasing.		2:1		S	W	M	Ser. Qtz. veining increases. Dom. @ 20°. Minor @ 60°		29			54.96 to 57.96 1488	.34	.010			45 D 30 2nd 80
From 61.97-65.40 about 40% of the biotite is not intensely chloritized. Moderate pervasive K'spar to strong kaolinization.		2:1		M-S	M	V			28			57.96 to 60.96 1489	.33	.005			.36, .002 1490 check
65.40-77.11 intense emerald green sericite alt. These zones are up to 50 cm wide & are intercalated with zones of strong K'spar & kaolinization. Moderate to abundant Ser.Qtz. stockwork. Biotite has been (+95%) completely sericitized to End of Hole.		2:1		M	M	W			31			60.96 to 63.96 1491	.30	.002			
		2:1		M	M	W			26			63.96 to 66.96 1492	.28	.021			45° D. Fract. 60 m Fract.
		2:1		M-S	M	W	2cm Ser. veins with Bn & Cp @ 20° & 75		27			66.96 to 69.96 1493	.38	.002			45 D Fract. 70 m Fract.



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-06
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 4 of 5

Property	Az.	Dip
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			REMARKS
Coarse ser. veins with no qtz. 2 cm moly vein @ 60° @ 67.67m.		2:1		S	M	W	Bn & Cp closely associated with 2-5 cm Ser. veins		19			69.96 to 72.96 1494	.48	.002			
Chalco, dominant where emerald green sericite is abundant.		1:1		S	M	S		74.97 - 75.80 m brecciated Qtz.	16			72.96 to 75.96 1495	.49	.009			Core less fract.
74.90-77.20 Abundant qtz. veins up to 5 cm wide.		2:1		S	M-S	S	Qtz. veins @ 45° & 10°	78.00 - 78.25 Shrs.	15			75.96 to 78.96 1496	.54	.006			
77.11-91.44 Qtz.-Ser. veins less common however coarse crystalline ser. veins without qtz. core are common.		2:1		I	M-S			78.90 - 79.35 80.17 - 80.77 Shr	30			78.96 to 81.96 1497	.57	.004			.49, .008 1498 check
		2:1		M	M	M		& Gouge @ 20°				81.96 to 84.96 1499	.43	.002			
Strong ser. alt. both types - silver and emerald green from 85.30 to 87.90.		1:1		S	M	S	Qtz. 5 cm wide @ 50° & 15°	87.38 - 87.80 Gouge zone	29			84.96 to 87.96 1500	.61	.004			Poor Rec due to gouge
Strong kaolinization.		2:1		S	M-S	M-S			16			87.96 to 90.96 1501	.43	.013			





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## DIAMOND DRILL HOLE LOG

Latitude: 95,911.47	Hole No. 82-07
Departure: 99,159.74	Commenced: May 11/82
Elevation: 4,127.94	Completed: May 12/82
Length: 91.44	Logged by: K.M. Newman
Overburden: 15.60	Sheet No. 1 of 4

Property Lake Zone	Az.	Dip. -90°
Area: Highland Valley	Horiz.	Vert.
Purpose: Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms Ser.	Cl K' Sp.	Ep G.S.			Frac. Den.	%			Cu %	Mo %	CuO %	⚡	REMARKS
0.00-15.60 Overburden - 36 cm of 4-8 cm of cobbles recovered.				W	-	-	Weak @ 20° & 60°		16			15.60	.19	.003	.13		Soft
15.60-91.44 Bethesda G.D.									45°			to					
15.60-34.50 Oxidized-limonite on fracture planes & staining argillic zones. Cu Oxide (malachite) 0.00 to 25.75.	1:1			W	-	-	"		60°			18.60	.22	.003	.09		Soft
15.60-17.00 - 50% of core is composed black biotite crystals up to 1 cm in diameter. weakly chloritized 17.00 - 37.00 about 10% of biotite is alt. to chl - ser.									80°			to					
15.60-37.00 moderately kaolinized, very weak localized K'spar to 35.10, 35.10 to 37.00 weak K'spar.	1:1			M	-	-	Mod. Ser. Qtz. with Bn Cp. Dominant @ 40° & 20°		26			21.60	.30	.002	.07		Soft-Med.
									40°			to					
	2:1			M-S	-	-	"		60°			24.60					
									21			2158					
	2:1			M	-	-	"		40°			24.60	.26	.003	.003		Soft-Med.
									80°			to					
	2:1			M	-	-	"		60°			27.60					
									29.60 - 29.80			2159					
									45° Shr.			to					
	2:1			S	-	-	"		26			27.60	.31	.002	.003		Soft
									40°			to					
									80°			30.60					
	2:1			S	-	-	"		26			2160	.38	.003	.003		Soft
									40°			to					
									60°			33.60					
									80°			2161					
				S	W	-	Dom. Ser. Qtz. @ 20° & 60° a few milky Qtz @ 60°.		18			33.60	.33	.006			Soft
									40°			to					
									60°			36.60					
									80°			2162					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-07
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 2 of 4

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			REMARKS
37.00-41.65 zone of intense emerald green ser.alt. with residual qtz. associated with strong fault gouge from 40.35-40.70		3:1		S	W	W-M	Dom. 1 cm Ser.Qtz. @ 30°		20			36.60	.49	.003			Soft
37.00-52.00 biotite alt. to ser.		1:1		S	W	S	Diss. cp in green ser. zone	40.35 - 40.70	21			39.60	.41	.004			.48, .003 2164 check Soft
41.65-52.00 mod. to strong K'spar moderate green Ser., patchy kaolinization only moderate Qtz.Ser. veining. Milky qtz. veins are weakly mineralized. K'spar veining at 40°		2:1		M	S	M	Mod.Qtz.Ser. 1 cm veins @ 20° cut by 1 cm milky qtz. @ 20° & 60°	42.50 - 42.98	26			42.60	.19	.003			Med-Soft
Widely diss. Hematite as sulphide halos		2:1		M	S	M	"	47.30 - 47.55	17			45.60	.35	.006			Soft
52.00-69.80 Sericite-Qtz. veining increasing, kaolinization becomes strong, biotite mainly alt. to chlorite & Ser. except in widely spaced sections 15-30 cm long where it is relatively fresh. Patchy emerald green sericite. Hematite stains on fracture planes and as sulphide halos. K'spar weak to moderate.		2:1		M	M	W	"	Strong 45° Shr.	45°			48.60	.41	.019			Soft
		3:1		S	W	M	"		21			51.60	.32	.004			Soft
		3:1		S	W	M	"	Milky Qtz. veins up to 15 cm long	45°			54.60					
		3:1		S	W	M	"	at 56.20 5 cm Qtz. Ser. vein with coarse Bn Cp @ 40°	60°			57.60	.65	.003			Very Soft



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-07
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 3 of 4

Property	Az.	Dip.
Area.	Horiz	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	REMARKS	
		3:1		S	W-M	M	Qtz.Ser. with Bn.Cp Dom @ 60°, 20°, 80° Milky Qtz. @ 20° & 40°	57.91 - 58.15, 20° Gouge	26 40° 20° 80°			57.60 to 60.60 2171	.23 .005			Soft
		3:1		S	W	M	"	63.05 Strong 20° Shr.	19 40° 20° 60°			60.60 to 63.60 2172	.60 .006			Soft
65.53-66.45 strong Qtz veining @ 45°		3:1		S	M	W	"		28 45° 60° 20			63.60 to 66.60 2173	.42 .008			Soft
69.80-75.10 intense kaolinization friable, strong shrs. at 20°, patchy emerald green Ser. Biotite completely altered to Ser-chlorite. Weak K'spar.		2:1		S	W	W-M	"	69.16 - 69.60 Strong 20° Shr.	23 45° 60°			66.60 to 69.60 2174	.49 .027			Soft
		1:1		S	W	M-S	Diss.	72.20 - 72.45 Gouge @ 45°	25 20° 40° 45°			69.60 to 72.60 2175	.50 .014			Very Soft  72.24-74.37 30% Rec.
75.10-91.44 strong kaolinization, mod. to strong K'spar. Strong milky Qtz. veining @ 80° & 20°, veins 2-10 cm wide Biotite alt. to Ser. except from 78.70 - 79.10 where it is fresh, also at 82.10-83.15.		2:1		S	W	W-M	Qtz.Ser. @ 20° & 45° Milky Qtz. @ 20° 45° & 80°		22 40° 60°			72.60 to 75.60 2176	.35 .004			Soft-Very Soft
		2:1		S	M-S	W	"	77.75 - 78.5, 45° Gouge	24 45° 60° 80°			75.60 to 78.60 2177	.35 .007			Soft-Very Soft





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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-07
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. 4 of 4

Property	Az.	Dip
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG		
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	<input type="checkbox"/>	REMARKS	
83.15-88.25 Biotite - 80% alt. to Ser. &/or chlorite.		2:1		S	M	W	Dominant Ser.Qtz. @ 45° & 60°. Barren		26			78.60	.25	.007			Soft
88.25-91.44 euhedral to anhedral bio- tite partly alt. to chlorite.							to weakly Min. Milky Qtz. @ 20° & 60°		60°			81.60					
									45°			2178					
		2:1		S	M	W	"		22			81.60	.35	.007			Soft
									45°			to					
									20°			84.60					
									80°			2179					
Strong kaolinization friable		2:1		S	M	W	"		21			84.60	.37	.011			Very Soft
									80°			to					
									20°			87.60					
									45°			2180					
		2:1		M	M	M	"	88.60 - 88.90	24			87.60	.23	.005			Soft
								Strong 20° Shr.	45°			to					.22, .005
									20°			90.60					2182 check
									80°			2181					
		2:1		S	M-W	W	"		5			90.60	.24	.004			Soft
									45°			to					
									80°			91.44					
												2183					End of Hole
												to					
												to					



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## DIAMOND DRILL HOLE LOG

Latitude: 96,149.79	Hole No. 82-08
Departure: 98,903.81	Commenced: May 12/82
Elevation: 4,137.51	Completed: May 13/82
Length: 91.44	Logged by: K.M. Newman
Overburden: 14.00	Sheet No. 1 of 4

Property	Lake Zone	Az.	Dip. -90°
Area.	Highland Valley	Horiz.	Vert.
Purpose:	Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms Ser	Cl K'sp.	Ep G.S.			Frac Den.	%			Cu %	Mo %	CuO %		REMARKS
0.00-14.00 Overburden - From 9.14-14.00 10-15 cm. of boulders were recovered with minor sand, no hardpan was recovered - Casing was drilled to 15.24m.				W	-	-	Weak @ 30°		19			14.00	.15	.002	.01		Med.
									45°			to					
									20°			17.00					
									80			2101					
				W	-	-	"		25			17.00	.26	.002	.19		Med.
14.00-22.25 Bethsaida G.D. Oxide zone (Cu) 14.00-28.75.Limonite zone(Cu) 14.00 - 29.35. Malachite stained sericite on fracture planes. Minor manganese down to 20.75. Magnetite widely disseminated. Minor chalcocite. Strong limonite stain- ing to 14.00. Moderate kaolinization, weak sericite-Qtz veining. Biotite partly chloritized.									45°			to					
									60°			20.00					
									20°			2102					
	2:1			W-M	W	-	Partly oxidized Bn Cp.in Ser.Qtz.veins at 40°	21.80 - Shr.	19			20.00	.24	.002	.14		Med.
									45°			to					
									40°			22.25					
									20°			2103					
	1:1						Hairline fractures filled with Cp,Bn. @ 20° & 45°		24			22.25	.26	.002	.13		Hard
									40°			to					
22.25(1)-27.70(3) Bethsaida Porphyry chilled upper cont.@ 20°, lower cont. uncertain due to limonite staining* & Qtz.ser. veining. Relatively fresh. Biotite pheno partly chloritized, some feld.leached-resulting in pitted core. *Lower contact may be gradational.									60°			25.25					
	1:1						"		18			25.25	.36	.003	.06		Hard
									40°			to					
									60°			27.70					
												2105					
	2:1			S	M	-	1-3cm Ser.Qtz.Vein Stockwork @ 45° & 60°		23			27.70	.45	.003	.005		Soft
									60°			to					
									45°			30.70					
												2106					
27.70-91.44 Bethsaida G.D. 27.70-29.30 moderate kaolinization mod. to strong silvery sericite.	2:1			S	W	-			31.50 -	33		30.70	.33	.004	.003		Very Soft
												to					
									32.75 -	60°		to					
									parallel	80°		33.70					Blocky
									& 20°Shrs	parallel		2107					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-08
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 2 of 4

Property:	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			REMARKS
A few fresh looking biotite crystals from 27.70-38.80 but most are alt. to chlorite or muddy sericite. Hematite on fractures.		2:1		S	-	W	1-2cm Ser. Qtz. @ 40° & 60°, Sec. @ irreg. 10-20°	35.70, 20 cm shr. @ 10°	15			33.70 to 36.70 2108	.48	.092			Very Soft
37.40-37.90 strong emerald green ser. & residual qtz. associated with fault.		1:1		S	-W	M-S	20° & 80° min. Ser. Qtz. veins & diss. Cp in green ser. zone	37.10 - 37.40 Strong Gouge 45°	20			36.70 to 39.70 2109	.36	.006			Very Soft
K'spar starts at 40.60, mod to strong emerald green sericite, strong kaolinization.		1:1		S	W	M-S	Dom. Min. veining @ 40°	42.05 - 42.75, 05° Shra.	22			39.70 to 42.70 2110	.35	.009			Soft
42.65-47.52 strong K'spar - pervasive irregular to 60° 42.65-71.50 abundant biotite-mainly fresh but about 10% alt. to chlorite Ser. Moderate kaolinization, minor-widespread emerald green sericite. Very blocky core.				S	S	W	60° & 40°	42.80, 10 cm gouge @ 45°	27			42.70 to 45.70 2111	.26	.012			Soft
		2:1		M	S	-	Qtz, Ser. - Bn, Cp. Dom @ 40° & 60° cut by milky Qtz. @ 45°		34			45.70 to 48.70 2112	.20	.003			Med.
		2:1		M	W	W	"		35			48.70 to 51.70 2113	.29	.004			Med.
		1:1		S	W	W	" Secondary Ser. Qtz. @ 20°		33			51.70 to 54.70 2114	.26	.005			Soft



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-08
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 3 of 4

Property	Az.	Dip.
Area:	Horiz.	Verl.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			REMARKS
Hematite on shr. planes.	1:1			S	W	W	Dominant @ 60° Sec. @ 45 & 20 - parallel		36			54.70	.28	.007			Soft
									60°			to					
									45°			57.70					
									80°			2115					
Ser.-Qtz. veining increasing Halo of hematite around Bn & Cp.	1:1			M	M	W	Dom. 40° Sec. 10° irreg. @ 60°	58.80 - 59.24	30 60°			57.70	.24	.007			Soft
								Strong 20° Shr.	40° 80°			60.70					
								62.45 - 62.90	35 80°			60.70	.66	.006			Soft
								20° Shr.	40° 20°			to 63.70					
68.88-69.55 moderate emerald green sericite.	2:1			S	W	-	"		29			60.70	.43	.004			Soft
									45° 60°			to 66.70					
									31 40°			66.70	.30	.009			Soft
									60° 80°			to 69.70					
From 69.50-91.44 strong pervasive K'spar, moderate to strong kaolinization abundant irreg. milky Qtz. veining. Strong sericitic shrs. May be near a strong fault. 69.55 to 81.08, - 39% core recovery.	2:1			W	S	M	Patchy-diss. Bn,Cp, & very irreg. milky Qtz. veining		23 all angles			69.70	.30	.004			Soft
												to 72.70					
												2120					
									19 60° 40° 80°			72.70	.34	.003			Soft
												to 75.70					
												2121					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-08
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. <u>4</u> of <u>4</u>

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %		<input checked="" type="checkbox"/>	REMARKS
81.08-82.30, 49% core recovery		2:1		W	S	W	Patchy-dis. Bn.Cp. & very irreg. milky Qtz. veining		18			75.70	.26	.004			Soft
									80°			to					
									60°			78.70					
									45°			2122					
Patchy emerald green sericite. Biotite alt. to muddy ser.		1:1		W	S	M	"		17			78.70	.26	.009			Soft
									80°			to					
									60°			81.70					
									40°			2123					
		1:1		W	S	M	"		20			81.70	.35	.010			Soft
									40°			to					
									80°			84.70					
									60°			2124					
80% of biotite alt. to chlorite-ser.		1:1		M	S	W	1-3 cm milky-barren qtz. veins @ 20&60° Min. Ser. Qtz. veins @ 45° & 60°		20			84.70	.22	.010			Soft-Med.
									45°			to					
									80°			87.70					
												2125					
Moderate - patchy kaolinization		1:1		W-M	S	W	"		24			87.70	.20	.004			Soft-Med.
									40°			to					
									60°			90.70					
												2126					
Moderate - patchy kaolinization		1:1		W-M	S	W	"		10	parallel		90.70	.22	.006			Soft-Med.
									60°			to					
												91.44					
												2127					End of Hole
												to					



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## DIAMOND DRILL HOLE LOG

Latitude: 96,414.38	Hole No. 82-09
Departure: 98,722.47	Commenced: May 27/82
Elevation: 4,132.49	Completed: May 28/82
Length: 91.44	Logged by: K.M. Newman
Overburden: 15.60	Sheet No. 1 of 4

Property: Lake Zone	Az.	Dip: -90°
Area: Highland Valley, B.C.	Horiz.	Vert.
Purpose: Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms Ser.	Cl K'sp	Ep G.S.			Frac. Den.	%			Cu %	Mo %		REMARKS	Hardness
0.0-15.60 Overburden 30 cm of Guichon boulders recovered.		1:1		S	-	M	Dominant min.veining @ 20°.Secondary @ 45° & 80° to CA		28			15.60	.36	.003	.000		Very Soft
15.60-91.44 B.G.D. No visible Cu Oxides. From 15.60 to 22.00 the core is highly weathered & friable. Strong kaolinization.		1:1		S	-	M	"		18			18.60	.21	.004	.000		Very Soft
15.60-37.20 most of the biotite has been altered to sericite.									60°			1626					
15.60-25.91 widely scattered specks and patches of hematite.									80°			21.60					
Strong emerald green ser. alt. in gouge zones.		2:1		S	W-M	M	"		45°			21.60	.32	.005	.000		Soft
Qtz.-Ser. veining up to 3 cm wide increasing. Dominant Bn.Cp. veining @ 20° to CA. Cp patches up to 4 cm wide in and along Ser. Qtz. veins.									22			24.60					
									45°			1628					
									60°			24.60	.22	.002			Soft
									20°			27.60					
									25.75 - 17			1629					
									25.91 60°			27.60					
									fault gouge 45°			30.60					
									45°-CA(1) 30°			1630					
									27.30 - 19			30.60	.76	.007			Soft
									27.90 45°			1630					
									fault gouge 60°			33.60					
									20°			1631					
									14			33.60	.52	.003			Medium
									60°			1631					
									45°			36.60					
									30°			1632					
									14			33.60	.27	.004			Soft-Medium
									60°			1632					
									45°			36.60					
									20°			1632					



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-09
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 2 of 4

Property:	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	REMARKS
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %		
33.30 - the core is uniform-not highly fractured. K'spar veining avg. 30-40° to CA. Kaolinization-moderate to strong.		3:1		S	M	M	1-2cm Qtz-Ser veins with Bn Cp. Dominant @ 30°, Secondary @ 60°	39.30, 45°	16			36.60	.42	.004		Soft
37.20-44.10 Biotite is mainly black to greenish black.		3:1		S	M-S	W-M	"		14			39.60	.32	.007		Soft-Medium
44.10 Biotite is mainly altered to muddy brown sericite down to 56.10.									45°			42.60				
		2:1		S	M	M	"	44.30 -	13			42.60	.53	.019		Medium
								44.50	40°			to				
								Gouge @	60°			45.60				
								45°	20°			1635				
46.00-52.70 spotty hematite on fractures and small vugs. Mod. kaolinization.		3:1			W-M	M	"	46.02 -	16			45.60	.58	.009		Soft-Medium
								46.20,	45°			to				
								20° Shr.	60°			48.60				1637 check
									30°			1636				.56, .008
		3:1			W-M	M-S	Dominant min. Ser. Qtz veins 1-2 cm @ 20° & 60°. Sec. @ 80°		15			48.60	.29	.011		Soft
									60°			to				
									45			51.60				
Alternating emerald green sericite zones ± 30 cm. At 54.30 coarse bn. in. Qtz. ser. vug.		2:1			W	S	"	@ 52.05	11			51.60	.29	.009		Soft
								5 cm. Shr.	45°			to				
								@ 45°	60°			54.60				
56.10-63.00 - Mainly black biotite in part alt. to chlorite.		2:1		S	W	M-S	"		10			54.60	.28	.005		Medium
									60°			to				
									45°			57.60				
									20°			1640				



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## DIAMOND DRILL HOLE LOG

Latitude: \_\_\_\_\_ Hole No. 82-09  
 Departure: \_\_\_\_\_ Commenced: \_\_\_\_\_  
 Elevation: \_\_\_\_\_ Completed: \_\_\_\_\_  
 Length: \_\_\_\_\_ Logged by: K.M. Newman  
 Overburden: \_\_\_\_\_ Sheet No. 3 of 4

Property \_\_\_\_\_ Az. \_\_\_\_\_ Dip: \_\_\_\_\_  
 Area. \_\_\_\_\_ Horiz. \_\_\_\_\_ Vert. \_\_\_\_\_  
 Purpose. \_\_\_\_\_

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %		REMARKS
From 57.00-63.09 the rock is relatively siliceous, & relatively weak in K'spar veining and kaolinization.		1:1		M-W	-	-	Relatively scarce Dom. @ 45° to CA		19			57.60	.30	.006		Hard
									60°			to				
									40°			60.60				Weakly min.
		2:1		W	W	-	Ser. Qtz. dom. @ 45° to CA		25			60.60	.34	.009		Hard
									60°			to				
									45°			63.60				
Minor hematite on fract. planes. Mod. to strong kaolinization. Patchy emerald green sericite.		3:1		S	M	W-M	Abundant 1-2 cm min stockwork of Ser. & Qtz @ 30° & 45°		12			63.60	.30	.009		Soft
									45°			to				
												66.60				
Minor hematite on fract. planes. Mod. to strong kaolinization. Patchy emerald green sericite.		3:1		S	W-M	M	"		14			66.60	.35	.007		Soft
									60°			to				
									45°			69.60				
Minor hematite on fract. planes. Mod. to strong kaolinization. Patchy emerald green sericite.		3:1					"		11			69.60	.44	.006		Soft
							3-4 cm Qtz. veining showing up. Dom. @ 45° to CA		45°			to				
									80°			72.60				
Abundant 4-8 cm. Qtz veins at 45°, 20° & 80°. Coarse patchy Bn.Cp. associated with veins. 73.46-74.05 cluster of black biotite. Coarse silver sericite veining assoc. with Qtz. Partly chloritic biotite 75.65-78.4 Mod. kaolinization.		3:1		S	M	-	Pronounced increase in Qtz. veins.		16			72.60	.36	.009		Hard
									60°			to				
									45°			75.60				
		2:1		S	W-M	W	A few Qtz. veins at 20° & 60°		20			75.60	.30	.012		Medium
									45°			to				
									60°			78.60				
											1647					





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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-09
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by. K.M. Newman
Overburden:	Sheet No. 4 of 4

Property	Az.	Dip.
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG		REMARKS
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	⊗		
Mod. to strong kaolinization		4:1		S	M	W-M	Stockwork Qtz. Ser. irreg. @ 20° parallel 60° & 45°		18			78.60 to 81.60 1648	.34	.007			Soft
83.00-85.60 Black to green partly chl. biotite.		3:1		S	W-M	W	"		19			81.60 to 84.60 1649	.49	.008			Soft
85.60-90.60 Biotite is muddy ser.									45°			84.60 1649					1650 check .43, .007
90.60-91.44 Black biotite		3:1		S	M	W	Min. Ser. Qtz. & silver Ser. @ 45° 20° (irreg) & 80°		25			84.60 to 87.60 1651	.78	.008			Medium-hard
Moderate kaolinization		3:1		S	M	W	"	87.85 30° shr.	12			87.60 to 90.60 1652	.43	.010			Soft
Moderate kaolinization							"					90.60 to 91.44 1653	.74	.010			Medium-Soft  End of Hole @ 91.44
												to					
												to					



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## DIAMOND DRILL HOLE LOG

Latitude: 96,577.63	Hole No. 82-10
Departure: 98,565.52	Commenced: May 26/82
Elevation: 4,134.30	Completed: May 27/82
Length: 91.44	Logged by: K.M. Newman
Overburden: 15.40	Sheet No. 1 of 4

Property: Lake Zone	Az.	Dip: -90°
Area: Highland Valley	Horiz.	Vert.
Purpose: Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	REMARKS
	Py to Cp	Bn to Cp	% Py	Ms Ser	Cl K'sp	Ep G.S.			Frac. Den.	%			Cu %	Mo %	CuO %		
0.0-15.40 Overburden - 15 cm of Beth. G.D. recovered		2:1		S	W	W	Min.Ser.Qtz. Dom. @ 20°, 60°. Sec. @ 45°		16			15.40	.41	.009	.003		Soft
15.40-91.44 Bethsaida G.D.							a few irreg. parallel		40°			to					
From 15.40-18.67 Oxidization mainly limonite along fractures and staining kaolinized zones. No visible Cu oxides.		3:1		S	W	W-M	"		60°			18.40	.60	.008	.02		Soft
									20°			1654					
									17			18.40					
									40°			to					
									60°			21.40					
									80°			1655					
18.67-34.44 moderately kaolinized moderate to strong K'spar in irreg. patches as well as veining at 30° & 40°. The dominant Ser.Qtz. Min. veins are 20° & 60°, secondary veining is 45°. Scattered patches of emerald green sericite.		3:1		S	M	W	"		18			21.40	.68	.005			Soft-Medium
									45°			to					
									60°			24.40					
									80°			1656					
Scattered flecks of hematite 18.75-36.30		3:1		S	S	M	"	25.60 - 25.90	18			24.40	.30	.007			Medium
80° of the biotite is alt. to muddy sericite down to 29.00								Irreg. 05°	45°			to					
29.00-38.70 the biotite is completely sericitized.		4:1		S	M-S	W	"	Shrs. parallel	16			27.40	.44	.011			Soft
									60°			to					
									45°			30.40					
	1:2	3:1		S	M	M	"	33.30 -	14			1658					Soft
							Py & Cp patches in shattered Qtz. vein	34.44, 40°	60°			to					
								Shr. & Gouge Zone (1)	45°			33.40					Poor core Rec.- Fault zone
									20°			1659					
34.44-40.25 dominant quartz & ser. veining at 20° & 45°, avg. width - 2cm Red Ochre in fract.		4:1		S	W-M	M-S	Irreg. Qtz.-Ser. veins @ 10° & 60°		11			33.40	.72	.002			
									40°			to					
									60°			36.40					
												1660					



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-10
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. 2 of 4

Property:	Az.	Dip.
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	REMARKS	
K'spar, silver ser. & Bn, Cp parallel 05° Shr. zone		2:1		S	M	W	05°, 20°, 80° - Mir veins	37.80 - 38.40, 05° Shr.	12 40° 60° 05°			36.40 to 39.40 1661	.38 . .	.002 . .		Mod.
38.75-43.60 60% of biotite is alt. to muddy ser. 40% is black or partly alt. to chlorite.		2:1		S	M	W	"	41.30 - 41.65, 40° Shr.	10 60° 45° 80°			39.40 to 42.40 1662	.24 . .	.006 . .		Mod.-Soft
Moderate Kaolinization		3:1		S	M-S	M	1-2cm Min.Ser. Qtz. veins Dom. @ 60°, 25° 2-3cm Qtz.veins irreg. stockwork @	44.50, 10 cm green Ser. Mylo- nite	11 60° 45° 80°			42.40 to 45.40 1663	.23 . .	.008 . .		Soft
		3:1		S	M	M	80 & 20° "		10 60° 40°			45.40 to 48.40 1664	.40 . .	.010 . .		Mod. .40, .004 1665 check
Bn.Cp. parallel to Shr. at 51.10 49.40-52.90 Black chloritic biotite 52.90-57.10 the biotite is alt. to Ser. & minor chlorite.		3:1		S	M	M	At 48.90, 1cm Cp vein @ 45° to CA at 49.15-49.26. Qtz-Brcm Shr. @ vein @ 45°	51.10 - 51.40, 3 cm Shr. @ 20° to CA	6 60° 20°			48.40 to 51.40 1666	.58 . .	.003 . .		Soft-Med.
57.10 - Biotite completely sericitized		4:1		S	M-S	W	Min.Ser. Qtz.veining dominant @ 45° Sec. veining parallel to 20°	54.05 - 54.60, Shr & Mylonite @ 10-20°	22 60° 40° 20°			51.40 to 54.40 1667	.40 . .	.004 . .		Soft
Emerald green sericite becoming more common in sections 10-15 cm long.		4:1		S	M-S	M	"		20 60° 40° 80°			54.40 to 57.40 1668	.51 . .	.003 . .		Soft



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-10
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. <u>3</u> of <u>4</u>

Property	Az.	Dip	Elevation:
Area:	Horiz.	Vert.	Length:
Purpose:			Overburden:

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE	HOLE	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den	%	REC. %	DEPTH TAG NO.	Cu %	Mo %	<input type="checkbox"/>	REMARKS
Moderate kaolinization, intensity of green Ser. increasing.		4:1		S	M	M-S	Stockwork of Ser-Qtz veining @ 20°	59.50 - 59.80	17			57.40	.56	.003		Soft
							60°	Shear	20°			60.40				
												1669				
Mod. to strong kaolinization.				S	W	S	20° & 60° Min. Ser. Qtz.	60.50 - 61.15	25			60.40	.55	.001		Soft
								Gouge @ 45°	60°			63.40				
								61.70				1670				
64.00-65.10(1) Qtz. vein at 20° to CA	1:3	-	1%	S	W	S	Large Qtz. vein	62.35	15			63.40	.69	.009		Hard
Scattered irreg. patches of Py & Cp traces Bn 65.10-65.70 the vein is sigmoid in contact with strong kaolin & sericite Cp in the sericite parallel to the contact 65.70-67.10								Gouge @ 45°	45°			to				
								63.10	20°			66.40				Red stain on core
								63.90	20°			1671				Marker Dye?
		4:1		M	S	M	3-5cm Ser. Qtz veins @ 20° & 60°	Shear.	35			66.40	.51	.001		Med-Hard
									45°			to				
									80°			69.40				
									90°			1672				
Strong kaolinization, scattered hematite on fracture planes. Biotite completely alt. to muddy ser.		4:1		S	S	W	1cm Ser. Qtz. veins with Bn. Cp. @ 45° & 20°		15			69.40	.85	.005		Soft
									45°			to				
												72.40				
												1673				
Strong kaolinization, scattered hematite on fracture planes. Biotite completely alt. to muddy ser.		4:1		S	S	W	3-4 cm. Min. Qtz. veins with minor Bn. Cp @ 20° to CA		17			72.40	.63	.002		Soft
							1 cm Qtz. Ser. veins		45°			to				
									80°			75.40				.64, .003
												1674				1675 check
75.29-77.10 Qtz. vein. Upper to lower contacts at 20° to CA(1) Bn & minor Mo min. in the Qtz. is mainly confined along the contacts. Coarse silvery Ser.		6:1		S	M	W	with Bn. @ 45° has most of the min.		20			75.40	.71	.003		Med.-Hard due to Qtz.
									80°			to				
												78.40				
												1676				



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-10
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 4 of 4

Property:	Az.	Dip.
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG		REMARKS
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	⊗		
associated with contacts.				S	S	W	1-2cm Ser.Qtz.veins		18			78.40	.64	.002			Soft
77.10-91.44 mod. to strong kaolinization moderate K'spar. Pervasive to parallel to Ser.Qtz. veins. Scattered hematite specks. From 88.20-91.44 good grade min. Bn:Cp 5:1. Min in a close stock-work of Ser.Qtz. veins at 20°, 60°, 45° and rare parallel.							with Bn.Cp.Dom @ 60° & 20°		85°			81.40					
77.10-91.44 Biotite completely alt. to mud brown sericite.				S	M	W	2-3cm Ser.Qtz.veins		10°			1677					
							with Bn.Cp. @ 20°, 60° & 45°		14			81.40	.77	.008			Soft
				S	M	W	"		60°			to					
									85°			84.40					
				S	M	W	"		45°			1678					
									17			84.40	.49	.001			Soft
									45°			to					
									60°			87.40					
				S	M	W	"		80°			1679					
									16			87.40	.68	.001			Soft
									80°			to					
									45°			90.40					
									60°			1680					
				S	M	W	"		4			90.40	.55	.001			Soft
									80°			to					
									20°			91.44					
												1681					End of Hole
												to					
												to					



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## DIAMOND DRILL HOLE LOG

Latitude: 97,029.68	Hole No 82-11
Departure: 98,118.13	Commenced: May 26/82
Elevation: 4,120.08	Completed: May 26/82
Length: 91.44	Logged by: K.M. Newman
Overburden: 18.50	Sheet No. 1 of 4

Property Lake Zone	Az.	Dip: -90°
Area: Highland Valley	Horiz.	Vert.
Purpose: Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms Ser	Cl K'sp.	Ep G.S.			Frac. Den.	%			Cu %	Mo %		REMARKS	Hardness
0.0-18.50 Overburden - 20 cm of Guichon G.D. recovered.		2:1		S	S	W	45° dom.	20.95 (1)	31			18.50	.46	.001	.000		Soft
18.50-72.34 Bethesda G.D.							60° secondary	21.34	45°			to					
							Gouge @		60°			21.50					
							20°		20°			1682					
From 18.50-30.00 the core has a distinctive 45° sericite-qtz. veining system. The veins are about 1cm wide and contain Bn. & Cp. Diss. parallel to the veins. Kaolinization and K'spar alteration parallels this veining system.		3:1		S	S	W	"	22.05 (1)	22			21.50	.43	.001	.000		Soft
								22.60	60°			to					
							Strong 20°		45°			24.50					
							shear		20°			1683					
Widely scattered qtz. veins 2-3cm wide with coarse Bn.Cp. cut the core at 45° & 60°. No Cu oxides visible, slight hematite on fractures and in small yugs. Biotite completely alt. to ser.		3:1		S	S	W	"	23.90 (1)	20			24.50	.91	.001	.000		Soft
								24.50	45°			to					
							Strong		60°			27.50					
							gouge 45°		20°			1684					
							to CA		33			27.50	.31	.001			Soft
							@ 20° to CA		60°			to					
									45°			30.50					
							Strong 20°		28			1685					
30.00-33.00 kaolinization and K'spar pervasive, no distinctive 45° veining as above. Rare partly chloritized biotite, most of it is sericitized. 1cm or less ser.qtz. veins at 45° 60° and 20° to CA.		4:1		S	M	-	"	shear zone	45°			30.50	.22	.001			Soft
									60°			to					
									80°			33.50					
									15			1686					Med.
									45°			to					
									60°			36.50					
												1687					
33.00-49.90 black, partly chloritized biotite predominates over sericite alt. of the biotite.		3:1		S	M	W	30° & 20°		12			36.50	.71	.006			Med.
									45°			to					
									60°			39.50					
												1688					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-11
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 2 of 4

Property	Az.	Dip:
Area.	Horiz	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den	%			Cu %	Mo %			REMARKS
Rare 1-2cm Ser.Qtz. veins @ 25° to CA Most veins are 0.5 cm @ 40° to CA		3:1		M	M-S	W		42.98 (1)	11			39.50	.31	.005			Med.
								43.35	60°			to					
								Strong 20°	20°			42.50					
								gouge				1689					
One 2cm min. Ser.Qtz. vein @ 43.60, 30° to CA		2:1		M	M-S	-		43.70 -	10			42.50	.34	.002			Soft-Med.
49.90-67.45 biotite largely alt.- Ser.								44.20	60°			to					
								20° Shr.	45°			45.50					
									20°			1690					
No 1-2 cm min. Ser.Qtz. veins present.		3:1		M-S	M-S	-	.5-1.0cm Ser.Qtz. veins dom. @ 45° to CA	47.55 -	16			45.50	.28	.002			Med.
								48.20	35°			to					
								05° Shr.	20°			48.50					.22, .002
												1691					1692 check
Moderately kaolinized, strong pervasive K'spar.		3:1		Mod	S	-			15			48.50	.25	.005			Med.
									35°			to					
									20°			51.50					
49.90-50.65 Qtz.Ser. with Bn. Cp. at 20° to CA		3:1		S	S	M-S	Qtz.Ser. veining with Bn.Cp. @ 20° 60° & parallel to CA	52.10 -	20			51.50	.43	.011			Very Soft
								52.90	45°			to					
50.65-53.34 strong emerald green ser. and kaolin alt. mainly diss. cp. At								Strong Shr	20°			54.50					
52.60, 10cm of highly fract. qtz, with diss. py. Green ser. alt. associated with fault.		2:1		S	M	S	"	20° to CA	20			54.50	.31	.003			Very soft
53.34-56.05 strong K'spar & kaoliniza- tion.								56.05 -	40°			to					
								56.39				57.50					
								Strong				1695					
		3:1		S	M	S	Mod. 2-3cm Ser.Qtz. veining with Bn.Cp. @ 20° & 60° to CA	20° Shr.	15			57.50	.57	.006			Soft
								57.60, 10	45°			to					
								cm 40° Shr	60°			60.50					
								zone				1696					



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## DIAMOND DRILL HOLE LOG

Latitude: \_\_\_\_\_ Hole No. 82-11  
 Departure: \_\_\_\_\_ Commenced:  
 Elevation: \_\_\_\_\_ Completed:  
 Length: \_\_\_\_\_ Logged by: K.M. Newman  
 Overburden: \_\_\_\_\_ Sheet No. 3 of 4

Property: \_\_\_\_\_ Az. \_\_\_\_\_ Dip: \_\_\_\_\_  
 Area: \_\_\_\_\_ Horiz. \_\_\_\_\_ Vert. \_\_\_\_\_  
 Purpose: \_\_\_\_\_

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	REMARKS
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			
At 60.55-60.85 2.5cm Aplite Dyke @ 20° to CA		2:1		S	W	M-S	Mod. 2-3cm Ser. Qtz. veining with Bn. Cp.		20			60.50	.31	.004			Soft
At 62.85 3cm L.F.P. Dyke @ 20°							@ 20° & 60° to CA		45°			to					
									60°			63.50					
												1697					
Intense emerald green Ser. & kaolinization associated with fault zone.		1:1		S	W	S	Diss. at 20° & 45°	63.70 -	30			63.50	.33	.002			Very Soft
Emerald green ser. stops at 66.04.								65.80	20°			to					
								Gouge & Shr. @ 20° -	45°			66.50					
									60°			1698					
66.04-66.65 very strong K'spar Bn. Cp. veining in Ser. Qtz. veins @ 45° to CA.		3:1		S	S	M-S	Dom. @ 45° Sec. @ 20° & 60°	CA	16			66.50	.50	.003			Soft
								At 67.45	80°			to					
								Strong 20° Shr.	40°			69.50					
									20°			1699					
66.65-72.54 Moderately kaolinized strong K'spar. Mod to strong 1-2 cm Ser. Qtz. veining with Bn. Cp. at 20° & 45° to CA.		1:1		S	S	M-S	Ser. Qtz. veins @ 20° & 45°		14			69.50	.19	.002			Soft
									80°			to					
									45°			72.34					
									10°			1700					
At 70.0 - 2cm Aplite Dyke @ 20° to CA		Lamp. Dyke							5			72.34	.11	.001			Med.
									80°			to					
70.75-72.34 strong emerald green ser. alt.									20°			75.34					
												1701					
72.34 <sup>(1)</sup> -79.30 <sup>(1)</sup> Composite Lamprophyre Dyke. Upper Contact - fault @ 20° to CA Bottom contact chilled at 45° <sup>(1)</sup> . From 72.34-73.05 - Bleached to med. brown due to faulting. 76.05-77.30 & 77.65-78.03 aphanatic lamp. at 20° to CA. At bottom contact much purple staining									4			75.34	.01	.001			Med.
									80°			to					
									90°			78.34					
												1702					
								78.60 -	10			78.34	.04	.001			Med.
								79.25 in-parallel				to					
								tense Shr. @ 05° & 20°	80°			79.30					
												1703					





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# DIAMOND DRILL HOLE LOG

Latitude	Hole No 82-11
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No 4 of 4

Property	Az.	Dip.
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	⊗	REMARKS
along the shear planes & 20 cm into the country rock.		3:1		S	S	W	2-3cm Ser.Otz.veins @ 20° & 40°		25			79.30	.55	.002		Soft
79.30-91.44 Bethesda G.D.									75°			to				
79.30-82.91 highly fract. at 20° parallel @ 45°.		4:1		M	M	W	Dom. min.Ser.Otz. @ 82.45		16			82.30	.70	.001		Soft
79.30-81.00 90% of biotite alt.-ser.							veins @ 20° to CA	strong 15°	60°			to				
81.00-86.50 mainly chloritic to unaltered biotite 86.50-91.44 biotite alt. to Ser. 79.30-91.44, spotty, hematitic staining on fractures and vugs. Strong emerald green ser. alt. for 30 cm on H.W. & F.W. of fault zone.		4:1		S	M-S	W	Dom. Min. veining @ 20° & 45°. Sec. irreg. parallel to CA	88.10 - 90.30 Gouge @ 45°	13			85.30	.63	.001		
		4:1		S	M	M	"		40°			to				.64, .001
									80°			1706				1707 check
									17			88.30	.63	.001		
									40°			to				
									60°			91.44				
												1708				End of Hole
												to				
												to				
												to				



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## DIAMOND DRILL HOLE LOG

Latitude: 95,655.44	Hole No 82-12
Departure: 98,938.93	Commenced: June 10/82
Elevation: 4,210.21	Completed: June 11/82
Length: 91.44	Logged by: K.M. Newman
Overburden: 20.85	Sheet No. <u>1</u> of <u>4</u>

Property Lake Zone	Az.	Dip: -90°
Area: Highland Valley	Horiz.	Vert.
Purpose: Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms Ser	Cl K'sp	Ep G.S.			Frac. Den.	%			Cu %	Mo %	CuO %	<input type="checkbox"/>	REMARKS
0.00-20.85 Overburden - 10cm of diorite recovered.		3:1		S	M	-	Qtz.Ser.veins 1-2cm wide with Bn.Cp. @ 60° & 45°, Secondary @ 20°		34			20.85	.46	.004	.01		Soft
20.85-50.60 Bethesda G.D.									60°			23.85					
20.85-25.60 zone of oxidation-limonite stained fractures-weak malachite stain - 70% of biotite alt. to ser.		3:1		S	M	-	"		45°			2047					
from 20.85-23.40 mod. to strong kaolinization.									23			23.85	.45	.002	.005		Soft
23.40-56.10 95% of biotite alt. to muddy ser.		4:1		S	M	M	Dom. Min. veining @ 45°. Secondary @ 20°	29.50 - 29.87	20			26.85	.69	.004	.000		Soft
25.60-40.80 hematite stain on fract. planes & as halos around Bn.								Shr.	45°			2049					
Patchy emerald green Ser.Alt. Mod. kaolinization.		2:1		S	M	M-S	"	31.50 - 31.90	17			29.85	.46	.016	.000		Soft
								Shr. & Goug	85°			32.85					
		3:1		S	M	W	Dom. Min veins @ 20° & 40°		60°			2050					
									17			32.85	.43	.004			Soft
									80°			to					
									45°			35.85					
		4:1		S	S	W	1-2cm Qtz.Ser.with Bn.Cp. Dom. 30°, 45°		20			2051					
									60°			35.85	.50	.003			Soft
									80°			to					
									45°			38.85					
40.25-43.50 50% of core alt. to emerald green ser. Mod. kaolinization on K'spar.		1:1		S	M	S	"		13			38.85	.58	.004			Soft
									60°			to					
									80°			41.85					
												2053					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-12
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 2 of 4

Property:	Az.	Dip.
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE	HOLE	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac Den.	%	REC. %	DEPTH TAG NO.	Cu %	Mo %		REMARKS	
		4:1		S	W	S	Dom. @ 20° Sec. @ 45°		18			41.85	.59	.003		Soft	
									80°			to					
									45°			44.85					
									parallel			2054					
Strong emerald green Ser. assoc. with fault zone. Hematite on fractures.		5:1		M	W	S	Dom. min. veins @ 20°. Barren late Qtz veins 2cm wide @ 60°	44.30 (1) 46.52 (1)	10			44.85	.62	.010		Soft	
								parallel				to					
								parallel	20°			47.85					
								Shrs 20°	90°			2055					
50.60-50.85 Aplite Dyke @ 30°.		4:1		S	S	M	1cm Ser. Qtz. with Bn. Cp. @ 40°, 30° & 60°	Fault gouge 18cm	18			47.85	.44	.007		Soft	
50.85-51.78 Bethsaida G.D. Mod. to strong kaolinization, strong K'spar.								48.80 6cm	80°			to					
								fault gouge @ 45°	45°			50.85					
												2056					
51.78(1)-52.50(3) Aplite Dyke Upper contact at 40°, lower contact highly broken up (fract). Dyke highly fract. cemented with Qtz. Ser. veins @ 45°. 2mm Bn. veins @ 45°.		4:1		S	S	W	Min. Ser. Qtz. veins Dom. @ 20° & 60° Secondary @ 45°		33			50.85	.67	.008		Soft	
									60°			to					
									45°			53.85					
									80°			2057					
		4:1		S	M	M	2-4cm Qtz. veins @ 45°		23			53.85	.40	.003		Soft	
									45°			to					
									60°			56.85				.58, .003	
52.50-91.44 Bethsaida G.D.												2058				2059 check	
56.10-59.15 biotite moderately alt. to chlorite. 59.15-66.50 biotite alt. to ser.		3:1		S	W	W-M	Dominant Qtz. Ser. veining @ 40° & 80° Sec. @ 20°	57.25 Shrs. @ 20°	24			56.85	.37	.011		Medium	
									45°			to					
									20°			59.85					
52.50-59.40 weak-mod. kaolinization 59.40-66.14 moderate to patchy strong kaolinization & patchy emerald green ser. alt.		4:1		S	W	M	"		24			2060					
									45°			59.85	.32	.003		Soft	
									60°			to					
												62.85					
												2061					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-12
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 3 of 4

Property:	Az.:	Dip:
Area:	Horiz.:	Veri.:
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE	HOLE	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%	REC %	DEPTH TAG NO.	Cu %	Mo %		<input checked="" type="checkbox"/>	REMARKS
66.14-79.25 biotite in part alt. to chlorite. 68.90-69.25 diss. magnetite		4:1		S	W	S-M	Dom. Irreg. @ 20°	05° Shr.	15			62.85	.40	.004			Soft
							Secondary @ 45°	@ 65.30	45°			to					
		4:1		S	W	W	"	@ 66.20	24			65.85	.23	.003			Soft
								20° Shr.	45°			to					
Weak kaolinization from 68.50-79.25 68.50-70.30 moderately siliceous		3:1		M	-W	W	2-4cm Ser. Qtz. veins		23			68.85	.21	.003			Medium
							with Bn. Cp. Dom ang.		45°			to					
		4:1		M	W	W	"	@ 73.05 Moly Slip	27			71.85	.22	.003			Medium
									40°			to					
		4:1		S	W	M	2-5cm Dom @ 45 & 60°	75.45	28			74.85	.40	.004			Soft
							Secondary @ 20°	20° Shr.	45°			to					
79.25-91.44 Strong kaolinization. Coarse silvery sericite, weak K'spar. The core in parts is very friable.		4:1		S	M-S	M	"		25			77.85	.25	.003			Soft
									45°			to					
		4:1		S	M	S	"		24			80.85	.40	.002			Very Soft
									60°			to					
									45°			83.85					
												2068					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-12
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 4 of 4

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS		RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep		Frac Den.	%	Cu %	Mo %					REMARKS		
		5:1		S	M	M	Dominant 1-2 cm Qtz Ser. veins with Bn Cp @ 40° & 60°	84.80 - 85.20	-	26			83.85 to 86.85	.43	.003			Very Soft
								Chloritic 20° Shrs.		60°			2069					
Intense argillic alt. associated with Shr. zones.		5:1		S	S	W-M	"	88.70, 5cm Gouge @40°					86.85 to 89.85	.46	.008			Very Soft
													2070					
		5:1		S	M	W	"	89.60 - 90.25					89.85 to 91.44	.82	.004			Very Soft
								Strong 45° Shr. & Gouge					2071					End of Hole
													to					
													to					
													to					



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# DIAMOND DRILL HOLE LOG

Latitude:	95,881.20	Hole No.	82-13
Departure:	98,765.14	Commenced:	June 5/82
Elevation:	4,194.71	Completed:	June 5/82
Length:	91.44m	Logged by:	K.M. Newman
Overburden:	15.50m	Sheet No.	1 of 4

Property	Lake Zone	Az.	Dip: -90°
Area:	Highland Valley, B.C.	Horiz.	Vert.
Purpose:	Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS		RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep		Frac. Den.	%	Frac. Den.	%			Cu %	Mo %	CuO %	REMARKS	
0.0-15.50 Overburden 30 cm of Guichon G.D. Recovered.		1:2		M	W	-	2cm-6cm wide Qtz. Ser. @ parallels			15			15.50	.47	.002	0.0		Moderate due to density of Qtz. veins
15.50-87.70 Bethesda G.D. Strong Ser. Qtz. veining stockwork at parallels, 40° and 80°. Black biotite, slightly alt. to chlorite.							40° & 80°			40°			18.50					
		1:1		M	W		"	20.60 -		17			18.50	.46	.002	0.0		Moderate due to density of Qtz. veins
								20.80		80°			to					
								Strong 40° Shr. zone		20°			21.50					
													1911					
20.60-24.40 a zone of strong 20° and 40° shears, causing mod. kaolin & green ser. alt. Hematite stain and green carbonate stain on fracture planes. No black biotite.		1:1		S	-	M	Strongly fract. Qtz veins @ 60°			15			21.50	.39	.002	0.0		Very soft
										45°			to					
										60°			24.50					
													1912					
24.40-48.20 the core is relatively massive and not highly fractured pervasive K'spar and emerald green sericite is common. Silvery sericite along fracture zones.		2:1		S	W	M	1-2cm Ser. veins at 60°, 45° & secondary @ 80°			12			24.50	.39	.001	0.0		Soft
										40°			to					
										60°			27.50					
										60°			1913					
24.40-29.50 widely scattered black biotite.		2:1		S	M	M	"			11			27.50	.59	.004	0.0		Medium-Soft
										40°			to					
										60°			30.50					
										10°			1914					
Apple green ser. & carbonate common on fract. planes.		2:1		S	M	M	4-6-10cm white Qtz veins @ 45°-weak			12			30.50	.63	.007	0.0		Soft
							Cp. assoc. with veins			40°			to					
										60°			33.50					
										20°			1915					
		2:1		S	M-S	M	At 34.10 2cm Cp vein @ 45°			15			33.50	.54	.004			Soft
										45°			to					
										20°			36.50					.45, .006
										60°			1916					1917 check





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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-13
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. <u>3</u> of <u>4</u>

Property	Az.	Dip.	Elevation:
Area:	Horiz.	Vert.	Length:
Purpose:			Overburden:

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE	HOLE	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%	REC. %	DEPTH TAG NO.	Cu %	Mo %	X	REMARKS
Coarse Bn. replacing patchy K'spar		3:1		S	W	-	Dominant 2-3 cm	59.20 -	11			57.50	.81	.003		Soft-Medium
							Ser.Qtz. veining	59.80	60°			to				
							with Bn.Cp. @ 60° & parallel	40°				60.50				
							45° irreg. 20° shear	parallel				1925				
		5:1		S	W	-	"		8			60.50	.57	.004		Soft-Medium
									80°			to				
									40°			63.50				
									60°			1926				
		5:1		S	W	-	"		7			63.50	.27	.005		Soft-Medium
									45°			to				
									60°			66.50				
												1927				
		5:1		S	W	-	"	67.30 -	11			66.50	.54	.004		Soft
								67.70, 45°	45°			to				
								Gouge	60°			69.50				
												1928				
		5:1		S	W	-	"		9			69.50	.42	.005		Soft-Medium
									45°			to				
									60°			72.50				
									80°			1929				
				S	W	-	"		10			72.50	.48	.003		Soft-Medium
									45°			to				
									80°			75.50				
												1930				
				S	W	-	"		7			75.50	.34	.003		Soft-Medium
									40°			to				
									60°			78.50				
												1931				





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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-13
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 4 of 4

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			REMARKS
87.70 <sup>(1)</sup> - 88.12 <sup>(3)</sup> Aplite. Upper contact at 20° to CA. 1 cm. Qtz. veins with Bn. @ 60°		4:1		S	W	-	Irreg. @ 20°, Dom. Ser. Qtz. at 60° & 80°		15			78.50	.25	.004			Medium-Soft
88.12-91.44 B.G.D.									45°			to					
Strong kaolinization									60°			81.50					.37, .008
		2:1		S	W	-	"	82.20 -	80			1932					1933 check
								84.00, 20°	25			81.50	.48	.006			Soft
From 82.20-91.44 core is fractured & sheared strong silvery ser. veining. Cp is more common, K'spar weak to spotty, kaolinization mod. to strong. Biotite & hornblende - weakly chloritic to spotty muddy Ser.								fract. & Shra.	40°			to					
		2:1		S	W	-	"		20°			84.50					
									60°			to	.41	.006			Soft
									45°			87.50					
				S	W	-	"		20°			1935					
									25			87.50	.52	.004			Soft
									60°			to					
									45°			90.50					
									20°			1936					
				S	W	-			.6			to	.44	.005			Soft
									20°			91.44					90.35-90.65
									80°			1937					C.I.L. Test Sample
				S	W	-						to					
												to					



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# DIAMOND DRILL HOLE LOG

Latitude: 95,973.75 Hole No. 82-14  
 Departure: 98,617.92 Commenced: June 4/82  
 Elevation: 4,193.57 Completed: June 5/82  
 Length: 91.44 Logged by: K.M. Newman  
 Overburden: 15.50 Sheet No. 1 of 4

Property Lake Zone Az. Dip:  
 Area: Highland Valley, B.C. Horiz. Vert.  
 Purpose: Infill

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	CuO %	REMARKS	
0.0-15.50 Overburden	1:3	-	0.5%	S	-	S	Rare vein at 45° Cp is mainly diss. in Ser.	16.50 - Strong 20° Shr. 30cm wide	15 45° 80° 20°			15.50 to 18.50 1884	.31 .014 .003				No oxidization Moly in Qtz vugs at 17.25 Very Soft
15.50-91.44 Bethsaida G.D. From 15.50-26.45 the core is highly alt. to emerald green sericite, kaolin and residual quartz. No Cu oxides evident. Cp is closely associated with ser. alt. Biotite completely obliterated to ser.		-		S	-	S	A few Qtz. Ser. with weak Cp. @ 60° & 20°		27 60° 80° 45°			18.50 to 21.50 1885	.50 .003 .000				Very Soft
26.45-38.40 strong patchy green ser. & K'spar in part parallel to Qtz. ser. veins. Kaolinization patchy but strong. Qtz. veins up to 20cm wide mainly @ 20° contacts. Sporadic black biotite starting at 31.25		-		S	-	S	Qtz. stockwork at 20°, 60° & 80° not well dev.		14 60° 40° 80°			21.50 to 24.50 1886	.36 .002 .003				Very Soft
At 35.30 1 cm Cp. vein @ 45°	1:1			S	M	M	Starting at 32.00 20-30 cm. Qtz. veins @ 20°, 60° & 80°, Only weakly min.	24.75 - 26.80 Strong 20° Shr. & gouge	11 20° 60° 45°			24.50 to 27.50 1887	.37 .002				Very Soft
	1:1			S	W	M			12 80° 60°			27.50 to 30.50 1888	.38 .002				Very Soft
									15 90° 45° 60°			30.50 to 33.50 1889	.39 .002				Very Soft
									13 90° 60° 45°			33.50 to 36.50 1890	.28 .002				Very Soft



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82.14
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by. K.M. Newman
Overburden:	Sheet No. 2 of 4

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %		REMARKS	
Qtz. veining decreasing in width, bornite is becoming common.		1:1		S	-	M	At 36.90, 10cm Qtz. vein with coarse Py.		15			36.50	.60	.001			Medium
38.70 - 41.50 intense silver ser. veining at 20° & 60° - No biotite		1:1		S	-	M			60°			to					
									40°			39.50					
									20°			1891					
41.50-51.85 mod. to strong kaolin on kK'spar. Dom.Ser.Qtz. veins at 60° and 20° to CA.									11			39.50	.49	.001			Medium
Biotite-weakly chloritic, to slight ser. alt. 44.50-48.70 limonite in vugs and shrs.									60°			to					
				S	M	W			40°			42.50	.33	.001			Soft
									60°			to					
									80°			45.50					
									12			1893					
50.60-56.75 abundant black biotite 45° Cp.Bn. veining associated with 1-2cm Ser.Qtz. veins.		1:1		S	M	-			60°			45.50	.34	.001			Soft
							at 48.10, 4cm calcite vein(vuggy)		70°			to					
							@ 50.60, 5cm Qtz-Bn.Cp. @ 45°		80°			48.50	.25	.005			Medium
56.75-79.30 biotite mainly alt. to muddy ser. Kaolinization moderate to strong.		1:1		S	M	M			20			to					
									45°			51.50					
												1895					
							Dom.Vein with Bn. Cp. @ 45°		16			51.50	.32	.001			Medium
				S	M-S	W			60°			to					
									45°			54.50					
												1896					
							"		20			54.50	.33	.003			Medium
				S	M-S	-			parallel			to					
									20°			57.50					
									60°			1897					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-14
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 3 of 4

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	REMARKS
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %		
		3:1		S	S	W	1-3cm Qtz. vein with Bn. Cp. Dom less than @ 60°	59.70 - 59.85 20° Shear	25 45° 80° 20°			57.50 to 60.50 1898	.40 .001			Medium-Soft
		3:1		S	M-S	W	" Some weak Ser. with bn. @ 20°		15 80°			60.50 to 63.50 1899	.40 .002			Medium-Soft
Scattered hem. stain in vugs. Strong kaolinization.		4:1		S	S	W-M	Dom. mineralized Qtz. Ser. veins at 60° to CA		10 80° 40°			63.50 to 66.50 1900	.50 .001			Soft
67.42-72.50 Dominant 2-3 cm white qtz. veins at 60° to CA. Stockwork of 0.5- 1 cm Ser. Qtz. veins @ 20° & 60°		4:1		S	M	M	"		15 80° 60° 20°			66.50 to 69.50 1901	.39 .005			Soft
72.50-75.05 intense sericite (silvery) alt., moderate to strong emerald green ser. Some limonite stain.		2:1		S	M	M	"		19 40° 60°			69.50 to 72.50 1902	.38 .001			Very Soft
		1:1		S	S	M	"	73.20 - 73.76, 45° Gouge	15 60° 40°			72.50 to 75.50 1903	.67 .002			Very Soft
75.05-91.44 strong kaolinization moderate K'spar. 78.20-78.60 strong emerald green ser. alt. - patchy Cp.		1:1		S	M	M-S	74.80-75.00 Moly slips @ 60°.		15 60° 80°			75.50 to 78.50 1904	.40 .002			Very Soft



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-14
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. 4 of 4

Property	Az.	Dip:
Area:	Horiz.	Verl.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	<input type="checkbox"/>	REMARKS
Strongly kaolinized		2:1		S	M-S	W	Dom. Cp. Bn. veins in Qtz. @ 60° to CA		12			78.50 to 81.50 1905	.31	.002		Soft
Scattered limonite staining around Bn. & Cp. patches		4:1		S	S	W	Dom. Ser. Qtz. vein with Bn. Cp. @ 60° & 20°		16			81.50 to 84.50 1906	.35	.002		Soft
Strong kaolinization		4:1		S	M-S	M	"	87.00 <sup>(3)</sup> 87.50 <sup>(3)</sup> gouge & Shr. 45°	9			84.50 to 87.50 1907	.56	.001		Soft
Only a few black biotite evident		3:1		S	S	W	"	to CA	18		50°	87.50 to 90.50 1908	.28	.001		Soft
		2:1		S	M	-	"		4			90.50 to 91.44 1909	.90	.002		Soft
												to				End of Hole
												to				



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## DIAMOND DRILL HOLE LOG

Latitude: 96,173.95	Hole No. 82-15
Departure: 98,469.57	Commenced: May 28/82
Elevation: 4,173.56	Completed: May 29/82
Length: 91.44m	Logged by: K.M. Newman
Overburden: 6.10m	Sheet No. 1 of 5

Property Lake Zone	Az.	Dip. -90°
Area: Highland Valley, B.C.	Horiz.	Vert.
Purpose: Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms Ser.	Cl K'sp.	Ep G.S.			Frac. Den.	%			Cu %	Mo %	CuO %	◊	REMARKS
0.00-6.10 Overburden 30cm of gabbro boulders recovered.		2:1		S	M	W	Dom. 1-2cm Qtz. Ser. veins @ 40° & 60°.	9.30-9.40	18			6.40	.22	.003	0.00		Soft
6.10-22.01 Bethsaida G.D.							Younger milky Qtz. at 80° & 60°	45° Gouge	60°			9.40					
6.10-9.40 minor limonite staining of fract. planes. No visible Cu oxide		3:1		S	M	W	"		15			9.40	.23	.004	.003		Soft
6.10-22.01 strong kaolinization weak to moderate K'spar, localized patchy emerald green Ser. About 90% of biotite is alt. to chlorite & sericite.							"		60°			12.40					
							"		45°			12.40	.32	.004			Soft
							"		80°			15.40					
22.01-22.10 Aplite Dyke Sharp contacts at 45° to GA		2:1		S	M	M-S	"	15.45 -	20			15.40	.37	.014			Very Soft
22.10-37,80 Bethsaida G.D. as above. Starting at 18.30 hematite on fracture planes & as diss.							17.35-17.42 vuggy Qtz. at 45°	15.75, 20°	60°			18.40					
							"	Shr. Limonite stained	40°			18.40					
		3:1		S	M	M	"	At 21.30	23			18.40	.44	.002			Soft
							"	Strong 20°	80°			21.40					
							"	Shr.	60°			21.40					
							"		45°			22.18					
24.40-32.70 biotite completely alt. to chlorite and/or Ser.		3:1		S	M	M	Dom. Ser. Qtz. veins with Bn. Cp. @ 45° & Sec. @ 20°		18			21.40	.39	.002			Very Soft
							"		60°			24.40					
							"		80°			24.40					
							"		45°			22.18					
							"	24.80, 45°	14			24.40	.53	.002			Soft
							"	Shr. coated with Hem.	45°			27.40					
							"		60°			22.19					





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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-15
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 3 of 5

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			REMARKS
41.80-56.00 Strong kaolinization moderate to strong emerald green Ser. Alt.		2:1		S	W	M	Dom. 80°&40° Cp. Diss. in green ser. zones. Rare 20° veins with Bn.Cp.	49.40 - 49.70, 20°	15 45° 60° 20°			48.40 to 51.40 2228	.46 . . .	.001 . . .			Soft
45.50-57.40 widely spaced (1-2m) zones (5-15 cm) of biotite partly alt. to chlorite, between these zones the biotite is completely alt. to muddy Ser.		2:1		S	W	M	"	53.70 - 54.20, 45°	15 80° 45° 60°			51.40 to 54.40 2229	.47 . . .	.001 . . .			Soft
57.40-69.90 rare unaltered biotite crystals.		2:1		S	W	M	"		19 60° 45° 40°			54.40 to 57.40 2230	.26 . . .	.001 . . .			Soft
Scattered hematite halos around Bn.Cp.		3:1		S	S	M	Dom. Ser. Qtz. with Bn.Cp. @ 45°&60° Secondary @ 20°		15 45° 60°			57.40 to 60.40 2231	.29 . . .	.001 . . .			Soft
56.00-68.78 zones of strong K'spar separated by 10 cm to 20 cm of emerald green Ser.		2:1		S	S	M	"	62.05 - 62.55, 45° Gouge zone	19 45° 60°			60.40 to 63.40 2232	.29 . . .	.005 . . .			Soft
		2:1		S	S	M	"		29 80° 60° 45°			63.40 to 66.40 2233	.35 . . .	.009 . . .			Soft
		2:1		S	S	M-W	"	66.10 - 67.70, 20° Shrs. parallel	27 20° 45°			66.40 to 69.40 2234	.29 . . .	.003 . . .			Soft





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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-15
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by. K.M. Newman
Overburden:	Sheet No. 4 of 5

Properly	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac Den.	%			Cu %	Mo %	REMARKS	
68.78-72.05 weak K'spar, strong barren qtz. veining at 20° to CA. Weak kaolinization and patchy green Ser.Alt. 69.90-89.53 biotite weakly alt. to chlorite.		1:1		M	W	M	Dom. @ 60° & 40° Secondary @ 20°		33			69.40 to 72.40 2235	.71 .003			Medium .65, .001 2336 check
		2:1		M-S	W	-	"	74.20 - 74.40, 45° Gouge	34 40° 60°			72.40 to 75.40 2237	.48 .001			Soft
		2:1		S	M	-	"	78.00 - 79.20, 10° Shr.	26 45° 80°			75.40 to 78.40 2238	.44 .001			Soft
72.05-88.00 weak to moderate K'spar and moderate kaolinization		2:1		S	W	-	Dom. Ser. Qtz. with Bn. Cp. @ 45° & 80° Secondary @ 20°		25 45° 60° 10°			78.40 to 81.40 2239	.46 .001			Medium
		2:1		S	W	-	"		23 60° 40° 10°			81.40 to 84.40 2240	.42 .001			Medium
88.00-91.44 Strong kaolinization weak K'spar. Hematite on fracture planes and as disseminations.		3:1		S	M	-	"		21 80° 60°			84.40 to 87.40 2241	.46 .001			Medium-Soft
		3:1		S	M	-	Dom. Ser. Qtz. vein- ing @ 35° & 60° Sec. @ 20°		13 80° 60°			87.40 to 90.40 2242	.73 .001			Soft



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-15
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 5 of 5

Property:	Az.	Dip.
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	<input type="checkbox"/>	REMARKS
		3:1		S	W	-	Dom. Ser. Qtz. vein- ing @ 35° & 60°		8			90.40	.26	.001		Soft
							Sec. @ 20°		80°			to				
							Several weakly min. milky Qtz. veins @		20°			91.44				
							80°		45°			2243				End of Hole
												to				
												to				
												to				
												to				
												to				



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## DIAMOND DRILL HOLE LOG

Latitude: 96,219.60	Hole No 82-16
Departure: 98,182.35	Commenced: May 30/82
Elevation: 4,220.00	Completed: May 30/82
Length: 91.44m	Logged by: K.M. Newman
Overburden: 12.60m	Sheet No. <u>1</u> of <u>4</u>

Property Lake Zone	Az.	Dip: -90°	Elevation: 4,220.00	Completed: May 30/82
Area: Highland Valley	Horiz.	Vert.	Length: 91.44m	Logged by: K.M. Newman
Purpose: Infill			Overburden: 12.60m	Sheet No. <u>1</u> of <u>4</u>

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms Ser.	Cl K'sp	Ep G.S.			Frac. Den.	%			Cu %	Mo %	REMARKS	X	REMARKS
0.00-12.60 Overburden - 30 cm of Guichen & diorite recovered.		4:1		S	W-M	-	Dominant Ser. Qtz. with Bn. @ 30°.	14.50 - 14.92, 45°	22			12.60	.98	.003			Medium-Soft
12.60-91.44 Bethesda G.D. No Cu oxide visible. Strong silvery ser. moderate kaolinization. Weak to moderate kaolinization, coarse bornite in Qtz. veins. Biotite alt. to muddy Ser. K'spar parallel to Qtz. ser. veins.		5:1		S	W	-	"	16.05 - 17.10 Irreg. Shr parallel to CA	13			15.60	1.05	.008			Medium-Soft
							Dom. Ser. Qtz. with Bn Cp @ 40°	16				18.60	.65	.003			Medium-Soft
								20°				21.60					
								80°				1968					
23.90-24.50 Strong kaolinization		6:1		S	W	-	5cm Qtz. vein @ 10° & 60°.	18				21.60	1.23	.002			Soft
							At 24.45 3cm Qtz. vein Bn. Cp. @ 60°	60°				24.60					1.15, .003
								45°				1969					1970 check
24.70-27.80 mainly emerald green ser. & residual Qtz. Weak Cp., minor py, The zone is moderately shrd. @ 40°.		0:1		-	-	S		24.62 - 24.90, 15° Shr.	20			24.60	.53	.003			Very Soft
								15°				27.60					
												1971					
27.80 Mod. K'spar, weak kaolinization hematite halos around Bn & Cp.		3:1		S	M	-	2-3cm Qtz. Ser. with Bn. Cp. Dom. @ 60° & 80°	17				27.60	.66	.016			Medium
								80°				30.60					
								45°				1972					
Strong pervasive K'spar Black biotite appears at 33.10, ends at 34.40		3:1		S	S	-	" Secondary @ 20°	21				30.60	.45	.006			Medium-Hard
								60°				33.60					
								80°				1973					





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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-16
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by. K.M. Newman
Overburden:	Sheet No. 3 of 4

Property	Az.	Dip.
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			REMARKS
55.17-57.95 Black biotite - slightly chloritized		2:1		S	M	-	@ 57.10 7cm Qtz. vein @ 20°-weak Bn.Cp.		26			54.60	.27	.004			Hard
									60°			to					
									45°			57.60					
									20°			1981					
57.95-58.52 Emerald green Ser.		3:1		S	W	M	Dom. Ser. Qtz. veins with weak Bn.Cp. @ 20° & 60°		27			57.60	.42	.003			Hard
									60°			to					
58.52-63.05 60% of biotite is chloritized 40% muddy Ser. At 60.55 2cm wide concentration of diss. magnetite at 20° to CA. Mod. kaolinization-moderate to strong K'spar from 58.52 to 67.65.									45°			60.60					
		1:1		S	M-S	W	"		20°			1982					
									21			60.60	.32	.003			Medium
									60°			to					
									80°			63.60					
		1:1					64.97 a 15 cm grey qtz. vein @ 20°.	63.30 -	25			63.60	.33	.013			Soft
64.35-65.70 Massive emerald green sericite and residual qtz. 65.70-66.10 a zone rich in diss. magnetite.							Diss. Cp. & Moly	gouge zone	60°			to					
								Green Ser	30°			66.60					
									80°			1984					
66.20-66.80 Milky Qtz. & K'spar with patches of sericite.		1:1		S	M	W	2-5cm Qtz. veins at 60° & 20° with weak Bn.Cp.	& argillie	25			66.60	.53	.004			Soft
									45°			to					
									60°			69.60					
									80°			1985					
67.65-74.15 weak K'spar, strong silvery sericite patchy green ser. weak to moderate kaolinization. 67.65-68.15 strong concentration of biotite at 20° to CA. 74.15-79.55 the biotite is completely alt. to sericite.		1:1		S	M	M-S	"		20			69.60	.42	.003			Soft
									40°			to					
									60°			72.60					
												1986					
		2:1		S	W-M	M-S	75.10-76.85, 4 cm Qtz. vein @ 05°, coarse patchy Cp. Bn.		17			72.60	1.46	.008			Soft-Medium
									80°			to					
									60°			75.60					
									20°			1987					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-16
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by. K.M. Newman
Overburden:	Sheet No. 4 of 4

Property	Az.	Dip	Elevation:
Area:	Horiz.	Vert.	Length:
Purpose:			Overburden:

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG		
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			REMARKS
74.15-82.10 mod. K'spar, mod. kaolinization.		1:1		S	M	W	Dom. Ser. Qtz. & K'sp At 80° & 60°, Secondary at 20°		17			75.60 to 78.60 1988	.39 .005				Soft .28, .007 1989 check
79.55-84.40 Widely scattered biotite relatively fresh.		1:1		S	M-S	W	"	78.80 - 79.00, 45° Gouge - Ser &	24			78.60 to 81.60 1990	.47 .006				Soft
82.10-84.80 abundant silvery ser. weak K'spar, abundant coarse Bn. dis. in Ser. & Ser. Qtz. veins.		5:1		S	M	-	Dom. 60° & 20° coarse Bn.	Argillic	21			81.60 to 84.60 1991	.62 .006				Soft .59, .004 1992 check
84.40-91.44 biotite largely alt. to ser.		5:1					Dom. 80° & 60° Sec. 20° Ser. Qtz. with Bn. Cp & Moly		18			84.60 to 87.60 1993	.58 .075				Soft
		4:1					89.45-89.83, 4cm Ser. Qtz. vein @ 20° Very coarse (3 cm) Bn & Cp		17			87.60 to 90.60 1994	1.51 .008				Soft
		3:1							8			90.60 to 91.44 1995	.56 .001				Soft End of Hole
												to					



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# DIAMOND DRILL HOLE LOG

Property Lake Zone		Az.	Dip: -90°	Latitude: 96,279.56	Hole No 82-17
Area: Highland Valley, B.C.		Horiz.	Vert.	Departure: 97,670.02	Commenced: May 31/82
Purpose: Infill				Elevation: 4,267.62	Completed: June 1/82
				Length: 91.44m	Logged by: K.M. Newman
				Overburden: 9.45m	Sheet No. 1 of 5

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING		FAULTS		RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms Ser	Cl K'sp	Ep G.E.			Frac. Den.	%					Cu %	Mo %	CuO %	⊗	REMARKS
0.00-9.45 Overburden 30cm of till re-covered.		3:1		S	M	-	1-2cm wide Ser-Qtz				25			9.45	.37	.007			Soft
9.45-12.00 Bethsaida G.D. No Cu oxide evident, scattered hematite & limonite in vugs & fract. planes. Minor chalcocite. Moderately kaolinized. Biotite alt. to chlorite & sericite.							veins with Bn.Cp. veins @ 05° & 20° to CA				60° 20° 45°			12.00 1737					
12.0-17.37 Bethsaida Porphyry Contacts uncertain-highly fract & lost core. Green-grey aphanitic groundmass with anhedral to euhedral orthoclase & Qtz. pheno. plus biotite & hornblende. Finely diss. cp.bn. replacing chloritic biotite & hornblende and in hairline fractures filled with sericite.				W	-	-	Random sericite				40			12.00 15.00	.11	.007			Hard-Poor Rec Finely diss. Bn Cp
17.37-23.50 B.G.D. Highly kaolinized, mylonitized, moderately alt. to emerald green ser. Mod. K'spar. Vuggy Qtz. veining with late py. crystals.				W	-	-		2-3 cm frags.			all angles			15.00 1738			tr.		Very poor Rec
23.50 <sup>(3)</sup> -50.70 <sup>(1)</sup> Bethsaida Porphyry. Variable pinkish grey, aphanitic with Feld. & Qtz. Pheno up to 1 cm in dia. .5cm mag. crystals partly alt. to hematite. Variable salt & pepper texture - biotite & hornblende. Mafics in part alt. to chlorite and/or Ser. zoned plag. randomly alt. to kaolin or ser.		3:1		S	M	M	1-2cm Ser.Qtz.veins with Bn.Cp. @ 40° & 60° to CA	4-5 cm Gouge zones every 25cm @ 45°			39 45° 60°		10%	17.37 20.37 1740	.33	.008			"
Rare 1-2 cm Ser.Qtz.veins, mainly				S	M	M	"	"			30 45° parallel		10%	20.37 23.50 1741	.32	.009			Hard
				W	-	-	1cm Ser.Qtz. veins @ 40°, with fine Bn.Cp.	25.65 - 25.90 40° Shr.			25 40° 60° 80°			23.50 26.50 1742	.14	.008			"
				W	-	-	"	"			30 45° 30° 60°			26.50 29.50 1743	.07	.002			"

Rare 1-2 cm Ser.Qtz.veins, mainly



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-17
Departure:	Commenced.
Elevation:	Completed:
Length:	Logged by.
Overburden:	Sheet No 2 of 5

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ser.	Kspar	G.S.			Frac. Den.	%			Cu %	Mo %			REMARKS
Qtz. Ser. infilling irreg. hair-line fract. at 20° 45° to 60° to CA				W	-	-	0.2 cm Vein Ser. Qtz. veins at 40 & 60° 2 cm Ser. Qtz veins @ 20° & 60°		26			29.50 to 32.50 1744	.20	.003			Hard
Strong stockwork of Ser. Qtz. veining				W	-	-	1-3 cm Ser. Qtz. Veins with Bn Cp parallel 40° to 80° to CA	34.05 - 34.90 Shr. para llel to CA	34	60° 40°		32.50 to 35.50 1745	.22	.005			"
Hematite associated with Bn Cp veins				W	-	-	0.2 - 1.0 cm Ser. Qtz. veins with Bn Cp @ 45° to CA	37.10, 5 cm Shr @ 45°	26	45° 10° 60°		35.50 to 38.50 1746	.22	.002			"
Qtz phenocrysts not as abundant. core becomes greenish grey.				W	-	-	" greater than 45° & 25°		20	60° 45° 85°		38.50 to 41.50 1747	.38	.004			"
43.45 Moly in 60° Qtz Ser. vein							" 43.50-43.65 Cp Bn Veins at 60°		17	60° 45° 20°		41.50 to 44.50 1748	.29	.009			"
Weak K'spar parallel to Ser. Qtz. veins @ 60° 45°							"		15	60° 45° 20°		44.50 to 47.50 1749	.22	.003			"
Bethsaida Prop. bottom cont. (50.70) @ 30° to CA. Narrow chilled margin.							"		14	60° 40° parallel		47.50 to 50.70 1750	.22	.004			"





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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-17
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. 3 of 5

Property	Az.	Dip:
Area:	Horiz	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			REMARKS
50.70-54.95 <sup>(3)</sup> Bethsaida Q.D. Large (1cm) Biotite pheno. moderately alt. to chlorite, mod. kaolinization and K'spar, is pervasive. Spotty hematite staining.		5:1		S	M-S	W	1cm Ser. Qtz. veins @ 20° .5 cm		13			50.70	.26	.003			Med.-Soft. Bottom contact 54.95 ± ground.
							Ser. Qtz. veins @ 60° 40° parallel		60°			53.70					
		5:1		S	M	W	"		7			53.70	.26	.075			Soft. 24, 002 1752-check of 1751
							coarse silver ser.		45°			54.95					
54.95 <sup>(2)</sup> 91.44 Bethsaida Prop. green grey aph. groundmass with euhedral to subhedral greenish grey, zoned plag. Euhedral to sub rounded Qtz. pheno. Scattered small biotite and hornblende pheno. partly ser. & chloritized. Weak K-spar developed along mineralized. Ser. Qtz veins localized by fractures.		3:1		Ser & K'spar restricted to narrow vein system			1 cm ser. Qtz. veins with Bn. Cp @ 60°		22			54.95	.20	.005			Hard
							40° 30°		30°			57.95					
		3:1					"		45°			57.95	.17	.003			"
									60°			60.95					
65.50-65.80 emerald green ser. (alt. of plag. pheno)		4:1					"		17			60.95	.18	.003			"
									40°			63.95					
						W	"		64.45	45°		63.95	.17	.004			"
									Shr.	40°		66.95					
									60°			66.95					
									60°			69.95					
									80°			1758					



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-17
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by:
Overburden:	Sheet No. 4 of 5

Property	Az.	Dip
Area:	Horiz	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG		
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	⊗	REMARKS	
		3:1					Weak @ 45° 60		10			69.95	.17	.025			Hard
							@72.90 cp, Bn vein 45° to C.A.		40° 60°			72.95 1759					
Hematite stain on fracture planes		4:1					Mod. 1 cm Qtz. Ser. veins @ 40° 60° 80°		12 45° 60° 80°			72.95 1759 75.95 1760	.13	.005			"
"		4:1					"		15 60° 40°			75.95 1761 78.95 1761	.20	.005			"
79.97-82.50 Ser. Qtz veining .5- 1 cm wide at 60° to C.A. Contains mainly Bn		6:1					" Dominant @ 60°		22 60° 45°			78.95 1762 81.95 1762	.15	.005			"
		4:1							25 60° 40° 80°			81.95 1763 84.95 1763	.27	.004			"
		4:1							14 45° 30°			84.95 1764 87.95 1764	.22	.011			" .30, .019 1765 check
At 90.60 shear @ 20° to C.A. coarse silvery Ser. calcite in the shear.		5:1					1-2 cm ser. qtz. Stockwork with Bn Cp @ 80°; parallel 45°	89.75- 89.95 20° Shr. " @	20 45° 15°			87.95 1766 90.95 1766	.21	.007			Hard

90.60-90.85



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-17
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 5 of 5

Property	Az.	Dip
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG		REMARKS
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac Den.	%			Cu %	Mo %	<input type="checkbox"/>	<input type="checkbox"/>	
							Two .5cm Ser.Qtz. at 60° with Bn Cp.		6 60° 40°			90.95 to 91.44 1767	.05	.002			Hard
																	END OF HOLE
Most of the bornite - Cp min. is associated with the Ser.Qtz. vein stockwork in the porphyry. Some finely diss. min. is associated with chloritized mafics.												to					
												to					
												to					
												to					
												to					



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# DIAMOND DRILL HOLE LOG

Latitude: 95,851.98 Hole No 82-18  
 Departure: 97,835.75 Commenced: June 2/82  
 Elevation: 4305.91 Completed: June 3/83  
 Length: 91.44 m Logged by: K.M. Newman  
 Overburden: 12.30 m Sheet No. 1 of 4

Property LAKE ZONE Az. Dip -90°  
 Area: Highland Valley B.C. Horiz. Vert.  
 Purpose Infill

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE	HOLE	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%	REC. %	DEPTH TAG NO.	Cu %	Mo %	CuO %	REMARKS	
0.00-12.30 overburden 11 cm of diorite recovered.		3:1		S	-	-	Dominant veins with Bn & Cp @ 45° to 60°. 14.01-14.30		30 45°			12.30 15.30 2072	.29 - -	.008 - -	.003 - -	Soft	
12.30-91.44 Bethsaida SD. 12.30-14.30 Oxide zone. Limonite and minor malachite on fracture planes. Sulphides are relatively fresh. 12.30-15.30 strong kaolinization 15.30-26.50 moderate to weak kaolinization, minor K'spar. Moderate but patchy emerald green sericite. Relatively unaltered biotite at 15.30-15.90, 21.70-23.05, remaining zones- the biotite is alt. to Ser.		3:1		S	W	W	" Secondary @ 20°		21 45° 60°			15.30 18.30 2073	.30 - -	.004 - -	0.00 - -	"	
		3:1		S	W	M	Dom. Veins @ 60° to 80°. At 20.40 cm Cp.veins @ 60°		14 45° 60°			18.30 21.30 2074	.61 - -	.004 - -	- - -	"	
		4:1		S	W	M	"		15 45° 60°			21.30 24.30 2075	.24 - -	.004 - -	- - -	"	
Hematite on fracture planes		4:1		S	W	S	Secondary @ 20°		14 45° 60° 30°			24.30 27.30 2076	.69 - -	.003 - -	- -	.53, .004 2077 check	
26.50 - 35.66 strong kaolinization mod. to strong patchy emerald green sericite, very minor K-spar. Biotite= 95% alt. to ser. Minor hematite on fractures.		3:1		S	W	S	Dom. @ 45°	29.60 Strong 20° Shr.	17 40° 60° 20°			27.30 30.30 2078	.51 - -	.004 - -	- -	"	
		3:1		S	W-M		"	32.71- 33.20 Mylonite Gouge zone	24 60° 45° 20°			30.30 33.30 2079	.26 - -	.005 - -	- -	Very soft	



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# DIAMOND DRILL HOLE LOG

Latitude: \_\_\_\_\_ Hole No. 82-18  
 Departure: \_\_\_\_\_ Commenced:  
 Elevation: \_\_\_\_\_ Completed:  
 Length: \_\_\_\_\_ Logged by: K.W. Newman  
 Overburden: \_\_\_\_\_ Sheet No. 2 of 4

Property: \_\_\_\_\_ Az. \_\_\_\_\_ Dip: \_\_\_\_\_  
 Area: \_\_\_\_\_ Horiz. \_\_\_\_\_ Vert. \_\_\_\_\_  
 Purpose: \_\_\_\_\_

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	REMARKS
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %		
45° graphitic shr in 10 cm Qtz vein @ 34.85		3:1		S	-W	M	Dom. Min. Qtz. Ser. @ 45 to 60°	20° Shr. @ 35.20	25 45° 60°			33.30 to 36.30 2080	.30 .011			Soft.
37.10-51.80 Biotite crystals are small (0.2-3 cm) moderately alt. to chlorite & Ser. 35.66-52.90 weak - patchy kaolinization weak K-spar coarse silvery ser-to-patchy-emerald-green Ser. alt.		4:1		S	W	W-M	"		19 45° 60° 80°			36.30 to 39.30 2081	.14 .004			Med.
		4:1		S	W	W	"		15 45° 60°			39.30 to 42.30 2082	.51 .005			"
Weak Qtz. Ser. Vein system		3:1		S	W	M	40.91-41.26 Qtz. vein with Bn, Cp @ 60° Narrow (.5 cm) Ser. Qtz. veins @ 45° & 80°		14 45° 30° 80°			42.30 to 45.30 2083	.14 .005			Med.-Soft.
At 46.90 milky Qtz (younger) in contact with highly fract. grey Qtz. vein cemented with Cp.		3:1		S	W	M	Dom. Ser. Qtz. vein @ 60° At 46.90-4cm milky Qtz vein @ 80° with patchy Cp.	45.80-46.90 Shr zone 05°	21 60° 45° 05°			45.40 to 48.30 2084	.32 .005			"
Weak hematite on fracture planes		4:1		S	W	M	Dom. Ser. Qtz. @ 45 to Sec. @ 20° At 50.80 5 cm milky Qtz @ 80° Patchy Bn		16 80° 45°			48.30 to 51.30 2085	.48 .007			"
52.90-61.65 K-spar moderate at 55.10 very narrow (1cm) aplite. at irreg. 30° to C.A. 51.80-59.15, 80% of biotite alt. to ser. and chlorite.		4:1		S	M	M	"		18 45° 80°			51.30 to 54.30 2086	.45 .007			Soft



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-18
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M.Newman
Overburden:	Sheet No. 3 of 4

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	REMARKS	
		4:1		S	M	M	Dom. Ser. Qtz. with Bn.Cp at 45° to 60° Secondary @ 60°		15			54.30	.28	.007		Soft
									60°			to				
									40°			57.30				
									10°			2087				
57.50-57.85 pinkish stained due to hematite		4:1		S	M	M	"		14			57.30	.62	.026		"
									60°			to				
									30°			60.30				
61.65-71.80 K'spar weak.							51.75 40° Moly slip		45°			2088				
59.15-70.25 Biotite variable alt. 1c		4:1		S	W	M	Dom. Ser. Qtz. @ 60° Minor 1 cm @ 20° White Qtz veins with Bn.Cp. @ 80°	60.50- 60-70 40° She. to gouge	17			60.30	.47	.010		"
15-25 cm relatively fresh separated by 30-40 cm zones where it is largely alt. to muddy ser.									80°			to				
52.90-91.44 moderate kaolinization									40°			2089				
		4:1		S	W	M	Dom. Ser. Qtz. with Bn.Cp @ 60° Secondary @ 80°		14			63.30	.61	.035		"
									80°			to				
									60°			66.30				
									40°			2090				
		4:1		S	W	M	"		20			66.30	.38	.013		"
									80°			to				
									45°			69.30				"
												2091				
		3:1		S	W	M	"		14			69.30	.30	.006		"
									60°			to				
									40°			72.30				"
												2092				
		3:1		S	W	M	"		18			72.30	.53	.005		"
									60°			to				
									80°			75.30				"
									40°			2093				



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# DIAMOND DRILL HOLE LOG

Latitude: \_\_\_\_\_ Hole No. 82-18  
 Departure: \_\_\_\_\_ Commenced: \_\_\_\_\_  
 Elevation: \_\_\_\_\_ Completed: \_\_\_\_\_  
 Length: \_\_\_\_\_ Logged by: K.M. Newman  
 Overburden: \_\_\_\_\_ Sheet No. 4 of 4

Property: \_\_\_\_\_ Az. \_\_\_\_\_ Dip: \_\_\_\_\_  
 Area: \_\_\_\_\_ Horiz \_\_\_\_\_ Vert. \_\_\_\_\_  
 Purpose: \_\_\_\_\_

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	◊	REMARKS
70.25-91.44 biotite (90%) alt. to Ser. and chlorite		3:1		S	W	M	Dom. min. ser. qtz. @ 60°. Later min. white qtz. @ 60° &	76.10- 76.25	19			75.30	.53	.007		Soft
From 83.70-91.44 strong silvery ser veining.							white qtz. @ 60° & 45°	Gouge @ 45°	60°			78.30				.52, .016 2095 check
		4:1		S	W	M	"	79.80- 81.10	20			78.30	.33	.004		Soft
							"	gouge @ 45°	60°			81.30				
							"	45°	80°			2096				
							"		19			81.30	.36	.002		"
							"		60°			to				
							"		45°			84.30				
							"		80°			2097				
							Minor @ 10°	86.20- 88.10	21			84.30	.50	.003		"
							"	strong shrs. & gouge @ 30° & 20°	20°			to				
							"		30°			87.30				
							"		45°			2098				
							"		30° & 20°			87.30	.49	.002		Very soft.
							"		15			to				
							"		20°			90.30				
							"		60°			2099				
							"		-7			90.30	.50	.015		"
							"		80°			to				
							"		45°			91.44				
							"					2100				
							"					to				



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# DIAMOND DRILL HOLE LOG

Latitude: 95,812.94	Hole No: 82-19
Departure: 98,125.15	Commenced: June 3/82
Elevation: 4258.26	Completed: June 3/82
Length: 91.44	Logged by: K.M. Newman
Overburden: 8.23	Sheet No. 1 of 4

Property: Lake Zone	Az.	Dip: -90°
Area: Highland Valley	Horiz.	Vert.
Purpose: Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS		RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ser	K'spar	G.S		Frac. Den.	%	Frac. Den.	%			Cu %	Mo %			REMARKS
0.0-8.23 Overburden 25 cm of Guicheon		4:1		S	W	-				30			8.23	1.00	.003	0.00		Soft
Rec. 8.23-91.44 Bethsaida G.D.							@10.90 10 cm Qtz vein			60° 80°			11.23					
No visible Cu. oxide.							@80° Coarse Bn.Cp						1768					
8.23-18.05 Black chloritic biotite		3:1		S	W	-	Dom. Qtz. Ser.Min.			23			11.23	.04	.005	0.00		"
18.05-38.85 biotite largely alt. to Ser.							veins @60° to CA			60°			to					
8.23-22.0 weak to mod. kaolinization							Secondary @30°,80°			45° 80°			14.23					
		3:1		S	W-M	W	"	@16.76	13			14.23	.29	.006	0.00		"	
								20 cm gouge	60° 40°			to						
												17.23						
												1770						
20.13-20.78 Strong pervasive K'feld		3:1		S	M-S	W-M	"	20.00 -	13			17.23	.29	.010			"	
								20.20	60°			to						
								20° Shr.	40° 20°			20.23						
												1771						
22.0-23.20 Strong Ser.-Kaolin. zone with strong Bn veining @ 45° & younger Cp veining @ 30°		2:1		S	S	M	Dom. CB Bn vein in veins at 45°. 22.45			15			20.23	1.10	.015			"
							6 cm Qtz. with Cp			45° 20°			to					
							@-20°: 20.83 Moiy slip @ 45°			60°			23.23					
												1772						
23.16-23.86, 6 cm Qtz, Ser. vein with coarse Cp @20° to CA		2:1		S	W	M	Qtz. Ser. Veins	23.16 -	14			23.23	.68	.018			"	
							with Bn Cp Dom. at	23.86		60°		to						
							60° & 20°	Shr. @20°	60° 45°			26.23						
								24.45 20°	45° 20°			1773						.79, .012 1774 - Check
								Shr. with Hem	20°			26.23	.65	.003				
Strong Kaolinization, mod. green. ser alt. Specks of kematite (alt. mag.)		3:1		S	-	M-S	Ser. Qtz. with Bn, Cp	27.85 -	23			to						Very Soft
							60° & 20°, minor at 80°	28.35	80°				29.23					
								gouge @	60°									
								45° to CA	45°			1775						





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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-19
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by:
Overburden:	Sheet No. 2 of 4

Property	Az.	Dip
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ser.	K'spar	G.S.			Frac. Den.	%			Cu %	Mo %	◊	REMARKS
Strong Kaolinization, mod. K'spar parallel to Ser. Qtz. vein stockwork. Hem & limonite staining in halos around Bn. Patchy emerald green Ser.		4:1		S	M	M-S	Dom. Bn. Cp. in Qtz.	40° Shr.	16			29.23	.77	.002		Very soft
							Ser. veins 1 cm. wide @ 40° to 60°	@ 29.25	45°			to				
							Ser. @ 20°					32.23				
" Cp increasing due to increase in emerald green ser. alt.		2:1		S	W	M-S	Dom. Bn. @ 30° & 60°	32.35 -	20			32.23	.56	.004		"
							Cp. assoc. with 80°	33.80	40°			to				
							Qtz. Ser. veins.	Gouge & Shr @ 40°	60°			35.23				
Mod.-Strong kaolinization, mod. K'spar hematite on fract. planes.		4:1		S	M	W-M	Dominant Cp Bn @ 40°		21			35.23	.72	.012		Soft
									40°			to				
									60°			38.23				
38.85-44.85 black, chloritic to relatively unalt. biotite. Strong kaolinization down to 39-25; Hematite specks on fract. planes and as halos around Bn. down to 39.25		3:1		S	M-S	W-M	Dom. Ser. Qtz. veins with Bn. Cp @ 45° & 80°		17			38.23	.37	.008		"
									45°			to				
									60°			41.23				
44.85-58.97 A distinctive change in alteration and density of Ser. Qtz. veining (widely spaced). The core is not badly fract. Emerald green Ser. is common as Irreg. patches & bands up to 15 cm wide. K'spar is weak to moderate and it is pervasive. Biotite is mainly alt. to ser. but is chloritic in isolated sections.		3:1		S	W	W	"	42.70 -	15			41.23	.51	.004		"
								43.10	60°			to				
								20° Shr.	45°			44.23				
		2:1		S	W	S	2-3 cm Ser. Qtz. @ 80° & 20°	44.85 -	11			44.23	.32	.004		
								45.00	45°			to				
								10 cm fault @ 45°	60°			47.23				
		2:1		S	W-M	S	"		15			47.23	.22	.001		
									45°			to				
									80°			50.23				
												1782				



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-19
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by:
Overburden:	Sheet No. 3 of 4

Property:	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ser	K'spar	G.S.			Frac. Den.	%			Cu %	Mo %		REMARKS	
		2:1		S	M	S	Scattered Qtz. Ser. Veins, 2-4 cm. with Cp, Bn @ 80° & 40° rare 20°		15			50.23	.26	.002			Soft
At 55.20° Graphitic shr. @ 40° to CA		1:1		S	M	S	"		11			53.23	.24	.012			"
									40°			56.23					
									80°			1783					
@ 57.55 25.00 cm Qtz vein @ 60° Top 5 cm has moly slip. min. is Cp & Moly - No Bn.		1:1		S	W	S	"	56.69	10			56.23	.30	.003			"
							@ 56.90 1 cm Qtz vein with Py. @ 45°	10 cm. shr @ 20°	40°			59.23					
									80°			1785					
58.97 - 74.60 Pervasive K'Spar increases the core is more siliceous due to increase in Qtz-Ser veining. Hematite halos around Bn. About 70% of biotite is chloritic, 30% of Preno are alt. to Ser. Weak kaolinization.		4:1		S	M	S	1 cm. Ser. Qtz. stockwork @ 20° & 60°		8			59.23	.44	.004			Med.
									40°			62.23					
									60°			1786					
		4:1		S	M	W	"		11			62.23	.35	.003			"
									80°			65.23					
												1787					
Qts. vein - highly shattered, Bn:Cp 1:1		1:1		S			65.02-67.10 Qtz. vein parallel to irreg. to core in contact with coarse silvery Ser.		15			65.23	.79	.027			Hard
									45°			68.23					
Q.Z.P. Dyke @ 67.92-68.08 Contacts @ 45° Aplite Dyke @ 70.60-70.76, Contacts @ 20°		4:1		S	M-S	W-M	0.5 cm Stockwork Ser. Qtz @ 60° 45° 2 cm Qtz @ 60°		12			68.23	.33	.005			Med-soft
									45°			71.23					
69.25-73.05 the biotite is relatively fresh									80°			1789					





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# DIAMOND DRILL HOLE LOG

Latitude: 95,689.86	Hole No 82-20
Departure: 98,321.81	Commenced: June 3/82
Elevation: 4247.05	Completed: June 3/82
Length: 91.44 m	Logged by: K.M. Newman
Overburden: 9.50 m	Sheet No. 1 of 4

Property Lake Zone	Az.	Dip: -90°
Area: Highland Valley	Horiz	Vert.
Purpose: Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS		RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep		Frac. Den.	%	Frac. Den.	%			Cu %	Mo %		REMARKS	
0.00 - 9.50 Overburden - 36 cm of gravel recovered.		3:1		S	W	M	1-2 cm Ser. Qtz. veins @ 80° to 20. Milky Qtz. 1-10cm at 80°.			22 80°			9.50	.54	.004	.003		Soft
9.50-27.70 Bethsaida G.D. No Cu oxides, some hematite on fractures and around diss. sulph.		3:1		M	W-M	M	"	13.40-13.80 scattered		29°			12.50					"
9.50-12.15 strong kaolinization moderate emerald green sericite, weak K'spar.								5 cm Gouge @ 60°		60°			15.50					
9.50-16.80 biotite alt. to muddy ser.										40°			21.29					
12.15-16.40 strong pervasive K'spar patchy kaolinization.		3:1		M	S	M	"			18°			15.50	.26	.007			Med.
16.80-19.81 anhedral biotite, in part chloritic.										80°			18.50					
16.40-20.05 weak K'spar, weak patchy kaolinization, widely spaced, 2-3 cm. patches of emerald green ser. Relatively siliceous. A few 1-2 cm aplite dykes @ 25°.		3:1		W	W	M	A few milky Qtz. veins @ 80°. Ser. Qtz. with Bn-Cp @ 20° & 60°.	@ 20, 80, 5 cm Gouge @ 45°.		23 80°			18.50	.24	.007			Med-Soft
27.70-27.95 Aplitic Dyke. Contacts @ 20°.				W-M	W	M-W	"			45°			21.50					
Cut by 2 cm Ser. Qtz. vein at 80°.		2:1								17 80°			21.50	.48	.006			Soft
27.95-57.05. Bethsaida G.D.										60°			24.50					
20.05-25.80 moderate 1 cm Ser. Qt. veining, weak to moderate kaolinization 3-5 cm. patchy emerald green ser. weak K'spar.		2:1		M	W	M	@ 27.63 10 cm milky Qtz. with Bn Cp @ 90° to C.A.	27.43-27.63 45° Gouge		20 80°			24.50	.38	.006			"
										60°			27.50					
		1:1		S	W	M-W	Ser. Qtz. with Bn Cp at 80° 60° & 20°	29.65-38.95 20° Shrs.		40°			27.50	.61	.005			"
										60°			30.50					
										40°			21.34					



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# DIAMOND DRILL HOLE LOG

Latitude: \_\_\_\_\_ Hole No. 82.20  
 Departure: \_\_\_\_\_ Commenced: \_\_\_\_\_  
 Elevation: \_\_\_\_\_ Completed: \_\_\_\_\_  
 Length: \_\_\_\_\_ Logged by: K.M. Newman  
 Overburden: \_\_\_\_\_ Sheet No. 2 of 4

Property \_\_\_\_\_ Az. \_\_\_\_\_ Dip: \_\_\_\_\_  
 Area: \_\_\_\_\_ Horiz. \_\_\_\_\_ Vert. \_\_\_\_\_  
 Purpose: \_\_\_\_\_

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	REMARKS
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %		
25.80-35.60 Strong kaolinization strong Ser.Qtz. veining, weak to moderate K'spar. 90% of biotite alt. to ser. Scattered hematite haloing of sulphides and on shrs.		3:1		S	M	M-W	Dom.Ser.Qtz.&milky Qtz. @ 80° secondary @ 20° & 60°.	33.20-33.40 45°	18 60° 80° 20°			30.50 to 33.50 2135	.77	.002		Soft
35.05-42.50 widely spaced - 30-50 cm of 10-15 cm zones of diss. mag. partly alt. to Hem.		4:1		S	W-M	W	33.60-33.85 20° tension fract.cem. with Sil. Hem.	32.85-33.00 20° shr.	12 20° 60°			33.50 36.50 2136	.30	.004		"
35.60-39.75 moderate kaolinization weak K'spar. 70% of biotite alt. to Ser. Core is relatively fracture free.		4:1		M	W	W	Dom.Qtz.Ser.veins @ 80° to 20° 2-3cm milk Qtz. with Bn Cp. @ 80°.		15 80° 45°			36.50 to 39.50 2137	.29	.003		"
39.75-55.05 moderate to strong K'spar parallel to dominant Ser.Qtz. veins at 80° to C.A. Strong silvery ser. Biotite alt. to chlorite & Ser. Weak patchy kaolinization.		3:1		S	S	-	"		10 80° 45°			39.50 to 42.50 2138	.51	.003		Med.
		2:1		S	S	-	"		12 80° 60°			42.50 to 45.50 2139	.30	.004		"
		2:1		S	S	W	"	47.90-48.30 milky Qtz. with Bn Cp (1:1) @ 80°.	16 80° 45°			45.50 to 48.50 2140	.38	.007		"
		2:1		S	M-S	W	"	49.90-50.05 20° shr.	13 80° 45° 20°			48.50 to 51.50 2141	.36	.006		"



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-20
Departure:	Commenced
Elevation:	Completed:
Length:	Logged by K.M.Newman
Overburden:	Sheet No. 3 of 4

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG		
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac Den.	%			Cu %	Mo %	REMARKS		
55.05 - Weak patchy K'spar; mod. to strong but patchy narrow (5-15 cm) kaolinization		2:1		S	M	W	Dom. Ser. Qtz. @ 80° & 20° milky Qtz. with Bn. Cp @ 80°	53.75-54.00 20° Shrs. cem. with Sel. Hem. 1 cm	19			51.50 54.50 2142	.29	.005			Med. Soft
56.00-56.30 concentration of magnetite as weakly developed veins, 2cm wide and diss. patches.		2:1		S	M-W	-	"		21			54.50 57.50 2143	.50	.009			"
55.0-70.50 90% of Biotite alt. to Ser. & Chl.		2:1		S	M-W	W	"		26			57.50 60.50 2144	.37	.004			Soft
56.80 (1) 57.05 (1) Q.F.P. Dyke Sharp chilled 45° contacts:		3:1		S	W	-	"	60.75-61.25 20° Shrs.	25			60.50 63.50 2145	.44	.004			"
Widely diss. Hem.		2:1		S	W	-	"	66.30-66.55 45° Shrs. Bn. Cp irreg. @ 20°	18			63.50 66.50 2146	.43	.004			"
		2:1		S	W	W	"	68.28-69.80 20° & 40° Shrs. & Gouge	17			66.50 69.50 2147	.44	.004			68.28-69.80 60% Rec.
Strong argillic alt. assoc. with fault at 71.52. 6 cm Qtz vein @ 80° highly fract.		2:1		S	W	W	Dom. Ser. Qtz. with Bn Cp. @ 80° & 20°	71.52-71.84 Strong 45° Gouge	20			69.50 72.50 2148	.50	.004			Soft.





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# DIAMOND DRILL HOLE LOG

Latitude: 95,378.11 Hole No 82-21  
 Departure: 98,678.66 Commenced: June 6/82  
 Elevation: 4,230.91 Completed: June 6/82  
 Length: 91.44 m Logged by: K.M. Newman  
 Overburden: 15.50 m Sheet No. 1 of 4

Property Lake Zone Az. Dip: -90°  
 Area: Highland Valley Horiz. Vert.  
 Purpose: Infill

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	ROD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	XM Ser.	XX Kspar	XM G.S			Frac. Den.	%			Cu %	Mo %		Est.	REMARKS Hardness
0.0-15.50 Overburden - 30 cm of Guichenon. recovered.		2:1		M	-	-	Min. Ser. Qtz. veins Dom @20° & 45°-Cut by younger veins @80° to CA		26			15.50	.13	.001	0.00		Med.
15.50-91.44 B.G.D. No Cu oxides visible. Weak-Mod. kaolinization. Localized patchy green ser. alt. Black to green- ish black (chloritic) biotite in segregated zones 10-15 cm wide every 1-1.5 m. (15.50-45.60) 20.60-32.00 variable ser. & kaolinization due to fault zones. Weak hematite staining.		2:1		M	W	W	"		27			18.50	.49	.001	0.00		"
									45°			1709					
									35°			21.50					
									80°			1710					
		2:1		M	M	W	"	24.38 - 26.60 <sup>3</sup> Fault gouge 45°	28			21.50	.18	.007	0.00		Med.-Soft
									80°			1711					Poor Rec.
									45°			24.50					Med.-Soft
		2:1		M-S	M	-	Dominant Bn. Cp min @45° & 20° to CA		22			1712	.85	.002			
									40°			24.50					
									80°			1713					
									parallel			27.50	.34	.002			Soft
		2:1		M-S	M	-		29.35 - 32.00 <sup>3</sup> Fault gouge 45°	24			27.50					
									80°			30.50					
									parallel			1713					
									14			30.50	.44	.001			Med.-Soft
									45°			1714					
									80°			33.50					
									parallel			1714					
1 cm to 0.5 cm Ser. Qtz veins are @40° to CA. Larger (2-3 cm veins) are to 40° to 60°				S	M	-	2-3 cy Ser. Qtz veins with Bn. Cp. @ 60° & 40°	35.05, 20 cm. gouge @20°	15			33.50	.77	.002			Soft
									45°			1715					
									60°			36.50					
									80°			1715					





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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-21
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 2 of 4

Property	Az.	Dip:
Area:	Horiz.	Verl.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	ROD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ser.	Kspar	G.S.			Frac. Den.	%			Cu %	Mo %		REMARKS	
37.00-43.00 K'spar very weak, kaolin- ization weak as well 1-3 cm. Ser. Qtz. veins form stockwork at 20°, 45° to CA		3:1		S	W	-	Min. Ser. Qtz veins at 20° to 45°		13			36.50	.29	.001			Med.-Hard
									60°			to					
									80°			39.50					
									20°			1716					
45.60-53.20 Biotite alt. to chlorite and muddy ser.		3:1		S	-	-	"		15			39.50	.32	.001			"
									60°			to					
									40°			42.50					
									80°			1717					
43.00-59.45 K'spar weak to mod. Ser. alt. (emerald green) scattered- patchy kaolinization weak. Black biotite fresh to mod. chloritized.		3:1		S	-	-	Bn. Cp. Min. Ser. Qtz. Veins @ 60° 45° to 20°	42.60 - 44.90	17			42.50	.37	.001			"
								gouge zone	45°			to					
									60°			45.50					
									30°			1718					
At 47.60 2 cm Cp. vein @ 40° to CA		3:1		S	M	M	"		22			45.50	.52	.002			Med. Soft
									40°			to					
									30°			48.50					.53, .002
									60°			1719					1720 check
							Stockwork of Ser. Qtz. veining irreg. parallel. Dom. Min. veins at 45° & 60°	50.90 - 52.76	17			48.50	.47	.002			"
								Gouge to Shr @ 45° & parallel	60°			to					
									40°			51.50					
									80°			1721					
Specks of hematite staining		2:1		S	M	M	"	53.20 - 53.40	18			51.50	.56	.002			Soft -Med.
								20° shr	45°			to					
									60°			54.50					
									80°			1722					
							"		17			54.50	.30	.007			Soft-Med.
							Majority of Bn Cp in Ser. Qtz veins at 40°		45°			to					
									30°			57.50					
									20°			1723					



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-21
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. 3 of 4

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ser.	K'spar	G.S.			Frac. Den.	%			Cu %	Mo %			REMARKS
59.45-63.09 Fault zone. Core highly gouged to shr'd. mainly @ 20° to CA. Strong kaolinization. Qtz. veins highly fractured.		3:1		S	-	M	Min. Qtz.Ser. at 60°, 40° & 20°	59.45 - 63.09	22			57.50	.30	.002			Med.-Soft
									45°			to					
									30°			60.50					
									80°			1724					
63.09-65.53 Strong to mod. kaolinization. Weak-patchy emerald green ser. alt.		3:1		S	-	M	Dom. at 20° & 40° highly fract.		30°			60.50	.48	.002			Soft
									20°			to					
									40°			63.50					
												1725					
65.53-71.15 Weak to moderate K'spar patchy emerald green Ser. Weak to mod. kaolinization.		3:1		S	-	M	Dom Qtz.Ser.veining with Bn. Cp @ 45° to 20° to CA		15			63.50	.41	.002			Soft
							1-2 cm wide		40°			to					
									60°			66.50					
												1726					
63.09-67.05 Biotite mainly alt. to muddy Ser. 67.05-69.40 biotite is chloritic		3:1		S	-	M	"		12			66.50	.39	.002			Med.-Soft
									45°			to					
									60°			69.50					
												1727					
71.15-76.70 Mod. patchy emerald green ser. alt. very weak k'spar. Biotite 70% of crystals alt. to muddy Ser.		3:1		S	-	M	"	71.10 - 71.53	16			69.50	.49	.007			Soft
								gouge @ 45°	45°			to					
									60°			72.50					
												1728					
		3:1		S	-	M	"		25			72.50	1.04	.010			Soft-Med.
									40°			to					
									60°			75.50					.79, .014
									20°			1729					1730 Check
				M	-	W	"	77.74 - 78.60	24			75.50	.29	.007			Soft
								Strong gouge @ 45° to CA	40°			to					
									20°			78.50					
									60°			1731					



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-21
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by. K.M. Newman
Overburden:	Sheet No. 4 of 4

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ser.	Kspar	G.S.			Frac. Den.	%			Cu %	Mo %		REMARKS	
80.75-82.10 large (1 cm) black biotite slightly chloritic.		3:1		M	-	W	1-2 cm irreg. Qtz		24			78.50	.22	.006			Soft
82.10-91.44 biotite is largely alt. to muddy ser. K'spar weak, mod. Kaolinization. Scattered specks of hematite							Ser. veins with Bn Cp @05°- 20° & 45° to CA		30°			to					
									60°			81.50					
									45°			1732					
83.10-91.44 the core is strongly fractured at an irreg. 30° & 10°		3:1		M	W	-	"		22			81.50	.21	.007			"
									45°			to					
									60°			84.50					
									parallel			1733					
		4:1		M	W	W	"	86.60 strong 5cm shr. at 45° to CA	29			84.50	.48	.012			"
									parallel			to					
									20°			87.50					
									45°			1734					
88.20-91.44, the sericite associated with Qtz. veining is becoming more pronounced.		4:1		S	M	W	"	89.70 - 90.30 Strong shr to gouge @ 45°	37			87.50	.25	.009			"
									20°			to					
									45°			90.50					
									60°			1735					
		4:1		S	M-S	W			16			90.50	.42	.008			"
									40°			to					
									20°			91.44					
												1736					End of hole.
												to					
												to					



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## DIAMOND DRILL HOLE LOG

Latitude: 95,096.74	Hole No 82-22
Departure: 98,329.97	Commenced. June 9/82
Elevation: 4275.07	Completed. June 9/82
Length: 91.44	Logged by K.M. Newman
Overburden: 12.50	Sheet No. 1 of 4

Property LAKE ZONE	Az.	Dip: -90°
Area: HIGHLAND VALLEY B.C.	Horiz.	Verl.
Purpose: INFILL		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %		REMARKS	
0.0 - 12.50 Overburden - 30 cm of boulder fragments recovered.		1:2		M	M	W	Min. Ser. Qtz. stock-work. Dominant @ 60° & 45°. Minor @ 20°.		15			2.50	.11	.009			Soft
12.50-91.44 Bethsaida G.D. No. visible Cu oxides. Weak to moderate K <sup>+</sup> sp. Kaolinization and emerald-green-sericite alt. variable from weak to intense over 20 to 30 cm lengths. 80° of the biotite has been alt. to muddy sericite. Bn mineralization is weak. cp is dominant.		1:2		M	M	M	"	15.85 40 Shr	20 45° 60°			15.50 1828	.12	.078	.00		Med.
		1:2		M	W-M	M-S	"		25 45° 60°			18.50 to 21.50 1830	.09	.007			Med-Soft
Ser. Qtz. veining is increasing but not strong.		1:1		M	M	M	Qtz. vein parallel to 20° Shr. zone with Cp and moly.	23.40- 24.69 Strong 20° Shr.	25 60° 45° 20°			21.50 to 24.50 1831	.33	.030			Med.-Soft
Strong shearing with Moly slips on fractures. Strong Ser. alt.		1:1		M	M	M	"		20 40° 80° 10°			24.50 to 27.50 1832	.29	.011			Soft
Hematite stain on fracture planes		2:1		M	M	S	Dom. min. ser. qtz. veins @ 20° & 60°		25 60° 40°			27.50 to 30.50 1833	.35	.009			Soft.
		2:1		M	W	M-S	"	33.25- 33.50 Shr. @ 60-40	25 60°			30.50 to 33.50 1834	.13	.005			Med-Soft



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-22
Departure:	Commenced
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. 2 of 4

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	<input type="checkbox"/>	REMARKS
Moderate Ser. Qtz. veining		2:1		M	W	W	Dom. Ser. Qtz. @ 45° & 60°		30			33.50 to 36.50 1835	.13	.002		Med.
45.75-60.50 biotite completely altered to muddy sericite.		2:1		M	W	W	"		26			36.50 to 39.50 1836	.15	.003		"
47.44-57.30 moderate to strong pervasive K'spar and patchy (5-10 cm) emerald green Ser.		2:1		M	W	W	"		28			39.50 to 42.50 1837	.21	.011		"
Hematite common as dissm. and on fracture planes. Moderate kaolinization, weak, K'spar.		2:1		M	W-M	-	" A few @ 20°		25			42.50 to 45.50 1838	.12	.002		"
Moderate to weak Ser. Qtz. veins ± 0.5 cm wide.		2:1		M	M	-	Moly slip assoc. with 05° Sbr.	46.50- 47.24 05° Shr.	27			45.50 to 48.50 1839	.24	.057		" Pink stain 47.60 47.85
		2:1		M	M	-	0.5 cm Ser. Qtz. veins widely spaced @ 80° & 20°		23			48.50 to 51.50 1840	.10	.009		"
		2:1		M	S	-	"		21			51.50 to 54.50 1841	.16	.004		"







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# DIAMOND DRILL HOLE LOG

Latitude: \_\_\_\_\_ Hole No 82-23  
 Departure: \_\_\_\_\_ Commenced: \_\_\_\_\_  
 Elevation: \_\_\_\_\_ Completed: \_\_\_\_\_  
 Length: \_\_\_\_\_ Logged by: K.M. Newman  
 Overburden: \_\_\_\_\_ Sheet No. 2 of 4

Property: \_\_\_\_\_ Az. \_\_\_\_\_ Dip. \_\_\_\_\_  
 Area: \_\_\_\_\_ Horiz. \_\_\_\_\_ Vert. \_\_\_\_\_  
 Purpose: \_\_\_\_\_

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS		RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ser.	K'spar	G.S.		Frac. Den.	%	Frac. Den.	%			Cu %	Mo %		REMARKS	
Hematite stain or fract. & halo around cp.	-	-		S	W	W	Dominant Ser. Qtz. at 45°			17 45°			33.45 to 36.45 1945	.02	.015			Soft-very soft.
"	-	-		S	W	W	"			35.95 - 36.97 45°	20 45°		36.45 to 39.45 1946	.17	.010			"
	-	-		S	W	-	"			Strong 40° to 20° Shr	20°		39.45 to 42.45 1947	.22	.011			"
Light apple green Ser. on fractures & irreg. patches	-	-		S	W	W	"			45.40- 45.60 40° & 60° Shrs.	20 40° 60°		42.45 to 45.45 1948	.16	.009			.23 .011 1949 check
Slightly more siliceous between 45.10 and 47.60. Biotite slightly alt. to chlorite.	-	-		S	W	M	At 46.10 a 6 cm Qtz vein with fine Moly? and Cp @ 45° to CA				22 45° 60°		45.45 to 48.45 1950	.20	.009			Med
47.60 to 54.50 zone of strong shearing. Strong kaolinization mod. emerald green sericite, strong pervasive silvery ser. & Qtz. Biotite alt to ser.	1:4	-		S	W-M	M	48.90-49.05 dark grey Qtz vein @ 45°			49.05 - 49.60 Fault gouge @ 45°	18 45° 80°		48.45 to 51.45 1951	.35	.010			Soft-very soft.
	1:3	-		S	W-M	W-M	51.40-51.75 2 cm Qtz vein @ 20° with Cp & Bn				26 45° 60°		51.45 to 54.45 1952	.33	.008			Soft





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# DIAMOND DRILL HOLE LOG

Latitude: Hole No. 82-23  
 Departure: Commenced.  
 Elevation: Completed:  
 Length: Logged by, K.M. Newman  
 Overburden: Sheet No. 3 of 4

Property: Az. Dip.  
 Area: Horiz. Vert.  
 Purpose:

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ser.	K'spar	G.S.			Frac. Den.	%			Cu %	Mo %	⊗	REMARKS
54.50-76.50 Biotite partly chloritized fairly siliceous, moderate K'spar Coarse silvery-sericite.		1:1		S	W	-	Dominant Ser. Qtz with weak Bn Cp @45° to CA Minor @ 60°		20 45° 60°			54.45 to 57.45 1953	.15 .012			Med
Hematite Staining on fracture, Blocky core.		1:1		S	W-M	-	"		32 45° 60°			57.45 to 60.45 1954	.19 .014			"
Blocky core		1:1		S	W-M	-	"		29 45° 60°			60.45 to 63.45 1955	.31 .016			"
"		1:1		S	M	-	"		27 60° 45°			63.45 to 66.45 1956	.23 .006			"
Weak K'spar, moderate-weak kaolinization.		1:1		S	W	M	" Weak Moly.	67.51 - 67.80 20° shr.	25 60° 20° 45°			66.45 to 69.45 1957	.27 .009			"
"		1:2		S	W		" Diss. Moly in Vuggy Qtz.		13 30° 45°			69.45 to 72.45 1958	.23 .018			"
"							"		18 45° 60° 20°			72.45 to 75.45 1959	.17 .011			"



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-23
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. 4 of 4

Property	Az.	Dip.
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	ROD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG		
	Py to Cp	Bn to Cp	% Py	Ser.	K'spar	G.S.			Frac. Den.	%			Cu %	Mo %	REMARKS		
76.50-77.10 Hematite on fracture planes		1:3		S	W	W	"	76.50 - 77.10 20° Shrs	22			75.45 to 78.45 1960	.42	.009			Soft
79.30 - 79.65 moderate emerald green ser.		1:3		S		M	79.15 3 cm Qtz. vein with coarse Cp.		20 45° 60°			78.45 to 81.45 1961	.42	.007			Med
Mod. to strong kaolinization. Scattered 1-3 cm grey Qtz with diss. cp & moly (?)		1:4		S			Hair-line Ser. Qtz. veins @ 45° 40° & 60°	83.15 - 88.09 Strong gouge & 20° Shr	15 45° 20° 60°		50°	81.45 to 84.45 1962	.14	.006			Soft
		1:3		S	-		" 1 cm Ser. Qtz veins Bn Cp & Moly @ 40° 60° & 80°		32 20° 45°			84.45 to 87.45 1963	.38	.008			"
Hematite - diss. & on fracture planes		1:1		S	W	W	"	88.60 - 89.20 Strong 20° Shr & mylonite	35 40° 20°			87.45 to 90.45 1964	.38	.011			"
"		1:1		S	W	-	"	91.14 5 cm Shr. @ 45°	10 30° 45° 60°			90.45 to 91.44 1965	.31	.008			"
												to					



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## DIAMOND DRILL HOLE LOG

Latitude: 96,506.22	Hole No. 82-24
Departure: 98,202.15	Commenced: June 2/82
Elevation: 4200.06	Completed: June 2/82
Length: 91.44	Logged by: K.M. Newman
Overburden: 18.30 m	Sheet No. 1 of 4

Property: Lake Zone	Az.	Dip: -90°
Area: Highland Valley	Horiz.	Vert.
Purpose: Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms Ser.	Cl K'spar	Ep G.S.			Frac. Den.	%			Cu %	Mo %		REMARKS	
0.0 - 18.30 Overburden 2 cm of Guicheon Recovered		0:1		S	-	S						18.30	.54	.079	.00		Very left
								Intense Gouge 18.80	30			to					
									20°			21.30					
									60°			1996					
18.30 - 18.80 Dark grey Quartz vein, highly fract. cut by many irreg. narrow dark grey-black veins composed of dusty moly. or galena. Bottom contact @ 20°		3:1		S	W	W	Dom. Vein System at 40° Secondary @ 20°		17			21.30	.42	.006	.00		left
									45°			to					
									60°			24.30					
									80°			1997					
18.80 - 83 85 Bethsaida G.D. Gouge zone - Ser. & Kaolin. 19.30-22.25 emerald green sericite & residual Qtz. No oxidization.		3:1		S	M-S	-	"	26.50 - 26.20	12			24.30	.62	.007	.00		"
									80°			to					
									20°			27.30					
												1998					
18.80 - Moderate to strong kaoliniz- ation and K'spar. Most of the biotite is altered to sericite except for a zone at 29.03 - 29.20		3:1		"	"	-	"		16			27.30	.28	.003			"
									85°			to					
									45°			30.30					
												1999					
		4:1		"	"	-	"		13			30.30	.56	.010			"
									80°			to					
									45°			33.30					
												2000					
		4:1		"	"	-	"		15			33.30	.24	.003			"
									45°			to					
									30°			26.30					
									80°			2001					
							Dom. Veins of Qtz Ser. with Bn. Cp. @ 30° a few irreg. parallel		14			36.30	.57	.000			
									40°			to					
									20°			39.30					
									80°			2002					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-24
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. 2 of 4

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE	HOLE	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%	REC. %	DEPTH TAG NO.	Cu %	Mo %		REMARKS	
				S	M	W	Dom. Ser. Qtz. veins @ 20° & irreg. parallel	41.00 - 41.45 Strong 20° Shr	11 60° 20° 05°			39.30 to 42.30 2003	.58	.002		left	
42.80 - 44.75 Strong emerald green Ser. alt. 15-20 cm. wide separated by strong kaolinized zones.		1:1		S	W	S	"		17 45° 85°			42.30 to 45.30 2004	.37	.013		"	
Coarse silvery ser.		2:1		S	M-S	W	Dom. Ser. Qtz. with Bn cp. @ 30° & 20° Sec. @ 60°	45.35 - 47.80 Gouge & Shr. @ 45°	20 60° 05° 40°			45.30 to 48.30 2005	.21	.002		"	
Intense kaolinization. 60% of biotite alt. to Ser. Hematite on shr. planes. Core highly fragmented due to argillic alt. 52.		3:1		S	W	W	"	49.80 - 52.43 Strong fracture- (Shr & Gouge) @ 45°	40 all LS			48.30 to 51.30 2006	.14	.002		Very soft	
" Biotite completely alt. to Ser.		3:1		S	W	W	Dominant Qtz. Ser. veins with Bn. Cp. @ 45°		all LS & 45°			51.30 to 54.30 2007	.35	.003		"	
Hematite halos around Bn. & Cp. & on fract. planes. Strong kaolinization		3:1		S	W	W	" Secondary @ 80°		18 45° 60°			54.30 to 57.30 2008	.45	.004		Soft .56, .004 2009 check	
Gouge zone has apple green-ser.-kaolin matrix with residual qtz.		2:1		S		W	2-4 cm. Qtz. veins @ 45° 1 vein only cp min. another vein only Bn in it	59.72 - 61.17 Intense gouge 45°	22 45° 60° 80°			57.30 to 60.30 2010	.41	.003		Very soft	



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No 82-24
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. 3 of 4

Property	Az.	Dip.
Area:	Horiz	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	ROD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG		
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %			REMARKS	
Strong kaolinization-weak K'spar Biotite altered to muddy ser. & or chlorite.		3:1		S	W	-	Dom. @ 45° a few at irred 0.5°	52.60 - 63.00	22 45°			60.30 to 63.30 2011	1.80 .002					very soft
"		3:1		S	W-M	W	"	66.00 - 66.21	20 45°			63.30 to 66.30 2012	.66 .008					Soft
"		4:1		S	M	W	"		14° 45° 80°			66.30 to 69.30 2013	.76 .002					"
"		4:1		S	M	-	"		20 40° 60° 80°			69.30 to 72.30 2014	.34 .005					"
Unalt. biotite in 20-30 cm. zones every 1 metre showing up inbetween it is completely alt. to Ser. Specks of hematite.		3:1		S	S	W	"	74.80 - 75.30	15 45°			72.30 to 75.30 2015	.28 .002					"
"		3:1		S	S-M	M	Dome. @ 45° to 60° a few @ 20°	Fract. para 73.80-5 cm 45° gouge	17 80° 45° 20°			75.30 to 78.30 2016	.21 .125					"
Hematite on fract. planes				S	M	W			16 60° 45°			78.30 to 81.30 2017	.43 .001					Very soft



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# DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-24
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. 4 of 4

Property:	Az.	Dip.
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG		
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den	%			Cu %	Mo %	<input type="checkbox"/>	REMARKS	
83.85 - 84.05 Aplite Dyke contacts at 20° to CA		4:1		S	M-S	W	Dom. Qtz. Ser. with Bn Cp at 45° Sec. @ 60° + 20°		13 40°			81.30 to 84.30 20TB	.43	.003			Soft
84.05 - 91.44 Bethsaida G.D.		4:1		S	M	W	Dom. Qtz. Ser. veining at 40° Ser. of 20° & 60°		17 45°			84.30 to 87.30 2019	.33	.003			"
At 88.35 1 c.m. vein @ 30° to C.A. of diss. to almost massive magnetite		4:1		S	W	M	"	89.30 - 89.92 Strong gouge @ 20°	28 40°			87.30 to 90.30 2020	.33	.009			"
88.20 - 88.35 80% black biotite Moderate to strong kaolinization patchy zones of emerald green sericite up to 10 cm. wide.		3:1		S	M	M	"		6 40° 60°			90.30 to 91.44 2021	.47	.013			End of hole
												to					
												to					
												to					



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## DIAMOND DRILL HOLE LOG

Latitude: 95,507.29 Hole No. 82-25  
 Departure: 99,384.49 Commenced: June 13/82  
 Elevation: 4169.35 Completed: June 14/82  
 Length: 91.44 m Logged by: K.M. Newman  
 Overburden: 24.40 m Sheet No. 1 of 4

Property Lake Zone Az. Dip: - 90°  
 Area: Highland Valley Horiz. Vert.  
 Purpose: Infil

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms Ser.	Cl K'spar	Ep G.S.			Frac. Den.	%			Cu %	Mo %		REMARKS	
0.00 - 24.40 Overburden 3 cm of till recovered.		?		M	-	M	1-2 cm. Qtz ser. @ 45° & 20°		36 45°			24.40	.34	.004	.18		Soft
24.40 - 91.44 Bethesda G.D.									60°			27.40 2022					
From 24.40 - 38.03 Oxide Zone Visible malachite down to 36.40 Strong limonite & minor manganese on fracture planes.		?		M	-	M	"		38 45°			27.40	.45	.003	.05		"
24.40 - 28.30 biotite slightly chloritic									60° 80°			30.40 2023					
28.30 - 33.51 biotite alt. to sericite 33.51 - 40.20 biotite partly chloritic partly sericitic. Kaolinization is weak below the zone of oxidization		2:1		M	W	M	"	29.75 - 32.00 Gouge.	24 60° 80° 40°			30.40	.64	.005	.17		"
		4:1		M	M	W	"		22			33.40	.41	.004	.04		" - Med.
							at 35.78, 15cm Qtz. vein @ 45°. Weak Bn, Cp		45° 60° 20°			36.40 2025					
Minor chalcocite assoc. with bornite		3:1		M	M	W	at 36.41 moly slip. @ 45°		35 45° 20° 80°			36.40	.52	.005	.00		Med.
												39.40 2026					
40.20 - 44.70 zone of strong emerald green sericite and residual Qtz with widely scattered patchy 5-10 cm zones of kaolin. Weak, scattered K'spar veining @ 60° & 20° to C.A. Qtz veins at 60° & 20° but no sericite enveloping the veins.		0:1					Diss. cp	41.05 - 41.50 20° Shrs.	22 45° 60° 20°			39.40	.34	.004	.00		Soft
									20 60° 45° 20°			42.40 2027					
												42.40	.67	.005			Soft
												45.40 2028					.64, .005



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-25
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 2 of 4

Property	Az.	Dip.
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac Den.	%			Cu %	Mo %	⊗	REMARKS
44.70-45.80 strong ser. & kaolinization. 70% of Qtz veins have no sericite envelope and are barren of sulphides		1:3		S	W	M	Diss. cp 45° vein of cp. & Bn	46.15 - 46.40 0.5°shr with hem.	25 60° 40° 20°			45.40 to 48.40 2030	.32 .004			Med
45.80-49.30 patchy kaolinization, weak mod. ser. biotite alt. to ser.		2:1		M	W	W	Qtz-Ser. veins with Bn, Cp @ 45° Barren Qtz. veins @ 40°. Several veins parallel to CA		30 60° 45°			48.40 to 51.40 2031	.53 .003			"
49.30-57.00 biotite fresh to partly alt to chlorite, the core is moderate to strongly siliceous, weakly kaolinized and weak k'spar alt. Ser. Qtz. veining is almost nil from 50.95-57.00 Diss. Bn. cp. associated with small vugs.		1:1		M	W	-	Diss. Weak veining at 45°		28 45° 20°			51.40 to 54.40 2032	.35 .004			Med. Hard
		1:1		M-W	-	-	"		22 45° 60° 30°			54.40 to 57.40 2033	.45 .003			"
57.00-60.05 biotite mainly alt. to Ser. Ser. becomes more abundant also patchy emerald green Ser. Weak kaolinization and k'spar		2:1		M	W	M	Dom. Qtz. Ser. veins with Bn. Cp. @ 60° & 20° Sec. at 45°		22 45° 60°			57.40 to 60.40 2034	.34 .007			Med.
60.05-68.35 Unaltered biotite-rich zones 10-20 cm. wide separated by alt. biotite zones 25-30 cm. wide. (AIF. to green Ser.)		1:1		M	M	M	Barren Qtz. veins @ 45° cut vein. Ser. Qtz veins. Min. veins @ 15° & 30°		29 60° 45° 80°			60.40 to 63.40 2035	.45 .007			"
Moderate patchy kaolinization and K'spar Scattered white Qtz. veins lacking Ser. envelope-mainly barren.		2:1		S	M	W	"	66.10 - 66.40 Fault Brecc. 220°	25 40° 60°			63.40 to 66.40 2036	.34 .005			"





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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-25
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 3 of 4

Property	Az.	Dip:
Area:	Horiz	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	⊗	REMARKS
Moderate patchy emerald green Ser. Alt.		2:1		M	M	M	1 cm. Qtz. Ser. with Bn Cp @ 20°-45°		20			66.40	.33	.004		Med
68.35-81.08 Miotite alt. to Ser. (muddy) and rare chlorite alt. Mod. to strong kaolinization and rare K'spar. In general silvery sericite associated with Qtz. veins is weak. 78.33-80.10 strong limon- ite on fracture planes.		2:1		W	-	W	Barren Qtz veins @ 20° Min. Qtz. - weak Ser. veins also 20° Ser. @ 60° Diss. Moly	71.20 - 73.15 20° Shrs.	26			69.40 to 2037	.43	.012		Soft
		1:1		W	-	W	"	74.28 - 74.78 & 75.30 - 75.80 - 45° gouge zone.	22			72.40 to 2039	.38	.005		Soft
81.08-83.90 Black, slightly chloritized biotite, weak kaolinization, rare K'spar Abundant primary Qtz. weak, secondary Qtz. Ser. veining.		2:1		W	1	-	Dom. @ 45° & 20°		27			75.40 to 2040	.40	.010		Med., -Soft
83.90-85.65 Strong kaolinization, mod. K'spar. Weak sericite alt.		2:1		W	-	-	Weak - 45°		30			78.40 to 2041	.47	.007		Med.
85.65-86.32 Strong emerald green ser. cut by Qtz. veins with K'spar		3:1		W	M	W	Weak @ 40° & 60°		26			81.40 to 2042	.33	.005		Med.-soft .36, .006 2043 check
		1:1					35° & 60°		22			84.40 to 2044	.42	.007		Soft



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-25
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 4 of 4

Property	Az.	Dip
Area:	Horiz	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG		
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	<input type="checkbox"/>	REMARKS	
86.32-91.44 Moderate kaolinization weak K'spar. Weak to mod. silvery ser. 86.32-90.30, biotite alt. to chlorite, 90.30 - 91.44, black relatively unalt. biotite.				W	W	W	88.75-89.15 Qtz vein. at 20° Minor cp on contact.		20			87.40 to 90.40 2045	.27	.015			Soft
				W	W	-	Weak Qtz. Ser. Bn Cp at 20° @91.39-91.44 20° Qtz.vein with CP&Moly		14			90.40 to 91.44 2046	.20	.015			Med.
												to					
												to					
												to					
												to					
												to					



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## DIAMOND DRILL HOLE LOG

Latitude: 95,398.14	Hole No. 82-26
Departure: 97,985.74	Commenced: June 9/82
Elevation: 4305.30	Completed: June 10/82
Length: 91.44	Logged by: K.M. Newman
Overburden: 6.30	Sheet No. 1 of 5

Property	Lake Zone	Az.	Dip: -90°
Area:	Highland Valley	Horiz	Vert.
Purpose:	Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	REMARKS
	Py to Cp	Bn to Cp	% Py	Ms Ser.	Cl K'spar	Ep G. Ser.			Frac. Den.	%			Cu %	Mo %			
0.0-6.30 Overburden 5 cm of till recovered.		1:2		W	W-M	-	Weak Qtz. Ser. @ 80°, 60°		16 80°			6.30 to 9.30 1798	.11	.002	.00		Med.
6.30-8.33 Bethesda G.D. No oxidization, weak weathering for 1 metre. Rock relatively unaltered. Weak Ser. Qtz veining. Biotite alt. to muddy brown Ser. Diss. Magnetite.		1:2		M	M	M	1-3 cm. Qtz. Ser. with weak Cp. Bn. @ 80° & 60°		22 60°			9.30 to 12.30 1799	.18	.005	.00		Soft
8.33-8.47 Aplite at 20° to CA		1:1		S	M	M	"	12.65 - 13.11 Fault gouge breccia @ 45°	23 60°			12.30 to 15.30 1800	.21	.006			Soft Diss. py. in Qtz. vein @ 14.05
8.47-91.44 Bethesda G.D. Mod.-Strong K'spar		1:2		S	M-S	M-S	1-3 cm. Ser. Qtz. veins @ 80°, 60°	15.40 - 15.55 Gouge & breccia @ 45°	20 60°			15.30 to 18.30 1801	.26	.015			Med.-soft 16.76 Moly Slip
Mod.-strong kaolinization, to persuasive K'spar. 16.80-17.30, Intense emerald green ser. alt.-Diss. cp. Number of Ser. Qtz veins increasing. Widely diss. mag. partly alt to hematite 50° of Biotite alt. to chlorite. Mod.-weak kaolinization. Scattered 10cm sect. of green Ser. Bn. rare, Py. assoc. with Cp in scattered zones. Weak-Nil kaolinization.		1:1		S	M	M-S	2-3 cm. Ser. Qtz veins - Dom. @ 80° to CA		24 80°			18.30 to 21.30 1802	.36	.005			Soft
		1:3		S	W	M-S	" Moly & Cp in Qtz.		20 60°			21.30 to 24.30 1803	.14	.005			Soft-med
				S	W	M-S	"					24.30 to 27.30 1804	.20	.012			Med.-Soft



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-26
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by:
Overburden:	Sheet No. 2 of 5

Property	Az.	Dip.
Area:	Horiz	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG		
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	REMARKS		
25-20 - abundant black biotite partly chloritic and rare muddy ser. alt. in 5 - 10 cm wide zones. Weak to nil kaolinization	-	1:4		M	M	W	60° & 80° Ser. Qtz Veins.-not abundant		26 45°			27.30 to 30.30 1805	.11	.003			Med-Hard Sporadic siliceous sections
"	-			M	M	-	Dom. 80° to 60° Ser. Qtz with c.p. and Moly		14 45°			30.30 to 33.30 1806	.35	.041			"
"	-			M-S	M-S	-	Dom. C.p., Mo. Vein @ 60° to 80° parallel vein have rare Cp		16 80° 60°			33.30 to 36.30 1807	.11	.007			"
"	-	1:3		M	M	-	"		19 80° 60°			36.30 to 39.30 1808	.21	.030			Hard .24, .034 18.21 check
"	1:5	1:3		M	M	W	"	39.93, 20° Shr.	22 60° 80°			39.30 to 42.30 1809	.20	.007			Med.-Hard
43.00-44.50 intensive emerald green ser. alt.-no assoc. with fault. Where emerald green alt. is encountered all plag. & biotite are alt to same.	-	1:4		S	W	M-S	Weak Ser. Qtz. vein. ing @ 80° to 60°		22 45° 60°			42.30 to 45.30 1810	.17	.006			Med.-Soft
	-	1:1		W-M	W	W	Mod. @ 60° & 80° at 48.10-48.20. Qtz. vein-minor Cp @ 90° to CA		19 80° 45° 60°			45.30 to 48.30 1811	.16	.003			Med.-Hard



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-26
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by K.M. Newman
Overburden:	Sheet No. 3 of 5

Property	Az.	Dip:
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS		GRAPHIC LOG	REMARKS
	Py to Cp	Bn to Cp	% Py	Ms Ser.	Cl spar	Ep Ser.			Frac. Den.	%			Cu %	Mo %		
Fairly siliceous, Ser. Qtz. veins are widely spaced.		1:2		M	W	-	Weak @ 80°, 45°	50.20 - 50.50	19			48.30	.10	.001		Med
								20° Shr. kaolinized	60°			51.30				
									20°			1812				
Moly slips in shrd Qtz vein @ 20° at 51.75	1:3	1:3		M	M	M	At 53.80 1 cm Qtz. vein @ 45° in 25 cm. band of green Ser.		21			51.30	.13	.001		Med.-Soft
									80°			54.30				
									40°			1813				
		1:5		M	M-S	W-M	Widely spaced Ser. Qtz. 0.5 cm wide with cp @ 80° to 60°	57.00 - 57.35	15			54.30	.09	.001		"
								20° shr. with hematite vein	80°			57.30				
									45°			1814				
Widely spaced, narrow (0.5 cm) Ser. Qtz veins weakly min. with c.p. tr. of moly. at 59.54 20° fault (.05 cm wide) displaces Ser. Qtz vein. Fault cemented with Qtz & hematite.				M	M	W	@ 60.05 2 cm Qtz vein @ 45° with cp		17			57.30	.09	.001		Hard
									80°			60.30				
									40°			60.30				
									30°			1815				
60.65-61.63 intense emerald green. sericite alt. assoc. with the fault gouge zone.				M	W	M-S	Qtz. veining (wide spaced) at 90° to CA contain cp	61.20 - 61.63	28			60.30	.21	.006		Med. Soft
								gouge @ 45°	80°			63.30				
									45°			63.30				
									30°			1816				
Weak Qtz.-ser. veining with diss. cp. 65.30 - 66.30 Emerald green Ser. & Qtz patches. Mod. kaolinization-66.00-66.30 due to fault				M	M	M	@ 66.05 4 cm Qtz. vein with cp @ 80°		20			63.30	.25	.046		63.30-65.30 hard 65.30-66.30 soft
									80°			66.30				
									60°			66.30				
									45°			1817				
				M	M-S	M	Weak Ser. Qtz veining at 60° to CA	66.80 - 67.25	26			66.30	.24	.018		Soft
								Gouge @ 45°	60°			69.30				
									80°			69.30				
									20°			1818				



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82-26
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 4 of 5

Property	Az.	Dip.
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO	ASSAYS		GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ms	Cl	Ep			Frac. Den.	%			Cu %	Mo %	REMARKS	
Strong emerald green Alt. due to gouge zones		0:1		M	W	S	0.5 cm Ser Qtz with diss cp @ 85° scat- tered 2-3 cm Qtz veins @ 60° with patchy cp	69.00 - 69.45 Gouge @ 45° 70.40 - 70.50 Gouge @ 45°	23			69.30 to 72.30 1819	.17	.003		Soft
Ser. Qtz veining increasing. Scattered hematite staining on fracture.		1:4		M-S	M	M	Ser. Qtz veins @ 80° 60° 20° @ 73.60. 2 cm. Qtz vein with Moly Cp @ 60°		30 45° 60° 80°			72.30 to 75.30 1820	.18	.004		"
Weak to mod. kaolinization near gouge zone.				S	M	W-M	"	78.00 - 78.60 45° Sbr & gouge	28 45° 60°			75.30 to 78.30 1822	.26	.039		" 18.21 check of 18.08
				S	M	W-M	"		24 60° 45°			78.30 to 81.30 1823	.11	.006		"
				S	M-S	W-M	"		20 45° 80° 60°			81.30 to 84.30 1824	.18	.029		Mod.
84.55 - 85.05 Abundant concentration of magnetite (30%) CP replacing mag.				S	M-S	M	Moly & Cp in Qtz. Qtz veins 1-3 cm wide @ 60° & 80°					84.30 to 87.30 1825	.15	.007		Mod.
				S	M-S	M	" 88.30 1 cm. Qtz. Hema Vein @ 20°					87.30 to 90.30 1826	.26	.059		Soft-Med.





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## DIAMOND DRILL HOLE LOG

Latitude: 96,160.11	Hole No. 82-27
Departure: 99,721.56	Commenced: June 15/82
Elevation: 4025.66	Completed: June 15/82
Length: 91.44	Logged by: K.M. Newman
Overburden: 15.50	Sheet No. 1 of 4

Property Lake Zone	Az.	Dip: -90°
Area: Highland Valley	Horiz.	Vert.
Purpose: Infill		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ser.	KSpar	Green Ser.			Frac Den	%			Cu %	Mo %			REMARKS
0.0 - 15.50 Overburden 15 cm of till recovered.												to					
15.50 - 77.30 Bethsaida G.D.																	
15.50 - 22.86 Zone of Oxidization and weathering. Strong argillic alt. limonite staining and in parts picrochlorite on fracture planes. Malachite on fractures, and lining weathering vugs.		2:1		S	-	M	Ser. Qtz veins with Bn.Cp dom @ 80° to 20°			30 25°		15.50 to 18.50	.68	.004	.54		Soft. Strongly weathered
		2:1		S	-	W	"			60° 80°		18.50 to 21.50					"
										10 40°		18.50 to 21.50	.31	.002	.14		"
										60° 80°		21.50 to 1857					"
22.86-26.00 Limonite on fracture planes becoming rare. Strong ser. alt. kaolinization moderate to strong. Biotite mainly alt. to muddy Ser. or emerald green Ser.		4:1		S	-	W	Dominant Min. Bn Cp veins 40° 80°			22 45°		21.50 to 24.50	1.15	.003	.03		"
										60° 80°		24.50 to 1858					"
15.50-29.75 Biotite mainly alt. to Ser. 29.75-33.20 a few chloritic diotite crystals.		5:1		S	-	S	Dominant Min Ser. Qtz veins @ 20° and 60°			17 60°		24.50 to 27.50	.74	.021	.003		Soft-Strong kaolinization
										40°		27.50 to 1859					"
		5:1		S	W	S	"			18		27.50 to 30.50	.50	.008	.003		"
							Intense silvery ser. alt.			40° 60° 80°		30.50 to 1860					"
Strong silvery ser. veining, some hematite staining on fracture planes.		3:1		S	W	S-M	" Dominant Vein Sys. @ 20°			26 40°		30.50 to 33.50	.47	.013			"
										60°		33.50 to 1861					"





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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82.27
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 2 of 4

Property	Az.	Dip
Area:	Horiz.	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	REMARKS
	Py to Cp	Bn to Cp	% Py	Ser.	K'spar	Green Ser.			Frac. Den.	%			Cu %	Mo %			
Strong silvery Ser. & kaolinization		3:1		S	W	M-S	2-3 cm Ser. Qtz.		17			33.50	.81	.004		Soft	
							with Bn. Cp. Dom @ 20° & 40° Secondary @ 60°		80° 40°			36.50					
												1862					
36.50-42.70 Intense kaolinization along with emerald green ser. alt. Qtz. Ser. veining is becoming wider and stronger. There is a variability in Bn. & Co ratios. Some 20° veins are rich in Cp, weak in Bn and over a short distance the ration changes again.		2:1		S	-	M-S	"		19 80° 40°			36.50 39.50	.64	.017		"	
												1863					
		2:1		S	-	S	"		16 80° 40° 60°			39.50 42.50	.74	.024		"	
												1864					
		1:1		S	-	S	"	42.70 - 44.90 fault gouge @ 20°	20 60° 40° 20°			42.50 45.50	1.36	.008		"	
												1865					
44.90-47.40 Strong quartz veining with possible 25° contacts. Pyrite to Cp ration 1:1	1:1	1:1	1%	S	-	W-M						45.50	.25	.008		Hard due to Qtz. veining.	
												48.50					
												1866					
Core is very blocky.				S	W	S	at 51.80 1 cm Cp @ 40° to CA.					48.50	.37	.002		Med.-soft	
												51.50				.43, .002	
												1867				1868 check	
53.65, K'spar - weakly developed. From 55.00-91.44 the core is very blocky average length of 8 cm.				S	M	M	20° to 60° vein Ser. Qtz. veins					51.50	.43	.007		Med.-Soft	
												54.50					
												1869					



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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82.27
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 3 of 4

Property	Az.	Dip.	Elevation:	Completed:
Area:	Horiz.	Vert.	Length:	Logged by: K.M. Newman
Purpose:	Overburden:			Sheet No. 3 of 4

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE	HOLE	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ser.	Green K'spar	Ser.			Frac. Den.	%	REC. %	DEPTH TAG NO.	Cu %	Mo %			REMARKS
Silver Ser. & Qtz veining with Bn to Cp. becomes dominant at 20° to almost parallel to CA. 45° veining is the next imp. min. vein system.				S	-	-			36			54.50	.78	.011			Soft
									40°			to					
									60°			57.50					
									80°			1870					
Biotite is mainly alt. to chlorite 20° shearing is also contributing to blocky nature of the core. Mod. to strong kaolinization.				S	-	-			35			57.50	.64	.005			"
									60°			to					
									45°			60.50					
									Parallel			1871					
70.70-80.00 good 3-5 cm Ser. Qtz. veining dominant at 40° and 60° with a minor number at 20° to the CA. Moderate kaolinization, strong sericite alt.				S	W	W			32			60.50	.50	.003			"
									60°			to					
									40°			63.50					
												1872					
				S	W	W			34			63.50	.57	.001			"
									60°			to					
									80°			66.50					
												1873					
From 50.00-91.44 core tube was pulled almost every 4 foot run due to the blocky nature of the rock.				S	W	-			36			66.50	.64	.011			"
									40°			to					
									60°			69.50					
												1874					
				S	W-M	-			32			69.50	.48	.004			"
									40°			to					
									60°			72.50					
												1875					
				S	W	-			40			72.50	.40	.011			"
									40°			to					
									60°			75.50					
									parallel			1876					



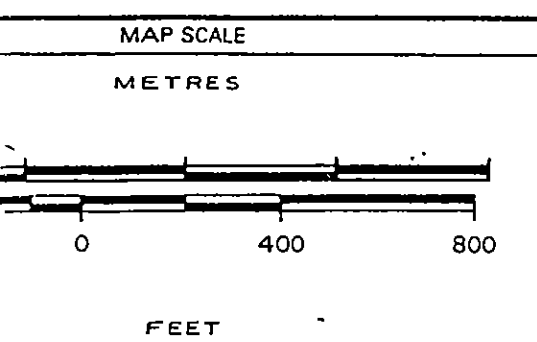
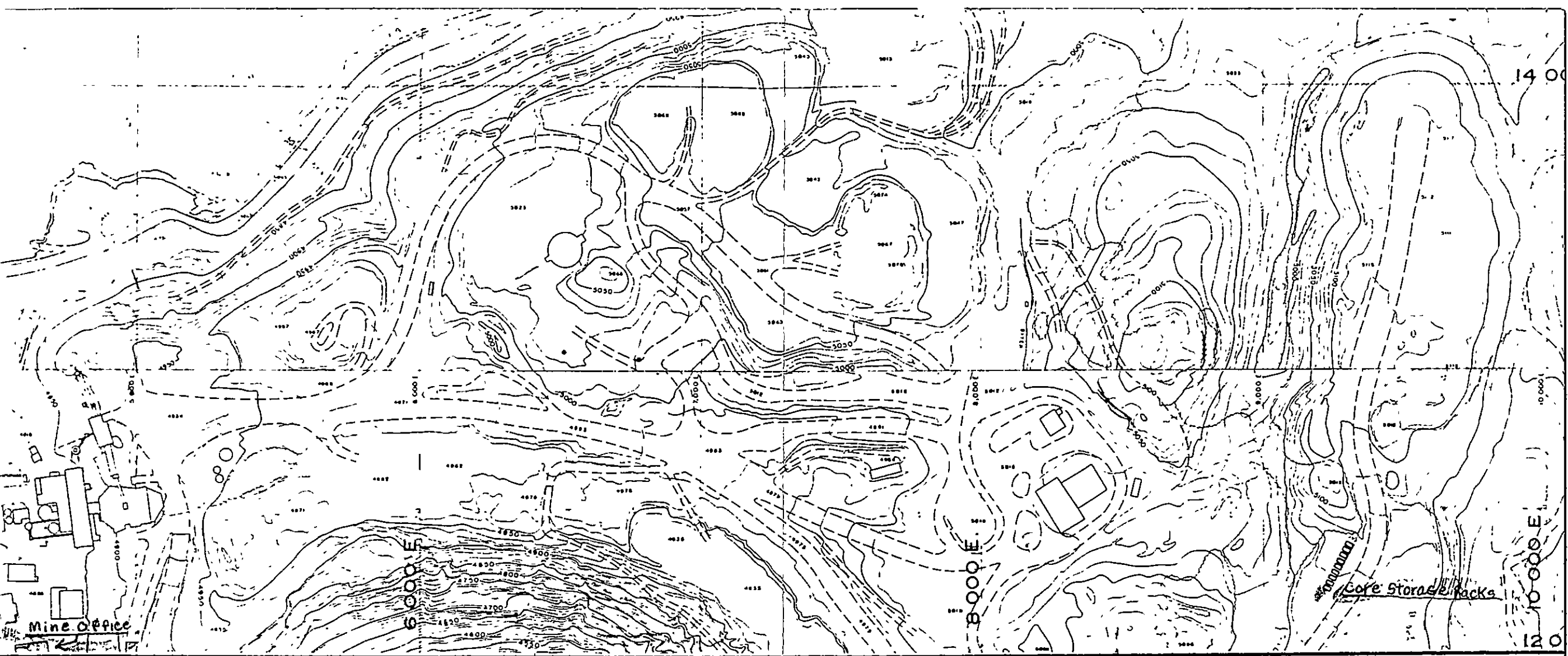
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## DIAMOND DRILL HOLE LOG

Latitude:	Hole No. 82.27
Departure:	Commenced:
Elevation:	Completed:
Length:	Logged by: K.M. Newman
Overburden:	Sheet No. 4 of 4

Property	Az.	Dip.
Area:	Horiz	Vert.
Purpose:		

GENERAL DESCRIPTION (Geology)	SULPHIDES			ALTERATION			VEINING	FAULTS	RQD		CORE REC. %	HOLE DEPTH TAG NO.	ASSAYS			GRAPHIC LOG	
	Py to Cp	Bn to Cp	% Py	Ser.	K'spar	Green Ser.			Frac. Den.	%			Cu %	Mo %		REMARKS	
77.30-78.10 Pink Aplite Dyke contacts at 45° to CA. Qtz veins with Bn Cp @ 45° & 20°				S	W	-			38 60° 80°			75.50 to 78.50 1877	.67	.006			Mod. Soft
78.10-91.44 Bethsaida G.D. Strong to mod. kaolinization, strong Ser. alt. Weak K'spar. veins of Ser. Qtz. at 20° to 45° to CA				S	W	W			40 80° parallel 60°			78.50 to 81.50 1878	.72	.010			Soft
Biotite largely alt. to ser.		3:1		S	W-M	M	Parallel to CA	83.50 - 84.40 gouge zone 40°	43 20° 80° 10°			81.50 to 84.50 1879	.55	.004			Soft .85, .005 1880 Check
78.10 to end of hole very coarse Bn & cp patches - 1 to 3 cm in Qtz. ser. veins that are dominantly parallel to the CA		4:1		S	W	M	"		33 40° 80° 10°			84.50 to 87.50 1881	.86	.002			"
The sericite is coarse & silvery Qtz. veins are quite vuggy and are partly filled with Bn, Cp.		4:1		S	M	W	"		43 40° parallel 80°			87.50 to 90.50	2.00	.003			"
		4:1		S	W	W	"		20 parallel 80° 60°			90.50 to 91.44	.66	.002			"
												to					



REVISIONS	No	Date	MADE BY	DESCRIPTION
	1		<i>K.M.H.</i>	
	2			
	3			
	4			
	5			
	DATE	DRAWN BY	CHECKED	APPROVED
	JULY, 1980	a.m.b.	E.A.	



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HIGHLAND VALLEY  
Core Storage - Lake Zone  
1982 Drilling

OFFICE	DEPARTMENT	MAP INDEX NUMBER	SCALE	DRAWN BY
VANCOUVER			1" = 400'	

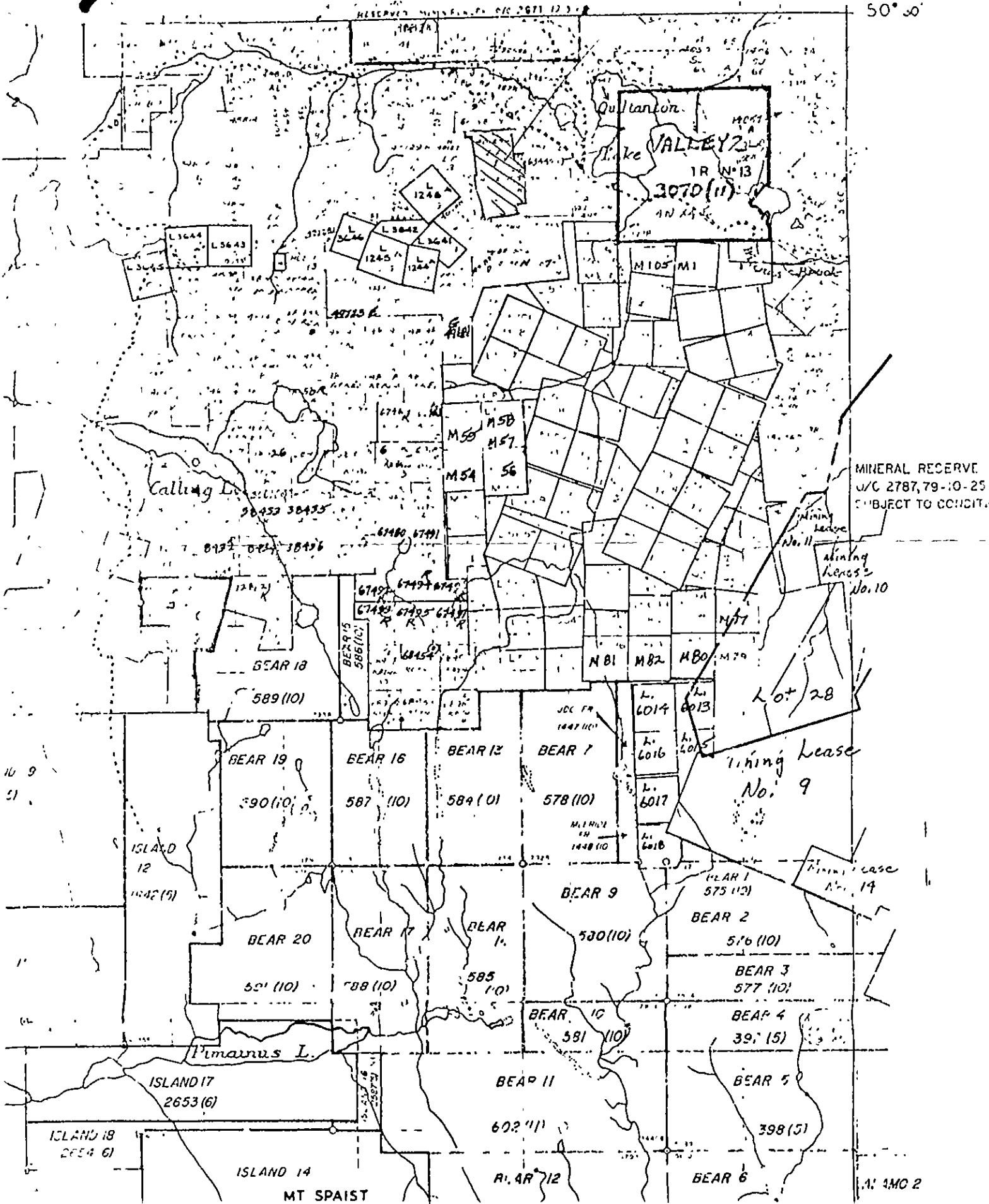
10,690

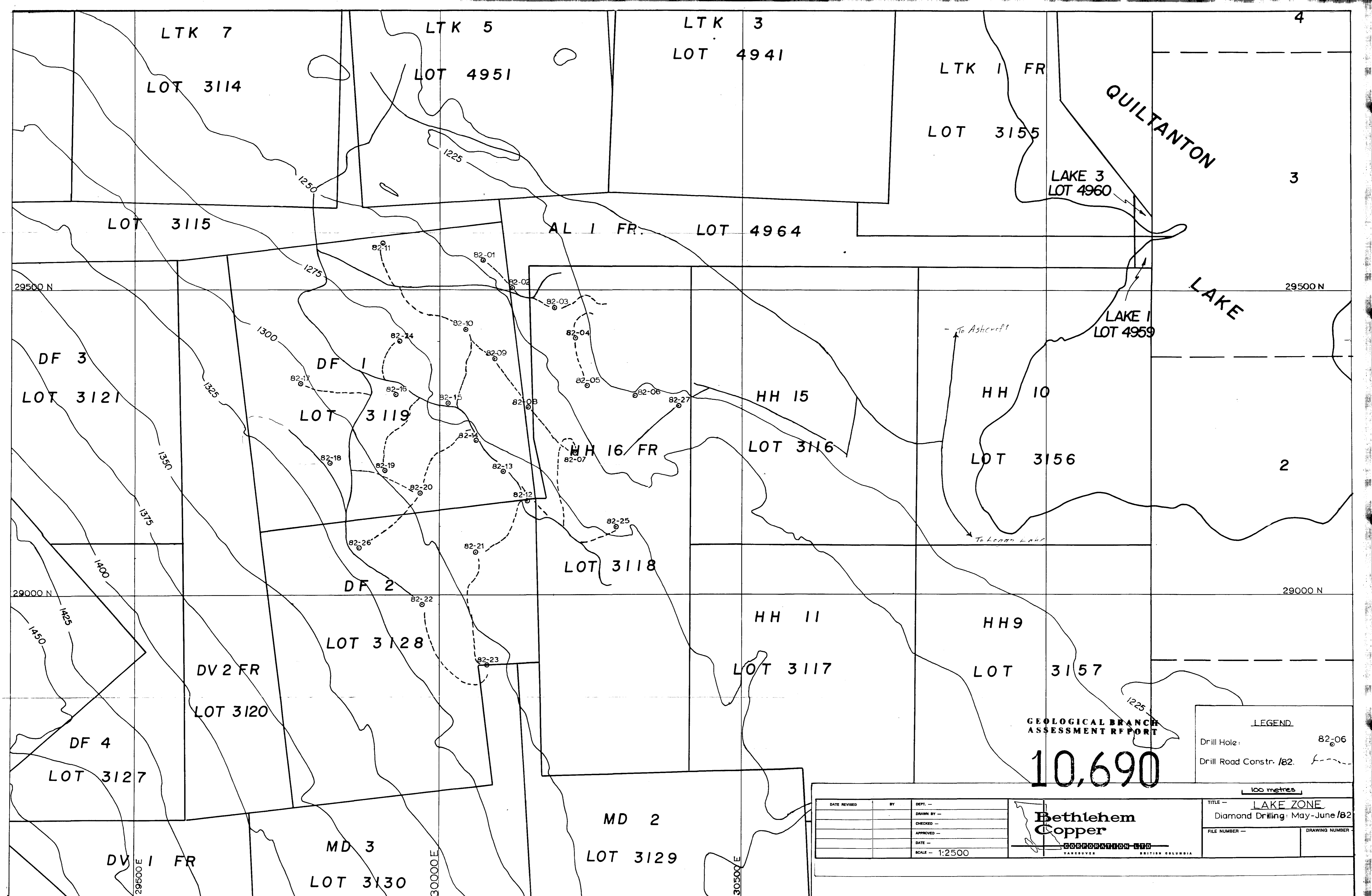
# 10,690

1 cm = 500 m.  
Chart map.

AR 10690

121° 00'  
50° 30'





GEOLOGICAL BRANCH  
ASSESSMENT REPORT

10,690

LEGEND

Drill Hole:	82-06
Drill Road Constr. /82:	

100 metres

DATE REVISED	BY	DEPT. —

SCALE — 1:2500



TITLE — LAKE ZONE	
Diamond Drilling: May-June /82	
FILE NUMBER —	DRAWING NUMBER —