LD4 + LD5

896346

BECHTEL CORPORATION
GEOLOGIC LOG OF DRILL HOLE

SHEET 1 OF 20
HOLE NO. LD#4

PROJECT Valley Copper, Highland Valley ANGLE FROM HORIZ. 90° BEARING -
LOCATION N 122,110 E 67,130 BEGUN 12/11/69 COMPLETED 2/2/70
OVERBURDEN 691+ DEPTH DRILLED INTO ROCK 0 TOTAL DEPTH OF HOLE 691.0'
ELEV. WATER TABLE ______ NO. CORE BOXES 25 NO. SAMPLES TAKEN Continuous
CORE RECOVERY (%) 71.6 FEET 495.0' MODEL & MAKE OF DRILL 35A Boyles Brs. Truck Mnt.
GROUND ELEV. 3965'± HOLE LOGGED BY P. A. Mote DRILLER Inspiration

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
Rock bit to set 9.0' of H casing. Set 100.0' of NX casing. NQ(B) casing to 369.0'. BQ (A) casing to 371.0'. No casing from 371.0' to 691.0'. Drilling with water.	30				3960	5		0-1.5' SOIL, sandy, silty, gravelly. 1.5'-160.0' VOLCANICS, deep reddish brown, highly visicular, fractured and weathered. Some 45° jointing. Much secondarily deposited $MgCO_3$ $MgCO_3$ is found in the joints, fractures and vesicles. Rock very poor.
					NX casing			
Water loss at top of hole = 90° Water loss at 3' = 100%	82				3955	10		--Fracturing increases as does the calcium replacement.
From o' to 3' drilling was hard. At 3' material became sandy with cobbles. At 6' material became hard once again.	83				3950	15		--Abundant carbonate
Water loss approximately 50%.	74				3945	20		--Fracturing less, vesicles a bit more abundant. Jointing more apparent.
	100				3940	25		
90% water loss 27' to 32'. Head drop test at least 10'/min.	100							
Cased hole to 35' with NX.	86				3935	30		Very fractured.

Hole Size NX

HOLE NO. LD#4
SITE Lower Dam Site

SHEET 2 OF 20

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD#4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
								--High in Carbonate
								--Vesicles becoming smaller
	100				3930	35		--Breccia w/$MgCO_3$ matrix
								--High in Carbonate
	90				3925	40		
	25				3920	45		
	0							
	100				3915	50		--Rock very poor, secondary cementing w/$MgCO_3$, Breccia w/$CO_3^=$ matrix fragments, vesicular and non-vesicular, red and black cemented together
	100							
					3910	55		--material becoming almost entirely black, more dense, vesicles disappearing.
	100							
					3905	60		
	42							
					3900	65		--material becoming quite dens and non-vesicular

Hole Size NX

HOLE NO. LD#4

SITE Lower Dam Site

SHEET 3 OF 20

PROJECT: Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. #LD 4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
Water loss 90% at 71'. Cased to 73". Head drop test 10'/min.	60							Volcanics becoming pinkish, badly weathered in places, vesicles disappearing.
	20				3890	75		
	0				3885	80		---Material quite pink, has baked appearance.
	53							---Fracturing somewhat less, joints beginning to show 45° dipping trend
Water loss 80' - 100%	100				3880	85		
	100							
	100							
					3875	90		
Casing depths for page I H - 9.0' NX - 100.0' NQ(B)- 369.0' BQ(A)- 371.0'	100							
	100							
	60				3870	95		---Material grading to brown. Secondary mineralization in joints and fractures.
	60							
	50				B casing	100		---Becoming more fractured
	50							---Vesicles increasing
	100				3860	105		---Fractured becoming significantly less; color changing from brown to grey.

Hole Size NX-NQ(B)

HOLE NO. LD-4

SITE Lower Dam Site

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

SHEET 4 OF 20

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
	84							Vesicles becoming oriented and filled with $CO_3^{=}$.
					3855	110		Rock good
	100							
	100							
	100				3850	115		Orientation of vesicles disappears and become large in size. 5" fractures. White to tan ground water deposition
	100							Volcanics turning black
					3845	120		
Water loss 100% until casing went to 207'.	100							
	100				3840	125		
	100							Vesicles become momentarily smaller
	100				3835	130		
	62							
					3830	135		
	100							Color Black
	100							
					3825	140		
	100							

Hole Size NQ(B)

HOLE NO. LD-4

SITE Lower Dam

SHEET 5 OF 20

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE TESTS: PRESSURE P.S.I.	PRESSURE TESTS: TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
								--Vesicles become reoriented
	100				3820	145		
	86							
	85							Rock is good - hard.
	100				3815	150		
	40				3810	155		
	0							
	100				3805	160		160.0' TO 280.5' VOLCANIC AND INTRUSIVE DEBRIS
	94							Volcanic ash Breccia, volcanic, granitic, quartz fragments
					3800	165		Organic zone - small piece of wood.
	100							--Material soft, nearly talcose
	62				3795	170		>Intrusive boulder
	100							
	30				3790	175		--Brecciated fragments generally intrusives.

Hole Size NQ(B)

HOLE NO. LD-4

SITE Lower Dam

PROJECT Valley Copper, Highland Valley, B.C., #8042-305

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE TESTS: PRESSURE P.S.I.	PRESSURE TESTS: TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
								Intrusive fragments becoming quite large
	50				3785	180		
	100							
	100				3780	185		
	53							
	20				3775	190		
	60							
	60							
					3770	195		
	40							
	0 / 20				3765	200		
	17							
	85				3760	205		
								--Volcanic ash with fine quartz and coarse volcanic particles Interbedded wood chips.
	30							
	60							
	20				3755	210		

Hole Size NQ(B)

HOLE NO. LD-4
SITE Lower Dam

SHEET 7 OF 20

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
								---Ash with interbedded wood particles continue
	55							
					3750	215		
	55							--Volcanic ash becomes very black.
	100				3745	220		
	20							
	34				3740	225		
	12				3735	230		
	36				3730	235		
	20							
					3725	240		--Momentarily coarse
	40							
	50							
	28				3720	245		

Hole Size NQ(B)

HOLE NO. LD-4
SITE Lower Dam

SHEET 8 OF 20

PROJECT: Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
Water loss 0-10%								Ash becoming grey.
	57							
					3715	250		
								Buff colored zone - high in quartz and volcanic fragments 1/16"
	50							
								Matrix becoming yellow, large dark volcanic fragments.
					3710	255		
								Signs of differential settling.
	30							Intrusive rock.
	20							
					3705	260		
								Coarse grained Breccia w/ white line grained matrix.
	60							Intrusive rock.
								Volcanic ash, tannish brown, very fine.
	15				3700	265		
								Angular, highly vesicular volcanic fragments become involved.
	90							
					3695	270		
	26							
	30							
					3690	275		
	00							
	50							
					3685	280		
	30							280.5'-305' VOLCANIC FLOW Volcanic flow, grey - small vesicles. Calcite, $CaCO_3$, filled cracks and holes.

Hole Size NQ(B)

HOLE NO. LD-4
SITE Lower Dam

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
Water loss 20%								Volcanic flow continues
	82							
					3680	285		----Calcite deposition disappears
	80							
	100							
	75				3675	290		
	72							
	100							
					3670	295		
	80							
	70							
	60							
	80							
					3665	300		
	100							
	100							
	90							
	50							
					3660	305		305' to 691± VOLCANIC DEBRIS
	100							Volcanic ash, black, large angular volcanic pieces; wood particles also.
	40							
	8							Intrusive rock.
					3655	310		Volcanics fragments decrease in size.
	30							
	100							Wood chip
								Wood chip
	27							
					3650	315		
	70							
	20							

Hole Size NQ(B)

HOLE NO. LD-4

SITE Lower Dam

SHEET 10 OF 20

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE TESTS: PRESSURE P.S.I.	PRESSURE TESTS: TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
								--wood chip
								--organic clay
	13							
	50				3645	320		--Volcanic ash Breccia
	80							--Organic clay--some roots visible; dark brown.
	0							
	50				3640	325		
	50							
					3635	330		--Clay grades to a fine grained ash with wood chips; dark grey.
	30							
	28				3630	335		--Soft talcose particle.
	37							
					3625	340		
	0							
	8							
					3620	345		
	48							
					3615	350		
	66							

Hole Size NQ(B)

HOLE NO. LD-4

SITE Lower Dam

SHEET 11 OF 20

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE TESTS: PRESSURE P.S.I.	PRESSURE TESTS: TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
								Ash continues
	20				3610	355		
Artesian condition at 358 feet approximately. At 1.5 feet above ground surface the condition carried 34 psi or approximately a 79.5 foot head above the surface elevation. Total head 437.5 feet. Water temp. 40°-42°.	50							
	26							---organic stratified(slightly clay approx. dip 50°.
	40				3605	360		
	100							---Interbedded silts and clays highly fractured; greyish brown.
	46				3600	365		
	50							
	10							
	10							
	66				A casing	370		
					AQ hole			---Shale, dark grey to brown; brittle along bedding planes; soft, carves easily with knife. No reaction with HCl. No sand size particles.
	75				3590	375		
	97				3585	380		
	72							
	60				3580	385		

Hole Size NQ(B) - BQ(A)-AQ

HOLE NO. LD-4

SITE Lower Dam

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

SHEET 12 OF 20

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE TESTS: PRESSURE P.S.I.	PRESSURE TESTS: TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
								Shale continues
	80							
					3575	390		
	98							
					3570	395		
								-Contact 45° dip.
	100							-Breccia consisting of sandstone, limestone, volcanic and quartz particles; cemented by a dark volcanic ash. Particle size 1/8"-2".
					3565	400		-grades to finer particles 1/10"-1/64" - ave. 1/64" Limestone fragments disappear.
	100							
					3560	405		
	100							
					3555	410		
								-Wood chip.
	100							
					3550	415		
	100							
					3545	420		

Hole Size AQ

HOLE NO. LD-4

SITE Lower Dam

SHEET 13 OF 20

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
	100							Volcanic ash Breccia continues.
					3540	425		
	100							
					3535	430		
	100							
					3530	435		
	100							
					3525	440		
	100							
					3520	445		
								Wood chips
	100							
					3515	450		
	100							
					3510	455		

Hole Size AQ

HOLE NO. LD-4

SITE Lower Dam

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

SHEET 14 OF 20

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
	100							Volcanic ash Breccia continues; many wood fragments visible.
					3505	460		
	100							
					3500	465		
	100							
					3495	470		
	100							
					3490	475		
	100							
					3485	480		
	100							
					3480	485		
	100							
					3475	490		

Hole Size AQ

HOLE NO. LD-4

SITE Lower Dam

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
	100							Ash becoming lighter grey
					3470	495		
								Ash grading coarse
								Wood chip
	100							
					3465	500		Intrusive rock
	100							
					3460	505		Shale, dark brown, soft, easily broken along bedding planes; no fizz with HCl. No sand grains.
	100							
					3455	510		Breccia of Volcanics (some show rounding) intrusives; quartz, 3" particles size.
								Intrusive rock
Water Loss 10%	100							Volcanic Ash Breccia.
					3450	515		Shale as above.
								Ash Breccia
	100							
					3445	520		Fine ash with wood chips.
	100							
					3440	525		Angular intrusive fragment involved in fine-grained black ash.

Hole Size AQ

HOLE NO. LD-4

SITE Lower Dam

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
	100							Volcanic ash with intrusive fragments continue
	100				3435	530		
	100				3430	535		Well cemented sand (S.S.) Wood chips
	100				3425	540		Water rounded Volcanics; grading to angular Volcanic ash, black.
Water loss 20-30%	100				3420	545		Very fine wood chips abundant 545'-555'
	100				3415	550		
	100				3410	555		Ash turns grey
	100				3405	560		Wood chip

Hole Size AQ

HOLE NO. LD-4
SITE Lower Dam

SHEET 17 OF 20

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
								Fine grey Volcanic ash.
	92				3400	565		Grading to black Volcanic ash with intrusive fragments to 2".
Water loss 0-10%	100							
	100				3395	570		
	100				3390	575		Ash now contains rounded Volcanics.
								Water transported quartzose sand.
	100				3385	580		
								Conglomerate; well-rounded Volcanic, intrusive and quartz particles. Matrix high in SiO_2. Grey to dark grey.
	73				3380	585		
	80							
	100				3375	590		
	100							
					3370	595		

Hole Size AQ

HOLE NO. LD-4

SITE Lower Dam

SHEET 18 OF 20

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
								Conglomerate continues
	100							
					3365	600		
	50							
					3360	605		
	62							
	100				3355	610		
	100							
	100							
					3350	615		Intrusive boulder
	100							
					3355	620		
	100							
					3350	625		
	100							
					3345	630		
								Conglomerate

Hole Size AQ

HOLE NO. LD-4

SITE Lower Dam

SHEET 19 OF 20

PROJECT Valley Copper , Highland Valley, B.C. #8042-305

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
Water loss 40%	80							Conglomerate matrix now green perhaps metamorphosed; possible slicks.
					3330	635		-Particles not as well-rounded as above the intrusive boulder.
Water loss 0	50							-Intrusive rock.
								-Breccia with some lime cementing.
	60				3325	640		
	45							
	20				3320	645		Volcanic fragments
	33							Intrusive fragments
	50				3315	650		--Conglomerate with dark, sandy (Volcanic)Matrix.
	50							
	100							
					3310	655		--Black fine-grained Volcanic ash.
	75							
	100				3305	660		---Conglomerate
	85							---Intrusive Rock
	66				3300	665		

Hole Size AQ

HOLE NO. LD-4

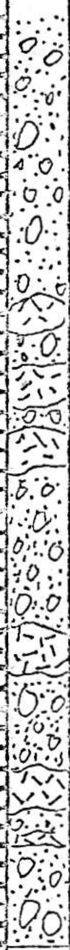
SITE Lower Dam

SHEET 20 OF 20

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-4

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
								Conglomerate continues
	100				3295	670		
	80				3290	675		Intrusive Rocks
	100							
	73				3285	680		
Summary of casing depth: H - 9.0' NX - 100.0' NQ(B) - 369.0' BQ(A) - 371.0'	65							
	80				3280	685		Intrusive Rocks.
	50							
	60							
	100				3275	690		
								TOTAL DEPTH 691 FEET



Hole Size AQ

HOLE NO. LD-4

SITE Lower Dam

BECHTEL CORPORATION

SHEET 1 OF 12

GEOLOGIC LOG OF DRILL HOLE

HOLE NO. LD-5

PROJECT Valley Copper, Highland Valley, BC HOLE FROM HORIZ. 90° BEARING -

LOCATION N 123,500 E65,900 BEGUN Jan. 18, 1970 COMPLETED 2/5/70

OVERBURDEN 411± DEPTH DRILLED INTO ROCK 0 TOTAL DEPTH OF HOLE 411'

ELEV. WATER TABLE ? NO. CORE BOXES 6 NO. SAMPLES TAKEN Continuous

CORE RECOVERY (%) 46.7 FEET 191.5 MODEL & MAKE OF DRILL Boyles Bros. Skid Rig

GROUND ELEV. 4050' HOLE LOGGED BY P. Mote DRILLER Inspiration

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG / Samples	CLASSIFICATION AND PHYSICAL CONDITION
Becker rig (8000 ft/lbs force) sank starter hole to 29'. Initial information based on this work. Sampling continuous.								0-227' OVERBURDEN Dense grey-brown till; coarse sandy silt, with trace of organic.
					4045	5		cobbles and fine gravel.
H casing to 26'; NX casing to 150'; NQ casing to 345'; Drilling with mud until using diamond impregnated bits.								Dense brown, dry to slightly moist till conglomerate; cobbles.
					4040	10		
Drilling with mud to 280'. Finished hole with water.					4035	15		Brown silty sand; trace of gravel and cobbles (intrusive and extrusive igneous).
Mud return 100%.								
					4030	20		
	36				4025	25		Sand, gravel-cobbles intrusive and volcanic (red and black)
	100				4020	30		Volcanic pebbles show rounding.

Hole Size 4" NX

HOLE NO. LD-5

SITE Lower Dam

PROJECT Valley Copper, Highland Valley, B.C., #8042-305

SHEET 2 OF 12

HOLE NO. LD-5

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE TESTS: PRESSURE P.S.I.	PRESSURE TESTS: TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
Mud return 100%	44							Intrusive fragment sand size to 6-10 inches in diameter. Volcanic pieces--many show water rounding. Material unsorted--till perhaps.
	20				4015	35		
	13							
	17				4010	40		
	25				4005	45		
	48							
	46				4000	50		
	27				3995	55		
	56							---Rounding in Volcanics disappearing; intrusive material smaller in size.
	35				3990	60		
	0				3985	65		

Hole Size NX

HOLE NO. LD-5

SITE Lower Dam

SHEET 3 OF 12

PROJECT Valley Copper, Highland Valley B.C. #8042-305

HOLE NO. LD-5

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
	25							--Intrusive and Volcanic grave and cobbles--average size 2".
	25				3980	70		--Size 1".
	12				3975	75		--Size 2". If stratified, unable to detect because of poor recovery.
	16				3970	80		
	0							
	46				3965	85		---Size 3".
	11							
	100				3960	90		
	100							
	48				3955	95		
	66				3950	100		
	100							
	11							

Hole Size NX

HOLE NO. LD-5

SITE Lower Dam

SHEET 4 OF 12

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-5

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE TESTS: PRESSURE P.S.I.	PRESSURE TESTS: TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
								Intrusive and volcanic gravels continue.
	50				3945	105		
	50							--Silty sand with sandstone layers 2"-6" thick. Color brown. Dense.
					3940	110		--Moist.
	75							
	100							
					3935	115		--Becoming very rounded.
	50							
	50							
					3930	120		
								--Trace of Clay
	48							
					3925	125		
	87							
					3920	130		
	87							
					3915	135		
	100							

Hole Size NX

HOLE NO. LD-5

SITE Lower Dam

SHEET 5 OF 12

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-5

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE TESTS: PRESSURE P.S.I.	PRESSURE TESTS: TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
100% water return								Dense, moist, fine sand, brown trace of clay.
	66				3910	140		Sorting throughout.
					3905	145		Fine grey sand layers continue
	33							
Reduced to NQ casing (rods)					3900	150		
	78							
					3895	155		
	100							
					3890	160		---Cobbles of Volcanics.
								very hard
	50							
					3885	165		---Siltstone layer.
								---Intrusive boulder
	100							
					3880	170		---Angular intrusive and volcanic gravel ¼".

Hole Size NX-NQ

HOLE NO. LD-5

SITE Lower Dam

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

SHEET 6 OF 12

HOLE NO. LD-5

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE TESTS: PRESSURE P.S.I.	PRESSURE TESTS: TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
	100							---Cemented silt (siltstone) trace of gravel, med. sand-brown.
					3875	175		
	100							---Stratified sands and silty.
								---Intrusive boulder
								---Siltstone with trace of Volcanic cobbles.
	100				3870	180		
	100				3865	185		
								---Volcanics disappear.
	100				3860	190		
	100				3855	195		---Volcanic boulder
								---Silt with angular to rounded particles. Most Volcanic. Reddish brown.
	85				3850	200		
	66							---Sand becomes more intrusive
	48				3845	205		

Hole Size NQ

HOLE NO. LD-5

SITE Lower Dam

SHEET 7 OF 12

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-5

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE TESTS: PRESSURE P.S.I.	PRESSURE TESTS: TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
Momentary return of 50%								Intrusive particles increasing in number.
Back to 100% return	19				3840	210		
	63				3835	215		Mixture of intrusive and Volcanic gravels. Size increasing with depth.
	66							
	99				3830	220		
	53							
	100				3825	225		
	100							
	100				3820	230		227' to 246' VOLCANIC AGGLOMERATE: Pink to brown, Volcanic matrix with vesicular particles Angular; brown red; material fractured and weathered.
	100				3815	235		
	100							
	25				3810	240		

Hole Size NQ

HOLE NO. LD-5

SITE Lower Dam

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

SHEET 8 OF 12

HOLE NO. LD-5

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	ELEVATION	DEPTH	CLASSIFICATION AND PHYSICAL CONDITION
	100			
		3805	245	
	33			246' to 272.5' VOLCANIC FLOW Red-brown, highly vesicular, and fractured. Secondary deposition has occurred in the joints and fractures.
	35	3800	250	
	100			
	80			
	100	3795	255	
	50			
	50	3790	260	
				--Vesicles become oriented.
	50	3785	265	
	50	3780	270	
		3775	275	

Hole Size NQ

HOLE NO. LD-5

SITE Lower Dam

SHEET 9 OF 12

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-5

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
60% Water loss								Volcanic flow continues.
	50				3770	280		
	50							--Vesicles become smaller and less oriented.
	50							
					3765	285		
	66							
	33							Fractures continue
	30							
	100							
	50				3760	290		
80% Water loss	66							
	50				3755	295		
	100				3750	300		
	100							
	100							
	100							
	50							
	0				3745	305		
	0							--Highly fractured.
100% Water loss. Driller called this a sandy zone.	0				3740	310		

Hole Size NQ

HOLE NO. LD-5

SITE Lower Dam

SHEET 10 OF 12

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

HOLE NO. LD-5

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE TESTS: PRESSURE P.S.I.	PRESSURE TESTS: TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
								Volcanic flow continues
90% Water loss	33							
	16							
	48				3735	315		Badly fractured; small vesicles
100% Water loss	3							
					3730	320		
	7				3725	325		
	80							
					3720	330		
	2							
					3715	335		
	10				3710	340		
					3705	345		
End if NQ casing BQ wireline Rods								

Hole Size NQ-BQ

HOLE NO. LD-5

SITE Lower Dam

SHEET 11 OF 12

PROJECT Valley Copper, Highland Valley B.C. #8042-305

HOLE NO. LD-5

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE TESTS: PRESSURE P.S.I.	PRESSURE TESTS: TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
								Volcanic flow continues.
20% Water loss								
								Vesicles very small.
	50				3700	350		
	33							Material becomes very hard but fractured.
	33				3695	355		
	51							
	50							
					3690	360		
	50							
	28				3685	365		
	12							
					3680	370		
								Bottom of flow
								372.5 to 411'+ VOLCANIC AND INTRUSIVE DEBRIS: Sand, green, intrusive.
	22				3675	375		
	70							
					3670	380		---Green intrusive boulder

Hole Size BQ

HOLE NO. LD-5

SITE Lower Dam

PROJECT Valley Copper, Highland Valley, B.C. #8042-305

SHEET 12 OF 12

HOLE NO. LD-5

NOTES ON WATER TABLE LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.,	% CORE RECOVERY	PRESSURE TESTS: LOSS IN G.P.M.	PRESSURE P.S.I.	TIME IN MIN.	ELEVATION	DEPTH	LOG	CLASSIFICATION AND PHYSICAL CONDITION
40% water loss	60				3665	385		Intrusive boulders
	22				3660	390		Volcanic ash with volcanic fragments; black wood and organic zones visible
	13				3655	395		Intrusive rock
	75				3650	400		Wood chips Ash becomes lighter grey.
	60							
	80				3645	405		Highly sheared quartz and intrusive boulder
20% Water loss	65							Soft, silty zone; almost talcose
	85				3640	410		Wood chips
								BOTTOM OF HOLE 411 FEET

Hole Size BQ

HOLE NO. LD-5

SITE Lower Dam