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DRILL HOLE RECORD

Location Que River Area **Property** Mackintosh EL 2/70 **District** Tasmania, Australia. **Bearing (M)** 100° 37' **Hole No** QR 69

Commenced 8.9.1975 **Completed** 13.9.1975 **% Recovery** 99 **Grid bearing (M)** 8.75 **Date** 16.9.1975

Objective To test P and Q lenses between QR's 31 and 34. Section 7650N. **Core size** NQ to 182 m E.O.H. **Logged** C.H. YOUNG

Co-ordinates 7649.6N 5148.5E **Dip** 51° 19' **Alt./R.L.** 689.05

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
0	51.5	99	Clino/Compass	0	51.25	100.5	7649.6	5148.5	689.1	
0	51° 19'	100° 37'	Theodolite	25	51	100.5	7649.1	5164.2	669.6	
20	51	104	Eastman	50	50	100.5	7648.6	5180.1	650.3	36.8 - 39.2 m Disseminated pyrite includes
51	50	104	Single Shot	75	47.5	100.5	7648.1	5196.6	631.5	5 cm massive base metal sulphides.
80	47	104	Camera	100	44.5	101	7647.5	5213.9	613.5	51.5 m 35 cm semi-massive base metal
113	43	105	" "	125	42.5	101.5	7646.7	5232.0	596.3	sulphides.
141	41.5	105.5	" "	150	40.5	103	7645.6	5250.7	579.8	147.6 m 4 cm massive base metal sulphides.
168	39	110	" "	168	39	103.5	7644.5	5264.5	568.3	159.0 - 160.05 m Disseminated to semi-
				182	38.5	104	7643.6	5275.4	559.5	massive pyrite trace base metal sulphides.

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DIAMOND DRILL LOG

Hole Nº QR 69 Page Nº 1.

Feature : Bedding, Foliation, Fragment - size & shape; Shearing, Fault (F), Vein (c carbonate, q quartz)

Mineralization : Trace 1-5%; Common 5-15%; Abundant 15-60%; Massive >60%

CORE REC'D	DEPTH m	GEOLOGY	VISUAL LOG (TRACE / COMMON / ABUNDANT / MASSIVE)	DEPTH m	MINERALIZATION
		No Core.			
0.2	1.30				
0.3		$Py P_1$ Blue-grey sericitised locally carbonated <u>lithic tuff agglomerate</u>. Partly weathered, locally bleached and iron stained down to 2 m.	BROKEN CORE		Pyrite 3%-5% as disseminations, aggregates and irregular veins of fine subhedral to euhedral crystals.
1.9		Lithic fragments from 0.5 mm to 6 cm are irregular in outline elongated in the direction of foliation at 40° to core axis. They consist of completely sericitised trachyte? (porphyritic lava).			
0.9	5			5.5	1 cm Py 50%.
				6.0	3 cm Py 50%.
0.25		The matrix is siliceous, blue-grey in colour due to ultra fine pyrite, carbonate alteration is common.			
2.0		Fractures 30° - 50° to core axis.			
		The rock is sheared parallel to the foliation at 40° to core axis and fragment outlines are often obscure.			
2.6	10				
3.0					
2.35	15				
0.65					
3.0				19.0	Py 5%-10% as above.
	20			20.2	Py 3%-5% as above.
2.8	21.45				
		<u>Fault zone</u> Pug, 80% sheared and broken core, 30° - 40° to core axis.			
	22.8			22.8	Py 10% as above.
1.7		Grey to buff carbonated and locally sericitised lithic tuff agglomerate. Lithic fragments are more varied than above, they are generally irregular in outline often up to 15 cm. They consist		24.4	Py 3%-5% as above.
	25				

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DIAMOND DRILL LOG

Hole N° QR 69 Page N° 2.

Feature : Bedding, Foliation, Fragment - size & shape; Shearing, Fault, Vein (c carbonate, q quartz)

Mineralization : Trace 1-5%; Common 5-15%; Abundant 15-60%; Massive >60%

CORE REC'D	DEPTH m	GEOLOGY	VISUAL LOG	DEPTH m	MINERALIZATION
1.5		of pale grey-green sericitised porphyritic lava, with sericite aggregates to 4 mm after feldspar phenocrysts, buff coloured feldspar crystal tuff-lava, grey recrystallised chert and fine tuff.			Pyrite 3%-5% as above.
3.0		24.7 - 26.0 m Irregular aggregates of carbonate to 1 cm are common and may represent altered fragments.			
2.0	30	The matrix is siliceous blue-grey in colour and locally carbonated.			
0.55		Crude fragment alignment or foliation at 35° to core axis.			
0.45					
2.55					
0.4	35				
	35.4	Fault zone Pug, sheared and broken core 30° to C.A.			
1.85	36.0			36.1	5 cm Py 60%.
				36.8	Pyrite 10% locally 15% as disseminations, aggregates and irregular veins.
1.1				37.9	5 cm band Py 40%, Sph 20% Gn 5%.
3.0	39.2			39.2	Pyrite 3% as disseminations and aggregates - filling fractures.
	40	Light grey to buff carbonated and locally sericitised lithic tuff agglomerate. Lithic fragments from 0.5 mm to 5 cm consist mainly of feldspar crystal tuff-lava, other fragments include grey sericitised trachyte and lignt grey-green porphyritic lava. The matrix is light grey to off-white in colour and carbonate rich. The rock may be partly autobrecciated.			
3.0		45.0 - 45.15 m Chlorite alteration zone. Sheared and sericitised below 44.2 m.			
	45				
3.0	45.7			45.7	Pyrite <1% as disseminations of fine subhedral to euhedral crystals.
		DTL Buff carbonated feldspar crystal tuff-lava. Essentially a porphyritic lava, feldspar phenocrysts are represented by aggregates of pale green sericite to 3 mm elongated in the direction of foliation at 40° - 50° to core axis. The groundmass is siliceous and heavily carbonated.			
3.0					
	50				

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DIAMOND DRILL LOG

Hole N° QR 69 Page N° 3.

Feature : Bedding, Foliation, Fragment - size & shape; Shearing, Fault, Vein; c carbonate, q quartz

Mineralization : Trace 1-5%, Common 5-15%, Abundant 15-60%, Massive >60%

CORE REC'D	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		Below 50.4 m the rock is grey in colour due to increased pyrite alteration.							Pyrite <1% as above.
2.25	51.5	Contact 55° to core axis.						51.5	Py 50%, Sph 5%-10%
		PyP_1 Grey sericitised and carbonated coarse lithic tuff/tuff agglomerate. Mixed fragment types from 0.5 mm to 5 cm in a grey siliceous, carbonated matrix. The rock is locally sheared.						51.85	Gn 10%-15% as a band at 55° to core axis in a completely sericitised gangue. Py 5% as disseminations, aggregates and irregular veins.
3.0	54.1							54.1	
	55	DTL Buff carbonated feldspar crystal tuff-lava. The rock is similar to that described above 51.5 m and is characteristically altered grey by pyrite along "healed" fractures. This unit includes minor fragmental bands (PyP_1) of grey lithic tuff.							Py <1% as disseminations of fine subhedral to euhedral crystals.
3.1									
3.1	60								
	61.65							61.65	Py 5% as disseminations aggregates and occasional fragments.
3.1		PyP_1 > DTL Grey-buff carbonated lithic tuff agglomerate. There are a mixture of lithic fragments up to 10 cm, the larger are buff to pink DTL similar to that described above. There is a crude fragment alignment or foliation at 45° to core axis.							
	64.95							64.95	Py <1% as above.
0.75	65	DTL Buff-pale grey-green carbonated feldspar crystal lithic tuff agglomerate-lava breccia.							
2.4		Fragments are typically DTL irregular in outline up to 10 cm.							
2.55		The matrix is generally of similar composition and texture as the fragments - occasionally carbonate rich.							
	70	There are minor bands of grey fragmental rock.							
0.45		Fractures sub-parallel, 20°, 30° to core axis.							
3.0									
		75.0 m 15 cm band of grey chert or fine tuff at 25° to core axis.							
	75							75	15 cm Py 2%.

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DIAMOND DRILL LOG

Hole N° QR 69 Page N° 4.

Feature : Bedding, Foliation, Fragment - size & shape, Shearing, Fault (F), Vein (c carbonate, q quartz)

Mineralization : Trace 1 - 5%; Common 5 - 15%; Abundant 15 60%; Massive >60%

CORE REC'D	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
3.0		DTL as above.							Pyrite <1% as above.
3.0		Below 77.7 m the rock is generally buff to pink in colour. Fragments occasionally exhibit flow banding.							
	80								
2.65									
0.35									
0.8									
2.2	85								
3.0									
3.0	90	Crude fragment alignment parallel to the foliation at 40° to core axis.							
3.0									
1.0	95								
2.0									
3.0	99.45	The rock is now light grey-buff in colour. Carbonated feldspar crystal						99.45	10 cm Py 5% as disseminations and aggregates. Py 2%-3% as disseminations and aggregates of
	100								

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DIAMOND DRILL LOG

Hole N° QR 69 Page N° 5.

Feature : Bedding, Foliation, Fragment - size & shape, Shearing, Fault, Vein (c carbonate, q quartz)

Mineralization : Trace 1-5%, Common 5-15%, Abundant 15-60%, Massive >60%

CORE REC'D	DEPTH m	GEOLOGY	VISUAL LOG	DEPTH m	MINERALIZATION
3.0		coarse lithic tuff lava breccia. (Flow breccia). Similar to above 99.45 m. Minor disseminated pyrite im-parts a pale grey colouration. Fragments are irregular in outline up to 3 cm, elongated in the direction of foliation at 40° to core axis.			fine subhedral to euhedral crystals, occasionally as matrix to flow breccia fragments.
	105			104.85	Py 5% as above.
3.0				106.1	Py 2%-3% as above.
3.0				108.6	Py 5% as above.
				109.15	Py 2%-3% as above.
	110			110.0	Py 5% as above.
3.0				110.85	Py 2%-3% as above.
2.0	114.2			114.2	Py<1% as disseminations and small veinlets 3 mm.
	115	Buff-grey carbonated feldspar crystal tuff-lava. Essentially a fine grained porphyritic lava. Feldspar crystals are represented by aggregates of white carbonate and occasionally pale green sericite up to 2 mm. The rock is altered grey along healed fractures where pyrite has been introduced. (White carbonate veinlets cut the older pyrite veinlets). The rock has a "onion skin" appearance due to concentric alteration bands.	BROKEN CORE		
3.0					
2.0					
	120				
1.0					
3.0					
	125				

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DIAMOND DRILL LOG

Hole No QR 69 Page No 6.

Feature : Bedding, Foliation, Fragment - size & shape; Shearing, Fault (F), Vein (c carbonate, q quartz)

Mineralization : Trace 1-5%; Common 5-15%; Abundant 15-60%; Massive >60%

CORE REC'D	DEPTH m	GEOLOGY	VISUAL LOG	DEPTH m	MINERALIZATION
3.1		DTL as above.	BROKEN CORE		Pyrite 1% as above.
3.1	130	Below 129.4 m the rock is less altered - buff in colour and fine grained.		129.4	Pyrite <1% as disseminations of fine subhedral to euhedral crystals.
0.55					
3.0					
1.8	135				
1.2					
1.4					
1.6					
	140				
3.0					
3.0	143.5	Gradational Contact MP Green carbonated lithic tuff agglomerate. This unit is characterised by the chrome green colouration imparted by abundant illite-hydromuscovite alteration and by irregular shaped (to 6 cm) amygdaloidal lava fragments. Fragments of tuff and pumice are less abundant. The matrix is generally siliceous and contains granular carbonate		143.5	Pyrite 1%-3% as disseminations and aggregates replacing lithic fragments and as occasional fragments.
	145				
3.0	147.6			147.2 147.6	Py 10% as disseminations and aggregates, rare Sph and Gn. 4 cm Py 10%, Sph 40%, Gn2%
	148.45	PyP$_1$ Grey locally sericitised & carbonated lithic tuff. Mixed fragment types.		148.45	Py 5%-10%.
1.8		DTL Gradational Contact Buff to grey-green vesicular feldspar crystal tuff-lava. Feldspar crystals are represented by white carbonate			Py 1% as disseminations, aggregates and irregular veins.
	150				

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DIAMOND DRILL LOG

Hole N° QR 69 Page N° 7.

Feature : Bedding, Foliation, Fragment - size & shape; Shearing, Fault, Vein (c carbonate, q quartz)

Mineralization : Trace 1-5%; Common 5-15%; Abundant 15-60%; Massive >60%

CORE REC'D	DEPTH m	GEOLOGY	VISUAL LOG	DEPTH m	MINERALIZATION
		aggregates and occasional aggregates of pale green sericite to 2 mm.			Pyrite 1% as above.
		The matrix is composed essentially of fine grained quartz grains, locally carbonated.			
3.0		Vesicles are carbonate filled (amygdules) up to 2 cm, elongated in the direction of foliation at 40° to core axis.			
	155				
3.0					
	155.8	Sharp Contact 40° to core axis.		155.8	Py 3%-5% as disseminations aggregates and irregular veins.
		PyP_1 Grey, grey-green carbonated locally sericitised feldspar crystal lithic tuff/coarse lithic tuff.		157.3	Trace Sph, Gn as aggregates to 1 cm in a quartz-carbonate vein.
		Lithic fragments range from 0.5 mm to 3 cm, outlines are generally obscure.			
3.15		Fragments typically consist of porphyritic lava? (white carbonate aggregates			
	159.0	Fragmental band of mixed fragment types, transported volcanic debris?		159.0	Py 10%-15% as disseminations, aggregates and irregular bands, trace Sph and Gn.
	160				
	160.05			160.05	
3.1		to 2 mm after feldspar phenocrysts in a grey siliceous groundmass) of similar composition and texture as the matrix. Hence feldspar crystal tuff.			Pyrite 3%-5% as above.
		Below 160.05m grey locally carbonated and sericitised feldspar crystal lithic tuff agglomerate. Similar to above 159 m. Lithic fragments up to 10 cm are randomly distributed in a grey siliceous matrix.		163.0	Py 5%-10% as disseminations and aggregates.
				163.8	
3.0	165	Quartz-carbonate veins to 10 cm have been noted.			Py 3%-5% as above.
	167.2				
3.0		Grey carbonated and locally sericitised lithic tuff agglomerate.			
		Lithic fragments are irregular in outline up to 6 cm, they consist of grey fine grained tuff and occasionally porphyritic			
0.75		lava (white carbonate aggregates to			
	170	2 mm represent feldspar phenocrysts).			
		The matrix is light grey in colour and although composed essentially of quartz is heavily carbonated.		171.85	Py 10%-15% as irregular
3.0				172.1	veins or stringers, incl-
		There is a crude fragment alignment at 50° to core axis.		172.55	udes 2 cm Sph 15%, Gn 10% 1 cm stringer Sph 15%, Gn 10%.
3.1					
	175				

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DIAMOND DRILL LOG

Hole N° QR 69 Page N° 8.

Feature : Bedding, Foliation, Fragment - size & shape; Shearing, Fault (F), Vein (c carbonate, q quartz)

Mineralization : Trace 1-5%, Common 5-15%, Abundant 15-60%, Massive >60%

CORE REC'D	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		PyP_1 as above.							Pyrite 3%-5% as above.
3.0	178.0							178.0	10 cm Py 15% trace Sph, Gn.
3.0	180	Grey carbonated lithic tuff agglomerate. The rock is mottled in appearance due to the presence of randomly distributed irregular carbonate aggregates (possibly replaced lithic fragments). Fragment outlines are generally obscure. The matrix is grey composed essentially of quartz and is heavily carbonated.						180.2 180.8	Py 3%-5% as above, trace disseminated galena. Pyrite 3%-5% as above
	182.0	E.O.H.							