Cominco

DRILL HOLE RECORD

Location Que River Area
Property Mackintosh EL 2/70
District Tasmania, Australia.
Commenced 19.5.1975.
Completed 25.5.1975
Core size HQ to 248 m EOH.
Objective Definition and metallurgical sampling of N, O, P and Q lenses 50 m north of QR 14.
% Recovery 98 in cored interval 6-248 m.

Alt./R.L. 693.95
Co-ordinate 7750.9N 5101.3E
Bearing (M) 96° 31'
Grid bearing (M) 8.75°

Hole No QR 44
Date 26.5.1975
Logged C.H. YOUNG
Dip 48° 06'

SURVEY DATA

DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE
0	48	98	Clinometer Compass
0	48°06'	96°31'	Theodolite
26	47.5	103.5	Eastman
60	46.5	103	Single Shot
96	44.5	104	Camera
129	44	104	" "
159	43.5	104.5	" "
189	38.5	105.5	" "

GRAPH DERIVED DATA

DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE
0	48	98	7750.9	5101.3	694.0
25	47.5	99	7751.0	5118.1	675.5
50	46.5	98.5	7751.0	5135.2	657.2
75	45.5	99	7751.0	5152.5	639.2
100	44.5	99.5	7750.9	5170.2	621.6
125	44	99.5	7750.7	5188.1	604.0
150	43.5	99.5	7750.5	5206.2	586.7
175	41.5	100.5	7750.1	5224.6	569.8
200	36.5	101	7749.4	5244.0	554.1
225	31.5	102	7748.4	5264.7	540.1
248	27	102.5	7747.2	5284.7	528.9

* Below 200 m Data derived from extrapolation of graph. Camera not available.

REMARKS

24.8 - 31.7 m Interpreted N lens, semi massive base metal mineralization.

114.1 - 136.8 m Interpreted O lens, Barite and minor semi massive base metal mineralization.

149.9 - 153.9 m Interpreted P lens. Disseminated base metal mineralization.

223.9 - 224.8 m Interpreted Q lens semi massive base metal mineralization.

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DIAMOND DRILL LOG

Hole No QR 44 Page No 1.

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
		No Core.			
	5				
	6.0				
1.1		DTL Light grey, weakly sheared, carbonated and silicified lithic tuff agglomerate-lava. Fragments are predominantly irregular shaped buff coloured porphyritic dacitic lava,	BROKEN CORE		Pyrite 2% - 3% as disseminations and fracture fillings of fine subhedral to euhedral crystals.
	8.4				
1.8		Fault zone. Pug, sheared and broken core 50° to core axis.			
	10				
	11.8				
2.8		characterised by pale green sericite pseudomorphing feldspar phenocrysts. The matrix is light grey and siliceous and the rock is weakly banded at 40° to C.A. Irregular chert bands have been noted			
	13.9	PyP Gradational Contact.		13.9	Pyrite 5% - 10%, 40% where indicated, as disseminations and irregular veins of subhedral to euhedral crystals up to 2 mm.
	14.5	Grey sericitised lithic tuff.			
2.7	15	Fault Zone. Pug, sheared and broken core 40° - 80° to core axis.			
		Shearing and faulting has obscured the nature of the fragments down to 18.9 m.			
2.9	18.9			18.9	Pyrite 20% as above and as bands at 40° to C.A. Sphalerite 2%-3% and galena 2% as aggregates and small irregular secondary veinlets.
		Grey sericitised coarse lithic tuff. Lithic fragments irregular to sub-rounded in shape up to 3 cm, consist predominantly dacitic lava similar to that described above. Small grey chert fragments have been noted.	BROKEN CORE	19.1	
	20			20.8	
3.0		The matrix is fine grained sericitic and siliceous.			
		The rock is roughly bedded at 40° to core axis.		22.8	
				24.1	Pyrite 40% barite 30% Sph 5% Gn 3%.
	25			24.4	
				24.8	Pyrite 80% as bands of

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DIAMOND DRILL LOG

Hole N° QR 44 Page N° 2.

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		From 24.8 - 25.44 m and from 27.9 - 31.7 m the unit is essentially massive sulphide. Irregular fragments of base metal sulphide up to 10 cm in a pyritic matrix roughly bedded (deformed) at 40° to core axis. 29.35m Porphyritic dacitic lava fragment 10 cm.				fine subhedral to euhedral crystals to 1 mm, and as breccia fragments to 5 cm. Pale brown sphalerite 10% as fragments and galena 8% as fragments and recrystallised (remobilised) veinlets. Below 29 m barite 5% occurs as irregular veins together with the above sulphides.
3.0	30	Highly sericitised lithic fragments have been noted within the pyritic matrix.				
					31.7	Pyrite 20% as disseminations irregular veins and bands of fine subhedral to euhedral crystals. Sphalerite <3% galena 1% as aggregates and veins. Pyrite 5% - 10% as above. Trace sphalerite and galena as disseminations and secondary fracture fillings.
3.0	33.7				33.7	
	35	Grey sericitised locally silicified sheared and disrupted lithic tuff agglomerate. Fragments of dacitic lava and fine grey tuff, generally obscured by shearing have been noted. The matrix is fine grained, siliceous and blue-grey in colour. Sheared at 30° - 40° to core axis.				
3.0						
3.0	40					
	41.6				41.6	Pyrite 3% - 5% as above.
3.0		Fault zone. Pug, brecciated, sheared and broken core 50° to core axis.				
	45					
3.0	45.3	DTL Gradational Contact. Light grey to buff coloured auto-brecciated dacitic tuff-lava. Large sub-rounded fragments to 10 cm resulting from the autobrecciation of porphyritic dacitic lava. The lava is characterised by pale green sericite replaced feldspar phenocrysts, small quartz phenocrysts in a buff coloured siliceous matrix. Pyrite commonly			45.3	Pyrite 5% - 10%, 30% where indicated as disseminations, irregular veins and aggregates.
3.0						
	50					

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DIAMOND DRILL LOG

Hole N° QR 44 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
3.0	52.0	replaces the sericite aggregates. Aggregates of green illite-hydromuscocite have been noted. Fractures 30° - 40° to core axis.						52.0	Pyrite 3% - 5% as above.
3.0	65	PyP Light grey sericitised coarse lithic tuff. Irregular fragments (1-5 cm) often stretched and sericitised of dacitic lava, fine grey tuff, chert and occasionaly pyrite in a grey fine grained siliceous matrix. Weak foliation at 40° to core axis.							
3.0	55.8	Below 55.8 m the fragments are sub-rounded (transported volcanic debris) giving the rock a sedimentary appearance. There is a crude bedding at 30° to core axis. The matrix is light grey and siliceous. Fractures 20° - 40° to core axis.							
3.0	60 60.7	DTL Fault contact (pug) 85° to C.A. Pink to buff carbonated lithic tuff agglomerate-lava. Disrupted and cut by small irregular carbonate veins down to 62.4 m.						60.7	Essentially barren, pyrite rare.
3.0	65	Fragments are irregular in shape (brecciated) occasionally grey-green (chloritic) more often pink in colour. The larger fragments (up to 10 cm) often exhibit flow banding. The rock is interpreted as being brecciated during flow.							
3.0		The lava matrix is texturally similar to the fragments, it is rather featureless fine grained and siliceous. Pink colouration is considered to be due to ultrafine primary Fe-oxide (petrology CMS).							
3.0	70	There is a crude fragment alignment at 30° to core axis. Fractures 30° - 50° to core axis.							
3.0									
	75								

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DIAMOND DRILL LOG

Hole N° QR 44 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		Below 76.2 m the rock is less pink, more buff in colour. The fragments are large, often 10 cm.							Pyrite rare as above.
3.0		Irregular fractures at 20° to core axis are often sericite lined.							
	80								
3.0									
3.0									
	85								
3.0									
3.0									
	90								
3.0		90.8 - 91.3 m Recemented fault breccia.	F						
3.0									
	95								
3.0		Fault zone Pug, sheared and broken core 40° to core axis. 96 - 96.7 m Unbroken, bedded? at 40° to core axis.							
	98.2								
3.0		Down to 99.8 m the rock is weakly sheared, fragments are "stretched" and shredded sericite is common.							
	100								

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DIAMOND DRILL LOG

Hole N° QR 44 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	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
3.0	105	Below 99.8 m the rock is similar to that described above the fault at 95 m.							Pyrite rare as above.
3.0		Below 106.2 m the matrix is generally pink, enhancing the overall pink-buff colouration of the fragments.							
3.0	110								
3.0		Below 113 m the rock is generally brecciated and disrupted.							
	113.65								
3.0	114.1	Fault zone breccia.						114.1	Py 30% as fine subhedral to euhedral crystals, often framboidal. Barite 30% (semi massive). Pale brown Sph 8% Gn 5% as aggregates, fragments and bands.
		PyP Fault contact 50° to core axis.							
	115	"Barite ore" bands and veins of barite enclosing irregular fragments of semi massive sulphide (mainly pyrite).							
		The matrix of the barite ore is a grey silicified, sericitised and disrupted lithic tuff.						116	
								116.8	Py 15% trace Sph, Gn.
									20 cm Py 30% Ba 10% Sph 10%
3.0		Banding, foliation or deformation? varies from parallel to and up to 30° to core axis.						117.4	Gn 8%.
									Py 80% pale brown Sph 8%
								118.2	Gn 3% barite 10%.
								118.8	Semi massive barite 50%, Py 30% Sph 1%-3% Gn <1%.
									Py 80% Sph 5% Gn 3% Ba 10%.
	119.7								
	120	Fault zone Pug and broken core.						120.3	Py 30%-40% as disseminations, fragments, irregular veins and aggregates - framboidal textures have been noted. Pale brown Sph 1%-2%, Gn <1% as aggregates and irregular veinlets, barite 5%-10%.
3.0									
	121.2								
		Down to 129.6 m the rock is a disrupted lithic tuff. Fragments of porphyritic dacitic lava and chert, up to 2 cm, have been noted.							
3.0		The matrix is highly siliceous, barite as irregular veinlets and fragments? is common within the matrix.							
	125								

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DIAMOND DRILL LOG

Hole N° QR 44 Page N° 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
3.0		Disrupted lithic tuff with barite and pyrite as above.			Sulphides as above.
				128.0	20 cm massive barite 70%, pyrite 15%, Sph 5%, Gn 3%.
3.0	129.6			129.6	Sulphide breccia. Irregular fragments up to 3 cm of Py 60%, Ba 15%. Sph 5%-10% and Gn 3% as fragments. and as matrix.
	130	Sulphide breccia. Rare lithic tuff fragments.			
3.0	133.1	Fault zone Pug sheared and broken core 30° to core axis, some sulphide fragments.		133.1	Pyrite 30% barite 10%. Sphalerite 3% and galena 1% as fragments.
	135	Massive pyrite.		135	Pyrite 80%, pale brown sphalerite 10% as fragments and galena 8% as fragments and secondary veinlets.
3.0	136.8	Grey disrupted silicified and sericitised lithic tuff as above. Barite is less conspicuous.		136.8	Pyrite 10%-15% as disseminations, irregular veins and fragments. Sphalerite <1% and trace galena as aggregates and irregular veins.
	140				
3.0	141.2	Chlorite alteration zone. Sheared and chloritised lithic tuff. (Sediment band?). Spotted with carbonate and pyrite.			
	143.2	Grey silicified and sericitised fine grained lithic tuff. Crude bedding at 40° to core axis.		143.2	Pyrite 3% as disseminations, irregular veins and aggregates.
3.0	145	139 - 149 m Irregular carbonate veinlets are common. 146.2 m 10 cm chlorite as above. 146.9 m Carbonate vein stained pink due to manganese.	BROKEN CORE		
3.0					
	149.9			149.9	Pyrite 15%-20% as
	150	Fault zone.			

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DIAMOND DRILL LOG

Hole N° QR 44 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	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
3.0	151.1	Fault zone. Pug, sheared and highly sericitised. 30° to core axis.							disseminations of fine subhedral to euhedral crystals, pale brown sphalerite 5%-10% and galena 3%-5% as disseminations and aggregates to 5 mm.
		Highly sericitised lithic tuff.							
3.0	153.0	Fault zone Pug, sheared and broken core 40° to core axis.							
	153.9	MP Sharp contact 50° to core axis. White speckled, grey-green lithic tuff agglomerate. Irregular shaped amygdaloidal lava fragments up to 10 cm in a grey-green "lithic" or ashy matrix. White carbonate as amydgules and aggregates within the matrix and green illite-hydromuscovite are common.						153.9	Pyrite trace only as discrete fine subhedral to euhedral crystals occasionally as aggregates.
3.0	155								
	157.4	DTL Minor carbonate veins at contact. Grey-green to buff carbonated coarse lithic tuff-lava.	C						
3.0	160	This is a relatively fine grained lava with crude flow banding 20° - 50° to core axis.							
3.0	165	Down to 164 m lithic fragments consist of large "stretched" pale green sericitised lava? up to 10 cm long and smaller grey-green (illite-hydromuscovite) altered fragments of fine tuff or lava.							
3.0		Below 164 m fragments are irregular pale green - buff dacitic lava to 3 cm, texturally similar to the lava matrix. (Flow brecciated lava).							
		Fractures 30° - 40° to core axis.							
3.0	170								
3.0									
3.0	175		F					174.9	20 cm Py 3% as irregular veins and aggregates.

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DIAMOND DRILL LOG

Hole N° QR 44 Page N° 8.

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
3.0		DTL as above. This unit as a whole is competent, lengths up to 1 m unbroken.			Pyrite trace as above.
3.0	180				
3.0		184 - 192.5 m "Brecciated" irregular shaped fragments up to 3 cm in a matrix of similar texture and composition.			
3.0	185				
3.0					
3.0	190				
3.0	192.5	Buff-grey carbonated vesicular feldspar crystal tuff-lava. Fine grained lava with carbonate filled vesicles up to 1 cm. Sericite aggregates after feldspar are common. There is a crude flow banding (alignment of vesicles) at 40° to core axis.			
3.0	195				
3.0					
3.0	200				

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DIAMOND DRILL LOG

Hole N° QR 44 Page N° 9.

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
3.0		Vesicular feldspar crystal tuff-lava as above.							Pyrite trace as above.
3.0	205	Below 204 m green illite-hydromuscovite often replaces sericite.							
3.0		207.5 - 208.8 m Chlorite/sericite alteration zone.	c					207.5 208.6	Pyrite 5% as disseminations, irregular veins and aggregates.
3.0	210		c						
3.0		212 - 215.8 m Disrupted and brecciated. Cut by secondary carbonate veinlets.	c					212	Pyrite 5%-10%, locally 50% as irregular veins and aggregates of fine subhedral to euhedral crystals.
3.0	215	Below 215.8 m the rock is fine grained grey-buff with liesegang type colour zoning.						215.8	Pyrite <1%.
3.0	220								
3.0	220.75	MP Chrome green carbonated lithic tuff agglomerate. Amygdaloidal lava clasts to 6 cm, tuffaceous fragments to 2 cm in a grey siliceous and carbonate rich matrix. Chrome green illite-hydromuscovite is common. Carbonate filled tension fractures. Foliation 60° to C.A.						220.75 221.3	Pyrite 3%-5% as disseminations, veins and aggregates. 30 cm secondary galena 15% sphalerite 5% associated with carbonate veins.
	223.9	PyP Contact 50° to core axis. Semi massive sulphides in a grey silicified and sericitised lithic tuff agg.						223.9 224.8	Semi massive sulphides, Py 50% Sph 10% Gn 8%. Pyrite 5%-10% as veins,
	225								

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DIAMOND DRILL LOG

Hole N° QR 44 Page N° 10.

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		Fragments are irregular in shape, sericitised and often dusted with fine pyrite, some have a stretched (plastically deformed) appearance up to 4 cm long. Sub-angular fragments of grey-white chert up to 1 cm have been noted. Some sericite replaced fragments have a shredded appearance.			disseminations and aggregates of fine sub-hedral to euhedral crystals. Rare sphalerite and galena.
3.0		The matrix is fine grained and siliceous, often blue-grey in colour due very fine pyrite (petrology CMS).			
	230	Foliation 50° to core axis.			
3.0					
	233.5			233.5	Pyrite 10%, galena 3%-5% as disseminations and aggregates to 1 cm within the rock matrix.
3.0		Coarse lithic tuff similar to the above. Partly disrupted. Pyrite and galena are common within the matrix.			
	235	Foliation at 40° - 50° to core axis.			
3.0					
				238	Pyrite 5%-10% as above.
	240				
3.0		241.2 - 241.5 m Brecciated with increased sulphide in the matrix.			
	241.5			241.2	30 cm Pyrite 15%, galena 5% as disseminations and aggregates.
		Grey silicified lithic tuff agglomerate as above.			
3.0					
	245				
3.0					
	248	E.O.H.			
	250				