Cominco

DRILL HOLE RECORD

Location Que River Area | Property Mackintosh EL 2/70 | District Tasmania, Australia. | Alt./R.L. 707.16 | Hole No QR 23

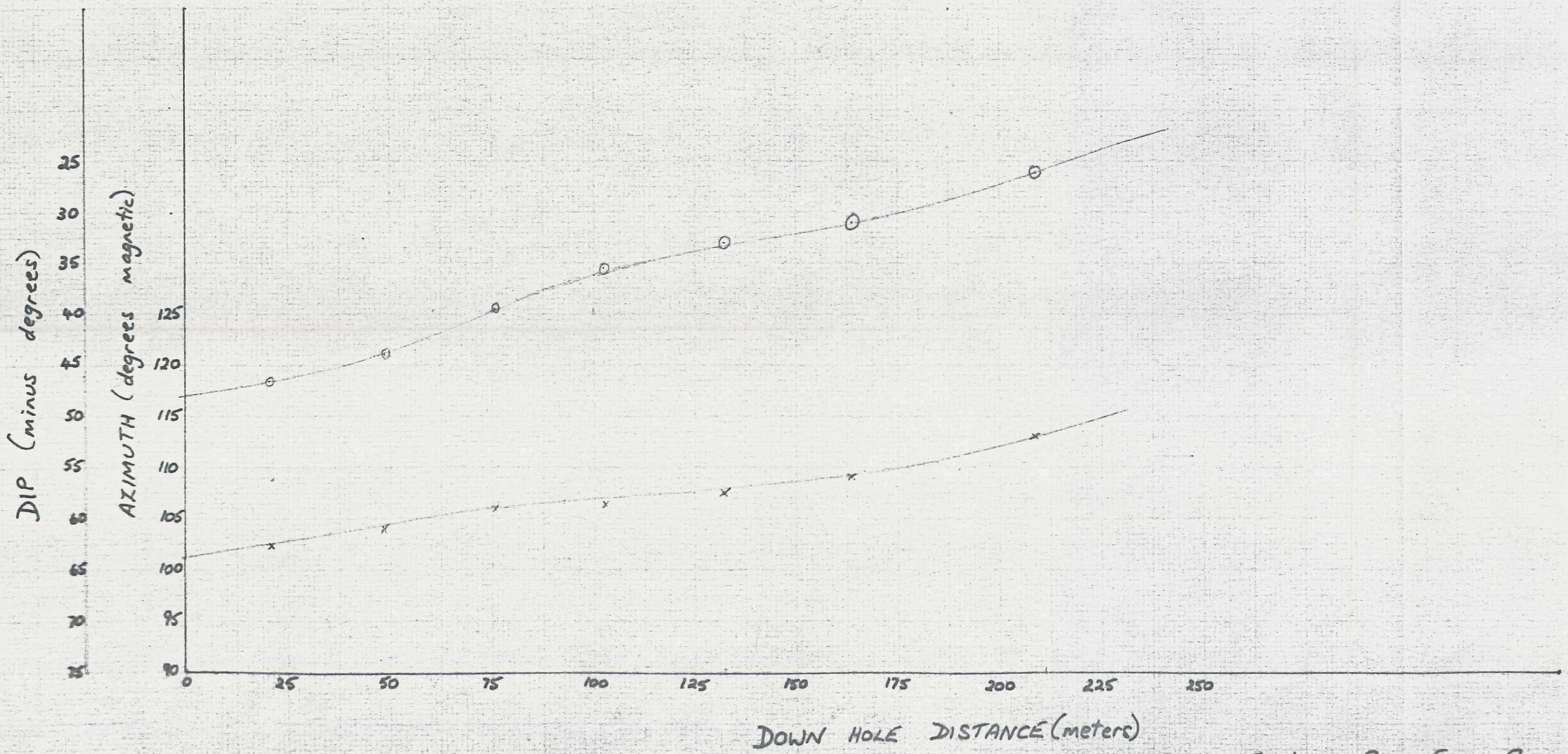
Commenced 24.2.1975 | Completed 1.3.1975 | Core size NQ to 38.9 BQ to 210.9 EOH. | Co-ordinate 6800.22N 4828.37E | Date 4.3.1975

Objective To test coincident I.P. and Geochemical anomalies. | % Recovery 98.9 | Bearing (M) 101° | Grid bearing(M) 8.68° | Logged C.H. YOUNG | Dip - 48

SURVEY DATA			
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE
0	48	101	Compass and Clinometer
21	46.5	102.5	Eastman
49	44	104	Single Shot
76	39.5	106	Camera
103	35.5	106.5	" "
133	33	107.5	" "
166	31	109	" "
210	24	108	" "

GRAPH DERIVED DATA						REMARKS
DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
0	48	101	6800.22	4828.37	707.16	
25	46.5	103	6799.24	4845.31	688.80	
50	43.5	104.5	6797.68	4862.92	671.12	66.8 - 67.5 m Disseminated sphalerite 8%
75	39.5	106	6795.53	4881.52	654.56	Galena 5%
100	36.0	107	6792.84	4901.10	639.25	
125	34.0	107.5	6789.79	4921.35	624.91	
150	32.0	108.5	6786.40	4942.04	611.30	146.9 - 147.2 m Sphalerite 2% Galena <1%
175	30.0	110	6782.46	4963.11	598.42	trace chalcopyrite.
210.9	26.0	113	6775.43	4994.02	581.57	168.2 - 170.3 m Disseminated galena 3%.

QR. 23.



Eastman Single Shot Camera.

⊙ DIP

× AZIMUTH

DIAMOND DRILL LOG

Hole N°. QR 23 | Page N°. 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
	2.0	No Core			
1.3		Lightly weathered down to 7.1 m.	BROKEN CORE		Pyrite 5%, 10% where indicated as irregular veins, nettworks and disseminations within the matrix.
0.9					
	5				
2.5		Light grey locally sericitised vitric tuff.			5.4 m Trace secondary galena and sphalerite, crystals in a quartz carbonate vein.
1.6		Pale grey-green sericite aggregates, average size 2 mm sometimes up to 5 mm and dusted with fine pyrite, are thought to represent devitrifed vitric shards and possibly lithic fragments. Quartz crystals to 3 mm are randomnly distributed although they are not common enough to designate the rock a quartz crystal tuff.	BROKEN CORE		Very fine disseminated galena has been noted within the matrix.
1.6			F		
	10		F		
1.8		The matrix is light grey siliceous and ashy.			
1.0		Yellow-white carbonate spotting is common becoming prominant below 21 m.	F		11.7 – 12.8 m Minor secondary galena, trace overall.
			BROKEN CORE	13.1	Pyrite 5% as above.
2.8		Foliation 40° to core axis.			
	15	Fractures 50° – 60° to core axis.	F		
3.1			c		
	20				
3.1			F		
3.1					
	25				

DIAMOND DRILL LOG

Hole N° QR 23 | Page N°. 2.

Feature : Bedding, Foliation, Fragment – size & shape (Og) | 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		As above. Foliation 35° to core axis.			Pyrite 5%, 10% where indicated.
3.0	30				
3.0		Below 33.8 m the rock is increasingly carbonated and chloritised towards the contact.	F		
	35	Gradational Contact			
3.0		Blue-grey sericitised locally carbonated <u>coarse lithic tuff</u>. The lithic fragments are generally completely sericitised dark grey-green in colour, characterised by small carbonate aggregates (after feldspar?) they are irregular in outline and grade in size from < 1 cm to occasionally > 4 cm. Some completely sericitised dark grey fragments may be pumice. The matrix is blue-grey in colour, siliceous, fine grained and probably tuffaceous. Weak foliation 40° to core axis.			
1.7					
1.1	40				
3.0					
3.0					
3.0	45		F c		45 m Rare secondary galena in carbonate veinlet.
3.0					
	50				

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		As above.			Pyrite 5%, 10% where indicated.
3.0					
	55				
3.0					56 m Rare secondary sphalerite blebs to 2 mm.
	57.7			57.7	Below 57.7m minor specks of galena and chalcopyrite have been noted.
3.0		Grey-green locally carbonated <u>feldspar crystal tuff</u>. Fragmental or brecciated? down to 61.3 m with a fine grained blue-grey tuffaceous matrix (some disrupted bedding?). The tuff is grey-green in colour, carbonate aggregates to 3 mm are common and are thought to represent relict feldspars. The matrix is light grey and fine grained although within it sericite aggregates to 3 mm are common.			58.2 m Rare secondary sphalerite blebs to 4 mm.
	60				
3.0					
1.6	65		F		
1.3				66.8	Pyrite 10%, disseminated light brown sphalerite 8% and galena 5%.
				67.7	
3.0	68.9	68.9 – 85.2 m sericitised feldspar crystal tuff as above. Foliation 45° to core axis.			Pyrite 5%, 10% where indicated. Trace fine grained disseminated galena and sphalerite.
	70				
3.0					
3.0			F		
	75				

Feature : Bedding, Foliation, Fragment – size & shape Og; 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
		As above.			Pyrite 5%, 10% where indicated. Rare dessiminated galena and sphalerite.
3.0		Below 78 m there are occasional lithic fragments, or brecciated tuff? completely sericitised commonly with aggregates of pale green sericite.			
3.0	80				
3.0					
	85				
	85.2			85.2	Pyrite 3%, 8% where indicated, fine subhedral to euhedral crystals as disseminations, aggregates and irregular veins. Trace secondary galena, sphalerite and rare chalcopyrite are randomly distributed, generally associated with minor carbonate veins.
3.0		Light grey siliceous coarse <u>lithic tuff-tuff agglomerate</u>. A rather mixed unit partly fine grained, bedded at 50° to core axis, many fragments however are > 3.2 cm.			
3.0	90	The common lithic fragments are siliceous light grey in colour, characterised by pale green sericite aggregates to 3 mm in size, often with euhedral outlines, relict feldspar?, they are irregular in shape and occasionally to 5 cm. Other fragments include pumice similar in appearance to the fragment described above but with a more raggard outline and sericite aggregates with shard like outlines. Fine grey fragments of tuff are also common. Often pyrite replaces sericite to give a mottled appearance to the fragments.			91.2 m 3 cm, trace secondary sphalerite and galena.
3.0					
	95	The matrix is light to dark grey and tuffaceous.			
3.0					
3.0		98 – 102 m minor carbonate veinlets to 3 mm are common.			
	99.3	99.3 – 114.8 m lithic fragments, dacitic lava, are often amygdaloidal,			
	100				

DIAMOND DRILL LOG

Hole N°. QR 23 | Page N°. 5.

Feature : Bedding, Foliation, Fragment – size & shape Og | 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		vesicles up to 1 cm filled with white carbonate.							Pyrite 3%, 8% where indicated. Rare secondary sphalerite, galena and chalcopyrite.
3.0	105								
3.0		Below 107 m the rock appears to be autobrecciated. Large partly rounded fragments in a matrix of similar composition. Small < 2 mm carbonate blebs are very common and may represent altered spherulites. (This interpretation is aided by the presence of vesicular and amygdaloidal lava fragments indicating a shallow environment.)							
3.0	110								
1.2									
1.8									
	114.8							114.8	
2.6	115	Pale grey-green carbonated vitric tuff. Olive green sericite aggregates replacing vitric shards? in a fine siliceous matrix.							Pyrite 3% fine subhedral to euhedral crystals as disseminations, aggregates and irregular veins.
	117.3							117.3	
2.1		Grey-green siliceous vitric tuff. Pale green sericite aggregates up to 3 mm after vitric shards? predominate in this unit. Randomly distributed quartz crystals are common.							Pyrite 10% – 15% as above. Trace sphalerite and galena.
1.4	120	The matrix is very fine grained light grey and siliceous.						120.05	119.9 m secondary chalcopyrite 10% as splashes over 3 cm, partly altered to chalcosite.
3.0		The unit is locally fragmental but more commonly autobrecciated where large rounded fragments in a matrix of similar composition give the appearance of a rough concentric zonation.							Pyrite 3%, generally as irregular veins and aggregates of very fine subhedral to euhedral crystals, some colloform textures have been noted.
	125								

DIAMOND DRILL LOG

Hole N°. QR 23 | Page N°. 6.

Feature : Bedding, Foliation, Fragment – size & shape Og | 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		As above.			Stringers of secondary sphalerite, galena and occasionally chalcopyrite often associated with quartz carbonate veinlets are common in this unit, trace overall.
		Weak foliation 45° to core axis.			
3.0					
	130				
3.0					
3.0					
	135				
1.8					
1.2				137.9	Pyrite 15% as irregular veins, trace secondary sphalerite, galena and chalcopyrite.
				138.9	
	140				Pyrite 5% as irregular veins and aggregates. Trace secondary sphalerite, galena and rare chalcopyrite.
3.0					
		142.5 – 144.3 m Minor carbonate veinlets are common.			
3.0					
	145				
		Below 146 m the rock is a coarse tuff, fragment outlines are obscure.			
3.0				146.9	Pyrite 30% irregular veins of subhedral to euhedral crystals, sphalerite 2%, galena < 1% trace chalcopyrite.
				147.2	
3.0					Pyrite 5% as above.
	150				

DIAMOND DRILL LOG

Hole N°: QR 23 Page N°. 7.

Feature: Bedding, Foliation, Fragment – size & shape Og; 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
		As above. Partly disrupted.			Pyrite 5%, trace sphalerite and galena as above.
1.6					
2.9	155				
	155.1			155.1	Pyrite 1% – 2% as disseminations of fine subhedral to euhedral crystals.
1.6		Grey-green feldspar crystal tuff. Bedded at 35° to core axis. Small buff coloured carbonate aggregates after feldspar and occasional lenticular sericite aggregates in a grey-green tuffaceous matrix.			
0.6					
	158.6			158.6	Pyrite 3%, 10% where indicated, fine subhedral to euhedral crystals as disseminations irregular veins and as rounded aggregates (framboidal). Occasional aggregates of secondary sphalerite rimmed with galena have been noted.
2.4		Grey to grey-green locally sericitised and silicified coarse lithic pumice tuff. A varied and partly disrupted unit. Lithic fragments are commonly sub-rounded to 3 cm in size and comprise; pale buff coloured rhyolite?, pale grey-green quartz feldspar crystal tuff, fine grained grey tuff, grey dacitic lava characterised by pale green sericite aggregates and occasionaly fragments of chert.			
	160				
3.0					
3.0		Occasional pumice fragments are filamentus and pale green to white in colour.			
	165				
		Matrix is fine grained, ashy and commonly flooded with fine dusty pyrite.			
		Fractures 20° – 60° to core axis.			
3.0		Foliation and bedding at 45° to core axis.			168.2 – 170.3 m Fine disseminated galena 3% in a siliceous tuff matrix, trace secondary sphalerite.
	170				
3.0					
3.0					
	175				

DIAMOND DRILL LOG

Hole N°. QR 23 | Page N°. 8.

Feature : Bedding, Foliation, Fragment – size & shape (Og); 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		Lithic pumice tuff agglomerate as above.							Pyrite 3%, 10% where indicated.
1.6		178.5 – 179 m Green-buff fine tuff-lava band. Some carbonate filled vesicles bedded at 45° to core axis.							
3.1	180								
3.1									
	185								
	185.4	Green tuff-lava carbonate filled vesicles.						185.4	Rare pyrite.
	185.85	Grey sericitised lithic vitric tuff. Disrupted down to 187.3 m.	F					185.85	Pyrite 5% as fine subhedral to euhedral crystals. Disseminations, irregular veins and nettworks.
3.1		Lithic fragments are generally obscured by alteration, occasional fragments of quartz crystal tuff, feldspar crystal tuff and small fragments of filamentus pumice have been noted.	F						
2.0	190	Pale green lenticular shaped sericite aggregates after vitric shards.							
	190.8	Fault zone. Pug, 80% sheared and broken core 45° to core axis.							
2.5									
	193.3								
2.0		Grey lithic tuff as above.						193.7 194.4	Pyrite 10%.
	195								195.1 m 10 cm pyrite 10%.
	195.4	Green tuff-lava carbonate filled vesicles, bedded 40° to core axis.	c					195.4	Rare pyrite.
2.1	196	Grey sericitised lithic vitric tuff as 185.85 – 195.4 above. Disrupted in part. There is a defenite cyclicity of units below 178.5 m.						196	
	198.3								198.3 – 198.65 m Rare pyrite.
	198.65	Green tuff-lava carbonate filled vesicles.						198.9	
2.5	199.2	Grey lithic tuff as above.						191.1	Pyrite 20%.
		Grey-green vesicular tuff-lava carbonate filled vesicles (amygdules).	BROKEN CORE						Pyrite 3% as disseminat-ions of fine subhedral
	200								

DIAMOND DRILL LOG

Hole N°. QR 23 | Page N°. 9.

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		Grey to greenish-buff coloured vitric tuff. Weakly autobrecciated. Pale green lenticular sericite aggregates (after vitric shards?), in a greenish-buff siliceous matrix. Similar to 117.3 – 155.1 m above.	F		to euhedral crystals.
1.7	204				
~~0.1~~	205	Fault zone. Pug, 70% sheared and broken core, 20° – 45° to core axis.			
1.5					
1.2				207.4	8 cm massive pyrite.
0.5	208.3			208.3	Pyrite 3%, fine subhedral to euhedral crystals as disseminations and irregular veins.
		Fault contact.			
2.9		Grey-green feldspar hornblende crystal tuff-lava.			
	210	Feldspar crystals represented by small white carbonate aggregates to 2 mm and hornblende by smaller dark green chlorite aggregates. Vesicles are generally carbonate filled (amygdules) up to 1 cm in size.			
	210.9	E.O.H. Minor carbonate veining is common.			

TRACE | COMMON | ABUNDANT | MASSIVE