Drill Hole Record

Cominco

HOLE N° QR 16

LOCATION Que River Area PROPERTY Mackintosh EL 2/70 DISTRICT Tasmania, Australia. ALTITUDE / RL 688.64 DATE 10.2.1975

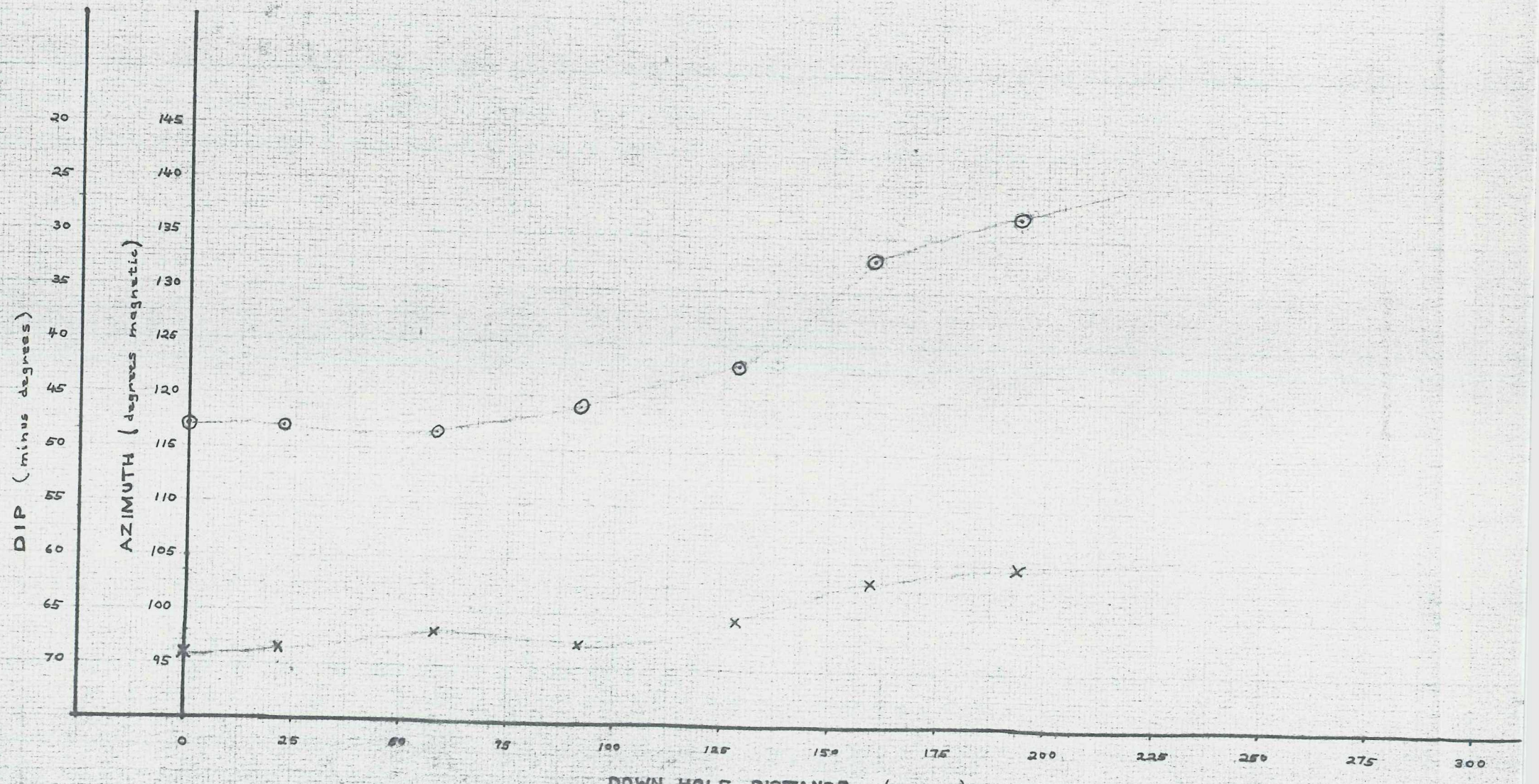
COMMENCED 2.2.1975 COMPLETED 6.2.1975 CORE SIZE NQ to 94.85 m BQ to 203.4 m E.O.H. LOGGED C.H. Young

OBJECTIVE To test coincident geochemical and I.P. anomalies and the west lens above QR 14. %RECOVERY 99% CO-ORDINATES 7702.52N 5150.39E

GRID BEARING (M) 8.75° BEARING (M) 96° DIP -48°

SURVEY DATA				GRAPH DERIVED DATA						REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
0	48	96	Compass & Clinometer	0	48	96	7702.52	5150.39	688.64	
21.95	48	96.5	Eastman	25	48	96.5	7703.25	5167.10	670.06	
58.7	48.5	98	Single Shot	64.5	48.5	98.5	7703.82	5193.37	640.63	64.45 - 68.5 m massive sulphides
92.0	46	97	Camera	68.5	47.5	98	7703.85	5196.07	637.62	sphalerite 40% Galena 15%
128.7	42	99.5	" "	100	45	97	7704.32	5217.84	614.87	pyrite 20% barite 8%
160	32	103	" "	125	42.5	99	7704.56	5235.91	597.58	
194	28	104.5	" "	167.65	31	103.5	7703.08	5269.73	572.30	167.65 m west lens position - no
203.4	E.O.H.			203.4	27	104.5	7700.19	5301.22	554.77	signifigant base metal sulphides.

QR16



Eastman Single Shot Camera

DIP ⊙

DIAMOND DRILL LOG

Hole N°: QR 16 | Page N°. 1.

Feature: Bedding, Foliation, Fragment – size & shape (Fg); 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
	5	No core.			
	9.0				
0.7	10	Broken core to 13.1 m.	VERY BROKEN CORE		Pyrite <1% as fine disseminations and occasional discrete euhedral crystals.
0.2		Carbonated buff to grey coloured quartz feldspar crystal tuff-lava, broadly dacitic in composition.			
2.0		Small (< 2 mm) corroded quartz crystals have a relatively sporadic distribution often 20% of total composition.	F		
1.8		Feldspar has been extensively altered and is recognised as pale white to pink coloured carbonate flecks, occasionally as small sericite aggregates.	F		
	15		BROKEN CORE		
2.0		Occasional small (to 3 mm) carbonate amygdules have been noted, this, together with the generalised orientation of sericite indicates an original lava.			
2.05		The matrix is composed of fine grained clay and carbonate. Pale green illite-hydro-muscovite is common.	BROKEN CORE		
			F		
2.25	20				
1.8		21.5 - 24.0 m fine grained and grey-green in colour due to chlorite alteration.			
		Fractures 30° - 50° to core axis.			
3.05	25				

DIAMOND DRILL LOG

Hole N°. QR 16 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
		Grey coloured below 25.5 m.		25.1	Pyrite 3% as irregular veins and nettworks of fine subhedral to euhedral crystals. Disseminations and aggregates are common.
		Below 27 m the unit becomes fragmental and increasingly sheared at 20° to core axis.	BROKEN CORE		
3.05					
	30				
3.05					
	33.35	Fault contact 30° to core axis.	F	33.35	Pyrite 5%, 10% as indicated. As disseminations within the matrix and irregular veins and nettworks of fine subhedral to euhedral crystals.
		Grey sericitised disrupted fine tuff.	F		
3.05	34.8				
	35	Fault zone Pug, sheared and broken			
	35.65	core 45° to core axis.			
		Shearing (at 30° to core axis) and alteration has completely obscured the nature of this unit. There is some local chlorite alteration and minor carbonate veinlets.	F		
3.05					
	38.7	Fault zone pug and sheared core.	F		
	39.9	Fault contact 45° to core axis.	F	39.9	Pyrite 10%, 60% where indicated as disseminations within the matrix and veins of subhedral to euhedral crystals.
	40	Grey, silicified locally sericitised and chloritised lithic tuff agglomerate. Sub-rounded to rounded fragments of dacitic lava to 10 cm, light grey and siliceous with numerous aggregates of pale green sericite replacing feldspar.	BROKEN CORE		
3.05		Smaller fragments of fine grey coloured tuff often flooded with fine disseminated pyrite and small wisps of sericitised pumice have been noted. The matrix is grey and ashy.	F		
	45			44.9	Massive pyrite 70% locally 90% in a grey siliceous matrix.
3.0					
				48.3	Pyrite 50% fine disseminations and aggregates of subhedral to euhedral crystals.
1.3			BROKEN CORE		
	50				

DIAMOND DRILL LOG

Hole N°. QR 16 Page N°. 3.

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
1.9		Semi-massive to massive pyrite in a grey siliceous matrix.	BROKEN / CORE		
3.05				53.8	Below 52.4 m small blebs and aggregates to 5 mm of pale brown sphalerite and minor galena have been noted trace overall.
3.05	55				Massive pyrite 80%, aggregates of cryptocrystalline and rounded framboidal pyrite in a groundmass of fine subhedral to euhedral pyrite crystals indicates two ages of crystallisation. Blebs of pale brown sphalerite 1% and minor galena <1% and trace chalcopyrite.
3.05					
3.05	60				
3.05		62.6 – 63.45 m silicified and sericitised disrupted tuff.	F	62.6	Pyrite 15% as fine disseminations and irregular veins.
			F	63.35	
3.05	65	64.45 – 68.5 m massive sulphides, banded (bedded?) at 40° to core axis, in a dark grey siliceous matrix. Barite bands up to 6 cm.		64.45	Massive pyrite 80% trace sphalerite and galena. Massive sulphides. Sphalerite 40% galena 15% pyrite 20% barite 8%.
1.85		Note: The succession from massive pyrite through to massive sphalerite galena and then barite suggests stratigraphic top is down hole.			
0.9	68.5	Fault contact.	F	68.5	Pyrite <1%.
	69.9	Fault zone pug and broken core 60° to core axis. Buff coloured feldspar quartz crystal tuff.		69.9	Pyrite 15%, 60% where indicated, as disseminations and fine subhedral to euhedral crystals.
	70	Fault contact.			
3.00		Grey silicified locally sericitised thoroughly disrupted lithic tuff. Alteration has completely obscured the nature of fragments and matrix.	F		
			F		
3.05					
	74.8	Fault contact 60° to core axis.	F	74.8	Pyrite 1%.
	75				

DIAMOND DRILL LOG

Hole N°. QR 16 Page N°.4.

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
		Grey to buff coloured sheared and disrupted dacitic lithic pumice tuff agglomerate.	F						1% pyrite as above.
3.05	76.8							76.8	Pyrite < 1% as fine disseminations and discrete euhedral crystals.
		Light brown to buff coloured dacitic crystal tuff-lava. Numerous amygdules (carbonate filled) to 1 cm in length often rimmed with chlorite indicate that this unit is an original lava. The flow direction i.e. alignment of the amygdules is at 30° to core axis. Locally leaching has removed the carbonate amygdules leaving original vesicles.							
3.05	80								
		Small quartz crystals with corroded margins generally 1 mm are common. The matrix is fine grained clay and carbonate.							
3.05									
		Occasional green rock fragments xenoliths (to 5 cm) have been noted.							
		Below 81.4 m amygdules are no longer apparent and the unit is a buff to pink coloured quartz crystal tuff-lava?							
	85								
3.05									
3.05									
	90								
	90.4							90.4	Pyrite 1% locally 5% as fine disseminations and discrete euhedral crystals.
		Flow contact? at approx. 40° to core axis.							
1.9		Carbonated lithic pumice tuff agglomerate. Light grey to buff in colour occasionally pink.	F						
		Lithic fragments of pink-light grey feldspar crystal tuff-lava? are angular to rounded in shape generally 6 cm and often spotted with small aggregates of pyrite. Other lithic fragments are light grey fine grained tuff. Pumice is not common and is generally filamentus and sericitised.	BROKEN CORE						
2.3									
	95		F						
1.8			C						
		The matrix varies from pink to grey in colour and often contains small quartz grains and fine disseminated pyrite.							
		Green illite-hydro-muscovite has been noted.	F						
3.05									
	100								

DIAMOND DRILL LOG

Hole N°. QR 16 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
	101.2							100.5	Pyrite <3% as disseminations within the matrix and discrete euhedral crystals.
3.05	101.9	Fault zone the unit is brecciated and recemented with a chlorite rich matrix.							
		Foliation 30° - 35° to core axis.						103.3	Pyrite 10% as aggregates within the matrix.
		Fracture 20° - 50° to core axis.						104	Blebs of galena (trace).
3.05	105								Pyrite 5%, 10% where indicated as aggregates within the matrix interstitial to the fragments.
3.05									
	110	Fault 10° to core axis with chloritised slickensides at 60° to core axis.							
3.05									
		111.8 - 116 m light grey fine grained tuff, autobrecciated in a pyrite rich matrix.							
3.05									
	115								
	116								
3.05		Below 116 m the unit is a carbonated coarse pumice lithic tuff. Dark grey raggard and filamentus pumice fragments to 3 cm and grey fine grained siliceous tuff fragments in a fine grained pale grey to buff matrix.	BROKEN CORE						
		Carbonate spotting is common, possibly after feldspar i.e. feldspar crystal tuff.							
2.95	120								
3.05									
	125								

DIAMOND DRILL LOG

Hole N°. QR 16 Page N°. 6.

Feature : Bedding, Foliation, Fragment – size & shape (Fg)

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
3.05		Coarse pumice lithic tuff as above. Fracture 30° to core axis. Minor carbonate stringers average 2 mm are common.							5% pyrite, locally 10% as above.
3.05	130								
3.05									
		Below 133.6 m the matrix is pyrite rich.							
3.05	135								
	136.6							136.6	Pyrite < 3% as irregular veins and nettworks and disseminations of fine subhedral to euhedral crystals.
3.05		Light grey to buff fine tuff-lava? partly autobrecciated. Sample for petrology 137.7 m 155547. The autobrecciated fragments are large and rounded, often >10 cm, and are composed essentially of fine quartz crystal tuff, occasional phenocrysts >2 mm have been noted. Small >1 mm pale green sericite aggregates are often present, possibly relict feldspars. The fragments commonly show alteration banding of alternate grey to light grey bands. Occasional patches of chalcedonic silica to 2 cm long associated with secondary pyrite have been noted.							Secondary light brown sphalerite aggregates to 4 mm, rimmed by galena, associated with quartz carbonate veins have been noted.
3.05	140								
3.05									
3.05		Minor carbonate veinlets to 4 mm are common.							
	145	Weakly banded, bedded? at 50° to core axis.							
3.05									
3.05									
	150								

DIAMOND DRILL LOG

Hole N°. QR 16 Page N°. 7.

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
3.05	155	Below 151.55 m the unit is generally pale buff in colour. Occasional pale green sericitised fragments of filamentus pumice have been noted.							< 3% pyrite as above.
3.05		155.7 – 156.4 m a distinctly pyroclastic tuffaceous bed at 40° to core axis, with fragments of pumice, chert, fine grey tuff and pyrite.	F						
3.05	159.4	Gradational contact.						159.4	Pyrite 3% – 5% as disseminations and aggregates within the matrix and occasional fragments. A small (2 cm) fragment of pyrite, sphalerite and galena has been noted.
3.05	160	Carbonated chrome green lithic tuff agglomerate. This unit is characterised by the intense chrome green colour imparted by abundant illite-hydromuscovite alteration and by irregular shaped (to 8 cm) amygdaloidal lava clasts. Fragments of pumice and tuff are less abundant. The matrix is "ashy" heavily carbonated and often contains small pyrite fragments.	C F						
3.05	165								
3.05	167.65	West lens position.	q-c					167.65	Pyrite 15% as bands, irregular veins, aggregates and disseminations within the matrix.
3.05	170	Weak pyrite mineralization in a grey disrupted sericitised coarse pumice lithic tuff. Fine filamentus pumice and fragments of grey tuff often carbonated spotted, occasionally to 5 cm. In a highly sericitised grey pumiceous matrix.	F/C						Rare sphalerite and galena as discrete aggregates of pale brown sphalerite to 4 mm rimmed by fine galena.
3.05		Weak foliation 60° to core axis.	BROKEN CORE F						
3.05	175		F						

DIAMOND DRILL LOG

Hole N° QR 16 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
3.05	180	As above.	BROKEN CORE F						15% pyrite as above.
3.05	181.2	Gradational contact. Carbonate spotted and weakly chloritised near the contact. Grey sericitised pumice tuff agglomerate. Partly disrupted - grey pumice fragments, where evident are sericitised raggard in outline often up to 5 cm in size. Small lenticular (due to flattening and shearing of vesicles?) aggregates of pale green sericite are common within the fragments. The matrix is light grey fine grained "ashy" and weakly sericitised. Green illite-hydromuscovite has been noted. Foliation 50° to core axis. Sample for petrology 189.5 m 155546.	F F F					181.2	Pyrite 3% as irregular veins, aggregates and as disseminations within the matrix of fine subhedral to euhedral crystals.
3.05	185								
3.05									
3.05	190								
3.05	193.8	Fine quartz crystal tuff band bedded? at 45° to core axis.	c/q					193.8	Pyrite 1%.
3.05	194.7	Pale grey-green carbonated lithic tuff agglomerate. The fragments appear to be tuffaceous are grey in colour and commonly carbonate spotted (to 3 mm in size) replacing relict feldspar. The fragments are up to 5 cm in size and have irregular to sub-rounded outlines. The matrix is light grey weakly silicified and fine grained.	c cF					194.7	Pyrite 3% as above.
3.05	195								
3.05	200								

DIAMOND DRILL LOG

Hole N° QR 16 Page N° 9.

Feature : Bedding, Foliation, Fragment – size & shape (fg), 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
		Lithic tuff agglomerate as above, in a pale grey carbonate rich "ashy" matrix.							3% pyrite as above.
3.05									
	203.4	E.O.H.						203.4	
	205								

HOLE No QR 16 DATE 13/12/75

SAMPLE No	FROM (M)	TO (M)	IW (cm)	REMARKS	INITIAL ANALYSIS: %Cu AAS	%Cu XRF	%Pb AAS	%Pb XRF	%Zn AAS	%Zn XRF	%Fe TIT	ppm Ag AAS	ppb Au AAS	ppm Au FIRE	CHECK LAB: INT.	%Cu	%Pb	%Zn
156290	52.33	53.09	76	Datum 54.05	0.04			1.52		2.60		10	190					
156291	53.09	54.05	96	Block 54.05 ties in	0.07			2.45		3.72		15	160					
156292	54.05	54.68	63		0.02		0.58			1.86		9	110					
156293	54.68	55-45	77		<0.01		0.59			1.08		7	220					
156294	55.45	56.30	85	End of tray 56.25,6cm short of marking	0.03		0.61			1.11		12	230					
156295	56.30	56.95	65	Block 57.05 ties in	0.08			1.49		3.06		31	>500	1.0				
156296	56.95	57.90	95		0.41			4.53		8.75		97	>500	1.0				
156297	57.90	58.50	60		0.01		0.23		0.34			9	210					
156298	58.50	59.20	70		0.10		0.17		0.39			20	120					
156299	59.20	60.00	80	Block 60.05 ties in	0.01		0.50		0.59			9	240					
156300	60.00	60.44	44		0.13		0.69			3.29		31	>500	0.3				
156301	60.44	61.10	66			1.88		4.65		10.1		200	>500	0.7				
156302	61.10	61.76	66			1.17		3.38		9.09		150	>500	0.7				
156303	61.76	62.44	68		<0.01		0.90		0.79			9	160					
156304	62.44	63.17	73	Block 63.08 ties in	<0.01		0.39		0.82			4	45					
156305	63.17	63.67	50		<0.01		0.18		0.30			12	220					
156306	63.67	64.37	70		0.01		0.55		0.53			19	310					
156307	64.37	65.01	64		0.38			14.6		24.4		140	>500	3.7				
156308	65.01	65.51	50		0.43			14.3		22.5		180	>500	3.3				
156309	65.51	66.00	49		0.42			18.8		30.7		180	>500	3.0				
156310	66.00	66.51	51	Block 66.15 Measured 66.05		1.00		17.2		29.6		200	>500	3.0				
156311	66.51	67.01	50		0.50			16.8		29.3		130	>500	3.3				
156312	67.01	67.55	54		0.70			13.4		22.9		170	>500	3.0				
156313	67.55	67.96	41	Block 68, Meas. 67.90	0.60			17.0		29.2		180	>500	2.3				
156314	67.96	68.46	50		0.53			12.3		17.2		190	>500	2.3				
156215	68.46	69.06	60	Block 68.90 Measured 69.06	0.04		0.12		0.09			5	40					
	52.33	68.46	1613		0.31		5.02		8.69			71.3		1.0				
Includes	56.30	57.90	160		0.28		3.30		6.44			70.2		1.0				
	60.00	61.76	176		1.18		3.18		8.02			139.0		0.6				
	64.37	68.46	409		0.57		15.46		25.57			170.0		3.0				