HOLE No. WSP 311

PASMINCO EXPLORATION
DIAMOND DRILL CORE RECORD

LOCATION	ROSEBERY MINE LEASE
PROJECT	R.M.L.E.J.V.
PROSPECT	WHITE SPUR
DESIGNED BY	P. M. QUAYLE
LOGGED BY	P. M. QUAYLE
RELOGGED	
COMMENCED	2nd October 1991
COMPLETED	17th October 1991
DRILLED BY	Diamond Drilling Tasmania
DRILL RIG	Longyear 38

OBJECTIVE

To test for potential mineralized position below the White Spur Formation contact with the Rosebery/Hercules Sequence on the west limb of the Hercules Anticline to the south of South Hercules. Also to determin the nature of the contact. The position is coincident with UTEM anomaly

RESULT

Trace sphalerite, galena and pyrite mineralization and carbonate and silica alteration close to the WSF/AHS contact above relativly unaltered "Footwall" type pumice breccia. The contact appears to be conformable but disagrees with surface mapping. The UTEM anomaly is explained by black shales in the WSF.

LOCATION/SURVEY DATA (AMG)

Grid	AMG		RL Collar m	852m
Northing m	5,364,407		Bearing Collar	103.5° (AMG)
Easting m	376,901		Dip Collar	-70°
DH Survey Type	Single-Shot Camera		Length Hole m	270.0

Depth m	Bearing AMG	Dip	Depth m	Bearing	Dip
23	110.5	-70			
44	104.0	-70			
65	104.0	-69			
83	105.0	-69			
104	107.0	-69			
134	106.0	-68			
164	108.5	-67			
194	108.5	-66			
224	109.0	-64			
257	110.5	-64			
270	E.O.H.				

SIGNIFICANT INTERSECTIONS

From m	To m	Interval m						Comments

SIGNIFICANT CORE LOSS

From m	To m	% Lost

POOR GROUND CONDITION ZONES

From m	To m	Condition

HOLE SIZE

Size	Depth m
HQ	20m
NQ	20-270m

HOLE CONDITIONS AFTER COMPLETION

Collar	
Steel Casing	
PVC Casing	0 - 270m
Ground Water	Nil
Wedge	-
Drill Pad	Sumps filled in and pad roughly bulldozed

PASMINCO EXPLORATION

SUMMARY DIAMOND DRILL CORE LOG

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PROJECT:

Graphic Scale 1: 200

From m	Interval m	Code	Description
0	34.2		Massive, pale yellow/grey, poorly sorted, feldspar phyric, pumiceous Volcaniclastic - silicified, clasts siliceous
			Contact abrupt.
34.2	46.1		Zone of interbedded upwards (uphole) fining sandstones/siltstones - Turbidites - variably 1-3-10 m thick with coarse grained, sub-rounded to angular, polymict clasts, poorly sorted, framework supported bases with clasts consisting of - pale fine grained siliceous, quartz phyric porphyries, + pumiceous volcaniclastics.
			Contacts: all sedimentary, conformable/erosional
			Note: sphalerite veinlets in coarse, polymict, basal zone at ~45m.
80.3	103.6		Upwards fining crystal lithic sandstone:
			183.9 m coarse grained base with clasts ~100mm grading rapidly to massive, mid to dark grey lithic, quartz + feldspar crystal sandstone with occasional 50-500mm black slate rip-up clasts throughout.
			~133.8 m grading to massive dark grey fine grained sandstone/siltstone. +
			~113 m grading to zone of tan coloured interbedded fine grained siliceous siltstone and grey laminated very fine grained cherty siltstone with minor coarser grained bands
			grading to massive pale tan fg. sil. silt.

Depth	Graphic
34.2	
61	
80.3	
133.9	
183.9	

From m	Interval m	Code	Description
183.9	36.5		Zone of laminated black/grey shales and black Slates
			183.9 lam grey/black shale
			190.4 lam shale / carbonate rich sandstones.
			204.2 lam black slate / fg sst
			207.5 massive black slate. ~ carbonate veinlets and disseminated pyrite
			Contacts irregular.
220.4	.7		Mineralized - saccharoidal carbonate zone in bleached slates.
			Contact irregular, partly marked by alteration.
221.1	.6		Massive pale grey fine grained siliceous siltstone.
			Contact irregular but there is no evidence of major structure.
			R.H.S. CONTACT
221.7	48.3		Feldspar-phyric, pumice breccia typical of footwall-type volcaniclastics with increasing albite alteration towards E.O.H.
270			E.O.H.
			Comments
			Both White Spar Formation and Rosebery Hercules Sequence dip and young towards the west.
			The contact appears conformable - but this contradicts surface mapping.

Depth	Graphic
207	
220.4	
221.7	
270	E.O.H.

PASMINCO EXPLORATION
DIAMOND DRILL CORE LOG

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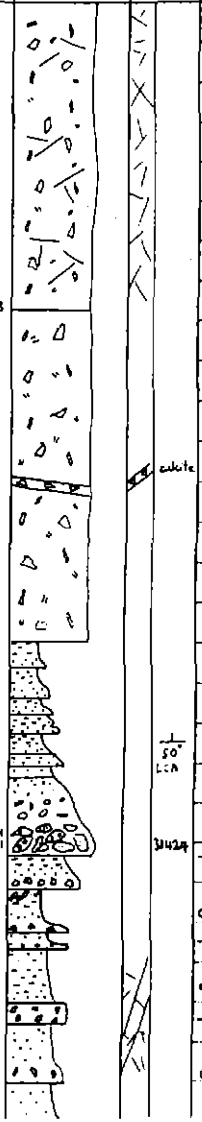
Graphic Scale 1: 250

CORE RECOVERY				DESCRIPTION					CODES			
From m	Interval m	%	RQD	From m	Interval m	(incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth	MINERALISATION	LITHO	STRUCT	ALTN	MIN
0	1·4	-		0	16·3	Weathered - iron stained especially on numerous joints.			V,f,p		Wea	
1·7	2·7	-				Massive poorly sorted clastic rock - Clasts 1-20mm, sparse						
4·2	2·3	-				distribution (~ 10 large clasts /m) predominantly fine grained siliceous						
6·5	2·8	-				but some resembling Footwall type pumice breccia.						
9·5	1·6					Weathered broken - bleached - iron stained - ubiquitous 1-2mm phyric						
12·4	3	-				feldspars altered to white mineral - no penetrative cleavage						
15·5	3	-				Contact = limit of extreme weathering.						
18·5	4·1	-					16·3					
22·8	0·8			16·3	17·9	(Similar to above lithology)			V,f,p			
29	4·0	-				Lithology - pale yellow-grey, massive, poorly sorted, coarse grained,						
33	2·1	-				clastic rock. Clasts 2-20mm, sub-rounded, sparsely distributed,						
35	3	-				predominantly grey, fine grained, siliceous, but with minor distinct						
38	3	-				upto 100mm grey shale clasts. Abundant 1-2mm white to pink						
41·2	1	-				phyric feldspars throughout, highly pumiceous? Minor bands						
42	2	-				with more abundant clasts and feldspar 'packed'						
44	3·1					Minor chloritic stylolites developed in part.	34·2					
47	3·0					Alteration: rock is silicified with minor indistinct bands of						
50	2·3					albitization (pink) and ubiquitous fine grained leucoxene.						
52·4	2·9					at 25.5m minor carbonate filled breccia in 5m broken zone.						
55·2	3·1					Contact is abrupt with minor sericite development.	41·5					
58·3	1·1						45·7					
59·3	2·8			34·2	7·3	Lithology: zone of interbanded pale tan to grey fine grained	47·5	Trace red sphalerite in	S,tb			
62	3·0					siliceous siltstone with bands of medium grained, feldspar	49·8	carbonate veinlets at ~34·5				
65	3·0					phyric, sandstone. Internal contacts are gradational and		Trace galena in qtz vein				
68	3					younging is uphole. It is a zone of upwards fining units		at 36·4m				
71	3					(Turbidites) from 0.5 to 1m in thickness. Clasts are predominantly	55	Trace red sphalerite in				
74	3					1-2mm fg sil. Abdnt 0.5mm white to pink feldspars		carbonate veinlets ~39m				
77	3					Contacts - both are sedimentary, down hole is gradational.						

Graphic Lithology / Struct:



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Graphic Scale 1: 250

CORE RECOVERY				DESCRIPTION						CODES			
From m	Interval m	%	RQD	From m	Interval m	(incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth	Graphic Lithology	Struct.	MINERALISATION	LITHO	STRUCT	ALTN	MIN
80	3.1						61				cgSst			
83	1.9			41.5	4.2	Lithology : grey coarse grained, poorly sorted, graded				Minor red sphalerite in				
84.9	1					clastic. Base at 45.7m is cg. ~50mm sub-round to	65			fine carbonate veinlets				
86	2					angular, polymict clasts, poorly sorted, framework supported			31423	~44.7m to 45.7 in the				
88.2	3.1					grading uphole to sparse to abundant 20mm clasts to				coarsest grained part.				
91.3	3.1					medium grade sandstone.								
94.6	2.5					Clasts consist of : pale grey fg siliceous - quartz phyric								
96.8	1.3					porphyry - pumiceous volcaniclastic.								
98.0	1.7					Minor chloritic stylolites - minor fine carbonate veinlets (1c sp)								
99.5	1.5					Contact : uphole gradational - downhole erosional.	80.3		070 24B 360 43E					
101	1.7													
102.5	1.5			45.7	1.8	Lithology : upwards (uphole) fining, medium to coarse	84				S,tb			
104	2.7					grained base to fg top, part of above upwards fining	88.2							
107	3.2					sequence.	90							
110	2.6					Contact : both erosional.								
112.3	2.8													
115.4	3			47.5	3.2	Lithology : upward (uphole) fining unit.				Trace fine veinlets of	S,tb			
118.5	3.1					base is massive coarse grained unit 15m thick grading				sphalerite + galena				
121.6	3.1					to fg pale tan massive siliceous sandstone c minor zones		tan ↑		~48-49m in fg sil sst.				
124.7	2.1					c sparse clasts. The top 5m consists of several coarse		↓ fgSst						
127.8	3.1					clastic bases grading to fg tops.								
130.9	3.1					Flame structures at 48m and grading give younging direction								
134.0	3					uphole.								
137	3					47.5-50.7, 50-80m basal zones c 5-10mm clasts, sub-angular	110.6		030 58W(b)					
140	3					to sub-rounded - predominantly cherty, pale grey siltstones, minor	113							
143	3.1					chloritic irregular spots - minor clasts c porphyritic texture,								
146	3					abundant leucoxene, minor quartz grains. Zones 0.1 to 1m								
149	3					[illegible] sil sst to minor beds of cherty tops								

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CORE RECOVERY				DESCRIPTION						CODES			
From m	Interval m	%	RQD	From m	Interval m	(incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth	Graphic Lithology	Struct.	MINERALISATION	LITHO	STRUCT	ALTN	MIN
152	3					± flame structures at 47.5m (younging uphole)	120							
155	3					delta X's ~45°-50° bedding - cleavage poorly developed.								
158	3					Contacts all sedimentary conformable.								
161	2.9			50.7	10.3	50.7 -65 tan/red predominantly fg siliceous siltstone ± 3					S,tb			
164	3					basal zones each of ~1m at 54.8, 58, 61m (fining uphole)						'		
167	3					Basal zones have clasts upto 30mm - scattered, matrix supported								
170	3					poorly sorted - sub-angular - predominantly fg pale grey	133.8							
173	3					siliceous siltstone.								
176	3					Structures: bedding & cleavage poorly developed. Abundant								
179	3					low angle iron-stained joints & fractures ~ 55-59m								
182	3					61m reverse fault at 116° by 80°S southside up, displacement								
185	2.2					20mm.								
187.4	2.9			65	15.3	65 - 80.3m Pale pink-cream, massive, feldspar phyric					S,p		Sil	
190.2	3					(indistinct 1-2mm pink feldspars) abundant clasts ~5-20mm								
193.3	1.6					fg sil but ± diffuse altered boundaries, pumice rich matrix?								
195.8	1.6					Contact at 80.2m is sedimentary conformable, basal zone								
197.	3					contains 30mm siltstone, shale ± porphyry and minor								
200	3					black shale clasts. bedding oriented 164° Mag - 35° N.E.								
203	3					Structures - low angle quartz chlorite filled fractures and								
206	1.1					iron stained fractures ~ 77 - 80m								
207.3	1.3					Alteration - silica / sericite throughout (65-80.3m, more								
209	.8					intensely altered zone.			31422					
209.5	1.3			80.3	9.7	80.3 - 90 - Lithology massive, tan fine grained siliceous				trace cg. sphalerite on	S,slt			
210.7	.4					siltstone. Trace bedding at 75° to long core axis				fine fracture face at				
211.3	1.6					Rock jointed and broken at low angle ± iron stained 84.88m.				~ 88.5m				
212.9	1.4					Contacts gradational								
214.2	.3	--		90		90 - 113 Zone of interbedded massive, fine grained, tan				trace cg. sphalerite on	S,slt			
214.5	3.1					siliceous siltstone and grey vein fine grained laminated	180			fracture fa...				

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CORE RECOVERY				DESCRIPTION						CODES			
From m	Interval m	%	RQD	From m	Interval m	(incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth	Graphic Lithology / Struct.	MINERALISATION	LITHO	STRUCT	ALTH	MIN
217.6	3.1	1				cherty siltstone, with soft sediment structures in part							
220.7	3.1	1				and trace 100mm cg basal zones. Unusual 30mm							
223.8	3	1				irregular clasts ~ 110m. Fine grained tan clasts in							
226.9	3	1				fine grained grey matrix.							
229.9	3	1				Contact gradational.							
232.9	3	1				bedding at ~110m : 145° Mag 38° N.E.							
236.0	2.8	1		113		113 - 133.8. Lithology: massive, dark grey, fine grained			trace pyrite on joint	S,silt			
239	3.1	1				sandstone grading to siltstone. minor .5mm feldspar			faces.				
242	3	1				+ fine lithic fragments.							
245	3	1				common fine carbonate veinlets + common irregular chloritic							
248	3	1				alteration patches.							
251	3	1				Contact gradational.							
254	3	1				No bedding or cleavage observed.							
257	3.1	1		133.8		Lithology = massive mid grey, upwards fining,							
260	3	1				lithic-crystal sandstone, ē							
263	1.2	1				coarse grained base at 183.9m containing clasts upto							
264.2	1.8	1				100mm in size, of rip-up black slates, pale tan							
266	3.0	1				siliceous siltstones, porphyries, and minor blue-grey							
269	.9	1				siliceous lode like clasts ē trace disseminated pyrite							
						and minor clast like 5mm pyrite spots in a							
						notably white fine saccharoidal carbonate matrix.							
						The interval contains occasional rip-up black							
						slate clasts from 50 to 500mm in size (approx 1 in							
						5 metres) in well sorted - framework supported - predominantly							
						quartz crystal ē lesser feldspars and lithics sandstone							
						grading from ~2mm grainsize at ~170 to fine							
						grained sandstone at 133.8m.							
						Structure: there are frequent fine carbonate							

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CORE RECOVERY				DESCRIPTION						CODES			
From m	Interval m	%	RQD	From m	Interval m	(incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth	Graphic Lithology	Struct.	MINERALISATION	LITHO	STRUCT	ALTN	MIN
						veinlets with trace sphalerite + pyrite				trace sphalerite in				
						No bedding or cleavage observed.				carbonate veinlets				
						Sample 31422 for lithology + alteration suits + thi-section			31420	at ~140m.				
						at 167m.								
						Contact : sharp sedimentary conformable - with erosive								
						base + incorporated black shale riprup clasts. X's ~70° W.								
				183.9		Lithology : Zone of laminated black and grey shales					S,sh,la			
						and massive black slates.								
						183.9 : laminated grey and black shale c 1-100mm laminae								
						bedding at 020° 58°W, cleavage at 000° 85°W.								
						frequent 1-20mm carbonate veins.								
						190.4 : massive, fine to medium grained carbonate rich sandstone								
						bands upto .8m thick interbedded with black shale. Abundant								
						irregular and disrupted carbonate veinlets	270.							
						193.2 : massive grey shales with minor sandstone or		E.O.H.						
						brown grey siltstone bands - gradually becoming laminated								
						dark grey/brown grey shales, laminae ~1-20mm from								
						196m. movement in slates. ↓ 1/1 1/1 1/1								
						bedding. ↓ ⊂								
						depth direction								
						183.9 020° 58°W								
						200 010° 68°W								
						203 020° 68°W								
						205 025° 64°W + slickenside plunge 60° at 250°	227							
						+ reverse movement 070° 25° SE								
						220 010° 52°W								
						204.2 : laminated black slate/fine grained sandstone								

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From m	Interval m	%	RQD	From m	Interval m	(incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth	Graphic Lithology	Struct.	MINERALISATION	LITHO	STRUCT	ALTN	Min
						laminae ~1-20mm with abundant fine carbonate veinlets often disrupted with W // E movement often associated ± fg pyrite.								
						207.5 : massive black slate with abundant carbonate veinlets and associated pyrite. Massive white quartz vein at 211.2 to 212.5m					AltVS,t	1		
						Structure: unusual nodules ~ 217 to 218m spherical 5-10mm hard black nodules with pressure shaddows of sericite ± carbonate ± pyrite (Thin section:)								
						Contact: bedding and cleavage are relatively concistant at ~ 010°-020°, 56°-69° W, down to 220m.								
						At 220.3 m a fold pair possibly indicate movement in the shales with a steep Easterly dip with east side up. Contact is at 20° to LCA and is fringed or ragged, resembles alteration advancing along cleavage.								
				220.4		Irregular altered zone with abundant 2mm cream feldspars, clasts ~20mm pale grey resembling shales, clasts 20mm of blue/grey sil/ser alteration with fine grained disseminated galena pyrite and sphalerite, wispy patches of sericite and patches ± fine grained white saccharoidal carbonate.				20mm clasts? rich in fg diss py. 20mm clasts; blue/grey, sil/ser with minor red fg diss sp + gl. clasts resemble replacement.				
				220.7		Lithology: grey fine grained shale - (similar to above shale sequence). Low angle fracture ± calcite + pyrite at 220.7 - Band of irregular coalescing carbonate / feldspar								

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CORE RECOVERY				DESCRIPTION							CODES			
From m	Interval m	%	RQD	From m	Interval m	(incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth	Graphic Lithology	Struct.	MINERALISATION	LITHO	STRUCT	ALTH	MIN
						sericite spots (similar to above altered zone)		Contact ZONE						
						Contact : diffuse.								
				221.1		Lithology : massive pale grey to cream siliceous fine		black slate	015 60 W	fine carbonate veins with	fysil			
						grained rock (resembles calc-silicate). Bands, possibly				cg black sphalerite spots		'		
						bedding steepens to parallel the contact at 221.7m.				+ cg red sphalerite spots				
						Minor fine carbonate veins + tr diss sulphides throughout.		blanched slate		± trace fg diss py-sp				
						Contact : 340° 40°W abrupt irregular - white carbonate	220.9	mineralised carbonate zone		throughout.				
						vein ± sericite wrapping altered feldspars. No kinematic								
						indicators.	220.7	calcite pyrite						
				221.7		Lithology: feldspar phyric Volcaniclastic ("Footwall type")		fg grey slate		trace fine grained black				
						221.7 : massive pale grey, silica-sericite altered rock,	221.1			sphalerite associated with				
						feldspars ~1-2mm with carbonate/sericite alteration in fg				irregular fine hairline				
						sil - ser matrix Minor carbonate veins - trace sulphides.		fg sil		carbonate veinlets				
						225.6 : massive grey, feldspar-phyric Volcaniclastic - matrix				from 221.7 to				
						is less altered and visibly more pumiceous.								
						232.9 : 1-3 mm pink feldspars and sparse indistinct								
						10-30 mm clasts (similar in composition) set in pumiceous matrix	221.7	cl. carb	340 40 W					
						Matrix is mottled and patchy in appearance with dominant		V fg						
						silica and chlorite/sericite alteration.								
						There is a gradual increase in pink colouration								
						indicating increasing albite alteration from ~248m								
						becoming dominantly pink from 264m with minor large								
						chloritic patches.								
						Structure: minor bands ± irregular hairlike carbonate								
						veinlets at 223, 225 and 227m.								
				EOH		EOH								