PASMINCO EXPLORATION
DIAMOND DRILL HOLE LOG

Hole ID
YNC16

DRILLING

Location	HENTY CANAL
Project	YOLANDE EL 11/85
Prospect	TYNDALL CONTACT
Design By	P.M. Quayle
Logged By	N.K. McGunnigle
Relogged	
Commenced	12 July 1995
Completed	1 August 1995
Drilled By	Diamond Drilling Tas.
Drill Rig	Longyear LM38

OBJECTIVE

To test for mineralization at the lower contact of the Tyndall Rhyolite within a zone of mixed sediments and re-worked andesites. The zone is associated with carbonate, silica and haematite alteration, and is correlated with a zone with anomalous base-metal and gold mineralization to the south, and is thought to be in a similar stratigraphic position to the Henty gold mineralization 3kms to the north.

RESULT

Significant carbonate-haematite and silica alteration was intersected in zones within and intermixed with volcaniclastic sediments and lavas, downhole ofthe Tyndall Rhyolite. Some disseminated pyrite and rare fine grained galena was intersected.

COLLAR SURVEY (AMG)

AMG mN	5360863.6	Bearing	251.0
AMG mE	379850.4	Dip	-55.0
mN		Hole Length	252.8
mE		DH Survey Type	Eastman single shot
RL	541.8		

DOWNHOLE SURVEY (AMG)

Depth	Bearing	Dip
0.0	-55.00	251.00
54.0	-54.00	248.00
100.0	-53.80	251.00
141.0	-52.00	263.00
244.0	-49.30	256.00

SIGNIFICANT CORE LOSS

POOR GROUND CONDITION ZONES

HOLE SIZE

From	To	Size
0	2	noncore
2	47.7	HQ
47.7	252.8	NQ

HOLE CONDITIONS AFTER COMPLETION

Collar	
Steel Casing	Capped
PVC Casing	All hole
Ground Water	NIL
Wedge	NIL
Drill Pad	Sump filled in and roughly levelled.

SIGNIFICANT INTERSECTIONS

782133

Project : YOLANDE
Logged by: NKMCGUNNIGLE
Date : 25-7-95

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m	VEINING and ALTERATION (1 = weak, 4 = intense)	STRUCTURE (b = bedding, c = cleavage, f = fault, Angles to LCA)	GRAPHIC LOG (0.06 mud, 0.5, 2, 8, 32, max mm)	LITHOLOGY	MINERALISATION
0	sil (4) chl (2) - pervasive alb (1) (pale pink)	commonly broken		TYNDALL RHYOLITE Silicified, quartz-phyric flowbanded rhyolite lava. Dark green-grey in colour (chl), with mottled pale pink patches of sil-alb commonly banded (mimicking flowbanding ?) with dark green chl blotches. Quartz phenocrysts, sub-euhedral constitute ~2%, ≤ 5mm (av. 2mm). Feldspar ≤ 4mm long, rectangular 1-2%, commonly replaced by alteration (chl, alb, sil). White, fg. leucoxene clustered in 'bands', parallel to flowbanding	
2					
4	3.7 mottled chl + alb	flowbanding (FB) (chl+alb) 28°LCA			
6	veinlets & microveinlets common: infilled with qtz ± chl	FB: 35°LCA broken			
8					
10		FB: 35°LCA			trace diss py + some diss py in qtz-chl veinlets
12					
14					
16	ser (1) replacement of ? crystals or nodules + in fractures	FB: 45°LCA			
18				17.1-17.2: pseudoclastic texture where chl-sil pervasive in fractures	
20					
22	21.2 pink-red pervasive alb/hm + pink-orange replaced feld. phenocrysts				
24	24.2 contd. pink alt, but banded & mottled + crystal replacement				
26		FB: ⊥ LCA			
28					
30	30.4 chl (2) ser (1) in fractures & crystals	FB: 40° LCA			
32					
34	sil (4: contd)				
36		FB: 38°LCA			
38	38.8 pink-orange alb patches				
40	qtz-chl veinlets	38.7 broken + rubbly 41.4			
42	dark green chl				
44					
46				inc'g pervasive red colour + chl	
48	inc'g alb/hm from mottled to pervasive	fracture: 30°LCA 48.6 filled with mud & gravel (20mm)		47.7 inc'g N.S. chl - more visible feld. (? due to < sil.?)	
50	sil (2)				

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50					
52					
54	54.2 sm CO veinlets (1)				
56					
58	57.3 15mm qtz-chl vein 58.9 20mm qtz-CO vein	Fracture : 48°LCA 6mm, infilled 57.4 with fg. mud (appears to have 2 'fills')			
60					
62					
64					
66	CO				
68					
70					
72	71.8 net CO veinlets green pervasive chl.	CONTACT: cnf.		73.4	
74	73.6 qtz-CO veinlets Ser(3) sil(1) hm(1-2) hm	B: 68°LCA		VOLCANIC MASS FLOW DEPOSIT Pink-grey, compacted sericitic mass flow deposit.	fine diss py (<1%) + in microveinlets aspy? in qtz vein
76		CONTACT: grad		76.3 PTO	
	Ser(1) qtz-CO veinlets (3)	(mixed cnf) B: 70°LCA CONTACT: cnf		77.6 VOLCANICLASTIC MASS FLOW DEPOSIT PTO	py, diss (<1%) + hr. sp
78	Sil(3) hm(1) CO(2)	B: 70°LCA CONTACT: mixed cnf.		78.3 SILTSTONE PTO 79.0 INTERCALATED SLTST + VOLC'C	py > sp diss, 1%
80	Sil(3) CO-qtz veinlets ser(2) // bedding			SILTSTONE 80.7 / 80.7-80.8	py > sp (diss) 1%
82	CO veinlets qtz veinlets CO(4)			BLACK SHALE Finely laminated, carboniferous, slightly graphitic with occasional bands (<10mm) of crs.gr. seds + 'clasts' of mass. py. 84.6-85.0 : contains abundant sil. nodules + py	81.0 : sp in qtz vlets 2-3% py (diss) in veinlets & stringers + spy (hr; veinlets) 84.6 5% py (diss + string)
84	Sil(2) + CO (veinlets)	B: 40° LCA CONTACT: cnf		85.0	
86	CO(3) Sil(<1)	mixed ? some faulting above & below contact, brittle movement with infilling orange clays		MASS FLOW BRECCIA Sub ang - subrounded clasts of sst, siltst & carbonate (≤ 80mm) in a med-dark grey shale - fine siltst matrix. Pale grey-brn mst, laminated shale & CO clasts are compacted in bedding, with soft matrix compaction features observed around clasts. Rare jasper is present. CO alt° has replaced some clasts (pref. CO/sst?), and masked original texture in places (where CO = 4) some chl-hm staining; pink hm in CO from 89.0 down. From 88.6: > prop° matrix : clasts	2-3% py, diss + 'nodules' (<8mm) in CO & CO clasts + on rim of CO clasts 1% mag, diss 86.4 tr. sp
88	hm-chl(<1) CO (4) CO CO				
90	patches of intense (4) CO, masks original txt hm				
92					1-2% py (as above)
94		94.4 Fractured + broken (x6) with clay in fracture? F 95.8 95.6 Broken rubbly			
96	95.9 CO(2) ser(2) CO				
98	97.5 sil(2). CO(2) ser(2)	Sm F: 10°LCA 98.8		98.7 Intermixed sst/shale/CO - conglomerate (PTO) visible feldspar crystals + sericite	some f.g. py stringers in shale

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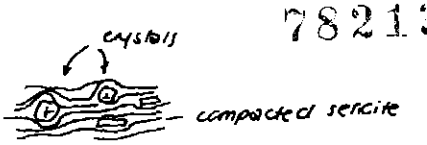
73·4 - 76·3 Quartz crystals av. 2-4mm (≤ 6mm) + lesser feldspar crystals (≤ 3 mm) are abundant in sericitic ground mass contains very rare Nbular pumice + occasional sil. clasts. Fine distribution of levcoxene present. Haematitic alt^{n} of nodules + crystals.



76·3 - 77·6 VOLCANICLASTIC MASS FLOW DEPOSIT

Brown-grey, compacted, sericitic (originally vitric), containing qtz + feld crystals + ~1% levcoxene. clasts include rounded siliceous nodules, subangular shale-siltst + rip-up clasts of shale (≤ 20mm). Similar/some derivation as above unit.

76·3 - 76·9 contains qtz-chl veins

76·9 - 77·6 some darker bands, 10-20mm abundant feldspar + sericite

77·6 - 78·3 SILICIFIED SILTSTONE

med-grey siltstone, highly silicified masking much of original texture. Appears to be bedded contacts either side have "compacted" seds

78·3 - 79·0 INTERCALATED VOLCANICLASTIC + SILTSTONE

Mid grey-brown, sericitic volcaniclastic containing qtz-feld + levcoxene with clasts of rhyolite (?), shale + silicified nodules. interfingered with fine, grey siltstone (CO)

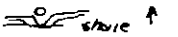
py min^{s} is diss & in microveinlets / fine stringers.

79·0 - 80·7 SILICIFIED SILTSTONE

Blue-grey, intensely silicified siltstone; original texture masked by alt^{n}, but appears to be fine grained, massive, and ?bedded (10mm band of incid levcoxene indicates bedding structures)

some dark patches, 1-4mm in length, abundant (chl?)

98·7 - 102·2 Intermixed seds. Finely laminated black shales facing uphole: clasts in bedding



Clasts include laminated shale, & CO replaced clasts ≤ 40 mm

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100					py 'clots' inc'g common
102		CONTACT: cnf mixed		102-2	
104	CO (2) as vein/ veinlets ser (1) // cleavage CO // cleavage 10mm qtz-CO vein at 103.5	C: 65-70° LCA broken core CONTACT: cnf		BLACK SHALE finely laminated black shale with interbedded dark grey siltstone 105-6	3-5% py (in some CO as stringers & patches // cleavage
106	CO (2) in patches CO (3) stylolitic, cmg. fxt mixed ser (<1) sil (2)	C: 60° LCA		INTERCALATED VOLCANIC DERIVED SANDSTONE - SILTST. Mid-grey laminae of fine silst-sst & crs sst-gravel composed of 1-2mm rounded - subrd quartz, feldspar & siliceous clasts with pyrite nodule & diss. pyrite in matrix.	2-3% py, diss + 'nodules' rare sp rare dull grey gn in qtz-CO veinlets
108	CO (3)			From 107.5: sand crystals) bedded in fine, sericitic groundmass. 116.6-112.8, flattened tubular & vesicular pumices visible ? unsure whether volcanic/ volcaniclastic. (some hm-sil replacing)	
110	chl (1)				
112	ser (2)				
114	hm (1) CO (3)				- 2-3% mag
116	jasper in chl veins			From 112: Leucoxene inc. in abundance (1 → 3%), some in bands.	
118	qtz-chl vein 40mm CO (1) in f.g. silts bleached				gn (qtz-CO vein)
120		CONTACT: mixed		121-2	
122	CO (4) ser (<1) in fracture chl (<1) in fracture			ZONE OF CARBONATE ALT^n CO alt^n of fine ?volcaniclastic PTO	py (1%) in stylolitic fractures
124	CO (3) trace hm			125-1	
126	CO (1-3) in patches hm (1) chl (1) feldspar CO (4) CO			VOLCANICLASTIC SANDSTONE Grey, fine to coarse grained sandstone intercalated with gravel sized clasts, composed of reworked feldspar crystals, anhedral (white + hm stained) ± hornblende? + leucoxene clasts include jasper, + siliceous clasts, 2-6mm, rip-up CO, stretched along cleavage in some sst beds (eg 126-9), sericitic compaction around clasts. Patches of pink-red hm in coarser beds	v. min diss py tr. sp
128					1% diss + vuggy py (CO veining) minor-ab mag
130					
132	ser (1)	C: 44° LCA			py, diss, minor mag, 2-3%
134					
136	CO (3) masks much of original texture				py, diss, ≤1% (some in stringers parallel foliation)
138				139.7-140.1 Fine grained dark red-grey mafic unit. ?basalt dyke or reworked beds. (unidentified) strongly mag-chl altered	2% mag, in crs gr. beds py (minor)
140	chl-mag (4)	CONTACT: mixed		140.1	
142	CO (4) hm (1) chl (<1) ser (1) in cleavage	C: 42° LCA cnf. CONTACT: mixed C: 42° LCA cnf		CARBONATE ZONE intense carbonate alteration of fine grained beds PTO 142.7	2-5% mag (f.g. diss)
144	CO (2-3) - some pervasive, mostly in CO veins/ veinlets bleached orange-yellow (hm-ser)	bleached (?F zone)	CO vein	LAVA - CARBONATE COMPLEX Porphyritic, dark grey intermediate lava containing irregular patches & clasts of white & hematitic carbonate	tr. diss. py
146	hm (1) patchy chl (1)	10mm sheared, flaky F: 42° & puggy zone 146	CO vein	145-147: pseudoclastic zone with abundant sericite	1% diss. py in CO matrix minor mag
148	ser (1) parallel to cleavage CO (4)	Strongly foliated with stretched amygdales, feld. crystals, sericite			

121·2 - 125·1 CARBONATE ALTERED ZONE

Mottled pale-dark grey silicic alteration of sand-siltst & possibly limestone which has preferentially altered to carbonate. Original volcaniclastic includes quartz crystals + silicified ?clasts or nodules which is exposed in lesser altered matrix near lower contact.
Chl-ser pervasive in finer grained (silt), & CO possibly more prevalent in coarser beds of sand-silt volcaniclastics.

140·1 - 142·7 CARBONATE ZONE

White & pink (hm stained) CO alteration of sediments, originally composed of fine, vitric siltstone & ?limestone, interbedded with coarser volcaniclastics near lower contact. Intense alteration has masked most of original texture with irregular purple-grey alteration.

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150	CO (2-3)	C: 42° LCA		Lava contains phenocrysts of feldspar ± hypersthene(?), and amygdales replaced by CO. Crystals & amygdales stretched with strong cleavage. 150.0 - 159.5, increased sericite (parallel cleavage, compacted w. foliation) 1% leucoxene	minor py - (commonly assoc. with chl. patches)
152					
154		CO lenses & patches throughout			
156	CO (3)				
158				Nature of CO in the complex suggests that lava flowed into semi-lithified carbonate sediments & conglomerate, some hematitic white-purple irregular, blotchy clasts & 'rip-up' clasts jumbled into complex. Beds up to 100mm.	
160		C: 36° LCA			
162					
164					
166	CO				
168	167.1 dark red hm 168.4	strongly cleaved C: 40° LCA		168.4 Intermixed lava - CO composed of clasts of white + hm (purple) CO conglomerate & rip-up clasts & sub-rounded 170.9 clasts of dark red-grey lava	py (<1%) diss + nodules in matrix
170	CO (3)				
172					V-minor diss. py
174	CO (3-4)	C: 45° LCA		173.3 Lava - CO complex. 174.4 fragmented clasts of CO & lava, ≤ 70mm, with pseudoclastic texture.	py (<1%) diss. in matrix
176	CO (2-3) in patches			MIXED VOLCANIC - CARBONATE SEQUENCE	minor py (diss) associated with CO / chl alt"
178	chl (1)-(2) in patches hm (1)			Variably textured felsic ?volcaniclastic - mixed CO unit Change in texture with alt": fleeky ser-chl & massive sil-alb. Volcanic (unidentified) is massive & uniform, crystal rich, composed of feldspar > quartz, ± hypersthene, ± amygdales commonly pink-red (hm stained)	
180					
182	CO (3) chl (2) trace hm				
184					
186	185.5 CO (1) (2) in patches chl (1) hm (1)			Slightly hematitic CO is present as veins, muds & patches, & within wispy & banded CO (muds) are fragments / clasts of volc-aniclastics. (? fragmented as intermixed sequence, or 2° pseudoclastic feature). Patchy sil-alb alt" (massive) vs chl-ser which has been subject to foliation	
188					
190		sm. F CO-filled fractured + broken, bleached (? F zone)	190.5 F: 15° LCA 192.1 192.6		
192	CO (2-3) pink-purple ser (2) bleached			191.0 Patchy & fragmented pseudo-clastic CO-volc sequence (bleached & sericitic) 193.1	minor diss. py (CO alt")
194	CO (1) (2) in patches commonly ∥ cleavage or pseudoclastic ser (2) chl (1) hm (1)	C: 30° LCA		FELSIC VOLCANICLASTIC Mid-dark grey, crystal rich, with light grey, highly cleaved sericitic matrix. Feldspar + qtz crystals usually have corners knocked off, and clasts are stretched parallel to cleavage	minor py (diss) mag, ab, (diss)
196					
198	ser (2), CO (<1) chl (1) hm (1)				

(contd)

1931 - 205·2

Lesser carbonate is irregular, patchy & stretched by cleavage. Some CO patches contain fragmented clasts of irregular shaped volcanic clasts.

Slightly & gradually increasing in grainsize downhole.

Presence of leucoxene in some fine, subtle bands.

Some dark grey-black & green chl ?clasts & /or alteration flecks are stretched parallel to cleavage, & commonly have wispy ends.

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200					
202					py (massive) in 10mm band + qtz-co
204					1% py (diss) 1% mag (diss) tr. diss sp
	+ hm(1)	CONTACT: inf 22° LCA		205.2	
206	CO(4) chl(1) ser(1)	CONTACT: diffuse		205.8 MIXED CARBONATE SEQUENCE	py (dis) mnr mag (dis) mnr py mnr
	sil(2) ser(1-2) tr. co hm	C: 30° LCA strongly cleaved, esp. where sericitic		206.1 FINE CLASTIC-CO UNIT PP VOLCANICLASTIC SANDST	2-3% py (diss)
208	sil (2) tr. co ser (2) hm (1)			Upwards fining graded & intermixed med-coarse gr. sandstone volcaniclastics. Variably textured & coloured with alteration, from light grey (sil) fine-med grained to pale orange (hm-ser) coarse volcaniclastic. Constituents include feldspar & quartz (< 1mm) + sil & hm clasts. Leucoxene in finer grained beds. Beds 30-60mm. Some clasts (≤ 20mm) composed of feldspar phyric volcanic (? lava/clastic), variably altered.	py (diss) mnr mag (alt) in finer beds)
210	ser (2-3) in patches (strongly cleaved) sil				1-2% py (diss)
212					py (≤ 1%) diss f.g. diss
214	sil-alb (4) sil (3-4)	C: 24° LCA			
216	ser (3) sil-alb (1)	highly sericitised tuffs have k: 40° sheared offset by texture near parallel shear 10° LCA 218.3			v.f.g. diss py 2% commonly // foliation
218	ser (2-3) variable & patchy sil-alb (2-3) hm (trace)	sheared 65° LCA 218.5		213.9-216.5 Alteration overprint enhanced clastic appearance/induced pseudoclastic texture orange sil-alb pseudoclasts irregularly distributed within siliceous alteration; appear to nucleate on original clasts as relic feldspar laystats visible.	
220					220.2
222		C: 30° LCA			diss. mag (alt) some in clusters // foliation
224	223.3 hm (1-2) light-dark patches 225.8				1% py. diss f.g.
226					
228	CO (3) chl (1) overprint hm on lower contact 229.1				
230	ser (3) CO veins + veinlets	PF or shear 36° LCA KINK 30° LCA			
232	231.6 CO (2) hm (1) 232.3 ser (3) CO (1)				
234	233.6 sil (1) hm (1) sil-alb (2) orange-grey sil (3) contains traces of fine grey base metal sulphides (gn) + py	C: 32° LCA			235.5
236				236.9 Mottled, orange-grey sil-alb and grey silica pseudoclastic overprint of clastics. Strongly cleaved, esp. where sericitic	2-4% v.f.g. diss py + diss py 'clots' minor fine gn in grey sil alt.
238					
240					
242	242.8 sil-alb/sil (3)			242.8	243.7 tr. cp+gn in qtz-CO veinlets
244	244.15 ser (2) sil-alb (3) ser (2) few qtz-CO veinlets	CONTACT: 52° eroded; difficult to identify. v.n.c.f. Strong ductile deformation made original rock unidentifiable		244.15 MASSIVE VOLCANICS massive & uniform orange-grey volcanic (? lava), with varying alt° possibly following ? flow banding. feldspar crystals albitised & deformed by strong cleavage. 248.7 Leucoxene ~2%	1% diss py tr f.g. diss gn
246					
248	248.7	CONTACT: 82° ? conf. abrupt		VOLCANICLASTIC S	248.6 diss. sulphide bed py, alb (diss)

205·2 - 205·8 MIXED CARBONATE SEQUENCE

White-cream & hematite stained pink-purple carbonate in irregular blotches, commonly p·p bordered by pale co. Within CO, in irregular clasts & wisps, are med-crs grained sericitic orange-brown & grey volcaniclastics (orange-brown match above unit), stretched along cleavage.

205·8 - 206·1 FINE CLASTIC- CO UNIT

Fine grained, cream coloured felsic derived volcaniclastic sandstone intermixed with co & minor med-crs grained volcaniclastics. Sericitic between beaded and foliated units of co ?mud.

Alteration: CO (2-3) in patches & bands
ser (2)

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250	sil-alb (3) coarse ser (2-3) veining	C: 36° LCA			py: ab. (diss. f.g.)
252	ser (3) sil-alb (2)	ductile fault 251.8 (or shear) F: 28° LCA		251.6 ductile 262.0 shear 252.8 EOH. Strongly deformed and variably altered volcaniclastics. Fine to coarse grain sized, with finer constituents more highly sericitised, deformed & cleaved. Coarser components are sil-alb altered, grey-orange, with some qtz-to pseudoclastic overprinting. Feldspar crystals are albitised and deformed by strong cleavage.	gn: minor v.f.g. diss. in sil. alt^n
254		at 251.8 ductile fault