BPASMINCO LTD - ROSEBERY

DIAMOND DRILL RECORD

OBJECTIVE : To investigate EM anomaly at 660mN

RESULT : 20m weakly mineralised carbonate alteration

PASMINCO LTD - ROSEBERY

DEPTH : 1470.5

HOLE SIZE: HQ 380m, NQ 1470.5m

COMMENCED: Dec 90

COMPLETED: March 91

Depth	Direction	Dip	Depth	Direction	Dip

COLLAR DIP : 82

DIRECTION : 12

NORTHING : 274

EASTING : 1238

HOLE No. : 116R

LOCATION : Mt Black

LOGGED BY : C.H.L.

COLLAR RL : 3660.4

FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION
0.0	1167.8	MT BLACK VOLCANICS			and /dac vol	
		Melanocratic ,felspar phyric porphoritic intrusive, 1 to 4mm white felspar phenocrysts set in an aphanitic dark grey to brown matrix; 63.9 to 66.5 light green equi-granular chloritised mafic dyke ; 117.5 to 141.6 intensely fracture by sub-vertical fractures cross cut by 30 degree fractures; occasional quartz veins 2 to 3cm at 70 to 90 degrees to core; occassional carbonate veins as fracture fill of 30 degree veins ; veining generally surrounded by a baked zone where the rock is discoloured to medium brown;				
		356.4 to 411.8 zones of albite alteration , pink with lobate alteration fronts occasional zones of bleaching with patchy remnants of unaltered rock; numerous 3 to 5mm white carbonate veins and less numerous 1 to 5cm quartz veins ; occasional chlorite associated with veining; with rare very thin tourmaline veins.	felS	B	alt dac/ and vol	Extremely fine grained ,very sparsely disseminated pyrite; occasional fine grained pyrrhotite at the margins of veins particularly those veins containing chlorite.
		411.8 to 417.5 Fractured , bleached zone with angular well defined patches of alteration ; numerous thin white carbonate veins.	ser carb	C C	alt vol	Rare isolated very fine grained pyrite
		417.5 to 693.8 Dark grey fine grained altered andesitic volcanic ; occasionally felspar phyric with phenocrysts 3mm in aphanitic melanocratic groundmass; numerous white wispy 3mm wide carbonate veins throughout: bleached to buff grey from 270.0 to 272.9m ; unit becomes progressively light in colour down hole reflecting variability of alteration; 687.1 to 693.8m bleached and strongly silified obscuring texture and mineralogy; thin 0.6m igneous intrusion of similar composition but coarser grainsize from 693.8 to 694.4m ,upper and lowera boundary irregular and surrounded by a zone of siliceous alteration;	sil 687.	A	Dac/Rhy Ign Intr	Isolated very fine grained pyrite crystals ; occasional clusters of very fine grained pyrite crystals on the rims of carbonate veins.
		693.8 to 715.4 Very light grey to cream siliceously altered andesitic/dacitic volcanic ; coasional very vague felspar just visible;	sil	A	Dac/Rhy Ign Intr	Extremely rare,extremely fine grained isolated pyrite crystal associated with carbonate veins.

SAMPLE NO.	FROM	TO	Length	Pb %	Zn %	Cu %	Ag g/t	Au g/t	Fe %	$
Sample From	To	Rec Length		Pb %	Zn %	Cu %	Ag g/t	Au g/t	Fe %	
		Factor		0.52	1.00	0.81	0.03	1.88		
	1133.1	1133.1								
838861133.1	1134.1	1.0		0.3	1.1	0.05	2	0.1	13.7	
838871134.1	1135.1	1.0		0.1	1.0	0.02	2	0.1	10.3	
838881135.1	1136.1	1.0		0.1	0.3	0.01	2	0.1	11.3	
838891136.1	1137.1	1.0		0.1	0.2	0.01	2	0.1	4.6	
1137.1	1342.7	205.6								
838701342.7	1342.7	0.0		0.1	0.5	0.01	2	0.1	1.7	
838711342.7	1343.7	1.0		0.2	0.9	0.15	2	0.1	3.7	
838721343.7	1344.7	1.0		0.1	0.1	0.01	2	0.1	3.6	
1344.7	1399.7	55.0								
838731399.7	1400.7	1.0		0.1	1.1	0.05	2	0.1	1.9	
838741400.7	1401.7	1.0		0.1	0.7	0.05	2	0.1	1.3	
838751401.7	1402.7	1.0		0.1	1.1	0.38	2	3.4	2.4	
838761402.7	1403.7	1.0		0.1	0.5	0.03	2	0.1	1.8	
838771403.7	1404.7	1.0		0.1	1.6	0.08	2	0.1	1.7	
838781404.7	1405.7	1.0		0.1	1.1	0.04	2	0.1	2.0	
838791405.7	1406.7	1.0		0.1	0.8	0.03	2	0.1	2.2	
838801406.7	1407.7	1.0		0.1	1.9	0.08	2	0.1	2.0	
838811407.7	1408.7	1.0		0.1	0.9	0.03	2	0.1	2.4	
838821408.7	1409.7	1.0		0.1	0.9	0.01	2	0.1	1.6	
838831409.7	1410.7	1.0		0.2	0.6	0.01	2	0.1	1.7	
838841410.7	1411.7	1.0		0.5	0.7	0.02	2	0.1	1.2	
838851411.7	1412.7	1.0		0.2	0.4	0.01	2	0.1	0.9	
838861412.7	1413.5	0.8		0.4	0.7	0.01	2	0.1	1.2	
838871413.5	1414.5	1.0		0.7	1.2	0.04	2	0.1	2.3	
838881414.5	1415.5	1.0		0.1	0.7	0.02	2	0.1	1.9	
838891415.5	1416.5	1.0		0.1	0.4	0.01	2	0.1	1.0	
838901416.5	1417.5	1.0		0.1	0.1	0.01	2	0.1	1.6	
838911417.5	1418.5	1.0		0.1	0.2	0.01	2	0.1	2.0	
838921418.5	1419.5	1.0		0.2	0.3	0.02	2	0.1	2.4	
838931419.5	1420.5	1.0		0.5	1.2	0.05	2	0.1	1.4	
838941420.5	1421.5	1.0		0.1	0.1	0.01	2	0.1	2.2	
838951421.5	1422.5	1.0		0.1	0.1	0.01	2	0.1	1.9	
838961422.5	1423.5	1.0		0.1	0.1	0.01	2	0.1	1.7	
838971423.5	1424.5	1.0		0.1	0.1	0.01	2	0.1	1.1	

Sample From	To	Rec Length	Pb %	Zn %	Cu %	Ag g/t	Au g/t	Fe %
		Factor	0.52	1.00	0.81	0.03	1.88	
838981424.5	1425.5	1.0	0.4	0.5	0.01	2	0.1	1.8
838991425.5	1426.5	1.0	0.2	0.5	0.01	2	0.1	2.6
839001426.5	1427.5	1.0	0.2	0.6	0.01	2	0.1	1.9
400241427.5	1428.5	1.0	0.7	2.0	0.11	2	0.1	1.8
400251428.5	1429.5	1.0	1.2	1.6	0.05	2	0.1	1.7
400261429.5	1430.5	1.0	0.9	1.5	0.05	2	0.1	1.0
400271430.5	1431.5	1.0	0.1	1.9	0.05	2	0.1	0.9
400281431.5	1432.4	0.9	0.1	1.7	0.50	2	0.1	0.7
1432.4	1451.6	19.2						
400291451.6	1452.6	1.0	0.1	0.2	0.01	2	0.1	1.7

To	RQD% <S=Shear>
18.5	10
41.3	30
54.5	60
117.5	80
141.6	30
356.2	80
411.8	70
417.5	50
570.5	80
573.0	40
623.3	75
624.3	40
673.5	80
675.5	40
723.6	80
725.5	40
768.4	80
770.0	S
928.0	75
928.4	S
963.5	75
965.5	20
968.8	70
971.5	50
989.0	70
993.6	45
889.0	70
993.8	50
920.6	75
933.5	50
1009.0	80
1020.5	65
1065.5	80
1089.5	60
1133.1	75
1137.1	95
1163.0	70
1167.0	10
1250.0	70
1269.5	80
1277.7	65
1340.0	80
1368.0	70
1404.0	75
1425.1	80

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COLLAR RL : 3660.4

FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION
		alteration has obscured texture; traces of perlitic cracks just visible under binocular microscope; minor 2mm wide wispy discontinuous white carbonate veins.				
		715.4 to 724.8 Very light grey felspar phyric volcanic , felspar phenocryst to 3mm euhedral with olive green secondary biotite alteration set in an aphanitic leucocratic weakly silicified felsic groundmass; large elongated amygdals to 2mm ; occasional devitrification spherulites.	biot	8	Dac/Rhy Ign Intr	Patches of fine grained sparsely disseminated pyrite.
		724.8 to 864.6 Light grey porphoritic felspar phyric , silicified dacitic/ rhyolitic volcanic ; <1mm to 4mm euhedral felspar in an aphanitic mesocratic devitrified matrix; minor wispy discontinuous white carbonate veins; fine specks of white phyllosilicate alteration visible in slabbed sections under the microscope also ghost perlitic cracks; variable degrees of alteration both obscure texture and give a mottled appearance to the interval; minor patchy concentrations of silicified chlorite and sericite impart a weak foliation to some areas; 768.5 to 770.0m fine grained chlorite schist ,probable shear zone.Occasional 1cm to 30cm quartz vein surrounded by annealed detextured zones; minor fault breccia 15cm at 823.9 silified with angular volcanic clasts.Minor pug filled fault 828 to 828.4m .Occasional thin 4mm veins of chlorite/biotite . Open fractures from 863.5 to 865.5 resulted in loss of water circulation suggesting current stress is tensional.	sil	8	Dac/Rhy Ign Intr	Fine grained traces of pyrite and pyrrhotite associated with white carbonate veins. Rare traces of very fine grained cassiterite associated with minor chlorite/biotite veins.
		864.6 to 866.6 Very dark green porphoritic felspar phyric intensely altered intrusive; pervasive biotite/chlorite alteration ; euhedral biotite /chlorite altered 2mm felspar phenocrysts set in an aphanitic melanocratic matrix; 1 to 2cm chill margin at upper and lower contact ; unit could represent altered mafic	biot chl	A A	biot chl ig int	Very fine grained relatively abundant disseminated pyrite.

Sample From	To	Rec Length	Factor	Pb % 0.52	Zn % 1.00	Cu % 0.81	Ag g/t 0.03	Au g/t 1.88	Fe %	$	To	RQD% (S=Shear)
1399.7	1407.7	8.0		0.1	1.1	0.09	2	0.5	1.9			
1399.7	1432.4	32.7		0.3	0.8	0.05	2	0.2	1.7			
1401.7	1402.7	1.0		0.1	1.1	0.38	2	3.4	2.4			
1427.5	1432.4	4.9		0.6	1.7	0.14	2	0.1	1.2			
1427.5	1428.5	1.0		0.7	2.0	0.11	2	0.1	1.8			

Depth	Dip	Azimuth
0.00	-82.00	12.00
150.00	-81.00	8.00
168.00	-81.00	8.00
180.00	-81.00	7.00
210.00	-80.00	7.00
238.00	-80.00	7.00
315.00	-80.00	1.00
366.00	-80.00	3.00
390.00	-80.00	360.00
425.00	-80.00	360.00
460.00	-79.00	355.00
500.00	-78.50	353.00
546.00	-77.50	348.00
600.00	-77.00	348.00
630.00	-77.00	348.00
690.00	-76.50	346.00
708.00	-75.00	338.00
738.00	-71.00	325.00
780.00	-66.00	318.00
816.50	-61.00	314.00
834.00	-61.00	315.00
909.00	-57.00	310.50
978.00	-46.00	302.00
1020.50	-40.00	304.00
1290.00	-36.00	296.00
1374.50	-36.00	294.00
1470.50	-36.00	293.00

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DIRECTION : 12

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EASTING : 1238

HOLE No. : 116R

LOCATION : Mt Black

LOGGED BY : C.H.L.

COLLAR RL : 3660.4

FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION	SAMPLE NO.	FROM	TO	Length	Pb %	Zn %	Cu %	Ag g/t	Au g/t	Fe %	$	To <S=Shear>	RQD%
		dyke.																	
		866.6 to 931.0m Mottled light to dark grey felspar phyric altered volcanic: biotite/chlorite alteration imparts a diffuse foliation ; silicification of biotite/chlorite alteration and some felspars; alteration obscures most textures but what could be perlitic cracks are visible in some areas; patches of pink felspar alteration ; altered nature of the rock makes identification difficult but the absence of a clear boundary with volcanics suggest it is altered igneous rock rather than volcanoclastic; minor white carbonate veins ; foliation at 35 degrees .	biot chl sil	B B B	alt vol	Very fine grained pyrite disseminated sparsely throughout.													
		931 to 931.9m Dark green fine grained chlorite schists with white quartz carbonate veins; could be a shear parallel to cleavage.	chl	A	chl sch & qcg	Very fine grained disseminated pyrite throughout.													
		931 to 960.8 Dark grey fine grained felspar phyric siliceous rhyolitic/dacitic intrusive ; biotite/chlorite infilling numerous interlocking fractures ; occasional white wispy discontinuous carbonate veins ; felspar white euhedral 3 to 4mm, occasional 1 to 2cm patch pink felsic alteration elongated in the plane of foliation; weak foliation at 45 degrees to core axis.	sil	B	Dac/Rhy Ign Intr	Very rare isolated extremely fine grained euhedral pyrite crystals.													
		960.8 to 1005m Mid grey, coarse grained poorly sorted feldspar phyric volcanic breccia , lithic clasts to 3cm of siliceous felsic volcanics; some white wispy areas that could represent pumiceous clasts; traces of chlorite/biotite alteration overprinted by silicification; variable alteration of the matrix from leucocratic to melanocratic with secondary eunedral feldspar in darker areas; weak foliation due to alignment of light and dark alteration.	chl biot sil	C C B	Vol Bkd	Very rare extremely fine grained isolated pyrite crystals.													

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		'1005 to 1037.4 Mid grey fine grained porphoritic feldspar phyric rhyolitic/dacitic volcanic; 1mm to 3mm feldspars larger in size towards centre of interval ; relatively sharp yet indistinct upper and lower contact ,possibly intrusive ; feldspar altered and silicified ; 3mm wide pink to white carbonate fracture fill ; traces of biotite/chlorite alteration.	sil	C	fels sil vol intr	Very rare extremely fine grained isolated pyrite crystals.													
		1037.4 to 1077.7m Light grey , altered feldspar phyric volcanic breccia; lithic and pumiceous clasts with patches of biotite/chlorite alteration and sericitic alteration overprinted by silicification: weak foliation at 60 degrees due to banding in alteration	sil biot chl ser	B C C C	fels sil vol bkd	Sparsely disseminated fine grained pyrite occasional forming minor concentrations on the rims of clasts													
		1077.7 to 1116.9m Mid grey, fine to medium grained feldspar phyric dacitic volcanic ; altered lam feldspar phenocrysts set in an aphanitic mesocratic siliceous matrix; micro fractures infilled with biotite chlorite alteration ; traces of what could be perlitic cracks visible in slabbed sections; very homogeneous unit with wispy discontinuous carbonate veins throughout.	sil devit chl biot	B C C	fels sil vol intr	Very rare extremely fine grained isolated pyrite crystals.													
		1116.9 to 1133.1 Light grey coarse grained poorly sorted altered volcanic breccia; feldspar phyric in part with feldspars altered to a dark grey; volcanic lithic clasts; intensely altered and silicified; closed matrix of silicified chlorite/biotite alteration; minor very thin wispy discontinuous carbonate veins .	sil chl biot	B C C	fels lith sil bkd	Very rare extremely fine grained isolated pyrite crystals, occasional minor aggregates of pyrite and rare chalcopyrite in cabonate veins.													
		1133.1 to 1137.2 mottled dark green to white fine grained chloritic schist with quartz carbonate veins and elongate patches; probably shear zone ; sulphides associated with carbonate.	chl carb	B B	sil carb chl sch	Blebby concentrations of fine grained pyrite and lesser sphalerite associated with white carbonate													

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		1137.2 to 1163.8 Dark grey altered igneous rock ; feldspar phyric with dark coloured altered feldspars in a melanocratic aphanitic matrix; alteration is siliceous often overprinting an earlier biotite chlorite alteration; sheared upper and lower contact.	sil chl biot	B C C	sil fels vol	Very rare extremely fine grained isolated pyrite crystals.													
		1163.8 to 1167.8 Dark grey to green sericite ,chlorite schist associated with quartz veins ; possible shear , low RQD + very well developed cleavage and quartz veining;minor white carbonate in quartz ;cleavage angle 45 degrees to core axis	chl ser	B B	ser chl sch & qtz vns	Very rare extremely fine grained isolated pyrite crystals.													
1167.8	1342.7	HANGINGWALL EPICLASTICS																	
		1167.8 to 1265.7 Mid grey often with white blotches, coarse grained altered poorly sorted epiclastic ; 1mm to 5mm sub rounded quartz clasts becoming more abundant and larger at the base of the unit ; traces of pumiceous material at the top ; dark altered felsic clasts throughout, patches of dark silicified chlorite alteration and white felsic alteration obscure texture for the first 60m, occasional 2mm to5mm black slate clast; weak anastomasing cleavage for first 80m after which unit becomes more massive; upper foliated pumiceous section of interval is similar in appearance to footwall; lower part of interval is massive with very coarse grained base with large rounded quartz pebbles.	sil fels	B B	pum fels sil EP	Coarse grained isolated pyrite in upper foliated part of interval ; very rare extremely fine grained isolated pyrite crystals in massive sections. 2x 5mm'quartz'tourmaline'veins at 1241m with traces of sphalerite and chalcopyrite.													
		1265.7 to 1278.7 Mid grey medium to very coarse grained epiclastic: 1mm to 3mm sub rounded quartz lithic and altered felsic clasts in a closed matrix ; very large (to 30cm black shale			EP	Traces of sphalerite on cleavage in black shale clasts.													

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		clasts at the base of the flow with other clasts becoming coarser ; 2cm volcanic lithic clasts at base .																	
		1278.7 to 1293.0 mid grey , coarse grained epiclstic with pumiceous,volcanic lithic , altered felsic and sub rounded quartz clasts and occasional 2 to 5cm black shale clasts; very pumiceous with preserved tube structures; very fine biotite/chlorite filled fractures throughout.Unit becomes coarse and more quartz and lithic rich at the base.			pum sil qtz lith fels EP	Fine grained isolated pyrite crystals on the margins of biotite chlorite fracture fill.												
		1293.0 to 1342.7 Medium to dark grey ,coarse grained epiclastic , altered felsic ,lithic clasts and quartz clasts in a closed matrix with traces of chlorite; large quartz and lithic clasts becoming more abundant down hole ; lower boundary obscured by chloritic alteration but could be shear boundary.			fels lith qtz EP	Traces of sphalerite close to host rock boundary.												
1342.7	1451.5	HOST ROCKS																	
1342.7	1353.3	Dark grey , fine grained sericitic ,chloritic schist with well developed finely spaced cleavage; chloritic cleavage planes with some dendritic chlorite; lower boundary appears to be shear boundary ; cleavage angle 70 ndegrees.	ser chl	C B	ser chl sch	Sparsely disseminated pyrite throughout with minor concentrations of sphalerite on cleavage for first 0.5m of interval; minor tourmaline veins with traces of chalcopyrite.												
1353.3	1354.0	White quartz vein with fragments of sericite schist , possible infilled shear.			qtz vn	Traces of coarse grained pyrite.													
1354.0	1392.5	Very dark green to grey fine grained chlorite	chl	A	chl sch	Fine grained disseminated pyrite													

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		schist with trace sericite becoming more abundant down hole; well developed cleavage ; occasional 1cm quartz vein and rare thin tourmaline veins; cleavage angle 70 degrees.				throughout.													
1382.5	1396.1	Dark grey, fine grained ,siliceous sericite schist; anastomasing cleavage with occasional cuspate chloritic patches between cleavage planes ; cherty in part with siliceous filling of micro fractures ; minor carbonate and quartz veins; cleavage angle 60 degrees to hole.	sil	8	ser sil sch	Abundant very fine grained pyrite disseminated throughout with occasional concentrations on cleavage.													
1396.1	1411.7	Medium to light grey, fine grained partly siliceous sericite schist, very siliceous at start of interval becoming progressively more sericitic down hole : cleavage angle 75 degrees.	sil ser	8 8	sil ser sch & sul	Traces of sulphides on cleavage ; pyritic in siliceous sections becoming sphaleritic as sericite becomes dominate; discontinuous lenticular concentrations of fine grained sphalerite from 1406m with Zn increasing to 3% at towards end of interval.													
1411.7	1425.5	Dark grey, pink mottled weakly siliceous sericite schist with manganese carbonate alteration; carbonate alteration grades from small lenticular specks on cleavage to planes along cleavage ,to massive carbonate around 1420 then slowly fades to carbonate specks;some very siliceous patches ; cleavage in schist 70 degrees to core axis.	carb	8	ms carb & ser sch	Specks of sphalerite associated with carbonate specks, occasional concentration of fine grained sphalerite on cleavage. Zn 1 to 2%.													
1425.5	1427.4	Very dark grey ,striated with light pink to white cleavage; fine grained chlorite sericite schist with carbonate on cleavage; truncated by 5cm to 40cm white quartz veins; possible shear zone .	carb	8	ser carb chl sch & qtz vn	Fine grained pyrite disseminated throughout with occasional concentration of fine grained sphalerite as planes on cleavage; Zn<1%													
1427.4	1431.5	Dark green , fine grained siliceous chlorite schist with sulphides on cleavage; alternate siliceous and chloritic cleavage planes ; evidence of localised folding close to shear.	chl	8	sil chl sch	LGO 3 to 4% Zn ; thin concentrations of fine grained sphalerite on cleavage.													

BPASMINCO LTD - ROSEBERY

DIAMOND DRILL RECORD

OBJECTIVE : To investigate EM anomaly at 660mN

RESULT : 20m weakly mineralised carbonate alteration

PASMINCO LTD - ROSEBERY

DEPTH : 1470.5

HOLE SIZE: HQ 380m, NQ 1470.5m

COMMENCED: Dec 90

COMPLETED: March 91

Depth	Direction	Dip	Depth	Direction	Dip

COLLAR DIP : 82

DIRECTION : 12

NORTHING : 274

EASTING : 1238

HOLE No. : 116R

LOCATION : Mt Black

LOGGED BY : C.H.L.

COLLAR RL : 3660.4

FROM	TO	DESCRIPTION	ALT	CD	ROCK TYPE	MINERALISATION	SAMPLE NO.	FROM	TO	Length	Pb %	Zn %	Cu %	Ag g/t	Au g/t	Fe %	$	To <S=Shear>	RQD%
1431.5	1470.5	FOOTWALL SEQUENCE																	
		1431.5 to 1451.6 Medium grey , fine grained sericitic. chloritic , siliceous schist;siliceous stretched lenticles with thin cuspate elongated chlorite forming an anastomasing cleavage; classical footwall texture; occasional chloritic domains with slightly enhanced sulphides.	sil	C	ser chl sil sch	Rare fine grained pyrite, traces of sphalerite on cleavage in chloritic domains.													
		1451.6 to 1455.8 dark grey to green , fine grained chlorite sericite schist with bands of weakly mineralised carbonate; intense cleavage obscures texture probable shear; cleavage angle 60 degrees to core axis.	ser chl	B B	ser chl sch & carb	Remobilised sphalerite galena associated with carbonate veins.													
		1455.8 to 1470.5 Light grey , finne grained siliceous sericite schist; occasional very large (to 1.5cm) elongated quartz clasts with cleavage wrapping around clast. Finely spaced well developed cleavage suggests high stress zone.Pink carbonate elongated spots for first 3m of interval.	sil	B	ser sil aug sch	Fine grained pyrite as elongated specks along cleavage.													
		EOH																	