HOLE No. BHD 5

PASMINCO EXPLORATION
DIAMOND DRILL CORE RECORD

LOCATION	TASMANIA
PROJECT	BULGOBAC HILL EL37/89
PROSPECT	HIGH POINT
DESIGNED BY	J.G. PURVIS
LOGGED BY	J.G. PURVIS
RELOGGED	
COMMENCED	15·2·94
COMPLETED	14·6·94
DRILLED BY	F. ORTNER
DRILL RIG	MINDRILL 66

OBJECTIVE

TO TEST FOR MASSIVE SULPHIDES IN QUE-HELLYER MIXED SEQUENCE AT DEPTH ADJACENT TO THE AT CHARTER FAULT AND CLOSE TO ITS INTERSECTION WITH THE INTERPRETED SW EXTENSION OF THE JACK FAULT.

RESULT

HOLE LOST IN MAJOR FAULT ZONE WITHIN QUE-HELLYER HANGINGWALL VOLCANICS. STRATIFORM ZINC MINERALIZED ZONE ENCOUNTERED IN UPPER PART OF HW VOLCANICS. BASAL FAULT STRONGLY FUCHSITE-ALTERED.

LOCATION/SURVEY DATA (AMG)

Grid	AMG		RL Collar m	687·3	
Northing m	5392338·3		Bearing Collar	192°	
Easting m	388129·7		Dip Collar	−90°	
DH Survey Type	EASTMAN SINGLE SHOT CAMERA		Length Hole m	771·1m	

Depth m	Bearing	Dip	Depth m	Bearing	Dip
0	192°	−90°	706	252°	−82·75°
31	192°	−88·75°	733	258°	−82·5°
64	227°	−89°	771·1	258°	−82·5°
100	252°	−89°			
130	252°	−88·5°			
164	249°	−88·5°			
194	252°	−88·3°			
224	243°	−88·1°			
260	242°	−87·7°			
290	232°	−87°			
320	231°	−86·5°			
350	233°	−86°			
383	237°	−85·5°			
413	240°	−84·5°			
428	240°	−84·25°			
446	242°	−84·1°			
470	243°	−84·5°			
500	244°	−84·25°			
533	245°	−84°			
563	248°	−84·25°			
596	248°	−84·25°			
643	252°	−84°			
673	254°	−83·5°			

SIGNIFICANT INTERSECTIONS

From m	To m	Interval m	Zn	Pb	Ag	Au		Comments
412	412·95	0·95	0·87%	0·2%	2	<0·008		Que River Shale. Maximum sample value
403·5	495	91·5	0·17%	<0·1%	<1	<0·008		Stratiform Zinc Zone in Que-Hellyer
including:								Hangingwall Volcanics.
427	451	24	0·20%	<0·1%	<1	<0·008		Mineralized basaltic breccias
455	461	6	0·32%	0·10%	<1	0·015		Andesitic lava breccias

SIGNIFICANT CORE LOSS

From m	To m	% Lost
0	3	93
73	75·6	48
113·6	115·5	69

POOR GROUND CONDITION ZONES

From m	To m	Condition
76·2	114·5	Strong brittle fault - badly fractured + broken, with pug.
600	634·1	Major brittle fault zone - cataclasite, pug, badly broken
753·9	771·1	" " " " " " " "

HOLE SIZE

Size	Depth m
HW	8·5
HQ	132
NQ	634·1
BQ	771·1

HOLE CONDITIONS AFTER COMPLETION

Collar	Steel cap on 4m of cemented - in HW casing.
Steel Casing	HW: 0-4m + 7·5-8·5m; NQ: 512·2-627·7m; BQ: 751·9-771·1m
PVC Casing	None.
Ground Water	—
Wedge	—
Drill Pad	—

8830471

PROJECT: HIGH POINT

HASMINCO EXPLORATION
SUMMARY DIAMOND DRILL CORE LOG

HOLE No. BHD5

Graphic Scale 1:

From m	Interval m	Code	Description	Depth	Graphic

SUMMARY LOG - BHD5

Collar: 5392338mN, 388130mE, 687mRL. Dip: Vertical.

0 - 192.3m: SOUTHWELL SUBGROUP

0 - 76.2m: Coarse Crystal-Lithic Sandstone / Breccia
Weakly altered. Minor py & sp.

76.2 - 114.5m: Black Shale
Up to 2% disseminated py.

114.5 - 129.5m: Fine Volcaniclastic Sandstone
Trace py.

129.5 - 192.3m: Fine Pumiceous Crystal-Lithic Breccia
Minor py. Pyritic mafic lava clasts below 155m, and rare small massive py clasts.

192.3 - 412.95m: QUE RIVER SHALE

192.3 - 210.75m: Pyritic Black Shale
3% bedded disseminated py, locally 10%.

210.75 - 215.3m: Mafic Volcanic (Dyke?)
Unmineralized.

215.3 - 386.0m: Calcareous Pyritic Black Shale
3% bedded dissem py, large zones 3-5%. Minor sp below 333m.

386.0 - 389.05m: Mafic Volcanic Dyke
Trace py, sp & cp.

389.05 - 412.95m: Calcareous Pyritic Black Shale
3% bedded dissem py. Sp (gn & cp) in calcite veinlets.

From m	Interval m	Code	Description	Depth	Graphic

412.95 - 771.1m: QUE-HELLYER VOLCANICS

412.95 - 422.0m: Polymict Basaltic Breccio-Conglomerate
3-5% disseminated py-sp.

422.0 - 457.0m: Mineralized Basaltic Breccias
3-5% py, 1-2% sp, dissem. Frags with up to 40% py & 5% sp.

457.0 - 498.2m: Andesitic Lava Breccias
1-5% disseminated py-sp.

498.2 - 574.2m: Brecciated Andesitic Lava
Minor to 1% disseminated py-sp-po.

574.2 - 600.0m: Partly-Brecciated Quartz-Phyric Amygdaloidal Mafic Lava
Unusual rock. Minor to 1% dissem & veinlet py-po-sp.

600.0 - 634.1m: Major Fault
Low angle to LCA. Sheared mafics & shale. Up to 3% py-sp.

634.1 - 664.7m: Brecciated Amygdaloidal Basalt
Weak silica-fuchsite alteration. Up to 2% py-po-sp.

664.7 - 670.3m: Altered and Mineralized Interflow Zone
Sil-py(+fuchsite) altered breccia bands. 10% py, 2-3% sp.

670.3 - 722.1m: Brecciated Amygdaloidal Mafic Lava
Up to 2% sp-py.

722.1 - 741.7m: Massive Amygdaloidal Mafic Lava
Weak fuchsite alteration increasing with depth. Minor py-cp.

741.7 - 753.9m: Mafic Lava Quench-Breccias
Black shale matrix. 1-3% disseminated py.

753.9 - 771.1m: Major Fuchsite-Altered Fault Zone
Low angle to LCA. Strong fuchsite alteration. Up to 2% py.

END OF HOLE

P. SMINCO EXPLORATION
DIAMOND DRILL CORE LOG

HOLE No. BHD5

PROJECT: HIGH POINT, EL 37/89

Graphic Scale 1: 200

CORE RECOVERY				DESCRIPTION			
From m	Interval m	%	RQD	From m	Interval m	(incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth

LOG OF HOLE BHD5

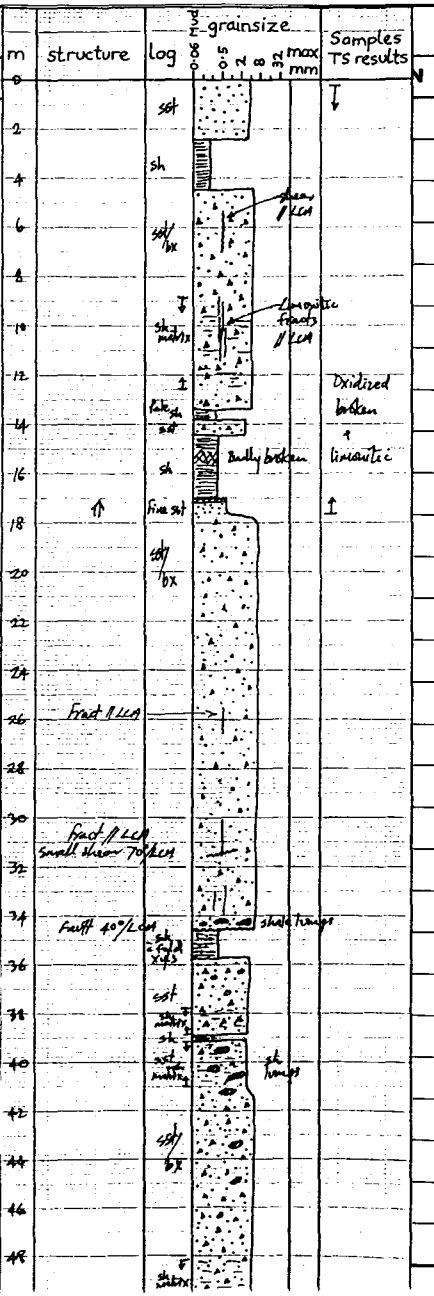
0 - 192.3m: SOUTHWELL SUBGROUP

0 - 76.2m: COARSE CRYSTAL-LITHIC SANDSTONE / BRECCIA

Lithology: Grey. Brown to 17.5m. Massive. Uniform.
V coarse gr feld-qtz xyl-lithic sst to fine epiclastic bx.
(Felds av 3-5mm, qtz av 2-4mm, to 10mm. Clasts av <10mm, to 30mm).
Grey-black shale in bands, irreg lumps & as sst matrix in discrete zones.
(Shale unlith when disrupted by sst/bx mass flows).
Clasts mostly sil-alb alt qtz-feld porph (source of matrix xyls).
Also sil-alb alt felsic lavas & rare fine pumice.
At 40.2 & 50.4m: 30mm alt basalt clasts with gn-sp-py in vesicles.
Alteration: Strongly oxidized to 17.5m, sl leaching of carb to base.
Mod (locally v strong) silif, weak albite-sericite-chlorite alt.
Veining: Rare comb-structured qtz veins.
Structure: Sl variations in grainsize reflect crude layering.
Thin uphole-fining qtzose sst intervals denote tops of xyl-lithic mass-flow pulses, eg: @ 17.5m, 41.8m, 52.1-53.5m, 57.5m.
Bedding (shale bands): 70°/LCA @ 15.5m (cleav 35°/LCA, same sense); 60°/LCA @ 41m & 52m; 55°/LCA @ 66.25m.
V weak cleav in shale bands.
Broken in places by fract & shear set // LCA, mainly above 17m & in basal 12m.
Puggy faults in shale 40°/LCA (// cleav) @ 34.5-34.8m & 66-66.2m.
Basal contact badly broken by fault //LCA, commencing @ 74.5m.
Mineralization: 0-17.5m: Limonite stains and fract-fillings.
Minor dissem py & sp (some sp in porph lithics).
1% py @ 38-42m & 70-72m.

76.2 - 114.5m: BLACK SHALE

Lithology: Sl carbonaceous dk grey to black shale, with v minor silty component in places.
Above 83m: bands of feldspathic sst with shaley matrix, (sst contains minor qtz grains & rare small lithics of altered mafic volcs).
Some beds of weakly sericitic siltstone & sst below 108m.
Alteration: Essentially unaltered (trace sericite-chlorite).
Veining: Minor sericite & chlorite microveinlets (esp in fault at 103m).



CODES			
LITHO	STRUCT	ALTN	MIN

8830469

5 cm

P. SMINCO EXPLORATION
DIAMOND DRILL CORE LOG

PROJECT: HIGH POINT, EL37/89

HOLE No. BHD5

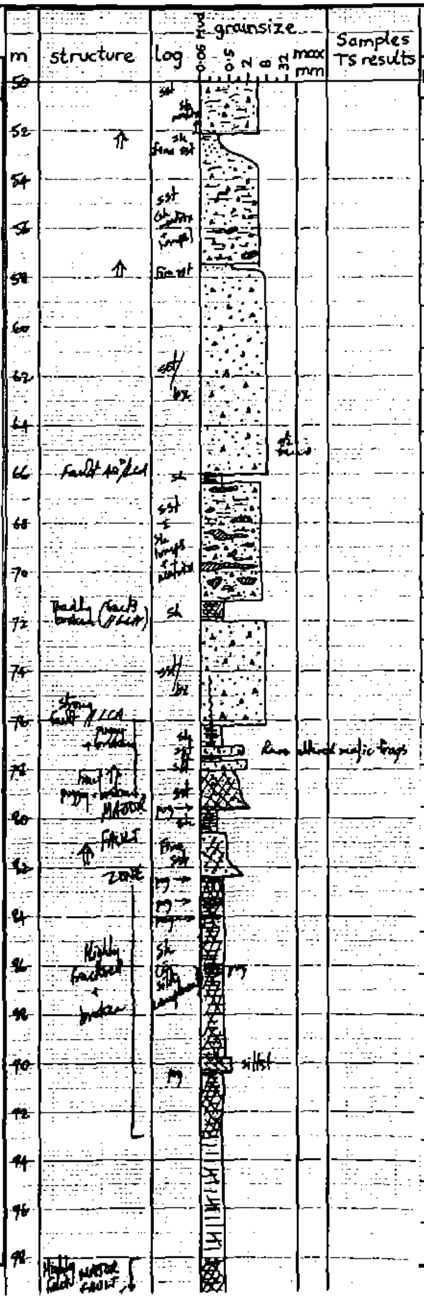
Graphic Scale 1: 200

CORE RECOVERY				DESCRIPTION				CODES			
From m	Interval m	%	RQD	From m	Interval m	(incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth	LITHO	STRUCT	ALTN	MIN

Structure: Regular bedding (to LCA): 75° @ 78m, 72° @ 84m, 67° @ 94m, 30° @ 104m, 67° @ 111.5m. Bedding //LCA 101-104m (in fault).
Uphole fining in sst bands 78.25-79.6m & 81.6-82.4m.
No visible cleavage.
Badly broken 76.2-93m, 97.8-108.7m & 113-114.5m, by major brittle faults (one fault?) //LCA, centred on pug zones 82-87m & 101-103m.
Basal contact broken due to faulting & core barrel mislatch.
Mineralization: 76.2-97m: Minor dissem py. Rare cp on fracts.
97-111m: 1-2% fine dissem py, bedded in places.
111-114.5m: Minor dissem py.

114.5 - 129.5m: FINE VOLCANICLASTIC SANDSTONE
Lithology: Grey. Hard. Fi gr. Even-grained & massive.
Silic, vitric (now sericitic) volcanomict sst, composed of abraded qtz, feld & lithic grains.
Lithics incl tiny frags of black shale & volc glass (some pumice).
Occasional larger sericitized qtz-feld phyric pumice frags to 60mm thick.
Alteration: Weak blotchy sericite, silica, carb, albite.
Veining: Leached vughy fracts after carb veinlets (some remanent carb in places).
Structure: Bedding only above 118m (58°/LCA @ 117m). Uncleaved.
Mod broken by strong fract set //LCA.
Grainsize coarsens downhole in basal 1m - basal contact gradational.
Mineralization: Trace dissem py.

129.5 - 192.3m: FINE PUMICEOUS CRYSTAL-LITHIC BRECCIA
Lithology: Grey. Massive. Hard. Siliceous.
Open-framework polymict bx, fining uphole to coarse sst.
Angular clasts, overall av 3-10mm, in sandy matrix.
Clasts packed in basal 3m, av 10-40mm (to 140mm).
Most abund clasts: pumice, felsic lavas (perlitic or qtz-feld phyric), black shale.
Less common: fi gr seds, mafic lavas (amygdaloidal or perlitic), rare qtz-feld porph.
Matrix: Qtz & feld xyl grains, lithic grains & abund tiny pumice frags.
Traces of black shale in matrix near base of unit.
Small black shale rafts @ 162.75-163.15m &163.7-164.1m.
Alteration: Weak-mod silica>sericite (conc in matrix).
Strong carbonatization in basal 1m.
Many clasts strongly altered before incorp into unit (eg: felsic lavas ble-sil-alb; mafics ble±pyritic, rarely fuchsitic).



050388

5 cm

P. SMINCO EXPLORATION DIAMOND DRILL CORE LOG

PROJECT: HIGH POINT, EL 37/89

Graphic Scale 1: 200

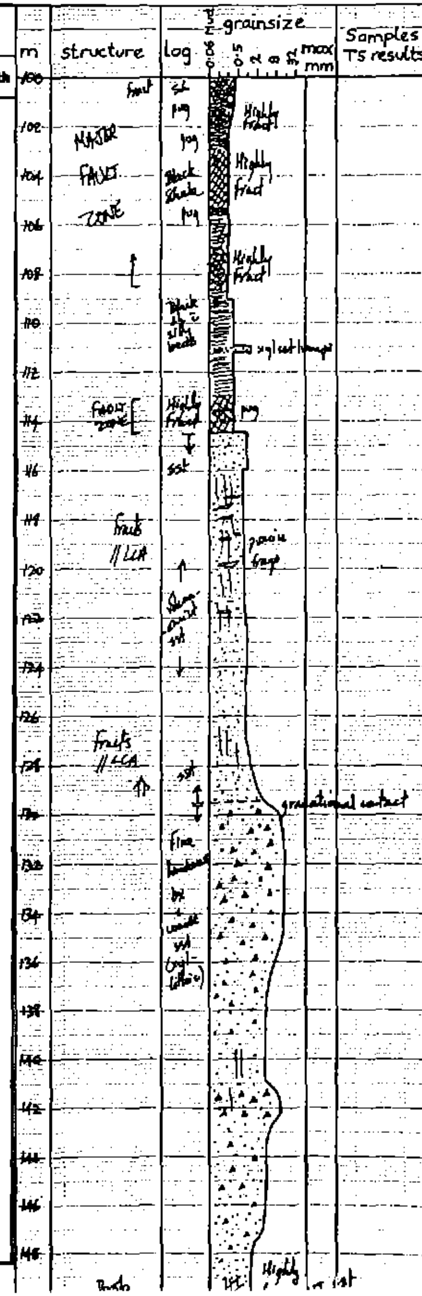
CORE RECOVERY				DESCRIPTION		
From m	Interval m	%	RQD	From m	Interval m	(Incl. LITHOLOGY, STRUCTURE & ALTERATION)

Veining: Minor qtz-carb veinlets (carb leached around fracts).
Structure: Poorly-developed bedding (denoted by grainsize & clast abundance variations, & weak clast orientation): 65°/LCA @ 130m &142m, 60°/LCA @ 163.5m.
Broken at intervals by strong fract set 0-10°/LCA. No cleavage.
Basal contact abrupt, sheared & broken.
Mineralization: 129.5-190.5m: Minor dissem py.
Below 155m, some highly pyritic mafic lava clasts.
25 x 8mm massive py clast @ 158.65m.
190.5-192.3m: 2-3% py, dissem & conc on clast margins. Several massive py clasts to 10mm & pyritic mafic clasts.

192.3 - 412.95m: QUE RIVER SHALE

192.3 - 210.75m: PYRITIC BLACK SHALE
Lithology: Carbonaceous & often calcareous black shale with 1mm interbeds of calcareous fine sandy material.
Some graphite on shears & fracts.
Alteration: Calcareous character poss due to weak-mod carbonatization.
Veining: Qtz-calcite veinlets common in basal 4m, minor elsewhere.
Structure: Fine regular bedding: 79°/LCA @ 197m, 67°/LCA @ 205m.
Badly broken at intervals by strong fracts & shears @ <15°/LCA (prob a single structure, centred in strong puggy fault 209-209.5m).
Basal contact abrupt, fractured & veined, 55°/LCA.
Mineralization: 5-7% py to 195m, 2-3% below this (patchy, <1-10%).
Ultra fi gr dissem, commonly bedded.
70x10mm lense of massive py @ 197.5m. Py framboids to 15x3mm.
Minor sp-gn in qtz-carb veinlets on basal contact.

210.75 - 215.3m: MAFIC VOLCANIC (DYKE?)
Lithology: Pale grey-green. Med gr. Uniform.
Chloritized ferromags to 2mm in pale groundmass.
Calcite & chlorite amygdales to 3mm.
Alteration: Strongly carbonatized. Trace chloritization.
Veining: Calcite veinlets. Qtz-calcite veins to 80mm in upper 0.5m.
Structure: Sl fractured & broken.
Basal contact ground away (0.8m of core lost).
Mineralization: None.



CODES			
LITHO	STRUCT	ALTN	MIN

883051

5 cm

PROJECT: HIGH POINT, EL 37/89

P. SMINCO EXPLORATION
DIAMOND DRILL CORE LOG

HOLE No. BHDS

Graphic Scale 1: 200

CORE RECOVERY				DESCRIPTION								CODES			
From m	Interval m	%	RQD	From m	Interval m	(incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth	m	structure	log	grainsize 8 4 2 1 ½ ¼ max mm	Samples TS results	N	LITHO	STRUCT	ALTN	MIN

215.3 - 386.0m: PYRITIC CALCAREOUS BLACK SHALE

Lithology: Black carbonaceous highly calcareous shale. Uniform.
Graphitic where fractured & sheared.
Alteration: Calcareousness may be strong carbonatization.
Veining: Minor calcite veining, gen assoc with faulted & fract zones.
Shale less calcareous in zones of calcite veining (suggests veins are sweat-outs).
Structure: Fine regular bedding (to LCA): 66° @ 225m & 269m; 63° @ 247m; 60° @ 283m; 55° @ 293m; 51° @ 310m; 45° @ 328m; 42° @ 347m; 39° @ 368m; 28° @ 384m.
V weak cleavage //LCA.
Gen unbroken. Badly broken at intervals due to faults & fracts 5-15°/LCA.
Strong brittle fault 15°/LCA @ 218-220.2m.
Ditto 249.9-251.3m (shearing 10-15°/LCA, fault margins 60°/LCA).
Brittle fault 15°/LCA @ 262.4-263m.
Basal contact abrupt, 38°/LCA (// bedding).
Mineralization: V fi gr dissem py 1-10%, conc in 1mm bedded laminae (some massive).
25mm semi-massive py @ 248m. 5mm massive py @ 252.7m.
Gen 2-3% py, except:
3-5% py @ 215.3-233m, 286-304m, 346-357m & 362-366m.
Minor py & sp @ 383-386m, all in calcite veinlets.
Below 333m (increasing with depth), minor sp-py>cp in some calcite veins.

386.0 - 389.05m: MAFIC VOLCANIC DYKE

Lithology: Pale grey-green. Massive.
Fi-med gr mafic with chloritized ferromags av 1mm.
Common calcite or chlorite amygdales to 7mm.
Weakly developed sub-ophitic texture in central part of unit.
Thin selvages of finer grainsize on both contacts.
Alteration: Strongly carbonatized. Weakly chloritized.
Veining: Irreg calcite veins. Greasy talc-carb on fracts.
Structure: Mod fract & broken.
Basal contact abrupt & sl irreg, 40°/LCA.
Mineralization: Trace py-sp-cp, dissem & on fracts.

5 cm

PROJECT: HIGH POINT, EL 37/89

P. BMINCO EXPLORATION
DIAMOND DRILL CORE LOG

HOLE No. BHDS

Graphic Scale 1: 200

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CORE RECOVERY				DESCRIPTION				CODES			
From m	Interval m	%	RQD	From m	Interval m	(Incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth	LITHO	STRUCT	ALTN	MIN

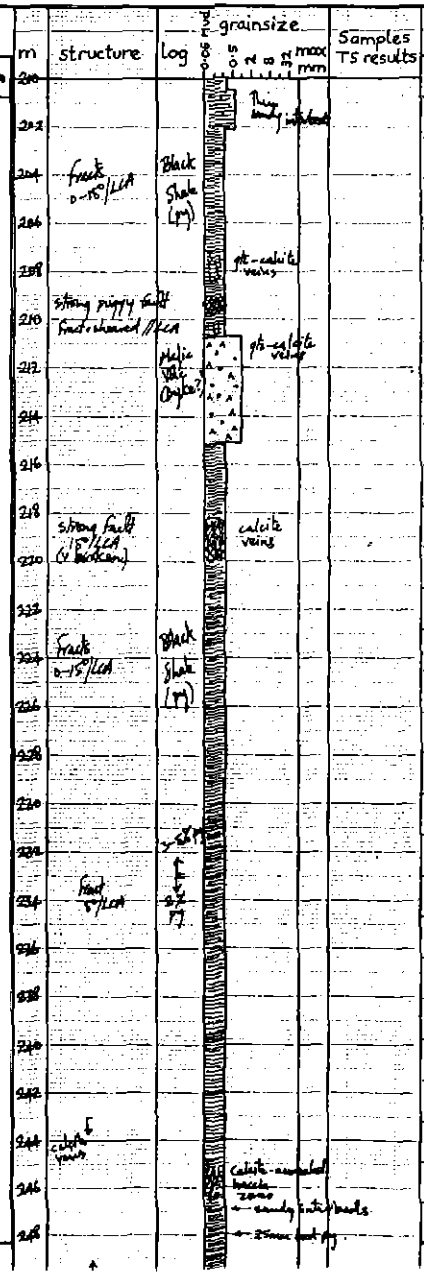
389.05 - 412.95 m: PYRITIC CALCAREOUS BLACK SHALE

Lithology: Highly calcareous black carbonaceous shale.
Below 396m, some beds to 300mm of med gr calcareous qtz-mica sst. These more common towards base, where they have black shale matrix.
Alteration: Calcareousness poss due to strong carbonatization.
Veining: Minor calcite veinlets, abund 403-408.5m (around fault).
Structure: Reg bedding in shale. Soft-sed disruption in sst beds.
Some sst beds fine uphole. Flame structures show facing uphole @ 411.5m.
Bedding: 39°/LCA @ 398.5m; 47°/LCA @ 411.5m.
Weak cleavage in shale, 5°/LCA.
Fract & broken 396-408m (v badly in faults).
Strong brittle fault 397-398m, 20-40°/LCA (same sense as bedding).
Brittle fault, 15-20°/LCA @ 407.45-407.6m (same sense as bedding).
Basal contact a sharp sl irreg depositional surface 60°/LCA. Uphole fining evident in top few cm of unit immediately beneath.
Mineralization: V fi gr bedded dissem py, incl semi-massive laminae.
Sp>gn-cp in calcite veinlets gen //LCA.
389.05-401.5m: 2% py, rare sp-gn.
401.5-405.5m: 5% py (2-10%), minor sp>gn.
405.5-407.5m: 2% sp, minor py>cp.
407.5-412.95m: 2-3% py, minor sp (2% sp, minor cp-gn, in basal 1m).

412.95 - 771.1m: QUE - HELLYER VOLCANICS

412.95 - 422.0m: POLYMICT BASALTIC BRECCIO-CONGLOMERATE

Lithology: Greenish-grey. Polymict.
Peperite (upper half) & epiclastic breccio-conglomerate (lower half).
Clasts: mafic lavas (carbonatized pyritic amygdaloidal, or bleached sericitized perlitic). Lesser seds (shale & qtzose sst).
Clasts gen angular (some rounded), to 150mm, av 20-30mm.
Subord matrix of grey-black shale often replaced by carbonate.
To 418m shale mostly in matrix, below this mostly in irreg clasts.
Alteration: Mod-strong carbonatization (esp matrix).
Minor sericite-silica alt.
Some lava clasts have bleached (±pyrite) rims.
Veining: Numerous tiny calcite veinlets cut clasts & matrix.
Structure: Poorly sorted. Crude stratification. Bedding 25°/LCA.
Largely unbroken.
Small brittle fault, 8°/LCA, centred 414.25m.



5 cm

P. SMINCO EXPLORATION
DIAMOND DRILL CORE LOG

HOLE No. BHD5

PROJECT: HIGH POINT, EL 37/89

Graphic Scale 1: 200

CORE RECOVERY				DESCRIPTION				CODES			
From m	Interval m	%	RQD	From m	Interval m	(Incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth	LITHO	STRUCT	ALTN	MIN
						Gradational change at base.					
						Mineralization: Approx 3-5% py, minor sp, trace gn.					
						Py dissem in clasts & matrix, conc in amygdaloidal lava clasts (to +10%). Sp dissem in clasts & matrix, rarely in calcite veinlets.					
						422 - 457m: MINERALIZED BASALTIC BRECCIAS					
						Lithology: Dk grey-green.					
						Coarse basaltic peperite, mixed with lesser polymict epiclastic breccio-conglomerate & minor hyaloclastite.					
						Subord matrix of black shale & qtz-mica sst, or (uncommonly) finely frag mafic volc material. All extensively replaced by calcite.					
						Dominated by angular altered & mineralized amygdaloidal basalt clasts & blocks to 2.5m (av 20-200mm).					
						Lesser clasts of sparsely feld-phyric mafic lava (chloritized, poorly sulphidic), small sub-rounded clasts of ble silif perlitic lavas, shale & qtz-mica sst. Rare small clasts of flow-banded ble silif prob dacite.					
						Alteration: Stronger than in unit above.					
						Strongly carbonatized. Minor rhodocrosite @ 445m.					
						Patchy silicification. Weak chlorite-sericite. Talc-carb on fracts.					
						Discrete highly carb-py or silica-py altered basalt clasts. Other clasts (gen basalt) have similar alt/min in thin rims only.					
						Veining: Abund tiny calcite veinlets & short lensy calcite net-veins.					
						These cut by comb-struct qtz>carb veins (to 170mm), high angle to LCA.					
						Structure: Bedding in sst @ 434m: 30°/LCA.					
						Small brittle faults: 70°/LCA @ 435.2m, 15°/LCA @ 451.4-451.7m.					
						Gradational change at base - occurs 456.3-457.7m.					
						Mineralization: Variable. Py>sp, dissem in clasts & (less) in matrix.					
						Basalt clasts (esp silif types) commonly 5-40% py &1-5% sp.					
						Overall: 3-5% py, 1-2% sp, trace gn & cp. Best sp: 446.5-452m.					
						Pyritic clasts more abund towards top of unit.					
						457 - 498.2m: ANDESITIC LAVA BRECCIAS					
						Lithology: Dark greenish-grey. Hyaloclastite breccias.					
						Highly angular, often fractured, frags to 0.7m of feld-phyric mafic lava in subord net-vein matrix of fine volc material, cemented or replaced by silica or calcite.					
						Minor peperite zones with silif shale or limey mud matrix.					
						Lava has sparse feld phenos av 1mm, & fine calcite or chlorite amygdales. Small perlitic mafic frags in upper few metres of unit.					

m | structure | log | grainsize | Samples TS results

8803534

5 cm

PASMINCO EXPLORATION

DIAMOND DRILL CORE LOG

HOLE No. BHD5

PROJECT: HIGH POINT, EL 37/89

Graphic Scale 1: 400 (Note scale change)

CORE RECOVERY				DESCRIPTION				CODES			
From m	Interval m	%	RQD	From m	Interval m	(Incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth	LITHO	STRUCT	ALTN	MIN

Alteration: Mod-strong carbonatization & chloritization.
Weakly sericitized, strongest assoc with fault @ 497m.
Bx matrix strongly silif & mod bleached (affects some smaller lava frags).
Talc-carb in faults.

Veining: Abund irreg veinlets, lensy veins & patches of calcite, often as invasion of breccia matrix at low angle to LCA.
These cut by fewer comb-structured qtz>carb veins at high angle to LCA.

Structure: Bedding 60°/LCA in chlor siltst/sst interval 458.8-459.2m.
Largely unbroken (minor fractures @ 10-25°/LCA).
Strong brittle fault 497-497.65m, 30°/LCA, sericitized cataclasite.
Small brittle faults @ 483.9m (35°/LCA) & 491.7m (45°/LCA).
Gradational change at base.

Mineralization: Sp(>gn) & py, fi gr dissem & small veinlets (low angle to LCA).
Sulphs conc in bx matrix, in silif lava frags & in/on frag margins (esp py).
457-462m: 3-5% py, 2-3% sp. 5% sp in silif lava frag 458.1-458.8m.
462-476m: 1-2% py (& po below 470m), 1% sp, minor gn-cp.
476-495m: 1-2% sp-gn>py-po. Mainly in bx matrix.
495-498.2m: Minor py>sp.

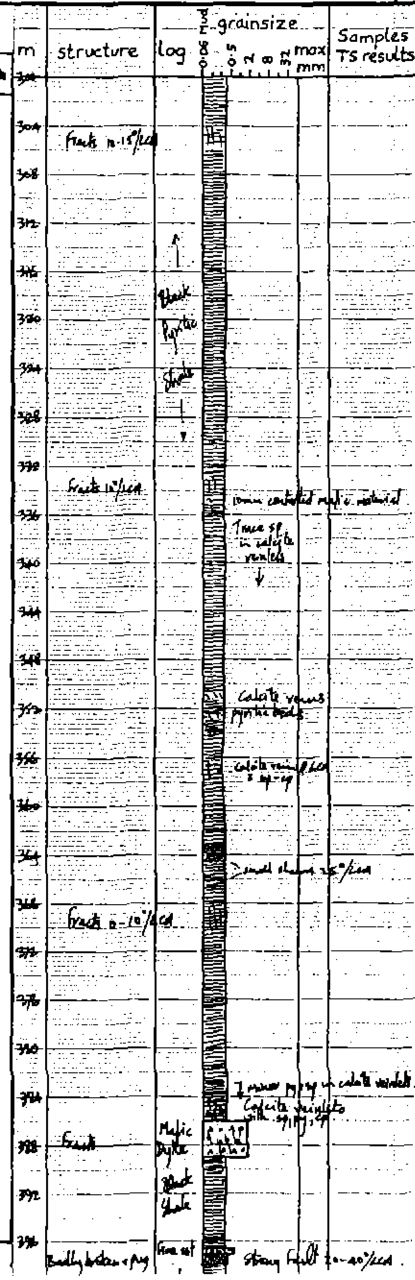
<u>498.2 - 574.3m: BRECCIATED ANDESITIC LAVA</u>

Lithology: Greenish-grey. Fi-med gr.
Finely & sparsely feldspar-phyric amygdaloidal lava, seamed by calcite-annealed fractures & breccia zones with irreg net-vein habit.
Felds av 1mm, in fi gr groundmass.
Amygdales of calcite, chlorite or qtz, av <2mm, up to 20mm.
Breccia zones typically <30mm wide, comprise small highly angular lava frags in calcite cement (less commonly chalcedonic silica or black shale).

Alteration: Weak chlorite>sericite alt.
Patchy silicification ±bleaching, strongest around 510m, 524m & 533m. This alt commonly affects the small frags in breccia zones.
Strong sericitization assoc with fault @ 539-540m.
<u>Not</u> carbonatized.

Veining: Abund irreg veinlets, veins & bx-fill, of calcite±qtz, at all angles. These cut by later comb-structured veins to 100mm of qtz-calcite, at high angle to LCA.

Structure: Largely unbroken in upper half, increasingly broken with depth, mainly in & around faults as follows:
501m: Brittle fault, 30°/LCA.
506.8-507.3m: Strong brittle fault with 0.5m of pug, 10°/LCA.
539-540.3m: Brittle fault with sericite & chlorite alt, 0-20°/LCA.



88055

5 cm

PROJECT: HIGH POINT, EL 37/89

PASMINCO EXPLORATION
DIAMOND DRILL CORE LOG

HOLE No. BHD 5

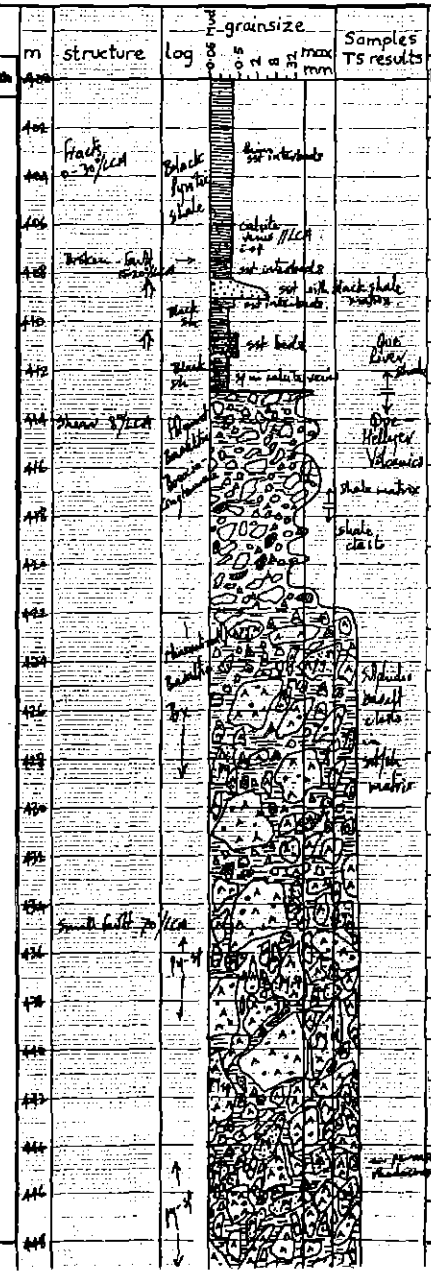
Graphic Scale 1: 200

CORE RECOVERY				DESCRIPTION				CODES			
From m	Interval m	%	RQD	From m	Interval m	(incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth	LITHO	STRUCT	ALTN	MIN

551-551.7m: Brittle fault with pug, 25°/LCA.
564-565.4m: Strong brittle fault with pug & talc-carb material, 10-20°/LCA.
Basal contact abrupt & irreg, 45°/LCA.
Mineralization: 498.2-510m: 1% sp>po-py-gn. Trace cp. Dissem, conc in breccia matrix & in amygdales.
510-563.8m: Persistent minor dissem sp>gn-po-py>cp (trace only 526-545m).
Sulphs best in silif zones (eg: 1-2% sp-gn 523.5-525m), or where shale occurs in breccia matrix (eg: 1% sp>gn, 558-561m).
Cp blebs in 10mm calcite-qtz vein //LCA @ 535.6-536.1m.
563.8-565.8m: 1-2% py-sp, dissem & veinlets, in fault zone.
565.8-574.3m: Minor to 1% sp-py.

574.3 - 574.75m: BLACK PYRITIC SHALE
Black carbonaceous shale with disrupted lenses of fine calcareous sst.
Calcite veinlets.
Upper & lower 100mm v hard - possibly baked.
5% dissem & veinlet py>po.
Bedding 40°/LCA. Basal contact sharp, sl irreg, 30°/LCA (// bedding).

574.75 - 600m: BRECCIATED AMYGDALOIDAL QUARTZ-PHYRIC MAFIC LAVA
Lithology: Greenish-grey. Unusual rock.
Fi-med gr amygdaloidal feld-phyric mafic lava with grains of qtz.
Felds av 1mm, qtz 1-2mm, neither abund.
Many qtz grains poss replacing felds, as felds more common (& qtz less so) in massive unsilif section of unit below fault @ 594m.
However, some qtz bi-pyramidal & apparently 1° phenos.
Abund qtz or calcite amygdales, av 1-2mm, to 15mm.
Lava fract & partly brecciated (hyaloclastitic) to 592m, massive & less amygdaloidal below this. Top 2m peperite (lava frags in silif black shale matrix). Minor black shale in bx matrix 581-584.6m.
Alteration: Patchy silif (± bleaching) where brecciated, esp bx matrix & smaller lava frags in it.
Weak sericite>chlorite alt (sericite rims qtz grains & amygdales).
Talc-carb in fault @ 591-594m & on fracts in basal 1m.
Mod-strong carbonatization below 594m.
Veining: Abund irreg calcite veinlets, cut by minor thin comb-structured calcite-qtz veins.



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P.SMINCO EXPLORATION
DIAMOND DRILL CORE LOG

HOLE No. BHD5

PROJECT: HIGH POINT, EL 37/89

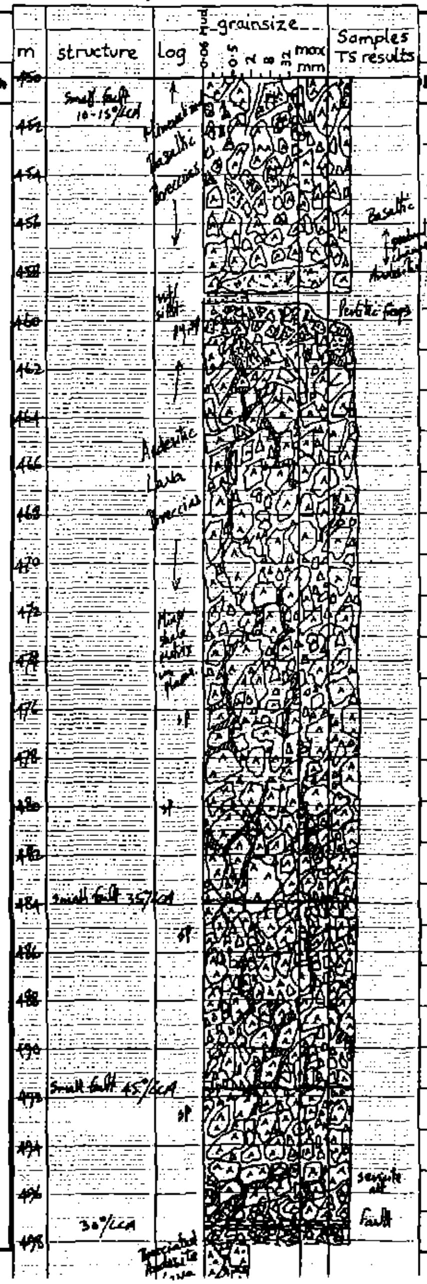
Graphic Scale 1: 200

CORE RECOVERY				DESCRIPTION			CODES			
From m	Interval m	%	RQD	From m	Interval m	(Incl. LITHOLOGY, STRUCTURE & ALTERATION)	LITHO	STRUCT	ALTN	MIN

Structure: Sl broken above 594m (fracts low angle to LCA).
Badly broken 591-593.8m (strong brittle fault <15°/LCA @ 593-593.8m).
Basal "contact" fault plane 5°/LCA.
Mineralization: 574.75-576.75m: 1-2% sp-py-po, dissem & veinlets.
576.75-594m: Minor to 1% po>sp-py>cp.
594-600m: Trace py.

600 - 634.1m: MAJOR BRITTLE FAULT ZONE
Lithology: Grey.
600-605.3m: Qtz-bearing amygdaloidal feld-phyric mafic lava as above.
605.3-607.2m: Cleaved black shale. Annealed fault contacts (U: 90°/LCA).
607.2-615.55m: Feld-phyric amygdaloidal mafic lava. Sl brecciated.
615.55-617.7m: Black shale, faulted contacts, U: 15°/LCA, L: 70°/LCA.
617.7-634.1m: Feld-phyric amygdaloidal mafic lava as before.
Alteration: Patchy mod carbonatization. Minor silif & chloritization.
Greasy lime green or white talc-carb along faults & fracts.
Veining: Abund irreg calcite(±qtz) veinlets. Minor reg comb-structured qtz-calcite veins to 80mm.
Structure: Prob single major brittle fault almost //LCA.
Shale contacts @ 605.3 & 607.2m suggest annealed earlier fault episode.
Gen badly fractured, shattered & broken, with zones of cataclasite & pug.
Zones of strongest faulting (with dominant shear & fract angles to LCA):
601.4-604.25m: //; 611.6-612.4m: 5°; 613.5-616.5m: 0-25°; 617.7-622.8m: 5-25° (major fault zone, centred 619-621m); 628.8-634.1m: //.
Cleavage in shale @ 606m: 45°/LCA.
Bedding in shale @ 617.3m: 60°/LCA.
Mineralization: 600-605.3m: Minor dissem py. 1% sp 603-603.5m.
605.3-607.2m: 2-3% sp-py, minor gn-cp. Sp in calcite veinlets, py dissem.
607.2-615.55m: Minor py & sp. Dissem & in veinlets.
615.55-616.9m: 2-3% fine dissem py, minor sp.
616.9-617.7m: 3% sp, minor py-gn-cp. Mainly in qtz-calcite veinlets.
617.7-634.1m: Minor to 1% pyrite, dissem & in faults. Trace dissem sp.

634.1 - 635.1m: AMYGDALOIDAL FELDSPAR-PHYRIC MAFIC LAVA
Same rock type as in fault zone above.
Common 1-2mm diffuse feld phenos. Small calcite amygdales.
Strongly silicified. Veinlets of qtz-calcite.
1% fine dissem pyrite.



88307

5 cm

P. SMINCO EXPLORATION
DIAMOND DRILL CORE LOG

HOLE No. BHDS

PROJECT: HIGH POINT, EL 37/89

Graphic Scale 1: 200

CORE RECOVERY				DESCRIPTION				CODES			
From m	Interval m	%	RQD	From m	Interval m	(Incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth	LITHO	STRUCT	ALTN	MIN

Basal contact 15°/LCA - an annealed strong fault (highly deformed zone).

635.1 - 638.0m: SILICIFIED BLACK SHALE

Lithology: Grey to black. Disrupted & altered black shale.
Alteration: Intense silif. Bleached.
Veining: Abund tiny qtz-carb veinlets. Talc-carb veinlets on fracts.
Structure: Badly broken 636.5-637.5m by brittle fault almost //LCA.
Basal contact abrupt 15°/LCA. Basal 0.6m mixed shale & mafic lava below.
Mineralization: 3-5% fine dissem py, minor sp, increasing with depth.

638.0 - 664.7m: PARTLY-BRECCIATED AMYGDALOIDAL BASALT

Lithology: Pale green. Med gr.
Abund small ferromag phenos. Calcite amygdales to 15mm.
Zones of peperitic & hyaloclastitic brecciation -former more common, with irreg vein-like matrix of pale grey bleached & silif (baked?) shale.
Alteration: Mod silica (±pyrite, bleaching & fuchsite) alteration, conc in & around matrix of brecciated zones.
The trace fuchsite alteration is best around 644m & 660m.
Weak chloritization. Patchy carbonatization below 653m.
Veining: Abundant irreg calcite veins & patches.
Minor larger & more regular comb-structured qtz-carb veins.
Structure: Largely unbroken.
Basal contact abrupt, 30°/LCA.
Mineralization: 638-640.75m: 5-7% py, minor sp. Small massive sooty stringers & patches, & fi gr dissem.
640.75-645m: 2% py-po-sp (py-po dissem/stringers; sp in calcite veins).
645-648m: 1% dissem sp, minor py-po.
648-664.7m: Minor to 1% dissem py-po-sp. Conc on margins of calcite veins, & in silif shale of bx matrix.

664.7 - 670.3m: ALTERED & MINERALIZED INTERFLOW ZONE

Lithology: Grey & dk green. Hard. Mixed zone. Partly broken.
Bands of altered polymict (epiclastic?) fine mafic breccia interspersed with intervals of chloritized variable mafic lavas.
Bx: 664.7-666m, 666.8-668.7m & 669.15-670.3m. Frags av <15mm of amygdaloidal, hornblende-phyric, or feld-phyric mafic lavas
Feld-phyric mafic lava 666-666.8m & amygdaloidal basalt 668.7-669.15m.

m | structure | log | grainsize | Samples TS results | N

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5 cm

PROJECT: HIGH POINT, EL 37/89

P. SMINCO EXPLORATION
DIAMOND DRILL CORE LOG

HOLE No. BHD5

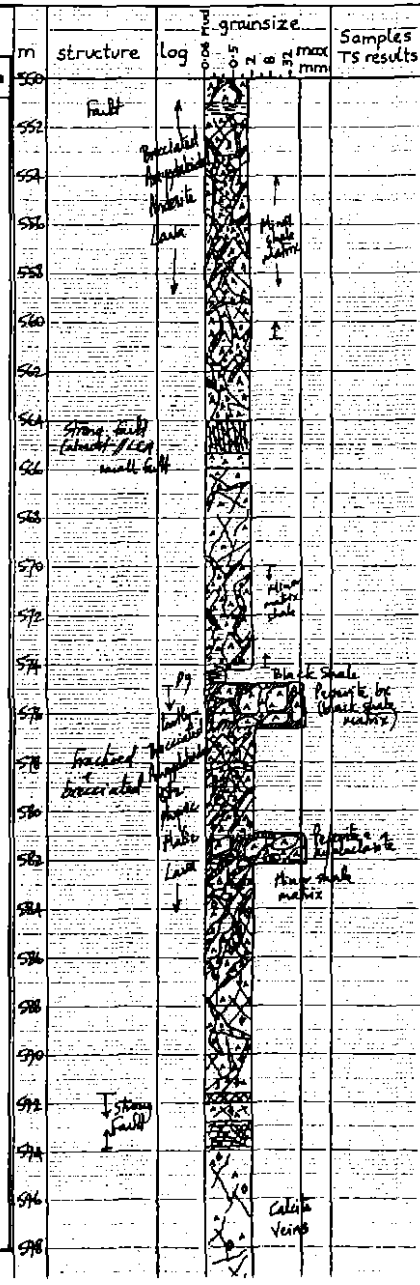
Graphic Scale 1: 200

CORE RECOVERY				DESCRIPTION			
From m	Interval m	%	RQD	From m	Interval m	(incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth

Alteration: Strong silica-pyrite-bleaching alteration, strongest in upper bx band & upper part of central bx band.
Horn-bearing mafic clasts more alt than others (highly bleached, silif & fuchsitic, with dissem sp).
Patchy carbonatization & chloritization.
Veining: Minor calcite veinlets & qtz-calcite veins (to 150mm).
Structure: V weak 1° alignment of clasts: 30°/LCA in upper & lower bx bands, & 25-40°/LCA in central bx. Lower contact of central bx 30°/LCA.
Basal contact of unit gradational.
Mineralization: Bx bands: 7-20% dissem py, 2-3% dissem sp, trace gn.
Sulphs conc in bx matrix. Best in central bx band where small massive patches & stringers //LCA.
Trace py & sp in lava intervals.

670.3 - 722.1m: BRECCIATED AMYGDALOIDAL MAFIC LAVA

Lithology: Dk grey-green. Fi-med gr.
Amygdaloidal mafic lava with abund ferromags (incl olivine).
Feld phenos in places (av 1mm). Calcite & chlorite amygdales av <3mm.
Extensive hyaloclastitic & peperitic brecciation, with net-vein matrix of fine silif mafic material or grey bleached silif "cherty" shale.
Massive unbrecciated lava intervals to 1.8m.
Alteration: Mod-strong silif (±bleaching) conc in bx matrix & smaller lava frags within matrix.
Mod chlorite-carbonate alt of lava. Talc-carb on fracts.
Trace fuchsite below 685m, esp in silif & bleached sp-gn bearing lava frags 693-699m.
Veining: Abund irreg calcite veins.
Fewer reg comb-struct qtz-calcite(±chlorite) veins to 150mm.
Structure: Gen unbroken, except along minor fracts (low angle to LCA) & small brittle faults: 5°/LCA @ 715.7m, 20°/LCA @ 721m.
Small ductile shear 30°/LCA @ 721.8m.
Basal "contact" abrupt & irreg.
Mineralization: Variable dissem py>sp, conc in bx matrix.
Some sp in calcite veins & amygdales.
670.3-671.6m: 2% sp, 2% py.
671.6-693m: 2% py>po-sp, trace gn. 5% sulphs in matrix-rich zones.
693-699m: 3% sp-py-po>gn, conc in highly alt small lava frags in bx.
699-722.1m: Av 1% (patchy), py-po-sp. Trace cp & gn.



CODES				
N	LITHO	STRUCT	ALTN	MIN

5cm

PASMINCO EXPLORATION
DIAMOND DRILL CORE LOG

HOLE No. BHD5

PROJECT: HIGH POINT, 37/89

Graphic Scale 1: 200

CORE RECOVERY				DESCRIPTION				CODES			
From m	Interval m	%	RQD	From m	Interval m	(incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth	LITHO	STRUCT	ALTN	MIN

722.1 - 741.7m: MASSIVE AMYGDALOIDAL MAFIC LAVA

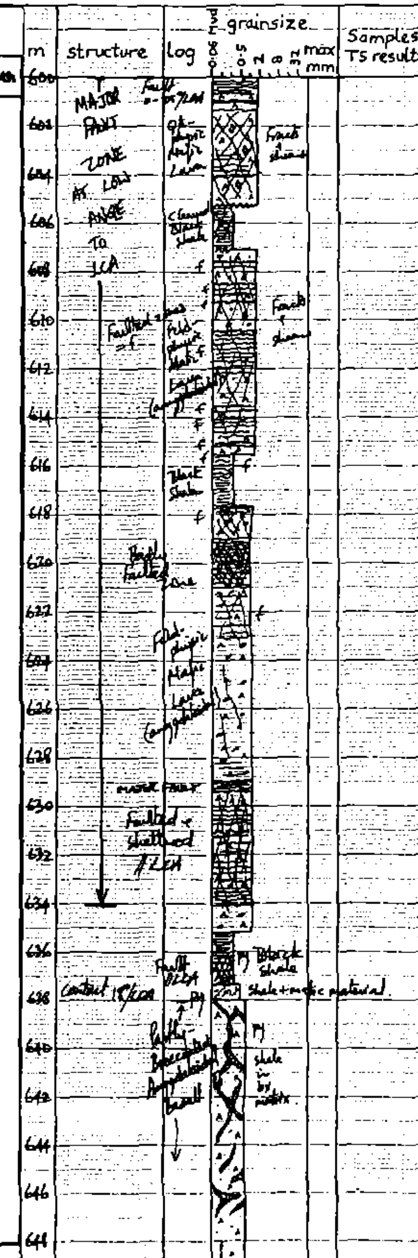
Lithology: Dk grey-green. Med gr.
Prob same lava as in above unit. Abund ferromag phenos to 2mm.
Occasional zones with feld phenos, 1-2mm (felds not gen evident).
Amygdales av <5mm, of calcite, chlorite or qtz.
Alteration: Strong carbonatization below 733m (weak above).
Weak-mod chloritization (increasing with depth).
V weak pervasive fuchsite alt throughout, increasing with depth.
Veining: Abund calcite veins & veinlets, commonly as irreg net-veins cementing local lava bx zones.
Structure: Largely unbroken.
Basal contact a strong ductile shear, 20°/LCA (extends to 742.4m).
Mineralization: V minor dissem py, po, cp.
30mm calcite-cp vein @ 734.25m. Blebs of cp 738-738.3m.

741.7 - 753.9m: MAFIC LAVA QUENCH-BRECCIAS

Lithology: Dk grey-green. Fi-med gr.
Above 747m, peperite: initimate mixture of amygdaloidal mafic lava & grey-black shale, (bx so fine shale seems to be replacing lava groundmass).
Below 747m, mainly hyaloclastite: finely fragmented feld-phyric andesite in fi gr mafic matrix. Zones of massive lava (largely non-amyg) to 1.5m.
Devitrification texture evident in places below 745m.
Alteration: Mod chloritization, weak patchy carbonatization (lava).
Trace fuchsite, esp in faults & shears.
Below 747m, weak sericite-bleaching & albitization of felds.
Veining: Common calcite veins & veinlets, cutting patchy more-diffuse veinlets of qtz towards base of unit.
Structure: Badly broken in places above 749m by set of fracts & small brittle faults 10-30°/LCA, centred 744-749m.
Hyaloclastite bx frags orientated 30°/LCA @ 749m.
At base abrupt start of ductile shear zone below, 45°/LCA.
Mineralization: 741.7-747m: 2-3% dissem py (assoc with shale matrix).
747-753.9m: 1% dissem py (varies). Rare sp & cp.

753.9 - 771.1m: MAJOR FUCHSITE-ALTERED FAULT ZONE

Lithology: Creamy lime green, green, black & white.
Med gr amygdaloidal basalt & minor black shale, now extensively tectonically-brecciated, ductile-deformed & retextured.



060388

5 cm

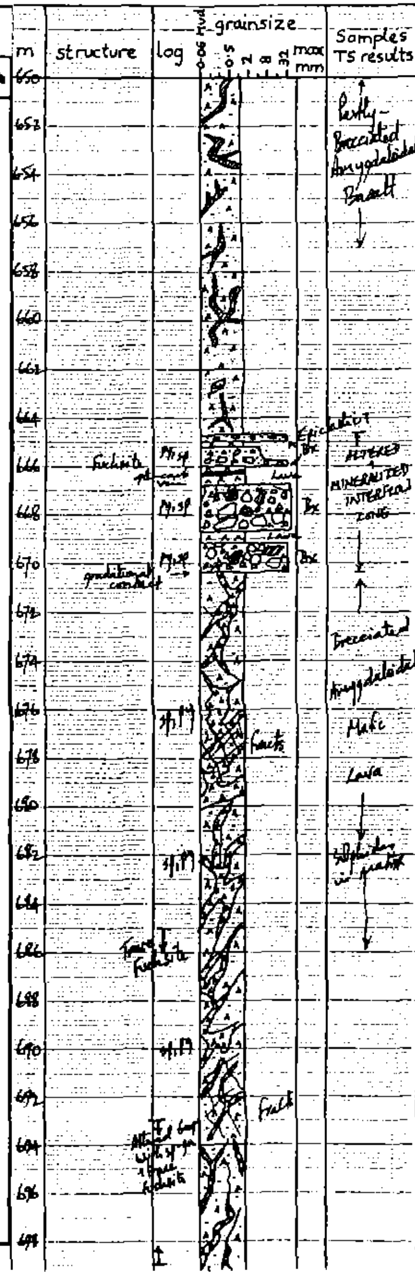
P. .SMINCO EXPLORATI..N
DIAMOND DRILL CORE LOG

PROJECT: HIGH POINT, EL 37/89

HOLE No. BHD 5

Graphic Scale 1: 200

CORE RECOVERY				DESCRIPTION			
From m	Interval m	%	RQD	From m	Interval m	(Incl. LITHOLOGY, STRUCTURE & ALTERATION)	Depth
						Shale as cataclasite matrix & deformed stringers, at intervals gen above 761.5m.	
						Poss minor fine qtzose sst frags in cataclasite 758-761.5m.	
						Alteration: Strong fuchsite>carbonate-bleaching(±sericite) alt.	
						Fuchsite best 756-766m, gen pervasive, some conc on shears & fracts.	
						Patchy strong chloritization & silif (latter only in places below 765m).	
						Veining: Myriad of intersecting carb>>qtz veins/veinlets. Often irreg & lensy,	
						offset by microfracts, common as frags in cataclasite.	
						Minor veins of palest-pink rhodocrosite in upper 1m.	
						Structure: Badly fract, sheared & broken, worse with depth.	
						Extensive zones of strongly-lineated ductile deformation, shattering & cataclasite	
						(some annealed), & pug.	
						Largest cataclasite or pug zones: 757.5-761.5m, 763-766m, 767-768.3m, 770-	
						771.1m (latter strongest, mostly pug).	
						Shearing av 30°/LCA in unbroken deformed zones & annealed cataclasite. Fracts	
						& pug zones essentially //LCA.	
						Mineralization: 753.9-758m: 1-2% dissem py. Patchy, in & around shale.	
						758-761.5m: Minor to 1% py, dissem, assoc with shale.	
						761.5-768.3m: Trace py.	
						768.3-770m: 1-2% dissem py, assoc with silif lava.	
						770-771.1m: Trace py.	
						END OF HOLE	



CODES			
LITHO	STRUCT	ALTN	MIN

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P. SMINCO EXPLORATION

DIAMOND DRILL CORE LOG

HOLE No. BHD5

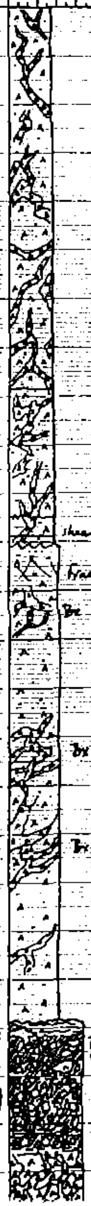
PROJECT: HIGH POINT, EL 37/89

Graphic Scale 1: 200

Page 16 of 27

CORE RECOVERY				DESCRIPTION	CODES			
From m	Interval m	%	RQD	(LITHOLOGY, STRUCTURE & ALTERATION)	LITHO	STRUCT	ALTN	MIN

Graphic log 700–750 m (columns: m | structure | log | grainsize (mud, 0.06 … max mm) | Samples TS results)



m	structure	log / grainsize	Samples TS results
700–712			Brecciated Amygdaloidal Mafic Lava
715	Small fault 5°/LCA		
721	Small fault 20°/LCA	shear 30°/LCA (ductile)	
722	Irreg contact	Fracts	
722–734		Bx (725), Bx (730), Bx (734)	Massive Amygdaloidal Mafic Lava
742	Ductile Shear Zone 20°/LCA	Py; Fault; Py; fault; fault; Black chl matrix	Amygdaloidal Mafic Lava Hyaloclastite
748			Hyaloclastite / Bx

Graphic log 750–771 m (columns: Depth m | structure | log | grainsize (mud, 0.06 … max mm) | Samples TS results)

m	structure	log / grainsize	Samples TS results
750–754			Massive Andesite; Andesite Hyaloclastite
754	Ductile Shear Zone	Py	
758–766		Py + calcchalcite; Fract; Py + carbonate; strong to intense Fuchsite Alteration; some shale	MAJOR FUCHSITE ALTERED FAULT ZONE IN AMYGDALOIDAL BASALT
768–771		Py; Fract + Py; Py	
771.1		EOH 771.1m	

5 cm

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