

**Billiton Exploration Canada Ltd.
Diamond Drill Log**

PROJECT: Celtic-Billiton JV	DRILLED BY: Petro Drilling	DATE STARTED: 19.9.99	AZIMUTH: 255°T	LOCATION: L – 15+00S, HOLE #: LB –99-04
PROPERTY: Lake Bond	LOGGED BY: Barry Greene	DATE COMPLETED: Sept. 22, 1999	DIP: -50	UTM: 559,619.10E, 5,427,470.66N
LICENCE: 6147M	CORE SIZE: NQ		TOTAL DEPTH: 296m	SHEET #: 1

FROM Au	TO	DESCRIPTION	SAMPLE #	FROM	TO	LENGTH	%REC	Cu	Pb	Zn
0	6.59m	overburden/ casing								
6.59	15.50m	Fine grained diabase Dark grey, fine grained chilled margins, grainy visible plag specks towards centre. - core is broken in places with some fault gouge in broken areas. Fracturing locally developed marginal to gouge and orientated at low angle to core (20-30 degrees) with some variation. - unmineralized, unaltered.								
15.50	17.60m	Bleached Synvolcanic Mafic dyke Light grey pyritic dyke orinetated at 5-10 degrees TCA. - overall very broken core and sections of unconsolidated gouge. - 2-3% pyrite in clots and disseminated thru.								
17.60	24.95	Gabbro Spotted light green and dark green leopard texture gabbro containing roughly equal proportion of plag and px. - local calcite veinlets - trace dissem. and sepcks of pyrite - nebulous basal contact								
24.95	35.47m	Mafic flow Dark green, fine grained flow? 1-3mm calcite and epidote filled amygdules. locally amygdules are filled with pyrrhotite rimmed by epidote (i.e. 32.80m) - somewhat darker green and alternating light green, epidote amygdular areas gives impression of pillowed flow.								
35.47	48.21m	Series of multiple intrusions with varying texture from fine grained (aphanitic) to medium grained (1-2mm plag phenos) and varying colour from light green to dark greenish black. Composition ranges from diabase to diorite? - moderate to strongly magnetic - minor pyrrhotite / pyrite as isolated 1mm specks and euhedra.								

35.47 - 36.03m - good shear / fault zone at top of intrusive sequence.. evidence that intrusives may be filling significant structure.

36.70 - 42.26m - medium green to dark greenish black plagiophytic diorite/ diabase.

48.21 52.06m Mineralized Mafic Volcanic
Chloritic altered interval with 5-10%, 5mm to 1cm silica-pyrite-sphalerite – pyrrhotite – chalcopryrite stringers. Cut by relatively unaltered weakly pyritic mafic dyke from 50.14 – 50.85m. 1-1.5% zn and anomalous copper in mineralized zone.

52.06 58.85m Plag Phyric Mafic Dyke
Dark green with 2-3%, 1-2mm plag phenos
- minor dissem.py. contacts at 80 degrees TCA

58.85 59.58m Mineralized Mafic Volc?
Spotted texture with chlorite alteration in black spots constituting 40% of lithology. Stringers of sph-py akin to above mineralization. (<1% zn)

59.58 104.45m Intrusive Sequence
59.48 - 64.66m - dark green sparce plag phyric mafic dyke (diabase?), good chill margins

64.66 – 78.19 – dark green-grey, amygdular mafic dyke with epidote rimming po in amygdules.
- minor interfingering of slightly different dykes at variable cove angles.
- 76.3 – 79.0m – moderately fractured at 5-10 degrees TCA

78.19 – 104.45m - fine grained gabbro
- upper contact at 80 degrees TCA, basal contact at 50 degrees TCA.

95.6 – 104.45m – gabbro becomes finer, resembling a diabase and has 2-4%, 2-4mm amygdules with po. rimmed by epidote.

104.45 105.32 Mineralized Mafic Volcanic
Another window into the mafic footwall style dissem. stringer py.,po.,cpy. and chl. alteration.
- akin to 48.21 – 52.06m but less mineralized
- <1% cpy and no visible sph.

105.32 110.46 Mafic Intrusive Breccia
Dark green breccia having 3-4cm round to subround clasts of fine and coarse gabbro and granitoid looking? Clasts set in a granular matrix that is probably intrusive but resembles a sedimentary wacke!
- very fine grained chilled upper contact, basal contact not clear but likely on break in core @ 110.46m

110.46	126.22m	Mafic Intrusives Dark green, fine to medium grained diabase locally finely plagiophyric and amygdular with pyrite core rimmed by chlorite and silica and calcite. May in part be a flow? - basal contact at 30 degrees TCA
126.22	134.5m	Mafic intrusive breccia Exactly akin to 105.32 – 110.46m
134.51	150.17m	Mafic Intrusives Exactly akin to 110.46 – 126.22m – several <.5m to couple of meters fine to medium grained dykes (diabase).
150.17	163.92m	Mineralized Mafic volcanic Dark greenish – black with strong chlorite alteration and 3-5% py-po-cpy-spy-epid-silica-calcite stringers. - blotchy ‘ epidote disease texture leads into and out of best mineralization... this feature also seen in hole LB –99-03, 500m along strike. - Mineralization is broken up by several diabase dykes as is a common feature to all mineralized intercepts along strike
163.92	178.70m	Mafic Intrusive Dark green, finely plagiophyric with 1-2mm plag xtols - local minor dissem and enchedral py, minor dissem.po. - becomes aphanitic and chilled toward basal contact at 45degrees TCA
182.10	223.20m	Mineralized Mafic volcanic Light to medium green flow? with stockwork style silica -chl- epid –po -py – cpy – sph altered and mineralized stringers. - top sequence contains hyaloclastic sil – chl – epid – alteration with 1-2% po – cpy – py – sph ...overall minor combined cu,zn to 217.56m. - mineralized / altered interval is split up by several late mafic dykes, which intrude at the following intervals: 197.27 – 192.98m - light green to bleached dyke 195.02 – 199.08m – dark grey – black magnetic dyke 199.08 – 202.24m - amygdularepid filled light green 192.98 - 193.17m - 5% po – cpy – sph stringers 217.56 - 221.41m - best mineralization with 5-10% po – cpy – sph + py and overall approximately 1-2% combined cu, zn. Some stringers at 10 degrees TCA but generally random orientation 221.41 - 223.30m - less mineralized except from 222.93 – 223.06m where similar to 217.56 – 221.41m.
223.30	228.12m	Diabase Light to medium green – late diabase – trace po. Basal contact at 15 degrees TCA

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228.12	232.18m	Mineralized Mafic Volcanic - Continuation of sequence from 182.10 – 223.20m - 4cm and 5cm stringer of po – cpy cut at 0-5 degrees TCA revealing a donut shape at 182.10m. - Overall very weakly mineralized with isolated po – cpy stringer and speckled / spotted texture. 231.76 – 232.08m - cut by late mafic dyke (diabase)
232.18	253.70	Mafic Intrusives Medium to dark green, unaltered, tr euhedral py, po. - fine grained to locally plagphyric diabase. - equivalent to intr. higher in hole. 240.43 – 241.0 – window to altered – mineralized mafic volc. as above. - 5% sil-epid stringers / veinlets, minor py – po fracture and dissem.
253.70	268.70	Mineralized Mafic Volc. Akin to 182.10 – 223.70 .. essentially a continuation of the above sequence after 30m of mafic intrusives. - 1-2% po – cpy – sph stringers and good dark chlorite alteration. - Less than 1% combined cpy- sph. - 5% silica – epidote veinlets, increasing to 10% near base of sequence - strongly fractured / sheared at basal contact with orientation at 5 degrees TCA
268.70	296m	Diabase Fine grained dark green diabase to end of hole. unmineralized / unaltered. END OF HOLE 296m