

RIO ALGOM EXPLORATION INC.

DIAMOND DRILL LOG

PROPERTY: Gullbridge

HOLE No.: GB-136

Collar Eastings: 130.00

Collar Northings: 4290.00

Collar Elevation: 0.00

Grid: Main

Purpose: Test Southern Extension of Gullbridge mineralized horizon.

Collar Inclination: -60.00

Grid Bearing: 125.00

Final Depth: 517.25 metres

Logged by: M.H.Lenters

Date: July 7 to 17, 1990

Down-hole Survey: Tropari

			ASSAYS							
FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)
6	3.80	OVERBORER								
3.80	232.10	RYHOLITE (MASSIVE, WEAKLY BRECCIATED)								
		- variably coloured sections of variably altered/sheared, mottled, massive rhyolite with minor thin schistose zones								
		- more massive sections are medium to dark reddish purple coloured, medium salmon pink, to medium or dark, slightly pinkish, purplish or less commonly greenish grey. Unaltered/unsheared sections are purple, locally altering to salmon pink along fractures, with fracture alteration often coalescing into large zones of homogeneous massive salmon pink rhyolite								
		- more schistose (sericitic) sections are generally shades of grey with some light grey, fine-grained, granular, rhyolitic sections								
		- more massive sections are aphanitic, generally containing 1-5%, 0.1-2 mm, salmon pinkish, subhedral to locally zoned, euhedral, plagioclase phenocrysts								
		- more schistose sections are fine-grained with quartz-plagioclase-sericitic composition and typically no remaining plagioclase phenocrysts								
		- unit is very hard, non-magnetic, and has pervasive silicified appearance partly due to rhyolitic composition and partly due to moderate amount of quartz veining								
		- unit is a feldspar phyric rhyolite, now locally weakly shear foliated and altered to schist								
		- largest light grey zones occur between 33.50-33.90 m, 35.60-37.30 m, 67.60-72.20 m, 93.50-96.50 m, 132.90-135.05 m, 142.20-142.70 m, 155.25-155.60 m, 165.40-167.00 m, 182.80-183.05 m; these sections tend to be fine-grained, granular altered								

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS				
						WIDTH	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)
		rhyolite? sections but are not very schistose; other schistose grey zones tend to be relatively thin with well developed foliation; these zones are sheared rhyolite, now forming a plagioclase-quartz-sericite schist; foliation in grey schistose zones varies from 35-50° with most at about 45° CA - foliation is 35° @ 12.50 m, 40° @ 19.00 m, 40° @ 23.20 m, 45° @ 26.00 m, 45° @ 42.50 m, 45° @ 88.00 m, 35° @ 165.50 m, 45° @ 200 m, 50° @ 209 m, 40° @ 231.50 m - 1-5%, thin, quartz/silica veining as thin (hairline to 5 mm), planar to subplanar, and irregular networking fracture filling fine grey silica veinlets, and thin (hairline to 1 cm), wavy, planar (wormy) to discontinuous lensoid, and networking or patchy white quartz. The former generally have sharp contacts & the latter sharp to diffuse contacts. Quartz veining forms a few more concentrated patches containing 5 to 10%, irregular patchy quartz network veining across 10-50 cm zones from 224-232.10 m. Veining is generally offset by a few mm to a cm across late fracturing - unit exhibits a moderate amount of very thin (hairline to 2 mm), planar, offset fracturing throughout, but locally concentrated in 1-10 cm zones exhibiting more intense (5-20%) criss-cross network fracturing. Fractures are generally light green coloured due to thin sericitic clay coating - quartz veinlets & fractures often, but not always, have thin (hairline to 1 cm or so) alteration envelopes where adjacent rhyolite has a salmon pink colouration (hematization?) - locally fractures are somewhat thicker with 2-20 mm of clay, including some angular wallrock fragments. These zones are relatively hard (not gouge) with fracture boundaries parallel to foliation of about 45° CA - minor vuggy fracture/faults and several thin gouge zones at 45-70° CA, but predominantly 60-70° CA, from 97.00-98.00 m within a rubbly recovered core section from 97.00-99.50 m - core is intensely (50%) shattered by thin fracturing from 194-195.60 m with main fracture bands @ 10-45° CA forming intensely brecciated rhyolite zone with 50-60%, small (0.1-1.0 mm), angular, salmon pink rhyolite fragments in light grey anastomosing to networking clay matrix								

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FROM	TO	LITROLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS				
						WIDTH	Cu (ppm)	Pb (ppm)	Sn (ppm)	As (ppm)
		- unit contains (averages) trace pyrite, with only local zones containing minor finely disseminated pyrite generally associated with fractures - unit is hard and relatively competent, with most core breakage 10-100 cm, but numerous more broken zones with 5-25 cm breakage generally along fractures, as well as several broken to rubbly broken sections particularly from 97.88-99.50 m, 102.50-103 m and 104-195.60 m which are associated with faulting/intense brecciation - probably complete core recovery although difficult to establish amount of core recovered from rubbly recovered zones - lower contact sharp, shear contact @ 45° CA.								
232.10	247.10	MODERATELY CHLORITIZED/SILICEOUS FELSIC CRYSTAL/FINE LAPILLI TUFF								
		- quartz-plagioclase-sericite-chlorite schists - generally medium to dark grey-green, fine-grained, granular foliated to moderately schistose. Moderately chloritized and moderately siliceous (silicified?)								
232.10	234.35	Quartz-sericite schist								
		- light to medium greyish green, fine grained, strongly schistose with subplanar to wavy foliation (kinked at 0.5 cm scale) at 50-65° CA - non-magnetic - section probably was sheared rhyolite or fine crystal tuff - minor irregular boudinaged thin/small quartz (bluish grey) blebs somewhat parallel to foliation - section relatively homogeneous, and competent with 10-50 cm breakage along sericitic foliation - minor finely disseminated pyrite - lower contact gradational								
234.35	238.30	Quartz-sericite-chlorite schist								
		- mottled medium to dark grey-green, fine grained, quartz-sericite-chlorite schist as above, but with more irregular wavy foliation and mottled/silicified, irregular banded appearance due to 15-25% medium blue grey silica patches and irregular								

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS			
						WIDTH	Cu (ppm)	Pb (ppm)	Zn (ppm)
		to wavy quartz veining - bluish grey silica forms small (1 mm) blebs to irregular bands and patches of all sizes throughout unit; they generally have diffuse boundaries giving unit a mottly silicified appearance; locally they appear to be boudinaged and contorted veins, and in other places, more like porphyroblastic or concretionary-type growths - white quartz veining forms very irregular patchy to pyroclastic veins, also with diffuse boundaries - section appears to be chloritized & silicified felsic crystal/ fine lapilli tuff - some diffuse, small (1-2 mm), round, bluish qtz eyes locally evident in unit - moderately well developed foliation/banding is very irregular and folded, varying from 0-90° with an average of about 60° CA. - chloritic sections are locally weak-moderately magnetic although some of unit is non-magnetic - minor coarsely (1 mm) crystalline disseminated and fracture lining pyrite - locally some quartz veined sections are brittly fractured with light green epidote-sericite on hairline fractures - lower contact gradational 238.30 244.15 Felsic crystal tuff - medium to dark grey, fine grained (<1 mm), non-magnetic, granular and homogenous unit - moderately well developed planar foliation at ~ 60° CA; locally minor tight crenulation folding evident in schistosity - unit has quartz-plagioclase-sericite:chlorite-biotite composition with about equal amounts of the 3 platy minerals; biotite:chlorite form thin (hairline to 0.5 mm) discontinuous wisps parallel to foliation (chlorite locally seems to form an alteration product of biotite); minor thin (1-20 cm), foliation parallel biotite/chlorite rich bands occur within section - section was probably a relatively homogeneous feldspar/quartz crystal tuff; locally minor, small (1 mm), round, bluish quartz eyes are visible - minor finely disseminated pyrite - minor quartz veining; only one 5 cm patch of irregular, white, somewhat mottled & diffuse, quartz - competent, with 50-100 cm breakage parallel to foliation 244.15 247.10							

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS				
						WIDTH	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)
		- similar to 234.35-238.30 m - mottled to thin (0.5 cm) and irregularly (discontinuous) banded very sericitic quartz sericite schist - foliation is irregular to subplanar with local folded and contorted zones - some thin zones (1-20 cm) have more regular planar schistose fabric like overlying section, but no bluish quartz eyes were noted in this section - weak banded appearance due to irregular, but foliation sub-parallel silica bands/segregations; locally these are very patchy and discontinuous, and larger ones (>1 cm) appear as veins/leucosomes; about 15-20% silica banding, patchy veining - foliation is generally 45-50° CA - below 246.35 m the section is more contorted and grades into a shear brecciated zone; adjacent to underlying fault gouge - section is non-magnetic - strongly sericitic but only weakly chloritized - minor finely disseminated pyrite - lower contact progressively more sheared and contorted over last 30 cm and then sharp with fault gouge @ 60° CA.								
247.10	247.45	FAULT ZONE								
		- from 247.10-247.14 clay gouge with small (1-2 mm) wallrock pieces; gouge zone at 60° CA - from 247.14-247.45, dark grey-green, banded, chloritic schist & irregular, discontinuous grey silica; faulted shear breccia zone; chloritic slips are undulating but generally at 40-60° CA. Most chloritic slips have slickenside surfaces subperpendicular to CA - core is broken into paper thin to irregular chloritic slip pieces producing rubbly core.								
247.45	250.50	SHEARED AND ALTERED FELSIC METAVOLCANICS WITH MINOR CHERT								
		- sheared/brecciated, chloritized & silicified felsic meta-volcanic (tuff?) with some included/interbedded? slightly ferruginous chert fragments - irregularly mottled to irregularly banded (1-5 mm), but generally contorted, folded and sheared; where foliation and shear								

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS			
						WIDE	Cu (ppm)	Ph (ppm)	Fe (ppm)
		banding is subplanar, it is usually $\approx 50-65^\circ$ CA - medium green-grey to grey-green chloritic-sericite colour - unit was probably interbedded fine (ash?) tuff and lesser chert, now having a quartz-plagioclase-sericite-chlorite composition; locally small (3-7 mm), subrounded, dark cordierite porphyroblasts are evident but these form only a minor part of the unit - chert occurs as irregular broken to swirled fragments, to subplanar foliation parallel laminated beds 1-10 cm wide. Cherts are well laminated, very siliceous, weak to strongly magnetic, generally light-medium green coloured but locally with slight reddish colour - unit has banded appearance due to chert, as well as abundant silica segregations/concentrations in irregular, discontinuous bands/patches often 1-5 mm in width, but locally forming thicker veins & patches - generally non-magnetic, except for chert bands which are weak to moderately magnetic - weak chloritic alteration and moderately siliceous/silicified throughout - minor very finely disseminated pyrite - core is moderately hard and moderately broken into 5-20 cm pieces along foliation slip planes - lower contact sharp but irregular at about 60° CA.							

250.50 253.10 MAFIC METAVOLCANIC (DYKE?)

- relatively homogeneous, moderate to strongly magnetic, weakly foliated, medium to dark green-grey with slight (weak) patchy appearance due to some slightly lighter grey more siliceous zones
- unit may be chloritized felsic tuff, but more probably a mafic dyke? or mafic flow band
- unit has plagioclase-chlorite composition with a few % very

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS			
						WIDTH	Cu (ppm)	Pb (ppm)	Zn (ppm)
		fine disseminated magnetite							
		- weak foliation and vein banding at 45-75° CA							
		- 3t, thin (1-5 mm), quartz:epidote:calcite vein alteration bands with diffuse alteration boundaries into adjacent wallrock							
		- 1-3t very finely disseminated, as well as thin (hairline), discontinuous fracture lining pyrite							
		- relatively hard, competent core with 5-50 cm breakage on irregular fractures							
		- lower contact relatively sharp & planar at 45° CA.							
253.10	285.45	VARIABLELY ALTERED (Fe/Mg) FELSIC METAVOLCANIC TUFFS	200270	253.10	255.20	2.10	538	24	114
		- weak to intensely chloritized (Mg/Fe alteration)	200271	255.20	256.60	1.40	6	8	30
			200272	256.60	258.60	2.00	6	TRACE	18
			200273	258.60	260.60	2.00	2	4	20
			200274	260.60	262.60	2.00	TRACE	4	20
			200275	262.60	264.60	2.00	5	4	18
			200276	264.60	265.80	1.20	2	4	12
			200277	265.80	267.15	1.35	1	TRACE	16
			200278	267.15	268.80	1.65	TRACE	TRACE	34
			200279	268.80	271.88	3.08	TRACE	TRACE	16
			200280	271.88	274.93	3.05	TRACE	TRACE	14
			200281	274.93	277.75	2.82	TRACE	TRACE	16
			200282	277.75	280.30	2.55	10	TRACE	56
			200283	280.30	282.30	2.00	6	8	118
			200284	282.30	284.30	2.00	261	TRACE	172
			200285	284.30	285.45	1.15	21	TRACE	98
									80
253.10	256.60	Similar to 247.45 to 250.50 m							
		- variably chloritized and silicified (siliceous), shear foliated/contorted felsic metavolcanic tuffs (this section does not contain any chert bands or fragments)							
		- medium slightly purplish to greenish grey colour							
		- section has quartz-sericite-(plagioclase)-chlorite composition with 10-15%, large (0.5-1 cm), poorly formed and ragged, dark green, chloritized cordierite porphyroblasts; locally the unit exhibits a weak reddish colour due to minor biotite (Zn rich?)							
		- section is very contorted and irregular with quartz-sericite banding swirled, folded and irregularly offset and shifted							
		- 3-5%, white quartz vein blebs, lenses and folded veining; section is also very siliceous with bluish-grey silica blebs, segregated lenses/bands (1-5 mm), throughout giving unit a pervasively silicified appearance							
		- probably ash tuffs as no granular crystal zones are evident.							
		- non-magnetic							
		- foliation very irregular but average 60° CA							
		- moderately Fe/Mg altered with chloritization of sericite and cordierite							
		- 3-5% fine to coarsely disseminated pyrite concentrated on fractures							
		- moderately broken core with 2 to 10 cm breakage along irregular fractures and foliation slip surfaces							

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS			
						Wt%	Cu (ppm)	Pb (ppm)	Zn (ppm)
		- lower contact gradational into similar felsic metavolcanic tuff, though less contorted and more regularly foliated section							
256.60	265.80	Felsic Metavolcanic Lapilli Tuff							
		- definite felsic metavolcanic quartz-feldspar crystal/fine lapilli tuff							
		- medium grey-green, relatively homogeneous, weakly foliated/schistose, granular zones, with less irregularly banded zones as in overlying section							
		- foliation generally 45-60° CA, but locally folded (cm to 10 cm scale) or irregularly contorted							
		- quartz-sericite composition locally with some chlorite or reddish (Zn-rich) biotite; section contains minor (5%), dark green chloritic, very irregular (poorly formed or retrograding), cordierite porphyroblasts; locally these have pale yellow brown carbonate? colouration instead of darker chloritic colour							
		- non-magnetic							
		- unit is very siliceous/silicified (pervasive to patchy pervasive), weak Mg/Fe alteration (chlorite, biotite, cordierite, pyrite)							
		- more massive/homogeneous granular sections are fine grained (1 mm), quartz-feldspar crystal tuffs							
		- 5%, irregular, broken, boudinaged, pygmy, small to large (sev. cm) quartz, wedges/lenses/blebs and irregular veins with sharp to diffuse vein contacts							
		- 1-3%, fine to coarsely (1-2 mm) disseminated pyrite crystals; locally up to 5% pyrite							
		- moderately broken core (5-10 cm), with some small (5-25 cm) rubbly broken sections							
		- lower contact relatively sharp alteration contact at 40° CA.							
265.80	266.15	Intensely Fe/Mg (Chlorite-Pyrite) altered felsic metavolcanic; same as 267.15-268.80 m.							
266.15	267.15	Weak to moderately chlorite (Mg/Fe) altered felsic metavolcanic crystal tuff							
		- similar to 256.60-265.80, but slightly more schistose with planar foliation at 30-35° CA, and more Mg/Fe (chlorite) altered							
		- several thin, 1-10 mm, subplanar quartz veins offset on local faults/slips, although most veining/patches are irregular like other unit							
		- minor to 0.5% disseminated pyrite							
		- definite blue quartz-eyes throughout unit.							

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS				
						WIDEN	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)
267.15	268.80	Intensely Mg/Fe (Chlorite/Fe-Sulphides) altered felsic metavolcanic tuff - medium to dark green, locally with mottled colour due to dark green chloritized cordierite spots and vaguely banded, (1-5mm), light grey, remnant less altered felsic tuff areas - mostly fine grained chlorite rock, with minor quartz grains evident in some zones, and a few relatively unaltered irregular remnant crystal tuff "fragments" within intensely altered rock; lapilli fragments? - section contains ~ 10%, large (0.5 mm), irregular to subvoid and generally ragged cordierite porphyroblasts with bluish chloritized alteration rims (corona's), as well as some that are completely altered/retrograded to chlorite - section has weak to moderate shear foliation at ~ 40° CA - soft and non-magnetic - intense Mg/Fe alteration as chlorite, chloritic cordierite and pyrite - minor irregular pieces of broken and offset quartz veining - 5-10% wispy disseminated to patchy disseminated pyrite concentrations in foliation subparallel bands/lenses - relatively competent unit with 5-25 cm breakage on chloritic slips - lower contact sharp on quartz vein at 65° CA.								
268.80	269.40	Weak to moderately silicified and chloritic (Mg/Fe altered) felsic metavolcanic crystal tuff - same as 266.60-268.80 m.								
269.40	269.60	Intensely chloritized (Mg/Fe altered) felsic metavolcanic - same as 267.15-268.80 m - foliation at 45° CA.								
269.60	280.30	Felsic metavolcanic quartz-feldspar crystal tuff - recognizable crystal tuff unit - relatively homogeneous, medium grey-green, fine-grained (1 mm), non- to weakly magnetic, moderately hard with St qtz (bluish) eyes, and 10% white, subhedral, 1mm, feldspar phenocrysts in fine quartz-feldspar-sericite:chlorite matrix - moderate subplanar foliation at 50° CA - section contains a few, thin (1-20 cm), intensely chloritized bands similar to overlying sections, but generally very weakly								

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS				
						WIDTH	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)
		chloritic with minor, thin, discontinuous chlorite laminae/wisps and spots - 5%, subplanar (generally at perpendicular angles to CA) to irregular branching, thin (1-16 mm) quartz veins. Moderately diffuse vein contacts, but veins are well defined - section contains ~ 2-5% finely and evenly disseminated sub-crystalline pyrite throughout, locally concentrated in thin (1-3 mm) foliation parallel bands - competent core with 10-100 cm breakage, but including a few thin (10-50 cm) rubbly broken zones on chlorite fractures - lower contact is sharp lithologic contact at 70° CA. 288.30 285.45 Moderately silicified and chloritized felsic metavolcanic (ash tuffs) - mottled to well banded, medium to dark, greys and green-greys, aphanitic to fine grained, and finely (1 mm to 5 cm) laminated/banded ash tuffs; banding is wavy, to irregular wavy folded and contorted on 0.5-2 cm scale and averages 50° to CA - bands are mostly fine ash tuffs although some recognizable crystal tuff horizons (1-5 cm) with good blue qtz eyes are also included - quartz-sericite-chlorite:biotite with minor cordierite spots and 2-5% pyrite - non- to weakly magnetic, and moderately hard - weak to moderately pervasive chloritization, minor cordierite, locally as small (0.5 cm) ovoid porphyroblasts - 5% irregular quartzose lenses and bands, irregularly swirled within foliation - 1-5% finely disseminated to 1 cm crystalline grains of pyrite, often concentrated in "buckshot" type patches or bands 0.5-10 cm in size - moderately competent core, but broken at 5-25 cm intervals generally along fractures and foliation surfaces - lower contact relatively sharp but irregular								
285.45	298.80	MAFIC METAVOLCANIC FLOW	200286	285.45	287.00	1.55	226	4	244	80
		- dark grey-green, fine-grained, relatively homogeneous, weak to locally moderately magnetic, moderately hard flow unit - weak foliation at 35-50° CA, but averaging 40-45°								

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	ASSAYS			
							Cu (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)
		- plagioclase-amphibole (partially chloritized) composition locally with small magnetite grains visible; unit is weakly chloritized - unit has weak pervasive silicified, or hornfelsed appearance; hard with breakage across foliation - St. very irregular, epidote-carbonate/garnet patches and bands, often somewhat subparallel to foliation; also some thin (hairline to 1mm), irregular branching fracture (late) veinlets with epidote-sericite coatings - minor white calcite associated with epidote-carbonate alteration patches, and minor, thin (1-5mm), semi-planar fractures - minor quartz veining as irregular fracture veinlets - no visible sulphides - hard, competent core with 25-50 cm breakage generally along chloritic fractures - lower contact sharp lithologic contact @ 70° CA.								
299.80	302.55	SHEARED/BRECCIATED, MODERATELY TO INTENSELY ALTERED (Fe/Mg), FELSIC METAVOLCANICS INCLUDING 2 THIN FAULT GORGE BANDS	260287	300.20	301.25	1.05	177	TRACE	70	250
298.80	298.90	Irregular banded felsic metavolcanic; same as 300.20-301.25 m								
298.90	300.80	Moderately to intensely chloritized (Fe/Mg altered) felsic metavolcanic tuff?, dark grey-green, very chloritic, fine grained, relatively soft, non- to weakly magnetic, relatively homogenous, moderately foliated at 40-45° CA; crystal tuff grain size - several chlorite slip planes, and minor calcite along thin (hairline) foliation parallel slips - generally intense chlorite alteration; some waxy green (serpentine) grains within chloritic altered zones - minor, thin, irregular branching calcite veinlets - no visible sulphides								

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS				
						WGT%	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)
300.00	300.20	Shear zone with thin clay fault gouge at 45-60' CA; sheared, intensely (Fe/Mg) altered felsic metavolcanic as above								
300.20	301.25	Moderately chloritized, and moderately shear brecciated, banded felsic "ash?" tuff; section consists of dark green, fine grained, non-magnetic, chlorite matrix and grey, irregularly folded, broken & sheared, grey siliceous bands/lenses; highly contorted banded ash tuff unit; lower part of section is more brecciated and is faulted - foliation highly contorted and irregular, but averages ~ 50° to CA - minor, thin (hairline to 1 mm), irregular, discontinuous calcite fracture veinlets: average 1-2% coarsely disseminated pyrite, locally forming thin zones with up to 3-5% - relatively broken core with 5-10 cm breakage, and several rubbly broken sections - lower contact is shear/fault gouge								
301.25	301.40	Fault gouge zone; upper 10 cm is cemented gouge rubble, and lower 5cm is clay gouge								
301.40	302.55	Moderate to intensely chloritized (Fe/Mg altered) felsic metavolcanic tuff? Similar to 298.90-300.00 m, but this section cut by very irregular mafic dykelet between 301.75-302.00 m. Dyke is light mauve-grey, aphanitic, non-magnetic, with irregular plasticly deformed contact margins having soft sediment intrusive character. Dykelets are the same as chilled contact margins of underlying dykes - lower 15 cm, adjacent to underlying mafic dyke, contains 5-10% disseminated pyrite and 0.5% foliation bands.								
302.55	308.95	MAFIC (DIABASE) DYKE - dark green-grey, fine-grained (1 mm) interior, grading to slightly purplish grey aphanitic chilled margins - unit is moderately magnetic, except for chill margins which are almost non-magnetic - minor, thin (hairline to 1 mm), irregular branching to offset planar fractures with white calcite or light green epidote-								

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	ASSAYS				
							Cu (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)	
		carbonate?									
		- upper chilled margin contains 15 cm wide zone with 5% finely disseminated pyrite, but generally unit contains no visible sulphides									
		- competent core with 10-50 cm breakage									
		- upper contact sharp & planar at 40° CA, and lower contact sharp & planar at 60° CA.									
308.95	313.85	VARIABLELY ALTERED (Fe/Mg) FELSIC METAVOLCANIC TUFFS	200288	317.00	319.00	2.00	1	TRACE	62	50	
			200289	319.00	320.00	1.00	TRACE	TRACE	72	30	
			200290	322.10	323.75	1.65	1	TRACE	46	120	
			200291	323.75	326.35	2.60	TRACE	TRACE	46	100	
			200292	328.00	329.00	1.00	TRACE	200	60	30	
			200293	335.00	336.00	1.00	TRACE	28	56	40	
		308.95 315.65 Definite recognizable felsic volcanic crystal-tuffs, weak to moderately chloritic (Mg/Fe altered), with pervasive siliceous/silicified appearance									
		- mottled to vaguely banded, medium to dark grey-green colour, non-magnetic, fine grained, granular appearance locally with well developed wavy foliation and compositional banding @ 25-60° CA, but averaging ~45° CA									
		- wavy folding of foliation suggests synfolds downhole									
		- quartz-sericite-chlorite/biotite composition; locally blue quartz eyes are evident									
		- chlorite zones generally contain 5-10%, small (1-2 mm), subovoid, black chlorite porphyroblasts									
		- section includes 2 thin mafic dykelets at 312.60-312.85 @ 20° CA and 313.00-313.25 with irregular upper contact and lower contact @ 30° CA									
		- 5%, irregular, wormy (1-10 mm), and lensoid to patchy, milky white quartz veins, and abundant finer more diffuse silica veins/segregations within section									
		- 1-3% disseminated pyrite locally concentrated in patches and bands 5-50 mm in size									
		- relatively competent core, but well broken in 5-20 cm pieces generally along planar fractures									
		- lower contact gradational into more altered section									
		315.65 322.10 Moderately to mostly intensely (Fe/Mg altered) chloritized									
		- only locally is siliceous crystal tuff grain size apparent in									

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS			
						WIDTH	Cu (ppm)	Pb (ppm)	Zn (ppm)
		moderately altered patches, but no good blue quartz eye sections observed; this central most intensely altered zone grades into definite altered felsic tuff sections on both sides and is also considered to have a felsic tuff protolith though intensely chloritized - generally patchy medium to dark green-grey to green, fine grained, weakly magnetic, although sulphide bands with pyrrhotite are strongly magnetic - unit has quartz-chlorite:sericite:minor biotite composition and includes sections with 5%, 0.5-1 cm, ragged, chloritic porphyroblasts, probably after cordierite - generally subplanar foliation moderately developed with average = 40-45° CA - unit has weak to moderately silicified/siliceous appearance - minor, thin (1-5 mm), irregular, white silica patches or wavy discontinuous veins - 5-10% pyrite and pyrrhotite, as minor to 1% wispy disseminations throughout, but concentrated as 10-30% sulphides in irregularly swirled patches and bands throughout section including: 317.95-318.25 20% pyrrhotite & pyrite in irregular swirled heavily disseminated patch; 318.70 - 318.85 15% pyrite and pyrrhotite in heavily disseminated patch - core is relatively competent, but moderately well broken into 5-15 cm pieces, mostly on fractures - lower contact gradational into chlorite altered, but definite felsic tuff section							
322.10	326.35	Moderately to locally intensely (Fe/Mg altered) chloritized felsic volcanic tuff - mottled medium to dark grey-green and grey colour, fine grained, moderately foliated at = 45° CA - quartz-chlorite:sericite composition with weak pervasive silicified appearance; unit is moderate to intensely chloritic and exhibits minor to 20%, irregular, ovoid and ragged edged, 0.5-1 cm, chloritized cordierite porphyroblasts; cordierite porphyroblasts are somewhat strained & wavy foliated parallel to foliation - section includes a few, thin (10-20 cm), more siliceous, lighter grey-grey zones that look rhyolitic. These grade into the rest of unit except at = 324.00 m - weak to moderately magnetic, with heavily disseminated pyrite/pyrrhotite bands which are strongly magnetic - moderate pervasive silicified appearance due to patchy pervasive grey silica zones							

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS				
						WDCS	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)
		- minor irregular silica veinlets - 1-5% pyrite & pyrrhotite, as minor to 0.5%, fine disseminations throughout, and a few heavily disseminated sulphide bands parallel to foliation: 322.50 to 322.60 60% disseminated sulphide zone consisting of 60% fine grained, wavy/wispy py & 40% coarse (1-3 mm), rounded, buckshot pyrite; 323.30 to 323.50 70% disseminated to massive sulphide zone with 50% thin, wavy, wispy py, and 50% coarse (1-3 mm); buckshot pyrite; 323.50 to 323.70 5% thin, wispy disseminated py and po - relatively competent, but moderately broken into 10-20 cm intervals generally along chloritic foliation/slip surfaces - lower contact gradational								
		326.35 343.85 - intensely Fe/Mg altered felsic volcanic tuffs, somewhat like overlying sections of this unit, but this section contains only minor to 0.5% sulphides concentrated in thin disseminated bands; unit is very magnetic with minor to several percent disseminated magnetite, as well as abundant, thin to thicker (1 mm to 25 cm), magnetite bands - mottled, dark slightly metallic bluish grey to dark green-grey colour, massive to weakly foliated in most intense altered zones which have chloritic/magnetite bands, to locally weak to moderately foliated, particularly where remnant crystal tuff texture is still evident. Blue quartz eyes in definite crystal tuff between 333.00-334.50 m - moderate to intensely chloritized section with a somewhat homogeneous appearance - weak planar foliation generally at 45-55° CA - weak to strongly magnetic, depending on amount of magnetite present - moderate to intensely Fe/Mg altered with strong chlorite composition and abundant magnetite (5-7%) as fine disseminations and coarsely crystalline bands. Banded magnetite is not primary, but appears as an alteration or metamorphic mineral; unit has weak pervasive silicified appearance and is very hard, with several bluish grey, dark, irregular silica patches - generally about 5-10%, 0.5 cm ovoid to elongated cordierite spots; but these are generally vague and poorly formed, with ragged edges parallel to foliation, except locally where altered to chlorite; - minor to a few %, small (mm sized), white silica patches, often with diffuse contact edges into slightly silicified wallrock								

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS				
						WGT%	Cu (ppm)	Pb (ppm)	Zn (ppm)	Fe (ppm)
		- minor to lt, wispy disseminated pyrite:pyrrhotite concentrated along fracture planes, or as disseminations in thin (1-5 mm), irregular bands subparallel to foliation - moderately competent core with 25-50 cm breakage generally parallel to foliation - lower contact is sharp intrusive contact oriented at 45° CA.								
343.85	351.33	MAFIC (DIABASE) DYKE								
		- dark grey-green, generally fine grained (1 mm), but with coarsest section in central part and grading to slightly purplish, cherty looking aphanitic chill margins - moderate to strongly magnetic, homogeneous, very hard, massive with no foliation - plagioclase-chloritized mafic composition with a few percent disseminated magnetite; chill margins are also magnetic - no veining or sulphides - very competent core - upper contact sharp and subplanar at 45° CA, but including irregular wallrock section between 344.05 and 344.20 m, and lower contact sharp and planar at ~ 45° CA.								
351.33	370.20	MODERATELY TO INTENSELY FEING ALTERED (CHLORITE & MAGNETITE) FELSIC METAVOLCANIC TUFFS								
		- mottled dark green-grey to grey-green with fine (0.5 mm) grain size although well recognizable felsic crystal tuff section between 365 to 370 m has medium (1-2 mm) grain size due to larger feldspar crystals and blue quartz eyes - above 358.40, section is moderately to intensely iron-altered felsic metavolcanic - similar to 326.35-343.85 m; hard, moderate to strongly magnetic and is pervasively silicified to a plagioclase-quartz-chlorite rock								

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS			
						WGT%	Cu (ppm)	Pb (ppm)	Zn (ppm)
		- below 358.40, section is hard, weak to moderately magnetic and has definite crystal tuff texture, but with subdued, partially resorbed/assimilated appearance - upper part has more chlorite (moderate chlorite) than lower part (weak to moderately chlorite), and upper part has abundant magnetite (5%) as small to large grains, as well as foliation sub-parallel to cross-cutting (1-10 mm) irregular magnetite bands; lower part (crystal tuff) has minor, thin, magnetite bands, as well as minor disseminated magnetite & pyrrhotite concentrated in more chloritic zones; minor dark black, chloritic cordierite spots occur throughout unit - foliation moderate to well developed & generally planar at 40-45° CA - 3%, thin (1-5 mm), generally subplanar, as well as locally irregular, lenticular patches of white quartz veining - moderately competent core with 5-50 cm breakage, generally parallel to foliation, but including a 50 cm rubbly broken zone - section has gradational change from upper part which is more intensely Fe altered, to lower part where crystal tuff is more recognizable - lower contact is a sharp intrusive contact at 80° CA.							
370.20	389.55	MAFIC (DIABASE) DYKE							
		- same as 343.85-351.33 m except minor, hairline fracturing filled/coated with epidote/carbonate, and minor, 1-3 mm, subhedral plagioclase phenocrysts - upper contact sharp at 80° CA, and lower contact poorly recovered in rubble section - lower contact has long chill zone below 386.20 m, but with wallrock inclusion at 386.70-387 m suggesting dyke may be subparallel to orientation of drill hole.							

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS				
						WIDTH	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)
389.55	398.65	MODERATELY TO INTENSELY Fe/Mg ALTERED (CHLORITE & MAGNETITE) FELSIC METAVOLCANIC TUFFS								
		- same as 351.33 - 370.20								
		- lower contact gradational								
398.65	452.88	VARIABLELY ALTERED (Fe/Mg, SILICA) MAFIC METAVOLCANIC FLOW/FLOW BRECCIA	280294	410.00	412.00	2.00	77	TRACE	98	30
			280295	412.00	413.40	1.40	63	TRACE	86	28
			280296	443.00	444.20	1.20	10	4	68	50
			280297	446.60	447.00	1.00	228	72	108	26
		- unit as a whole appears to be a weak to moderate and locally intensely Fe/Mg altered mafic volcanic flow with some flow breccia horizons and some felsic volcanic clasts;								
		- mottled medium to dark grey-green and green-grey, fine grained, moderate to strongly magnetitic throughout, moderately soft with some harder silicified sections								
		- generally very weak to weakly foliated at 40-50° CA								
		- plagioclase-chloritized mafic mineral (amphibole?) composition, locally with some biotite in slightly brownish coloured patches; minor pervasive epidotized patches although epidote generally forms distinct veins/bands/patches								
		- thin zones within unit have coarse brecciated to pseudo- brecciated appearance with 0.5-5 cm, subangular fragments to vague compositional different patches. Locally, these could be flow top or base breccias, but some appear to be large felsic fragments								
		- 3-5%, irregular to discontinuous epidote:silica:calcite: garnet veins and patches up to several cm in size								
		- minor zones with abundant, 0.5-2 mm, ovoid amygdaloids (filled with silica), particularly at 398-400 m and 426-427 m								
		- unit contains 1-2% magnetite as thin (1-3 mm), irregular stringers subparallel to foliation, but includes several zones with abundant magnetite in 1-30 cm bands within an intensely chloritized zone between 409-413.40 m								

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS			
						Wt%	Cu (ppm)	Pt (ppm)	Zn (ppm)
		- section between 403.5-413.1 m; moderate to intense Fe/Mg (chlorite + magnetite) alteration and is similar to intense chlorite and magnetite altered section between 326.35-343.85 m							
		403.56 - 406.15 Moderately to intensely chloritic, moderately soft rock							
		406.15 - 408.00 Moderately chloritic, with 15-20% irregular branching/patchy quartz-epidote alteration bands							
		408.00 - 409.60 Moderately to intensely chloritic within brittle fault brecciated zone							
		409.60 - 413.40 Intensely chloritic rock containing 15-20% semi-massive magnetite as coarse grains in foliation parallel bands/veins							
		413.40 - 420.00 Moderately chloritic with 3-5% magnetite as irregular, thin (1-10 mm) bands, together with 2-3% epidote bands							
		- below 439 metres, unit is weak-moderately chloritized, but more siliceous than most of unit above (moderate pervasive silicification) with lighter grey, relatively hard patches; magnetite veining/banding is less common (1-2%) than overlying sections, but this section contains concentrated areas of heavily disseminated pyrrhotite, often occurring with magnetite:							
		443.80 - 444.00 10-15% coarse magnetite in irregular patches; bands with 3-5% coarsely disseminated pyrrhotite							
		446.60 - 447.90 15% disseminated magnetite with 2% pyrrhotite in irregular							
		- competent core with 20-50 cm breakage, b.c. including a few rubbly broken zones along chloritic slips							
		- lower contact is sharp, intrusive contact at 75° CA.							

452.80 455.90 MAFIC (DIABASE) DYKE

- Dark green with aphanitic chilled margins and fine grained, weakly feldspar porphyritic interior. Includes 5-10% small (<2 mm), sub to euhedral and often zoned plagioclase phenocrysts;

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS				
						WIDTH	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)
		unit is weakly magnetic								
		- minor to 0.5 fine pyrite as small (<1. or 2 mm), subrounded "grains/porphyroblasts" occurring throughout coarser central part of dyke								
		- unit is relatively massive and homogeneous (except for chill margins) and not foliated								
		- moderately hard, competent core with 25-100 cm breakage along fractures								
		- no veining								
		- lower contact is sharp chilled intrusive contact oriented at = 49° CA								
		- chill margin has banded appearance across lower 1 cm								
455.90	461.65	MODERATE TO INTENSELY (Fe/Mg/SILICA) ALTERED MAFIC (FELSIC?) METAVOLCANIC	200298	455.90	457.90	2.00	561	4	86	40
			200299	457.90	459.65	1.75	22	TRACE	72	30
		- irregularly mottled dark green-grey to grey green with weak to moderately developed pseudo-brecciated appearance due to alteration, where irregular blocks (1-10 cm in size) of fine grained relatively homogeneous rock is surrounded by coarser-grained more chloritic & altered looking bands and patches, as well as irregular silica & carbonate lenses/veining								
		- unit is now relatively mafic in appearance but finer-grained pseudo-clasts are often lighter grey and siliceous in composition suggesting a possible felsic metavolcanic protolith; unit has patchy to irregular, moderate Fe/Mg and silica alteration; unit appears to be moderately Fe/Mg? altered, and weakly silicified mafic metavolcanic unit possible with some felsic clasts, interflow horizons								
		- silica-plagioclase-chlorite composition, containing 5-7% variably chloritized, small (1 mm) to large (1 cm), ragged edged and generally subrounded cordierite porphyroblasts								
		- poorly developed foliation at about 50° CA								

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS				
						WIDTH	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)
		- generally weak to moderately magnetic, but locally py or po at bands are strongly magnetic - minor to 5%, very irregular to chaotic folded, thin (1-10 mm), patches, bands & discontinuous veins of silica & epidote. Locally these form irregular sharp bounded network veinlets, giving local zones a pseudo-brecciated appearance - 1-2% pyrite & pyrrhotite and minor chalcopyrite, with sulphide minerals concentrated in foliation parallel patchy bands, that are 2-10 mm wide								
		456.10 - 456.12 30% py & cpy in patchy band								
		457.50 - 457.55 10% py & cpy								
		458.60 - 458.65 20% at & py & po in patchy band with minor 1-3 mm pyrrhotite needles								
		- unit contains several chloritic shears at 20-60° CA exhibiting slickenside surfaces at 45° CA - moderately competent core with 10-50 cm breakage - lower contact sharp planar intrusive contact @ 25° CA.								
461.85	462.25	MAPIC (DIABASE) DYKE								
		- same as 452.80-455.90 m - lower contact sharp planar intrusive contact at 25° CA parallel to upper contact.								
462.25	483.40	MODERATELY TO INTENSELY PEG/MG ALTERED AND SILICIFIED MAPIC (PELSTIC) METAVOLCANIC	200300	474.00	476.00	2.00	1065	4	80	70
			200301	476.00	477.00	1.00	82	TRACE	76	50
			200302	477.00	478.15	1.15	1510	TRACE	72	50
			200303	478.15	479.00	0.85	145	20	100	40
			200304	479.00	480.40	1.40	580	4	74	20
			200305	480.40	482.40	2.00	145	TRACE	72	60
			200306	482.40	483.40	1.00	4960	TRACE	96	40
		- similar to 455.90-461.85 but this section slightly more altered and 'pseudo-brecciated' in appearance - unit is mottled medium to dark grey-green, green-grey and brownish green, generally fine grained, and weak to locally moderately foliated at 20-60° CA, with average about 40-45°								

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FROM	TO	LITROLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS			
						WIDT	Co (ppm)	Pb (ppm)	Zn (ppm)
		- generally plagioclase-chlorite-quartz:magnetite composition with local patchy brownish biotitic and lighter greenish epidote zones. Unit probably a moderate to locally intensely Fe-Mg altered (chlorite & minor magnetite), and weakly silicified mafic metavolcanic with alteration that is very patchy; most intense alteration occurs as irregular to foliation subparallel bands and patches (stockwork altered zone) - magnetite locally occurs as fine disseminations generally in more chloritic zones, and occasionally forms large grains in small (1 or 2 cm) zones or veinlets - most of unit has a somewhat spotted appearance due to minor amounts of small (1-3mm) ovoid to elongate spots that locally are joined by irregular thin veinlets forming net-working between spots. Spots are lighter grey in colour and appear to be amygdulose where well formed and distinct individual ovoids, but look more like porphyroblastic growths in the areas where irregular ovoids are joined by networked veining; ovoids consist of relatively a soft mineral - weak to moderately magnetic with local strongly magnetic zones near magnetite or pyrrhotite mineralization - unit contains a few, thin (5-25 cm) zones of very dark green-black chlorite rock that exhibit good sheared/slip fracture surfaces subparallel to foliation at 25 to 45° to CA - unit contains 5%, thin (10-30 cm) zones with weak pervasive epidote alteration giving unit a light greenish colour, as well as local zones with small (3-10 mm) patchy epidote growths concentrated in thin bands - minor irregular, thin (1-5 mm) quartz & calcite veining, and minor irregular epidote-carbonate/garnet alteration patches/bands 464.75 - 465.75 Medium brownish-green, aphanitic cherty zone; appears to be a large rhyolite fragment but could be a fine felsic/quartzose dyke; section is strongly brecciated and cut by 20%, hairline to 1 cm wide, irregular cross-cutting quartz veining. This section is well broken with poorly recovered contacts							

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS				
						WIDT#	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)
		- a few, thin (1-5 mm), planar, crosscutting white calcite veins								
		- unit contains minor to 0.5% sulphides, mostly concentrated in 5-20 cm zones, as 2-5 mm irregular interstitial to cuspid grains. Mineralization in these zones is mostly cpy & po and these zones tend to occur in intensely chloritized or silicified & chloritized zones; unit also contains a few, thin (1-3mm), pyrrhotite veinlets; sulphide mineralization has weak stockwork style appearance and occurs mostly below 474 metres, with most concentrated zones as follows:								
474.15		1-3 mm po veinlet at 45° CA								
474.80 to 475.50		2-3% po, and 0.5% cpy as cuspid grains in intensely chloritized rock								
477.30 to 478.10		2-3% py & po and minor cpy as cuspid disseminations in moderately silicified and chlorite rock								
479.20 to 480.25		0.5-1% Py & Po and 0.25 to 0.50% cpy as cuspid disseminations in moderately silicified and chloritized rock								
482.80 to 483.40		0.5-1% py & po and 0.25% cpy as fine disseminations associated with irregular silica patches/veining in an intensely chloritic rock								
		- lower intensely chloritic sections of unit (below 482 m) contain small (1-10 cm) irregular patches/zones with coarse plagioclase phenocrysts similar to underlying intrusive and may represent partially assimilated dyke zones								
		- core is relatively competent but moderately broken on fractures and chloritic slips, generally at shallow (10-45°) angles to CA								
		- lower contact is very obscure (gradational?) with some plagioclase phenocrystic patches above contact, and a zone of mafic rock below marked contact that has only a few plagioclase phenocrysts and locally has appearance like this unit. Contact picked at change from foliated and softer chloritic rock of this unit to more massive, more siliceous and harder porphyritic intrusive unit								

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS				
						WICTE	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)
483.40	499.45	FELDSPAR PORPHYRITIC INTERMEDIATE (DIORITIC?) TO MAFIC DYKE - name dyke as GB-137 at 313.50-430.10 m. - medium-dark grey-green, fine grained groundmass with 10%, 1-10 mm, subhedral and generally agglomeratic, white to slightly pinkish feldspar phenocrysts. Locally, they are somewhat poorly formed and appear partly assimilated and diffusely bounded - unit is non-magnetic, hard, slightly siliceous, with plagioclase-chlorite-silica composition; original mafics mostly chloritized - unit is relatively massive and homogeneous with no schistose foliation - upper zone from 483.40 to 484.75 is dark green, fine grained, hard, siliceous (pervasive & veined) and chloritized rock with minor plagioclase phenocrysts and some irregular quartz bands/patches. This section probably a separate phase of dyke or possibly assimilated zone between dyke and mafic volcanic wallrock - feldspar porphyritic dyke proper occurs between 484.75 and 499.45, with relatively evenly distributed feldspar phenocrysts throughout except for 50 cm zones nearest the contact edges which have somewhat smaller, less abundant and less distinct phenocrysts in slightly finer (chilled?) grained groundmass - unit contains abundant (5%), subplanar but irregularly orientated to network intersecting, fine (mostly hairline to 5 or 10 mm), grey silica & garnet veinlets, adding to the silicified appearance of dyke - unit cut by a few late diabase dykelets; these are dark purplish, aphanitic (chilled), unfoliated, homogeneous and have knife-sharp contact edges								
487.00		0.5 cm diabase dykelet at 35° CA								
490.15	490.30	5 cm diabase dykelet at 25° CA								
		- unit is non-magnetic and contains minor disseminated pyrite								

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS			
						WIDE	Cu (ppm)	Pb (ppm)	Zn (ppm)
		- core is relatively hard and competent with 25-100 cm breakage - lower contact along thin epidote/silica flood band, across which feldspar phenocrysts disappear; contact at about 45° CA.							
499.45	501.75	MAFIC DYKE?							
		- dark green, fine-grained, non-magnetic, massive (unfoliated) and very homogeneous - very fine plagioclase-chloritized mafic composition - minor, thin (hairline to 1 mm), very planar silica veinlets - 0.5% pyrite as fine disseminations concentrated in small (1-5 mm) spots - upper contact with feldspar porphyritic dyke may be slightly finer grained (chilled?), but this dyke does not have the well defined chilled margins evident in most late diabasic intrusive dykes. This dyke may be related to feldspar (separate phase) porphyritic dyke above - competent core - lower contact is planar shear at 20° to CA							
501.75	509.60	MAFIC METAVOLCANIC (FLOWS?)	200107	506.80	509.60	2.80	91	4	62
		- dark grey-green, fine grained, hard (siliceous) relatively homogenous with some mottling due to greyer more siliceous patches and slightly epidotized, slightly greener patches - unit is relatively massive with weak chloritic foliation subparallel to patchy banding at ~ 45 to 50° to CA - unit probably has plagioclase-chloritized mafic mineral composition, with weak to moderate pervasive silicification. Minor epidote, no biotite. - unit is weak to moderately magnetic, and contains							

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS				
						WIDTH	Cu (gpt)	Pb (gpt)	Zn (gpt)	Ba (gpt)
		minor to lt finely disseminated magnetite - unit has a few, thin (0.5 to 5cm), dark purplish grey calcite bands that contain minor hematized silica and have thin (0.5 cm) epidotized + shear foliated wallrock edges. These could be interflow/pillow cherty limestone accumulations. - unit is probably a massive, or possibly pillowed mafic volcanic flow sequence - weak to locally moderate chloritic alteration, and weak to moderate pervasive silicification - unit cut by 2-3lt, fine (1-5mm), somewhat diffuse slightly greenish-grey silica veinlets/discontinuous patches; these are not planar and are more like alteration bands - unit cut by thin (5 cm), aphanitic, purplish diabasic dykelet at 20° to CA between 504.20 - 504.50 metres. Dyke contact sharp + planar but somewhat offset on small fractures - minor sulphides (Po + Py) as fine disseminations throughout, but also as concentrations of up to 5% Po + Py in small (1 to 10 cm) patches within very chloritic zones below 507 metres - unit relatively competent but moderately broken with 5 to 25 cm breakage on thin chloritic fractures mostly at 45 to 50° to CA - lower contact along 3 to 5 cm wide shear zone at 20° to CA								

509.60 512.65 FELDSPAR PORPHYRITIC INTERMEDIATE (DIORITIC) TO MAFIC DYKE

- same as 483.40 to 499.45
- lower contact picked along planar shear at ~20° to CA below which are no more feldspar phenocrysts; 50 cm from contacts, feldspar phenocrysts are less common and smaller and in these zones the dyke is not dissimilar from underlying mafic meta-volcanics (flows?)

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FROM	TO	LITHOLOGICAL DESCRIPTION	SAMPLE No.	FROM	TO	ASSAYS			
						WIDTH	Cu (ppm)	Pb (ppm)	Zn (ppm)

DOWN-HOLE SURVEY DATA

DEPTH	INCLINATION	BEARING
79.86	-58.00	134.00
110.34	-58.00	136.00
165.20	-58.00	137.50
229.21	-57.00	139.00
334.67	-56.00	144.00
454.76	-53.00	143.00
510.24	-53.00	143.50
517.25	-53.00	143.50

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RAE

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SAMPLE NUMBER	SAMPLE INTERVAL (M)			ASSAYS				Sulphides (%)	SAMPLE DESCRIPTION
	FROM	TO	LENGTH	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)		
200,270	253.10	255.20	2.10	538	24	114	530	3-5% Py	-moderately chloritic & siliceous, weakly cordierite spotted, contorted/sheared felsic metavolcanic tuff
200,271	255.20	256.60	1.40	6	8	30	1090	3-5% Py	-moderately chloritic & siliceous, weakly cordierite spotted, contorted/sheared felsic metavolcanic tuff
200,272	256.60	258.60	2.00	6	<2	18	570	3-4% Py	-weak to moderately chloritic, and weakly cordierite spotted quartz-sericite schist (felsic metablc. crystal tuff)
200,273	258.60	260.60	2.00	2	4	20	650	1-2% Py	-weakly chloritized quartz-sericite schist
200,274	260.60	262.60	2.00	<1	4	20	390	2-3% Py	-weakly chloritized quartz-sericite schist
200,275	262.60	264.60	2.00	5	4	18	350	2-3% Py	-weak to moderately chloritized, quartz-sericite schist and felsic metavolcanic quartz-feldspar crystal tuff
200,276	264.60	265.80	1.20	2	4	12	190	2-3% Py	-weak to moderately chloritized, quartz-sericite schist and felsic metavolcanic quartz-feldspar crystal tuff
200,277	265.80	267.15	1.35	1	<2	16	310	5% Py	-50% weak to moderately chloritized, quartz-sericite schist and 50% intensely chloritized rock.
200,278	267.15	268.80	1.65	<1	<2	34	140	5-10% Py	-intensely chloritized felsic metavolcanic rock with disseminated pyrite
200,279	268.80	271.88	3.08	<1	<2	16	350	2-4% Py	-felsic metavolcanic crystal tuff with minor intensely chloritized bands with disseminated pyrite
200,280	271.88	274.93	3.05	<1	<2	14	320	2-4% Py	-felsic metavolcanic quartz-feldspar crystal tuff
200,281	274.93	277.75	2.82	<1	<2	16	280	2-4% Py	-felsic metavolcanic quartz-feldspar crystal tuff
200,282	277.75	280.30	2.55	10	<2	56	290	2-4% Py	-felsic metavolcanic quartz-feldspar crystal tuff with 35cm intensely chloritized band & dis. pyrite
200,283	280.30	282.30	2.00	6	8	118	260	3-5% Py	-weak to moderately chloritized felsic ash tuffs, with disseminated and patchy buckshot pyrite
200,284	282.30	284.30	2.00	261	<2	172	320	3-5% Py	-weak to moderately chloritized felsic ash tuff with disseminated and patchy buckshot pyrite
200,285	284.30	285.45	1.15	21	<2	98	80	3-5% Py	-moderately chloritized felsic metavolcanic ash tuff with disseminated and patchy buckshot pyrite
200,286	285.45	287.00	1.55	226	4	244	80	trace Py	-mafic metavolcanic with minor disseminated magnetite
200,287	300.20	301.25	1.05	177	<2	70	250	1-2% Py	-brecciated and contorted, felsic metavolcanic

Sampled by H. Lenters

PROJECT: ROBERTS ARM - GULLBRIDGE

RAE

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SAMPLE NUMBER	SAMPLE INTERVAL (M)			ASSAYS				Sulphides (%)	SAMPLE DESCRIPTION
	FROM	TO	LENGTH	Cu (ppm)	Pb (ppm)	Zn (ppm)	Pb (ppm)		
200,288	317.00	319.00	2.00	1	<2	62	50	2-4% Py 3-5% Po	-intensely chloritized felsic metavolcanic with 2 heavily disseminated Fe-sulphide bands/patches
200,289	319.00	320.00	1.00	<1	<2	72	30	0.5-1% Py 0.5-1% Po	-intensely chloritized felsic metavolcanic
200,290	322.10	323.75	1.65	1	<2	46	100	4-6% Py 4-6% Po	-moderately silicified and chloritized felsic metavolcanic with 2 bands of heavily disseminated Fe-sulphides
200,291	323.75	326.35	2.60	<1	<2	46	100	0.5-1% Py 0.5-1% Po	-moderately silicified and chloritized felsic metavolcanic
200,292	328.00	329.00	1.00	<1	200	60	30	minor Py & Po	-intensely Fe-altered (chlorite & magnetite) felsic metavolc. including 30cm magnetite band.
200,293	335.00	336.00	1.00	<1	28	56	40	minor Py & Po	-intensely Fe-altered (chlorite & magnetite) felsic metavolc. including 30cm magnetite band
200,294	410.00	412.00	2.00	77	<2	98	30	true po & py	-intensely chloritic mafic rock with 20% coarse magnetite in bands
200,295	412.00	413.40	1.40	63	<2	86	20	true po & py	-intensely chloritic mafic rock with 15% coarse magnetite in bands
200,296	443.00	444.20	1.20	10	4	68	50	3-5% Po	-moderately chloritized and silicified mafic metavolcanic with 10-15% magnetite & 3-5% Po bands
200,297	446.00	447.00	1.00	228	72	108	20	1% Po	-moderately chloritized and silicified mafic metavolcanic with 5% magnetite and 1% Po bands
200,298	455.90	457.90	2.00	561	4	86	40	2% Py Minor Po Minor cpy	-moderately Fe/Mg altered mafic metavolcanic with several thin (5mm) pyrite bands containing minor chalcopyrite
200,299	457.90	459.65	1.75	22	<2	72	30	2% Py 1% Po	-moderately Fe/Mg altered mafic metavolcanic with a thin (5mm) patchy pyrite & magnetite band
200,300	474.00	476.00	2.00	1065	4	80	70	Minor Py 2-3% Po 0.5% cpy	-moderately Fe/Mg (chlorite) & weakly silicified mafic rock with disseminated po +/- py and cpy
200,301	476.00	477.00	1.00	82	<2	76	50	Minor Py & Po	-intensely chloritized mafic rock
200,302	477.00	478.15	1.15	1510	<2	72	50	1-2% Py Minor Po Minor cpy	-moderately Fe/Mg (chlorite) and weakly silicified mafic rock with pyrite and minor po cpy on fractures
200,303	478.15	479.00	0.85	348	20	100	40	Minor Py & Po	-intensely chloritized mafic rock with 2 to 5% coarsely disseminated stockwork magnetite
200,304	479.00	480.40	1.40	580	4	74	20	0.5-1% Py Minor Po 0.25% cpy	-moderately silicified and chloritized mafic rock with disseminated/stockwork pyrite and chalcopyrite
200,305	480.40	482.40	2.00	148	<2	72	60	Minor Py	-weak to moderately silicified and chloritized mafic

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