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Billtion Exploration Canada Ltd. / Celtic Minerals Ltd.
Diamond Drill Log

DRILLED BY: Petro Drilling (NQ) **LOCATION:** L8000 E 8050 N Grid: Buchans Junction **Grid Map Reference:** 12A / 15 **Claim #:** 7418M
Location: UTM NAD 27, Zone 21 533987.25m E, 5409399.59m N (chained from GPS) **PROPERTY:** Buchans Junction **LOGGED BY:** Trevor Rice **DATE STARTED:** 05/12/00
DATE COMPLETED: 05/19/00 **TOTAL Meterage:** 534.31 m **AZIMUTH:** 138° **Dip of Hole at: Collar** -90° → **Collar Elevation:** ~240

FROM	TO	DESCRIPTION
0	1.87 m	Overburden
1.87	8.80	Mafic Breccia - Non-magnetic light grey-green mafic breccia - Core is strongly broken and is dominated by insitu brecciation with infilled quartz/carbonate veins. - Large clast of hematized mafics, laminated green siltstone and jasper lens. Jasper lens at 60° to ca - Minor epidotization 6.9 – 8.10 m Dark green aphyric dyke. Contact lost in broken core.
8.80	20.0	Lithic Wacke - Non-magnetic dark olive green lithic wacke - Fragment size ranges from 0.1 – 1 cm and are sub rounded. Smaller fragments consist of equant plag and quartz. Larger fragments are chloritized - Rock is matrix supported with matrix chloritized - Top of unit is silicified and contains larger fragment (to 11.8 m); consisting of siltstone and chert. May represent structural contact. - Lower contact is sharp. Core angle is obscured in broken core. Maybe at 45° to ca.
20.0	23.9	Silicified Breccia - Non-magnetic pervasively silicified breccia. Rock is extremely hard and competent. - Rock has a mottled texture and is bright lime green to pinkish in colour. - Well-rounded quartz crystals are located throughout unit. - Epidote flooding along thin discrete veinlets at 30° to ca. - Lower contact is sharp at 35° to ca. Note: Unit does not appear to be part of a fault system.
23.9	40.45	Polyolithic Breccia - Light green non-magnetic polyolithic breccia - Fragments are finer grained (1cm) at top of sequence and grossly courses down sequence with fragments up to 8 cm. - Fragments consist of cherty siltstone, hematized and chloritized fragments and plagioclase crystals. - Fragments are angular, especially in lower 15 m. Matrix is chlorite/epidote altered and displays a pumice appearance (net texture around clasts). Unit may represent fluid interaction at sea-floor interface. - Lower carbonate veining at 80° to 45° to ca. - Lower contact is sharp at 45° to ca.
40.45	46.8	Lithic Wacke - Non-magnetic poorly sorted lithic wacke. Light to dark green - Lithic fragment consists of plagioclase (1 – 2mm), cherty siltstone (< 1cm), hematized angular fragments and quartz. - No defined orientation of fragments - Lower contact is silicified and may be structural.

- 46.8 101.3 Mafic Intrusive
- Light green medium grained, plagiophyric, non-magnetic, massive gabbroic? intrusive.
 - Plagioclases are lath shaped to subhedral. Mafic minerals are predominantly chlorite altered.
 - Top of unit contains calcite amygdules
 - Igneous layering suggests downhole tops.
 - Lower contact is sharp at 30° to ca.
 - Local quartz-carbonate veining at 80° to ca.
- 101.3 106.8 Polyolithic breccia
- Poorly sorted breccia in a light green felsic matrix
 - Clast size range in size from 0.5 – 2.0 cm. One red cherty fragment at bottom of unit is 40 cm. Unit coarsening down hole.
 - Clast composition consisting of plagioclase, feldspar, green and red siltstone, and chloritized and hematized fragments. Clast can be well rounded to angular.
 - Weakly defined layering at 30 – 40° to ca
 - Upper contact is weakly silicified. Lower contact defined by potassic quartz veining at 30 – 40° to ca within 3 cm interval.
- 106.8 111.90 Wacke
- Non-magnetic dark green to dark brown-black lithic wacke.
 - Matrix supported. Dominant clast consists of plagioclase and hematized, red siltstone fragments.
 - Well defined layering defined in top 1 m of sequence; consists of alternating moderately chloritized layers and less chloritized layers.
 - Lower contact is sharp at 45° to c.a.
- 111.90 120.35 Mafic Intrusion
- Massive, light to dark green, non-magnetic gabbroic? intrusive.
 - Similar to intrusive located uphole at (46.8 – 101.3 m)
 - Minor quartz – carbonate veining at 45° and 70° to c.a. (5%)
 - Upper contact contains rip-up clast of adjacent unit. Lower contact is sharp at 30 – 40° to c.a. Minor epidotization proximal to contact at near 90° to c.a. Unit is finer grained close to upper contact
- 120.35 212.4 Volcanic Mafic Flow
- Pervasively hematized, non-magnetic red pillowed mafic flow. Unhematized mafics account for 2 – 5% of core.
 - Amygdaloidal – (1 – 5mm) well-rounded to oblong shaped. Calcite/Carbonate filled. Accounts for 30% of interval
 - Abundant calcite/carbonate veining usually at 30 – 40° to c.a.
 - 152-174 zone of intensely broken core. Minor fault gouge at 162 m, 163.2. Orientation of gouge indicates fault zone at 30 - 40° to c.a.
 - Weakly magnetic plagiophyric basaltic dykes at 164.4 – 165.4, 167.9-168.4, 170.5 – 171.5, 189.5 – 190.4. Core angle are generally 45° to c.a.
 - 204.9-212.40 Strong epidotization in lower contact zone.
- 212.40 302.9 Mafic Intrusion
- massive non-magnetic dark to light green mafic (gabbroic?) intrusive.
 - Unit is fine-to medium-grained. Unlike other mafic intrusives uphole plagioclase is not phenocrystic here. All mafic minerals have been altered to chlorite.
 - Unit is locally amygdaloidal (<5%) (1-5mm) Amygdules are calcite filled. Many of the chlorite filled cavities also appear to be amygdules.
 - Lower contact for intrusive unit is lost in broken core and can be marked by a 20 cm interval of strong epidote/calcite alteration.
 - 251.66-255.8 Mafic Dyke
 - plagiophyric mafic intrusive similar to unit (46.8 – 101.3)
 - unit is very hard and cut by many quartz/epidote veins
 - contact are sharp and at low angles to c.a.
 - 273.3-277.9 Mafic Flow
 - weakly magnetic dark green fine-grained mafic flow.

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Amygdaloidal – amygdules rounded to oblong shaped (1-4 mm) calcite carbonate filled.
Upper contact is 30° to c.a. Unit is marked by strong epidote/calcite alteration

- 302.9 314.9 Hematized Mafic Flow
- Non-magnetic pervasively hematized mafic flow – Red coloured
 - Amygdaloidal-rounded to sub-rounded, and oblong shaped (1-8mm) Calcite and carbonate filled (30% amygdules).
 - 5-10% carbonate veining at varying angles to c.a.
 - 312.7-314.9 Contact zone. Unit is variably contorted in this zone. Abundant carbonate veining at 40° to c.a. Unit maybe pillowed toward end. 2 cm fault gouge seam at 312.9 cm (40° to c.a.)
- 314.9 347.04 Felsic Pyroclastic
- Light green non-magnetic pyroclastic flow. Rock is hard and siliceous.
 - Composition : plag, k-spar and calcite crystal fragment (1mm – 10mm) rounded to elongated.
 - Ground mass is siliceous and sericitic giving displaying a foliated and wispy appearance. Usually at low angles to c.a. (10 - 30°) but also may be folded and fractured along tiny carbonate veinlets.
 - From 328.5-330.3 sericite fabric wraps around potassic and siliceous fragments. Within this zone 2 potassic siliceous fragment (10 cm and 60 cm respectively) They are orientated along core at 45° and 60° to c.a.
 - Lower contact is gradational. Intermixed with poorly sorted wacke.
- 347.04 384.8 Variably Hematized Felsic Pyroclastic.
- Light green to light red non-magnetic moderately foliated felsic pyroclastic. Core angle 30 - 40° to c.a.
 - 347.04 – 354.0m Variably hematized with abundant silica flooding (maybe rhyolite in composition) Unit contains 20 – 30% lath shaped (1-3mm) plagioclase fragments. Few quartz well-rounded fragments.
 - Rest of unit light green in colour. Contain fragments of plag (<5%), feldspar(1-10mm)(oblong in shape), hematized material, and siltstone.
 - Local chloritic ground mass.
 - Wispy sericitic alteration defining foliation (sub-parallel to 30° to c.a.)
 - Peppered leucoxine crystal throughout
 - Minor carbonate veining at 45° to c.a.
 - Lower contact lost in silica flooding over 2 m zone
- 384.8 395.8 Variably altered Rhyolite
- Light green-grey quartz-phyric rhyolite (dyke?). Very massive in appearance.
 - Unit is moderately silicified and locally sericitized
 - Upper 3.5 m is intermixed with upper unit. Local silica/potassic alteration present
 - Quartz phenocrysts 1-5 mm, and well rounded to oblong in shape
 - Weak fabricat 30° to c.a.
 - Lower contact is sharp at 30° to c.a.
- 395.8 412.8 Mafic Flow
- Light to dark green non-magnetic strongly foliated mafic flow.
 - Unit has bleached appearance and weakly hematized in lower 8 m. Foliation at 20 - 30° to c.a.
 - Unit is amygdaloidal. Amygdules are well rounded to oblong in shape (1-10mm) Calcite/carbonate filled.
 - 5% carbonate veining along foliation.
 - 395.8-398.0 Top of unit is moderately sericitized and quartz flooded along foliation planes. Foliation planes are chaotic with 10% carbonate flooding.
- 412.8 423.0 Broad Fault Zone
- Highly contorted foliation in what appears to be a felsic pyroclastic unit

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- Foliation is sub-parallel to 30° to c.a. and is defined by sericitic alteration
- Unit contains fragments of quartz, hematized and potassic material
- 2.0 cm fault gouge seam at 419.96 (20° to c.a.) Asymmetrical fold above seam suggests sinistral movement (w.r.t ca looking downhole)
- minor (<1%) pyrite mineralization associated with fault material.
- Felsic dykes at 415.0-415.55, 417.7-418.6
- Sharp lower contact at 30° to c.a.

423.0 431.4 Mafic Flow

- Pervasively hematized amygdaloidal non-magnetic flow.
- Amygdules are clear calcite to local quartz filled
- Lower contact is sharp at 25° to c.a. and characterized by carbonate veining and silica flooding next to lower unit.

431.4 503.83 Rhyolite

- Light grey to green and purplish grey non-magnetic felsic unit. (Rhyolite flow?)
- Unit is massive in appearance and is fine to medium grained. Local poorly defined fabric at 40° to c.a.
- Unit is quartz phyric. Phenocrysts are up to 3mm in size and are usually sub-rounded.
- 1 – 3 % quartz-carbonate veinlets at 45 and 70° to c.a.
- From 473.3 – 486.6 local moderate sericitic alteration present and define fabric at 40° to C.a.
- Unit has local tuffaceous to pyroclastic? sections. These intervals have lath shaped plag fragments and chlorite replacement of plag in ground mass. These intervals predominately appear in top 15 m of unit and from 457.5-460.66m.
- Lower contact is sharp at 50° to c.a.

503.83 534.31 Mafic Flow

- Dark green fine-grained weakly magnetic mafic (basaltic) flow.
- Amygdaloidal-patchy amygdaloidal sections account for 30% of core. Amygdules are well-rounded to oblong shape (averaging 3-5 mm but up to 2-3 cm in length), creamy white to pinkish calcite / carbonate filled. Occasionally, they are chlorite filled (small < .4 cm amygdules).
- Few maroon hematite sections (those sections are less than 10 cm wide)
- Carbonate veining is present throughout but account for < 2% of unit. Usually cut core at 45 - 60° to c.a.

543.31 End of Hole