

Great Gull Lake Resources - Gullbridge Project 2001

DDH - SW-05

License #:	Collar Easting: 2+25 E	Logged by: Victor French /	<u>Down Hole Surveys (Tropari):</u>
Property: Gullbridge	Collar Northing: 25+13	Chad Wells	135 / 67 @ ~189 m
Southwest Shaft	Hole Azimuth: 130 deg.	Date: Nov. 26/00	
	Hole Inclination: 75	Start Nov. 30/00	
	Total Depth: 202.69 m	Finish	

<u>Depth</u>	<u>Description</u>
(from) (to)	
0.5	<u>Basalt (?)</u> 2.5 Variable green to black fine to locally medium grained igneous lithology. Dominantly a phyrlic texture of white plagioclase phenocrysts surrounded by a fine grained matrix of mafic minerals (hornblende, lesser biotite, and trace pink feldspar). Alteration consists primarily of chlorite and what appears to be overall moderate to strong silicification. Unit is massive with only a weak suggestion of deformation, a slight mineral alignment practically parallel t.c.a. Sulphide is common throughout as v.f.g. disseminations often collectively forming wispy flamy laminations (veinlets) sub-parallel t.c.a. ~2-3% sulphide on whole, predominantly pyrite with a hint of brassy colored chalcopyrite or possibly oxidized pyrite so close to surface. Core is substantially block, variably fractured, explained as a typical feature proximal to surface. Gradational lower contact, mixing one.
2.5	<u>Metavolcanic</u> 7 Grey-green to pinkish maroon in part, grading from the phyrlic basalt described above to a pinkish deformed felsic volcanic proceeding down hole. The pink is a very fine grained mixture of feldspar with increasing mica. A well developed fabric is evident but is quite irregular in nature, wavy wispy laminations are observed ranging from parallel t.c.a. to 35-40 deg. t.c.a. Chlorite alteration is common in two forms both has wispy veinlets and alteration halos surrounding locally abundant 2-5 mm cordierite porphyroblasts. The large anhedral grains though prevalent are described as ghost like, faint, possibly being overprinted by a structural lineation increasing with depth. Rubbly, highly fractures core is common from ~ 6-7 m, suggestive of a fault. Sulphide is relatively common throughout, ~2-3% pyrite and possible cpy is disseminated throughout unit. A clean lower contact @~30 deg. t.c.a. truncates a very strong fabric of the schist below.
7	<u>Quartz-sericite-chlorite Schist</u> 24.61 Highly variable light to medium grey, locally green, unit of highly deformed schist. A range of mineralogy generally dominated by quartz with lesser sericite or chlorite is present throughout. The unit is highly deformed, almost mylonitic locally, alternating fine grained laminations of quartz, sericite & chlorite define a variable fabric. The fabric is in fact so erratic

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Depth
(from) (to)
cont...

Description

a consistent trend is questionable. Like many other unit in the sequence cordierite porphyroblasts prevail as a common amphibolite facies mineral, often the porphyroblasts preferentially align to a realm of directions, that center around a shallow core angle. The Cordierite mineralogy is typical of unit but is enriched over local intervals. The grains are generally 3-5 mm or 8-10 mm anhedral to subhedral shaped. The unit overall is quite variable with common more siliceous massive sections interbedded with the more typical highly deformed schist. Likewise variable intervals of darker mineralogy are common, @~19 m a darker section reveals a more consistent 30-35 deg. fabric. Locally unit contains trace to minor sulphide, typically < 1% disseminated pyrite. Gradational contacts
Rubbly, broken section of core centered around 7.98, 18.5, & 24.5 m contains short intervals of clay like fault gouge.

Metavolcanic (Mafic)

24.61 27.9 Dark green to black, very fine grained, weakly to moderately deformed volcanic. Unit contains abundant (sperm-like) cordierite porphyroblasts, often 10-15% of mineralogy. Dark green to black chlorite alteration is also quite common and appears to be intermingled with magnetite as suggested by the strong magnetic character of those zones. The more massive intervals are typically dominated by cordierite but the more deformed sections are characterized by alternating quartz / chlorite laminations. Short intervals of interbedded chert / jasper with abundant oxide (Fe-formation) occurs as two discrete beds 10-20 cm thick. A 25 cm section of strong yellow sericite alteration associated with a broken up quartz vein and wispy magnetite vein occurs adjacent the lower contact. All lithological contacts within the interval are ~30 deg. t.c.a., erratic laminations like above are often parasitic like and a structural trend is not obtainable.

Quartz Sericite Schist

27.9 39.84 Very similar to schist described above except for a more obvious sericitic component. Short section of intense yellowish brown sericitic banding from 32-33 m. As well at ~33 m

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(from) (to)	
cont...	unit becomes light grey and reveals some spectacular mottled textures of lineated cordierite porphyroblasts in white quartz laminations. Otherwise unit is typical as above. unit becomes light grey and reveals some spectacular mottled textures of lineated cordierite porphyroblasts in white quartz laminations. Otherwise unit is typical as above.
	<u>Metavolcanic (mafic-cordierite-rich)</u>
39.84 42.37	Medium green to grey in part, striking mottled speckly texture, weakly to moderately deformed locally. Cordierite-rich interval of metamorphosed volcanic rock, up to 20-25% of mineralogy is dominated by remnant porphyroblasts of cordierite. The anhedral porphyroblasts are smaller than typical, 1-2 mm, more speckle like, the grains seem to be more aggregated than observed elsewhere. The cordierite grains are generally green with chlorite alteration but locally they are slightly tan or brownish, possible sericitic alteration. A weak fabric is observed over short sections as fine laminated quartz and chlorite, also cordierite porphyroblasts align to a preferred orientation, unfortunately the fabric is highly variable and not consistent. White quartz patches with minor sericite alteration is also present. Fractures are quite common, thus sections of rubbly core are seen throughout. Fractures are typically chlorite coated and are often parallel t.c.a. No appreciable sulphide content, only trace local disseminations.
	<u>Mafic (Meta) Volcanic</u>
42.37 52.73	Medium to dark green volcanic, predominantly massive, and fine grained with local cordierite enrichments. Mineralogy appears dominated by green hornblende and lesser brown biotite, Generally a fabric is not observed only over local intervals that appear more biotite rich. Chlorite alteration is also evident especially along broken fracture planes and haloing cordierite porphyroblasts over short intervals. Epidote coupled with quartz often are seen as discrete irregular patches. There is no sulphide or prospective alteration observed. Unit is interpreted as a moderately metamorphosed mafic volcanic or gabbro. Upper contact is ~35 deg. t.c.a. truncating an irregular fabric in the schist above. Lower contact is ~35 deg. t.c.a.

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52.73 56.64	<u>Mafic Dike</u> Dark green to black, fine grained mafic intrusive. Homogeneous and massive with no significant alteration or deformation. A black aphanitic chill margin at 56.39 m indicates approach of lower contact. However because of similarity of dike to underlying unit a distinct lower contact margin is unidentifiable. Upper contact is ~35 deg. t.c.a.
56.64 61.3	<u>Mafic (Meta) Volcanic</u> Variable mafic metavolcanic as described above @42.37. Minor increase in brown coloration suggesting an increase in biotite alteration, otherwise as above. Highly broken section of core with variable fracture angles, 58-60 m.
61.3 63.84	<u>Quartz-Chlorite-Sericite+biotite schist</u> White to variable green and brown unit of erratically deformed and contorted schist. Mineralogy is dominated by white quartz and lesser fine grained chlorite and sericite as well as significant biotite. Fabric is terribly irregular and lacks any preferred orientation, wavy parasitic folding is prevalent. Minor (<1%) disseminated euhedral pyrite crystals are introduced near lower contact. Diffuse lower contact.
63.84 65.22	<u>(from)</u> As described above.
65.22 79.73	<u>Metavolcanic(Cordierite-rich)</u> Medium grey to green, slightly brown in part, very strongly deformed cordierite-rich metavolcanic. Abundant >25% cordierite porphyroblasts are dispersed throughout, typically bluish with dark green chloritic rims, but locally are yellow or brown, apparently replaced by sericite and biotite. The grains are generally anhedral but vary in size from 2-3 mm speckles, to large 7-10 mm ghost like figures. This is perhaps the most cordierite rich interval to date and thus reflects amphibolite grade metamorphism. The porphyroblasts are typically oriented parallel to an irregular strong, fine grained

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(from) (to)	
cont...	fabric, although fabric seems to be crenulated and folded it does appear to trend 25-30 deg. t.c.a., most often. Outside of cordierite majority of mineralogy seems dominated by a very fine grained mixture of quartz sericite and chlorite, often unit appears pinkish possibly a remnant felsic protolith coloration. At ~75 m fine grained disseminated pyrite begins to appear, typically 1-2 %, and apparently increasing towards lower contact. All sulphide appears to be pyrite with no base metal tenor or oxide (mgt) association as observed elsewhere. Overall unit is a well metamorphosed cordierite rich metavolcanic, that is non magnetic with only minor sulphide mineralization approaching lower contact. Lower contact is ~35 deg. t.c.a.
	<u>Silicified (Meta) Volcanic</u>
79.73 82.46	Light to medium grey siliceous unit intermingled with strongly deformed zone of quartz chlorite schist. Silica alteration is quite pervasive and prospective containing 3-5% medium grained disseminated pyrite throughout, with local semimassive enrichments up to 15 cm thick @ 81.90 m. Typically the sulphide appears to be associated with chloritic alteration within silica alteration. The unit is non magnetic with no oxide presence or sulphide minerals other than pyrite. Dark green cordierite porphyroblasts are common throughout, but appear to be overprinted by the silica alteration containing the mineralization. Overall a weak fabric suggests a CA of ~30 deg. in silica alteration whereas in the more schistose section fabric is erratic and irregular.
	<u>Cordierite Metavolcanic (schist)</u>
82.46 85.1	A section of medium grey to pinkish deformed cordierite rich metavolcanic, likely a felsic protolith. The unit is practically identical to the cordierite rich volcanic observed above. There is however a weak suggestion of silicification throughout. The unit is characterized by large (5-10 mm) anhedral porphyroblasts of dark blue to green cordierite surrounded by a fine grained matrix of quartz, lesser sericite (remnant feldspar), and local chlorite and biotite. Locally unit develops into a strongly deformed chlorite schist. All suggestion of fabric including both contacts, fracture planes, local foliation suggest a trend of 30 deg. t.c.a. No sulphide mineralization is associated with this unit.

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85.1	<u>Diabase Dike</u> 86.9 Medium green, fine grained mafic intrusive. Quite massive with no apparent alteration or mineralization. Minor fractures and upper and lower contact occur ~35-40 deg. t.c.a, unit is moderately magnetic.
86.9	<u>Metavolcanic (silicified-cordierite rich)</u> 88.2 Short zone of medium grey to green cordierite rich (20-25%) metavolcanic with abundant sulphide. Unit is moderately silicified and also contains significant chlorite alteration, overall section is only weakly deformed but does progressively develop into a quartz-chlorite schist. Sulphides are present as medium grained, anhedral disseminations throughout and constitute ~25% of the modal mineralogy. Sulphide does appear to be monominerallic (pyrite) and partially conforms to laminations @ 35-40 deg. t.c.a. Aside from pyrite there also appears to be bleb like disseminations of magnetite, giving unit strong magnetic character. Lower diffuse contact with patchy quartz rich section.
88.2	<u>Chlorite Schist</u> 93 Dark grey to green unit of finely laminated, strongly deformed schist, containing interbedded quartz & chlorite with lesser sericite and magnetite. A well developed fabric is quite evident @25-20 deg. t.c.a., and is often observed surrounding large ellipsoid white grains, originally perceived to be the replaced cordierite described throughout. However, they appear to be quartz mineralogy, and may in fact be 5-10 mm quartz grains contained in a strongly deformed quartz-eye tuff??? Weak finely laminated epidote alteration maybe also present considering the mint green coloration. Consistent with the increase in epidote is strong magnetism, a regional observation to date is whenever the schist or metavolcanics see introduction of epidote alteration magnetite appears as well. Only minor fine grained sulphide (py) occurs as disseminations over short intervals. Lower contact is ~30 deg. t.c.a.

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<u>Depth</u>	<u>Description</u>
(from) (to)	<u>Quartz-chlorite-epidote-sericite schist</u>
93	99 Medium green to mint green unit of moderately deformed schist. Most striking feature here is the apparent abundance of pervasive epidote alteration paired with strong magnetism. The epidote is likely a very fine grained mixture of quartz, chlorite, sericite, and epidote with minor magnetite. Sulphide also occur locally as fine grained disseminations collectively conforming to the 30 deg. fabric. 10-20 cm patches or zones of 10-15% laminated sulphide is relatively common. Overall unit probably contains 2-3 % pyrite with no visible base metals. Sulphide are often seen overprinting remnant dark green to blue anhedral grains, presumably cordierite porphyroblasts. Essentially a strongly deformed schist with complex mineralogy contains only minor enrichments of pyrite mineralization.
99 ~100	<u>Silicified Chlorite Schist</u> White to dark green strongly deformed unit of quartz chlorite schist. Typical erratic fabric lacking any consistency. Strongly magnetic, apparently due to magnetite banding associated with dark chlorite mineralogy. Overall schist is typical of the irregular quartz-chlorite schist described up hole.
100	<u>Silicified Schist</u> 101.35 Short section of medium to dark grey metavolcanic-schist that has been moderately silicified and similarly mineralized. Zone is characterized by a more massive grey silicified volcanic progressively grading to a quartz-chlorite--sericite schist. Unit is strongly magnetic throughout. The moderate fabric is ~35 deg. t.c.a., and all contained mineralogy appears to regularly conform to that lineation. Mineralization within zone is up to 10% sulphide with common 2-3 cm semi-massive laminations. The sulphide appears to be totally m.g. pyrite, and is consistent with the more silicified sections, gangue within the semimassive sulphide lamination looks to be silica, chlorite and magnetite. Both upper and lower contact are diffuse zones of decreasing silicification.

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<u>Depth</u>	<u>Description</u>
(from) (to)	<u>Green Schist</u>
101.35 103.11	Identical to the light green (mint green) schist with complex mineralogy described above @ 93 m.
103.11 111.64	<u>Metavolcanic (interbedded mafic volcanic / brown tuff?)</u> A variably colored section of the chlorite rich metavolcanic. Predominantly medium to dark green with increasing brown coloration locally. Possibly a highly altered (metamorphosed) interbedded mafic volcanic and brown mafic tuff. Unit is extremely magnetic with variable amounts of epidote and chlorite alteration. Generally associated with that alteration mineralogy is strong magnetic character, interpreted as magnetite banding disguised in the dark chloritic alteration. This particular unit resemble the Fe-Mg alteration zone mentioned in the area. Unit also contains variably cordierite rich section. Dark green to blue Cordierite porphyroblasts are common as mottled sections throughout. Unit contains significant mineralization, predominantly fine to medium grained disseminated pyrite and lesser po dispersed evenly throughout, typically 8-10%. In the browner laminated zones interpreted as tuffs, pyrite / po laminations possibly contain fine grained pinkish sphalerite, intermingled with micaceous mineralogy. Considering abundance of sulphide and brown tuff presence this interval will likely contains significant zinc concentrations. A weak fabric is evident in the more tufaceous zones averaging ~25-30 deg. t.c.a. Thin white quartz veins and patches occur regularly but do not appear to be associated with the contained mineralization. Lower contact is primarily based on absence of brown coloration as well as significant decrease in sulphide mineralogy. Also the unit becomes progressively mafic with increasing chlorite alteration.
111.64 151.5	Large continuous interval of medium to dark green metavolcanics characterized by moderate to intense chlorite alteration paired with strong magnetic. Overall the unit is relatively void of the cordierite porphyroblastic sections except for short mottled sections with 3-5 mm anhedral grains. The unit contains variable amount of sulphide mineralization often associated with abundant oxide mineralogy, sulphide is typically medium grained "buckshot" pyrite with increasing brown po. In the less metamorphosed zone main sulphide appears to be pyrite but in the more

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Depth
(from) (to)
cont...

Description

intensely chloritized sections, sulphide is dominantly po intermingled with magnetite. Brassy cpy is observed locally as small splashes associated with po mineralization. Sulphide typically range for 3-5% but locally grade up to 10%, locally 3-5 cm semimassive laminations of po are common. At ~144 m sulphide mineralization significantly decrease and only occurs over short discrete intervals (po). The rock appears to me more mafic in origin with less intense alteration. Although the sulphide may decrease the magnetite and magnetic character is consistent. White quartz carbonate veins and irregular patches also increase with depth. The original protolith hosting the interesting alteration and significant sulphide/oxide mineralogy appears to be mafic. Gradational lower contact.

115.83: two thin (2 cm) white quartz veins contained red brown sulphide mineralization
interpreted to be a mixture of po and sphalerite.

126.8-130.44: Typical medium green Fe-Mg altered zone with pervasive chlorite and
abundant blebby po, originally perceived as disseminations, upon closer observation po mineralization is certainly replacing white quartz amygdulites suggesting a mafic volcanic protolith. Unit contains 8-12% po mineralization dispersed throughout, both as in filling silica amygdulites and wispy laminations and veinlets.

131.05-131.65, 138.8-139.2: Short section of 20-25% brown grey sulphide oxide mineralogy, sulphide is
predominantly po with a possible suggestion of sphalerite mineralization (pinkish brown). Mineralization is contained in a pervasive zone of Fe-Mg alteration, characterized by mainly chlorite & magnetite mineralogy.

143.19: 2-3 cm black mud or chloritized fault gouge, apparently clean hairline fault.

Mafic Metavolcanic

151.5	164.12	Medium green, relatively homogeneous, fine grained, moderately chloritized mafic. Unit exhibits a moderate to local strong foliation consistent with 35 deg. contact between slightly variable horizons. The initial 2 m of unit contains easily distinguished slightly deformed pillow lava with distinct micaceous rims surrounding a central portion of chlorite and plagioclase. Originally the rims were perceived as irregular chaotic zones of an irregular fabric.
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cont...	Proceeding down hole unit has variable grey zone interpreted a variably silicified zones possibly consistent with a more permeable tufaceous horizon. Likewise discrete brown laminated zones resemble brown micaceous mafic tuff observed elsewhere. Unit maintains strong magnetism and often contains wispy veinlets of magnetite as well as local enrichment of magnetic brown sulphide, obviously po. Po is rare and only occurs as a fine grained wispy laminations associated with biotite and magnetite, otherwise the unit is void of any prospective sulphide.
164.12 ~171	<u>Mafic Metavolcanic</u> Very similar to mafic described immediately above except for a significant increase in erratic quartz patches, presumably broken up milky white quartz veins. Aside from significant increase in quartz sulphide mineralogy also prevails, in fact, upper contact is staggered by 2-3 thin (2-3 mm) veins or laminations 35 deg. t.c.a. that contain predominantly pyrrhotite intermingled with chalcopyrite and possibly pink-brown sphalerite. Again @ ~ 166.5 short zones of strongly, erratically deformed tuffs(?) contains 1-2 % minute wispy veins/laminations of intermingled pyrrhotite, chalcopyrite, and possibly sphalerite. that sulphide conforms to a short interval of fabric practically parallel t.c.a. Lower zonal contact, unit developed gradationally into a hornblende rich mafic.
171 202.69 E.O.H	<u>Basalt (intrusive vs. extrusive)</u> Very dark green to almost black interval of mafic rock that appears to be very hornblende? rich and locally biotiferous. Unit is fine to occasionally medium grained and contains common pervasive dark green chlorite alteration throughout. Lithology does var from a brown micaceous foliated tuff? to a predominantly weakly foliated to almost massive gabbro. The brown to green laminations observed locally are rather irregular and are often parallel t.c.a. Unit is generally non magnetic except for local zone where po rich sulphide mineralization is present. On a whole only trace mineralization occurs, typically as irregular patches or wispy veinlets of po and chalcopyrite. At time the pinkish pyrrhotite does suggest a sphalerite component. Lithology does contain variable zone of broken core likely indicative of fault related fracturing. Chlorite alteration along fractures is very pervasive.