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REPORT CMS 85/7/7

YOUR REFERENCE:	Letter dated 1.7.1985
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SAMPLE NOS.:	355136 - 355145
SUBMITTED BY:	A.M. Hespe
WORK REQUESTED:	Petrology

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H.W. Fander, M. Sc.

MC-13

REPORT CMS 85/7/7

Ten drill core samples, from DDH-MC 13 at Mount Charter, were received for petrological examination. Representative thin-sections were prepared and examined together with the respective offcuts, with stain tests performed as warranted. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

As sampled, the drilled sequence may be divided into four units, with an altered chromiferous basalt overlying impure limey and tuffaceous psammopelitic sediments, and altered "leuco-andesitic" breccia unit and a basal chromiferous basalt breccia unit. The "upper" and "lower" basalt units are petrologically similar and conceivably represent a structural repetition, although interpretation will be dependent on field evidence.

Sediments are dominantly carbonaceous-pyritic tuffaceous psammopelitic types, with "dacitic" components partly obscured by marked sericitic alteration and high-angle shearing effects. These rocks are weakly microfossiliferous (in chalcedonic radiolaria and locally ?sponge spicules) as is similarly the overlying impure limestone (355137). Pyritic to locally weakly sphalerite-mineralised carbonaceous pelites are a matrix component in underlying leuco-andesitic breccias.

Volcanics, in general, exhibit quartz-sericite-calcite, or chloritic, or more typically composite alteration assemblages. Breccias tend to be quartz-matrixed, with calcitic vugs and veinlets predating incipient shearing effects. The lower (leuco-andesitic, basaltic) volcanics exhibit matrix-and veinlet-hosted sphalerite disseminations and impregnations, with locally associated chalcopyrite supplementing more or less ubiquitous pyrite disseminations.

The "lower" basalt breccias carry sporadic vugs, amygdale-fillings and replacive impregnations of a "zeolite facies" prehnite-pumpellyite-zoisite assemblage overprinted on the "pervasive" (quartz-sericite-calcite-chlorite) assemblage.

D. Cowan, B. Sc.

Sample No.	Classification - Composition	Fabric	Accessories	Comments
355-136 (T.S. 53851) 242.9 _m	<u>Amygdaloidal Basalt</u> . Sericite-calcite-pseudomorphed feldspar and microcrystalline quartz-calcite-pseudomorphed pyroxene phenocrysts, quartz-calcite-chlorite amygdales; groundmass of sericitised plagioclase microlaths, quartz-	Finely porphyritic, amygdaloidal, "basaltic". calcite mesostasis.	Minor cherty quartz-, sporadic crosscutting calcite veinlets. Leucoxenised opaques, fine chromite. Traces of	Quartz-sericite-altered/calcite-veined-impregnated, chromiferous, amygdaloidal basic lava. Includes isolated corroded quartz phenocrysts. pyrite, chlorite.
355-137 252.6 _m	<u>Impure Limestone</u> . Fine to microcrystalline calcite with minor intergrown sericite, carbonaceous matter, fine "syngenetic" pyrite. Disseminated clots of lustre-mottled calcite.	Phyllitic; pressure-shadowed pyrite, calcite clots.	Minor traces of quartz, chlorite.	Sub- to low-greenschist facies alteration effects. No exhalative characteristics. Lustre-mottled calcite appears to represent a minor fossil (?echinoderm) component.
355-138 253.5 _m	<u>Tuffaceous Psammopelite</u> . Framework of silt- to medium sand-sized, angular to subround sericitised feldspar, subordinate quartz grains, sericitic pelite, sericitised felsite clasts. Carbonaceous calcite-stained sericitic-chloritic pelite matrix, partings.	Silty shale-parted, poorly sorted sandy clastic, with a high-angle discordant slaty cleavage.	Chalcedonic simple radiolaria, clastic mica flakes, leucoxenitic semi-opaques. Disseminated syngenetic pyrite	Mildly reworked acid (dacitic-rhyolitic) tuffaceous characteristics. Finer detail obscured by sericitic alteration, shearing effects.
355-139 254.6 _m	<u>Tuffaceous Siltstone</u> . Semi-sericitic white mica with disseminated splintery to subangular silt- to fine sand-sized quartz grains, sericitised feldspar grains, minor sericitised lithic clasts, carbonaceous matter.	Angular silty clastic, banded on sub- to fine millimetric scale, with a high-angle phyllitic overprint.	Conspicuous silt-sized clastic leucoxenitic semi-opaques, sparse mica flakes, minor syngenetic pyrite, calcite-	Exhibits vague relict "vitroclastic" (sericitised shard fragments) features. Weakly radiolarian. "Feathery" bedding structures result from high-angle shearing.
355-140 256.1 _m	<u>Tuffaceous Psammopelite</u> . Semi-sericitic white mica and pale chlorite with a clastic component of extensively sericitised plagioclase, splintery to subangular quartz, sericitised shard fragments. Semi-pervasive carbonaceous matter.	Carbonaceous pelite-parted, poorly sorted (silty fine to medium), angular, sandy, clastic high-angle phyllitic/microcrenulated	quartz veinlets. Leucoxenitic semi-opaques, white mica flakes, chalcedonic radiolaria, spicule fragments, pyrite. Calcite-chlorite-	Composite of 355138, 355139 characteristics, similarly sericite-chlorite-altered/high-angle sheared. Sphaleritic calcite veinlets carry traces of albite.
355-141 266.7 _m	<u>Andesitic Breccia</u> . Clasts of albite-chlorite-sericite-kaolin-altered, weakly quartz-chlorite-amygdaloidal leuco-andesitic lava. Matrix of carbonaceous pelite with irregular quartz veinlets, vugs; sporadic crosscutting calcite veinlets.	Millimetric to centimetric-scale clasts, displacive quartz and (late) calcite veinlets. Mildly sheared.	Conspicuous leucoxenised opaques, sparse quartz-silicified pyroxene phenocrysts in clasts. Minor fine to ultrafine	Carbonaceous pyritic/weakly sphaleritic pelite-matrixed "leuco-andesitic-dacitic" breccia. Mildly rebrecciated/quartz-healed; refractured/calcite-veined, sheared.
355-142 275.0 _m	<u>Andesitic Breccia</u> . Clasts of chloritic/variably calcite-stained/calcite-chlorite-amygdaloidal lava with relatively fine silicified perlitic lava clasts; matrix of fine-grained quartz with vugs, films of chlorite, calcite. Disseminated fine sphalerite.	Random, sub-millimetric to centimetric scale flow-orientated clasts. Interclast cavity-filling matrix.	pyrite, traces sphalerite. Conspicuous leucoxenised opaques, minor silicified pyroxene phenocrysts, minor traces of pyrite.	Quartz-calcite-chlorite-matrixed/ altered leuco-andesitic breccia. Pale (yellow) sphalerite impregnations in clasts, relatively conspicuous in siliceous matrix, replacements.
355-143 286.2 _m	<u>Andesitic Breccia</u> . Interspersed clasts of chloritised-albitic, trachytic-textured and albitised-chloritic perlitic lava. Sparse interclast matrix, interspersed veinlets, "stringers" of quartz, calcite, red sphalerite	Variably moulded to quartz-calcite-sphalerite-matrixed, randomly sorted clasts.	Minor fine pyrite impregnations. Leucoxenised opaques.	Flow-marginal leuco-andesitic breccia characteristics. Alteration/mineralisation similar to 355142, but with sphalerite concentrated in veinlets, vugs.

