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MC-6

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REPORT CMS 84/8/15

YOUR REFERENCE:	Letter dated 8.8.1984
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SAMPLE NOS.:	315722 - 315729
SUBMITTED BY:	A.M. Hespe
WORK REQUESTED:	Petrology

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REPORT CMS 84/8/15

Eight drill core samples from DDH/MC-6 were received for petrological examination. Representative thin-sections were prepared, examined in transmitted light and, together with respective cobaltinitrite-stained offcuts, in oblique incident light. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

This suite comprises entirely altered felsic intermediate volcanics, ranging from leuco-andesitic to trachytic in terms of inferred primary composition. In detail, the drilled sequence comprises amygdaloidal trachytes overlying andesites. Finer details are obscured by alteration, but the apparent contact zone is represented by two samples (315724, 315725) of hybrid breccia comprising clasts of altered "trachytic" lava with an interclast matrix of pyritic pelite, and interpreted as resulting from flow on, or into, unconsolidated sediment.

Andesites are perlitic in part, include flow-brecciated types, and may thus be compared with the leuco-andesitic lavas intersected in DDH/MC-5 and MC-8. In contrast, the "underlying" acid volcanics are not represented in this suite. Typically, however, this suite comprises entirely lavas and clastic (flow-brecciated) lavas and, in common with the MC-5 and MC-8 suites, pyroclastics are conspicuous by their absence. In this context, the Mount Charter sequence contrasts with the composite lava/pyroclastic sequences developed at Que River and at Hellyer.

Alteration features are essentially similar to those noted in the MC-5 and MC-8 suites. A generalised trend may be summarised as chlorite and/or sericite and quartz with fine to ultrafine pyrite (locally concentrated in quartzose-sericitic "stringers"), followed by locally marked brecciation or veinlet -controlled silicification. This latter phase correlates with the composite silicification/feldspathisation noted in previous suites. A variety of temporally intermediate to late veinlet assemblages appears in individual samples.

One feature noted in this suite, but inconspicuous elsewhere, is Fe-pigmentation of primary (typically phenocrystal) feldspars. The ultrafine Fe-oxide particles tend to be inherited by metasomatic phases (e.g. quartz, albite) and may be obscured, mesoscopically, by "dark" (chloritic and/or relatively pyritic) alteration assemblages. Where present, this pigmentation is pervasive. Mesoscopically it may be confused with secondary, weakly Fe-pigmented feldspars, for example the vein and metasomatic albite (and locally adularia) noted in MC-5 and MC-8.

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MC-6

CENTRAL MINERALOGICAL SERVICES

Sample No.	Classification - Composition	Fabric	Accessories	Comments
315-722 (T.S. 51125) 44.2m	Amygdaloidal Trachyte. Sericitised feldspar, minor chloritised ?amphibole phenocrysts in a pervasively sericitic microcrystalline feldspathic groundmass with abundant quartz micro-amygdales (mean 75 μ).	Essentially "andesitic" but relatively weakly porphyritic; strongly micro-amygdaloidal. Weakly flow-brecciated.	, Conspicuous leucoxenised opaques, minor trace apatite. Traces ankeritic carbonate, mino fine pyrite, rare sphalerite.	Weakly flow-brecciated micro-amygdaloidal felsic intermediate lava. Extensively sericitised. Includes mino clast-marginal cherty quartz veinlets with associated traces of sphalerite.
315-723 53.7m	Brecciated Amygdaloidal Trachyte. Clasts of extensively sericitised quartz-microamygdaloidal trachyte (sim. 315722), veined/matrixed with massive to crudely "crustiform" banded aggregates of pyrite, sericite, microcrystalline quartz.	Random angular clasts, texturally closely analogous to 315722. Stressed to crudely phyllitic matrix.	Leucoxenised opaques, corroded relics of phenocrystal albite, microcrystalline (groundmass) K-feldspar in clasts.	Essentially a brecciated pyrite-sericite-quartz-healed variant of 315722. Corroded relics of alkali feldspar confirm trachytic affinities. Pale clasts reflect low pyrite content
315-724 66.2m	"Hybrid Breccia". Clasts of quartz-microamygdaloidal sericitic trachyte (sim. 315722, 723). Matrix of pervasively ultrafinely pyritic, sericitic, massive to vaguely tuffaceous (splintery feldspathic) cherty argillite. Minor quartz-calcite(-sphalerite) veinlets.	Random sub- to millimetric, irregularly-shaped clasts; contorted shaly matrix.	Leucoxenic opaques, relics phenocrystal groundmass alkali feldspar, partly degraded siderite, traces pyrite in clasts.	Interpreted as a "quench" breccia resulting from lava flow on, or into unconsolidated pyritic pelite. Incipient pinkish pigmentation of phenocrysts reflects carbonate stainings.
315-725 71.2m	"Hybrid Breccia". Clasts of sericitic/variably cherty-silicified quartz micro-amygdaloidal lava (sim. 315722 etc.). Sparse matrix of (variably oxidised) pyritic pelite (sim. 315724). Minor quartz-ferruginised carbonate veinlets.	Analogous to 315724, relatively coarse clasts, relatively sparse matrix.	Leucoxenised opaques, minor traces chlorite in clasts. Traces carbonaceous matter in matrix shale.	Close affinities with 315724; similarly interpreted. Relict feldspar in clasts is incipiently Fe-pigmented (primary).
315-726 87.7	Brecciated, Altered "Andesite". Zones, clasts of marginally to semi-pervasively silicified chloritic, sericitic albitised plagioclase-porphyritic perlitic leucoandesite. Matrix of cherty (crystallized chalcedonic) quartz.	Massive to sub-millimetric-scale fragmented perlitic lava. Quartz-veined on micro-scale, with silicified selvedges.	Leucoxenised opaques. Minor traces ultrafine pyrite. Sparse quartz micro-amygdales.	Primary compositional detail obscured, but this rock is andesitic in comparison with 315722-725. Feldspar phenocrysts are pervasively Fe-pigmented. Late crackle fracture-style silicification.
315-727 146.1	Altered, Veined "Andesite". Albitised/weakly calcite-stained plagioclase phenocrysts in a chlorite-stained/albitised, finely perlitic microfelsitic groundmass. Frequent late veins/veinlets of quartz and calcite with minor vermiform chlorite.	Relict features closely analogous to 315726.	Leucoxenised opaques. Rare pyrite, minor clots cloudy rutile in veins.	Albitised, chlorite-stained perlitic "leuco-andesite", texturally very similar to 315726. Phenocrysts, groundmass weakly pervasively Fe-pigmented.
315-728 170.9	Altered "Andesite". Albitised/incipiently epidote-stained plagioclase phenocrysts, pervasively chlorite-stained; feldspar-microlitic groundmass. Sporadic chloritic cloudy carbonate-stained microfractures.	Weakly glomeroporphyritic; sub- to trachytic groundmass. Flow-brecciated.	Conspicuous fine to ultrafine primary magnetite, subordinate leucoxenised opaques.	Flow-structured/flow-brecciated leuco-andesitic lava. Groundmass is incipiently Fe-pigmented. Conspicuous accessory magnetite in contrast to the "glassy" (perlitic) lavas.
315-729 (T.S. 51132) 194.6m	Brecciated, Altered "Andesite". Clasts of extensively sericitised/weakly chloritic, weakly quartz microamygdaloidal sericitic plagioclase-porphyritic lava. Matrix, discontinuous veinlets, marginal replacements of microcrystalline quartz.	Analogous to 315726, but pervasively brecciated/quartz-healed on submillimetric to centimetric scale.	Leucoxenised opaques, rare pyrite, minor chlorite veinlets in clasts. Minor late calcite veinlets.	Relatively sericitised/brecciated-silicified "leuco-andesitic" lava. Greenish colouration of clasts reflects minor but essentially pervasive chlorite supplementing sericite