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REPORT CMS 87/2/9

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SAMPLE NOS.:	379351 - 379364
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WORK REQUESTED:	Petrology

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REPORT CMS 87/2/9

Fourteen drill core samples from an extension of DDH/MC-15 were received for routine petrological examination. Representative thin-sections were prepared, examined in transmitted light, and together with respective offcuts in oblique incident light, with carbonate stain tests performed as warranted. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

This suite comprises mainly altered andesitic lavas and lava breccias with relatively minor basaltic lavas apparently representing minor variants of the andesitic sequence.

The volcanics typically exhibit marked chlorite-albite-carbonate (calcite) alteration, with a few relatively sericitised and/or silicified types. Relatively argillised rocks tend to exhibit mild phyllitic overprints, and carbonate veins invariably exhibit stress and partial recrystalliation effects.

Two semi-distinct lavas are present in this suite; an andesitic tuff lava (379360) and a weakly quartz-porphyrific basalt (379361). These may be broadly compared with rocks noted in recent comparative reviews of thin-sections from QR-081/QR-109/MAC-9 and MAC-6/MAC-7 for David Wallace.

Samples 379362, 379363 and 379364 represent a thoroughly altered tuffaceous sandstone and underlying "basal" quartz-mica sandstones. The latter facies is characterised by its siliceous composition, presence of low-grade regional metapelite-derived lithic clasts, and a notable absence of tuffaceous or volcanomict components.

D. Cowan, B. Sc.

Sample No.	Classification - Composition	Fabric	Accessories	Comments
379351 (T.S. 57446) 412.3 _m	<u>Andesitic Breccia</u> . Clasts of chlorite-stained/albitised lava with albitised plagioclase-, minor silicified ferromagnesian phenocrysts. Irregular zones of microcrystalline quartz matrix. Frequent films, veinlets of chlorite.	Lapilli grade, semi-moulded, lithoclastic; generally perlitic clasts, corrosive/replacive matrix.	Minor vugs of quartz and muscovite in matrix. Irregular quartz veinlets, leucoxenised opaques, fine pyrite.	Andesitic/trend leuco-andesitic lava breccia; albite-chlorite-altered with corrosive zones of silicification. Traces of primary apatite, secondary calcite.
379352 428.0 _m	<u>Andesitic Breccia</u> . Clasts of sericitic/chlorite-stained sericitised feldspar-/weakly chloritised ferromag.-porphyritic lava. Irregular zones of sericitic microcrystalline quartz. Sporadic calcite veinlets.	- Analogous to 379351, coarser-grained, weakly flow-structured. Perlitic clasts; mildly sheared veinlets.	Leucoxenised opaques, disseminated fine to ultrafine pyrite.	Andesitic/trend leuco-andesitic lava breccia, similar to 379351; relatively sericitic, with corrosive zones of sericitic cherty quartz.
379353 460.0 _m	<u>Andesitic Breccia</u> . Albitised/chlorite- and locally calcite-stained albitised plagioclase-weakly chloritised ferromag.-porphyritic lava clasts. Impure chert/cherty argillite matrix with albitised feldspar crystal fragments.	Psammite to agglomerate grade, lithoclastic, semi-moulded to argillite-matrixed. Marginally perlitic clasts.	Leucoxenised opaques, minor sericite, fine to ultrafine pyrite (concentrated in matrix).	Moulded to tuffaceous cherty argillite-matrixed andesitic breccia. Coarser clasts exhibit perlitic chilled margins; partly silicified. "Creamy" where calcitic.
379354 478.6 _m	<u>Amygdaloidal Andesite</u> . Frequent sericitised feldspar-, subordinate calcite-chlorite-pseudomorphed ferromagnesian phenocrysts, sporadic chloritic quartz amygdaloids; sericitised/chlorite-stained microcrystalline groundmass.	Flow-structured, strongly porphyritic ("andesitic"), variably amygdaloidal; mildly sheared/phyllitic.	Conspicuous leucoxenised opaques; traces of calcite (in amygdaloids), minor traces of pyrite.	Flow-structured amygdaloidal andesite, thoroughly sericite-chlorite-carbonate-altered and mildly sheared.
379355 489.0 _m	<u>Amygdaloidal ?Basalt</u> . Albitised/calcite-sericite-stained plagioclase-, chlorite-pseudomorphed pyroxene phenocrysts, frequent quartz micro-amygdaloids; quartz-sericite-chlorite-calcite-altered feldspar-microlitic groundmass.	Porphyritic, strongly amygdaloidal, weakly flow-structured, "basaltic".	Leucoxenised opaques, traces of pyrite, sporadic relatively coarse chloritic calcite-quartz amygdaloids.	Possibly strictly andesitic, but with relatively basaltic relict compositional/textural features. Sheared vein of calcite, minor quartz, chlorite, pyrite.
379356 493.0 _m	<u>Tuffaceous Pelite</u> . Semi- to sericitic white mica, with pervasive sericitic, splintery, silt-sized felsic clasts, fine clastic quartz, muscovite flakes, sporadic lenses of spongy poikilitic calcite; irregular zones of vein-calcite.	Incipiently banded, silty clastic/vaguely vitroclastic. Weak slaty cleavage; calcite sheared veins.	Conspicuous silt-sized clastic leucoxenic semi-opaques, minor traces carbonaceous matter, chlorite, pyrite.	Quartzose-micaceous silty shale with poorly defined pelitic ashy components. Calcitic lenses appear to represent boudinaged/carbonated ashy partings.
379357 496.0 _m	<u>Tuffaceous Pelite</u> . Semi- to sericitic white mica with pervasive splintery to subangular sericitic feldspar, subordinate quartz grains/minor composites, muscovite flakes. Sporadic relatively quartzofeldspathic lenses.	Analogous to 379356, relatively silty-vitroclastic, banded; similarly cleaved (discordant).	Sheared vein-calcite, minor replacive calcite. Clastic leucoxenic semi-opaques, traces carbonaceous matter, pyrite.	Close affinities with 379356; relatively tuffaceous, with conspicuous devitrified/partly sericitised shard fragments, partly in boudinaged lenses.
379358 499.8 _m	<u>"Basalt Breccia"</u> . Clasts of albitised plagioclase-microlathic/chloritised sericite-carbonate-stained, glass-mesostatised lava. Calcite cement with irregular zones, veinlets of calcite-stained chert.	Psammite to lapilli grade, subangular, orientated "basaltic" clasts; stressed to sheared cement.	Minor leucoxenised opaques. Disseminated fine pyrite, traces of hematite in calcite cement.	Clasts are "slaggy" (quench-) textured in part. Interpreted as a quench breccia with interclast/cavity-filling cement. Basaltic characteristics.

Sample No.	Classification - Composition	Fabric	Accessories	Comments
379359 514.0 m	<u>Andesitic Breccia</u> . Albitised/calcitised plagioclase-/weakly chlorite-pseudomorphed ferromag-porphyrific lava clasts with chlorite-sericite-altered to irregularly silicified groundmass. Zones of impure chert matrix.	Lapilli to agglomerate grade, moulded to chert-cemented, lithoclastic. Late irregular matrix. silicified zones.	Leucoxenised opaques, rare chromite. Traces of pyrite (concentrated in chert); discontinuous calcite veinlets.	Thoroughly altered andesitic lava breccia characteristics with a sericite-chlorite-carbonate assemblage complexed by nebulous zones of silicification.
379360 524.6 m	<u>Andesitic Tuff Lava</u> . Frequent albitised/calcitised plagioclase-, subordinate carbonated ferromagnesian phenocrysts, sporadic silicified lava clasts in a sericitised/calcite-chlorite-stained groundmass.	Flow-structured, strongly porphyritic ("andesitic"), weakly clastic lava. Moderately sheared/phyllitic.	Leucoxenised opaques, disseminated fine to ultrafine pyrite (concentrated in thin stringers).	Thoroughly altered andesitic lava with sporadic, selectively silicified felsitic lava clasts. Similar rocks appear in DDH's QR-081, MAC-6/MAC-7.
379361 539.7 m	<u>Amygdaloidal Basalt</u> . Albitised/calcite-stained plagioclase microlaths with a calcite-stained chlorite mesostasis; frequent quartz and calcite-quartz micro-amygdales.	Finely amygdaloidal, basaltic, with a weak phyllitic overprint. Weakly microporphyritic (in feldspar).	Leucoxenised opaques, minor traces pyrite (and ?chalcopyrite). Rare quartz microphenocrysts.	Thoroughly chlorite-albite-calcite-sericite-altered basic lava with semi-chilled basaltic characteristics. Finer detail obscured by alteration, shearing effects.
379362 551.4 m	<u>Tuffaceous Sandstone</u> . Cloudy microcrystalline calcite and chlorite in varying proportions with subordinate sericite, disseminated splintery to subangular quartz grains, chloritised/calcitised lithic clasts, feldspar	Carbonaceous sandy shale-parted silty fine to medium sandy clastic. High-angle discordantly cleaved.	Minor recrystallized radiolaria, carbonaceous pelite clasts. clastic muscovite, chlorite, leucoxene. Fine	Exhibits pervasively chlorite-carbonate-altered, poorly determinate lava clasts, supplemented by chloritised shards/shard fragments. Mildly reworked tuffaceous.
379363 562.9 m	<u>Quartz-Mica Sandstone</u> . Subangular quartz grains, relatively minor muscovite flakes, minor chert and carbonaceous pelite clasts with a calcite-chlorite-sericite matrix. Interspersed bands, partings of carbonaceous	Moderately to well-sorted silty fine sandstone with sub-to millimetric shale. Interbeds. Discordantly	Detrital leucoxenitic semi-opaques, rare tourmaline, zircon. Conspicuous fine pyrite.	Distinctly quartzose/micaceous in comparison with 379362 and devoid of tuffaceous or volcanically derived clastic components.
379364 (T.S. 57459) 567.6 m	<u>Quartz-Mica Sandstone</u> . Subangular quartz grains, subordinate muscovite flakes, carbonaceous pelite and sericite-quartz metapelite, minor chert clasts. Calcite-stained kaolinitic matrix/cement.	Poorly sorted (silty fine to medium), weakly silty pelite-parted, sandy clastic. Mildly stressed.	Detrital leucoxene, chromite, rutile, zircon, rare tourmaline. Minor syngenetic pyrite.	Close affinities with 379363; relatively lithoclastic in comparison, but similarly devoid of tuffaceous and volcanically derived components.