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REPORT CMS 86/9/1

YOUR REFERENCE:	Letter dated 20.8.1986
DATE RECEIVED:	2nd September, 1986
SAMPLE NOS.:	383626 - 383633
SUBMITTED BY:	A.M. Hespe
WORK REQUESTED:	Petrology

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HAT. 6
CORE SAMPS.

REPORT CMS 86/9/1

DDH Hat 6 Core Samples

Eight core samples were received for petrographic study; thin-sections were prepared, and some calcite stain tests were carried out on the offcuts. Each rock is described in the accompanying table.

Summary

All the rocks are igneous, but are altered, generally very extensively, so that recognition and classification is difficult; however, relict features, surviving primary minerals, and present assemblages suggest that samples 383626 to 383631 (except 383627?) are basaltic, and 383632-383633 are perlitic obsidians with a broadly dacitic composition.

Several of the basalts are flow-breccias, probably representing lava surfaces with amygdaloidal to scoriaceous fabric; naturally, such rocks contain a variety of introduced and deuteric minerals, including pumpellyite in several.

383627 is a quartz-epidote rock whose origin is uncertain because almost all primary features have been destroyed; it contains phenocryst-like bodies of quartz, but these could be interpreted differently. However, it seems reasonable to interpret the rock as an altered rhyolitic dyke.

H.W. Fander, M. Sc.

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Sample No.	Rock Type - Composition	Fabric	Minor Minerals	Comments
383626 (T.S. 56483)	Amygdaloidal Basalt Breccia. Irregular fragments of fine-grained and glassy basalts with fresh augite phenocrysts, small amygdales; some fragments are crystal masses of augite.	Flow-breccia fabric, with deformed fragments; very variable textures. Scoriaceous.	Interstitial carbonate, albite and chlorite. Amygdales contain quartz, chlorite.	Probably a flow-top breccia, highly scoriaceous, and with variable fragments; some may be more andesitic or leucocratic/feldspathic.
383627	Quartz-Epidote Rock. About 65 % is pale epidote as small matted crystals; 35 % quartz as irregular corroded, embayed single crystals, and fine-grained material.	Quartz is reminiscent of phenocrysts. VAgue relict textures in epidote. Weak preferred fabric.	Sporadic carbonate patches intergrown with epidote. Fine cloudy sphene.	If coarser quartz represents phenocrysts, then rock may have been a rhyolite, but epidotisation was very thorough and obliterated most details.
383628	Epidotised ?Basalt Breccia. Now composed of coarse and fine epidote, quartz and carbonate patches, masses of asbestiform amphibole (?tremolite).	Relict breccia fabric, scoriaceous and basaltic textures. Quartz is strongly stressed.	Minor relict plagioclase. Pale chlorite patches.	RI measurements and other optics suggest that the asbestiform mineral is tremolite. Relict fabric suggests basalt fragments and amygdales.
383629	Altered Amygdaloidal Basalt. Microphenocrysts of augite partly replaced by pumpellyite, carbonate and silicified feldspar; fine quartz-chlorite-carbonate-pumpellyite groundmass.	Amygdales 0.3 to > 20 mm across. Basaltic fabric, with pyroxene clusters. Quench textures.	Chlorite, chalcedony, quartz, carbonate, epidote, coarse adularia. in amygdales.	Generally severely deuterically altered, but with curious survival of fresh pyroxene in places. Precise classification not possible.
383630	Brecciated, Altered Basalt. Small and large augite and andesine phenocrysts, fresh and altered, in fine groundmass of chlorite, epidote, pumpellyite, carbonate, quartz. A few amygdales.	Fabric fairly uniform, not flow features. Some fracturing, veining. Phenocrysts up to 2 mm.	Fine cloudy sphene. Calcite, quartz in amygdales; calcite in fractures (mauve).	Bright green colour due to combination of green minerals (chlorite, pumpellyite, epidote). Phenocrysts generally well-preserved.
383631	Calcitic Basalt Breccia. Large and small fragments of porphyritic basalt now composed of epidote, pumpellyite, quartz, carbonate. Matrix of coarse interlocking calcite crystals.	Fragments are irregular shapes, widely spaced, but with similar fabrics; a few amygdales.	A few fragments are much less altered and may be andesites, not basalts.	Probably a tectonic breccia, though depending on circumstances, a volcanic breccia is a possibility.
383632	Silicified Perlitic Obsidian. Numerous small subspherical quartz bodies, with interstitial streaky sericite, fine chlorite, scattered brown calcite pseudomorphs after feldspar phenocrysts.	Very uniform fabric, with faint but definite flow-lineation. Concordant breccia zones.	Breccia zones with brownish calcite, with chlorite. Accessory apatite, leucoxenised magnetite.	Although altered, the rock is believed to have been of dacitic composition, essentially a glassy lava with a few phenocrysts.
383633 (T.S. 56490)	Silicified Perlitic Obsidian. Partly to completely calcitised oligoclase phenocrysts in groundmass of small quartz ovoids and streaky sericite; scattered cloudy chlorite.	Relict flow-folding. Fine perlitic textures preserved. Uniform fabric. Clusters of phenocrysts.	Accessory apatite needles and leucoxenised magnetite.	Very similar to, and correlatable with, 383632. The brownish tinge in this rock is due to ultrafine ?goethite in the sericite; in 383632 the calcite is pigmented.