Central Mineralogical Services

39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

Mr. A.M. Hespe
Project Geologist
Aberfoyle Exploration Pty. Ltd.
P.O. Box 952
BURNIE / TAS. 7320

23 DEC REC'D

19th December, 1985

REPORT CMS 85/11/35
Part 1

YOUR REFERENCE:	Letter dated 25.11.1985
DATE RECEIVED:	26th November, 1985
SAMPLE NOS.:	HAT 4 - 10 Samples
SUBMITTED BY:	A.M. Hespe
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

Copy to:
The Chief Geologist
Aberfoyle Exploration Pty. Ltd.
144, Camberwell Road
HAWTHORN EAST / VIC. 3123

REPORT CMS 85/11/35
Part 1

Nine drill core samples from DDH-HAT 4 and an additional sample labelled HAT 4/362.7 m were received for routine petrological examination. Representative thin-sections were prepared and examined together with respective offcuts, with stain tests performed as warranted. Attached tabulated descriptions summarise the microscopic data and include interpretative comments.

Summary

This suite comprises variably altered and incipiently sheared basic to intermediate volcanics, with subordinate tuffaceous sediments represented by samples HAT 4/153.9 m and 232.6 m.

Volcanics are dominantly andesitic to leuco-andesitic/trend trachytic types within limits imposed by the generally marked alteration and consequent obliteration of primary compositional detail.

The shallower drilled sequence comprises the sediments, "polymict" breccia, and relatively felsic volcanics. Basal zones comprise andesitic breccias, complexed by secondary brecciation effects, but characterised by perlitic-textured lava clasts. A strongly altered pyroxenic basaltic scoriaceous lava (HAT 4/298.2 m, 362.7 m), analogous to the Hellyer basaltic andesite/andesitic basalt facies, appears to represent a distinct "break" in the sequence.

Alteration is generally chloritic, although locally complexed by fracture-controlled quartz-albite-sericite assemblages and generally by carbonate veining. The basalt, in part, exhibits a complex albite-pumpellyite-chlorite-epidote assemblage. This sequence as a whole is weakly pyritic, with a syngenetic pyrite component concentrated in the tuffaceous sediments.

D. Cowan, B. Sc.

CENTRAL MINERALOGICAL SERVICES

Sample No.	Classification - Composition	Fabric	Accessories	Comments
HAT 4 153.9m 355523 (T.S. 55084)	Carbonaceous Pelite. Fine to semi-sericitic and silt-sized detrital white mica with semi-pervasive carbonaceous matter, disseminated to locally conspicuous pyrite. Interspersed lenses of sericitised feldspar, sericitic lava clasts, minor quartz.	Silty shale-parted siltstone "grading" into silt-parted carbonaceous shale. Incipient high-angle discordantly sheared.	Conspicuous clastic leucoxenic semi-opaques. Minor late clots, y films of kaolin and sideritic carbonate.	Planar to locally transcurrent-bedded, sericitised reworked tuffaceous siltstone (pale), with partings, interbeds of carbonaceous silty shale. Minor tuffaceous sandy interbeds.
232.6m 355524	Tuffaceous Psammopelite. Kaolin-illite with varying proportions of silt- to medium sand-sized sericitic feldspar, argillised "trachytic" lava clasts. Sporadic carbonaceous shaly partings. Minor dolomite; disseminated to conspicuous pyrite.	Siltstone-, shale-parted, poorly sorted (silty fine to medium), sandy clastic. Incipiently sheared.	Clastic leucoxenic semi-opaques. Sporadic late discordant, mildly displacive calcite veinlets.	Affinities with 153.9 m, coarser-grained and relatively tuffaceous in comparison. Mildly reworked volcanic component is leuco-andesitic/trachytic. Includes rare radiolaria.
234.1m 355525	Breccia. Random clasts of variably calcite-chlorite-stained "trachytic" lava, silt- to fine sand-sized albite, minor quartz grains in a carbonaceous, pyritic shale matrix with conspicuous fine silt-sized clastic muscovite.	Slump breccia-like, with randomly sorted clasts; very incipiently sheared, massive (unbanded) matrix.	Sporadic clasts of carbonaceous pelite, semi-massive pyrite, rare biotite flakes. Minor late calcite	Carbonaceous, pyritic pelite-matrixed sedimentary breccia characteristics. Coarser pyrite aggregates are of clastic origin, pyrite pelite- and altered lava-derived.
261.3m 355526	Andesitic Breccia. Interspersed clasts of chloritic/carbonate-stained, chlorite-amygdaloidal (dark) and chloritic/weakly albitised, weakly chlorite-amygdaloidal (paler) lava. Sporadic coarse amygdales, films of quartz, albite, chlorite.	Variably moulded, sub- to trachytic-textured, clasts; patchy lithic fragmental matrix.	Leucoxenised opaques, minor pyrite (partly in amygdales); minor traces of chromite.	Flow-marginal breccia characteristics. Subtle differential alteration appears to partly reflect variations in primary crystallinity. Paler types are weakly perlitic.
298.2m 355527 (T.S. 55088)	Brecciated Basalt. Clasts of strongly albite-pumpellyite-chlorite(± quartz, epidote) amygdaloidal, strongly augite-porphyritic basalt with extensively albitised groundmass. Matrix, veinlets of calcite with interspersed aggregates of albite.	Random millimetric to centimetric single and composite clasts. Mildly stressed matrix.	Traces of chromite, ultrafine pyrite. Minor quartz, pumpellyite, epidote in matrix.	Primarily a partly flow-brecciated scoriaceous basalt. Extensively albite-chlorite-pumpellyite-epidote-altered, closely fractured/calcite-healed.
362.7m 355528 (T.S. 55106)	Altered Basalt. Frequent augite, relatively minor chloritic microcrystalline quartz, pseudomorphed olivine phenocrysts in a groundmass of albitised/saussuritised plagioclase laths; chloritic mesostasis.	Strongly porphyritic, basaltic, weakly chlorite-amygdaloidal.	Disseminated chromite, traces of pyrite, conspicuous leucoxenic semi-opaques.	Close compositional affinities with 298.2 m. Primarily a ?glass-mesostasised lava. Extensively "saussurite"-altered.
390.1m 355529 (T.S. 55089)	"Breccia". Clasts of extensively sericite/cryptocrystalline quartz altered leuco-andesitic lava. Frequent albitised plagioclase, subordinate quartz grains, minor sericitic pelite, carbonaceous pelite clasts. Ill-defined sericitic matrix.	Massive to incipiently bedded, poorly sorted, angular sandy clastic.	Minor clots of calcite. Clastic leucoxenic semi-opaques. Minor traces of pyrite. Rare radiolaria.	Sedimentary (?slump)breccia characteristics; dominated by mildly reworked leuco-andesitic/dacitic components. Finer detail obscured by sericitic alteration.
391.2m 355530	Andesitic "Breccia". Clasts of variously albitised to sericite-, sericite-chlorite-stained and semi-selectively chloritised/albitised, plagioclase-porphyritic lava. Sparse leucoxenic sericite-chlorite matrix.	Random variably moulded clasts; variously trachytic to perlitic-textured. Mildly sheared.	Traces of chromite, minor clots, films of cloudy calcite. Traces phenocrystal quartz.	Leuco-andesitic/dacitic, lapilli-grade lithic tuff. Differential alteration of clasts reflects primary crystallinity variations. Perlitic types relatively albitised.

CENTRAL MINERALOGICAL SERVICES

Sample No.	Classification - Composition	Fabric	Accessories	Comments
HAT 4 401.5m 355531	Andesitic "Breccia". Clasts of variably chloritic, albitised lava (similar to 391.2 m), with varying proportions of calcite. Corrosive matrix of cherty microcrystalline quartz with interspersed clots of calcite.	Analogous to 391.2 m, but irregularly cherty quartz-veined/replaced	Patchy sericite. Conspicuous fine leucoxenised opaques, rare ultrafine pyrite.	Affinities with 391.2 m. In contrast, this rock is dominated by relatively homogeneous, perlitic, weakly porphyritic clasts; may represent a brecciated lava.
493.2m 355532 (T.S. 55092)	Andesitic "Breccia". Clasts of chloritic/ variably silicified and sericite-carbonate-stained, weakly porphyritic lava. Corrosive matrix of microcrystalline quartz with subordinate intergrown albite, minor sericite.	Perlitic, massive to flow-structured/flow-brecciated clasts, randomly sized, angular, extensively corroded.	Leucoxenised opaques.	Brecciated, silicified/albitised andesitic flow breccia. Close affinities with 401.5 m. Quartz-albite-sericite(-carbonate) alteration is fracture-controlled, overprints chloritic alteration.