

Ref: 69381, Jag-M06034.DOC

MINERAL RESOURCES TASMANIA

A Division of
DEPARTMENT of *INFRASTRUCTURE*,
ENERGY and *RESOURCES*

Enquiries: Ralph Bottrill
Phone: (03) 6233 8359
Email: rbottrill@mrt.tas.gov.au
Our File: Document2S

31/8/2006

Jaguar Minerals
18 Emerald Terrace
West Perth WA 6005

Attention: Michael Busbridge

Dear Michael

**JOB M06/034: PETROLOGY,
WILSON RIVER AND CETHANA**

Fourteen rock samples from the above location were submitted by yourself for petrographic descriptions. They were prepared and examined by XRD, transmitted and reflected polarised light and stereo-microscopic techniques, and the report is enclosed.

An invoice for \$2530 covering these analyses (14 detailed petrographic descriptions @ \$60ea.; \$0 handling, \$230 GST) will be forwarded.

Yours sincerely

R S Bottrill
MINERALOGIST-PETROLOGIST

Petrological examination of rock samples from the Wilson River and Cethana areas.

An unpublished Mineral Resources Tasmania report

for

Jaguar Minerals Pty Ltd

R.S. Bottrill

MRT MINPET JOB M06/034

31/8//06

Summary

This suite of rocks comprises mostly moderately to highly altered Cambrian ultramafic and mafic igneous rocks, two being significantly mineralised, plus one Devonian granitoid and one siliceous breccia, all from the Wilson River area. There are also two ferruginous Cambrian volcanoclastic breccias from the Cethana area.

Introduction

Fourteen rock samples, some mineralised, collected from the Wilson River (SW of Waratah) and Cethana areas, were submitted by Mike Busbridge of Jaguar Minerals for petrographic and mineragraphic descriptions.

They were prepared and examined by XRD, transmitted and reflected polarised light and stereo-microscopic techniques in the MRT laboratories. Some mineral identifications and compositions were checked by electron microprobe analysis at the CSL, University of Tasmania.

Sample details are given in table 1.

Sample Identification

Field No./ID	MRT Reg. No.	Location	Original Description
1	G401958	Wilson R- WRD01, 85.5m	Talc chlorite tremolite serpentinite breccia
2	G401959	Wilson R- WRD01, 90.6m	Pyroxenite with chlorite magnetite vein. Is coarse grained whitish grey mineral a pyroxene?
3	G401960	Wilson R- WRD01, 90.6m	Magnetite rich porphyritic peridotite? Is the coarse grained twinned mineral a pyroxene?
4	G401961	Wilson R- WRD01, 99.5m	Granophyric felsic phase of a differentiated subvolcanic serpentinite?
5	G401962	Wilson R- WRD02, 64.2m	Pyroxenite.
6	G401963	Wilson R- WRD02, 87.5m	Serpentinite
7	G401964	Wilson R- WRD03, 50m	Sulphidic quartz vein and stockworks.
8	G401965	Wilson R- WRD03, 50m	Sulphidic quartz vein and stockwork.
9	G401966	Wilson R- WRD04, 84m	Hydrothermally altered sericite chlorite epidote granite grading into a more pegmatitic phase. Not foliated matrix supported quartz rich granite breccia
10	G401967	Near WRD03 Outcrop	
11	G401968	Wilson R- Creek float	Pyroxenite.
12	G401969	Betts Track access Outcrop	Granite.
13	G401970	Cethana Outcrop	Gossanous chlorite magnetite sericite matrix supported breccia
14	G401971	Cethana Outcrop	Chlorite magnetite sericite biotite quartz rich volcanic or sediment?

PETROGRAPHIC DESCRIPTIONS

1. G401958 Wilson R- WRD01, 85.5m “Talc chlorite tremolite serpentinite breccia”

Hand Specimen

The rock sample is mottled, pale to dark green, massive, fine grained rock with thin white to pale green fibrous/asbestiform veins, and some traces of disseminated brassy sulphides (<1mm). There is no obvious foliation.

Microscopic petrography

The polished thin section indicates that the rock is composed mostly of irregular patches of serpentine with minor carbonates and chlorite. The serpentine is of four main types: one is a very fine grained, unfoliated, colourless, almost isotropic serpentine, replacing an euhedral mineral (orthopyroxene?) up to about 10mm in size (~20%). It may contain irregular to diffuse patches of colourless chlorite. Another form of serpentine is a pale pinkish to brown mesh-textured serpentine (probably lizardite), typical of serpentinitised olivine (~40%, in clots to about 10mm). This serpentine is cut by fine vein-style serpentine (chrysotile?, ~5%, <10 microns thick). There are clasts of colourless to very pale green and brown, platy serpentine (antigorite), with crystals to ~ 4mm in length (~30%). Pale green to colourless chlorite (clinochlore, ~10%), occurs as small patches of as well as within the isotropic serpentine. There is a trace of a fine-grained brown mineral with magnetite, which may be a Mg-Fe hydroxycarbonate (pyroaurite or sjogrenite). Some serpentine

appears to be slightly weathered to smectite and fine iron oxides and carbonates. The present texture is unfoliated but inhomogeneous and it was probably brecciated and deformed both prior to, and following, serpentinisation.

Opaques include some traces of sulphides and oxides. The oxides include some relicts of primary chromite (<1%, < 2mm, partly pseudomorphed to magnetite. Magnetite also occurs as fine euhedral grains. Haematite (~1%) occurs as cloudy zones, fine stringers and fine-grained atoll or diffuse “ghost” pseudomorphs, presumably after magnetite and/or chromite. Pyrite (~1%, <0.1mm) occurs as fine disseminated grains.

The rock is a completely serpentinised and brecciated ultramafic (peridotite?).

2. G401959 Wilson R- WRD01, 90.6m “Pyroxenite with chlorite magnetite vein”

Hand Specimen

The rock sample contains a greyish pyroxenitic rock cut by a black to blue and green serpentinous vein. There is no obvious foliation or mineralisation.

Microscopic petrography

The polished thin section indicates that the rock is composed mostly of coarse grained orthopyroxene and olivine, partly replaced by serpentine and talc. The orthopyroxene (enstatite, ~35%) is colourless to pale pink, to 20mm or more in size, and patchily altered to fine grained talc (~10%). The olivine (~15%) is highly fractured and largely altered to serpentine (lizardite?, mesh-textured, ~30%). There is also minor colourless chlorite (clinocllore, 5%), possibly colourless amphibole, a pyroaurite/sjogrenite type hydroxycarbonate, some patches of yellow-brown smectite clays and opaque minerals. The serpentine is partly cut by fine chrysotile veinlets. The rock is essentially unfoliated.

The opaques are chromite (~2%), and magnetite (2%). Chromite occurs as shattered anhedral grains < 2mm, variably altered to magnetite (~2%, 50-100 microns), in fine grained, feathery to poikiloblastic overgrowths.

The rock is a partly serpentinised ultramafic, probably a harzburgite.

3. G401960 Wilson R- WRD01, 90.6m “Magnetite rich porphyritic peridotite?”

Hand Specimen

The rock sample contains a dark green to black, massive, fine-grained serpentinous zone and a irregularly mottled, green and pinkish brown zone, resembling a serpentinised pyroxenite. There is no obvious foliation or mineralisation.

Microscopic petrography

The polished thin section indicates that the rock is composed mostly of very coarse grained, unfoliated, orthopyroxene and olivine, both largely altered. The orthopyroxene (~25%) is colourless and twinned, to 10mm or more in size, and partly altered to fine grained talc (~15%). The olivine (~10%) is largely altered to serpentine (lizardite?, mesh-textured, ~25%), ~5% platy serpentine (antigorite) with minor colourless chlorite (clinochlore, 5%) and opaque minerals. There are some murky aggregates of talc, serpentine, carbonate and possibly some tremolite. There are patches of pale green chlorite (~10%, <1 mm). The present texture is unfoliated but inhomogeneous and probably brecciated and deformed. The rock is essentially unfoliated.

The opaques are chromite (<1%), pyrite (<1%) and magnetite (<1%). Chromite occurs as aggregates of shattered, anhedral grains < 2mm, veined by magnetite (~2%, < #mm), with porous overgrowths of brown garnet(?). There is some very fine grained, disseminated magnetite, some in feathery aggregates, stringers and veinlets, and some very fine grained disseminated pyrite.

The rock is a highly serpentinised ultramafic, probably a harzburgite.

4. G401961 Wilson R- WRD01, 99.5m “Granophyric felsic phase of a differentiated sub-volcanic serpentinite?”

Hand Specimen

The rock sample contains a dark green to black, massive, fine grained serpentinous zone and a irregularly mottled, green and white zone, separated by a granular pink zone and a narrow zone with coarse black crystals to 15mm. There is no obvious foliation or mineralisation.

Microscopic petrography

The polished thin section indicates that the rock is composed mostly of fine grained hydrogarnet and serpentine, with medium grained clinopyroxene (antigorite), minor colourless chlorite (clinochlore) and opaque minerals. The garnet (<20%) occurs mostly as very fine grained, pale yellow-green, weakly anisotropic grains in aggregates to ~1 mm, probably with fine grained clinozoisite in part, representing pseudomorphed euhedral to anhedral plagioclase crystals. It also occurs as rims to chromite grains (< 0.2 mm). Microprobe analysis indicates at least some is a hydrous uvarovite. There are clasts to ~3 mm of relatively coarse-grained platy serpentine (<25%, <1 mm) intergrown with fine hydrogarnet, probably replacing clinopyroxene. The chlorite (colourless to pale green clinochlore, <15%) is mostly disseminated in spots and clasts (some including fine Fe-Ti oxides, and probably replacing biotite or phlogopite crystals). There is a vein-like zone with coarse grained, colourless, diopsidic clinopyroxene (<2mm, <20%), ~10% talc and traces of fine quartz. The textures show complex overprinting relationships but the rock is essentially unfoliated.

The opaques are chromite/chromian spinel (<2% <2 mm), pyrite (<1% <0.1 mm), millerite (trace?, <1%) and magnetite (<1%, <0.5 mm). The spinel occurs as shattered,

porous anhedral grains < 2mm, with overgrowths of green garnet (uvarovite), magnetite and/or haematite. Microprobe analysis indicates it is probably more spinel than chromite. There is some very fine grained (<60 microns), disseminated pyrite and magnetite.

The rock is a highly serpentinised and rodingitised gabbro.

5. G401962 Wilson R- WRD02, 64.2m “Pyroxenite”

Hand Specimen

The rock sample contains a greyish pink pyroxenitic rock, brecciated and partly replaced by black to green serpentine. There is also an irregularly mottled, green and white breccia zone. There is no obvious foliation or mineralisation.

Microscopic petrography

The polished thin section indicates that the rock is composed mostly of orthopyroxene, hydrogarnet, chlorite, serpentine and amphibole, with minor talc, carbonate, quartz and opaque minerals. The garnet (<15%) occurs mostly as very fine grained, pale yellow-green, weakly anisotropic grains in aggregates to ~5 mm, probably representing pseudomorphing euhedral plagioclase crystals. Microprobe analysis indicates some is a hydrous uvarovite. There are clasts to ~5 mm of fine grained mesh-textured to vein-style serpentine (lizardite and chrysotile) <15%, with some relicts of replaced olivine, and perhaps also replaced some primary orthopyroxenes? There are irregular patches of fine grained clinozoisite (<10 %, probably pseudomorphing plagioclase). There is a vein-like zone with coarse grained, colourless, diopsidic clinopyroxene (<1mm, <15%), partly replacing serpentine, and including hydrogarnet and clinozoisite patches. There are patches and zones of amphiboles (tremolite and Anthophyllite, <25%, <2 mm). The chlorite (colourless to pale green, <10%) occurs in fine grained veinlets, spots and clasts, overprinting serpentine and amphibole in part. There are traces of talc, dolomitic carbonate and quartz. The textures show complex overprinting relationships. The rock is essentially unfoliated.

The opaques are chromite (<1%) and magnetite (<1%). Chromite occurs as patches of shattered, anhedral grains < 0.5mm, with overgrowths of green garnet and/or magnetite.

The rock is a highly serpentinised and rodingitised gabbro.

6. G401963 Wilson R- WRD02, 87.5m “Serpentinite”

Hand Specimen

The rock sample is a dark green to black, massive, brecciated serpentinitous rock with no obvious foliation or mineralisation.

Microscopic petrography

The polished thin section indicates that the rock is composed mostly of very coarse grained, unfoliated, orthopyroxene, largely serpentinised. The orthopyroxene (~25%) is colourless and twinned, to 10mm or more in size, and partly altered to fine grained, mesh-textured serpentine (lizardite?, ~60%) and platy serpentine (antigorite?, ~10%) with minor ore minerals. There are some murky aggregates of talc, serpentine, carbonate and possibly some tremolite. There are patches of pale green chlorite (~10%, <1 mm). The present texture is unfoliated but inhomogeneous and probably brecciated and deformed.

The opaques are chromite (~5%), and magnetite (<1%). Chromite occurs as shattered anhedral grains < 5mm, variably altered to magnetite, as coarse grained, euhedral to skeletal overgrowths.

The rock is a highly serpentinised pyroxenite.

7. G401964 Wilson R- WRD03, 50m “Sulphidic quartz vein and stockworks.”

Hand Specimen

The rock sample is a pale grey to white siliceous rock with black flecks and an irregular white quartz vein carrying galena, brown sphalerite, chalcopyrite and other sulphides. There is no foliation.

Microscopic petrography

The polished thin section indicates that the rock is composed mostly of quartz (~35%) and carbonate (dolomite, colourless, ~45%), of variable grain size and crystallinity. There are some zones of fine grained to medium grained quartz with a mosaic texture of intergrown spindle-shaped subhedral quartz crystals, and zones of fine-grained carbonate. These fine grained zones both contain some minor chromite, and grade into coarser, recrystallised patches (quartz <5 mm, carbonate <2mm) with some vugs containing coarse, well crystallised quartz, carbonate and minor sulphides. There are some fine spots (<0.5mm) of pale brown siderite(?) with magnetite rims. The rock is brecciated and essentially unfoliated.

Opaques include low-iron sphalerite (~2%, yellow-brown rounded blebs, < 4mm), galena (2%, porous blebs < 1mm), pyrite (~4%; < 0.5mm), chromite (~3%, < 2mm, shattered), chalcopyrite (~2%, < 0.1mm), and traces of arsenopyrite (<0.1mm, euhedral) and gersdorffite (~1%, porous aggregates <0.5mm, replacing pyrite).

The rock is a megachert with quartz-carbonate veining, replacing an ultramafic: it could be termed listwanite.

8. G401965 Wilson R- WRD03, 50m “Sulphidic quartz vein and stockwork.”

Hand Specimen

The rock sample is a pale grey to white siliceous rock with black flecks and some irregular banding and stylonitic features. It carries some galena, brown sphalerite, chalcopyrite and other sulphides. There is no metamorphic foliation.

Microscopic petrography

The polished thin section indicates that the rock is composed mostly of quartz and carbonate (dolomite), of variable grain size and crystallinity. There are some zones of fine grained to medium grained quartz with a mosaic texture of intergrown spindle-shaped subhedral quartz crystals, and zones of fine-grained carbonate. These grade into coarser patches with some vugs with coarse, crystallised quartz and carbonate. The rock is essentially unfoliated.

Opaques include low-iron sphalerite (~5%, yellow-brown rounded blebs, < 4mm), galena (2%, porous blebs < 1mm), pyrite (~1%; < 0.5mm), chromite (~3%, < 2mm, shattered), chalcopyrite (~1%, < 0.1mm), and traces of arsenopyrite (<0.1mm, euhedral) and gersdorffite (porous aggregates <0.5mm, replacing pyrite).

The rock is a sulphidic quartz-carbonate rock, replacing an ultramafic precursor: it could be termed listwanite.

9. G401966 Wilson R- WRD04, 84m “Hydrothermally altered sericite chlorite epidote granite”

Hand Specimen

The rock sample is a pale pink, coarse grained granitic rock with a pegmatitic zone carrying coarse white feldspar, green grains (sericitised plagioclase?) and quartz. Green grains in the groundmass may also be sericitised plagioclase feldspar(?). The rock has no obvious foliation, or mineralisation.

Microscopic petrography

The polished thin section indicates that it is a granitic rock, with both medium grained granophyric and coarse grained equigranular zones. It is composed mostly of quartz, K-feldspar and sericite/muscovite, with traces of zircon and other accessories. Quartz is dominant (~40% <0.5mm), and the K-feldspar is weakly sericitised orthoclase (~25%; <6mm). Sericite (~25%) occurs as patches to ~5mm, probably pseudomorphs after plagioclase. Poorly crystallised muscovite patches (<2mm) contain abundant fine inclusions of sphene, apatite, allanite? and monazite?; these probably represent altered biotite. The rock is essentially unfoliated.

Opaques include traces of fine sphene, pyrite and possible marcasite.

The rock is a sericitised Devonian adamellite or granodiorite of the Meredith batholith.

10. G401967 Near WRD03 Outcrop “Not foliated matrix supported quartz rich granite breccia”

Hand Specimen

The rock sample is an off-white siliceous rock with pale green to brownish and white clasts in a white granular quartz matrix. There are some inter-clastic vughs with small quartz crystals. It is matrix-supported and there is no foliation.

Microscopic petrography

The polished thin section indicates that the rock is a breccia, composed mostly of quartz with minor sericite (~5%). It is essentially unfoliated, and the breccia is matrix supported, the matrix being mostly coarse grained, probably hydrothermal, prismatic quartz, in large part open space filling, with crystals to 2 mm. The clasts vary from cherty to very fine-grained to medium grained recrystallised quartz with a mosaic texture, including intergrown spindle-shaped subhedral quartz crystals, mostly < 0.2mm typical of silicified sediments. Some clasts are oblate and some resemble quartz arenite and these indicate relict original rounded clasts of siliceous and argillaceous lithic and/or feldspathic material to about 0.5mm in size. The sericite is very fine grained and richly disseminated within some clasts, and there is also some locally abundant disseminated leucoxene. The composition and preserved textures suggests that the cherty clasts may have originally been silicified mafic to intermediate volcanics or volcanoclastic sediments.

Opaques include traces of fine leucoxene and possible magnetite.

The rock is a siliceous breccia.

11 G401968 Wilson R- Creek float “Pyroxenite.”

Hand Specimen

The rock sample is a coarse grained medium grey, mafic rock with crystals to 25mm or more. It is partly weathered to limonitic clayey material. The rock has no obvious foliation or mineralisation.

Microscopic petrography

The polished thin section indicates that the rock is composed mostly of very coarse grained, unfoliated, orthopyroxene, largely serpentinised. The orthopyroxene (~50%) is pale pink and twinned, to 15 mm or more in size, but with finer grained zones ~0.5mm in grain size. It is partly altered to fine grained, fibrous, colourless amphibole (tremolite?, ~50%, rarely <5mm) with minor talc patches and ore minerals. There are some murky brown aggregates of talc, serpentine, carbonate and possibly some tremolite. The present texture is unfoliated but inhomogeneous and probably brecciated and deformed.

Opaques include minor magnetite (~2%), to 0.1mm, mostly as disseminated euhedral crystals pseudomorphing chromite, which occurs as some rare remnants in some of these crystals.

The rock is probably a highly altered, amphibolitised pyroxenite.

12 G401969 Betts Track access Outcrop “Granite.”

Hand Specimen

The rock sample is a dark greyish green, fine grained basic to andesitic volcanic-looking rock with no obvious foliation or mineralisation.

Microscopic petrography

The polished thin section indicates that the rock is highly altered but retains a diffuse basaltic agglomerate texture, with irregular clasts to a few mm. It is composed mostly of very fine grained, platy talc, felted amphibole (anthophyllite and tremolite?), fine feldspar?, colourless chlorite (clinochlore) and opaque minerals. The rock is essentially unfoliated.

Opaques include minor magnetite (~2%), to 0.1 mm, mostly as disseminated euhedral crystals pseudomorphing chromite, which occurs as some rare remnants in some of these crystals.

The rock is probably a highly altered ultramafic volcanic (boninite or low-Ti tholeiite?).

13 G401970 Cethana Outcrop “Gossanous chlorite magnetite sericite matrix supported breccia”

Hand Specimen

The rock sample is a mottled dark green-grey to red rock with irregular white to pink clasts, to ~25mm. It is partly weathered, and has no obvious foliation or mineralisation.

Microscopic petrography

The polished thin section indicates that the rock is a breccia, composed mostly of very fine grained quartz (~55%), chlorite (~10%), sericite (~5%) and iron oxides (~30%). It is essentially unfoliated, and the breccia is matrix supported, the matrix being mostly quartz and chlorite, and the clasts being cherty or chlorite rich. Quartz occurs as fragmental phenocrysts to 2mm, with highly included overgrowths indicating post-crystallisation growth. The cherty clasts are very fine grained to medium grained with traces of zircon and probably represent silicified acid volcanics. Some clasts resemble quartz arenite. Sericite is very fine grained and disseminated, probably replacing feldspars.

Opaques include major haematite (~30%), in crystalline aggregates to 0.5mm, mostly pseudomorphing magnetite crystals to 0.5 mm. Magnetite occurs as uncommon remnants within the cores of some of these “martite” crystals, overgrown by tabular haematite.

The rock is probably a Fe-metasomatised dacitic volcanoclastic breccia.

14 G401971 Cethana Outcrop “Chlorite magnetite sericite biotite quartz rich volcanic or sediment?”

Hand Specimen

The rock sample is a medium greyish green, fine to medium grained felsic to andesitic volcanic-looking rock with some quartz phenocrysts. There is a weak foliation (flow banding?) but no obvious mineralisation.

Microscopic petrography

The polished thin section indicates that the rock is a breccia, composed mostly of very fine grained quartz (~45%), chlorite (~20%), sericite (~20%) and iron oxides (~15%). It is essentially unfoliated, and the clasts (to 10mm) are matrix supported, the matrix being mostly fine-grained quartz, sericite and chlorite (representing rock flour or altered lava?). Quartz occurs as abundant phenocrysts to 2mm, but are largely broken. Some have overgrowths clouded by inclusions, indicating growth in a finely crystalline matrix. Chlorite occurs as small aggregates (to 1mm), some with fine opaques, suggesting the replacement of mafic minerals (hornblende and/or biotite?). Fine grained quartz aggregates to 2mm may represent altered feldspars? Sericite is very fine grained and abundantly disseminated throughout the rock, probably replacing feldspars.

Opaques include major magnetite (~15%), in euhedral crystals to 0.5mm, mostly partly altered to haematite.

The rock is probably a Fe-metasomatised dacitic volcanoclastic breccia.

Discussion and summary

Wilson River

This suite of rocks comprises mostly moderately to highly altered ultramafic and mafic igneous rocks with one granite and one siliceous breccia, and are summarised in table 2.

Field. No./ID	MRT Reg. No.	Location	Original Description
1	G401958	Wilson R- WRD01, 85.5m	Serpentinised and brecciated ultramafic (peridotite?)
2	G401959	Wilson R- WRD01, 90.6m	Serpentinised ultramafic, probably a harzburgite
3	G401960	Wilson R- WRD01, 90.6m	Serpentinised ultramafic, probably a harzburgite
4	G401961	Wilson R- WRD01, 99.5m	Serpentinised and rodingitised gabbro
5	G401962	Wilson R- WRD02, 64.2m	Serpentinised and rodingitised gabbro.
6	G401963	Wilson R- WRD02, 87.5m	Serpentinised pyroxenite.
7	G401964	Wilson R- WRD03, 50m	Listwanite
8	G401965	Wilson R- WRD03, 50m	Listwanite
9	G401966	Wilson R- WRD04, 84m	Sericitised adamellite or granodiorite.
10	G401967	Near WRD03 Outcrop	Siliceous breccia
11	G401968	Wilson R- Creek float	Highly altered, amphibolitised pyroxenite.
12	G401969	Betts Track access Outcrop	Ultramafic volcanic (boninite or low-Ti tholeiite?).

Ultramafics

Four such rocks were described (#1, 2, 3 & 6); these give clear evidence of having been originally coarse grained ultramafic igneous rocks. At least two were probably harzburgites (#2 & 3), and one probably an orthopyroxenite (#6) They are now variably altered to serpentine – talc – tremolite – diopside – amphibole – chlorite assemblages, and one is totally serpentinised (#1). They are unmineralised rocks, from the Cambrian Heazlewood Ultramafic complex.

Rodingite

Two such rocks were described (#4 & 5); these give evidence of having been originally coarse grained gabbros with olivine-plagioclase-pyroxene assemblages. They are now highly altered to complex serpentine – hydrogarnet – tremolite – diopside – amphibole – talc – chlorite assemblages. The alteration is possibly due to nearby granite intrusion, giving skarn-like textures. They are unmineralised rocks, from the Cambrian Heazlewood Ultramafic complex.

Listwanite

Two such rocks were described (#7 & 8); they are mostly composed of dolomite and quartz, and vary from cherty to vein-style in texture. They give evidence of having been originally ultramafics, from the presence of some relict chromite. The listwanites are mineralised with disseminated Pb-Zn-Cu-Fe sulphides, and are similar to those found in Ag-Pb lodes cutting or adjacent to serpentinite bodies at Dundas, Magnet, and Heazlewood. They are probably of Devonian age, and are probably granite-related. The sulphides identified include sphalerite, galena, chalcopyrite, pyrite, arsenopyrite and gersdorffite.

Granitoid

One granitic rock was described (#9); this is a highly sericitised, but unmineralised, Devonian adamellite or granodiorite, grading from an equigranular to pegmatitic phase, and is probably part of the Meredith batholith.

Siliceous breccia

One such breccia was described (#10); this is an unmineralised vuggy quartz breccia with sericitised quartz rich clasts. The original rocktype is uncertain, but the presence of pervasive sericite and leucoxene is suggestive of having originally been a mafic to intermediate volcanic or a volcanoclastic sediment.

Basalt

One such rock was described (#12); this is a highly altered but unmineralised rock with a basaltic agglomerate texture, containing some chromite, indicating a relatively ultramafic texture. It was presumably a Cambrian boninite, now largely a talc-amphibolite rock.

Cethana

These two rocks are summarised in table 3.

Field.	MRT		
No./ID	Reg. No.	Location	Original Description
13	G401970	Cethana Outcrop	Fe-metasomatised volcanoclastic breccia.
14	G401971	Cethana Outcrop	Fe-metasomatised volcanoclastic breccia.

The rocks are altered dacitic volcanoclastic breccias with indications of strong iron-metasomatism, and belong to the late Cambrian Mt Read Volcanics (possibly a correlate of the Eastern quartz-phyric sequence?). There are no definite indications of sedimentary reworking of the volcanic material, although some rare and small siliceous clasts could represent quartzitic quartz arenites (or silicified volcanics?).

The rocks are strongly hydrothermally altered, with complete destruction of feldspars and mafics by sericitic, silicic and chloritic alteration. No mineralisation was recognised, other than the abundant iron oxides (haematite and magnetite, 15-30%), and no sulphides were detected, although these would probably have been largely replaced during the formation of the iron oxides.

Disclaimers

While every care has been taken in the preparation of this report, no warranty is given as to the correctness of the information and no liability is accepted for any statement or opinion or for any error or omission. No reader should act or fail to act on the basis of any material contained herein. Readers should consult professional advisers. As a result the Crown in Right of the State of Tasmania and its employees, contractors and agents expressly disclaim all and any liability (including all liability from or attributable to any negligent or wrongful act or omission) to any persons whatsoever in respect of anything done or omitted to be done by any such person in reliance whether in whole or in part upon any of the material in this report.

This and other data collected in MRT laboratories may enter the MRT databases but every attempt will be made to ensure it remains closed file and not be available externally, unless at your request.