

RECORD 1980/15

'PINE CREEK PARTY 1978 DATA RECORD:

POINT STUART, MARY RIVER AND MUNDOGIE

1:100 000 SHEET AREAS, NT

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ABSTRACT

This Record summarises the major results of the 1978 Pine Creek Geological Party (BMR and NTGS), presenting 1:100 000-scale reductions of photo-scale compilation sheets for the Mary River and Point Stuart 1:100 000 Sheet areas, and an outline of the revised stratigraphy. Petrographic descriptions are appended as also are the logs of seven shallow stratigraphic holes drilled in the Mundogie and Mary River Sheet areas and a log of an NTGS diamond drillhole drilled near Mount Bunday. Lower Proterozoic units mapped in the area include the Mundogie Sandstone, Wildman Siltstone, Koolpin Formation, Gerowie Tuff, Kapalga Formation, Burrell Creek Formation, Mount Bunday Granite and Mount Goyder Syenite. A new andesitic volcanic unit was intersected in the subsurface within the Wildman Siltstone.

INTRODUCTION

This Record summarises the major results of the 1978 field work of the Pine Creek Geosyncline Geological Party of the Bureau of Mineral Resources (BMR) and the Northern Territory Geological Survey (NTGS) in the Mary River and Point Stuart 1:100 000 Sheet areas. The work was a continuation of geological field work in the Pine Creek Geosyncline, as part of the Pine Creek Project whose overall objective is to study the geology, geophysics, and mineralisation of the geosyncline; an important subsidiary objective is to produce 1:100 000-scale geological maps of the region. A detailed account of the geology of the Mary River and Point Stuart Sheet areas is in preparation.

This Record presents 1:100 000-scale reductions (Plates 2-20) of the photo-scale compilation sheets and an outline of the stratigraphy as revised in the light of recent work in the geosyncline. Petrographic descriptions are appended. Also appended are the logs of seven shallow stratigraphic holes drilled in the Mary River and Mundogie Sheet areas and the log of a continuously cored stratigraphic hole drilled to a depth of 377 m by NTGS in the Mount Bundey area. The results of a drilling program conducted in 1978 in the East Alligator and Field Island 1:100 000 Sheet areas are reported by Wallace (1980).

Where available (Fig. 1) 1:25 000 or 1:16 000-scale colour airphotos were used, in conjunction with 1:89 000-scale panchromatic airphotos. Plate 1 contains the geological reference, an index to the compilation sheets, and a key showing the type and scale of photos used for compilation. Copies of the compilation sheets at their original photo-scale can be obtained from the Copy Service, Australian Government Printer (Production), P.O. Box 84, Canberra, ACT 2600 - price on application.

The field positions of specimens described petrographically are indicated on the compilation sheets by 8-digit BMR sample submission numbers.

GEOLOGY

The generalised geology of the Mary River and Point Stuart Sheet areas is shown in Figure 2, and summarised in Table 1.

Most of the Point Stuart Sheet area and the northern parts of the Mary River Sheet area are covered by Cainozoic lateritic sand, minor Cretaceous sandstone (Petrel Formation), and extensive Quaternary river and coastal floodplain deposits.

The oldest rocks exposed are feldspathic psammitic sediments of the Lower Proterozoic Mundogie Sandstone which crop out near the eastern margins of the Sheet areas and in the centre of the Mary River Sheet area, commonly in the cores of anticlines, flanked by the overlying Wildman Siltstone. The Mundogie Sandstone was previously termed Mount Partridge Formation.

The Wildman Siltstone (a predominantly pelitic sequence previously mapped as the Masson Formation) conformably overlies the Mundogie Sandstone and crops out poorly as rubbly rises. Pelitic units of the formation are well exposed only in road cuttings along the Arnhem Highway, where they are commonly tightly folded with a well-developed axial-plane cleavage. The formation includes a previously unrecognised volcanic unit, informally called Annaburroo volcanic member (see 'Drilling Results').

Isolated ridges of massive silicified dolomite and ferruginous silicified dolomite breccia crop out in the central and western parts of the Mary River Sheet area. As the contact with surrounding Wildman Siltstone is not exposed, the stratigraphic position of the dolomite is uncertain. The ridges possibly represent lenses within the Wildman Siltstone or a small basin of Koolpin Formation.

The Koolpin Formation - previously termed Craig Creek Member of the Golden Dyke Formation in this area - is a continuous highly ferruginous unit in which chert bands and lenses become more prominent southwards. The unit has a distinct dark photo tone, and unconformably overlies the Wildman Siltstone.

The Gerowie Tuff overlies the Koolpin Formation and forms prominent sparsely vegetated ridges covered with characteristically white cherty rubble. The contact between the Koolpin Formation and the Gerowie Tuff is clearly conformable and is exposed in a road cutting near the Mary River bridge.

The Gerowie Tuff is overlain conformably by the Kapalga Formation which represents a transitional facies between the iron-rich and tuffaceous sediments of the Koolpin Formation/Gerowie Tuff sequence and flysch-type sediments of the conformably overlying Burrell Creek Formation, the youngest Lower Proterozoic unit in the area.

The Koolpin to Burrell Creek sequence strikes east in the central Mary River area, and is folded about gently south-plunging axes; the regional trend swings sharply to the south in the southeast quarter of the Sheet area; here folding and faulting are complex: the Koolpin Formation, Gerowie Tuff, Wildman Siltstone, and Mundogie Sandstone are commonly faulted against each other along this belt.

The Lower Proterozoic sediments are intruded by numerous felsite and aplite dykes throughout the Sheet areas. Unusual magnetite-bearing minette dykes also intrude the sediments near the Carpentarian Mount Bunday Granite and Mount Goyder Syenite.

DRILLING RESULTS

Two holes (BMR Mary River 1 and 2) were drilled in the Mary River 1:100 000 Sheet area to determine the nature of extremely weathered brown fine massive rocks previously mapped as dolerite intruding the Wildman Siltstone northeast of the Mount Bunday Granite (Malone, 1962). The holes intersected interbedded pyritic carbonaceous shale and altered amygdaloidal andesite. This volcanic rock is informally referred to as the Annaburroo volcanic member of the Wildman Siltstone.

Two drillholes put down in late 1977 to determine the source of magnetic and gravity anomalies on the western edge of the Barramundie Creek plains in the Mundogie 1:100 000 Sheet area, intersected tuffaceous phyllite with dolomite bands and fine, spotted metavolcanics of the Stag Creek Volcanics (Needham & others, 1979). Five holes were drilled in 1978 on the eastern side of the plain near the abandoned Barramundie homestead to determine the extent of the Stag Creek Volcanics and Masson Formation (Fig. 3). The holes intersected interbedded dolomite-quartz-mica schist, dolomite, and quartzite. The only formation in the area known to contain these rock-types is the Masson Formation, so the inference is that the Barramundie plains area is a dome, with Masson Formation (previously described as subunit Blp₁ of the Mount Partridge Formation; Needham & others, 1975) surrounded by Stag Creek Volcanics.

REFERENCES

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Needham, R.S., Crick, I.H., Stuart-Smith, P.G., & Wallace, D.A., 1979 - Pine Creek Geosyncline Project. In Geological Branch Summary of Activities 1978. Bureau of Mineral Resources, Australia, Report 212 (microform No. 81).

Wallace, D.A., 1979 - Shallow stratigraphic drilling in the Munmarlary area, NT, 1978. Bureau of Mineral Resources, Australia, Record 1980/19 (unpublished).

Table 1 - STRATIGRAPHIC TABLE, MARY RIVER AND POINT STUART

1:100 000 Sheet areas.

UNIT	DESCRIPTION	FIELD RELATIONS	THICKNESS (M)
<u>Felsite</u>	Massive pale green aphanitic rock containing minor sericitised euhedral feldspar phenocrysts, pyritic in places, characteristic high radioactivity (2 to 4 x background)	Forms numerous dykes intruding Lower Proterozoic metasediments in southern part of the Mary River 1:100 000 Sheet area	1 - 3
<u>Minette</u>	Dark greenish grey medium-grained rock composed of biotite, feldspar minor quartz and magnetite. Biotite occurs as phenocrysts up to 1 cm	Forms numerous dykes intruding Lower Proterozoic metasediments in the Mt Bunday area, probably related to the Mt Goyder Syenite	1 - 2
<u>Mount Goyder Syenite</u>	Coarse pink syenite, consists mainly of pink feldspar, biotite, amphibole, clinopyroxene and minor pale green feldspar and quartz; fine-grained mafic xenoliths common	Intrudes the Wildman Siltstone, contacts not exposed	
<u>Mount Bunday Granite</u>	Coarse pink granite, consisting of K-feldspar, quartz, plagioclase, amphibole, biotite and accessory apatite and sphene	Intrudes and hornfelses the Lower Proterozoic metasediments, intruded by altered minette dykes 1 to 2 m wide	
<u>Petrel Formation</u>	Porous dark brown limonitic quartz sandstone, minor conglomerate and breccia. Weathers to a characteristic dark red sandy soil.	Forms a flat lying capping, covered by a thin veneer of unconsolidated Cainozoic sand, over most of the Point Stuart and northern part of the Mary River 1:100 000 Sheet areas, unconformably overlies the Lower Proterozoic metasediments	up to 3

FINNISS RIVER GROUP

Burrell
Creek
Formation

Interbedded laminated shale, siltstone, phyllite and minor medium-grained massive quartzose, feldspathic or calcareous greywacke

Youngest Lower Proterozoic unit in the area, conformably overlies the Kapalga Formation; contact not exposed but taken as the top of the uppermost chert or tuffaceous unit. Intruded by numerous quartz reefs.

1000 +

Kapalga
Formation

Laminated reddish-brown shale and siltstone containing in places minor bands and nodules of laminated black chert and pyritic banded iron formation. Minor argillite, crystal tuff, tuffaceous chert, massive medium-grained feldspathic greywacke and rare lenses of pale brown or grey silicified dolomite

Conformably overlies the Gerowie Tuff - contact exposed 8 km southeast of Annaburroo Homestead (grid. ref. 5272 947639); contact taken as the base of the lowermost greywacke unit. Conformably underlies the Burrell Creek Formation - contact not exposed but taken as the uppermost chert or tuffaceous unit

650

GROUP

Gerowie
Tuff

Thinly interbedded, laminated grey, brown and red silicified siltstone; blue, grey and brown argillite; siliceous siltstone and shale; glassy black spotted crystal tuff and tuffaceous chert; minor graded tuffaceous greywacke and arenite. Crops out as rubbly rounded hills with sparse stunted vegetation and has a distinct white phototone.

Conformably overlies the Koolpin Formation - contact exposed in a road cutting on the Arnhem Highway 750 m west of the Mary River, contact is the base of the lowermost tuffaceous unit. Conformably overlain by the Kapalga Formation - contact exposed 8 km southeast of Annaburroo Homestead (grid. ref. 5272 947639), contact is the base of the lowermost greywacke unit

600

ALLIGATOR

Koolpin
Formation

Laminated to thinly bedded ferruginous siltstone and shale containing bands, Lenses and nodules of black chert in places; discontinuous lenses of silicified dolomite up to 4 m thick near the base of the formation;

Unconformably overlies the Mount Partridge Group - contact exposed 25 km SE of Mt Goyder (grid. ref. 5272 110620), elsewhere regional unconformity indicated by converging trends and by tight to isoclinal folding in the Mt Partridge Group compared

100 - 200 -

SOUTH

Koolpin
Formation
cont.

ferruginous, siliceous and silty chert breccias commonly form the base of the unit. Poorly exposed but subsurface presence is indicated by a deep reddish-brown soil, dense vegetation and a dark phototone. West of the Mary River the formation can be subdivided into two units:

1. a basal breccia
2. a thicker upper unit of ferruginous siltstone with chert bands, lenses and nodules

to open to tight folding in the South Alligator Group. Conformably overlain by the Gerowie Tuff. Contact exposed in a road cutting on the Arnhem Highway 750 m west of the Mary River - contact is the base of the lowermost tuffaceous unit. Intruded and hornfelsed by the Mt Bundey Granite.

Annaburroo
Volcanic
member

Deeply weathered ferruginous volcanics (pyritic andesite) containing rounded or flattened amygdulites (<1cm) infilled by limonite (after chlorite), rarely altered feldspar laths are preserved

Forms at least two conformable beds in the Wildman Siltstone about 250 m and 500 m above the base of the formation. Contacts are not exposed; interbedded with pyritic carbonaceous shale in drillhole Mary River 1, probably correlates with the Mt Deane volcanic member (Batchelor 1:100 000 Sheet area)

50 - 100

Wildman
Siltstone

Laminated shale (pyritic and carbonaceous at depth), silty shale, siltstone and sandy siltstone, typically colour-banded (mauve, buff, brown, red, white and grey), lenticular cross-bedding and ripple marks common. Minor interbeds of medium to coarse quartz sandstone (pyritic in places) and fine low-angle planar cross-bedding, lenticular cross-bedding, ripple marks, current lineation, flute markings and load casts. Rare intraformational breccia and silicified dolomite.

Conformably overlies the Mundogie Sandstone. Unconformably overlain by the Koolpin Formation - contact exposed 25 km SE of Mt. Goyder (grid. ref. 5272 110620) elsewhere regional unconformity indicated by converging trends and by tight to isoclinal folding in the Wildman Siltstone compared to open to tight folding in the overlying South Alligator Group. Intruded and hornfelsed by the Mt Bundey Granite, Mt Goyder Syenite, and minor minette and felsite dykes. Contains two conformable lenses of basic volcanics informally referred to as the Annaburroo volcanic member

1000 +

GROUP

PARTRIDGE

MOUNT

MOUNT PARTRIDGE GROUP

Mundogie
Sandstone

Fine to coarse quartz sandstone, quartzite and arkose. Graded bedding, crossbedding and scour structures present in places, minor graded beds (0.5 - 1 m thick) of pebble conglomerate. Interbedded shale and siltstone poorly exposed as rubble but probably comprise 40 to 50% of the formation

Oldest unit in the area - 500 + lower contact not exposed. Overlain conformably by the Wildman Siltstone. Unconformably overlain in places by remnant Tertiary laterite cappings

APPENDIX 1 - PETROGRAPHIC DESCRIPTIONS

(Rock unit BMR Sample Submission No/1:100 000 Sheet area/grid reference
rock type description)

Masson Formation

78120022/Mundogie/253477

Dolomite-muscovite-quartz schist (metadolomitic siltstone)

Alternating bands of very fine-grained granuloblastic quartz, dolomite and minor muscovite with strongly crenulated and foliated muscovite and platy hematite. Trace amounts of tourmaline.

78120023/Mundogie/253477

Muscovite-quartz-dolomite schist

Fine-grained granuloblastic dolomite and quartz containing thin folia of crenulated muscovite and opaques, bands of very fine-grained granuloblastic dolomite, minor irregular coarse grains of alkali feldspar, and trace amounts of tourmaline.

78120024/Mundogie/252475

Dolomite-quartz-mica schist

Strongly foliated and crenulated bands of muscovite and pale greenish brown biotite alternate with bands of granuloblastic quartz, mica and minor dolomite. Biotite forms coarse undeformed aggregates which transgress the dominant foliation in muscovite. Minor amounts of scattered alkali feldspar and irregular opaque (magnetite?) grains.

78120025/Mundogie/252475

Feldspar-dolomite-quartzite (meta-sandy dolomite)

Fine-grained granuloblastic quartz, dolomite and alkali feldspar form a matrix containing scattered coarser grains of quartz and poikilitic feldspar. Veined by quartz, dolomite and sericite.

78120026/Mundogie/250474.

Feldspar-quartz-dolomite (meta-sandy dolomite)

Fine-grained dolomite mosaic containing coarser recrystallised patches of granuloblastic quartz, dolomite and minor alkali feldspar.

78120027/Mundogie/250474

Quartz-dolomite-schist (meta-dolomitic siltstone)

Foliated graded bands of coarse-grained granuloblastic biotite, quartz and dolomite interbanded with quartz-muscovite-biotite schist. Trace amounts of tourmaline.

78120028/Mundogie/250474

Dolomite-quartz-mica schist (meta-dolomitic siltstone)

Interbanded granuloblastic quartz, dolomite and minor muscovite and biotite with foliated muscovite and minor platy opaques and pale greenish brown biotite.

78120029/Mundogie/248471

Quartzite

Poorly sorted, medium-grained granuloblastic quartz and minor muscovite.

Mundogie Sandstone

78120042/Mary River/985843

Conglomerate

Poorly sorted subrounded pebbles (<1 cm) of chert, quartz, and fine-grained, well-rounded and sorted limonitic quartz sandstone in a matrix of poorly sorted irregular recrystallised coarse-grained quartz and chert exhibiting relict well-rounded grain boundaries. Trace well-rounded monazite? grains.

78120044/Mary River/951821

Quartzite

Poorly sorted, coarse, recrystallised and strained quartz and minor chert grains with relict well-rounded grain boundaries. Recrystallised quartz rims contain fine granules of limonite and trace amounts of well-rounded monazite? and tourmaline.

78120097/Mary River/108642

Quartzite

Very coarse-grained, poorly sorted quartz and minor chert grains with recrystallised, granuloblastic or sutured optically continuous quartz rims. Relict well-rounded grain boundaries.

78120100/Mary River/156898

Quartzite

Very coarse-grained, poorly sorted quartz and minor chert grains rimmed by recrystallised optically continuous quartz. Relict well-rounded grain boundaries marked by rings of red-brown Fe oxide granules. Trace amounts of muscovite.

78120101/Mary River/158895

Quartzite

Very fine-grained, laminated granoblastic quartz, granular opaques and muscovite flakes. Opaques define relict sub-angular to rounded grain boundaries.

78120102/Mary River/209635

Quartzite

Coarse-grained, poorly-sorted granoblastic quartz and minor chert. Rare relict well-rounded grain boundaries.

78120103/Mary River/157900

Quartz and chert pebble conglomerate

Subrounded to well-rounded quartz and chert (silicified dolomite) pebbles (<1 cm) in a poorly-sorted coarse matrix of subrounded quartz and chert cemented by red-brown Fe oxides.

78120104/Mary River/152901

Quartzite

Coarse-grained, moderately sorted granoblastic quartz and minor chert. Relict well-rounded grain boundaries marked by fine granules of Fe oxide. Trace amounts of tourmaline.

Wildman Siltstone

78120045/Mary River/007784

Quartzite

Very fine-grained granoblastic quartz, minor muscovite, scattered opaques and trace rounded monazite? and sphene.

78120046/Mary River/951792

Quartz sandstone

Compact, coarse-grained, moderately sorted and well-rounded quartz and minor chert grains. Grains cemented by fine-grained granoblastic quartz, sericite and Fe oxides.

78120047/Point Stuart/987191

Quartzite

Compact, medium-grained, moderately sorted quartz and minor chert grains with relict well-rounded grain boundaries. Matrix consists of recrystallised fine-grained granoblastic quartz and minor muscovite. Trace amounts of well-rounded monazite? and shale fragments.

78120048/Mary River/973757

Quartzite

Very fine-grained granoblastic quartz and minor rounded monazite? and opaque grains.

78120049/Mary River/033765

Quartzite

Very fine-grained, laminated, granoblastic quartz and trace amounts of muscovite, well-rounded monazite? and secondary limonite.

78120052/Mary River/938785

Ferruginous siltstone

Scattered angular quartz grains in a foliated limonitic and sericitic quartz matrix.

78120096/Mary River/108642

Siltstone

Graded laminae of angular silty quartz and Fe oxides.
Secondary concentrations of Fe oxides along fractures
and in finer laminae.

78120098/Mary River/033765

Quartzite

Very fine-grained granoblastic quartz and granular opaques.
Trace amounts of monazite? and tourmaline.

78120106/Mary River/101781

Quartzite

Very fine-grained granoblastic quartz and opaques.

78120107/Mary River/052678

Shale

Laminated sericite and granular red-brown Fe oxides.

78120108/Mary River/109664

Quartzite

Medium-grained, very poorly-sorted granoblastic quartz and
Fe oxides. Minor relict well-rounded grain boundaries.

78120170/Mary River/878704

Laminated Siltstone

Alternating white silt and reddish brown ferruginous shale
laminae. Silty laminae consist of partly recrystallised
quartz grains (≤ 0.1 mm) in a microcrystalline quartz matrix.
Ferruginous laminae contain up to 40% Fe oxides.

78120171/Mary River/768790

Quartzite

Laminated very fine subangular to subrounded unstrained quartz
grains in a quartz-sericite matrix. Minor Fe oxides along
fracture planes.

78120172/Mary River/769792

Siltstone

Microcrystalline mosaic of quartz, sericite and Fe oxides.

78120173/Mary River/779799

Siltstone

Very fine-grained granoblastic mosaic of quartz, sericite, chlorite, opaques and minor feldspar and granular monazite?

78120174/Mary River/758770

Quartz sandstone

Coarse-grained, moderately sorted, subangular to subrounded quartz and minor chert grains. Irregular optically continuous quartz overgrowths, in places well-rounded grain boundaries marked by limonite granules.

78120175/Mary River/832674

Chiastolite hornfels

Very fine-grained foliated granoblastic quartz, carbonaceous matter and sericite containing altered porphyroblasts of chiastolite (<2 mm) and cut by coarser-grained quartz - muscovite veins.

78120176/Mary River/

Quartz sandstone

Medium to coarse-grained, subangular to subrounded, moderately sorted, fractured and strained quartz grains cemented by recrystallised optically continuous quartz rims and minor limonite and sericit .

78120177/Mary River/

Quartz sandstone

Poorly sorted coarse quartz grains rimmed by recrystallised granoblastic quartz and trace amounts of sericite. Relict well-rounded grain boundaries rarely preserved.

78120178/Mary River/799665

Carbonaceous? silicified dolomite breccia

Brecciated fragments of microcrystalline quartz and opaques (carbonaceous matter?) in a matrix of coarse granuloblastic quartz and minor limonite.

Annaburroo volcanic member

78120019/Mary River/964766

Altered andesite?

Fine-grained, porphyritic rock containing, phenocrysts of slender euhedral andesine laths and rare stout orthoclase crystals (<1 mm) in a groundmass of altered hypocrystalline radiating groups of feldspar laths and longulites, pale green chlorite, carbonate, and acicular opaques. Coarser-grained patches of anhedral quartz and pyrite euhedra are concentrated in planes parallel to bedding.

78120020/Mary River/964766

Tuffaceous? pyritic carbonaceous shale

Foliated very fine-grained chlorite, sericite, granular pyrite and streaked carbonaceous matter. Chlorite, carbonate and quartz also occur as undeformed scattered grains, probably as replacement products of unstable mineral fragments.

78120021/Mary River/964766

Altered amygdaloidal andesite?

Consists of interlocking andesine laths and minor subhedral K feldspar, scattered fine-grained opaques, interstitial pale green chlorite and patchy carbonate. Carbonate also occurs in veins or with muscovite and chlorite as fillings in numerous ovoid amygdules. The margins of the amygdules are commonly marked by a concentration of opaque minerals and the parallel alignment of feldspar laths.

78120035/Mary River/956784

Altered basic volcanic?

Massive rock composed of medium-grained carbonate, pale green chlorite, Fe oxides and minor quartz. Relict hypidiomorphic texture.

78120036/Mary River/925823

Altered basic volcanic?

Very porous deeply weathered massive rock composed of fine-grained quartz and Fe oxides. Relict amygdules and feldspar pseudomorphs.

Koolpin Formation

78120053/Mary River/997915

Silicified dolomite

Patchy fine to coarse-grained granoblastic quartz mosaic.

78120055

Silicified dolomite

Microcrystalline quartz.

78120056/Mary River/972749

Ironstone

Massive limonite.

78120094/Mary River/087638

Ironstone with chert nodule

Ironstone consists of finely crystalline limonite and minor quartz. Nodule consists of granoblastic quartz mosaic.

78120105/Mary River/076664

Chert?

Microcrystalline quartz and chlorite? with minor coarser granoblastic patches of quartz.

78120181/Mary River/730786

Silicified dolomite

Microcrystalline quartz mosaic and granular Fe oxides, Fe oxides concentrated in fractures and brecciated areas.

78120182/Mary River/802670

Carbonaceous chialstolite hornfels

Randomly oriented altered chialstolite porphyroblasts (sericitised) set in a microcrystalline matrix of carbonaceous matter, minor quartz and sericite.

78120183/Mary River/730786

Sandy siltstone

Massive very fine sandy to silty angular quartz; sericite and patchy limonite.

78120184/Mary River/836662

Ferruginous siltstone with chert nodules

Irregular quartz mosaic containing about 40% Fe oxide granules and coarse-grained patches. Chert nodules consist of concentrically banded microcrystalline quartz and Fe oxides.

78120185/Mary River/777775

Ferruginous siltstone

Laminated, silty to fine-grained mosaic of reddish brown Fe oxides, quartz and minor sericite.

78120187/Mary River/832674

Chert

Microcrystalline quartz and opaque mosaic containing angular to rounded fragments? of microcrystalline quartz and sericite. Minor angular quartz grains. Numerous crosscutting veinlets of coarser recrystallised granuloblastic quartz.

78120188/Mary River/839678

Cordierite? carbonaceous hornfels

Laminated microcrystalline chlorite, sericite and opaques (carbonaceous matter). White cloudy spots (≤ 1 mm) cross-cutting and including the laminae are possibly altered cordierite.

Gerowie Tuff

78120058/Mary River/915698

Chert

Microcrystalline quartz and very fine-grained sericite.

78120059/Mary River/965678

Laminated chert

Microcrystalline quartz and granular Fe oxides.

78120060/Mary River/948640

Crystal Tuff

Fine-grained (≤ 0.5 mm) angular fragments of quartz and alkali feldspar in a recrystallised base of finer-grained angular and curved crystals and crystal fragments of quartz and alkali feldspar (K feldspar, albite), and minor biotite. Weak eutaxitic structure.

78120061/Mary River/969722

Crystal tuff

same as 78120060.

78120062/Mary River/959664

Crystal tuff

same as 78120060.

78120063/Mary River/915698

Crystal tuff

same as 78120060.

78120064/Mary River/965678

Crystal tuff

Similar to 78120060. Spotted appearance caused by coarser recrystallised patches of feldspathic base depleted in opaques.

78120065/Mary River/976690

Tuffaceous chert

Microcrystalline quartz, feldspar? and opaques form a base containing scattered angular fragments of quartz and sericitised feldspar.

78120066/Mary River/981722

Tuffaceous chert

Angular, curved and elongate splinters of quartz and minor feldspar in a microcrystalline base of quartz, feldspar and sericite.

78120067/Mary River/996709

Tuffaceous chert

Similar to 78120066.

Finer-grained equivalent to spotted crystal tuffs.

78120068/Mary River/055613

Lithic arenite

Coarse-grained, poorly sorted angular grains and splinters of quartz, chert (silicified dolomite and tuffaceous chert) and sericitised feldspar in a finer-grained matrix of the same composition. Trace amounts of monazite? and opaques.

78120070/Mary River/998709

Lithic arenite

Same as 78120068.

78120071/Mary River/915698

Lithic tuff

Microcrystalline quartz and fine-grained sericite and opaques form a base containing streaked and flattened ghost fragments (<1 cm). Forms graded beds up to 15 cm thick. Similar to 78120095.

78120084/Mary River/075636

Crystal tuff

Same as 78120060, feldspars sericitised, Fe oxides and fine-grained chlorite are present in the base.

78120085/Mary River/059634

Tuffaceous chert

Same as 78120066, feldspars sericitised.

78120086/Mary River/061640

Tuffaceous chert

Scattered angular and curved fragments of quartz and rare monazite? and opaques in a microcrystalline base of quartz and chlorite. Suggestion of a eutaxitic fabric.

78120087/Mary River/070637

Chert

Microcrystalline quartz, chlorite? and opaques.

78120088/Mary River/066647

Chert

Same as 78120087.

78120089/Mary River/077632

Crystal tuff

Same as 78120060, sericitised.

78120090/Mary River/077630

Tuffaceous chert

Euhedral crystals and fragments of quartz and sericitised feldspar in a microcrystalline base of quartz, sericite and opaques.

78120091/Mary River/033633

Chert

Microcrystalline quartz and sericite interlaced by a network of coarser granoblastic quartz.

78120092/Mary River/078634

Tuffaceous chert

Same as 78120066.

78120095/Mary River/088639

Crystal lithic tuff

Similar to 78120071. Angular crystal fragments (<0.5 mm) of sericitised feldspar, quartz and biotite, and rounded fragments (<5 mm) of tuffaceous chert (as in 78120066) in a matrix of the same composition.

78120192/Mary River/767760

Banded iron formation

Laminated fine-grained to microcrystalline quartz, Fe oxides and minor sericite.

78120193/Mary River/755773

Chert

Microcrystalline quartz and sericite

78120194/Mary River/852718

Chert

Microcrystalline quartz, sericite and Fe oxides containing coarser-grained patches of granoblastic quartz, and muscovite.

78120195/Mary River/860728

Chert

Microcrystalline quartz, chlorite and granular Fe oxides.
May be devitrified glass?

78120197/Mary River/782768

Crystal tuff

similar to 78120060

78120198/Mary River/861698

Argillite

Microcrystalline sericite quartz and scattered brown Fe oxides

78120199/Mary River/855728

Carbonaceous shale?

Microcrystalline chlorite, quartz, sericite, cloudy opaques
(carbonaceous matter?) and granular Fe oxides.

78120200/Mary River/900620

Crystal tuff

Very fine-grained angular and splintery crystal fragments of
quartz, feldspar and trace biotite in a microcrystalline
groundmass of quartz, feldspar, chlorite and opaques.
Suggestion of a eutaxitic fabric. Laminated.

78120201/Mary River/869698

Crystal tuff

same as 78120060

Kapalga Formation

78120073/Mary River/975674

Silicified dolomite

Patchy very fine to coarse-grained granoblastic quartz mosaic.

78120074/Mary River/956666

Devitrified glassy crystal tuff

Very fine-grained angular and splintery fragments of quartz and minor alkali feldspar (<0.1 mm) in a eutaxitic base of devitrified glassy shards, mineral fragments, fine-grained chlorite and patchy carbonate.

78120075/Mary River/946639

Feldspathic volc-arenite

Coarse-grained, very poorly sorted, angular fragments of quartz, minor alkali feldspar, chert, and felsic volcanic rocks. Secondary chloritic and sericitic alteration. Volcanic rock fragments consist of tuffaceous chert, crystal tuff (same as those in the Gerowie Tuff) and microperthite.

78120076/Mary River/956666

Banded iron formation

Laminated microcrystalline quartz, limonite (after pyrite) and hematite.

78120077/Mary River/999705

Laminated chert

Microcrystalline to fine granoblastic quartz and secondary limonite (after hematite?)

78120190/Mary River/755732

Ferruginous siltstone

Microcrystalline quartz, sericite and minor Fe oxides.

78120191/Mary River/801628

Banded iron formation

Laminated microcrystalline quartz, containing carbonate rhombs and granules, and bands of coarser-grained Fe oxides, which in places replaces carbonate and infills crosscutting fractures.

78120203/Mary River/789628

Banded iron formation

Laminated fine-grained hematite, limonite and minor quartz.

78120209/Mary River/797628

Ferruginous siltstone

Laminated, silty quartz, fine-grained sericite and brown Fe oxides.

Burrell Creek Formation

78120179/Mary River/765620

Siltstone

Laminated and very fine-grained silty quartz, sericite and Fe oxides.

78120204/Mary River/781705

Quartz greywacke

Coarse poorly-sorted angular grains of quartz, chert and minor feldspar set in finely recrystallised matrix of quartz, feldspar, randomly oriented biotite and muscovite and minor opaques. Within contact aureole of the Mount Bundey Granite.

78120206/Mary River/734635

Quartz greywacke

Medium poorly sorted subangular grains of quartz, and quartz-sericitic rock fragments, and minor deformed muscovite in a matrix of quartz, sericite, opaques and trace rounded tourmaline, and zircon.

78120208/Mary River/768618

Phyllite

Fine-grained sericite and quartz with hematite and limonite-rich laminae. Minor scattered subangular silty quartz grains.

79120210/Mary River/743662

Shale

Laminated fine-grained Fe oxide-stained sericite and microcrystalline quartz with minor silty quartz laminae. A weak foliation is present, marked by alignment of sericite at a low angle to the laminae.

79120211/Mary River/726640

Chloritic phyllite

Fine-grained weakly foliated greenish brown chlorite, sericite and minor scattered silty quartz grains.

79120212/Mary River/768618

Tuffaceous? argillite

Scattered angular and curved splinters of quartz and feldspar (completely sericitised) in a microcrystalline base of quartz and sericite and minor opaques. Patchy development of secondary granules of brown Fe oxides.

78120213/Mary River/764632

Quartz greywacke

Fine poorly sorted subangular grains of quartz, and quartz-sericitic rock fragments, and minor deformed muscovite in a matrix of quartz, sericite, opaques and trace rounded tourmaline, and zircon.

78120214/Mary River/752671

Phyllite

Microcrystalline quartz and foliated fine-grained sericite with minor scattered silty quartz and opaque grains.

78120216/Mary River/726640

Tuffaceous? argillite

same as 78120212

78120217/Mary River/743662

Quartz greywacke

Medium poorly sorted subangular grains of quartz, and quartz-sericitic rock fragments, and minor deformed muscovite in a matrix of quartz, sericite chlorite, opaques and trace rounded tourmaline, and zircon.

78120218/Mary River/765708

Phyllite

Weakly foliated fine-grained sericite and microcrystalline quartz.

Petrel Formation

78120099/Mary River/130809

Limonitic quartz sandstone

Very coarse-grained, moderate to poorly sorted, well-rounded quartz grains rimmed by limonite.

Mount Bundey Granite

78120231/Mary River/822743

Granite

Coarse-grained irregular perthitic orthoclase and quartz (25%) with minor graphic intergrowths around feldspar grain boundaries, minor altered tabular plagioclase (sericite and carbonate alteration), corroded green to very pale brown hornblende (commonly containing inclusions of biotite, sphene and an opaque mineral), and irregular grains and aggregates of biotite partially altered to chlorite. Accessory minerals include euhedral sphene, apatite, zircon, allanite, epidote and opaque minerals.

78120232/Mary River/821755

Granite

Same as 78120240

Biotite is mostly altered to chlorite.

78120233/Mary River/851760

Granite

Fine-grained version of 78120240

78120234/Mary River/785789

Granite

Consists mainly of coarse-grained subhedral perthitic microcline and anhedral quartz (30%) graphically intergrown in places. Minor tabular plagioclase and trace amounts of altered biotite, apatite and opaque minerals. Similar to 78120238 but richer in K-feldspar.

78120235/Mary River/779727

Granite

Similar to 78120231

Sphene is commonly altered to an opaque mineral, and amphibole, which occurs as euhedral prisms in places, is partially altered to biotite. Scattered decussate aggregates of foxy red biotite, granular hornblende, an opaque mineral and apatite.

78120236/Mary River/787713

Granite

Same as 78120240

78120237/Mary River/840705

Granite

Same as 78120238 but less graphic intergrowth of quartz and feldspar. Biotite is only partially altered to chlorite.

78120238/Mary River/841693

Granite

Medium-grained allotriomorphic quartz (50%), perthitic orthoclase, minor altered plagioclase, very minor chlorite (after biotite), opaques and trace amounts of apatite and carbonate. Quartz and feldspar are commonly graphically intergrown. Leucocratic version of 78120240.

78120239/Mary River/837698

Granite

Similar to 78120231 except that both orthoclase and plagioclase are commonly zoned and amphibole is mostly euhedral. Also contains small clots of euhedral hornblende, apatite and anhedral quartz surrounded by biotite and an opaque mineral-rich rim.

78120240/Mary River/828717

Granite

Coarse-grained irregular perthitic orthoclase crystals, commonly rimmed by graphic intergrowths with quartz, anhedral quartz (40%) and minor tabular plagioclase with altered zoned cores. Accessory minerals include sphene, apatite, and opaques. Biotite and dark green hornblende (altered to a brownish mineral in places) are present in minor amounts and are commonly form round inclusions with quartz in orthoclase. Similar to 78120231 but more leucocratic.

78120241/Mary River/844703

Granite

Same as 78120231

Dark greenish-brown biotite is only present as an alteration product of hornblende, which occurs both as euhedral crystals and irregular grains moulding feldspar euhedra.

Mount Goyder Syenite

78120030/Mary River/912787

Syenite

Coarse-grained, porphyritic, massive rock containing phenocrysts of subhedral pink K-feldspar (perthitic in places) and finer-grained interstitial anhedral green hornblende and minor quartz. Minor clinopyroxene occurs as altered euhedral inclusions in feldspar or as altered cores within hornblende. Accessory minerals include subhedral magnetite, sphene, euhedral apatite, zircon, epidote, and biotite.

78120031/Mary River/897786

Syenite

Medium-grained, porphyritic massive rock containing phenocrysts of subhedral K-feldspar, greenish brown twinned and zoned hornblende, and minor biotite in an allotriomorphic groundmass of alkali feldspar, minor quartz, biotite and hornblende. Rare clinopyroxene forms altered cores in some hornblende crystals. Accessory minerals are subhedral sphene, magnetite and apatite. The K-feldspar phenocrysts are commonly zoned, perthitic, and rarely contain inclusions of euhedral hornblende.

78120032/Mary River/881802

Syenite

Coarse-grained porphyritic rock consisting of euhedral pale pink K-feldspar phenocrysts (commonly zoned, with albite cores) in a hypidiomorphic granular groundmass of K-feldspar, golden brown biotite, colourless clinopyroxene commonly partially replaced by pale green amphibole and trace amounts of anhedral quartz, sodic plagioclase, apatite and magnetite. Magnetite and biotite commonly replace amphibole.

78120225/Mary River/813786

Syenite

Coarse-grained (<1cm) massive rock consisting of subhedral, slightly perthitic K-feldspar (orthoclase), pale green to pale brown anhedral hornblende, biotite and abundant accessory apatite, opaques, zircon, and trace amounts of anhedral quartz. Some hornblende appears to be replacing remnant cores of clinopyroxene. Similar to 78120226 but finer-grained and non-porphyritic.

78120226/Mary River/

Syenite

Coarse-grained porphyritic rock consisting of K-feldspar, colourless to pale green amphibole, biotite, clinopyroxene, trace plagioclase and abundant accessory apatite, zircon, sphene and opaques.

K-feldspar occurs as perthitic tabular phenocrysts (<2cm) commonly containing inclusions of subhedral biotite, clinopyroxene (altered to dark green amphibole and biotite in places), and apatite. The groundmass consists predominantly of amphibole, euhedral apatite and zircon, opaque minerals and minor biotite and altered plagioclase. Biotite also occurs as inclusions in amphibole.

78120227/Mary River/778753

Syenite

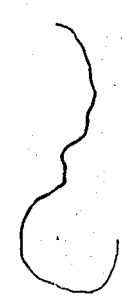
Similar in composition to 78120225

Fine-grained rock consisting of allotriomorphic perthitic K-feldspar, minor subhedral plagioclase, feldspar-quartz graphic intergrowths, pale greenish-brown hornblende, colourless clinopyroxene, biotite, quartz (5%), and accessory apatite, opaques and zircon. Clinopyroxene occurs as remnant cores to some larger hornblende crystals and is also replaced by biotite in places.

78120228/Mary River/803757

Syenite

Same as 78120225 except that clinopyroxene is not present and sphene is a common accessory mineral, interstitial to amphibole.



78120229/Mary River/834786

Syenite

Same as 78120225

Dyke rocks

78120033/Mary River/883796

Porphyritic felsite

Massive rock composed of rounded and embayed quartz (<1mm) and minor sericitised stout alkali feldspar phenocrysts in an altered groundmass of fine-grained K-feldspar prisms micrographic intergrowth, and minor quartz.

78120034/Mary River/989665

Felsite

Similar to groundmass of 78120033, veined by quartz.

78120037/Mary River/897638

Lamprophyre (minette)

Medium-grained porphyritic rock consisting of biotite, colourless amphibole, minor quartz and accessory magnetite and apatite. Euhedral pale brown biotite, and fibrous amphibole clots with biotite rich rims occur as "phenocrysts". The groundmass consists of finer-grained euhedral biotite, fibrous colourless amphibole, carbonate, magnetite, chlorite and apatite in a background of K-feldspar?

78120038/Mary River/897638

Lamprophyre (minette)

Fine-grained version of 78120037.

Also contains prismatic crystals of colourless clinopyroxene partly altered to biotite, and trace granular sphene in the groundmass.

78120039/Mary River/882801

Lamprophyre (minette)

Similar to 78120037.

Medium-grained porphyritic rock consisting of pale brown euhedral phenocrysts of biotite in a groundmass of fine-grained K feldspar, biotite, minor sodic plagioclase, interstitial quartz, patchy carbonate and trace amounts of acicular apatite.

78120040/Mary River/995710

Altered lamprophyre (minette?)

altered version of 78120037

Medium-grained porphyritic rock consisting of biotite (altered to muscovite, quartz and Fe oxides) and euhedral feldspar (altered to quartz and muscovite) phenocrysts in a groundmass of fine-grained quartz, Fe oxides and muscovite.

78120041/Mary River/995710

Altered lamprophyre (minette?)

altered version of 78120039

Minor medium-grained euhedral phenocrysts of biotite, commonly altered to muscovite and opaques, and feldspar (completely sericitised) in a allotriomorphic granular groundmass of cloudy K feldspar, muscovite and opaques.

78120050/Mary River/899723

Porphyritic felsite

Phenocrysts consist of embayed subhedral and rarely euhedral quartz (<2 mm), and minor sericitised feldspar, which also commonly rims the quartz phenocrysts. The groundmass consists of alkali feldspar, quartz, muscovite and opaques. Fe oxides pseudomorph scattered pyrite.

78120051/Mary River/881801

Porphyritic felsite

Similar to 78120050

78120069/Mary River/965678

Altered Porphyritic felsite

Irregular quartz-sericite mosaic containing relict feldspar phenocrysts now replaced by sericite, quartz and opaques.

78120072/Mary River/990665

Altered felsite

Fine-grained granoblastic quartz and sericite mosaic containing relict fine-grained (≤ 1 mm) euhedral feldspar crystals and aggregates pseudomorphed by sericite. Similar to 78120069.

78120180/Mary River/779797

Altered porphyritic felsite

Embayed, euhedral quartz phenocrysts (≤ 1 mm) in a fine-grained allotriomorphic groundmass of quartz sericite (altered feldspar) and opaques.

78120219/Mary River/785837

Altered lamprophyre (minette)

Similar to 78120040, but more ferruginous

78120230/Mary River/809756

Altered minette ?

Dyke intruding granite similar to 78120231

Fine-grained porphyritic rock consisting of "phenocrysts" which have been completely replaced by fibrous tremolite/actinolite with a rim of biotite, in a groundmass of fibrous amphibole, biotite, zircon, opaque mineral, sphene, apatite needles and feldspar. The altered "phenocrysts" are concentrated along the contact with the granite and in places the groundmass material penetrates fractures in granite.

APPENDIX 2 - SUMMARY OF DRILLHOLE DATAMundogie 54

Location: Mundogie 1:100 000 Sheet area, GR 253477

Access: Near the Pine Creek - Jim Jim Road, about 1 km east of the
abandoned Barramundie Homestead

Coring: 99' - 102'

Total Depth: 102'

Description:

<u>CAINOZOIC</u>	0' - 10'	laterite, milky quartz
	10' - 20'	weathered light green mica schist, green clay
	20' - 99'	weathered green mica quartz schist, minor
MASSON		feldspathic quartzite, yellow and orange impure
FORMATION		dolomite, clear quartz
	99' - 102'	crenulated dolomite - mica - quartz schist with minor bands of feldspathic quartz dolomite

Thin section descriptions (Appendix 2)

sample No's 78120022 (101') DOLOMITE-MUSCOVITE-QUARTZ SCHIST

78120023 (102') MUSCOVITE-QUARTZ-DOLOMITE-SCHIST

Mundogie 55

Location: Mundogie 1:100 000 Sheet area, GR 252475

Access: Near the Pine Creek - Jim Jim road, about 1 km east of the
abandoned Barramundie Homestead

Coring: 90' - 94'

Total depth: 94'

Description:

<u>CAINOZOIC</u>	0' - 10'	laterite, milky quartz, quartzite
	10' - 20'	weathered green mica schist, green clay, milky quartz, quartzite
	20' - 50'	green mica quartz schist (80%), feldspathic quartzite with bands of mica-quartz schist, milky quartz
	50' - 90'	green mica-quartz schist (70%), banded feldspathic quartzite and mica-quartz schist, yellow quartz
MASSON		dolomite, milky quartz
FORMATION	90' - 92'	quartzite with bands of mica-quartz schist, veined by quartz
	92' - 93.5'	crenulated green dolomite-quartz-mica schist, veined by quartz and hematite
	93.5' - 94'	feldspathic dolomitic quartzite

Thin section descriptions (Appendix 2)

sample No's 78120024 (93') DOLOMITE-QUARTZ-MICA SCHIST
 78120025 (94') FELDSPAR-DOLOMITE-QUARTZITE

Mundogie 56

Location: Mundogie 1:100 000 Sheet area, GR 250474

Access: Near the Pine Creek-Jim Jim road, about 1 km east of the
 abandoned Barramundie Homestead

Coring: 102' - 112'

Total depth: 112'

Description:

CAINOZOIC	0' - 10'	pale green sandy clay, milky quartz, yellow and hematitic quartzite
	10' - 30'	pale green weathered mica schist, red, yellow and orange siliceous dolomite, pale green clay, milky quartz
MASSON	30' - 60'	pale to dark green weathered mica schist, red and orange dolomite, milky quartz
FORMATION	60' - 90'	green mica schist, orange and minor white dolomite, minor white clay and milky quartz
	90' - 100'	dark green mica schist, minor yellow dolomite and milky quartz
	100' - 112'	green quartz-muscovite-biotite schist and dolomite-quartz-mica schist with bands of white dolomite up to 20 cm thick

Thin section descriptions (Appendix 2)

sample No's 78120026 (103') FELDSPAR-QUARTZ-DOLOMITE
 78120027 (105') QUARTZ-DOLOMITE-MICA SCHIST
 78120028 (112') DOLOMITE-QUARTZ-MICA SCHIST

Mundogie 57

Location: Mundogie 1:100 000 Sheet area, GR 249473

Access: Near the Pine Creek-Jim Jim road, about 1 km east of the
 abandoned Barramundie Homestead

Coring: no core

Total depth: 190'

Description:

CAINOZOIC	0' - 10'	pale green, dark grey and yellow sandy clay, milky quartz
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	10' - 30'	green mica schist, green and orange clay, orange quartzite, milky quartz
MASSON FORMATION	30' - 100'	green mica schist, orange quartzite, milky quartz
	100' - 130'	orange quartzite, minor green mica schist and milky quartz
	130' - 140'	orange quartzite, minor white to green mica schist and milky quartz
	140' - 190'	orange and pink quartzite, grey to green mica schist, milky quartz

Mundogie 58

Location: Mundogie 1:100 000 Sheet area, GR 248471

Access: Near the Pine Creek-Jim Jim road, about 1 km east of the abandoned Barramundie Homestead

Coring: 115' - 118'

Total depth: 118'

MASSON FORMATION	0' - 10'	red to orange quartzite, milky quartz, white to pale green clay
	10' - 20'	milky quartz, white to yellow sandy clay, orange quartzite
	20' - 115'	yellow, orange and brown quartzite (slightly feldspathic), pale green clay (weathered mica schist), milky quartz
	115' - 118'	pink feldspathic quartzite with foliated chloritic bands. Manganese dendrites are present on fracture surfaces

Thin section description (Appendix 2)

sample No 78120029 (116') QUARTZITE

Mary River 1

Location: Mary River 1:100 000 Sheet area, GR 964766

Access: Adjacent to the Arnhem Hwy. (north side) 11 km west of the Point Stuart Turnoff, on the southern slope of a small hill.

Coring: 130' - 133'6"

Total depth: 133'6"

ANNABURROO VOLCANIC MEMBER	0' - 130'	weathered carbonaceous shale and basic volcanic
	130' - 133'6"	interlayered pyritic dark grey, medium-grained basic volcanic rock and pyritic tuffaceous carbonaceous shale

Thin section descriptions (Appendix 2)

sample No's 78120019 (130') ALTERED ANDESITE

78120020 (133') TUFFACEOUS PYRITIC CARBONACEOUS SHALE

Mary River 2

Location: Mary River 1:100 000 Sheet area, GR 964766

Access: Adjacent to the Arnhem Highway (north side) 11 km west of the Point Stuart Turnoff, 100 m north of drillhole Mary River 1 on top of a small hill.

Coring: 120' - 125'

Total depth: 125'

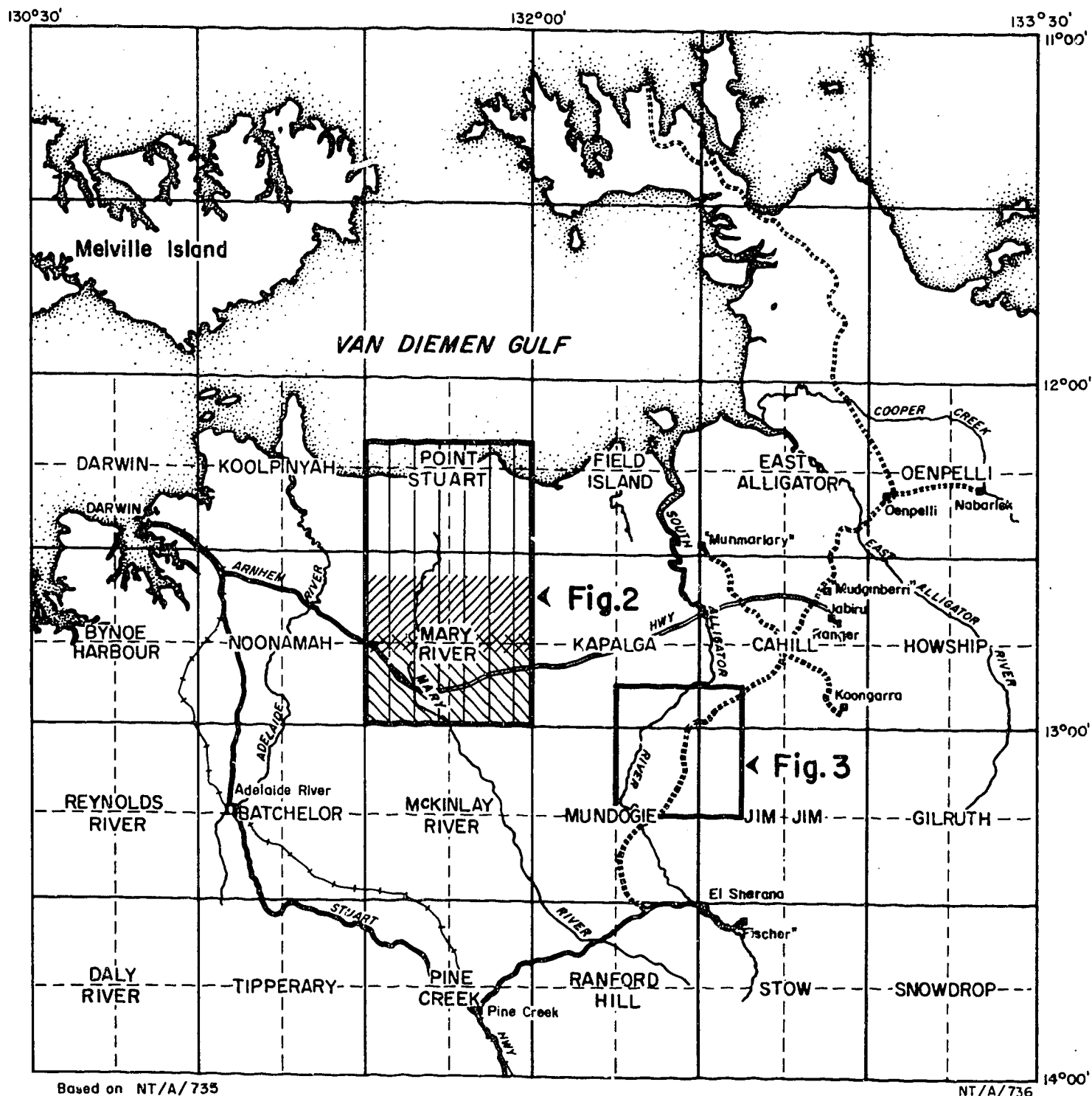
Description: 0' - 120' weathered massive basic volcanic

ANNABURROO 120' - 125' massive pyritic altered (chlorite, carbonate),
VOLCANIC basic volcanic, extensively veined by carbonate

MEMBER

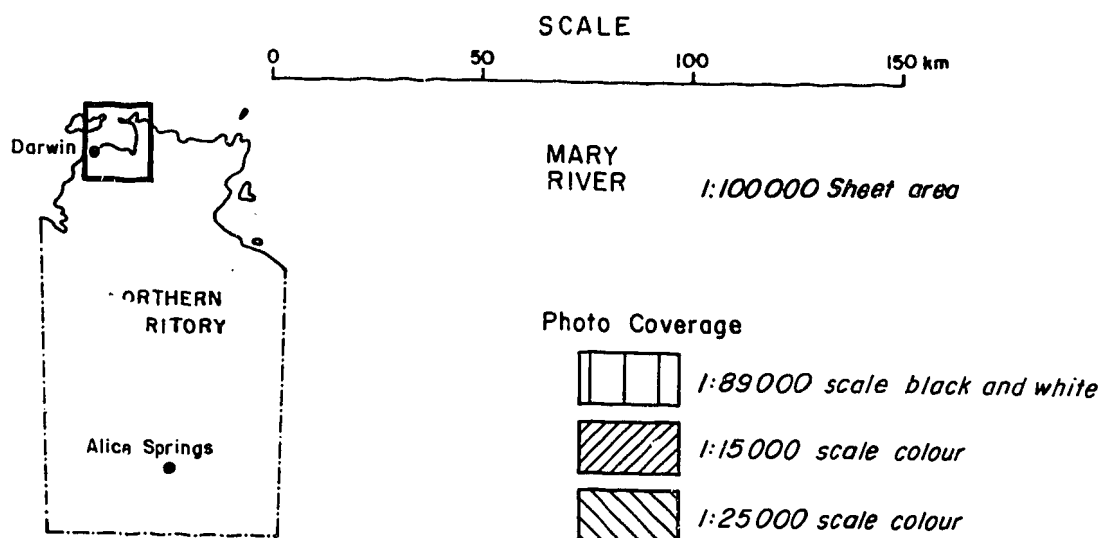
Thin section description (Appendix 2)

sample No 78120021 (125') ALTERED AMYGDALOIDAL ANDESITE



Based on NT/A/735

NT/A/736



RECORD 1980/15

Figure 1 1:100 000 SHEET AREAS AND AREAS INVESTIGATED IN 1978

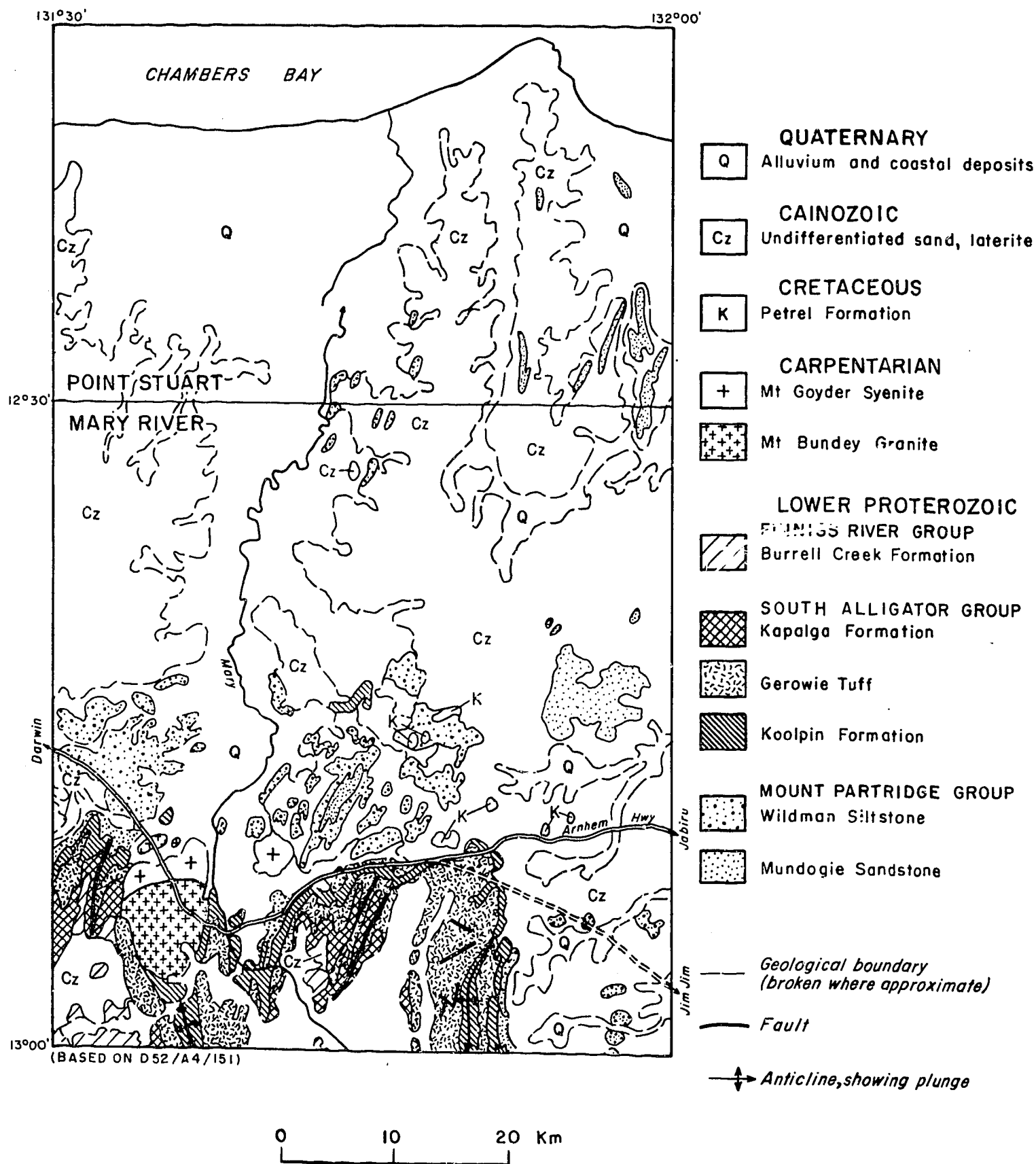
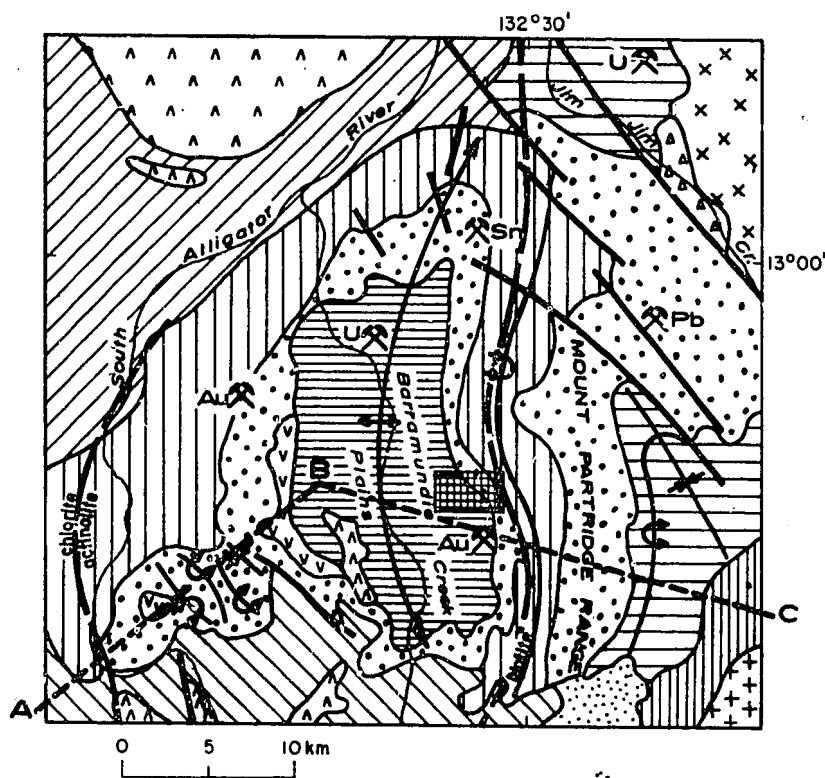
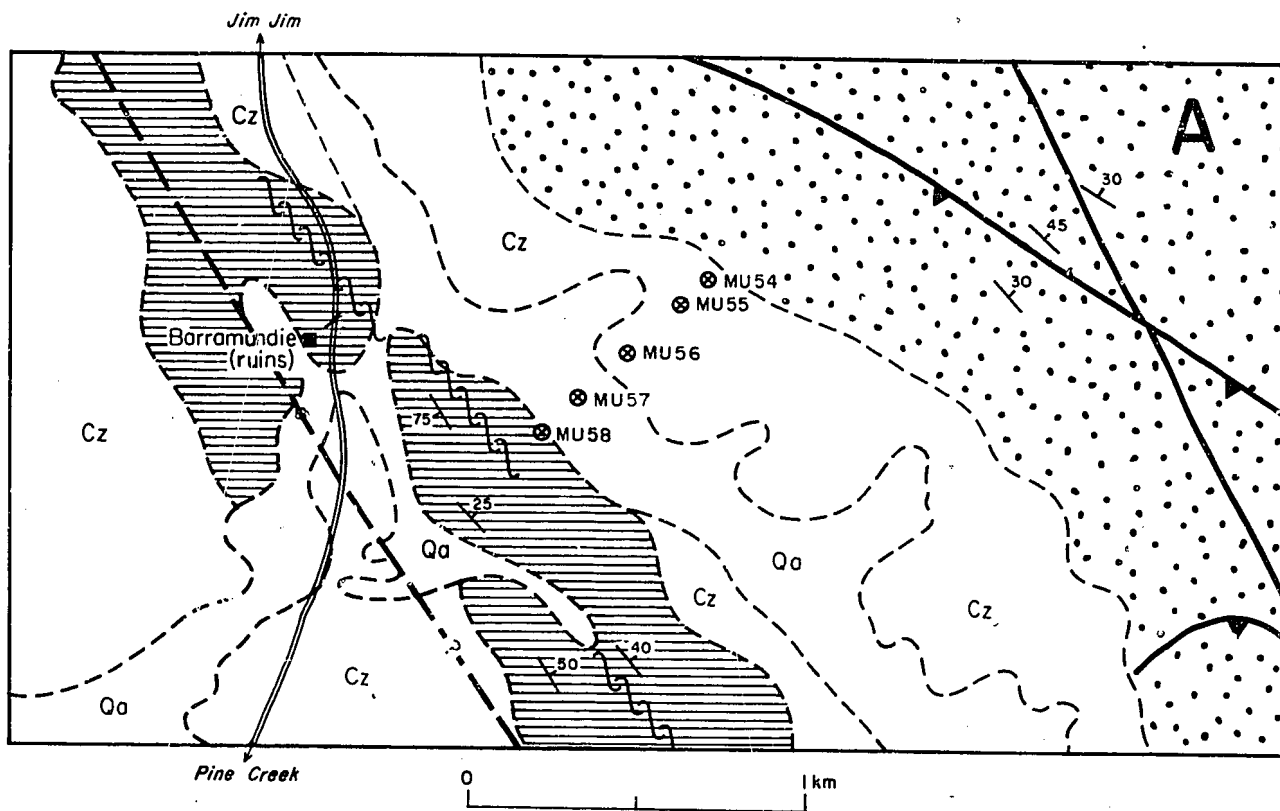


Figure 2 GENERALISED GEOLOGY OF THE MARY RIVER AND POINT STUART 1:100 000 SHEET AREAS

D 52/A4/172



- Qa Quaternary
- Cz Cainozoic
- Kombalgie Formation
- Jim Jim Granite
- Dolerite
- Kapalga Formation
- Koolpin Formation
- Wildman Siltstone
- Nourlangie Schist
- Mundogie Sandstone
- Stag Creek Volcanics
- Cahill Formation
- Masson Formation
- Mount Basedow Gneiss
- Nanambu Complex

Area shown in A

⊗ MU55 Drill hole

Geological boundary

Fault

Trend

Unconformity

Syncline

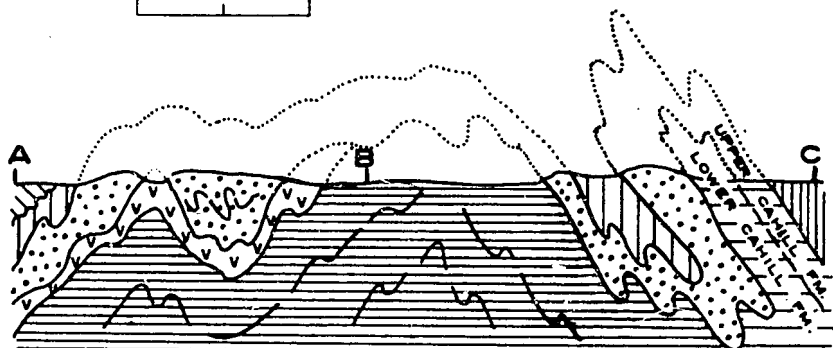
Anticline

Overturned syncline

Overturned anticline

Strike and dip of strata

Sheared zone



NT/A/737

RECORD 1980/15

Figure 3 GEOLOGICAL SETTING AND SHALLOW STRATIGRAPHIC DRILLHOLE LOCATIONS, BARRAMUNDIE CREEK DOME

NT/A/737

GEOLOGICAL LOG OF DRILL HOLE

PROJECT MARY RIVER STRATIGRAPHIC HOLE

REMARKS

HOLE NO DDH 1CO-ORDINATES S272 860715R.L. GROUND 0-20mLOCATION MARY RIVER BRIDGEANGLE FROM HORIZONTAL 60DIRECTION 15 74 73

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
0-18.5m No core			
18.50-19.70m broken black cherty spotted tuff			
19.70-20.85m as above - weathered with abundant clay and chloritization			
20.85-25.70m broken black cherty tuff			
25.70-26.95m thinly laminated 1-4mm black and grey silicified siltstone			
26.95-27.80m black massive chert			
27.80-28.10m weathered greenish lithic tuff & phenocrysts of feldspar up to 4mm - chlorite and mica			
28.10-30.85m brittle silicified siltstone, dk greyish black laminations 1-5mm in thickness of lighter siliceous material			
30.85-31.50m dense chloritized rock, biotite 5% set in a matrix of grey greenish chloritized matrix with feldspar laths - weathered tuff			
31.50-32.95m silicified siltstone			
32.95-34.20m weathered tuff as from 30.85-31.50			
34.20-41.85m silicified siltstone, cherty greyish black and whitish interbeds, minor beds of spotted tuff			
41.85-42.70m weathered chloritized spotted tuff as from 30.85-31.50m			
42.70-58.50m dark greyish to black cherty siltstone with lighter coloured beds 1-4mm. (Sandy siliceous material) heavily chloritized from 58.00 to 58.50m			
58.50-59.30m weathered greyish speckled spotted tuff			
59.30-61.25m greyish black and whitish silicified cherty siltstone, laminated in part			
61.25-61.80m as from 58.50-59.30m			
61.80-86.75m light grey greenish blackish silicified cherty siltstone with banding some syngenetic pyritic beds and minor beds of spotted tuff			
86.75-87.60m coarse grained spotted tuff, rounded greyish green spots 3-4mm, chloritized and disseminated pyrite			
87.60-95.90m greyish black silicified cherty siltstone laminations of whitish silicified material 1-2mm. in thickness, sedimentary structures in chert - beaded syngenetic pyrite associated with whitish siliceous material.			
95.90-101.10m greyish black chert, some			

Weathered zone
Sample 20.45Sample 26.60m
Sample 27.95mSample 30.10m
laminations at 40° to CA
Sample 35.20m
bedding at 40° to CA.

bedding at 40° to CA.

Sample 47.60m

Sample 62.50m

banding 245° to CA.

Sample 76.30m
Sample 77.05mSample 82.10m
Sample 84.60m
Sample 86.80mbedding to CA 40°
Sample 94.80m

Sample 99.40m

REFERENCES

lithic and
spotted tuffsilicified siltstone
greyish black and
whitish interbedsLOGGED BY Michael RoartySHEET 1 OF 4DRAWING NO D52/A4/173

- greyish black massive chert with minor interbeds of spotted tuff.

RECORD 1980/15

GEOLOGICAL LOG OF DRILL HOLE

PROJECT MARY RIVER STRATIGRAPHIC HOLE REMARKS _____
 HOLE NO. DDH 1 CO-ORDINATES _____ R.L. GROUND _____
 LOCATION MARY RIVER BRIDGE ANGLE FROM HORIZONTAL 60 DIRECTION 75 74 73

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
chloritization evident on fracture planes. Qtz vein at 100.30 2cm. in thickness. 101.10 - 102.90m. spotted weathered altered chloritized tuff 102.90 - 110.65m. greyish to black chert 110.65 - 115.60m. interbeds of dense greyish to black cherty rock and greenish blackish spotted tuff, predominantly blackish cherty rock from 112.70 - 113.50m 115.60 - 118.25m. greyish blackish cherty siltstone with chloritization in part broken + brittle 118.25 - 118.65m. as from 110.65 - 115.60 118.65 - 130.15m. alternating light greyish 2-3cm and 1-2mm. greyish black cherty siltstone and minor interbeds of greyish greenish tuff 130.15 - 132.50m. similar to above but with the appearance of siliceous whitish nodules and bands sludge from 130.70 - 131.25 132.50 - 149.35m. alternating greyish black cherty siltstones with bands of syngenetic pyrite 1mm. // to bedding + predominantly associated with light grey silicified cherty rocks - beds vary from 1mm to 2-3mm. in thickness, brittle in most parts broken zones from 137.70 - 137.90m 149.35 - 154.05m. a gradational boundary to a dense greenish tuff, biotite evident 154.05 - 168.40m. a sequence similar to 132.50 - 149.35m. - alternating silicified cherty sediments (silicified carbonaceous matter in part) bands of siliceous material 3mm. in thickness associated with bedded pyrite silicified carbonaceous black shales 164.60 - 164.80 broken from 176.45 - 185 lighter coloured coarser siliceous units varying in thickness from 3mm. to 20cm 188.40 - 192.90m. massive greyish black cherts and silicified sediments, disseminated pyrite alteration products along fracture planes - carbonate & chlorite evident 192.90 - 193.40m. highly siliceous ophanitic greenish tuff 193.40 - 198.65m. alternating greyish blackish cherty sediments & greyish siliceous material	100 110 120 130 140 150 160 170 180 190 200	90% 90%	bedding at 40° to C.A. Sample 111.00m Sample 115.00 Sample 136.00 Sample 152.90m Sample 156.35m broken chloritized zone 161.50 Sample 169.00m carbonate infilling 170.75m. Qtz vein at 171.30m Sample 170.75m Sample 184.25 Sample 193.30m Sample 195.50m broken zone 198.55 - 198.70m.
REFERENCES	LOGGED BY	DRAWING NO	
198.65 - 198.75m. spotted greenish tuff	Michael Rearty	D52/A4/173	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT. MARY RIVER STRATIGRAPHIC HOLE REMARKS _____
HOLE N° DDH 1 CO-ORDINATES _____ R.L. GROUND _____
LOCATION MARY RIVER BRIDGE ANGLE FROM HORIZONTAL 60° DIRECTION 75 74 73

DESCRIPTION OF CORE	LOG	CORE RECOVERY %	SAMPLES
198.75 - 213.55m greyish black cherty sediments and very silicified blackish carbonaceous shales	200		Sample 201.10m at 201m pygmaic qtz veining 2.5cm. in thickness at 45° to CA.
	210	97%	chert nodules at 201.05 203.40 disseminated pyrite
213.55 - 222.80m black spotted cherty tuft	220		Sample 214.80m
222.80 - 227.60m black chert massive			
227.60 - 228.50m black spotted cherty tuft			chert nodules at 226.75
228.50 - 229.00m massive blackish cherts			Sample 229.25m
229.00 - 229.80m greenish f.g. spotted cherty tuft, chloritized.	230		Sample 232.65m
229.80 - 231.25m massive grey silicified sediment			
231.25 - 238.75m interbedded finely laminated in part, darkish greyish blackish cherts and interbedded blackish carbonaceous shales 1 to 3mm	240		Sample 241.45m
238.75 - 239.45m extremely chloritized altered greyish blackish cherts			
239.45 - 246.70m lithic greenish tuft chloritized fragments			Sample 248.25m
246.70 - 249.70m greyish blackish spotted cherty tuft	250	96%	
249.70 - 251.40m banded silicified cherty sediment with some greyish blackish chert with siliceous units 3mm in thickness			
251.40 - 257.05m predominantly spotted greyish blackish cherts with siliceous units 3mm in thickness	260		
257.05 - 258.05m banded siliceous material 1-3mm. in thickness with greyish blackish cherty sediment			
258.05 - 259.75m Spotted cherty tuft			Spotted tuft beds: 267.25 - 267.75 270.70 - 270.90
259.75 - 260.35m massive greyish blackish cherts			
260.35 - 263.20m predominantly spotted cherty tuft - weathered and brittle in part	270		
263.20 - 277.20m greyish blackish cherty sediments with interbeds of spotted tuft disseminated pyrite throughout			
277.20 - 280.45m greyish blackish cherty sediments - broken and brittle with disseminated pyrite	280		
280.45 - 300.60m spotted tuft, f.g. greyish spotted tuft with some coarser interbeds.	240		Sample 285.85m. coarser tuft interbeds @ 45° to CA coarser tuft interbeds at 285.85m. 291.10m. Sample 291.10m
	300		
REFERENCES	LOGGED BY	Michael Roarty	
	SHEET	3 of 4	
	DRAWING NO	D52/A4/173	

MARY RIVER/POINT STUART reference to plates 2-20 Scale of plates 1:100 000

PRECAMBRIAN	LOWER PROTEROZOIC	MOUNT PARTRIDGE GROUP		
MESOZOIC	CARBONATARIAN	FINNISS RIVER GROUP		
CAINOZOIC	QUATERNARY			

Qcm	Mud, silt: intertidal mangrove swamp
Qca	Silt, mud: coastal alluvium
Qcp	Clay, silt, mud: coastal mud pans
Qcr	Sand, shelly sand, coquina: coastal sand ridges, minor beach rock
Qa	Silt, sand, clay, locally consolidated grey sandy siltstone along some drainage courses: creek and river alluvium
Qs	Unconsolidated sand: outwash and colluvial deposits
Qas	Silt, clay: abandoned channel deposits
Qal	Silt, clayey silt: levee deposits
Cz	Skeletal soils, gradational red soils and yellow earth type soils
Cza	Winnowed sand, silt, clay: partially stripped Czs
Czs	Unconsolidated sand, ferruginous and clayey sand: undissected Koolpinyah Surface
Czl	Modular and concretionary laterite
K/Klm	Limonic coarse quartz sandstone, minor conglomerate and breccia
Egu	Coarse pink granite
Esg	Coarse pink syenite
Edi	Massive quartz dolerite
Bu	Laminated shale, siltstone and phyllite. Minor massive quartzose, feldspathic or calcareous greywacke
Bp	Laminated reddish-brown shale and siltstone with minor laminated black chert bands lenses and nodules, minor pyritic banded iron formation, argillite, crystal tuff, tuffaceous chert, massive medium feldspathic greywacke and silicified dolomite
Bvg	Laminated grey, brown and red silicified siltstone; blue grey and brown argillite; siliceous siltstone and shale; glassy black spotted crystal tuff and tuffaceous chert; minor tuffaceous greywacke and arenite.
Bsk	Ferruginous siltstone and shale with chert bands, lenses and nodules; silicified dolomite lenses; Ferruginous, siliceous and silty chert breccias commonly at base
Bpn	Deeply weathered ferruginous basic volcanics (pyritic amygdaloidal andesite at depth)
Bpw	Laminated colour banded shale (pyritic and carbonaceous at depth), silty shale, siltstone and sandy siltstone. Minor medium to coarse quartz sandstone (pyritic in places) and fine quartzite. Lenticular cross bedding, ripple marks, current lineations, flute markings and load casts present in places
Bpm	Fine to coarse quartz sandstone, quartzite and arkose; minor pebble conglomerate: Graded bedding, cross bedding and scour structures in places

- Geological boundary
- Anticline showing plunge
- Syncline showing plunge
- Fault
- Normal Fault
- Where location of boundaries, folds and faults is approximate line is broken; where inferred, queried; where concealed boundaries and folds are dotted, faults are shown by short dashes
- Plunge symbol on trend line
- Minor anticline with plunge
- Minor syncline with plunge
- Plunge of fold axis
- Vertical fold axis
- Strike and dip of strata
- Vertical strata
- Horizontal strata
- Strike and dip of overturned strata
- Strike and dip of strata showing proved direction of facing based on the sedimentary structures indicated by dot
- Trend line
- Lineament
- Joint pattern
- airphoto interpretation
- Stream with waterfall
- Waterhole
- Swamp
- Spring
- Road
- Vehicle track
- Landing ground
- Anneburroo Homestead
- Building
- Fence
- Yard
- Elevation in metres

- Strike and dip of joint
- Vertical joint
- Vertical foliation
- Strike and dip of cleavage
- Vertical cleavage
- Strike and dip of platy flow structure
- Dyke or vein, q-quartz, m-minette, a-aplite
- Dips without dip values are not measured. Where an individual plunge symbol does not show the plunge value, the plunge is not measured. Symbols for structural elements observed at a single point may be combined on the map, although to avoid repetition they may be shown separately in the reference
- Mine, minor abandoned Fe-iron
- Open cut quarry minor
- Open cut quarry minor abandoned
- Coastal or trench
- BMR drill hole; RDSH rotary drill scout hole
- Specimen locality

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Type and Scale of Photos used for Compilation

- 1:89 000 Black & White
- 1:15 000 Colour
- 1:25 000 Colour

