DEPARTMENT OF
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# BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS



Record 1975/79

## SHALLOW STRATIGRAPHIC DRILLING IN THE CAHILL AND JIM JIM 1:100 000 SHEET AREAS, ALLIGATOR RIVERS REGION, NT, 1974.

by

P.G. Stuart-Smith & I.G. Hone

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## SUMMARY

Two BMR drilling crews completed 133 shallow stratigraphic holes on three traverses near Mount Basedow, Koongarra, and Jabiru in the Jim Jim and Cahill 1:100 000 Sheet areas in August, September, and October 1974. The aims of the drilling program were to determine the stratigraphy and continuity of the 'Koolpin Formation equivalent' and other Lower Proterozoic rocks of the Pine Creek Geosyncline adjacent to the Nanambu Complex, and to obtain fresh core samples for petrographic and geochemical investigations.

Core and cuttings were logged on site, and selected cores were thin-sectioned for petrographic examination. All holes were logged for radioactivity, resistance, and self-potential.

Lower Proterozoic rock types intersected in the drill holes were quartzite, feldspathic quartzite, feldspathic quartz schist, feldspathic schist, mica schist, mica-quartz schist, calc-silicate rocks, gneiss, and amphibolite. Apart from minor retrograde metamorphism, the Lower Proterozoic rocks sampled are metamorphosed to the staurolite-almandine subfacies of the amphibolite facies, and have undergone at least four deformational phases, including two major periods of folding. Generally the Lower Proterozoic rocks are covered by 3 to 6 m of unconsolidated Cainozoic sediments and laterite, and are weathered to an average depth of about 25 m.

Identification of the Lower Proterozoic rock types intersected by the drilling enabled three distinct sequences referred to in this report as Units 1, 2, and 3, to be recognized. Unit 1 appears to overlie the Nanambu Complex conformably, and consists of pyritic carbonaceous mica schist, feldspathic quartzite and quartz schist carbonate rocks and calc-silicate rocks. Unit 2 consisting of feldspathic quartzite, quartz schist, and minor mica schist and amphibolite, conformably overlies Unit 1. Unit 3 consists of mica schist, mica-quartz schist, and amphibolite; it conformably overlies Unit 2.

Units 1 and 2 form the 'Koolpin Formation equivalent', and Unit 3 is correlated with the Fisher Creek Siltstone. Airborne magnetics, airphoto trend lines and semi-detailed mapping show that the units are continuous between the drill traverses. Rocks of Units 1 and 2 are more magnetic than those of Unit 3, and Unit 1 has a higher radioactivity than Units 2 and 3. Unit 1 is thought to correlate with the host rocks of the uranium deposits of the Alligator Rivers region.

## INTRODUCTION

A program of shallow stratigraphic drilling was carried out by the Bureau of Mineral Resources during August, September, and October 1974 in the Jim Jim and Cahill 1:100 000 Sheet areas within the Alligator Rivers Uranium Field, which is centred about 250 km east of Darwin (Fig. 1).

The main objectives of the drilling were:-

1. To determine the continuity and nature of the 'Koolpin Formation equivalent' which is host to uranium mineralization in the area.

2. To obtain fresh core samples for petrographic and geochemical investigations.

3. To investigate the stratigraphy of the metamorphosed Lower Proterozoic rocks adjacent to the Nanambu Complex.

## REGIONAL SETTING

The Alligator Rivers Uranium Field lies in the eastern part of the Pine Creek Geosyncline. The area is underlain by Lower Proterozoic sediments and basic intrusives which were metamorphosed about 1830 m.y. ago to form schist, quartzite, amphibolite, gneiss, migmatite, and granitic rocks. Precambrian rocks units in and near the area are summarized in Table 1. Schist, quartzite, and amphibolite sequences, not differentiated by Walpole et al. (1968), were identified in recent BMR mapping as the facies equivalents of the Koolpin Formation and the Fisher Creek Siltstone of the South Alligator Group (Needham & Smart, 1972; Smart et al., 1975). The gneiss, migmatite, and granitic rocks make up the Nanambu and Nimbuwah Complexes (the Nanambu Complex is known to contain Archaean basement R.W. Page, pers. comm.). A transition from Mount Partridge Formation arkose to Nanambu Complex gneiss can be seen at Mount Basedow.

TABLE 1. ROCK UNITS MENTIONED IN THIS REPORT

| UNIT | LITHOLOGY | RELATIONSHIPS | AGE |
|---|---|---|---|
| Kombolgie Formation | Quartz sandstone, minor conglomerate, siltstone, basalt, tuffaceous siltstone | Overlies older units with marked regional unconformity | Carpentarian |
| | MAJOR UNCONFORMITY | | |
| Nimbuwah Complex | Migmatite, gneiss, granitic rock, schist | Incipiently migmatized margin transitional into Cahill Formation and Fisher Creek Siltstone | Lower Proterozoic |
| Zamu Complex | Amphibolite, metadolerite | Intrudes older units as sills | Lower Proterozoic |
| Fisher Creek Siltstone | Micaceous schist, metasiltstone, phyllite | Transitionally overlies Cahill Formation | Lower Proterozoic |
| Cahill Formation | Quartzite, quantzo-feldspathic schist, micaceous schist, minor carbonaceous schist, carbonate | Probably unconformable on Nanambu Complex and Mount Partridge Formation and calc-silicate rock | Lower Proterozoic |
| Mount Partridge Formation | Arkose, sandstone, siltstone, phyllite, minor conglomerate | Where migmatized, transitional into Nanambu Complex | Lower Proterozoic |
| Nanambu Complex | Leucocratic gneiss, biotite gneiss, granite, schist | Contains Archaean granite and gneiss and metamorphosed partly differentiated Lower Proterozoic material | Archaean-Lower Proterozoic (2500-1800 my) |

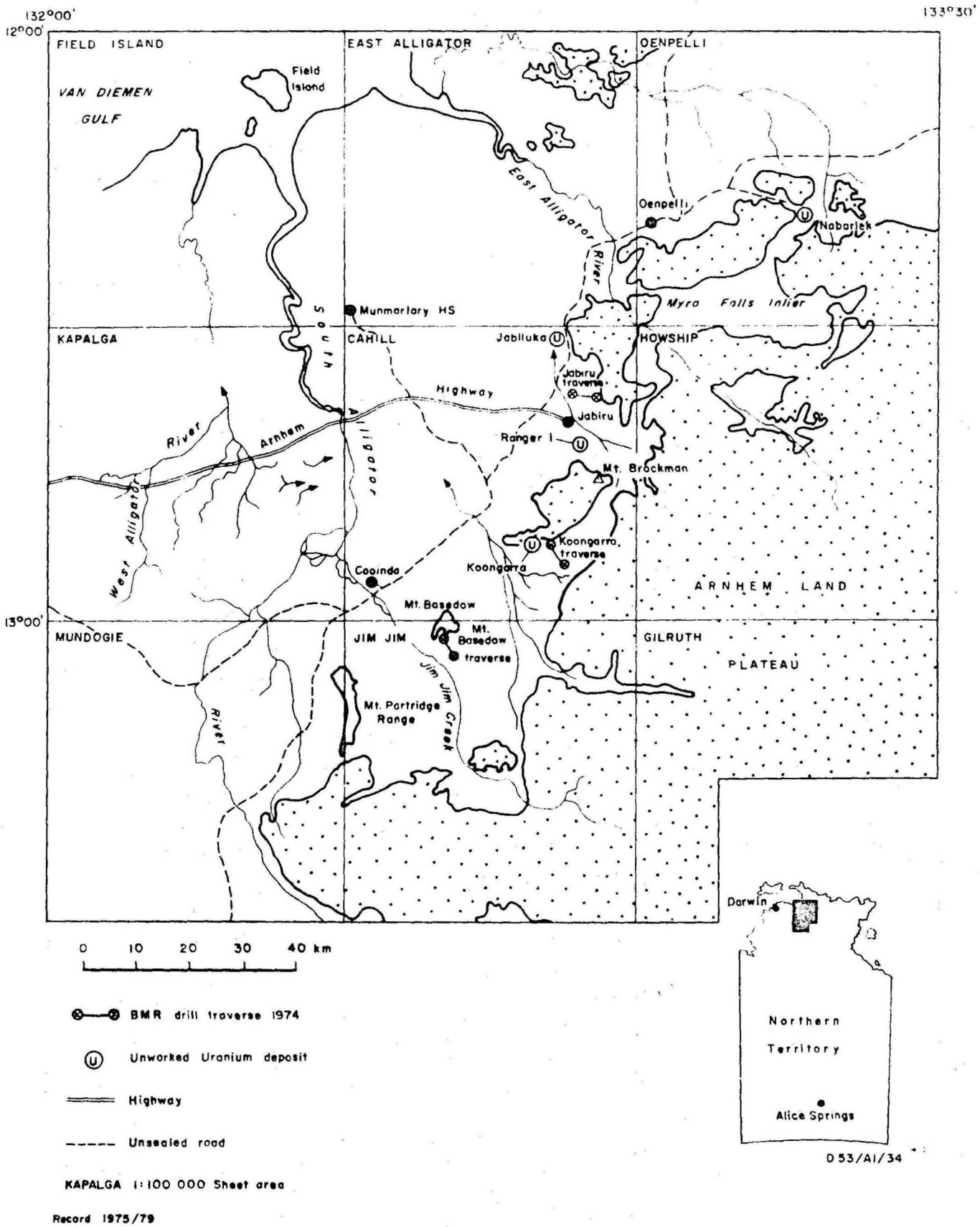


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Fig. 1 Location map, Alligator Rivers Region, showing positions of 1974 BMR drill traverses

The Archaean to Lower Proterozoic rocks are unconformably overlain to the east and south by Carpentarian sandstone and interbedded volcanics (Kombolgie Formation), which form the deeply dissected Arnhem Land Plateau.

A veneer of Mesozoic sediments, thickening to the north, and Cainozoic sand, alluvium, and laterite cover most of the peneplaned Lower Proterozoic rocks, and form flat or gently undulating plains between the Arnhem Land Plateau and Van Diemen Gulf. Broad floodplains of the South Alligator and East Alligator Rivers cover much of the northern part of the plain.

A detailed account of the regional geology of the Alligator Rivers Uranium Field is given by Smart et al. (1975), and the geology of the Cahill and Jim Jim 1:100 000 Sheet areas has been described by Needham & Smart (1972) and Needham et al. (1975).

LOCATION OF TRAVERSES

Traverses of 20 holes each were sited near Mount Partridge, Mount Basedow, Koongarra, and Jabiru over low-lying plains almost devoid of rock exposure. The traverses were located in unmineralized, relatively accessible areas close to adequate water supplies. Of the four traverses planned, only three were completed. The Mount Partridge traverse was not drilled owing to the boggy condition of the access track following heavy unseasonal August rains.

Traverses were oriented as near as possible across regional strike, but in places, such as in the middle of the Koongarra traverse, the traverse line paralled the strike for short distances in areas of tight or isoclinal folding.

Altogether 60 holes were drilled at 50-m spacing southeast from Mount Basedow on a magnetic bearing of 150°. To obtain a complete section of 'Koolpin Formation equivalent' rocks, ten additional holes were drilled extending the traverse 700 m to the northwest, to where Mount Partridge Formation gneiss crops out at the foot of Mount Basedow (Fig. 2). Access was along the Jim Jim Falls track.

The Koongarra traverse, about 4 km northeast of Koongarra, follows a magnetic bearing of 150° for 6080 m. Thirty-one holes were drilled at 200-m spacing, and two holes at 80-m and 100-m spacing (Fig. 3). A track running northeast from Koongarra provided access to the western end of the traverse.

The Jabiru traverse, positioned midway between the Ranger 1 and Jabiluka uranium deposits, follows a magnetic bearing of 285° for 4400 m from the Arnhem land escarpment. Twenty-three holes were drilled at 200-m spacing, and an additional seven holes were drilled at closer spacing (50 m and 100 m) within the traverse to obtain more detailed information on the rocks which immediately overlie the Nanambu Complex (Fig. 4). A track running north from Jabiru provided access to the western end of the traverse.

## METHODS

### Drilling and sampling

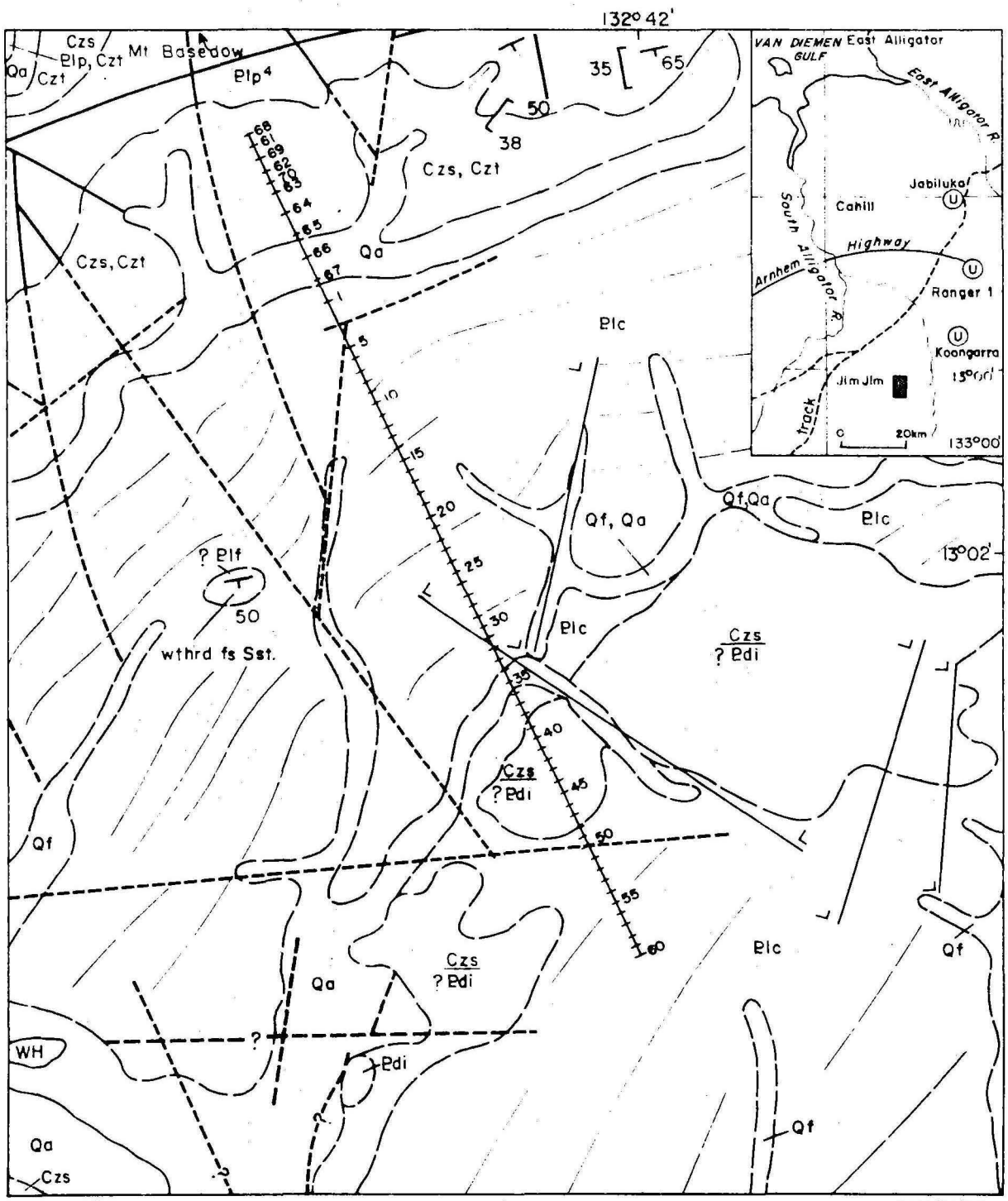
Two BMR drilling crews (leader E. Cherry) using Mayhew 1000 rotary mobile rigs, completed 133 vertical holes with an average depth of 27.0 m (88.6 ft) and a maximum depth of 62.2 m (204 ft) between August 2 and October 17, 1974.

Drill sites were marked out using a surveyor's chain and compass. Normally holes were begun with a 4.5-inch-diameter 'Hawthorne' tungsten bit, and, as the rock became harder, a 4.5-inch-diameter roller bit was used until fresh rock was reached. During the drilling, chip samples were collected with the aid of a fine mesh sieve at 10-foot (3.1-m) intervals (the drilling equipment was calibrated in Imperial units), and were examined under a binocular microscope. Fresh rock was cored with a 3 15/16-inch-diameter diamond bit which yields a 2.5-inch-diameter core. Initially on the Mount Basedow traverse 3-foot (0.9-m) cores were taken. For some holes, however, up to 10 feet of core was taken. To increase the rate of progress during the latter part of the program cores were restricted to 2-foot lengths, as this was considered adequate. Core recovery was usually near 100 percent. Drill-hole depth and core-length data are summarized in Table 2.

### Geophysical logging

To assist in the identification of rock types and formations intersected by the drill holes, a Widco Porta-logger was used to record radiometric, resistance, and self-potential logs. Some holes collapsed, and could not be logged to their full depth.

Radiometric logs record gamma-ray intensity down the drill hole. Some changes in lithology are indicated by intensity variations attributed to changes in the concentration of radioactive minerals. Gregory & Horwood (1961) estimated that 90 percent of the natural gamma-rays come from within a nine-inch radius of the probe.

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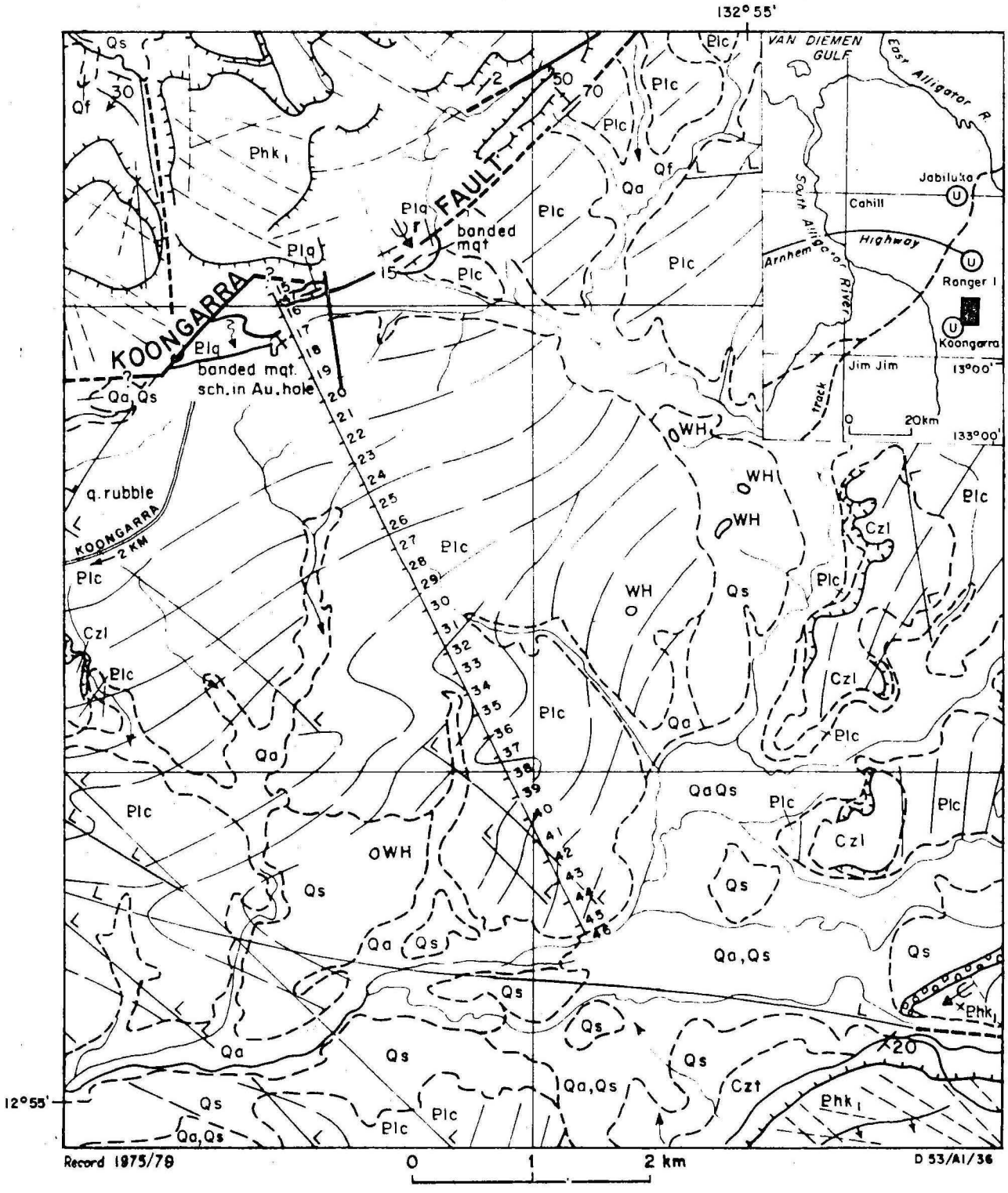
0 1 2 km

| | | | |
|---|---|---|---|
| Qa | Silt, sand, clay: creek and river alluvium | — — | Geological bdy: approx |
| Qf | Black and brown humic soil and clay | — — | Trend line |
| Czt | Sandstone, quartzite, and schist rubble: talus scree | L L | Lineament |
| Czs | Unconsolidated sand, ferruginous clayey sand | ⊢ | Strike & dip of bedding |
| Plc | Regolith over undifferentiated schist, quartzite, amphibolite | ⊢ | Strike & dip of cleavage |
| Plf | Quartzite, feldspathic quartzite | ——— | Fault |
| Pdi | Dolerite | - - - - - | Fault concealed |
| Plp⁴ | Quartzo-feldspathic gneiss | - - ? - - | Fault inferred |
| | | W.H. | Waterhole |
| | | 51 | Jim Jim drill hole No |

Fig. 2 Mount Basedow Traverse, drill hole locations




| | |
|---|---|
| Qa | *Silt, sand, clay: creek and river alluvium* |
| Qs | *Unconsolidated sand: outwash and colluvial deposits* |
| Qf | *Black and brown humic soil and clay* |
| Czt | *Sandstone, quartzite and schist rubble: talus scree* |
| Czl | *Laterite* |
| Phk₁ | *Quartz sandstone, siltstone, conglomerate* |
| Plc | *Regolith over undifferentiated schist, quartzite, amphibolite* |
| Plq | *Quartzite* |
| ∘∘∘ | *Conglomerate* |

*Geological boundary; broken where approx*

*Fault: definite; concealed; inferred*

*Strike and dip of strata; of deformed strata*

*Trend line; trend line with dip*

*Lineament*

*Joint pattern*

*Direction of sediment-bearing current; r ripple marks; x cross-stratification*

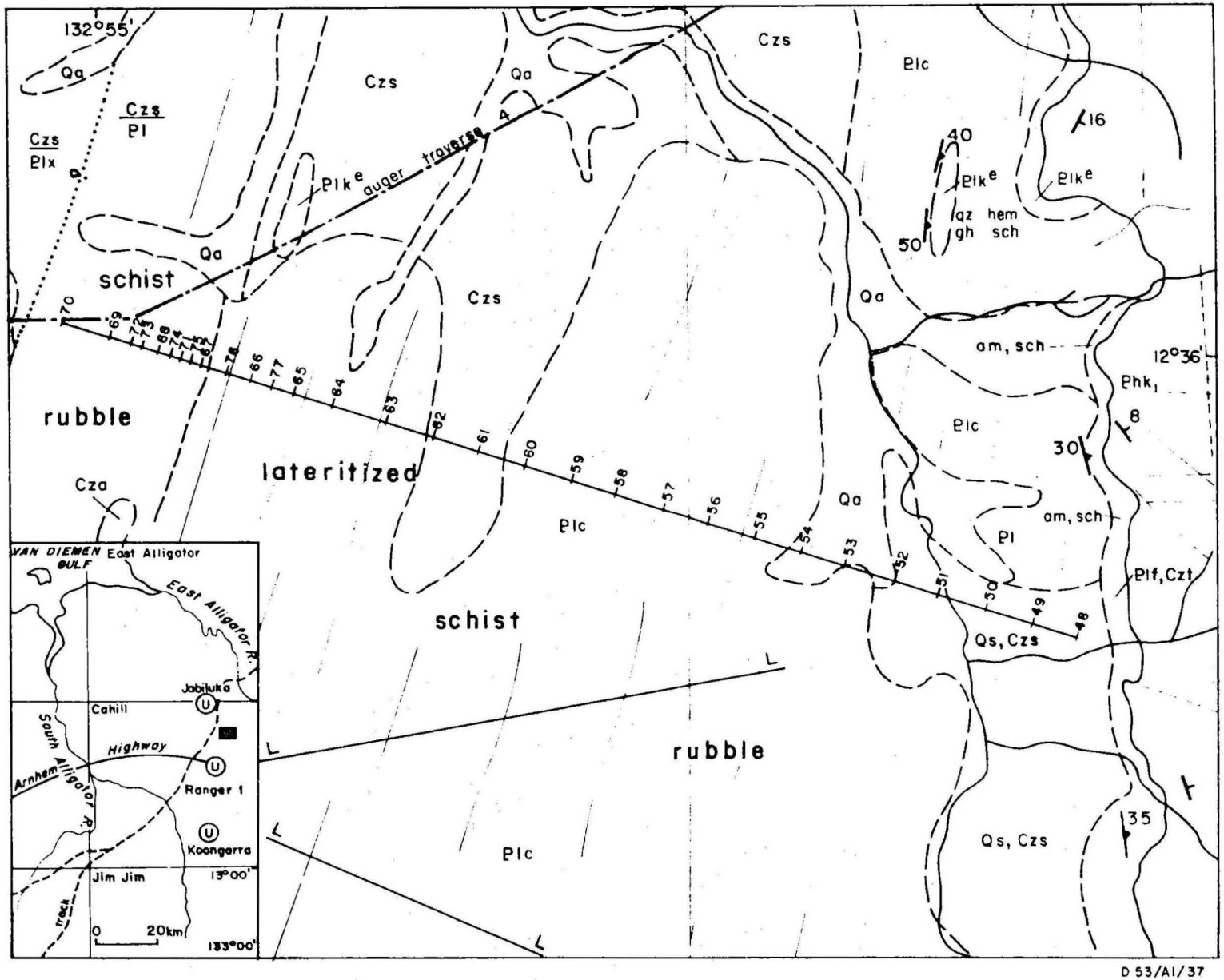
37 *Cahill drill hole No*

*Escarpment*

o WH *Waterhole*

**Fig. 3 Koongarra Traverse, drill hole locations**

Qa Silt, sand, clay: creek and river alluvium
Qs Unconsolidated sand: outwash, colluvial deposits
Cza Winnowed sand, clay: partly stripped Czs
Czs Unconsolidated sand, ferruginous clayey sand
Czt Sandstone, quartzite, and schist rubble: talus scree
Plc Regolith over undifferentiated schist, quartzite, amphibolite
Plf Mica schist, amphibolite
Plk$^e$ Carbonaceous mica schist, mica schist, massive carbonate rock
Plx Quartzo-feldspathic gneiss
Geological boundary
Geological boundary appox.
Trend line
Lineament
Strike and dip of strata
Metamorphic foliation
77 Cahill drill hole No.




0 1 km

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Fig. 4 Jabiru Traverse, drill hole locations.

Owing to the randomness of radioactive disintegrations, and hence of gamma-ray radiation, most holes were logged using a time constant (TC) of two seconds, during which the incident gamma radiation was averaged.

Surface radiometric measurements were recorded with the probe 15 cm above the ground.

The electric logs recorded the resistance and self-potential between a moving down-hole electrode and a fixed reference electrode, which was generally placed in the hole a short distance below the water-table. Some changes in lithology are indicated by variation in the logs which are due to changes in the electrical properties of the rocks near the moving probe.

To allow comparison of logs from different holes all logs were calibrated with standard references.

## GEOLOGICAL RESULTS

Geological logs for all drill holes are given in Appendices 2, 3, and 4. Symbols used in the logs are explained in Appendix 1. Modal estimates of 143 thin sections of drill core are tabulated in Appendices 5, 6, and 7, and are plotted in Figure 5. Results of geochemical analysis of selected core samples will be reported separately. Nomenclature of rocks is based on the scheme used by Winkler (1967) - i.e., schists and gneisses are named in terms of increasingly abundant mineral components.

### Superficial deposits and weathering profiles

Identification of the various weathered rock types was difficult because of selective weathering of minerals such as feldspar. Another difficulty arose because of the sorting effect of air circulation during drilling, which resulted in over-estimation of smaller mineral grains such as mica. A more representative sample was obtained by means of water circulation, owing to the greater viscosity of water and its ability to transport larger rock chips.

Peneplanation of the Alligator Rivers region, mainly during the Tertiary, and monsoonal climatic conditions since then have resulted in the development of an extensive gently undulating lateritic sand plain known as the Koolpinyah surface (Hays, 1965). Lateritic types discussed by Williams (in Story et al., 1969) were identified in the area by Needham & Smart (1972). All drill holes intersected either concretionary laterite or primary pisolitic laterite. This capping,

Table 2 DRILL-HOLE DATA

| | SHEET AREA | NO. OF HOLES | TOTAL DEPTH (m) | AVERAGE DEPTH (m) | MAX. DEPTH (m) | CORE | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | NO. OF CORES | TOTAL LENGTH (m) | AVERAGE LENGTH (m) | MAX. LENGTH (m) |
| MT BASEDOW TRAVERSE | JIM JIM | 70 | 1640.6 | 23.4 | 37.3 | 78 | 68.5 | 0.88 | 3.05 |
| KOONGARRA TRAVERSE | CAHILL | 33 | 927.3 | 28.1 | 45.7 | 33 | 19.3 | 0.58 | 1.22 |
| JABIRU TRAVERSE | CAHILL | 30 | 1024.2 | 34.1 | 62.2 | 32 | 18.0 | 0.56 | 0.61 |
| TOTAL | | 133 | 3592.1 | 27.0 | 62.2 | 143 | 105.8 | 0.73 | |

overlain by Quaternary alluvium in eight of the holes, is usually less than 3 m, but up to 6 m, thick, and grades down into weathered and Fe-depleted rock. A mottled brick-red and yellow-brown clay zone is commonly present below the capping, and a pallid zone beneath this was intersected in some holes. The weathering profile is best developed over feldspathic quartzite and quartzo-feldspathic schist, where the pallid zone consists of up to 3 m of greyish white clay. Below the pallid zone, white, grey, green, and brown clays grade into weathered rock. Fresh rock is present at an average depth of 26 m. The mottled zone of amphibolites consists of orange, brown, and green clays which grade at depth into pallid-zone yellow-green clays and fragmented weathered rock. Usually the clay zone is thicker over amphibolite than over schist, but it grades sharply into fresh rock, whereas over schist it passes much more gradually into the underlying bedrock.

In 22 holes, up to 7 m of lateritized unconsolidated quartz gravel and sand overlies the Lower Proterozoic rocks. Similar deposits truncate Lower Cretaceous sediments in the northwest of the Darwin 1:250 000 Sheet area, and are older than Quaternary alluvia along the major river systems. In the absence of fossil evidence to the contrary, they are considered to be of late Tertiary age (Story et al., 1969).

Lower Proterozoic metamorphics

Quartzo-feldspathic metasediments constitute about half the core samples taken on the three traverses. Quartzite crops out more commonly than other rock types in the area. Petrographic examination was necessary to distinguish between rock types in this group, as classification is based on small differences in proportions of mineral components (see Fig. 5). Quartzite and quartzo-feldspathic schist are characterized by the same mineral assemblage: quartz + feldspar + muscovite ± biotite and/or chlorite; the main accessory minerals are apatite, tourmaline, magnetite, garnet, and rare calcite and clinozoisite.

The quartzo-feldspathic rocks are medium-grained, foliated, banded, and rarely massive, and do not show mineral elongation or shearing which are common features in similar rock types of the Nanambu Complex (Needham & Smart, 1972). Interbanding of rock types and mineralogical banding of a microscopic scale are common features, and are probably due to original compositional layering in the metasediments. Phyllosilicates form thin planar folia along which the rock readily parts, defining its schistosity. Minor pegmatoid tourmaline-quartz-alkali feldspar veins and quartz veins are common.

Minor amounts of actinolitic amphibole and sphene are present in feldspathic quartzite from two holes drilled near a chlorite-dolomite schist at the western end of the Jabiru traverse. The presence of amphibole may reflect small amounts of carbonate in the original sediment.

The mineralogy and banding of quartzite and quartzo-feldspathic schist indicate that they are probably the metamorphosed products of a sequence of interbedded feldspathic arenite and silty arenite.

Micaceous schist constitutes about a quarter of the rock types sampled. It is readily distinguished from other schists by a greater proportion of mica, and in some cases distinctive mineral assemblages. The schist is mostly interlayered with quartzo-feldspathic schist, and commonly appears as small bands within it. Deformation has resulted in the development of boudins and fold noses of quartz and feldspar in strongly kinked micaceous bands.

The typical mineral assemblages identified in the schist are:

quartz + biotite &/or chlorite + muscovite + feldspar ± garnet ± Fe oxides

quartz + biotite &/or chlorite + muscovite + garnet + staurolite + Fe oxides

muscovite + chlorite + kyanite + staurolite + Fe oxides

muscovite + kyanite + quartz + chlorite + garnet + Fe oxides

quartz + biotite &/or phlogopite + Mg amphibole + feldspar + carbonaceous matter + Fe sulphides ± muscovite ± carbonate ± scapolite ± epidote

Apatite and tourmaline are common accessory minerals in these rocks.

Porphyroblasts of almandine and magnetite are typically present, the latter commonly showing alteration to hematite.

Micaceous schist containing staurolite or kyanite or both was intersected in drillholes (JJ 25, 36-40) on the Mount Basedow traverse. Kyanite, staurolite, almandine and titanomagnetite form porphyroblasts up to 1 cm across; hematite occurs as small hexagonal plates parallel to the foliation, and as pseudomorphs after magnetite octahedra. Mineral banding within the staurolite and kyanite schist is intensely kinked and folded.

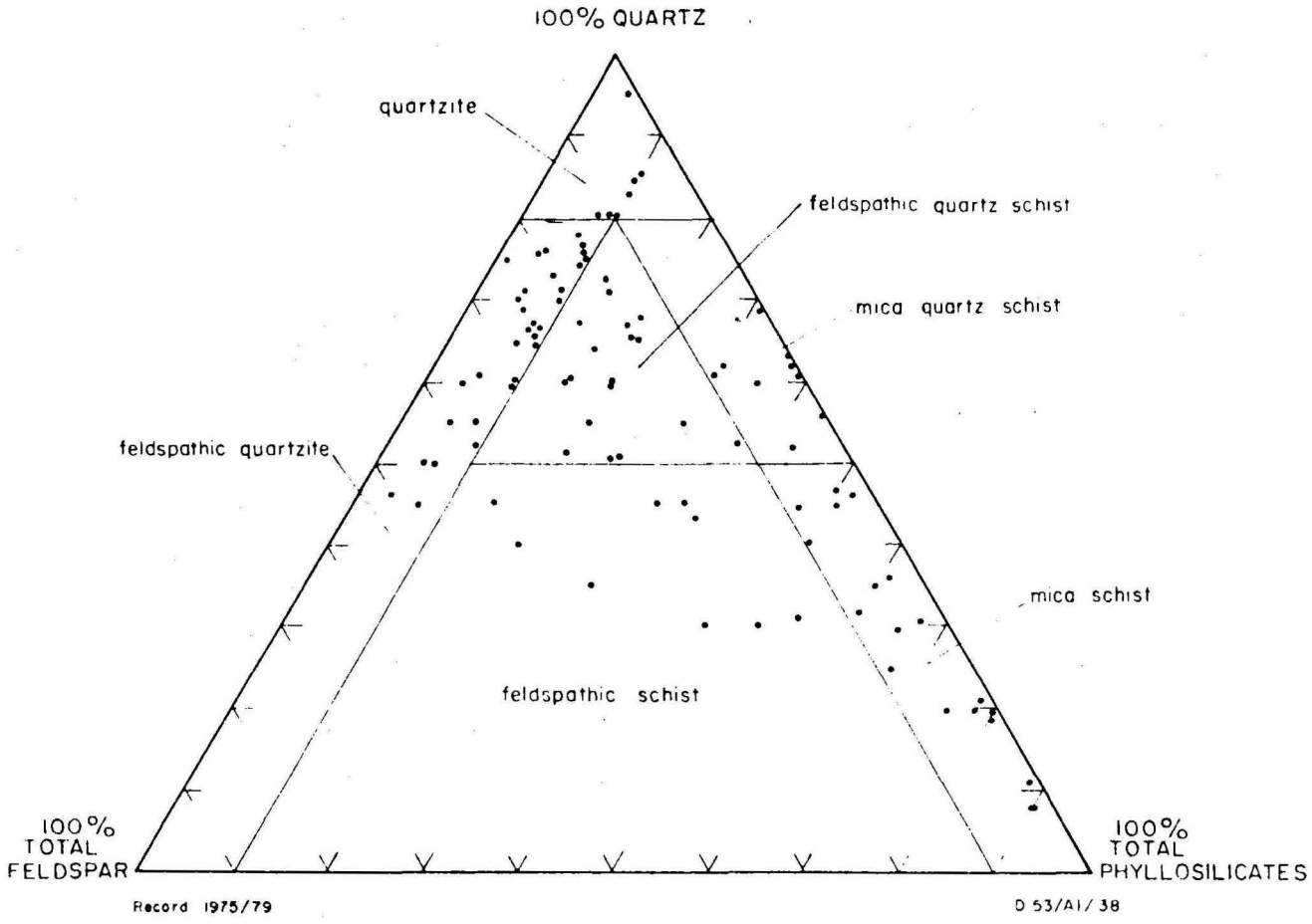



Fig 5 Modal plot and classification of schist and quartzite from the Mount Basedow, Koongarra and Jabiru drill traverses

Six holes at the western end of the Mount Basedow traverse intersected pyritic carbonaceous amphibole-mica schist; pyrite, pyrrhotite, and carbonaceous matter (present as disseminated, fine, non-graphitic material) constitute between 2 and 8 percent of the rock. The mica is mainly phlogopite, and the amphibole tremolitic; accessory minerals are calcite, scapolite, and epidote. The schist may be a product of amphibolite facies metamorphism of pyritic carbonaceous dolomitic shale and siltstone similar to those in the Koolpin Formation, Golden Dyke Formation, Coomalie Dolomite, and parts of the Masson Formation.

Although carbonate minerals are common accessory constituents of schist and amphibolite, only two calc-silicate rocks were intersected in drill holes. In hole JJ7 steeply dipping bands of thinly banded magnetite-calcite-biotite-hornblende-diopside-quartz schist occur in a banded sequence of garnet-quartz-biotite schist and biotite and/or chlorite-feldspar-quartz schist. A banded muscovite-quartz-chlorite-dolomite schist was cored in CA 76. Chlorite pseudomorphs observed in adjacent amphibole-bearing feldspathic quartzite suggest that the chlorite contained in the dolomite schist is an alteration product of amphibole. Similar chlorite-dolomite schist crops out at the base of the northwestern scarp of Mount Brockman.

Distinct fine banding in calc-silicate rock probably reflects compositional banding, indicating that the rock may be a metamorphosed thinly bedded dolomitic marl.

Quartzo-feldspathic gneiss was intersected at the western end of the Mount Basedow and Jabiru traverses. It is very similar in composition to the feldspathic quartzite already described, and has the same mineral assemblage: quartz + feldspar + muscovite $\pm$ biotite and/or chlorite, and accessory apatite, opaques, tourmaline, and clinozoisite.

In contrast to the medium grainsize and often banded appearance of the feldspathic quartzite, the gneiss contains augen of medium- to coarse alkali feldspar and quartz. Sodic plagioclase constitutes between 10 and 40 percent of the total feldspar content. Muscovite and chloritized biotite, although minor components, form a crude foliation which wraps around feldspar and quartz augen. Quartz-tourmaline veins, generally with minor amounts of pyrite, are common.

Gneiss intersected in the Jabiru traverse is similar to Nanambu Complex gneiss 4 km northwest of the traverse (Needham & Smart,,1972). The gneiss intersected in the Mount Basedow traverse is similar to that found in the Jabiru traverse. Where all relics of sedimentary origin have been obliterated, the gneiss is included in the Nanambu Complex, and where such features as bedding and cross-stratification are apparent the rock is regarded as a metamorphosed phase of the Mount Partridge Formation. Drilling results indicate that the gneiss is conformable and interlayered with overlying schist which was informally named 'Koolpin Formation equivalent' by Needham & Smart (1972).

Gneiss was readily recognized from cuttings by the abundance of coarse-quartz and feldspar.

Amphibolite was cored in 28 holes, accounting for about 20 percent of core samples taken. In addition, it was identified in cuttings from small bands in mica schist and feldspathic quartz schist in 22 holes in the Mount Basedow traverse.

The amphibolite is dark green to black, and massive to foliated, containing pale bluish-green to pale brown hornblende, quartz, and feldspar. Medium- to coarse-grained idiomorphic and poikiloblastic hornblende is surrounded by a granuloblastic matrix of fine-grained quartz and feldspar. Iron oxides, pyrite, apatite, biotite and/or chlorite, sphene, and clinozoisite are common accessory minerals; scapolite, muscovite, garnet, and calcite are rare.

Amphibolite from the Pine Creek Geosyncline is both sedimentary and igneous in origin (Bryan, 1962). Needham & Smart (1972) found relict igneous textures in amphibolite from the Nanambu Complex, and favoured an igneous origin. Relict igneous textures and minerals were not observed in any of the amphibolite sampled, but the lack of banding, in contrast to the well-banded amphibole-bearing calc-silicate rocks, indicates that it is an orthoamphibolite; its conformity with the schists, homogeneity, widespread occurrence, and thickness (0.5 m to 200 m) suggest that it was originally a concordant basic igneous intrusive, such as the dolerite sills of the Zamu Complex.

## Metamorphism

The metamorphic grade of the Lower Proterozoic rocks sampled approximates the staurolite-almandine subfacies of the amphibolite facies (Winkler, 1967). The absence of staurolite and kyanite from mica schist from the Jabiru and Koongarra traverses is probably due to a high $K_2O$ content, indicated by the presence of potassic feldspar, which inhibits the formation of staurolite (Turner, 1968). Almandine is found in most rock types, but is more abundant in mica schist owing to the schist's pelitic composition. Kyanite occurs only with staurolite, indicating that the metamorphic grade has not reached kyanite-almandine subfacies.

Needham & Smart (1972) reported the occurrence of staurolite in mica schist east-northeast of Koongarra, at the Arnhem Land escarpment, and inferred that the grade of metamorphism decreased gradually southwards to lower greenschist facies in the Jim Jim Sheet area. However, the presence of lower-amphibolite facies rocks along the three traverses suggests that the gradation to lower-greenschist facies starts farther to the south, probably in the vicinity of Mount Partridge.

Retrograde metamorphism has resulted in chloritization of ferromagnesian minerals, and sericitization of feldspars. Garnet, biotite, and amphibole commonly show complete or partial alteration to chlorite. Chloritized haloes adjacent to small quartz veins are common in all rock types. The Lower Proterozoic rocks have also undergone ferromagnesian metasomatism. Chlorite has replaced feldspar in feldspathic quartzite at the western end of the Jabiru traverse, forming a quartz-chlorite schist. Here chloritization is particularly intense in some sheared and brecciated schists near the contact with the Nanambu Complex, suggesting that chloritization was facilitated by cataclastic deformation.

Hematitization is widespread, and is associated with chlorite alteration. Hematite is a common vein-filling mineral, and also replaces metamorphic magnetite.

Deformation

At least four phases of deformation have affected the Lower Proterozoic rocks (Fig. 6), and are most apparent in banded mica schist.

Mineralogical and textural banding, representing original bedding, forms the oldest preserved foliation ($S_o$). $S_1$ foliation, possibly axial plane cleavage to an early folding episode, was produced by the parallel growth and alignment of phyllosilicates at a shallow angle to $S_o$ (less than $10^o$). These two foliations are rarely preserved in the mica schist, but are dominant features of the quartzo-feldspathic schist.

Intense isoclinal folding transposed $S_o$ and $S_1$, and, with recrystallization of the phyllosilicates, produced the dominant schistosity (foliation $S_2$). Relict isoclinal fold noses are preserved in the more competent quartz bands. Almandine and magnetite porphyroblasts show deformed, cross-cutting, and rotational textures indicating their development before, during, and after this phase of deformation. Later oxidizing conditions resulted in hematite pseudomorphs after magnetite, and the development of hexagonal hematite plates parallel to $S_2$. Foliation $S_3$, was produced by recrystallization of phyllosilicates, and gave rise to a crenulation cleavage which only rarely transposes older foliations, and is parallel to the axial planes of tight, angular, and rarely isoclinal folds.

Large unstrained books of mica and idiomorphic kyanite and staurolite porphyroblasts cut across the $S_3$ foliation, and indicate an increase in pressure or temperature or both, after the development of that foliation. These minerals deflect a later set of poorly developed kinks ($S_4$) that are not related to major recrystallization or folding.

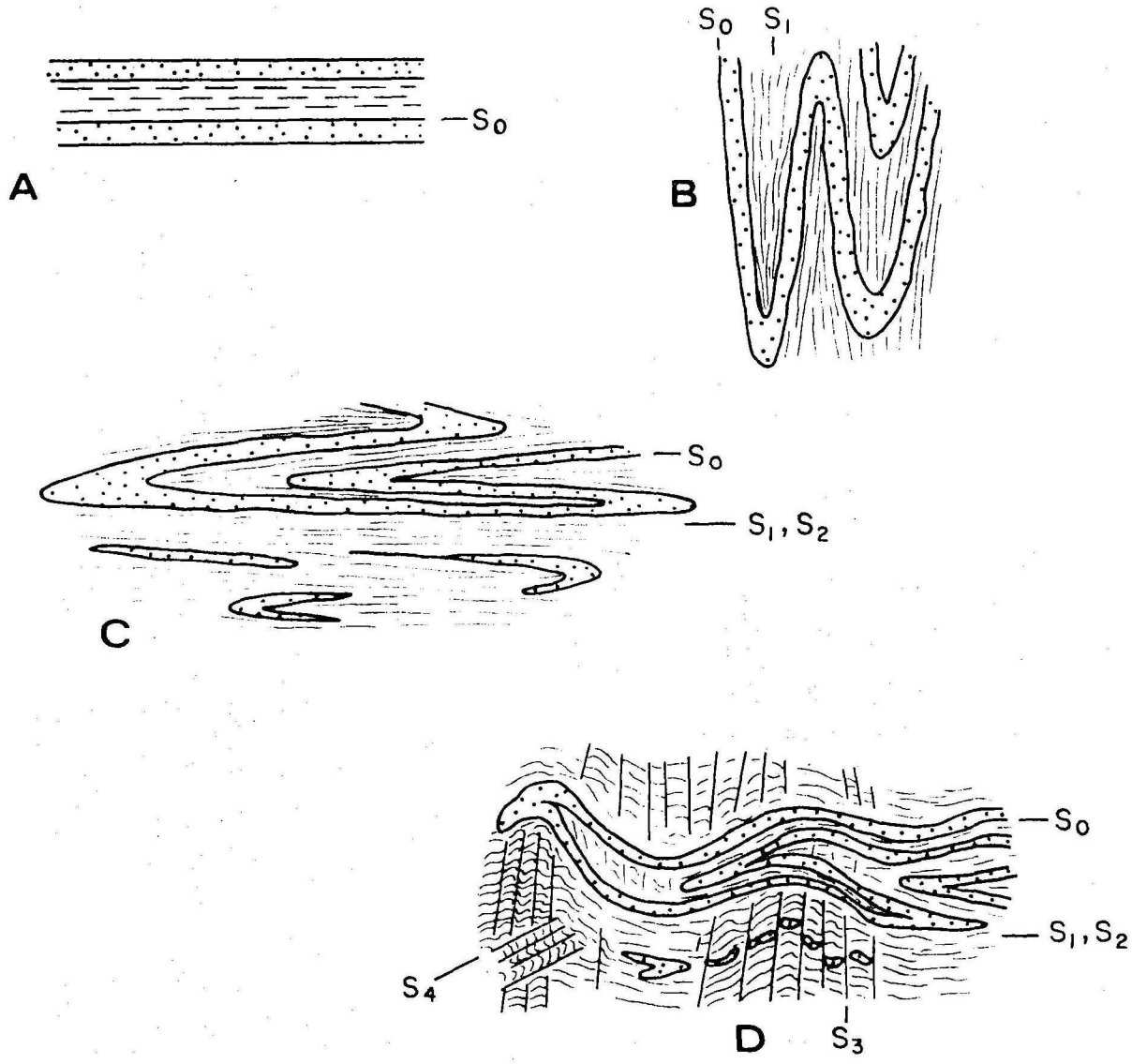
As with their grade of metamorphism, there is no noticeable difference in the degree of deformation between rocks along the three traverses. $S_2$ and $S_3$ are the most pervasive foliations, and were noted by Smart et al. (1975) throughout the Alligator River area. In the Myra Falls area open folding associated with $S_3$ is more nearly isoclinal towards and within the Nimbuwah Complex, indicating that $S_3$ was related to the migmatization and perhaps diapirism within the complex.

## GEOLOGICAL INTERPRETATION

Three lithological sequences can be distinguished in the Lower Proterozoic rocks east and southeast of the Nanambu Complex: Unit 1, carbonate-carbonaceous schist; Unit 2, feldspathic quartzite and quartz schist; and Unit 3, mica schist and amphibolite (Figs 7, 8). Similar sequences have been mapped by exploration companies to the west of the Nanambu Complex. In the Cooinda area, Noranda Australia Ltd found a sequence of tremolitic dolomite, talc schist, carbonaceous schist, and feldspathic quartzite believed to be equivalent to Units 1 and 2, dipping shallowly to the west away from quartzo-feldspathic gneiss of the Nanambu Complex. Northwest of Munmarlary homestead, and west of the Nanambu Complex, BHP Ltd intersected massive dolomite, feldspathic quartzite, and schist which are also considered to be correlatives of Units 1, 2, and 3. Rock types similar to those of Units 1 and 2, metamorphosed to upper amphibolite facies and transitional into the Nimbuwah migmatite complex, were mapped in the Myra Falls Inlier (R.S. Needham, pers. comm.).

### UNIT 1

Unit 1 consists of pyritic carbonaceous mica schist, chloritized feldspathic quartzite, quartz schist, amphibole schist, and dolomite. It conformably overlies quartzo-feldspathic gneiss of the Nanambu Complex along the Jabiru traverse, and meta-arkose of the Mount Partridge Formation along the Mount Basedow traverse. Unit 1 is distinguished from the overlying Unit 2 by the presence of carbonate and carbonaceous rocks. Unit 1 ranges from 300 m to 600 m in thickness, and is characterized by frequent sharp changes in rock type. Along the Mount Basedow traverse, pyritic carbonaceous amphibole-mica schist was predominant, whereas along the Jabiru traverse




**A** Undeformed sedimentary sequence, bedding $S_0$

**B** Isoclinal folding ?, penetrative axial plane foliation $S_1$, greenschist to amphibolite facies metamorphism

**C** Isoclinal folding, penetrative axial plane foliation $S_2$, transposition of $S_0$ and $S_1$, amphibolite facies metamorphism

**D** Open to tight folding, axial plane crenulation cleavage $S_3$ and crenulation cleavage $S_4$, amphibolite facies metamorphism.

Fig. 6 Deformation sequence in Lower Proterozoic rocks

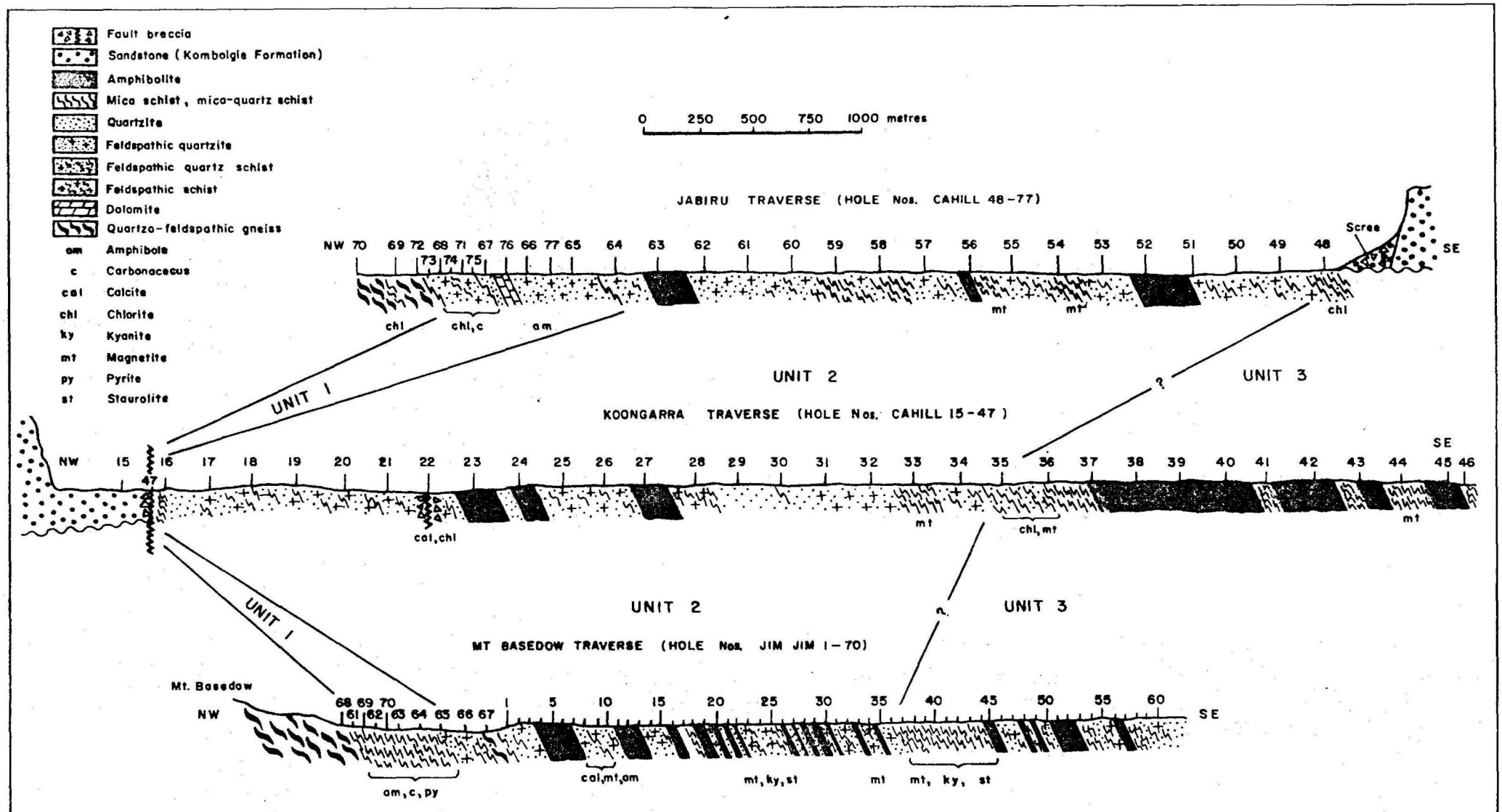



Fig. 7 Schematic cross sections of Jabiru, Koongarra and Mt Basedow Traverses.

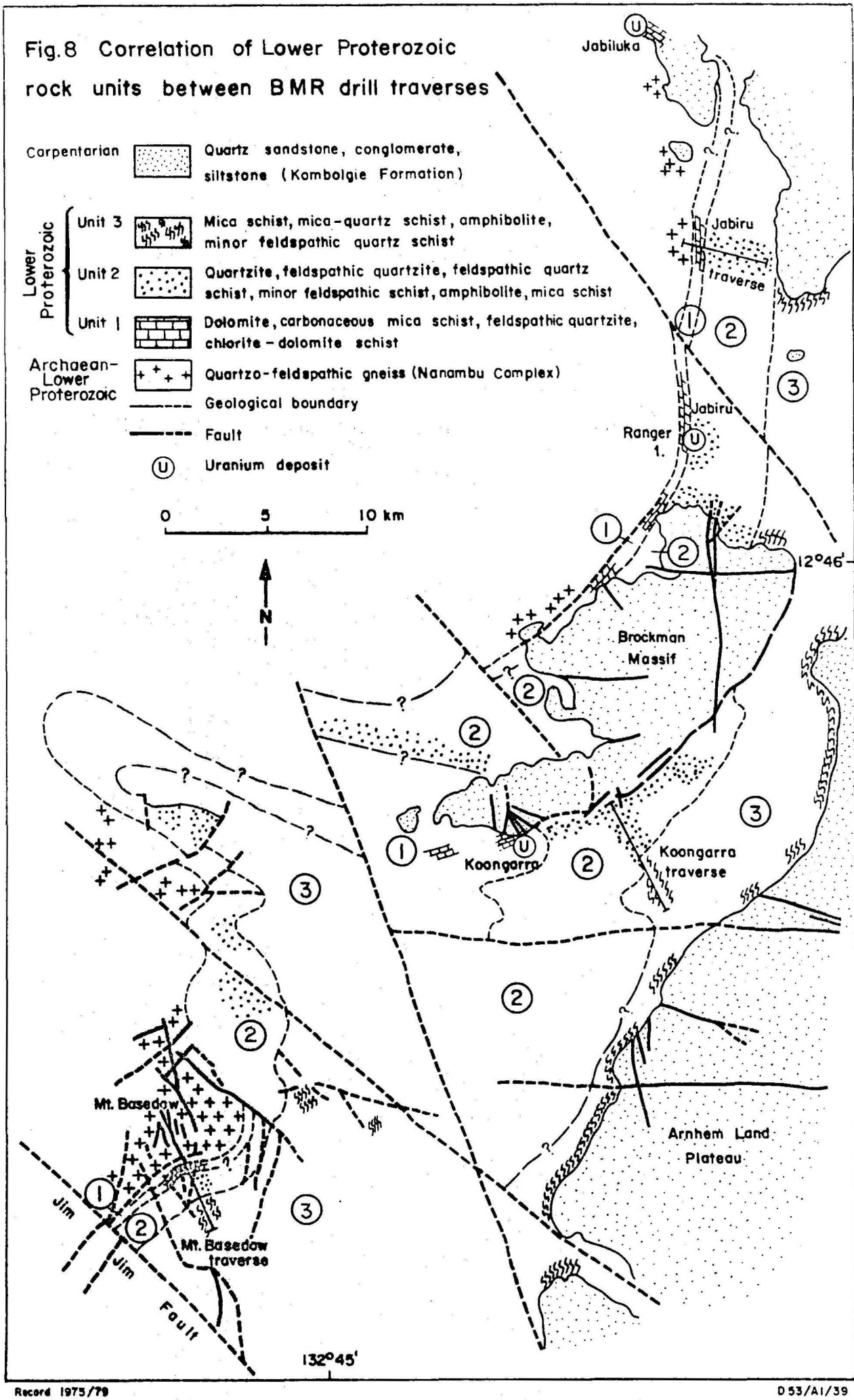


Fig.8 Correlation of Lower Proterozoic rock units between BMR drill traverses
Carpentarian
Quartz sandstone, conglomerate, siltstone (Kombolgie Formation)
Lower Proterozoic
Unit 3
Mica schist, mica-quartz schist, amphibolite, minor feldspathic quartz schist
Unit 2
Quartzite, feldspathic quartzite, feldspathic quartz schist, minor feldspathic schist, amphibolite, mica schist
Unit 1
Dolomite, carbonaceous mica schist, feldspathic quartzite, chlorite-dolomite schist
Archaean-Lower Proterozoic
Quartzo-feldspathic gneiss (Nanambu Complex)
Geological boundary
Fault
Uranium deposit
0
5
10 km
N
Jabiluka
Jabiru
traverse
Jabiru
Ranger 1.
12°46'
Brockman Massif
Koongarra
Koongarra traverse
Arnhem Land Plateau
Mt. Basedow
Mt. Basedow traverse
Jim
Jim
Fault
132°45'

chlorite-dolomite schist, chloritized feldspathic amphibole-quartz schist, and carbonaceous schist were intersected. Massive dolomite was intersected in drill holes by PanContinental Mining Ltd., and along a BMR auger traverse (Needham & Smart, 1972) 300 m north of the Jabiru traverse. Drilling by exploration and mining companies in mineralized areas has shown that dolomite commonly forms discontinuous lenses up to 250 m thick.

Chloritization and alteration are prominent features of the unit, particularly in mineralized areas (Ingram 1974); the feldspathic quartzite, feldspathic quartz schist, and amphibole-dolomite schist of the Jabiru traverse are strongly chloritized to quartz-chlorite schist and chlorite-dolomite schist, respectively.

Unit 1 was not intersected on the Koongarra traverse because of the displacement of the Lower Proterozoic sequence across a major reverse fault which forms the eastern scarp of the Mount Brockman Massif.

The unit is probably the product of regional metamorphism of a sequence of pyritic carbonaceous pelite, dolomite, marly pelite, and siltstone. Sharp changes in rock type along strike and the discontinuity of the carbonates may indicate deposition in a series of restricted basins near and parallel to an old shoreline. The presence of carbonaceous and pyritic schist suggests reducing conditions during deposition. A reducing environment was envisaged by Dodson et al. (1974) in considering the genesis of uranium in the Alligator Rivers Uranium Field.

Exposure of the unit is sparse and generally restricted to silicified carbonate and ferruginized schist. These exposures had been mapped as 'Koolpin Formation equivalent' by Needham et al. (1974) and Smart et al. (1975).

UNIT 2

Unit 2 conformably overlies Unit 1, and consists of interlayered feldspathic quartz schist, feldspathic schist, feldspathic quartzite, and minor amphibolite, mica schist, and quartzo-feldspathic gneiss. Its upper boundary with Unit 3 is indistinct, and is marked by an increase in the proportion of mica schist and a change in magnetic response, corresponding to the eastern boundary of Magnetic Zone G of Horsfall & Wilkes (1975). The thickness of the sequence ranges from 1900 m along the Mount Basedow traverse to 2500 m or more along the Jabiru traverse; a greater apparent thickness was intersected on the Koongarra traverse because of repetition by faulting and folding.

Some differences in Unit 2 between drill traverses can be attributed to the closer drill-hole spacing on the Mount Basedow traverse. Amphibolite bands were intersected in nearly half of the holes in Unit 2 on this traverse, compared with 15 percent on the Koongarra and Jabiru traverses. A small band of calc-silicate rock was also found in feldspathic quartz schist of the Mount Basedow traverse. The feldspar content of the quartzite and schist is greater in the Koongarra and Jabiru traverses.

Unit 2 is probably a metamorphosed sequence of well-bedded feldspathic arenite, siltstone, and minor pelite; the amphibolite is probably metamorphosed Zamu Complex dolerite, which intrudes Lower Proterozoic metasediments as sill-like bodies farther south in the South Alligator Valley area (Bryan, 1962).

Even though exposure of this unit is limited to low strike ridges of quartzite, it crops out more extensively than either Unit 1 or Unit 3, and is characterized by a white smooth photo-pattern south of Mount Cahill (Unit 'Ꝑlw' of Needham & Smart, 1972). The low ridges of quartzite were considered part of the 'Koolpin Formation equivalent'.

UNIT 3

Interbanded mica schist, mica-quartz schist, amphibolite, and minor feldspathic quartz schist comprise Unit 3, which conformably overlies Unit 2. The unit is over 1500 m thick on the Koongarra traverse. It extends more than 2200 m beyond the eastern end of the traverse, and is exposed at the foot of the Arnhem Land escarpment, where it is unconformably overlain by the Carpentarian Kombolgie Formation. Unit 2 was the uppermost unit to be intersected on the Jabiru traverse, but aeromagnetic patterns suggest that Unit 3 underlies the Kombolgie Formation less than 500 m east of the end of the traverse (Horsfall & Wilkes, 1974).

Mica schist bands are characteristic of this unit; they are garnetiferous, and usually contain minor or trace amounts of magnetite; mica schist from the Mount Basedow traverse contains kyanite and staurolite, and up to 10 percent iron oxides. The absence of kyanite and staurolite from the mica schist of the Koongarra traverse is probably due to the greater feldspar content, a feature shared by all the metasedimentary rocks that traverse. However, staurolite has been found in schist exposed below the Arnhem Land escarpment less than 15 km northeast of the traverse, which has been correlated with the Fisher Creek Siltstone (P. Smart, pers. comm.). Kyanite- and staurolite-mica schist also crop out about 30 km northwest of Jabiluka in a syncline of Lower Proterozoic rocks within the Nanambu Complex (P. Smart, pers. comm.).

Unit 3 is probably a metamorphosed sequence of interbedded pelite and siltstone. The amphibolite is most probably of the same origin as that in Unit 2.

## GEOPHYSICAL RESULTS

None of the radiometric values recorded indicated significant radioactive mineralization. However, owing to the small effective range of detection, mineralization a metre or more from the hole may not be detected if it has no dispersion halo.

Electric logs made while the fixed reference electrode was in the drill hole showed changes in resistance and, in some holes, potential when the moving electrode passed the fixed electrode. The position of the fixed electrode in each drill hole is shown in the logs (Appendices 2-4).

### Superficial deposits

The radioactivity of unconsolidated cover has a wide range. Gravel intersected by drill holes CA 29-33 and CA46 on the Koongarra traverse has relatively low radioactivity, and laterite and clay intersected in holes JJ38, 46, 47, 50, 52 and 68 on the Jim Jim traverse have a relatively high radioactivity. The different levels of ratioactivity in the soil and unconsolidated cover are probably due at least partly to concentration or depletion of radioactive minerals by weathering or transport.

In holes CA 29, 32, and 46 the unconformity between Lower Proterozoic rock and more recent sediment is shown by a change in style of radiometric log. In holes CA30, 31, and 33 there is a similar change in style, but this change does not coincide with the position of the unconformity suggested by logging of cuttings.

Figure 9 shows subsurface radiometric measurements, averaged over the 10-ft to 35-ft interval, and surface radiometric measurements; the surface value is generally lower than the in-hole value for a particular hole. Instrumental limitations prevented absolute radiometric measurements from being made for drill holes JJ1-35. Results of linear regression between the two sets of values are:

(1) surface value (mR/h) = 0.03 x subsurface value + 0.0024
correlation coefficient = 0.66

(2) subsurface value (mR/h) = 1.47 x surface value + 0.003
correlation coefficient = 0.67

The correlation coefficients indicate only a moderately good regression; surface radioactivity measurements are subdued, but are a broad guide to the radioactivity of subsurface rocks where Quaternary cover obscures bedrock.

At the time of the survey the superficial deposits were mostly above the water-table, and electrical logs were not made through them.

Lower Proterozoic metamorphics

Geophysical logging did not show any characteristic response which could be used to identify formations or units within the Lower Proterozoic sequence. However, Unit 1 is slightly more radioactive than the other units. Amphibolite and carbonaceous schist were the only rock types that had a characteristic response.

Amphibolite has a low uniform radioactivity, and its boundary with the more radioactive schist is readily identified in the radiometric logs of holes JJ16, 19-22, 26, 27, 30, 35, 46, 48, 55, and 57 on the Mount Basedow traverse, in holes CA24, 37, and 43 on the Koongarra traverse, and in hole CA56 on the Jabiru traverse. Electric logs are less useful, but in some holes amphibolite has a lower resistance than schist, and self-potential changes occur in places at amphibolite/schist boundaries. One or both of these effects are seen in drill holes JJ 20, 22, 27, 30, 35, and 55 on the Mount Basedow traverse, and in hole CA 24 on the Koongarra traverse.

Carbonaceous schist such as the rock intersected at the western end of the Mount Basedow traverse (holes JJ61-64, 69 and 70) and on the Jabiru traverse (holes CA68 and 74) is generally the most radioactive rock. It has no characteristic electrical response - this may be due to the non-graphitic nature of the carbon and/or to the carbon's finely disseminated form which prevented electrical continuity between grains.

Quartzite of the Kombolgie Formation has low radioactivity; electric logs were not made, as the water-table was not intersected.

Comparisons of radiometric profiles

The Mount Basedow and Jabiru traverses can be divided into zones of comparatively high radiometric response at the extremities and a zone of lower response in the centre (Fig. 9). The zones near the western ends reflect the higher radioactivity of Unit 1 compared to the other Units on each traverse. This is due to the relatively high radioactivity of carbonaceous schist. The range of radioactivity in Unit 1 overlaps that in Units 2 and 3.

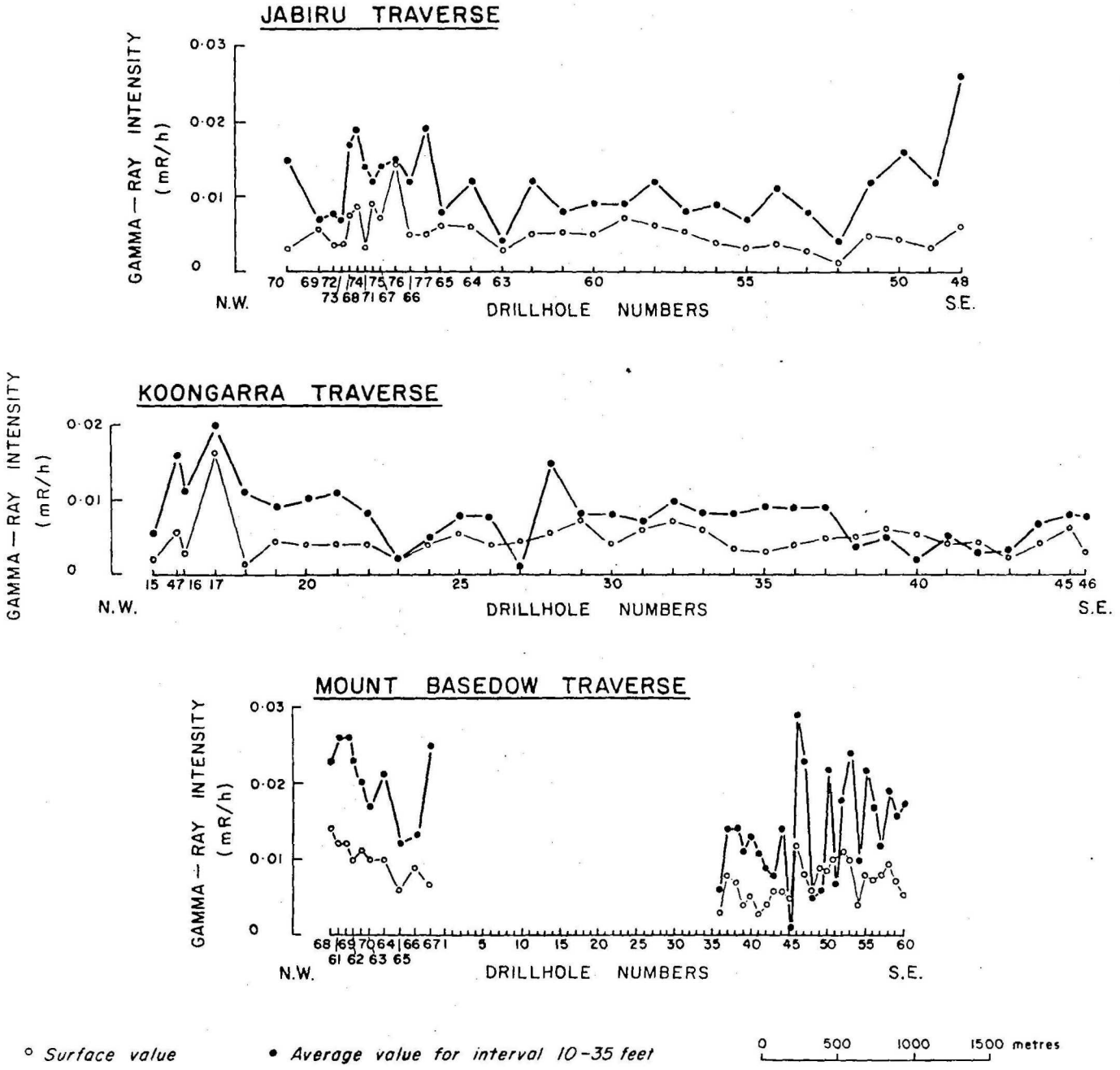



Fig. 9 Surface and in-hole radiometric results

Record 1975/79

D 53/A1/45

Quartzo-feldspathic gneiss of the Mount Partridge Formation is generally less radioactive than the overlying Lower Proterozoic rock units (holes CA69, 70, 72; JJ68).

The irregularity of the radiometric profile at the northwestern end of the Mount Basedow traverse is caused by alternating amphibolite and more radioactive schist.

Radiometric values along the Koongarra traverse are relatively high in the northwest, low in the centre, and even lower in the southeast. The high values may be caused by radioactive material which has migrated along faults and shears from Noranda's 'Anomaly A' west of hole CA 17. This anomaly was also detected by the BMR airborne survey (Horsfall & Wilkes, 1975). The low radiometric values recorded in the southeast reflect a large proportion of amphibolite.

## CONCLUSIONS

### Correlation of Lower Proterozoic sequence

The main basis for correlating the Lower Proterozoic rocks northeast of Mount Partridge Range with the South Alligator Group has been the apparent continuity of a metasedimentary sequence across the Jim Jim, Cahill, and East Alligator Sheet areas. South Alligator Group rocks, southwest of Mount Partridge Range are greenschist facies whereas in the rock units to the north are amphibolite grade. BMR detailed airborne and ground geophysical surveys carried out in the Jim Jim Creek area in 1974 (Ogilvy & Mutton, in prep.) revealed the presence of a major northwest-trending fault zone (the Jim Jim Fault Zone), about 10 km wide, which truncates the Lower Proterozoic rocks between Mount Partridge and Mount Basedow. Rock units on either side can be traced into the fault zone, where they are brecciated and drag-folded. Changes in magnetic and electral response across the fault zone showed no basis for correlation between the sediments either side of it.

The apparent discontinuity suggested by the geophysical results may reflect differences in mineralogy consistent with a change in metamorphic grade. Magnetite is a common accessory in garnet-amphibolite-grade schists on the Mount Basedow traverse but not in amphibolite grade schists south of the fault zone. This suggests that the first appearance of magnetite, north of the fault, at the expense of hematite, coincides with the garnet isograd, a feature discussed in detail by Thompson (1972).

| Lower Proterozoic rock unit | Estimated max. thickness (m) | Main rock types | Probable parent | Depositional environment | Correlation |
|---|---|---|---|---|---|
| 1 | 600 | Pyritic carbonaceous mica schist<br>Feldspathic quartzite<br>Feldspathic quartz schist<br>Dolomite | Carbonaceous pelite<br>Feldspathic arenite<br>Siltstone<br>Amphibole schist<br>Dolomite | Shallow marine, restricted basins, reducing, isolated biohermal reefs.<br>Marly pelite | Koolpin Formation |
| 2 | 2,500 | Feldspathic quartz schist<br>Feldspathic quartzite<br>Minor: amphibolite<br>mica schist<br>gneiss | Siltstone<br>Feldspathic arenite<br>Basic intrusive (Zamu Complex dolerite?)<br>Pelite<br>Feldspathic arenite | Shallow marine, oxidizing. | Koolpin Formation |
| 3 | 3,000+ | Mica schist<br>Mica quartz schist<br>Amphibolite<br>Minor feldspathic quartz schist | Pelite<br>Pelite and siltstone<br>Basic intrusive (Zamu Complex dolerite?)<br>Siltstone | Deeper marine, oxidizing. | Fisher Creek Siltstone |

Table 3: Lower Proterozoic rock units and their probable parentage

The drilling results substantiate a general correlation of Units 1 and 2 with facies of the Koolpin Formation, and Unit 3 with the Fisher Creek Siltstone (Table 3). Differences in composition between Units 1 and 2 and the Koolpin Formation are probably due to differences in their depositional environments.

## Depositional History of Lower Proterozoic Units

Unit 1 was probably deposited in an environment characterized by shallow restricted basins and reducing conditions on a shelf in the northeastern part of the Pine Creek Geosyncline. Pyritic carbonaceous pelite and siltstone and minor arenite intertongued with biohermal reef carbonate and marly pelite. Following carbonate sedimentation, rejuvenation of the depositional cycle resulted in the deposition of the 2,500 m of arenite, siltstone, and minor pelite of Unit 2. There followed a period of mixed claystone and siltstone deposition, under oxidizing conditions (Unit 3).

## Uranium mineralization

No uranium mineralization of apparent economic significance was intersected, although anomalous radioactivity, probably associated with Noranda's 'Anomaly A', was detected on the Koongarra traverse. The host rocks to the uranium deposits of the area (referred to as 'Mine Series' or 'Mine Sequence' by company geologists) are similar to the rock types of Unit 1. The position of the deposits along strike from Unit 1 (Fig. 8) and the slightly higher background radioactivity of Unit 1 compared to the other Lower Proterozoic metasedimentary units demonstrates a relationship between Unit 1 and uranium. Regardless of whether the unit is the source of uranium, or host to introduced mineralization, it appears to be an important control on the distribution of uranium.

## ACKNOWLEDGEMENTS

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We thank especially Noranda (Aust) Ltd and Geopeko Ltd for hospitality in the field.

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## APPENDIX 1

## LITHOLOGICAL AND OTHER SYMBOLS USED IN APPENDICIES 2,3 AND 4


primary or detrital pisolitic laterite


unconsolidated gravelly sand


clay


quartzite


feldspathic quartzite


feldspathic quartz schist


feldspathic schist


mica-quartz schist


mica schist


amphibolite


gneiss


dolomite


breccia


unconformity

fe location of fixed reference electrode when in drill hole

TC time constant

# APPENDIX 2

## GEOLOGICAL AND GEOPHYSICAL LOGS, MOUNT BASEDOW TRAVERSE

Drill holes:

Jim Jim Nos. 1-70

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MT. BAGEDOW TRAVERSE

HOLE NO: BMR SIM SIM 1 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE / CUTTINGS | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 260 320 | 0 400 800 | 0.01 | | | |
| 10 | | | TC=2s | | | weathered foliated mica quartzite minor quartz-biotite and biotite-quartz schist, milky quartz |
| 5 | | | | | | |
| 20 | | | | | | |
| | fe | | | | | foliated feldspathic quartzite minor quartz-biotite schist and milky quartz. |
| 30 | | | | | | |
| 10 | | | | | | |
| 40 | | | | | | core: foliated feldspathic quartzite, spotted grey colour, average dip of foliation ~60° |
| 15 | | | | | | |

| DRILLER | AIR | COMMENCED 2/8/1974 | LOGGED BY IHC |
|---|---|---|---|
| TYPE HAYMEW 1000 | WATER | COMPLETED 6/8/1974 | DRAWN BY RG.S-S, IH |

M(Pf)122

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BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 2 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | 350 400 | 8.00 12.00 | 0.01 TC=2s | | | light red brown and pink sand pink and white clay weathered and ferruginised schist |
| 10 | 5 | | | | | | |
| 20 | | | | | | | weathered biotite-muscovite schist, biotite-feldspar-quartz schist, milky and Fe stained quartz, minor white clay and white feldspar cleavage fragments. |
| 30 | 10 | | | | | | |
| 40 | | | | | | | |
| 50 | 15 | | | | | | |
| 60 | | | | | | | core 1: muscovite-biotite-feldspar-quartz schist. banded, tightly folded partly weathered. |
| 70 | 20 | | | | | | muscovite-biotite-feldspar quartz schist, milky quartz |
| 80 | 25 | | | | | | core 2: muscovite biotite-feldspar-quartz schist banded, tightly folded and kinked. average dip of schistosity ~50° |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0' - 50' | COMMENCED 7/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYMEN 1000 | WATER 50' - 74'6" | COMPLETED 7/8/1974 | DRAWN BY P.G.S.S. I.H. |

M(Pf)122

D 53/B/19

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO.: BMR JIM JIM 3 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | 200 250 | 500 1000 1500 | 0·01 TC=2s | | | Fe oxide pisolites, red brown clay containing mica flakes and milky quartz |
| 10 | | | | | | | |
| | 5 | | | | | | |
| 20 | | | | | | | foliated white and brown micaceous clay, milky quartz |
| 30 | | | | | | | |
| | 10 | | | | | | |
| 40 | | | | | | | |
| 50 | 15 | | | | | | |
| 60 | | | | | | | foliated streaked red, brown grey and green micaceous clay, minor milky quartz and weathered biotite-feldspar-quartz schist. |
| | 20 | | | | | | |
| 70 | | | | | | | |
| 80 | 25 | | | | | | core 1: weathered muscovite-biotite/chlorite-quartz schist. average dip of schistosity ~ 65° |
| | | | | | | | mica-quartz and quartz mica schist. |
| 90 | | | | | | | core 2: banded foliated quartzite and muscovite-feldspar-quartz schist. average dip of schistosity ~ 45° |
| 100 | 30 | | | | | | |
| | 35 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR | COMMENCED 6/8/1974 | LOGGED BY IHG |
| TYPE MAYNEW 1000 | WATER | COMPLETED 6/8/1974 | DRAWN BY PGS-S, I·H |

M(Pt)122

D 53/A/20

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO.: BMR JIM JIM 4 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 300 330 | 600 800 | 0·01 TC = 2 s | | | Fe oxide pisolites, red brown clay, minor milky quartz |
| 10 | | | | | | red brown and yellow brown clay, minor quartz and mica flakes. |
| 5 20 | | | | | | |
| 30 10 | | | | | | weathered amphibolite pale green flecked brown clay |
| 40 | | | | | | |
| 60 15 | | | | | | amphibolite, minor pale green sandy clay |
| 60 | | | | | | |
| 20 70 | | | | | | core: amphibolite dip of foliation varies 0°-45°, minor shearing and jointing, trace sulphides in fractures and foliation planes. |
| 25 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0' – 60' | COMMENCED 7/8/1974 | LOGGED BY: P.G.S. |
| TYPE: MAYHEW 1000 | WATER 60 – 67 8" | COMPLETED 7/8/1974 | DRAWN BY: P.G.S.-S. J.H. |

M(PY)122

DS3/A/21

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO.: BMR JIM JIM 5 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | | 250 260 270 280 | 800 900 | 0·01 TC = 2 s | | Fe oxide pisolites red brown sandy clay, Fe stained milky quartz |
| 10 | | | | | | red brown sandy clay, milky and Fe stained quartz, Fe oxide pisolites, pale green and off-white clay, minor weathered amphibolite |
| 20 | 5 | | | | | |
| 30 | | | | | | weathered amphibolite, minor mottled pale green and white clay |
| 40 | 10 | | | | | |
| 50 | 15 | | | | | |
| 60 | | | | | | amphibolite, minor milky quartz |
| 70 | 20 | | | | | |
| 80 | 25 | | | | | core: amphibolite, average dip of foliation ~ 45° |
| 90 | | | | | | |
| | 30 | | | | | |

| | | | |
|---|---|---|---|
| DRILLER: | DIA. 0 - 40' | COMMENCED 7/8/1974 | LOGGED BY P.G.S. |
| TYPE: MAYHEW 1000 | WATER 40' - 53' | COMPLETED 7/8/1974 | DRAWN BY P.G.S. |

M(P1)122

D 53/A/22

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION MOUNT BASEDOW TRAVERSE

HOLE NO BMR JIM JIM 6 CO-ORDINATES 13°03' 132°43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | 140 160 180 | 100 1000 | 0·01 TC = 2 s | | | brick red and pale green clay, Fe oxide pisolites, milky quartz |
| 10 | | | | | | | mottled pale green, brown and orange clay, weathered amphibolite, minor milky quartz |
| | 5 | | | | | | |
| 20 | | | | | | | |
| 30 | | | | | | | amphibolite, pale green, brown and orange clay, milky quartz |
| | 10 | | | | | | |
| 40 | | | | | | | |
| 50 | 15 | | | | | | |
| | | | | | | | amphibolite, minor weathered sections, milky quartz |
| 60 | | | | | | | |
| | 20 | | | | | | |
| 70 | | | | | | | core: amphibolite, trace amounts of pyrite on foliation planes. average dip of foliation ~45° |
| 80 | | | | | | | |
| | 25 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0'-25' | COMMENCED 7/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYHEW 1000 | WATER 25'-73' | COMPLETED 7/8/1974 | DRAWN BY P.G.S.S., I.H. |

M(Pf)122

D 53/A/23

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO.: BMR JIMJIM 7 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | 110 140 150 160 | 1000 2000 3000 | 0·01 TC·2s | | |
| 10 / 5 | | | | | ferricrete Fe oxide pisolites Fe stained milky quartz brick red clay minor weathered mica - quartz schist |
| 20 | | | | | weathered mica schist mica - feldspar - quartz schist minor ferricrete and milky quartz |
| 30 / 10 | | | | | |
| 40 | | | | | biotite - feldspar - quartz schist muscovite - quartz - biotite schist muscovite - biotite - quartz schist milky quartz |
| 50 / 15 | | | | | |
| 60 | | | | | |
| 70 / 20 | | | | | |
| 80 / 25 | | | | | core 1: banded garnet - quartz - biotite schist biotite - feldspar - quartz schist |
| 90 | | | | | core 2: and calcite - magnetite - biotite - amphibole - diopside - quartz schist |
| 100 / 30 | | | | | average dip of schistosity ~ 70° |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 40' | COMMENCED 8/8/1974 | LOGGED BY I.A.C. |
| TYPE MAYHEW 1000 | WATER 40' - 95' 11" | COMPLETED 8/8/1974 | DRAWN BY [illegible] |

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U 53/A/24

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO.: BMR JIM JIM 8 — CO-ORDINATES: 13°03' 132°43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | 0 50 100 | 0 400 800 1200 | 0·0 | | |
| 10 | | | TC = 2 s | | ferricrete Fe oxide pisolites, red, brown and yellow clay, Fe stained quartz, minor mica schist. |
| 5 | | | | | |
| 20 | fe | | | | mica (muscovite, biotite) schist, biotite - muscovite - feldspar - quartz schist, pegmatoid quartz and white feldspar |
| 30 | | | | | |
| 10 | | | | | |
| 40 | | | | | |
| 50 15 | | | | | core banded foliated quartzite and biotite - muscovite - feldspar - quartz schist. banding kinked and isoclinally folded in schist bands. average dip of schistosity ~53° |
| 60 | | | | | |
| 20 | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 40' | COMMENCED 5/8/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 40' - 52' | COMPLETED 8/8/1974 | DRAWN BY P.G.S., I.H. |

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D53/A/25

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 9 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | 200 250 300 | 1000 1500 2000 2500 | 0·01 TC=2s | | | ferricrete Fe oxide pisolites Fe stained quartz, brick red clay, white clay, minor ferruginised schist |
| 10 | | | | | | | |
| | 5 | | | | | | mica (biotite, muscovite) schist, feldspar - mica - quartz schist, milky quartz. |
| 20 | | | | | | | |
| 30 | | | | | | | |
| | 10 | | | | | | |
| 40 | | | | | | | core. garnet - chlorite - biotite - feldspar - quartz - muscovite schist banded tightly folded and kinked. |
| 50 | 15 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 38' | COMMENCED 8/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYHEW 1000 | WATER 38' - 50' | COMPLETED 9/8/1974 | DRAWN BY R.G.S.S., I.H. |

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D 53/A/26

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: AMR JIM JIM 10 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | 110 130 150 | 1100 1600 | 0·01 | | |
| 10 / 5 | | | TC=2s | | ferruginised mica and mica-quartz schist, milky and Fe stained quartz. |
| 20 / 30 / 10 | | | | | partly ferruginised and weathered chlorite-muscovite-feldspar-quartz schist mica schist pegmatoid quartz and feldspar |
| 40 / 60 / 15 | | | | | chlorite/biotite-muscovite-feldspar-quartz schist, mica schist, pegmatoid quartz and feldspar |
| 60 / 20 / 70 | | | | | core: chlorite-muscovite-feldspar-quartz schist. tightly folded and kinked, planar in some sections. average dip of schistosity ~40° |
| 80 / 25 | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 25' | COMMENCED 9/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYHEW 1000 | WATER 25' - 78' | COMPLETED 9/8/1974 | DRAWN BY P.G.S.S., I.H. |

M(Pf)122

D 53/A/27

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO.: AMR JIM JIM 11 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | | 40 — 80 | 200 — 400 | 0·005 | | |
| 10 | 5 | | | TC = 2 s | | Fe oxide pisolites, yellow and red brown clay, milky quartz |
| 20 | | | | | | mottled off white and pale green clay, minor weathered amphibolite |
| 30 | 10 | | | | | partly weathered amphibolite, minor brownish green clay and milky quartz |
| 40 | | | | | | |
| 50 | 15 | | | | | partly weathered amphibolite, milky quartz |
| 60 | | | | | | core: amphibolite |
| | 20 | | | | | average dip of foliation ~ 70° |
| 70 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 40 | COMMENCED 9/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYHEW 1000 | WATER 40' - 65' | COMPLETED 9/8/1974 | DRAWN BY P.G.S.S, I.H. |

M(Pf)122

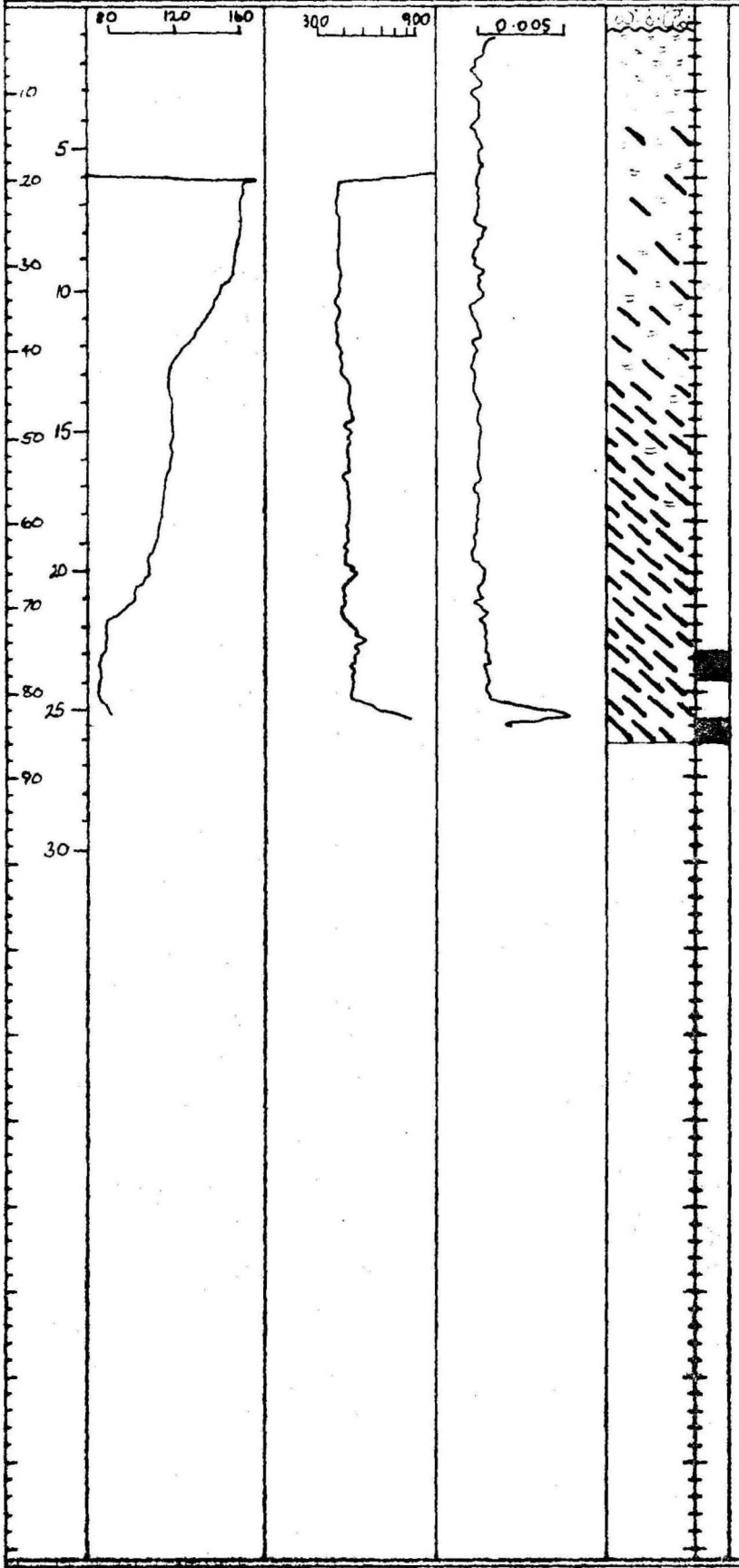
D 53/A/28

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS — LOCATION MOUNT BASEDOW TRAVERSE

HOLE NO BMR JIM JIM 12 — CO-ORDINATES 13° 03' 132° 43'




DESCRIPTION OF CORE AND CUTTINGS

unconsolidated quartz gravel

mottled orange, pale green and brown foliated clay

greenish grey sandy clay, weathered amphibolite, milky quartz

fresh and partly weathered amphibolite minor yellow-green chloritic clay and milky quartz.

core 1: partly weathered amphibolite

core 2: amphibolite
minor chlorite-quartz schist bands.
trace amounts of pyrite and garnet
Average dip of foliation ~45°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 15' | COMMENCED 12/8/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 15' - 86' | COMPLETED 12/8/1974 | DRAWN BY P.G.S., J.H. |

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D 53/A/29

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 13 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 30 — 60 | 1200 1600 | 0·01 TC=28 | | | unconsolidated quartz gravel Feoxide pisolites, ferricrete milky quartz, ferruginised mica schist. |
| 10, 5, 20, 30, 10, 40, 50, 15, 60, 20, 70, 80, 25 | | | | | | weathered and ferruginised feldspar - mica (muscovite biotite/chlorite) - quartz schist minor mica schist and pegmatoid quartz and feldspar. |
| | | | | | | Feldspar - mica (biotite/chlorite) muscovite) - quartz schist, minor mica schist and pegmatoid quartz and feldspar |
| | | | | | | core: carbonate - chlorite/biotite - muscovite - feldspar - quartz schist. banded, open to isoclinally folded. dip of schistosity 45° - 90° |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 25' | COMMENCED 12/8/1974 | LOGGED BY P.G.S |
| TYPE MAYHEW 1000 | WATER 25' - 77'6" | COMPLETED 12/8/1974 | DRAWN BY P.G.S-S, I.H. |

M(Pf)122 D 53/A/30

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BAGEDOW TRAVERSE

HOLE NO: BMR JIMJIM 1A — CO-ORDINATES: 13° 03′ 132° 43′

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | -10 0 | 100 400 | 0·005 0·02 | | | Fe oxide pisolites, Ferruginised mica quartz schist, milky quartz |
| 10 | | | | τc=2s | | | |
| 20 | 5 | fe | | | | | weathered and ferruginised mica (muscovite biotite/chlorite) schist and mica-feldspar-quartz schist, minor pegmatoid quartz and feldspar |
| 30 | 10 | | | | | | |
| 40 | | | | | | | |
| 50 | 15 | | | | | | partly weathered mica (muscovite biotite/chlorite) schist and mica-feldspar-quartz schist. pegmatoid quartz, and feldspar |
| 60 | 20 | | | | | | |
| 70 | | | | | | | |
| 80 | 25 | | | | | | core: biotite/chlorite-muscovite-feldspar-quartz schist. banding isoclinally folded. average dip of schistosity ~63° |
| 90 | | | | | | | |
| | 30 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0-30′ | COMMENCED 12/8/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 30′-86′ | COMPLETED 13/8/1974 | DRAWN BY P.G.S., J.H. |

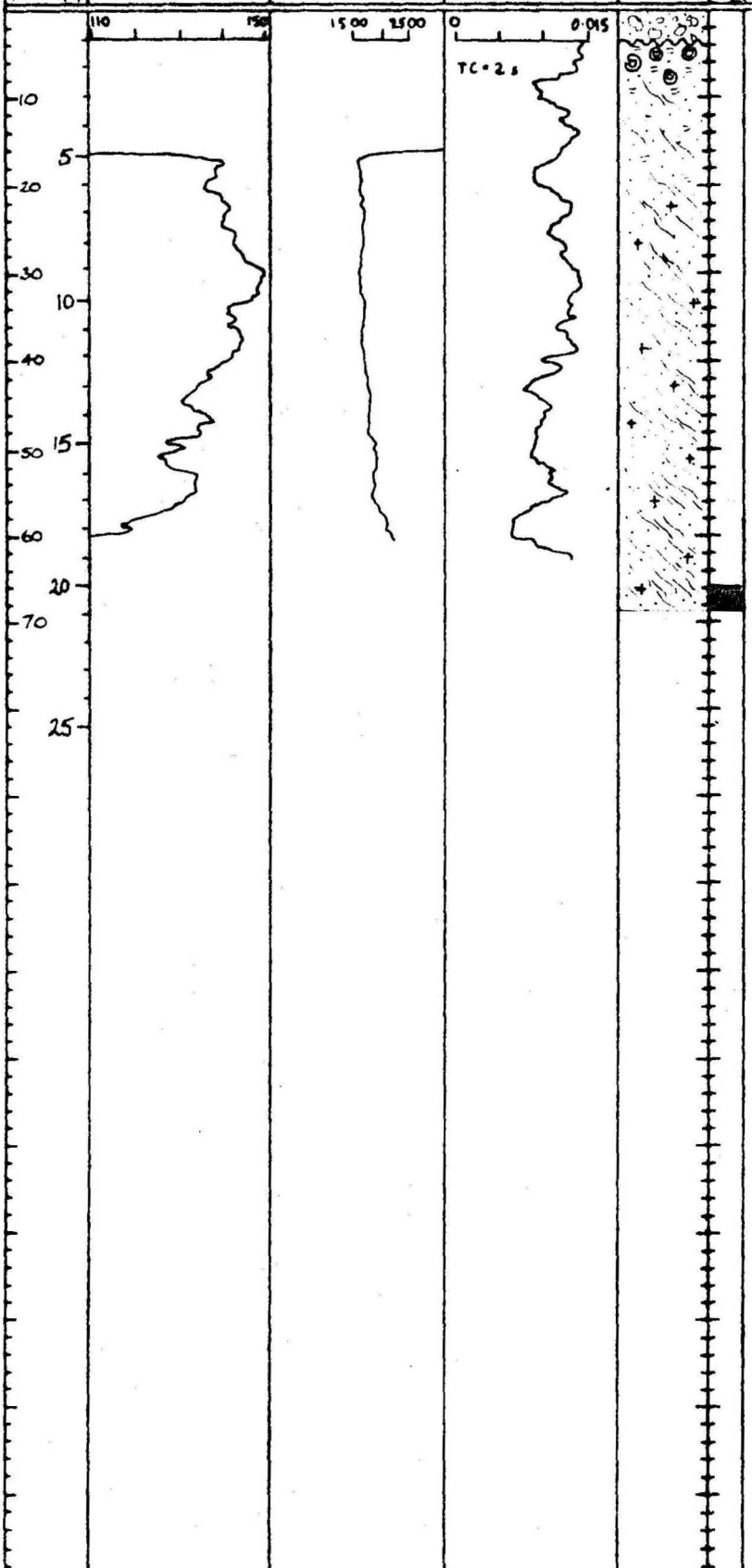
M(Pt)122 D 93/A/31

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 15 — CO-ORDINATES: 13° 03' 132° 43'




DESCRIPTION OF CORE AND CUTTINGS

unconsolidated quartz gravel

brick red sandy clay, Fe oxide pisolites, milky quartz

ferruginised mica-quartz schist

weathered and ferruginised mica (biotite/chlorite, muscovite) schist, mica-quartz schist, milky quartz, minor white clay

mica (biotite/chlorite, muscovite) schist, mica-feldspar-quartz schist, milky quartz.

core: banded garnet-quartz-mica (biotite/chlorite, muscovite) schist and biotite/chlorite-muscovite-feldspar-quartz schist.
kinked and sheared, quartz bands as fold noses or boudins.
dip of schistosity varies 55°-60°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 45' | COMMENCED 12/8/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 45' - 68'6" | COMPLETED 13/8/1974 | DRAWN BY P.G.S., J.H. |

M(P1)122

D 53/A/32

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BAGEDOW TRAVERSE

HOLE NO: BMR JIM JIM 16 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | 20 — 40 | 200 — 1400 | 0 — 0.015 | | |
| | | | TC = 2 s | | |
| 10 / 5 | | | | | Fe oxide pisolites, ferricrete pale yellow brown and brick red clay, milky and Fe stained quartz. |
| 20 | | | | | weathered amphibolite, mainly pale yellow, green and brown clay. |
| 30 / 10 | | | | | weathered mica (biotite, muscovite) schist feldspar-mica-quartz schist and quartzite clear and milky quartz trace magnetite and weathered amphibolite |
| 40 | | | | | bleached yellow green clay, (weathered amphibolite) |
| 50 / 15 | | | | | weathered amphibolite. mica (biotite, muscovite) schist mica-feldspar-quartz schist, milky quartz, trace pink garnet, magnetite and scapolite. |
| 60 / 20 | | | | | magnetite-quartz-mica (biotite, muscovite) schist, muscovite-biotite-feldspar-quartz schist milky quartz, minor weathered amphibolite |
| 70 | | | | | |
| 80 / 25 | | | | | core: banded feldspar-biotite-quartz-muscovite schist, magnetite-quartz-mica schist and magnetite-mica-quartz schist. open to tightly folded, kinked, sheared. average dip of schistosity ~45° |
| 90 / 30 | | | | | |

| DRILLER | AIR 0-50' | COMMENCED 13/8/1974 | LOGGED BY P.G.S. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 50'-68' | COMPLETED 13/8/1974 | DRAWN BY P.G.S.S. I.H. |

M(P1)122 — D 93/A/35

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 17 — CO-ORDINATES: 13°03' 132°43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 0 — 150 | 1500 — 2500 | 0·005 — 0·02 | | | |
| | | | TC=2 s | | | Fe oxide pisolites, brick red micaceous sand, milky quartz, ferruginised quartz-mica schist. |
| 10 / 5 | | | | | | |
| 20 | | | | | | |
| 30 / 10 | | | | | | weathered and ferruginised mica (biotite muscovite) - feldspar - quartz schist, mica schist, pegmatoid quartz and feldspar, minor micaceous white clay |
| 40 | | | | | | |
| 50 / 15 | | | | | | |
| 60 | | | | | | |
| 70 / 20 | | | | | | garnet - muscovite - biotite - feldspar - quartz schist minor mica schist, pink garnet dodecahedra (< 5mm), chlorite flakes, clear and milky quartz. |
| 80 / 25 | | | | | | core: garnet - muscovite - biotite feldspar - quartz schist. Banding kinked and tightly folded average dip of schistosity ~40° |
| 90 / 30 | | | | | | |

| DRILLER | AIR 0 - 52' | COMMENCED 13/8/1974 | LOGGED BY P.G.S. |
|---|---|---|---|
| TYPE MAYNEW 1000 | WATER 52 - 84'6" | COMPLETED 13/8/1974 | DRAWN BY P.G.S. I.H. |

M(Pf)122 — D53/A/34

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS — LOCATION MOUNT BASEDOW TRAVERSE

HOLE NO BMR JIM JIM 18 — CO-ORDINATES 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 230 — 260 | 900 — 1500 | 0·01 | | | |
| 10 | | | TC<2s | | | unconsolidated quartz gravel, sand and clay. |
| 5 | | | | | | pale green foliated weathered rock chips (possibly amphibolite) brown clay, minor milky quartz. |
| 20 | | | | | | |
| 30 / 10 | | | | | | |
| 40 | | | | | | mica (muscovite biotite) schist, garnet-feldspar-biotite-quartz schist, pegmatoid quartz and feldspar, altered pink garnet dodecahedra. |
| 50 / 15 | | | | | | |
| 60 | | | | | | |
| 20 | | | | | | |
| 70 | | | | | | |
| 80 / 25 | | | | | | core: banded garnet-feldspar-quartz-muscovite-biotite-quartz schist. average dip of planar schistosity ~ 45° |

| DRILLER | AIR 0'-52' | COMMENCED 13/8/1974 | LOGGED BY P.G.S. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 52'-78' | COMPLETED 14/8/1974 | DRAWN BY P.G.S. L.H. |

M(Pf)122 D 53/A/35

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO.: GMR JIM JIM 19 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | -80 -40 0 | 400 1200 | 0 01 TC=2s | | sand |
| 10 | | | | | Fe oxide pisolites, brick red, mottled yellow, white and brown clay, milky quartz |
| 5 | | | | | mottled white, brown and yellow clay |
| 20 | | | | | |
| 30 / 10 | | | | | muscovite-biotite-feldspar-quartz schist, minor mica schist, milky quartz, trace pink garnet |
| 40 | | | | | |
| 50 / 15 | | | | | |
| 60 | | | | | amphibolite core: amphibolite average dip of foliation ~45° |
| 20 | | | | | |
| 70 | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0-38' | COMMENCED 13/8/1974 | LOGGED BY P.G.S. |
| TYPE MAYNEW 1000 | WATER 38' 63' | COMPLETED 14/8/1974 | DRAWN BY P.G.S.-S.I.H. |

M(Pt)122 DS3/A/36

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 20 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH (ft / m) | SELF-POTENTIAL LOG (mV) | RESISTANCE LOG (Ω) | RADIOMETRIC LOG (mR/h) | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | -20 0 20 40 | 100 1000 | 0.01 TC = 2 s | | unconsolidated quartz gravel; Fe oxide pisolites, brown clay |
| 10 / 5 | | | | | foliated mottled pale lime green and orange clay, minor weathered amphibolite |
| 20 / 10 | | | | | biotite - feldspar - quartz schist |
| 30 / 10 | | | | | pale lime green clay, weathered amphibolite |
| 40 / 15 | | | | | biotite - feldspar - quartz schist minor milky quartz and quartz-mica schist, trace beryl |
| 50 / 15 | | | | | partly weathered amphibolite |
| 60 / 20 | | | | | |
| 70 / 20 | | | | | biotite - feldspathic quartzite minor muscovite - quartz - biotite schist and milky quartz |
| 80 / 25 | | | | | |
| 90 / 25 | | | | | core: foliated muscovite - biotite feldspathic quartzite; average dip of planar foliation ~45° |
| 30 | | | | | |

| | | | |
|---|---|---|---|
| DRILLER: | AIR: 0 - 55' | COMMENCED: 14/8/1974 | LOGGED BY: P.G.S. |
| TYPE: MAYHEW 1000 | WATER: 55 - 87' | COMPLETED: 14/8/1974 | DRAWN BY: P.G.S., L.H. |

M(Pf)122 D93/A/37

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO.: BMR JIM JIM 21 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | 230 — 260 | 500 — 800 | 0·005 | | | unconsolidated quartz gravel |
| 10 | | | | TC = 2 s | | | pale lime green and red brown foliated clay, milky and Fe stained quartz, minor mica schist. |
| 20 | 5 | | | | | | |
| 30 | 10 | | | | | | biotite feldspar quartz schist, magnetite-mica (muscovite, biotite) schist, magnetite-biotite-garnet-muscovite-quartz schist, amphibolite, milky quartz pink garnet dodecahedra |
| 40 | | | | | | | |
| 50 | 15 | | | | | | |
| 60 | | | | | | | core 1: amphibolite, minor bands of lime green clay. |
| 70 | 20 | | | | | | biotite-feldspar-quartz schist, mica (muscovite, biotite) schist. |
| 80 | 25 | | | | | | core 2: amphibolite, lime green clay in fractures and shears average dip of foliation ~60° |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 55' | COMMENCED 14/8/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 55'-76' | COMPLETED 14/8/1974 | DRAWN BY P.G.S., L.H. |

M(Pf)122

D 53/A/38

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 22 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | -60 -30 0 | 0 500 1000 | 0·01 TC = 2 s | | | Fe oxide pisolites micaceous white and brick red clay, mica-quartz schist, clear and milky quartz |
| 10 | | | | | | | |
| | 5 | | | | | | muscovite-biotite-feldspar-quartz schist, minor mica schist, clear and milky quartz, pink garnet, white clay. |
| 20 | | | | | | | |
| 30 | | | | | | | |
| | 10 | | | | | | |
| 40 | | | | | | | partly weathered amphibolite mottled orange and lime clay. |
| 50 | 15 | | | | | | |
| | | | | | | | core 1: weathered amphibolite minor green clay bands. |
| 60 | | | | | | | biotite-feldspar-quartz schist, mica schist. |
| | 20 | | | | | | amphibolite |
| 70 | | | | | | | core 2: amphibolite average dip of foliation ~ 50° |
| | 25 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 40' | COMMENCED 14/8/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 40' - 70' | COMPLETED 15/8/1974 | DRAWN BY P.G.S. |

M(Pf)122

D 93/8/39

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION MOUNT CASEDOW TRAVERSE

HOLE NO. BMR JIM JIM 23 CO-ORDINATES 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | -70 -160 | 1000 2000 | 0.01 TC=23 | | unconsolidated quartz gravel and sand. Fe oxide pisolites, brick red and off white clay, ferruginised quartz-mica schist, milky quartz. |
| 10 | | | | | |
| 5 | | | | | |
| 20 | | | | | |
| 30 | | | | | |
| 10 | | | | | |
| 40 | | | | | magnetite-feldspar-quartz-mica (muscovite > biotite) schist. minor mica schist, mica-feldspar-quartz schist, magnetite octahedra (1mm), pegmatoid quartz and feldspar. rare pink garnet dodecahedra (<4mm) large chlorite flakes. |
| 50 | 15 | | | | |
| 60 | | | | | |
| 20 | | | | | |
| 70 | | | | | |
| 80 | 25 | | | | core: magnetite-feldspar-quartz-mica (muscovite, biotite) schist. banded, folded and kinked average dip of schistosity varies 40°-45° |
| 90 | | | | | |
| 30 | | | | | |

| DRILLER | AIR 0 - 45' | COMMENCED 15/8/1974 | LOGGED BY P.G.S. |
|---|---|---|---|
| TYPE MAYNEW 1000 | WATER 45' - 85' | COMPLETED 15/8/1974 | DRAWN BY P.G.S., I.H. |

M(Pf)122

D 53/A/40

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO.: BMR JIM JIM 84 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH Ft | DEPTH M | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | -145 -140 -135 | 1000 2500 | 0.01 TC=2.5 | | | unconsolidated quartz gravel and sand Feoxide pisolites, red brown and yellow quartz rich clay |
| 10 | | | | | | | Ferruginised mica quartz schist and mica schist, clear and milky quartz, minor mottled white, yellow and brown clay. |
| 20 | 5 | | | | | | |
| 30 | 10 | | | | | | biotite-feldspar-quartz schist magnetite-mica schist, minor quartz and feldspar, magnetite octahedra and ferruginised schist. |
| 40 | | | | | | | |
| 50 | 15 | | | | | | |
| 60 | | | | | | | core: magnetite-chlorite-mica (biotite muscovite) - feldspar - quartz schist. well banded. dip of schistosity varies 50°-90° |
| | 20 | | | | | | |
| 70 | | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 35' | COMMENCED 15/8/1974 | LOGGED BY P.G.S. |
| TYPE MAYNEW 1000 | WATER 35'-61' | COMPLETED 15/8/1974 | DRAWN BY P.G.S-S, I.H. |

M(Pf)122

D 53/A/41

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS  LOCATION: MOUNT GASEDOW TRAVERSE

HOLE NO: BMR JMJ 25  CO-ORDINATES: 13° 03′ 132° 43′

| DEPTH Ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | GAMMAGRAPHIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | -230 -210 | 0 3000 | 0·01 | | Fe oxide pisolites, red brown and yellow clay, ferruginised mica-quartz schisty, milky quartz. |
| 10 | | | TC=2.5 | | weathered mica-quartz schist, minor mica schist and white clay. |
| 5 20 | | | | | magnetite-muscovite-biotite-feldspar-quartz schist, minor magnetite mica schist magnetite octahedra (< 2mm) garnet-quartz-tourmaline. |
| 30 10 | | | | | core: magnetite-muscovite-biotite-feldspar-quartz schist. and magnetite-biotite-feldspar-muscovite-quartz schist. |
| 40 15 | | | | | average dip of tightly folded schistosity 45°-50° |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0′-35′ | COMMENCED 15/8/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 35′-40′ | COMPLETED 15/8/1974 | DRAWN BY P.G.S., J.H. |

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BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO.: BMR JIMJIM 26 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | -260 -230 | 500 2500 | 0.01 TC=2 s | | | |
| 10 | | | | | | | Fe oxide pisolites ferruginised and weathered quartz-mica schist and mica-quartz schist, milky quartz, white and orange clay |
| 20 | 5 | | | | | | |
| 30 | 10 | | | | | | muscovite-kyanite-biotite/chlorite-quartz schist, magnetite-biotite/chlorite-muscovite schist, pegmatoid quartz and feldspar minor magnetite octahedra (<1mm) |
| 40 | | | | | | | |
| 50 | 15 | | | | | | |
| 60 | | | | | | | partly weathered amphibolite minor magnetite-quartz-amphibole schist. |
| 70 | 20 | | | | | | |
| 80 | 25 | | | | | | magnetite-kyanite-muscovite-biotite/chlorite-quartz schist, magnetite muscovite schist. pegmatoid quartz, feldspar and magnetite, magnetite octahedra pink garnet dodecahedra (<2mm) |
| 90 | | | | | | | core: staurolite-magnetite-kyanite-chlorite-muscovite schist veined by pegmatoid quartz, feldspar and muscovite. |
| 100 | 30 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0-40' | COMMENCED 15/8/1974 | LOGGED BY P.G.S. |
| TYPE MAYNEW 1000 | WATER 40'-92' | COMPLETED 15/8/1974 | DRAWN BY P.G.S., J.H. |

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BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BAGEDDON TRAVERSE

HOLE NO: BMR JIM JIM 27 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTIVITY LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | | -20 0 20 40 60 | 600 900 1200 | 0·01 TC=2s | | unconsolidated quartz gravel; ferruginised amphibolite |
| 10 | | | | | | |
| 20 | 5 | | | | | weathered amphibolite, mainly mottled pale lime green yellow and orange foliated clay contained amphibole and hematite (pseudomorphs after magnetite) |
| 30 | 10 | | | | | |
| 40 | | | | | | muscovite - biotite - quartz schist and quartzite, milky quartz. |
| 50 | 15 | | | | | |
| 60 | | | | | | amphibolite |
| 70 | 20 | | | | | |
| 80 | 25 | | | | | |
| 90 | | | | | | core: amphibolite trace pyrite. average dip of planar foliation ~60° |
| | 30 | | | | | |

| | | | |
|---|---|---|---|
| DRILLER: | AIR: 0 - 25' | COMMENCED: 15/8/1974 | LOGGED BY: P.G.S. |
| TYPE: MAYHEW 1000 | WATER: 25' - 88'9" | COMPLETED: 16/8/1974 | DRAWN BY: P.G.S., I.H. |

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BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 28 — CO-ORDINATES: 13°03' / 132°43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE EXTENT | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | -240 -230 | 1000 2500 | 0·01 TC=2s | | | |
| 10 | | | | | | Fe oxide pisolites, brick red and off white quartz rich micaceous clay, clear, milky and Fe stained quartz. |
| 5 | | | | | | |
| 20 | | | | | | weathered and ferruginised feldspathic quartzite, minor mica schist |
| 30 | | | | | | |
| 10 | | | | | | |
| 40 | | | | | | muscovite-biotite-feldspathic quartzite, minor mica schist and pegmatoid quartz and feldspar. |
| 50 15 | | | | | | |
| 60 | | | | | | |
| 20 | | | | | | core: foliated biotite-feldspathic quartzite |
| 70 | | | | | | dip of foliation varies 50°-55° |
| 25 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0-35' | COMMENCED 16/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYHEW 1000 | WATER 35'-69' | COMPLETED 16/8/1974 | DRAWN BY P.G.S., I.H. |

M(Pt)122

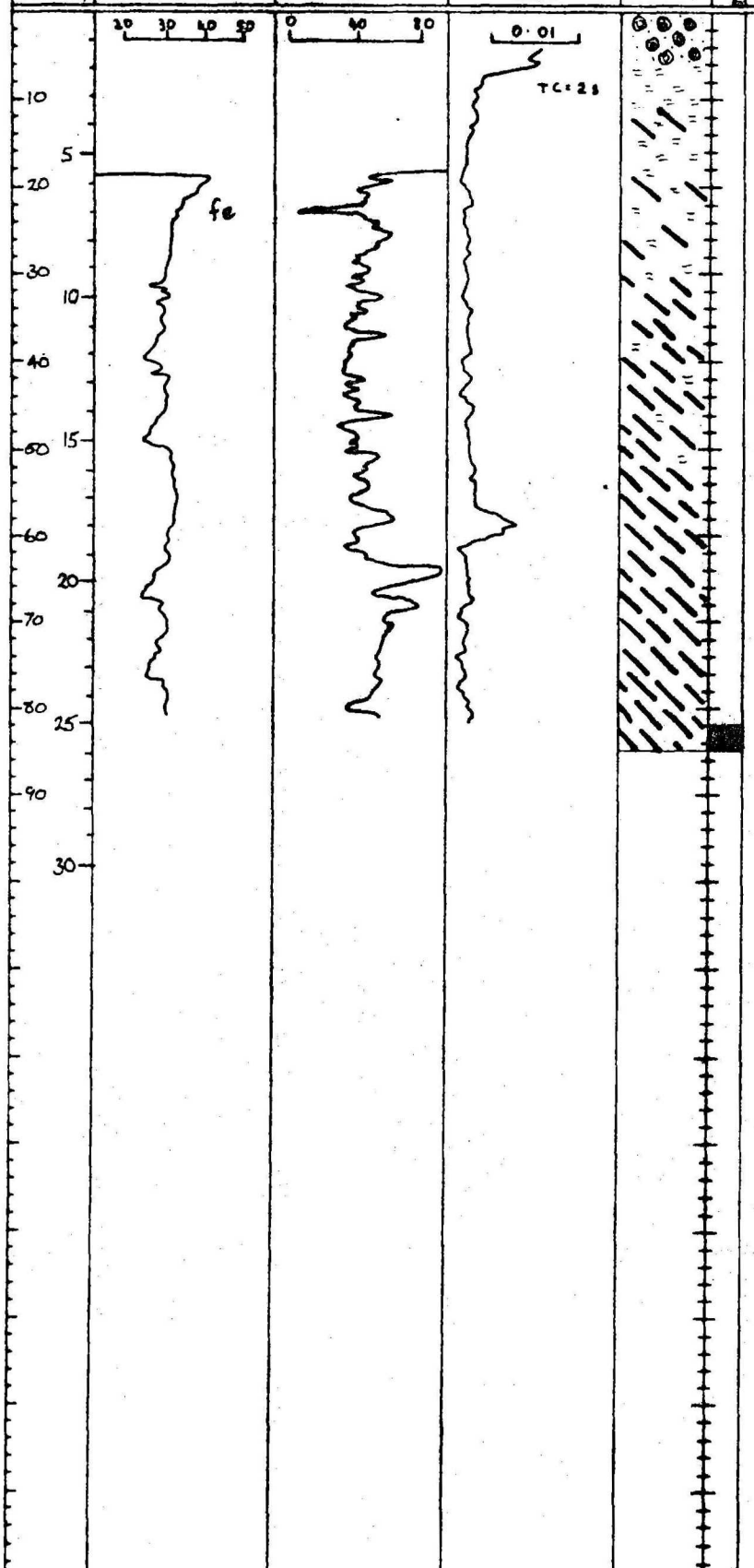
D 53/A/45

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION MOUNT BASEDOW TRAVERSE

HOLE NO BMR JIM JIM 29 CO-ORDINATES 13° 03' 132° 43'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, ferricrete brick red clay

brown orange and lime green clay, weathered amphibolite, milky quartz.

amphibolite (partly weathered) minor quartz and clay.

core: amphibolite
dip of foliation varies 60°-65°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0-18' | COMMENCED 16/8/1974 | LOGGED BY I.M.C. |
| TYPE MAYHEW 1000 | WATER 18'-84'10" | COMPLETED 16/8/1974 | DRAWN BY P.G.S.S. I.H. |

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D53/A/46

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BAGEDOW TRAVERSE

HOLE NO: BMR JIM JIM 30 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | -20 0 20 40 60 | 50 150 250 | 0·01 TC=2 s | | unconsolidated quartz gravel & sand Fe oxide pisolites, ferricrete. |
| 10 | | | | | weathered amphibolite, mainly green clay |
| 5 / 20 | | fe | | | magnetite - chlorite - muscovite schist, magnetite - chlorite - muscovite - quartz - feldspar schist. pegmatoid quartz and feldspar magnetite octahedra (< 1mm) minor white clay |
| 30 / 10 | | | | | partly weathered amphibolite |
| 40 / 15 | | | | | |
| 50 / 60 / 20 | | | | | magnetite - chlorite - quartz - feldspar schist, magnetite - chlorite - muscovite schist, pegmatoid quartz and feldspar minor amphibolite and magnetite - amphibole - chlorite schist., magnetite octahedra. |
| 70 / 80 / 25 | | | | | core: magnetite - quartz - feldspar - mica (muscovite schlorite) schist. veined by feldspar, quartz, chlorite epidote and scapolite. dip of schistosity varies 45°-50° |
| 90 / 30 | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0-40' | COMMENCED 16/8/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 40'-84' | COMPLETED 16/8/1974 | DRAWN BY P.G.S., L.H. |

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D 53/A/47

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 31 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG cps/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 30 40 50 60 | 100 500 1000 1500 | 0.005 TC=2s | | | Fe oxide pisolites, Fe stained milky quartz |
| 10 | | | | | | |
| 5 | fe | | | | | weathered magnetite - feldspar - mica (muscovite chlorite) - quartz schist magnetite mica schist, magnetite octahedra (<1mm), minor light brown and white clay. |
| 20 | | | | | | |
| 30 10 | | | | | | |
| 40 | | | | | | magnetite - feldspar - mica (muscovite chlorite) - quartz schist. pegmatoid quartz, feldspar, chlorite and magnetite (<5mm) |
| 50 15 | | | | | | core: magnetite - chlorite - feldspar - muscovite - quartz schist. average dip of schistosity 55° |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0-35' | COMMENCED 19/8/1974 | LOGGED BY I.N.C. |
| TYPE MAYHEW 1000 | WATER 35'-49' | COMPLETED 19/8/1974 | DRAWN BY P.G.S., L.H. |

M(Pf)122

D53/A/48

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT GASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 32 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | 50 60 | 50 150 | 0·01 | | | Fe oxide pisolites grey micaceous clay |
| 10 | | fe | | TC = 2 s | | | |
| 20 | 5 | | | | | | |
| 30 | 10 | | | | | | partly weathered foliated magnetite - muscovite - chlorite - feldspathic quartzite minor muscovite-chlorite schist, pegmatoid quartz and feldspar. |
| 40 | | | | | | | |
| 50 | 15 | | | | | | |
| 60 | | | | | | | |
| 70 | 20 | | | | | | core: foliated magnetite - muscovite - chlorite - feldspathic quartzite. |
| 80 | 25 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 2' | COMMENCED 19/8/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 2' - 72'6" | COMPLETED 19/8/1974 | DRAWN BY P.G.S. I.H. |

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DS3/A/49

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 33 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 80 120 160 | 0 100 600 400 | 0.01 | | | |
| 10 / 5 | fe | | TC = 23 | | | Fe oxide pisolites, yellow grey clay, milky quartz |
| 20 / 10 | | | | | | partly weathered magnetite-quartz-mica (biotite/chlorite, muscovite) schist. minor pegmatoid quartz and feldspar, magnetite octahedra. |
| 40 / 15 | | | | | | amphibolite |
| 60 / 20 | | | | | | core: amphibolite trace of pyrite and magnetite veined by scapolite & clinozoisite average dip of foliation ~70° |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0-26' | COMMENCED 19/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYHEW 1000 | WATER 26'-58'6" | COMPLETED 19/8/1974 | DRAWN BY PGS-S, I.H. |

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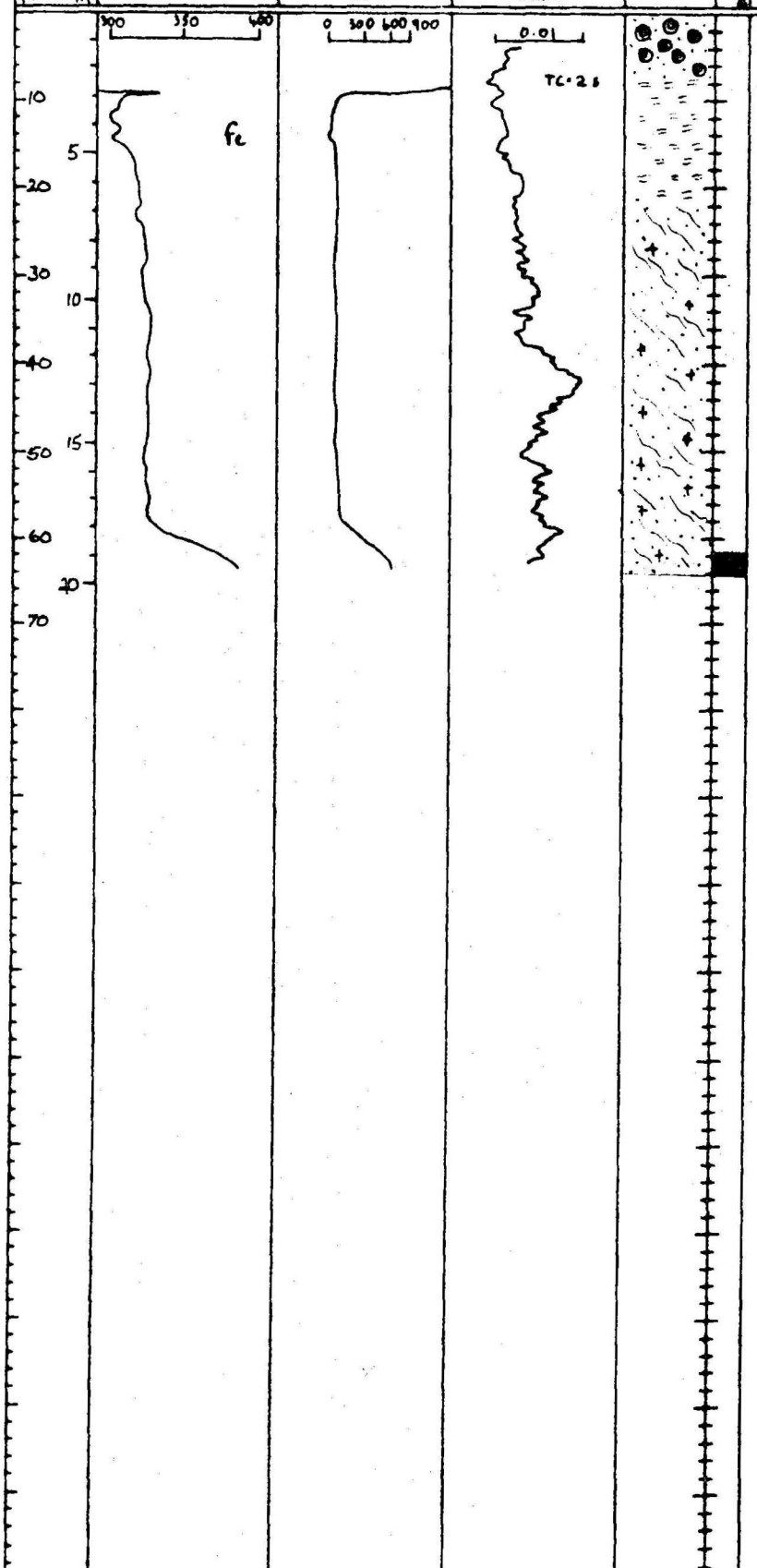
BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS — LOCATION MOUNT BASEDOW TRAVERSE

HOLE NO. BMR JIM JIM 34 — CO-ORDINATES 13° 03' 132° 43'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, ferricrete, Fe stained milky quartz

brick red, yellow and off-white micaceous clay

partly weathered magnetite-feldspar-mica (biotite/chlorite muscovite)-quartz schist, pegmatoid quartz and feldspar minor mica schist, magnetite octahedra (<2mm) and garnet dodecahedra (<4mm).

core: magnetite-feldspar-chlorite-muscovite-quartz schist.
average dip of schistosity ~60°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 25' | COMMENCED 20/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYHEW 1000 | WATER 25' - 64' | COMPLETED 20/8/1974 | DRAWN BY P.G.S., L.H. |

M(P1)122

153/A/51

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 35 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 10 20 30 40 | 100 300 500 | 0·01 TC=2s | | | Fe oxide pisolites, Fe stained milky quartz |
| 10 | | | | | | red, brown and yellow micaceous clay, ferruginised quartz-mica and mica-quartz schist. |
| 5 | | Fe | | | | weathered magnetite-mica (muscovite, biotite/chlorite)-quartz schist, and mica-feldspar-quartz schist. minor milky quartz |
| 20 | | | | | | magnetite and garnet dodecahedra (<3mm) |
| 30 | | | | | | partly weathered amphibolite |
| 10 | | | | | | biotite/chlorite-feldspar-quartz schist and magnetite-mica-quartz schist. |
| 40 | | | | | | partly weathered amphibolite minor pale green clay |
| | | | | | | biotite-feldspar-quartz schist minor magnetite-mica schist. |
| | | | | | | amphibolite |
| 50 15 | | | | | | biotite-feldspar-quartz schist and quartzite, milky quartz |
| | | | | | | amphibolite |
| 60 | | | | | | core: amphibolite |
| 20 | | | | | | dip of foliation varies 45°-50° |

| DRILLER | AIR 0 - 40 | COMMENCED 20/8/1974 | LOGGED BY P.G.S. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 20 - 58' | COMPLETED 20/8/1974 | DRAWN BY P.G.S., L.H. |

M(Pf)122 D 53/A/52

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BADEROW TRAVERSE

HOLE No.: AMR JIM JIM 36 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTIVITY LOG Ω | RADIOMETRIC LOG cps | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | 110 — 140 | 100 — 500 | 0 — 0.005 — 0.01 — 0.015 | | |
| 10 / 5 | | | TC = 2 s | | weathered and ferruginised kyanite - quartz - mica schist, brick red clay, milky quartz |
| 20 | | fe | | | |
| 30 / 10 | | | | | staurolite - kyanite - garnet - magnetite - chlorite - quartz - muscovite schist, milky quartz. |
| 40 | | | | | |
| 50 / 15 | | | | | core: staurolite - garnet - magnetite - chlorite - quartz - muscovite schist |
| 60 / 20 | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 35' | COMMENCED 20/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYHEW 1000 | WATER 35' - 60' | COMPLETED 20/8/1974 | DRAWN BY PGS-S, IH. |

M(P1)122

D 53 1A/53

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION MOUNT BASEDOW TRAVERSE

HOLE NO. BMR JIM JIM 37 CO-ORDINATES 13° 03' 132° 43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | | -60 -20 0 20 | 100 400 700 | 0·01 0·02 TC = 2 s | | ferruginised kyanite-quartz-mica schist; bleached kyanite mica schist |
| 10 | 5 | | | | | |
| 20 | | | | | | |
| 30 | 10 | fe | | | | garnet-magnetite-chlorite-quartz-kyanite-muscovite schist minor mica-quartz schist, milky quartz and pink garnet dodecahedra (< 0·5mm) |
| 40 | | | | | | |
| 50 | 15 | | | | | core 1: garnet-magnetite-chlorite-quartz-kyanite-muscovite schist |
| 60 | | | | | | garnet-magnetite-quartz-kyanite mica schist. |
| 70 | 20 | | | | | core 2: garnet-magnetite-chlorite-quartz-kyanite-muscovite schist. dip of schistosity varies 70°-90° |
| 80 | 25 | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR | COMMENCED 20/8/1974 | LOGGED BY P.G.S. |
| TYPE MAYNEW 1000 | WATER | COMPLETED 20/8/1974 | DRAWN BY P.G.S., I.H. |

M(Pf)122 D53/A/54

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO. BMR JIM JIM 38 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 0 10 20 | 100 200 | 0·01 0·015 0·02 0·025 | | | |
| | | | TC: 2 s | | | Ferruginised magnetite-quartz-mica schist; brick red clay |
| 10 5 | | | | | | |
| 20 | | | | | | |
| 30 10 | fe | | | | | garnet-magnetite-kyanite-quartz-mica (muscovite, chlorite) schist, garnet-magnetite-feldspar-quartz-mica schist. minor chloritic quartzite, pink garnet dodecahedra (2-4mm), kyanite, magnetite, staurolite and feldspar crystal fragments, milky quartz |
| 40 | | | | | | |
| 50 15 | | | | | | |
| 60 | | | | | | |
| 20 70 | | | | | | core: staurolite-magnetite-feldspar-garnet-quartz-mica (muscovite, chlorite) schist. |
| 80 25 | | | | | | |

| DRILLER | AIR 0 - 50' | COMMENCED 21/8/1974 | LOGGED BY I.H.C. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 50'-76'6" | COMPLETED 21/8/1974 | DRAWN BY P.G.S.S., I.H. |

M(Pf)122

D 53/A/35

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BAGEDOW TRAVERSE

HOLE NO.: BMR JIM JIM 39 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | -20 0 20 | 200 400 | 0·005 0·01 0·015 0·02 | | | |
| 10 | | | TC=2 s | | | Fe oxide pisolites, brick red clay, milky quartz |
| 5 20 | | | | | | |
| 30 | fe | | | | | |
| 10 40 | | | | | | partly weathered staurolite-garnet-quartz-mica (biotite, muscovite) schist, mica schist, minor clear and milky quartz, garnet dodecahedra (<5 mm) |
| 50 15 | | | | | | |
| 60 | | | | | | |
| 20 70 | | | | | | |
| 80 25 | | | | | | core: staurolite-garnet-quartz-mica (muscovite, biotite) schist average dip of schistosity ~70 |

| DRILLER | AIR 0 - 40' | COMMENCED 21/8/1974 | LOGGED BY I.H.C. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 40 - 83'5" | COMPLETED 21/8/1974 | DRAWN BY P.G.S., L.H. |

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D 53/A/56

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 40 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | -90 … -30 | 100 200 300 | 0·005 0·01 0·015 0·02 (TC=2s) | | | |
| 10 / 5 | | | | | | Fe oxide pisolites, Fe stained milky quartz, brick red clay. |
| 20 / 10 | Fe | | | | | ferruginised and partly weathered garnet-quartz-mica (muscovite, biotite/chlorite) schist, minor milky quartz, garnet dodecahedra (<7mm). |
| 30 / 10 | | | | | | |
| 40 / 15 | | | | | | |
| 50 / 15 | | | | | | |
| 60 / 20 | | | | | | garnet-quartz-mica (muscovite, biotite/chlorite) schist, minor milky quartz, biotite/chlorite-quartz schist and garnet dodecahedra (<5mm) |
| 70 / 20 | | | | | | |
| 80 / 25 | | | | | | |
| 90 / 25 | | | | | | |
| 100 / 30 | | | | | | core: staurolite-garnet-mica (biotite/chlorite muscovite) - quartz schist. average dip of schistosity ~50° |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0-35' | COMMENCED 21/8/1974 | LOGGED BY I.H.C |
| TYPE AMYMEW 1000 | WATER 35'-96' | COMPLETED 22/8/1974 | DRAWN BY P.G.S.S., I.H. |

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D53/A/57

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BAR JIM JIM A1 — CO-ORDINATES: 13° 03' / 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE / CUTTINGS | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | -10 0 10 20 30 | 50 150 250 | 0·005 0·01 0·015 | | | |
| 10 | | | TC = 2 s | | | Fe oxide pisolites, Fe stained quartz brick red clay. |
| 5 | | | | | | ferruginised and weathered magnetite garnet-quartz-mica schist, minor milky quartz and garnet dodecahedra. |
| 20 | | | | | | |
| | | fL | | | | |
| 30 10 | | | | | | |
| 40 | | | | | | magnetite-garnet-feldspar-mica (biotite/chlorite, muscovite) schist. muscovite-biotite/chlorite-quartz schist, magnet and garnet chips, milky quartz |
| 50 15 | | | | | | |
| 60 | | | | | | |
| 20 | | | | | | |
| 70 | | | | | | |
| 80 25 | | | | | | core: garnet-magnetite-feldspar-mica (muscovite, biotite)-quartz schist. average dip of schistosity - 90° |
| 90 | | | | | | |
| 30 | | | | | | |

| DRILLER | AIR 0 - 60' | COMMENCED 22/8/1974 | LOGGED BY I.H.C. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 50' - 85'8" | COMPLETED 22/8/1974 | DRAWN BY P.G.S.S., I.H. |

M(Pt)122

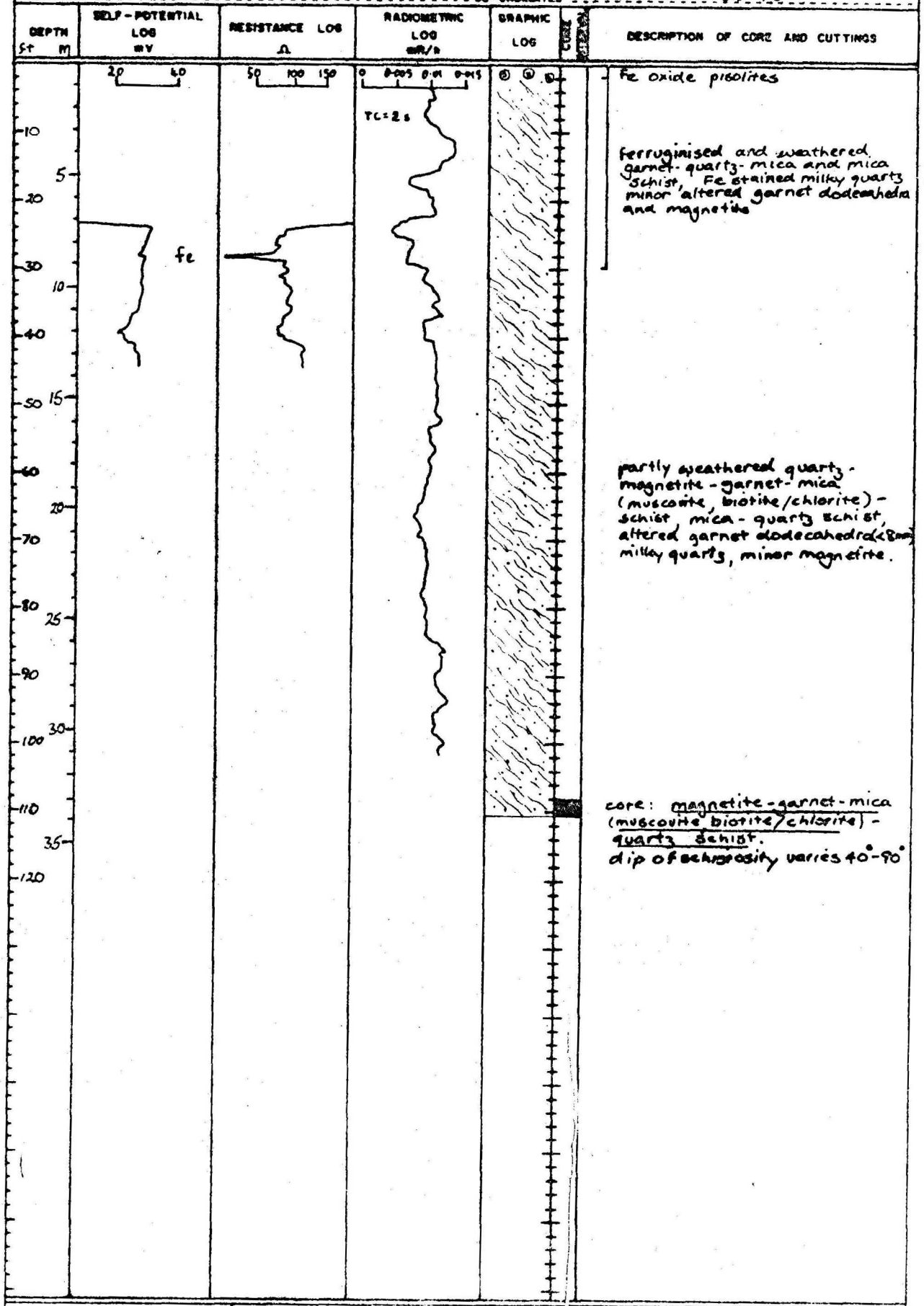
D 53/A/58

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO.: BMR JIM JIM 42 — CO-ORDINATES: 13° 03' 132° 43'




| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 50' | COMMENCED 22/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYHEW 1000 | WATER 50' - 110' 8" | COMPLETED 22/8/1974 | DRAWN BY P.G.S., I.H. |

M(P1)122

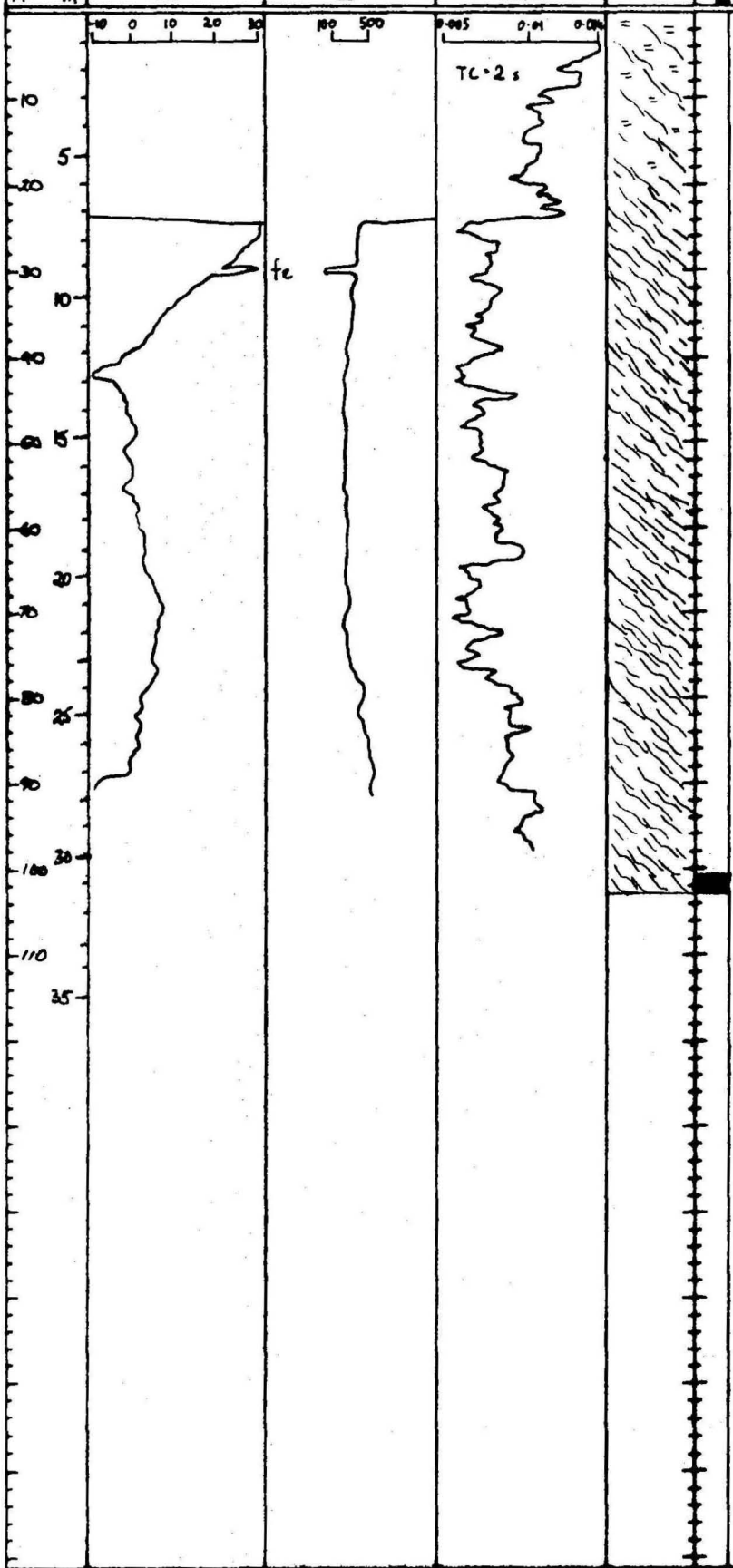
D 53/A/59

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT GABEDOW TRAVERSE

HOLE NO.: AMR JIM JIM 43 — CO-ORDINATES: 13° 03' 132° 43'




DESCRIPTION OF CORE AND CUTTINGS

ferruginised and weathered magnetite - feldspar - quartz - mica (biotite/chlorite, muscovite) schist. minor brick red clay, milky quartz

partly weathered garnet-magnetite - feldspar - quartz - mica (muscovite > biotite/chlorite) schist., milky quartz, minor garnet dodecahedra (<1mm) and magnetite octahedra (<2mm)

core: magnetite - garnet - feldspar - quartz - mica (muscovite, chlorite) schist. veined by quartz.
average dip of schistosity ~50°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 40' | COMMENCED 22/8/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 40 - 102'9" | COMPLETED 29/8/1974 | DRAWN BY P.G.S., L.H. |

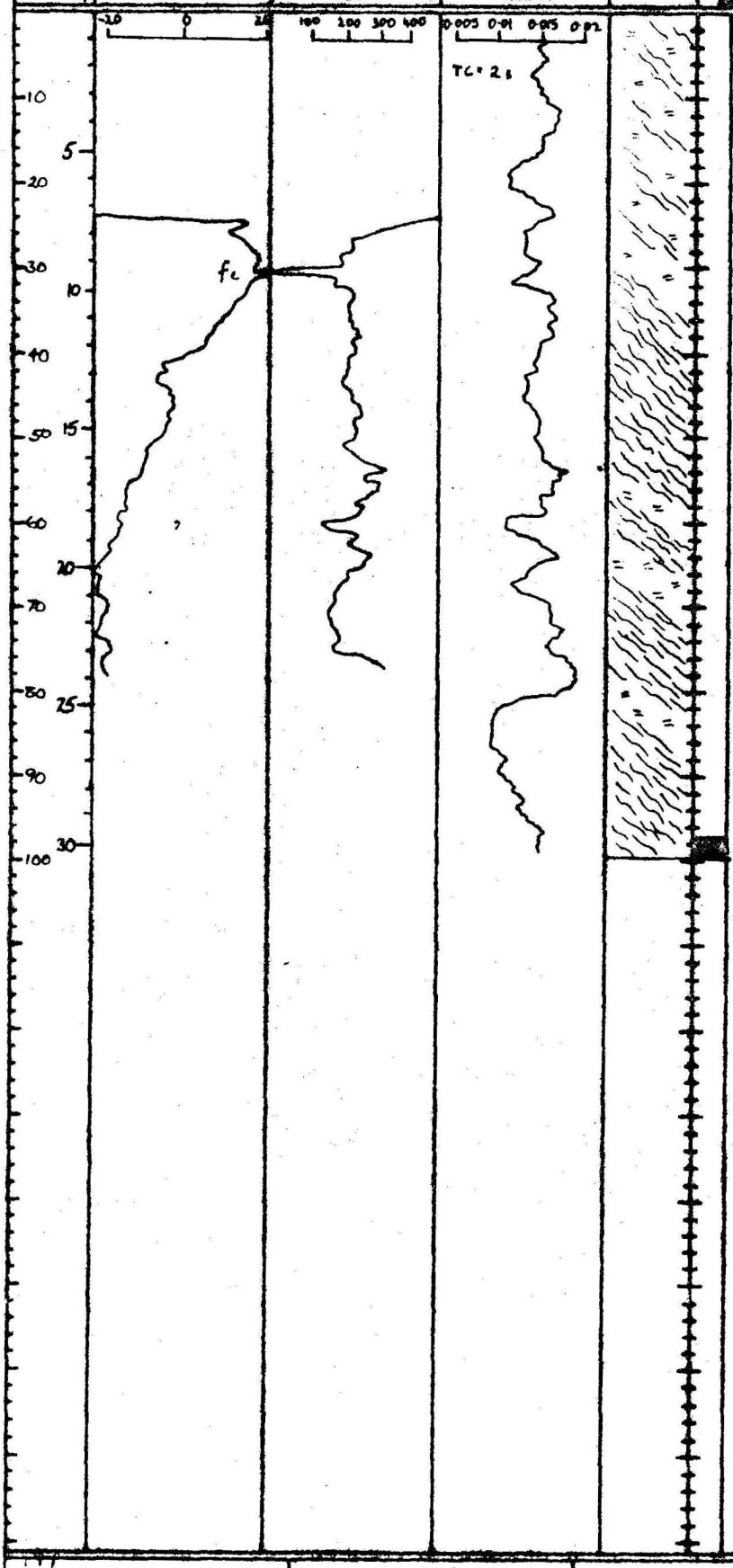
M(Pf)122 — D 53/A/60

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO.: BMR JIM JIM 44 — CO-ORDINATES: 13° 03' 132° 43'




DESCRIPTION OF CORE AND CUTTINGS

Ferruginised and weathered magnetite-quartz-mica schist, Fe stained quartz, brick red clay,

magnetite-garnet-quartz-mica (muscovite, chlorite) schist, minor feldspar-mica-quartz schist, milky quartz, pink garnet dodecahedra and magnetite. Small bands of yellow green clay (possibly weathered amphibolite)

core: garnet-magnetite-feldspar-quartz-chlorite-muscovite schist.
dip of schistosity varies 10°-90°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0-48' | COMMENCED 23/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYHEW 1000 | WATER 48'-99' 8" | COMPLETED 23/8/1974 | DRAWN BY P.G.S. L.H. |

M(Pf)122

D 53/A/61

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION MOUNT BADEDOW TRAVERSE

HOLE NO. BMR JIM JIM 45 CO-ORDINATES 13° 03' 132° 43'

| DEPTH M | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 0 10 20 | 0 100 200 | 0 0·005 | | | |
| 10 | | | TC-2s | | | Fe oxide pisolites, brickred clay |
| 5 20 | | | | | | lime and orange foliated clay, weathered amphibolite, milky quartz. |
| 30 | fe | | | | | |
| 10 40 | | | | | | partly weathered amphibolite minor green clay |
| 50 15 | | | | | | |
| 60 | | | | | | core: amphibolite average dip of foliation – 45° |
| 70 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 – 38' | COMMENCED 23/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYHEW 1000 | WATER 38 – 62'4" | COMPLETED 23/8/1974 | DRAWN BY PGS-S, I.H. |

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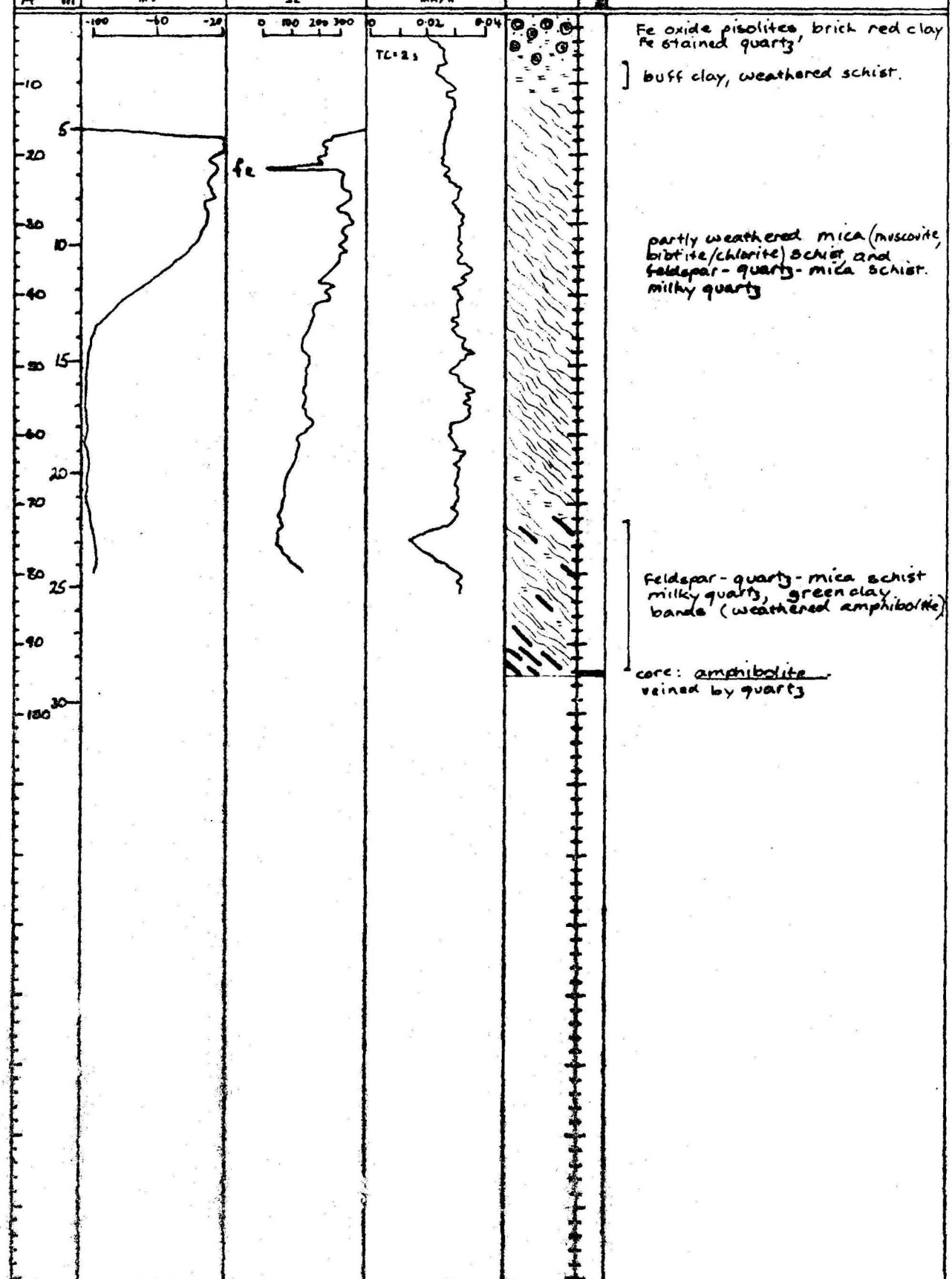
D53/A/62

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 46 — CO-ORDINATES: 13° 03' 132° 43'




| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 45' | COMMENCED 24/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYNEW WOOD | WATER 45' - 94'6" | COMPLETED 24/8/1974 | DRAWN BY P.G.S. I.H. |

M(P)1122

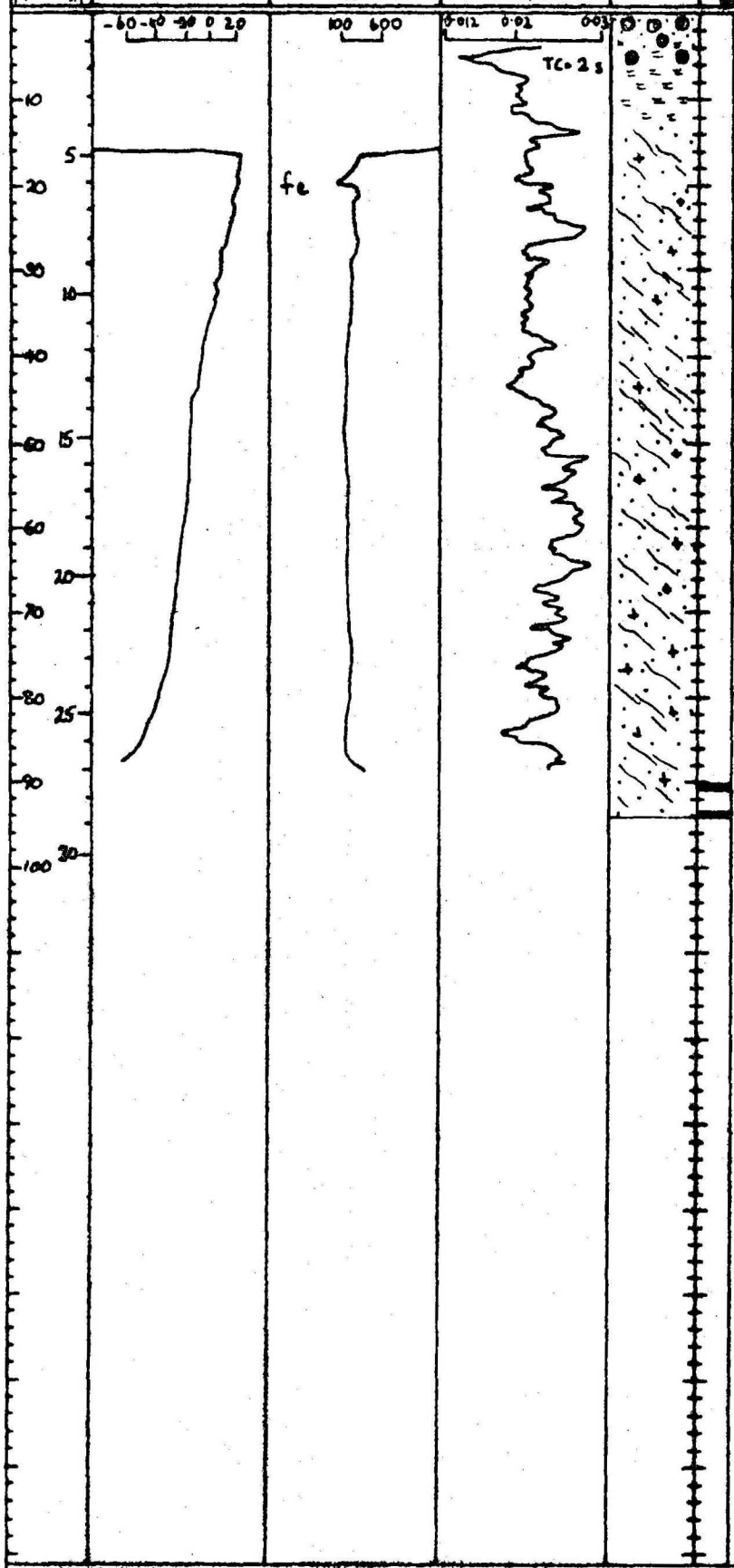
D 63/A/63

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 47 — CO-ORDINATES: 13° 03' 132° 43'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, Fe stained quartz, brick red clay

buff clay, weathered mica schist
feldspar - quartz - mica schist

partly weathered and ferruginised mica (biotite/chlorite, muscovite) feldspar - quartz schist.
milder quartz - mica schist.

core 1: feldspar - quartz - mica (biotite/chlorite, muscovite) schist
core 2: chlorite - muscovite - feldspar - quartz schist.
average dip of schistosity - 60°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 40' | COMMENCED 27/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYHEW 1000 | WATER 40' - 74' | COMPLETED 27/8/1974 | DRAWN BY BGS-S, I.H. |

M(Pf)122

DS3/A/64

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASCDOW TRAVERSE

HOLE NO: BMR JIM JIM 48 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH Ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | -40 -60 0 20 | 0 200 300 500 | 0.005 0.01 0.015 0.02 | | |
| 10 | | | TC>2 s | | Fe oxide pisolites, ferricrete |
| 5 | | | | | brick red clay, quartz pebbles off-white bleached clay |
| 20 | | Fe | | | yellow-green foliated clay, weathered amphibolite. |
| 30 | | | | | |
| 10 | | | | | |
| 40 | | | | | |
| 50 15 | | | | | weathered amphibolite, minor yellow green clay and milky quartz. |
| 60 | | | | | |
| 20 | | | | | |
| 70 | | | | | quartz-muscovite-biotite schist, biotite-quartz schist, milky quartz |
| 80 25 | | | | | |
| 90 | | | | | core: banded foliated biotite-feldspar quartzite and feldspar-quartz-mica (biotite muscovite) schist. average dip of schistosity ~40° |
| 30 | | | | | |

| DRILLER | AIR 0-38' | COMMENCED 27/8/1974 | LOGGED BY P.G.S. |
|---|---|---|---|
| TYPE MAYNEW 1000 | WATER 38'-86' | COMPLETED 27/8/1974 | DRAWN BY P.G.S., L.H. |

M(P1)122

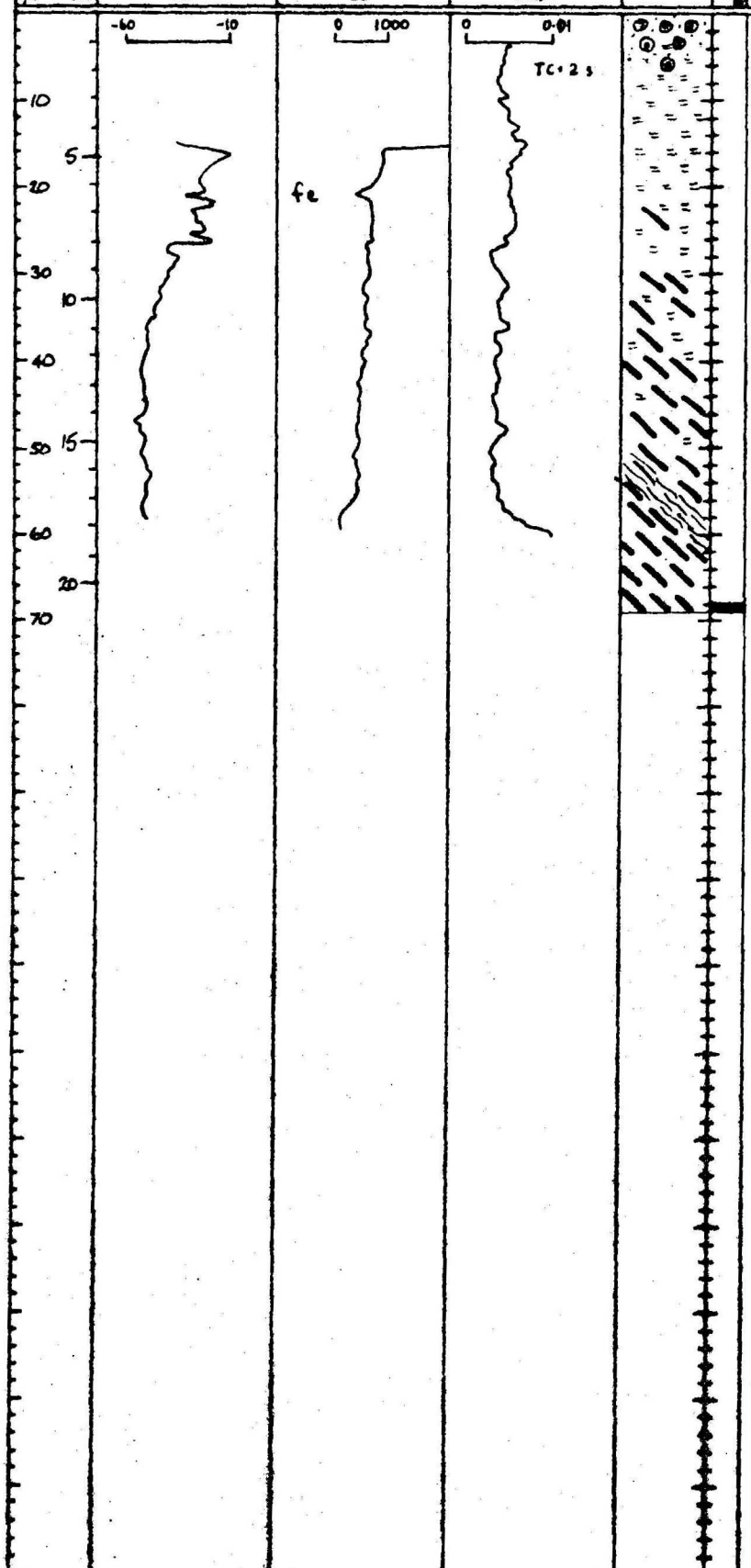
D53/A/65

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 49 — CO-ORDINATES: 13° 03' 132° 43'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, Fe stained quartz brick red clay

yellow-green foliated clay, weathered amphibolite, minor brick red clay.

partly weathered amphibolite yellow green clay, minor clear and milky quartz.

weathered quartz-mica schist.

amphibolite

core: amphibolite, extensively fractured. average dip of foliation ~ 45°

| | | | |
|---|---|---|---|
| DRILLER | BIT 10 - 20' | COMMENCED 27/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYHEW 1000 | WATER 60' - 69' | COMPLETED 27/8/1974 | DRAWN BY P.G.S.S. |

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D53/A/66

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION MOUNT BASEDOW TRAVERSE

HOLE NO. BMR JIM JIM 50 CO-ORDINATES 13° 03' 132° 43'

| DEPTH ft m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | Hole blocked | below water table | 0·02 0·03 TC=2 s | | Fe oxide pisolites, Fe stained quartz green grey clay |
| 10 | | | | | Ferruginised schist |
| 5 20 | | | | | buff micaceous clay |
| 30 10 | | | | | |
| 40 | | | | | |
| 50 15 | | | | | partly weathered muscovite-biotite-feldspar-quartz schist, minor milky quartz. |
| 60 20 | | | | | |
| 70 | | | | | core: banded muscovite-biotite feldspar-quartz schist. average dip of schistosity ~85° |
| 80 25 | | | | | |

| | | | |
|---|---|---|---|
| DRILLER E. L. | AIR 0 - 46' | COMMENCED 27/8/1974 | LOGGED BY I.H.C. |
| TYPE MAYHEW 1000 | WATER 45 - 74'6" | COMPLETED 29/8/1974 | DRAWN BY A.G.S.S. I.H. |

M(P1)122

DS3/A/67

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS — LOCATION MOUNT BASEDOW TRAVERSE

HOLE NO BMR JIM JIM 51 — CO-ORDINATES 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | -20 -10 0 10 | 100 600 1200 | 0 0·01 TC=2 s | | | |
| 10 | | | | | | Fe oxide pisolites, quartz pebbles and sand |
| 5 | | | | | | mottled pale greenish grey and brick red clay, weathered amphibolite. |
| 20 | | fe | | | | |
| 30 10 | | | | | | |
| 40 | | | | | | |
| 50 15 | | | | | | partly weathered amphibolite minor green clay |
| 60 | | | | | | |
| 20 70 | | | | | | |
| 80 25 | | | | | | core: amphibolite average dip of foliation - 50° |

| | | | |
|---|---|---|---|
| DRILLER L.K. | AIR 0 - 25' | COMMENCED 27/8/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 25' - 78' | COMPLETED 30/8/1974 | DRAWN BY P.G.S., I.H. |

M(Pf)122

D 53/A/68

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO.: GMB JM JM 52 — CO-ORDINATES: 13° 03' 132° 43

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | -10 0 10 | 200 600 | 0·01 0·015 0·02 0·025 | | | |
| | | | | TC = 2 s | | | Fe oxide pisolites, ferricrete |
| 10 | | | | | | | ferruginous mottled white clay |
| 20 | 5 | | fe | | | | |
| 30 | 10 | | | | | | yellow green clay, weathered amphibolite, minor milky quartz |
| 40 | | | | | | | |
| 50 | 15 | | | | | | |
| 60 | 20 | | | | | | weathered amphibolite |
| 70 | | | | | | | |
| 80 | 25 | | | | | | core: amphibolite, disseminated pyrite. chlorite alteration halos around fractures average dip of foliation ~45° |
| 90 | | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER: E.L. | AIR: 0 - 40' | COMMENCED: 30/8/1974 | LOGGED BY: P.G.S. |
| TYPE: MAYHEW 1000 | WATER: 40' - [illegible] | COMPLETED: 30/8/1974 | DRAWN BY: P.G.S., I.H. |

M(P1)122

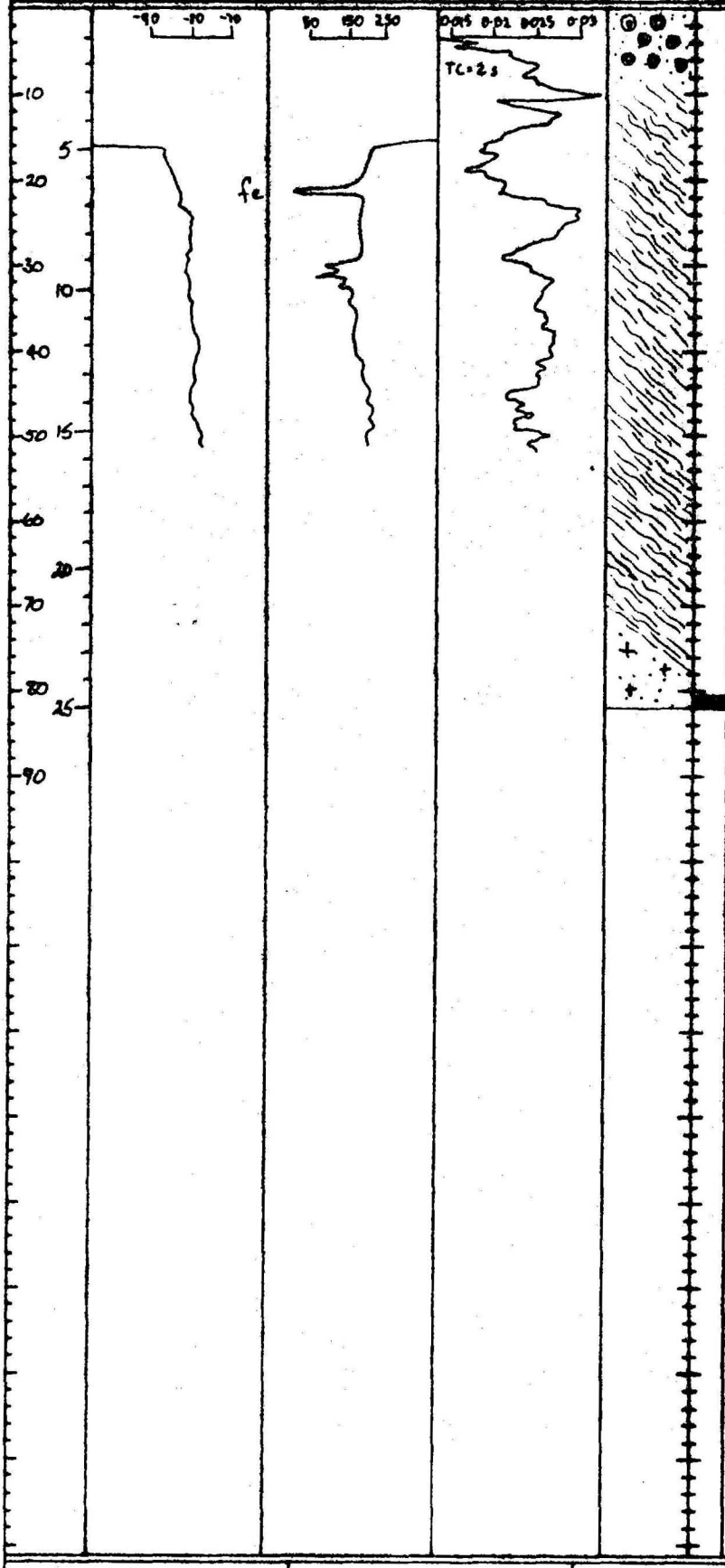
D 53/A/69

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION MOUNT BASEDOW TRAVERSE

HOLE NO. BMA JIM JIM 53 CO-ORDINATES 13° 03' 132° 43'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, ferricrete, quartz pebbles

partly weathered magnetite - quartz - mica (muscovite, biotite/chlorite) schist, minor clear and milky quartz, magnetite octahedra.

core: foliated chlorite - muscovite feldspathic quartzite

| | | | |
|---|---|---|---|
| DRILLER L.K. | AIR 0 - 40' | COMMENCED 30/8/1974 | LOGGED BY P.G.S |
| TYPE MAYHEW 1000 | WATER 40' - 82' | COMPLETED 30/8/1974 | DRAWN BY P.G.S, L.H. |

M(P1)122

DS3/A/70

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BAGEDOW TRAVERSE

HOLE NO.: BMR JIM JIM 54 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | Hole closed | below watertable | 0 — 0.015, TC = 2 s | | | Fe oxide pisolites, brick red clay quartz pebbles and sand |
| 10 | | | | | | grey-white micaceous clay, milky quartz. |
| 5, 20 | | | | | | |
| 30, 10 | | | | | | |
| 40 | | | | | | partly weathered and ferruginised mica (muscovite - biotite/chlorite) schist. Feldspar - quartz - mica (muscovite - biotite/chlorite) schist, minor milky quartz |
| 50, 15 | | | | | | |
| 60 | | | | | | |
| 20, 70 | | | | | | |
| 80, 25 | | | | | | |
| 90 | | | | | | |
| 30, 100 | | | | | | core: banded feldspar - biotite - muscovite - quartz schist. right to isoclinally folded. |

| | | | |
|---|---|---|---|
| DRILLER: E.L. | AIR: | COMMENCED: 30/8/1974 | LOGGED BY: P.G.S. |
| TYPE: MAYHEW 1000 | WATER: | COMPLETED: 2/9/1974 | DRAWN BY: P.G.S., I.H. |

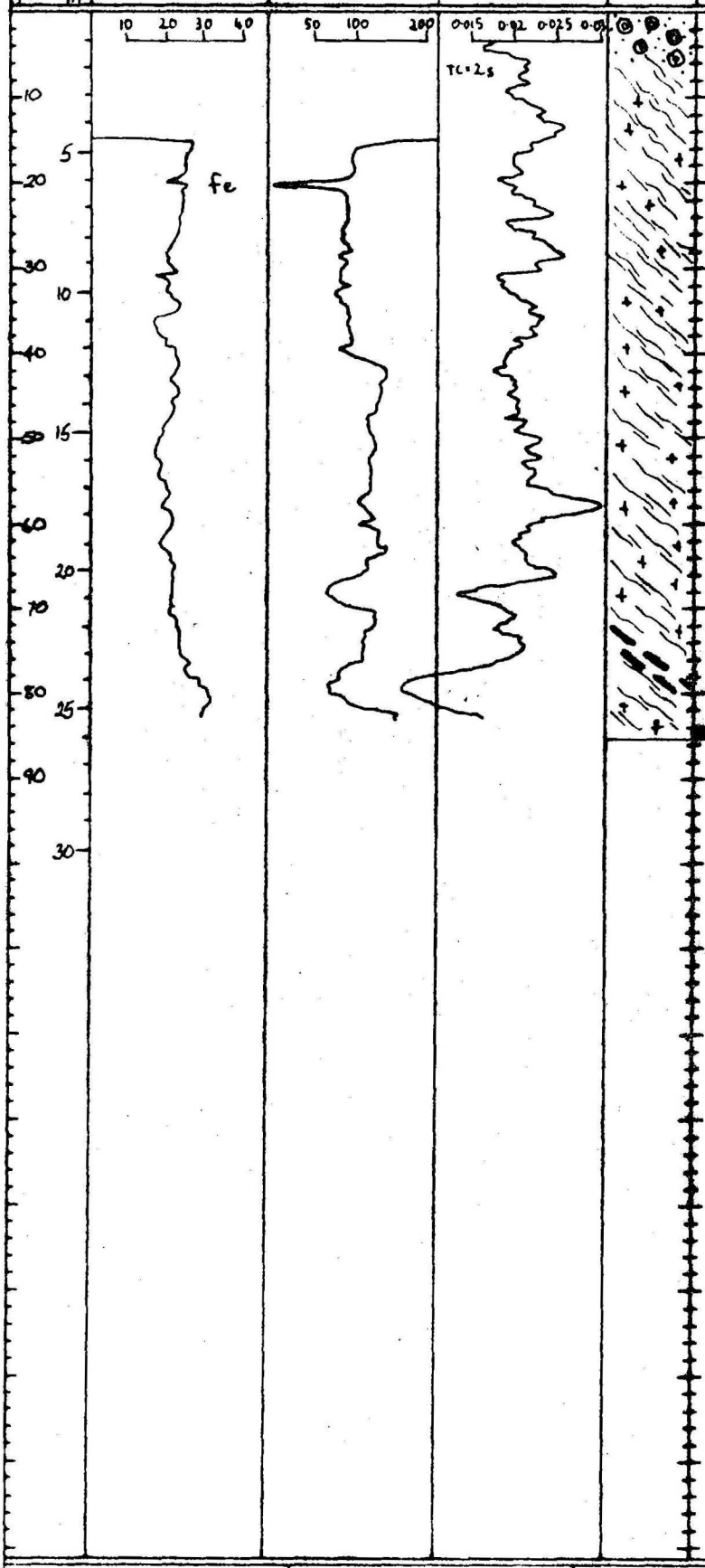
M(Pf)122 — D83/A/71

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 55 — CO-ORDINATES: 13° 03′ 132° 43′




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, ferricrete clear and milky quartz, ferruginised mica schist.

weathered and ferruginised mica schist, milky quartz

mica (muscovite biotite/chlorite) schist, mica-feldspar-quartz schist, minor milky quartz.

amphibolite

core: banded garnet-feldspar - mica (muscovite, biotite/chlorite) - quartz schist.
complex folding. - no.

| DRILLER | AIR | COMMENCED 2/9/1974 | LOGGED BY I.H.C |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER | COMPLETED 2/9/1974 | DRAWN BY P.G.S-S, I.H. |

M(Pf)122

D 53/A/72

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION MOUNT BADEDOW TRAVERSE

HOLE NO BMR JIM JIM 56 CO-ORDINATES 13° 08' 132° 43'

| DEPTH ft | DEPTH m | SELF POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | -10 0 10 20 | 100 500 | 0·01 0·02 TC=2 s | | | |
| 10 | | | | | | | Fe oxide pisolites, ferricrete, Fe stained quartz |
| 20 | 5 | | fe | | | | ferruginous micaceous grey clay, clear and milky quartz |
| 30 | | | | | | | |
| 40 | 10 | | | | | | ferruginised mica schist, clear and milky quartz. |
| 50 | 15 | | | | | | |
| 60 | | | | | | | |
| 70 | 20 | | | | | | feldspar-mica (muscovite, biotite) -quartz schist., mica schist, clear and milky quartz. |
| 80 | 25 | | | | | | core: milky quartz vein. and banded muscovite-biotite-feldspar-quartz schist. average dip of schistosity-60° |
| 90 | | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR | COMMENCED 2/9/1974 | LOGGED BY I.H.C. |
| TYPE MAYHEW 1000 | WATER | COMPLETED 2/9/1974 | DRAWN BY P.G.S.S. I.H. |

M(Pf)122

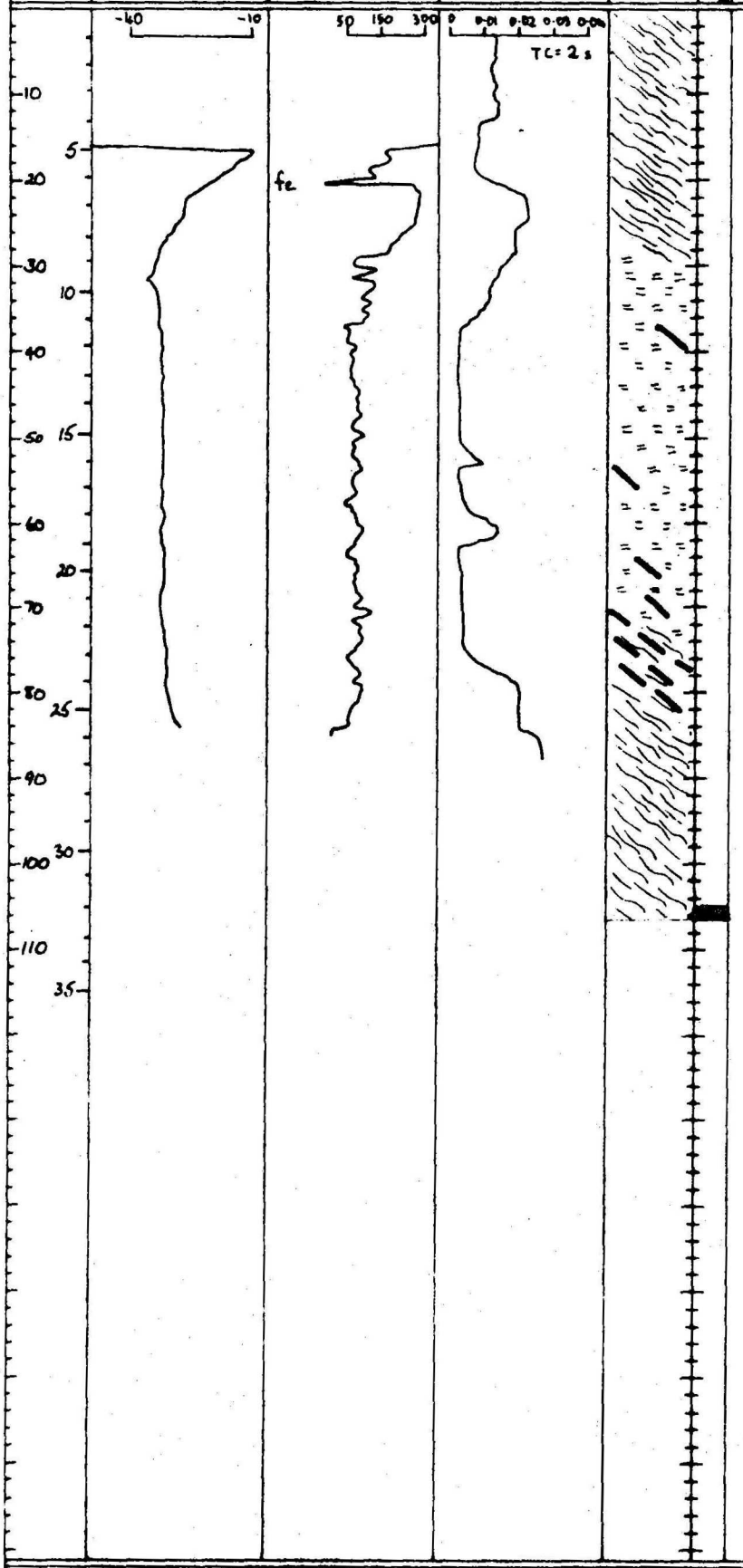
D53 A/73

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 57 — CO-ORDINATES: 13° 03' 132° 43'




DESCRIPTION OF CORE AND CUTTINGS

ferruginised mica and quartz-mica schist, clear and milky quartz

weathered mica and quartz-mica schist

yellow-brown and lime green clay, weathered amphibolite, minor clear and milky quartz

amphibole - chlorite schist.

muscovite - biotite/chlorite schist, feldspar - quartz - muscovite - biotite/chlorite schist, minor milky quartz

core: feldspar - biotite/chlorite - quartz - muscovite schist. chlorite alteration of garnet porphyroblasts. (minor) average dip of schistosity - 25°

| | | | |
|---|---|---|---|
| DRILLER | AIR | COMMENCED 2/9/1974 | LOGGED BY J.H.C. |
| TYPE MAYHEW 1000 | WATER | COMPLETED 2/9/1974 | DRAWN BY P.G.S-S, L.H. |

M(Pf)122

DS3/A/74

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: RMR JIM JIM 58 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | -40 -20 0 20 | 100 700 1300 | 0·01 0·025 TC=2 s | | | |
| 10 | | | | | | | Ferruginised mica schist brick red clay, minor quartz |
| 20 | 5 | fe | | | | | |
| 30 | 10 | | | | | | weathered mica and mica quartz schist, clear and milky quartz. |
| 40 | | | | | | | |
| 50 | 15 | | | | | | |
| 60 | 20 | | | | | | feldspar - mica (chlorite muscovite) - quartz schist, mica schist. clear and milky quartz. |
| 70 | | | | | | | |
| 80 | 26 | | | | | | |
| 90 | | | | | | | core: banded magnetite - feldspar - quartz - mica (muscovite > chlorite) schist. openly folded. dip of schistosity varies 30°-90° |
| | 30 | | | | | | |

| DRILLER | AIR | COMMENCED 3/9/1972 | LOGGED BY I.H.C. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER | COMPLETED 3/9/1972 | DRAWN BY P.G.S.S. I.H. |

M(Pf)122

D 53/A/75

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BAGEDOW TRAVERSE

HOLE NO: BMR JIM JIM 59 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH Ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | -40 0 40 | 200 500 | 0·01 0·025 TC = 2s | | | |
| 10 | | | | | | Ferruginised mica schist, Fe stained quartz |
| 5 / 20 | fe | | | | | |
| 30 / 10 | | | | | | |
| 40 | | | | | | partly weathered and ferruginised feldspar - mica (chlorite, muscovite) - quartzite, clear and milky quartz. |
| 50 / 15 | | | | | | |
| 60 / 20 | | | | | | |
| 70 | | | | | | |
| 80 / 25 | | | | | | |
| 90 | | | | | | core: banded chlorite - muscovite - feldspar - quartzite. dip of foliation varies 60°-90° |
| 100 / 30 | | | | | | |

| DRILLER | AIR 0 - 40' | COMMENCED 3/9/1974 | LOGGED BY P.G.S. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 40' - 91'9" | COMPLETED 3/9/1974 | DRAWN BY P.G.S., L.H. |

M(Pf)122

D53/A/76

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 60 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH Ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | -20 -10 0 10 | 100 200 | 0·01 0·025 TC=2s | | | Unconsolidated sand |
| | | | | | | | Fe oxide pisolites red brown sand and quartz gravel |
| 10 | | | | | | | |
| | 5 | fe | | | | | mottled white micaceous clay ferruginous quartz, mica sand weathered mica-feldspar-quartz schist. |
| 20 | | | | | | | |
| 30 | | | | | | | |
| | 10 | | | | | | biotite/chlorite-muscovite-feldspar-quartz schist, quartz-mica schist. minor pegmatoid quartz and feldspar. |
| 40 | | | | | | | |
| 50 | 15 | | | | | | |
| 60 | | | | | | | |
| | 20 | | | | | | core: banded biotite-chlorite-muscovite-feldspar-quartz schist. average dip of schistosity ~60° |
| 70 | | | | | | | |
| | 25 | | | | | | |

| DRILLER | AIR 0 - 40' | COMMENCED 3/9/1974 | LOGGED BY P.G.S. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 40' - 69'6" | COMPLETED 3/9/1974 | DRAWN BY P.G.S., J.H. |

M(Pf)122

D 93/A/77

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION MOUNT BASEDOW TRAVERSE

HOLE NO BMR JIM JIM 61 CO-ORDINATES 13° 03' 132° 43'

| DEPTH Ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | 10 40 | 100 700 | 0·02 0·095 TC=2 s | | | |
| 10 | | | | | | | Ferruginous quartz gravel and orange-brown sand. |
| 20 | 5 | | | | | | |
| 30 | 10 | fe | | | | | partly weathered feldspar-graphite-amphibole-mica-quartz schist. |
| 40 | | | | | | | |
| 50 | 15 | | | | | | |
| 60 | 20 | | | | | | core: calcite-feldspar-graphite-muscovite-amphibole-biotite/phlogopite-quartz schist. average dip of schistosity ~75° |
| 70 | | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 63' | COMMENCED 2/9/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 63' - 65' | COMPLETED 2/9/1974 | DRAWN BY P.G.S. I.H. |

M(P1)122

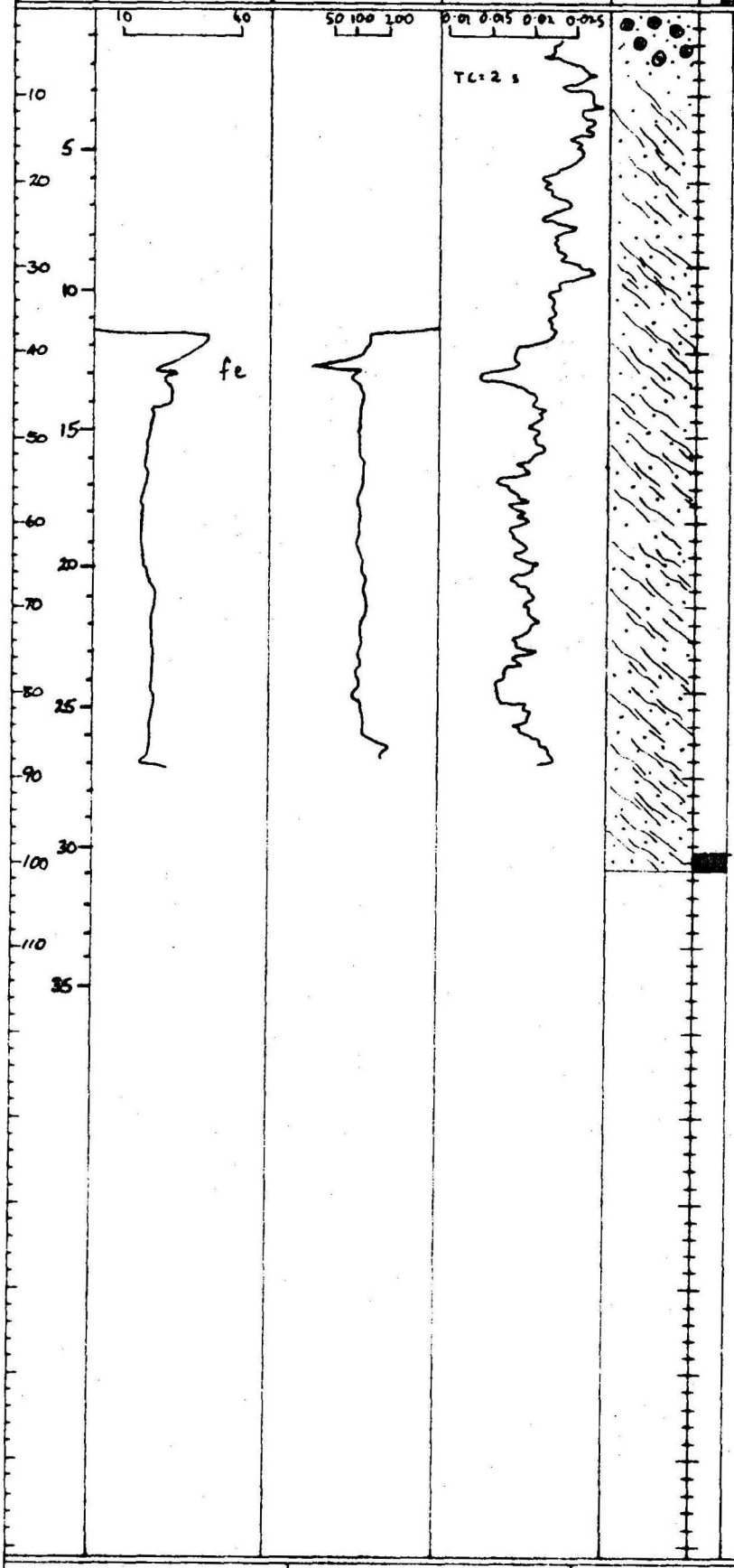
D 53/A/78

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION MOUNT BAGEDOW TRAVERSE

HOLE NO BMR JIM JIM 62 CO-ORDINATES 13° 03' 132° 43'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, milky quartz gravel and sand

weathered and ferruginised feldspar-mica-quartz schist.

graphite-feldspar-muscovite-biotite-quartz schist.

core: calcite-amphibole-graphite-feldspar-biotite/phlogopite-quartz schist.
average dip of schistosity ~60°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 80' | COMMENCED 2/9/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 80' - 101' | COMPLETED 2/9/1974 | DRAWN BY PGS-S, L.H. |

M(P1)122

DS3/A/79

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 63 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | 30 40 50 | 50 100 150 200 | 0 0.5 1.0 | | | |
| 10 | | | | TC = 2 s | | | Fe oxide pisolites, milky quartz greyish micaceous clay |
| 20 | 5 | | | | | | |
| 30 | | fe | | | | | weathered feldspar-mica-quartz schist, minor milky quartz and grey clay. |
| 40 | 10 | | | | | | |
| 50 | 15 | | | | | | |
| 60 | | | | | | | |
| 70 | 20 | | | | | | partly weathered feldspar-biotite-quartz schist, minor milky quartz. |
| 80 | 25 | | | | | | |
| 90 | | | | | | | core: banded graphite-feldspar-amphibole-biotite/phlogopite-quartz schist. disseminated pyrite in fractures average dip of schistosity ~ 65° |
| | 30 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 – 60' | COMMENCED 2/9/1974 | LOGGED BY P.G.S-S. |
| TYPE MAYHEW 1000 | WATER 60' – 88' | COMPLETED 2/9/1974 | DRAWN BY P.G.S-S, L.H. |

M(Pf)122

D53/A/80

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 64 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 0 20 40 | 100 300 | 0·015 0·09 | | | |
| 10 | | | TC = 2 s | | | Fe oxide pisolites Fe stained quartz, ferruginised mica schist, minor grey clay |
| 5 | | | | | | |
| 20 | | Fe | | | | |
| 30 | | | | | | weathered feldspar-quartz-mica (biotite, muscovite) schist, minor milky quartz. |
| 10 | | | | | | |
| 40 | | | | | | |
| 50 15 | | | | | | |
| 60 | | | | | | |
| 20 | | | | | | |
| 70 | | | | | | core: partly weathered banded feldspar-graphite quartz-biotite/phlogopite-muscovite schist, trace amphibole. dip of schistosity varies 20°-60° |
| 80 | | | | | | |
| 25 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 30' | COMMENCED 3/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 30' - 72' | COMPLETED 3/9/1974 | DRAWN BY P.G.S.S. J.H. |

M(P1)122 DS2/A/81

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO: BMR JIM JIM 65 — CO-ORDINATES: 13° 03′ 132° 43′

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | 0 20 40 | 100 200 400 | 0·01 0·02 | | | |
| 10 | | | | TC=2 s | | | Fe oxide pisolites, quartz sand grey and brown clay |
| 20 | 5 | fe | | | | | weathered mica - feldspar - quartz schist, pegmatoid feldspar and quartz, minor white clay. |
| 30 | 10 | | | | | | |
| 40 | | | | | | | milky quartz |
| 50 | 15 | | | | | | core1: banded quartz-mica - feldspar schist and feldspar - quartz - mica schist. |
| 60 | 20 | | | | | | core2: banded muscovite - biotite - feldspar - quartz schist partly weathered. dip of planar schistosity varies 40° - 46° |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 20′ | COMMENCED 3/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MATHEW 1000 | WATER 20′ - 51′6″ | COMPLETED 4/9/1974 | DRAWN BY P.G.S.S., I.H. |

M(Pf)122

D 53/A/82

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION MOUNT BASEDOW TRAVERSE

HOLE NO BMR JIM JIM 66 CO-ORDINATES 13° 03' 132° 43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | 0 30 | 100 300 500 | 0·005 0·02 | | | |
| 10 | 5 | fe | | TC=2 s | | | sand. |
| | | | | | | | ferruginous red brown quartz pebbles and sand |
| 20 | | | | | | | partly weathered mica (biotite, muscovite) - feldspar - quartz schist. |
| 30 | 10 | | | | | | |
| 40 | | | | | | | core: muscovite - biotite - feldspar - quartz schist. average dip of foliation ~40° |
| 50 | 15 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | BIT 0-25' | COMMENCED 4/9/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 25'-45' | COMPLETED 4/9/1974 | DRAWN BY P.G.S., L.H. |

M(Pt)122 D53/A/83

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVER — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO.: BMR JIM JIM 67 — CO-ORDINATES: 13° 03' 132° 43'

| DEPTH ft m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 0 20 | 50 250 | 0·015 0·03 | | | |
| | | te | TC = 2 s | | | |
| 10 | | | | | | partly weathered muscovite - biotite - feldspar gneiss, clear and milky quartz often Fe stained, grey clay |
| 5 20 | | | | | | |
| 30 10 | | | | | | core: muscovite - biotite - feldspar - quartz gneiss Fe staining along fractures and foliation. average dip of foliation ~ 45° |
| 40 | | | | | | |
| 15 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0' - 20' | COMMENCED 4/9/1974 | LOGGED BY P.G.S-S. |
| TYPE MAYHEW 1000 | WATER 20' - 36' | COMPLETED 4/9/1974 | DRAWN BY P.G.S-S, I.H. |

M(Pf)122

D 53/A/84

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION MOUNT BASEDOW TRAVERSE

HOLE NO BMR JIM JIM 68 CO-ORDINATES 13° 03' 132° 43'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | -60 -30 0 30 | 1000 3000 | 0·015 0·03 | | | |
| | | | | TC = 2 s | | | Fe oxide pisolites, off white sandy clay, clear and milky quartz |
| 10 | | | | | | | |
| | 5 | fe | | | | | partly weathered mica-feldspar-quartz gneiss, clear and milky quartz, tourmaline, minor off white clay |
| 20 | | | | | | | |
| | | | | | | | core: muscovite-feldspar-quartz gneiss, desseminated pyrite, veined by milky quartz. average dip of foliation ~40° |
| 30 | | | | | | | |
| | 10 | | | | | | |

| DRILLER | AIR 0 - 25' | COMMENCED 3/9/1974 | LOGGED BY P.G.S.S. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 25' - 28' | COMPLETED 4/9/1974 | DRAWN BY P.G.S.S., L.H. |

M(Pt)122

D 53/A/85

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: MOUNT BASEDOW TRAVERSE

HOLE NO.: BMR JIM JIM 69 — CO-ORDINATES: 13°03' 132°43'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE RECOVERY | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 0 0 10 | 100 700 | 0·015 0·03 | | | |
| 10 / 5 | | | TC=2 s | | | red and brown quartz pebbles and sand |
| 20 | | | | | | Ferruginised mica schist. |
| 30 / 10 | fe | | | | | |
| 40 | | | | | | |
| 50 / 15 | | | | | | partly weathered and ferruginised graphite-quartz mica (muscovite, biotite/chlorite) schist, minor clear and milky quartz. |
| 60 | | | | | | |
| 70 / 20 | | | | | | |
| 80 / 25 | | | | | | |
| 90 | | | | | | core: feldspar-graphite-quartz-biotite/phlogopite-muscovite schist. average dip of banded schistosity ~ 35° |
| 30 | | | | | | |

DRILLER: ..... AIR: 0 - 70' — COMMENCED: 4/9/1974 — LOGGED BY: P.G.S.

TYPE: MAYHEW 1000 — WATER: 70' - 87' — COMPLETED: 4/9/1974 — DRAWN BY: P.G.S. I.M.

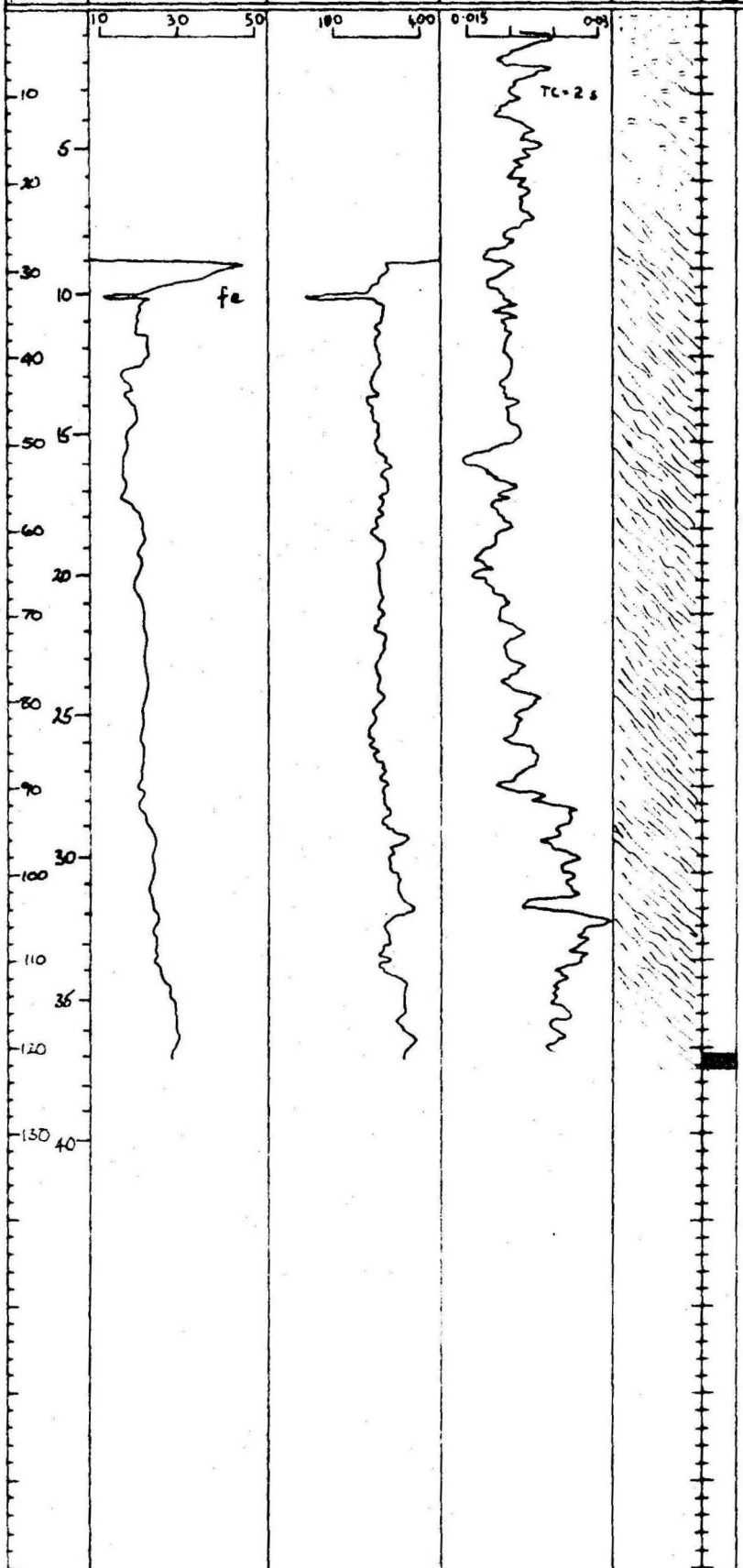
M(P)1122 — DS3/A/86

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION MOUNT BADEDOW TRAVERSE

HOLE NO BMR JIM JIM 70 CO-ORDINATES 13° 03' 132° 43'




DESCRIPTION OF CORE AND CUTTINGS

grey sand and clay

ferruginised mica schist, mottled brick red clay

weathered and ferruginised mica schist, micaceous sandy white and grey clay, milky quartz

partly weathered graphite - feldspar - quartz - mica (biotite/chlorite muscovite) schist. minor milky quartz, mica flakes and feldspar.

core: garnet - graphite - feldspar - quartz - mica (muscovite, biotite) schist. weathered and fractured.
dip of schistosity varies 0°-60°

| DRILLER | AIR 0 - 70' | COMMENCED 4/9/1974 | LOGGED BY P.G.S. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 70' - 122'6" | COMPLETED 4/9/1974 | DRAWN BY PGS, I.H. |

MIPF1122

D53/A/87

# APPENDIX 3

## GEOLOGICAL AND GEOPHYSICAL LOGS, KOONGARRA TRAVERSE

Drill holes:

Cahill Nos. 15-47

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION KOONGARRA TRAVERSE

HOLE NO. BMR CAMIL 15 CO-ORDINATES 12° 52' 132° 53'

| DEPTH ft m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | | | 0.005 0.007 | | light brown quartz sand ferruginised sandstone pebbles |
| 10 | | | | | medium grained quartzose sandstone (Kombolgie Formation) |
| 5 | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0' – 10' | COMMENCED 11/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER | COMPLETED 11/9/1974 | DRAWN BY P.G.S.S., L.H. |

M(P1)122

D 53/A/88

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION KOONGARRA TRAVERSE

HOLE NO. AMR EAMU 16 CO-ORDINATES 12° 52' 132° 53'

| DEPTH ft m | SELF-POTENTIAL LOG mV | RESISTIVITY LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | 0 30 | 50 100 200 300 | 0 0·015 | | |
| 10 5 | fe | | TC = 2 s | | Ferruginised quartzite, mica quartz schist. minor white and yellow clay, clear and milky quartz |
| 20 30 10 | | | | | mica (muscovite, chlorite) - quartz schist and quartzite, clear and milky quartz. |
| 40 50 15 | | | | | |
| 60 20 | | | | | |
| 70 | | | | | core: foliated muscovite feldspathic quartzite. average dip of foliation ~75° |
| 80 25 | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR | COMMENCED 11/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYTAG 1000 | WATER | COMPLETED 11/9/1974 | DRAWN BY P.G.S.S., J.H. |

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D53/A/89

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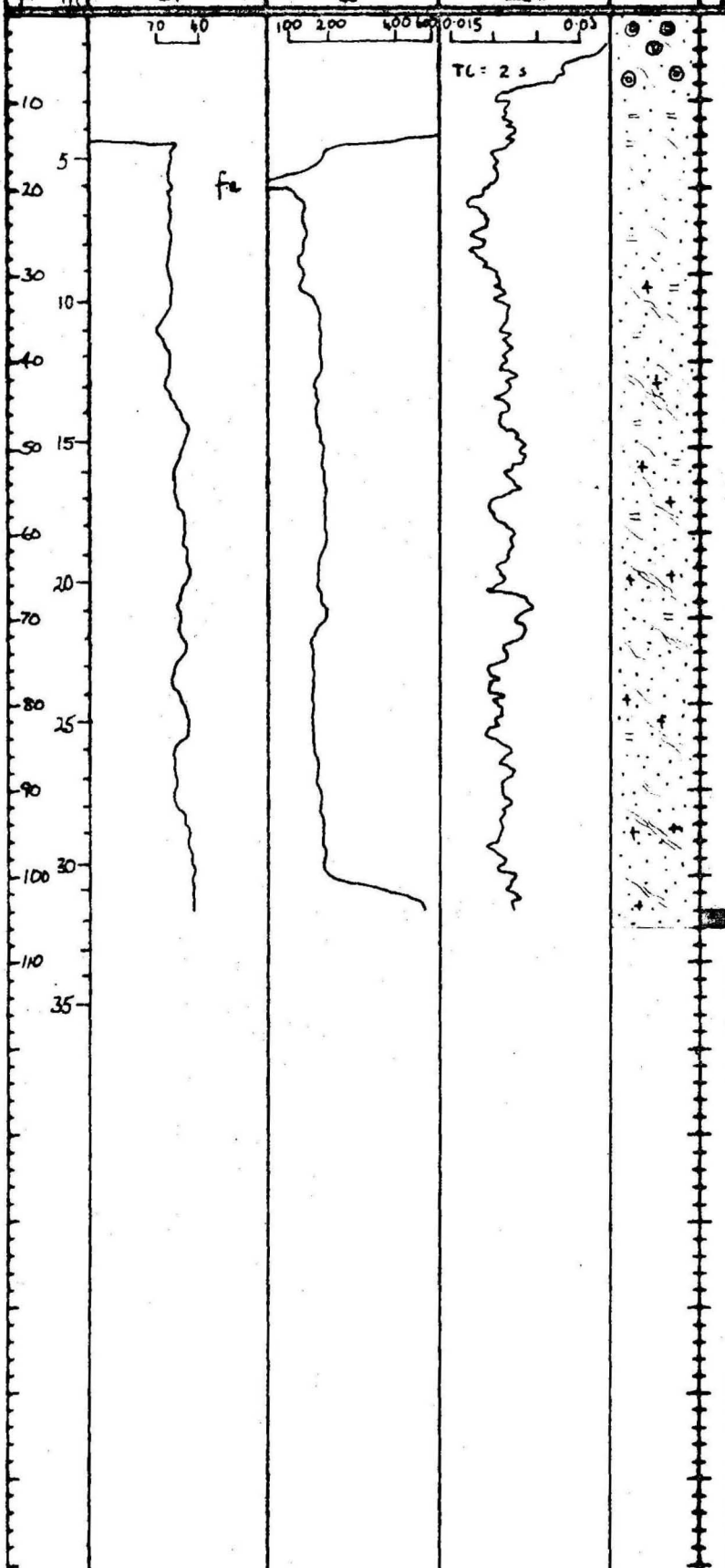
# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONGARRA TRAVERSE

HOLE NO.: AMR CAHILL 17 — CO-ORDINATES: 12° 52' 132° 53'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites . weathered mica and mica-quartz schist; milky quartz

partly weathered mica (muscovite chlorite) - feldspar - quartz schist and quartzite.
clear + milky quartz, minor brown clay.

core: banded chlorite - muscovite - feldspar - quartz schist and quartzite.
Small fractures infilled with dark green chlorite.
average dip of foliation - 80°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 52' | COMMENCED 11/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 62' - 106' | COMPLETED 11/9/1974 | DRAWN BY P.G.S.S., I.H. |

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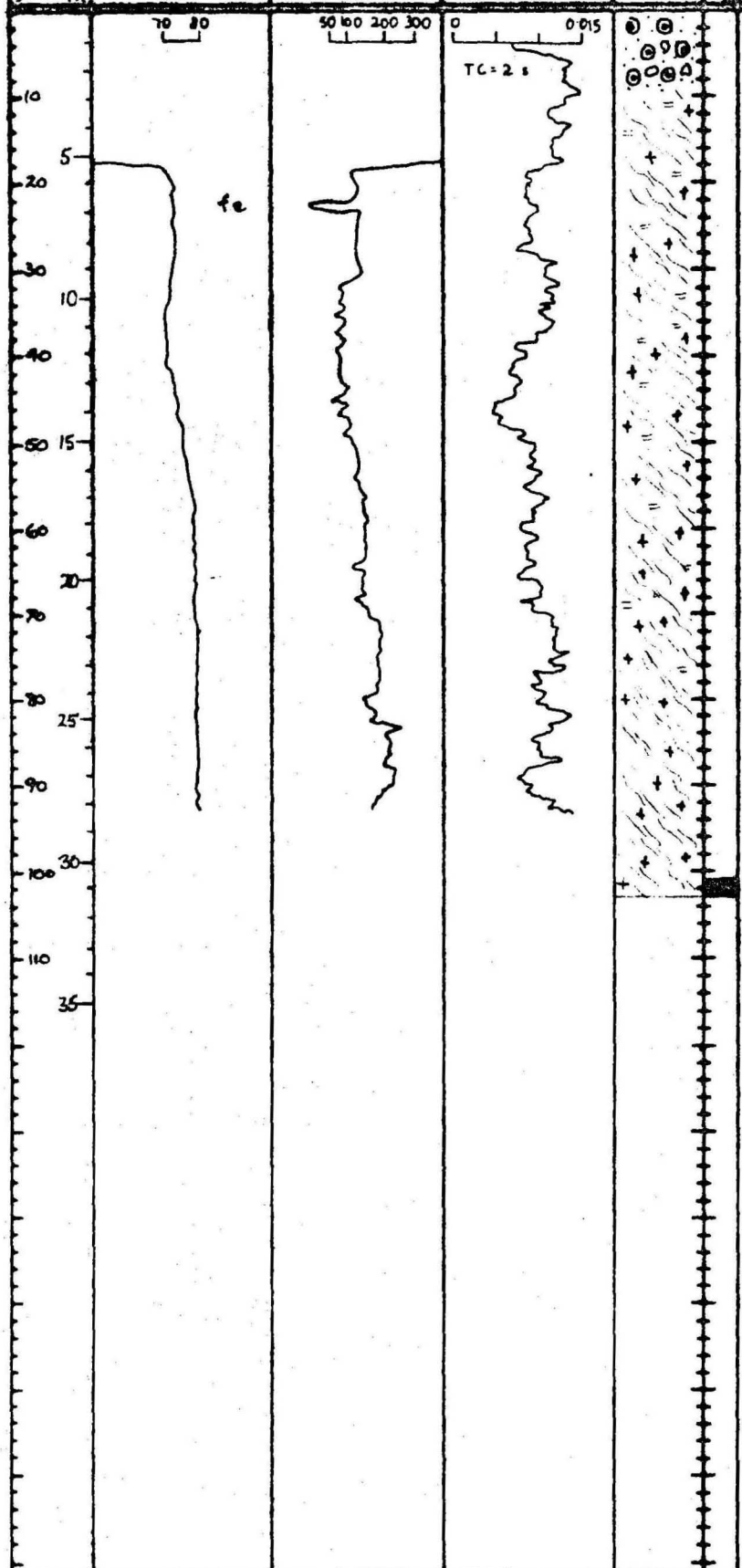
BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONAHARRA TRAVERSE

HOLE NO.: BMR CAHILL 18 — CO-ORDINATES: 12° 52' 132° 53




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, Fe stained quartz pebbles and sand

partly weathered feldspar-quartz-mica (biotite/chlorite, muscovite) schist, clear and milky quartz minor yellow greeny grey clay

core: banded muscovite-biotite/chlorite + feldspar-quartz schist. average dip of schistosity ~85°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0' - 40' | COMMENCED 11/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 40' - 103' | COMPLETED 11/9/1974 | DRAWN BY P.G.S.S., I.H. |

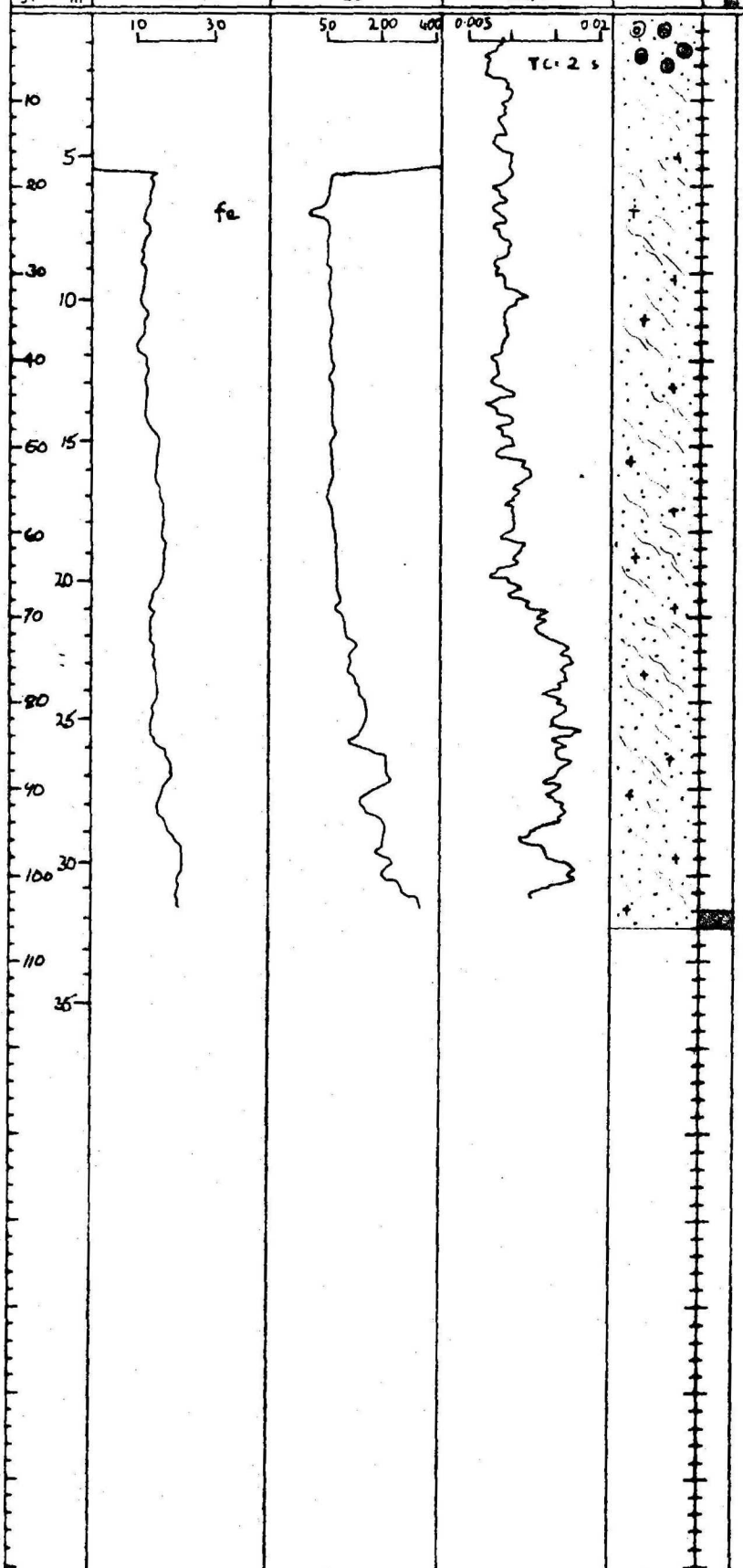
M(Pf)122 DS3/A/91

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONGARRA TRAVERSE

HOLE NO: BMR CAHILL 19 — CO-ORDINATES: 12° 52' 132° 53'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, Fe stained quartz pebbles and sand

partly weathered chlorite-muscovite-feldspar-quartz schist., mica-quartz schist. clear and milky quartz.

core: banded chlorite-muscovite-feldspar-quartz schist. average dip of schistosity ~ 65°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0'-55' | COMMENCED 11/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 55'-106' | COMPLETED 12/9/1974 | DRAWN BY P.G.S.S., D.N. |

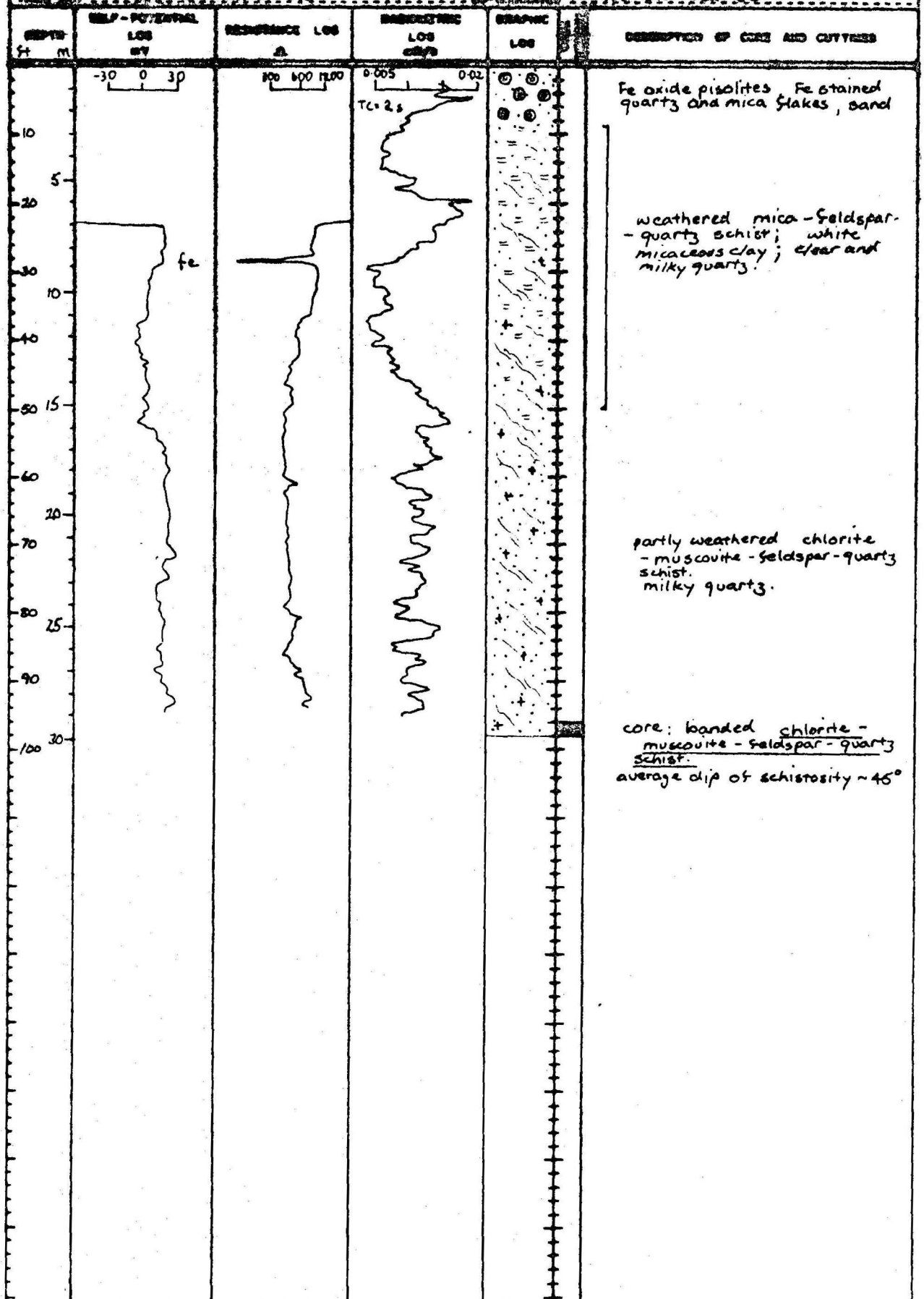
M(P1)122 — D S3/A/92

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONGARRA TRAVERSE

HOLE NO: BMR CAMM 20 — CO-ORDINATES: 12° 52' 132° 53'




| | | | |
|---|---|---|---|
| DRILLER | AIR 0'-40' | COMMENCED 12/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 40'-98' | COMPLETED 12/9/1974 | DRAWN BY P.G.S.S. |

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D53/A/93

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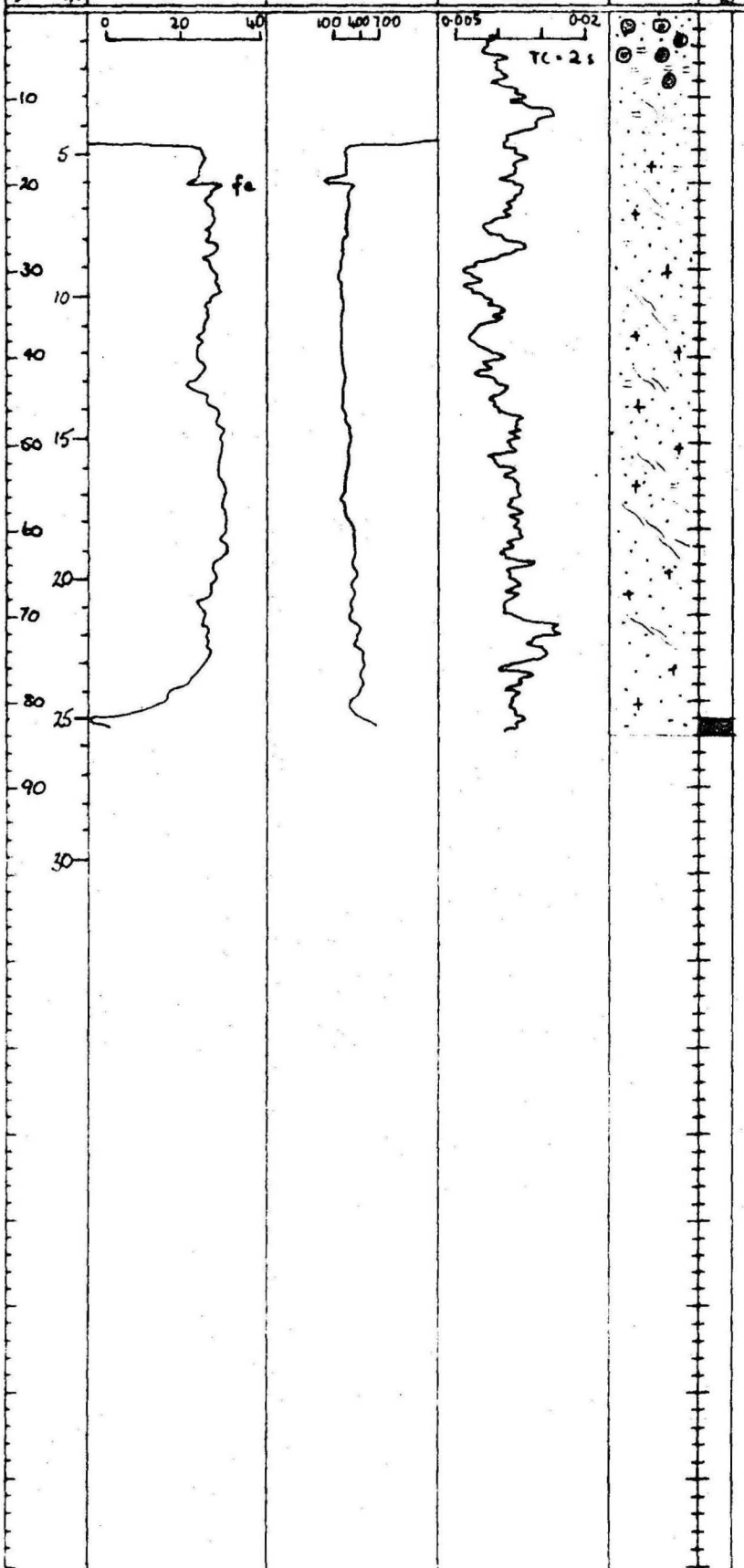
# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS — LOCATION KOONGARRA TRAVERSE

HOLE NO. BMR CAHILL d1 — CO-ORDINATES 12° 52' 132° 53'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 0 20 40 | 100 400 700 | 0·005 0·02 | | | |




Fe oxide pisolites, milky quartz
pale green clay

partly weathered muscovite-biotite/chlorite - feldspar - quartz schist and quartzite, milky quartz, quartz-tourmaline minor quartz mica (muscovite, biotite/chlorite) schist.

core: foliated muscovite-biotite/chlorite - feldspathic quartzite
average dip of foliation ~40°

| DRILLER | AIR 0 - 45' | COMMENCED 12/9/1974 | LOGGED BY P.G.S.S. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 45' - 84' | COMPLETED 12/9/1974 | DRAWN BY P.G.S.S., I.H. |

M:P:1122

D 33/A/94

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONGHARRA TRAVERSE

HOLE NO: BMR CANILL 22 — CO-ORDINATES: 12° 52' 132° 53'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | -10 0 10 | 50 100 200 300 | 0·005 0·02 TC=2s | | | |
| 10 | | | | | | | Fe oxide pisolites, milky quartz red brown clay |
| 20 | 5 | | | | | | green and greyish white clay |
| 30 | | fe | | | | | partly weathered mica (muscovite, chlorite) - feldspar - quartz schist. milky quartz feldspar green, brown and grey clay |
| 40 | 10 | | | | | | |
| 50 | 15 | | | | | | |
| 60 | | | | | | | |
| 70 | 20 | | | | | | mica (muscovite, chlorite) - feldspar - quartz schist. milky quartz + feldspar. |
| 80 | 25 | | | | | | core 1. chlorite-muscovite - feldspar - quartz schist. |
| 90 | | | | | | | core 2. chlorite - muscovite - feldspar - quartz schist. brecciated and veined by feldspar, carbonate and quartz average dip of schistosity ~15° |
| | 30 | | | | | | |

| DRILLER | AIR 0'-40' | COMMENCED 12/9/1974 | LOGGED BY P.G.S.S. |
|---|---|---|---|
| TYPE WASHEW 1000 | WATER 40'-90' | COMPLETED 13/9/1974 | DRAWN BY P.G.S.S., I.H. |

M(Pf)122 D 53/A/95

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONGARRA TRAVERSE

HOLE NO: BMR CAHILL 23 — CO-ORDINATES: 12° 52' 132° 53'

| DEPTH ft m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 10 20 30 | 50 100 200 400 | 0 0.01 | | | |
| 10 | fe | | TC=2 s | | | brown clay, Feoxide pisolites, milky quartz. |
| 5 | | | | | | pale green clay, partly weathered amphibolite, milky quartz. |
| 20 | | | | | | |
| 30 | | | | | | core: amphibolite. |
| 10 | | | | | | |
| 40 | | | | | | |

| DRILLER | AIR 0 – 30' | COMMENCED 12/9/1974 | LOGGED BY P.G. S-S |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 30' – 32' | COMPLETED 13/9/1974 | DRAWN BY P.G.S-S., L.H. |

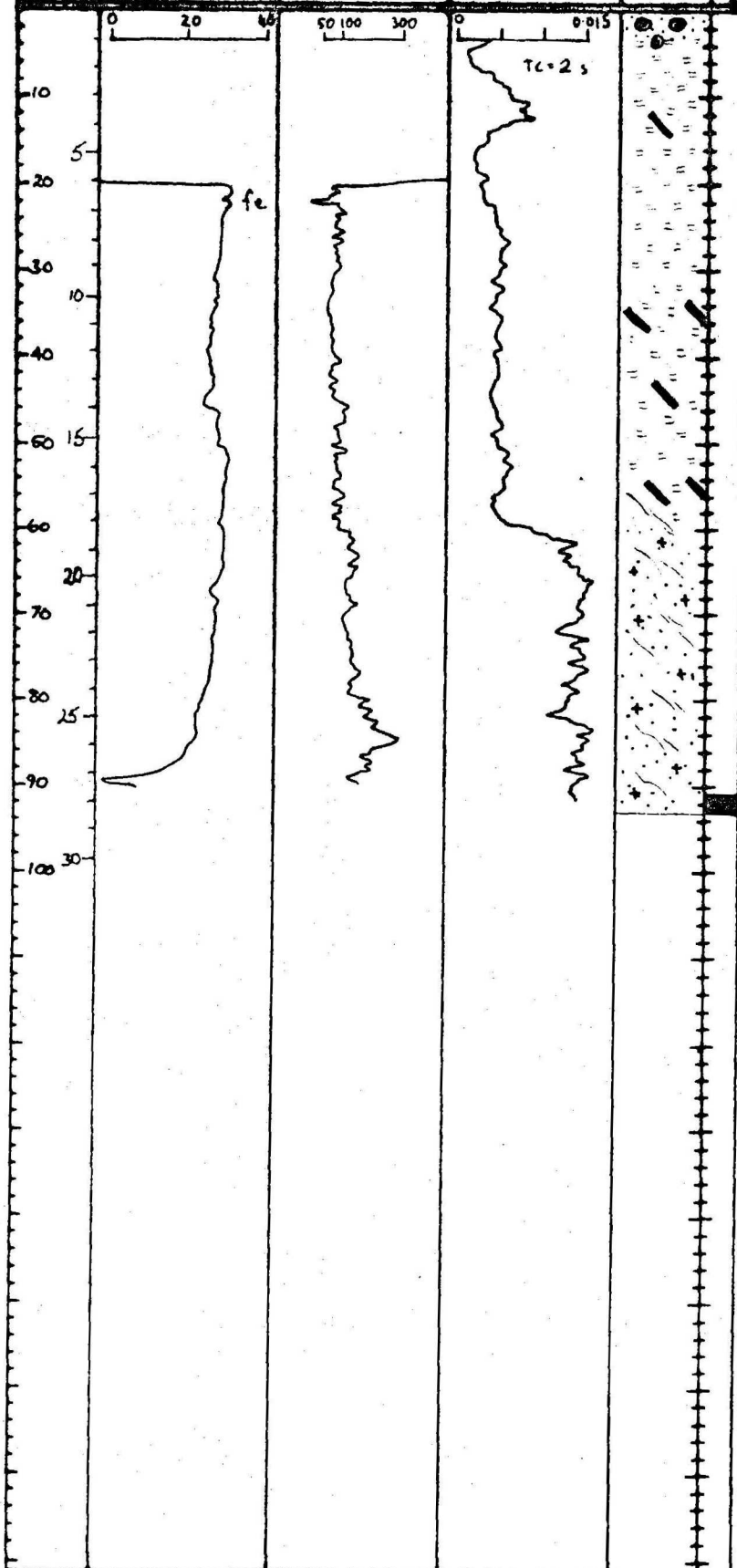
M(P1)122 — D53/A/96

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONGARRA TRAVERSE

HOLE NO.: BMR CAHILL 2A — CO-ORDINATES: 12° 52' 132° 58'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, brown clay milky quartz, white carbonate

pale green, yellow and brown clay (weathered amphibolite) minor milky quartz and white carbonate.

biotite/chlorite - feldspar - quartz schist, milky quartz.

core: biotite - feldspar - quartz schist
dip of planar schistosity ~ 40°
1cm. wide chlorite alteration zones along fractures.

| | | | |
|---|---|---|---|
| DRILLER | AIR 0' - 30' | COMMENCED 13/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 30' - 93' | COMPLETED 13/9/1974 | DRAWN BY P.G.S.S. I.H. |

M(Pf)122

DS2/A/97

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: NOONBARRA TRAVERSE

HOLE NO.: BMR CAMPL 25 — CO-ORDINATES: 12° 52' 132° 53'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE / CUTTINGS | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 40 60 | 100 200 | 0 0·015 | | | |
| 10 | | | TC = 2 s | | | Fe oxide pisolites, milky and Fe stained quartz, weathered mica-feldspar-quartz schist. |
| 5 20 | | | | | | weathered mica-feldspar-quartz schist, pale green, brown and white clay, milky and Fe stained quartz. |
| 30 | fe | | | | | |
| 10 40 | | | | | | |
| 50 15 | | | | | | partly weathered mica (biotite/chlorite, muscovite) - feldspar - quartz schist., milky quartz. |
| 60 20 | | | | | | |
| 70 | | | | | | |
| 80 25 | | | | | | |
| 90 | | | | | | |
| 100 30 | | | | | | core: biotite/chlorite-muscovite - feldspar - quartz schist. average dip of schistosity - 40° |
| 110 36 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 30' | COMMENCED 13/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 30' - 101' | COMPLETED 13/9/1974 | DRAWN BY P.G.S.S. J.H. |

M(Pf)122

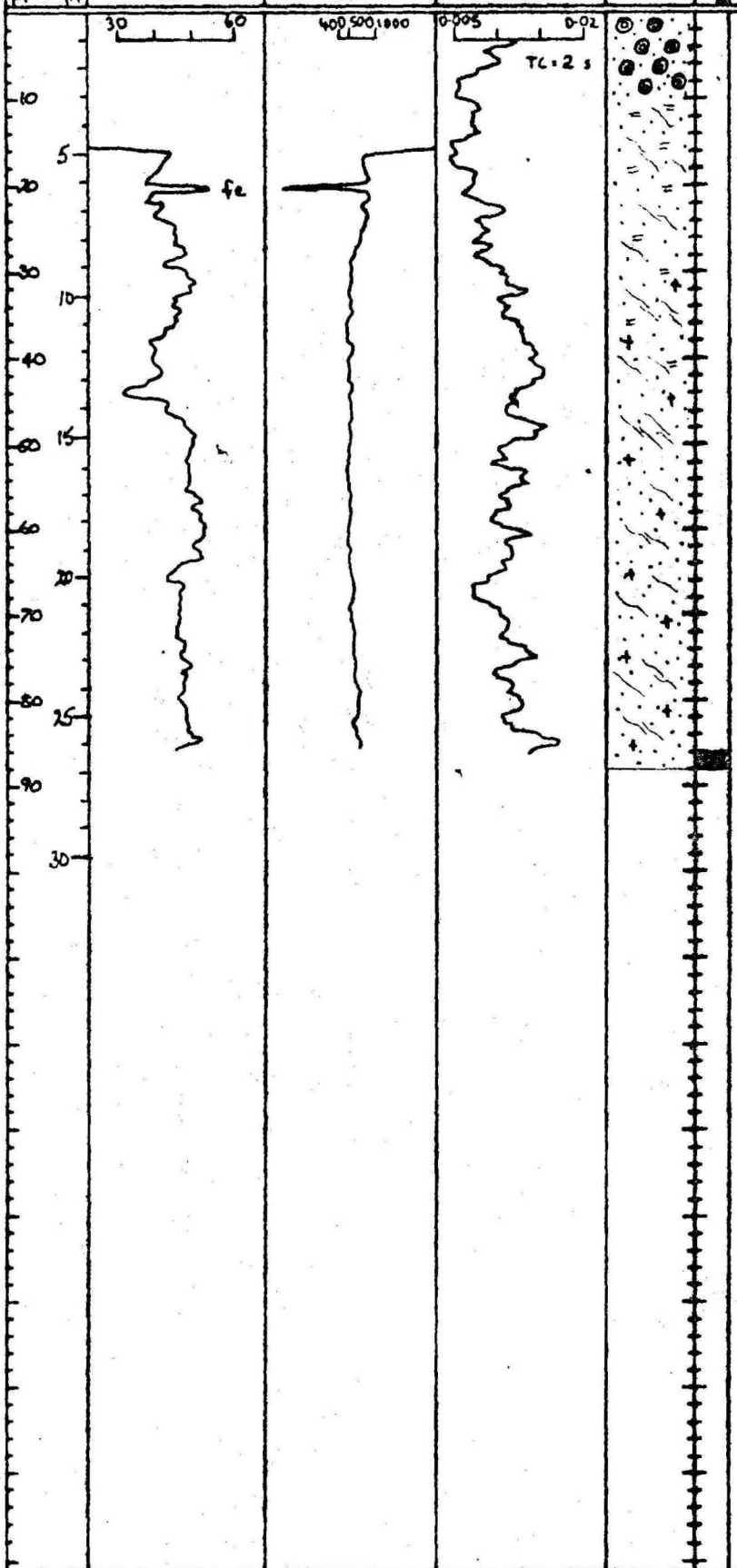
DS3/A/48

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONGARRA TRAVERSE

HOLE NO: AMR CANILL 26 — CO-ORDINATES: 12° 52' 132° 53"




DESCRIPTION OF CORE AND CUTTINGS

Ferricrete, Fe oxide pisolites, milky quartz.

weathered mica - feldspar - quartz schist, white brown and grey clay. milky and fe stained quartz.

partly weathered biotite/chlorite - feldspar - quartz schist, milky quartz.

core: banded muscovite - biotite/chlorite - feldspar - quartz schist.
quartz in vughy irregular veins with chloritic alteration halos. dip of planar schistosity ~ 40°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 40' | COMMENCED 13/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 40' - 88' | COMPLETED 13/9/1974 | DRAWN BY P.G.S.S. I.H. |

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DS3/A/99

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONJARRA TRAVERSE

HOLE NO: BMR CAHILL 37 — CO-ORDINATES: 12° 52' 132° 53'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV (50 60 70) | RESISTANCE LOG Ω (50 150) | RADIOMETRIC LOG mR/h (0 0·01, TC=2 s) | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| 10 | 5 | | | | | quartz gravel, Fe oxide pisolites |
| 20 | | | | | | pale yellow, green, white and brown clay (weathered amphibolite) |
| 30 | 10 | fe | | | | |
| 40 | | | | | | |
| 50 | 15 | | | | | |
| 60 | | | | | | partly weathered amphibolite minor white and green clay, milky quartz |
| 70 | 20 | | | | | |
| 80 | 25 | | | | | core: amphibolite. average dip of foliation ~ 50° |

| | | | |
|---|---|---|---|
| DRILLER: L.K. | AIR: 0 - 30' | COMMENCED: 16/9/1974 | LOGGED BY: P.G.S. |
| TYPE: MAYHEW 1000 | WATER: 30' - 78' | COMPLETED: 16/9/1974 | DRAWN BY: P.G.S., J.H. |

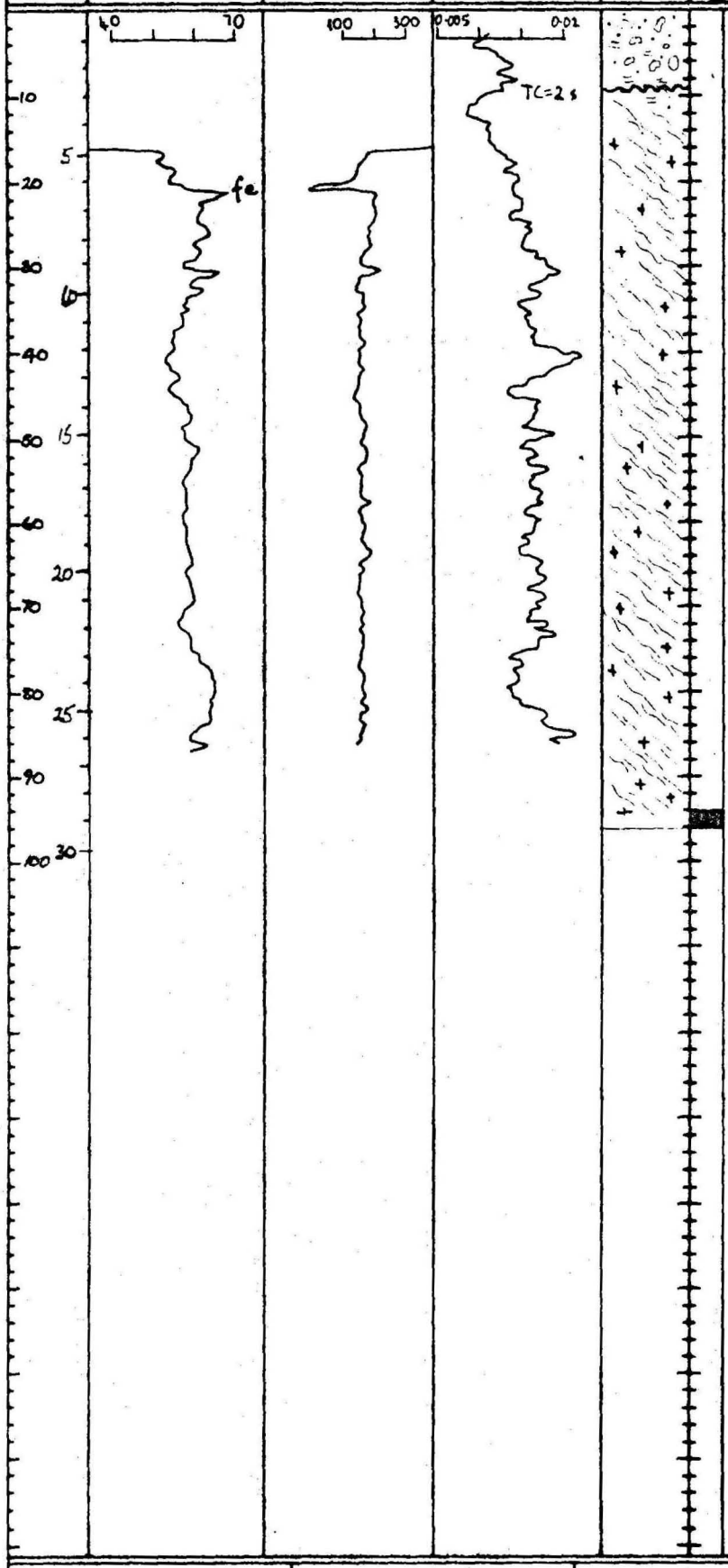
M(Pf)122 D53/A/100

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONGARRA TRAVERSE

HOLE NO.: AMR CAMIL 28 — CO-ORDINATES: 12° 52' 132° 53'




DESCRIPTION OF CORE AND CUTTINGS

brick red sand and clay, quartz gravel

bleached mica, feldspar and quartz.

weathered muscovite-biotite-feldspar-quartz schist, pale brown micaceous sand.

partly weathered muscovite-biotite/chlorite-feldspar-quartz schist., milky quartz.

core: banded muscovite-biotite/chlorite-feldspar-quartz schist.
dip of planar foliation ~ 40°

| | | | |
|---|---|---|---|
| DRILLER: E.L. | AIR: 0 - 70' | COMMENCED: 16/9/1974 | LOGGED BY: P.G.S. |
| TYPE: MAYHEW 1000 | WATER: 70' - 96' | COMPLETED: 16/9/1974 | DRAWN BY: P.G.S., I.H. |

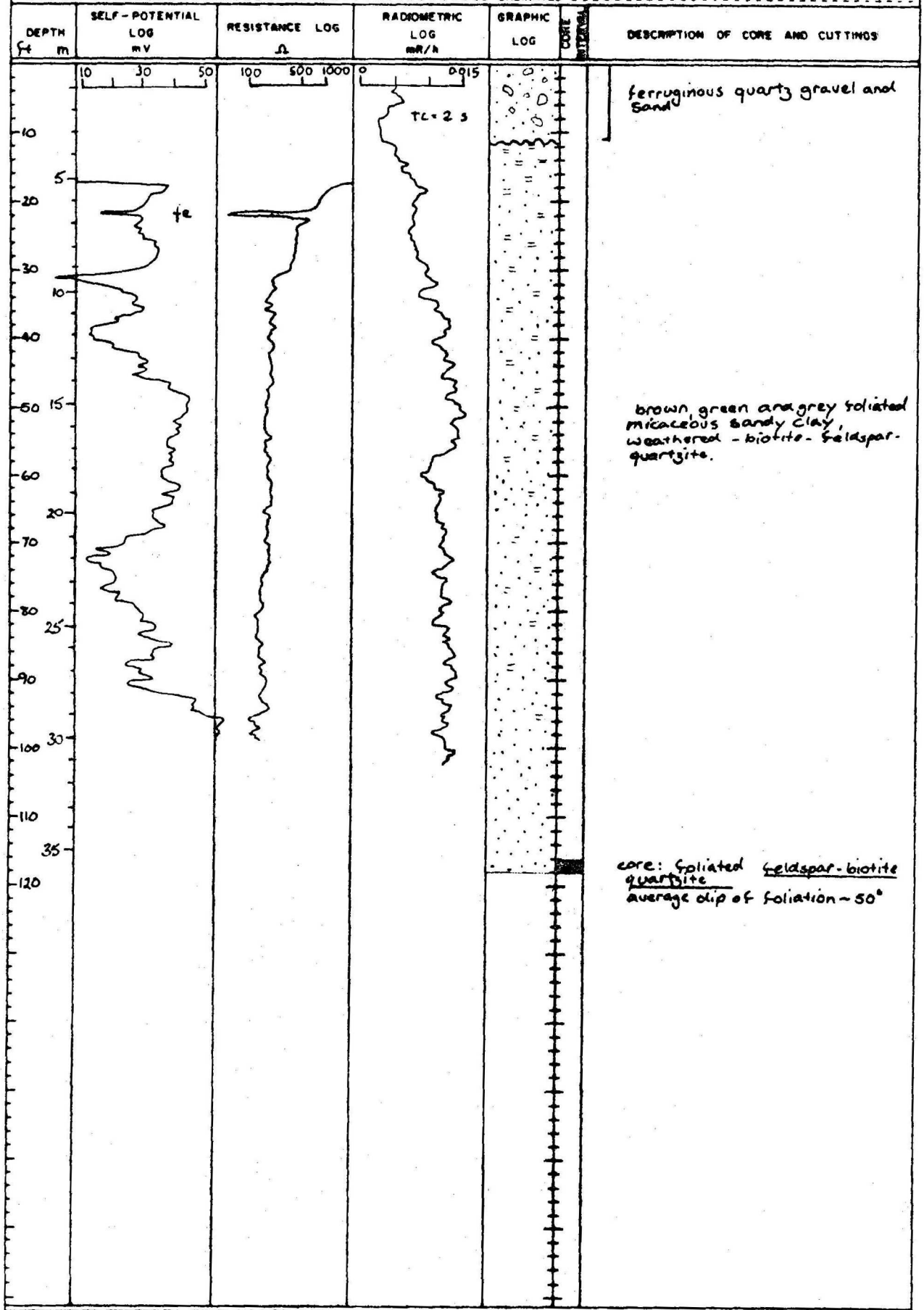
M(Pf)122 D53/9/101

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONGARRA TRAVERSE

HOLE NO.: BMR CAHILL 29 — CO-ORDINATES: 12° 52' 132° 53'




| DRILLER L.R. | AIR 0' – 30' | COMMENCED 16/9/1974 | LOGGED BY P.G.S. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 30' – 118' | COMPLETED 16/9/1974 | DRAWN BY P.G.S. |

M(Pf)122

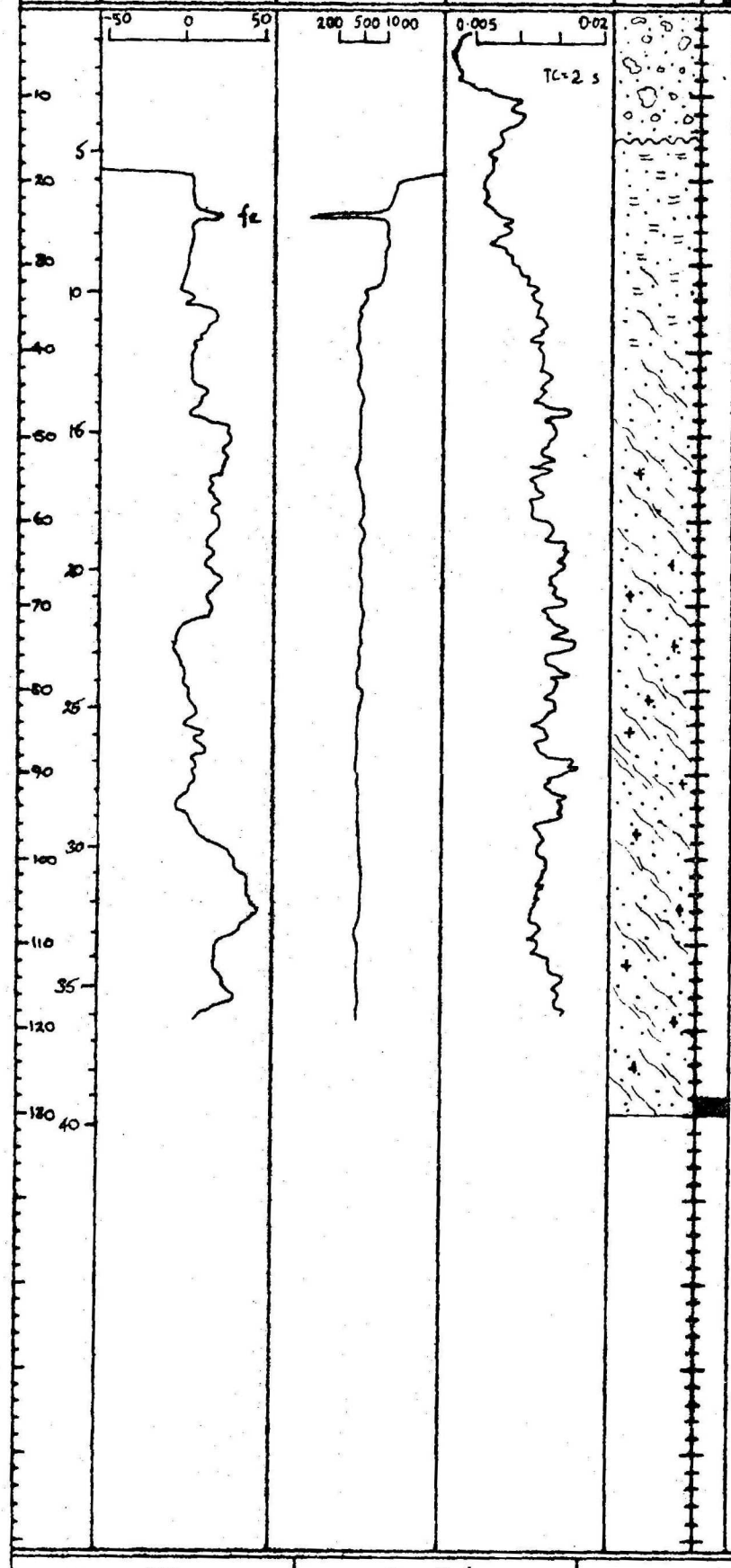
D53/A/102

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: ISOONBARRA TRAVERSE

HOLE NO: BMR CAHILL 30 — CO-ORDINATES: 12°52' 132°53'




DESCRIPTION OF CORE AND CUTTINGS

unconsolidated quartz gravel and sand

sandy, micaceous white foliated clay.

partly weathered muscovite - biotite - feldspar - quartz schist; biotite - muscovite schist; feldspar - biotite - quartz schist. pegmatoid quartz + feldspar

core: banded feldspar-biotite - quartz schist and muscovite - biotite - feldspar - quartz schist

average dip of schistosity ~65°

| | | | |
|---|---|---|---|
| DRILLER: E.L. | AIR: 0 - 70' | COMMENCED: 16/9/1974 | LOGGED BY: P.G.S. |
| TYPE: MAYHEW 1000 | WATER: 70' - 130' | COMPLETED: 17/9/1974 | DRAWN BY: P.G.S., J.H. |

M(P1)122

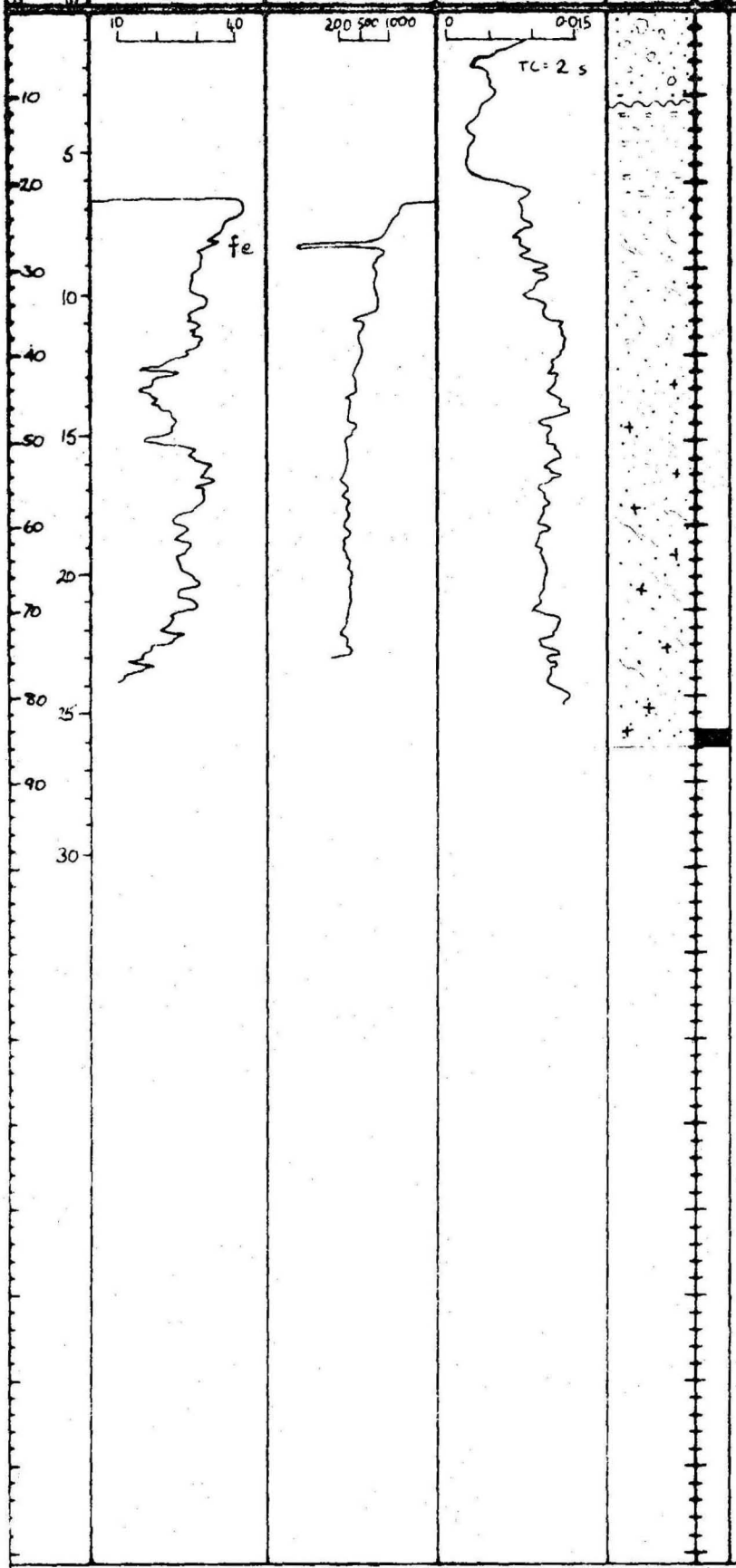
D53/A/103

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: ICONGARRA TRAVERSE

HOLE NO.: BMR CAMILL 31 — CO-ORDINATES: 12° 52' 132° 53'




DESCRIPTION OF CORE AND CUTTINGS

ferruginous unconsolidated quartz gravel and sand

white micaceous sandy clay

yellow brown sand, white foliated clay, minor weathered quartz-mica schist.

partly weathered feldspar-quartz-mica (muscovite, biotite) schist; milky quartz; minor white clay.

core: foliated muscovite-biotite-feldspathic quartzite. dip of planar foliation ~ 60°

| | | | |
|---|---|---|---|
| DRILLER: L.K. | AIR: 0'-55' | COMMENCED: 16/9/1974 | LOGGED BY: P.G.S. |
| TYPE: MAYHEW 1000 | WATER: 55'-86' | COMPLETED: 17/9/1974 | DRAWN BY: P.G.S., I.H. |

M(P1)122

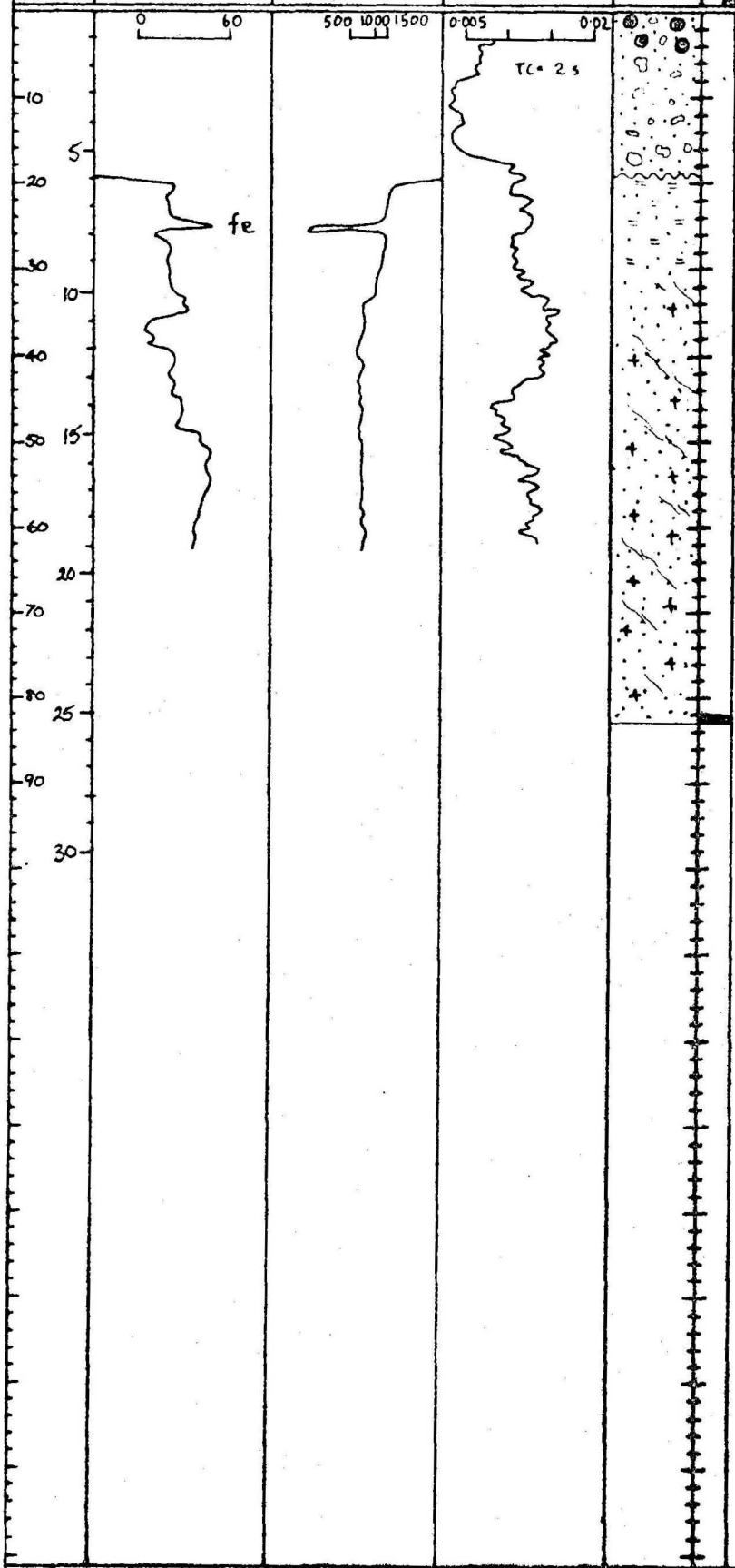
DS3/A/104

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONGARRA TRAVERSE

HOLE NO: BMR CAHILL 32 — CO-ORDINATES: 12° 52' 132° 53'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, unconsolidated quartz gravel and sand

unconsolidated quartz gravel and sand.

white clay, brown micaceous sand.

weathered mica feldspathic quartzite & schist.
yellow, green and brown micaceous sand.

biotite - feldspar - quartz schist.
core: foliated garnet-biotite/chlorite - feldspathic quartzite
minor quartz schist bands.
average dip of foliation ~ 75°

| | | | |
|---|---|---|---|
| DRILLER: E.L. | AIR: 0 - 80' | COMMENCED: 17/9/1974 | LOGGED BY: P.G.S |
| TYPE: MAYHEW 1000 | WATER: 80' - 83' | COMPLETED: 17/9/1974 | DRAWN BY: P.G.S. |

M(Pf)122

D 53/A/105

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: ISDONGARRA TRAVERSE

HOLE NO: BMR CANILL 33 — CO-ORDINATES: 12° 52' 132° 53'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | -20 0 80 | 200 800 1600 | 0.005 0.02 | | | |
| | | | TC = 2s | | | Fe oxide pisolites, brick red quartz sand |
| 10 | | | | | | unconsolidated quartz gravel and sand |
| 5 | | | | | | |
| 20 | fe | | | | | |
| 30 | | | | | | brown micaceous quartz sand, white and brown foliated clay (weathered feldspar-quartz-mica schist) |
| 10 | | | | | | |
| 40 | | | | | | |
| 50 15 | | | | | | |
| 60 | | | | | | partly weathered feldspar-quartz-mica (biotite, muscovite) schist pegmatoid quartz and feldspar |
| 20 | | | | | | |
| 70 | | | | | | |
| 80 | | | | | | |
| 25 | | | | | | core: garnet-feldspar-biotite-muscovite-quartz schist. average dip of schistosity ~ 63° |
| 90 | | | | | | |
| 30 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0-50' | COMMENCED 17/9/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 50-83' | COMPLETED 17/9/1974 | DRAWN BY P.G.S., H. |

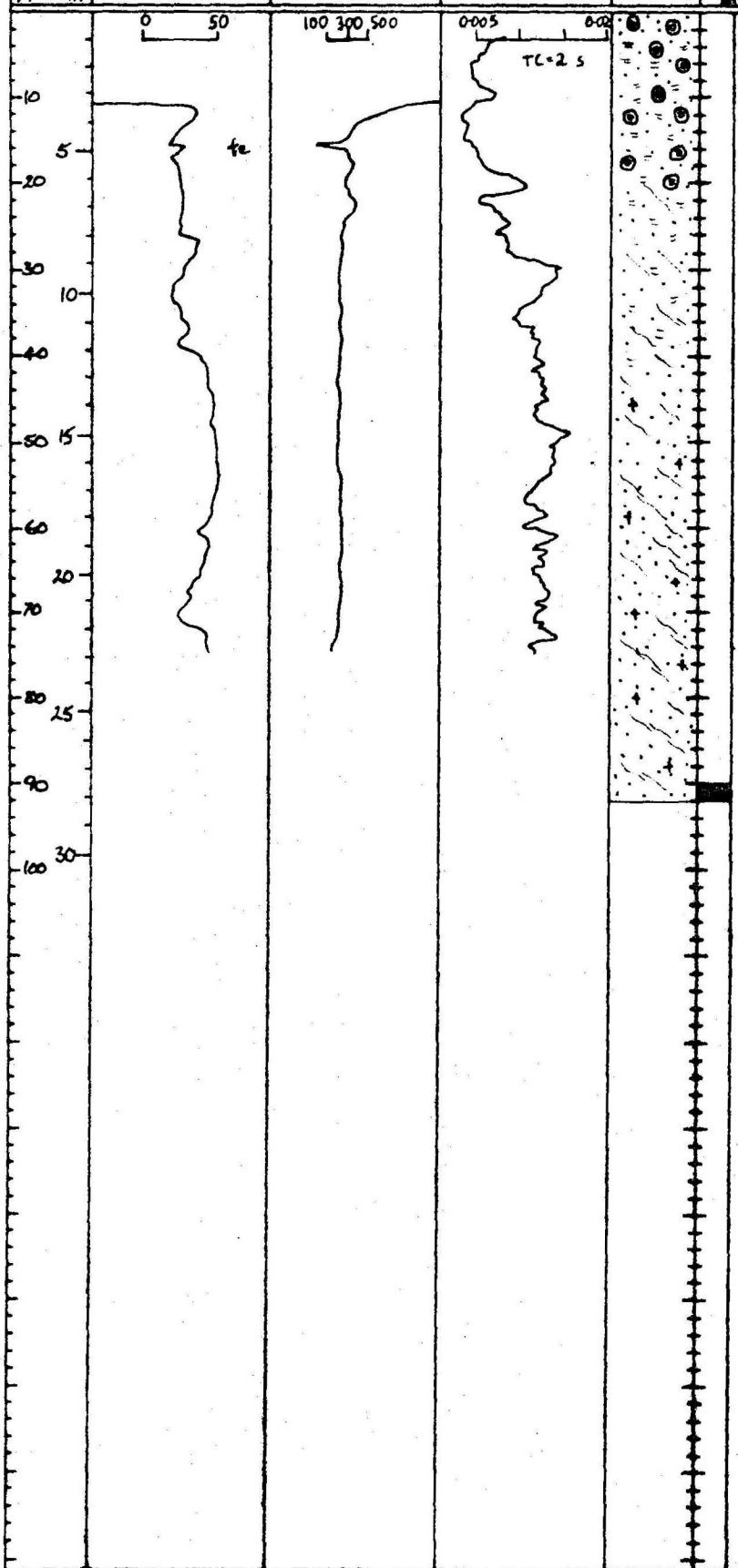
M(P1)122 D53/A/106

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONGARRA TRAVERSE

HOLE NO.: BMR SAHILL 34 — CO-ORDINATES: 12° 52' 132° 53'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, Fe stained and milky quartz, white clay.

white and brown clay, milky quartz, mica flakes, minor weathered mica-feldspar-quartz schist.

partly weathered biotite/chlorite - feldspar - quartz schist, pegmatoid quartz and feldspar

core: banded muscovite-biotite-feldspar-quartz schist. average dip of schistosity ~ 60°

| | | | |
|---|---|---|---|
| DRILLER: E.L. | AIR: 0 - 45' | COMMENCED: 17/9/1974 | LOGGED BY: P.G.S.S. |
| TYPE: MAYHEW 1000 | WATER: 45'-92' | COMPLETED: 18/9/1974 | DRAWN BY: P.G.S.S. I.H. |

M(P1)122

DS3/A/107

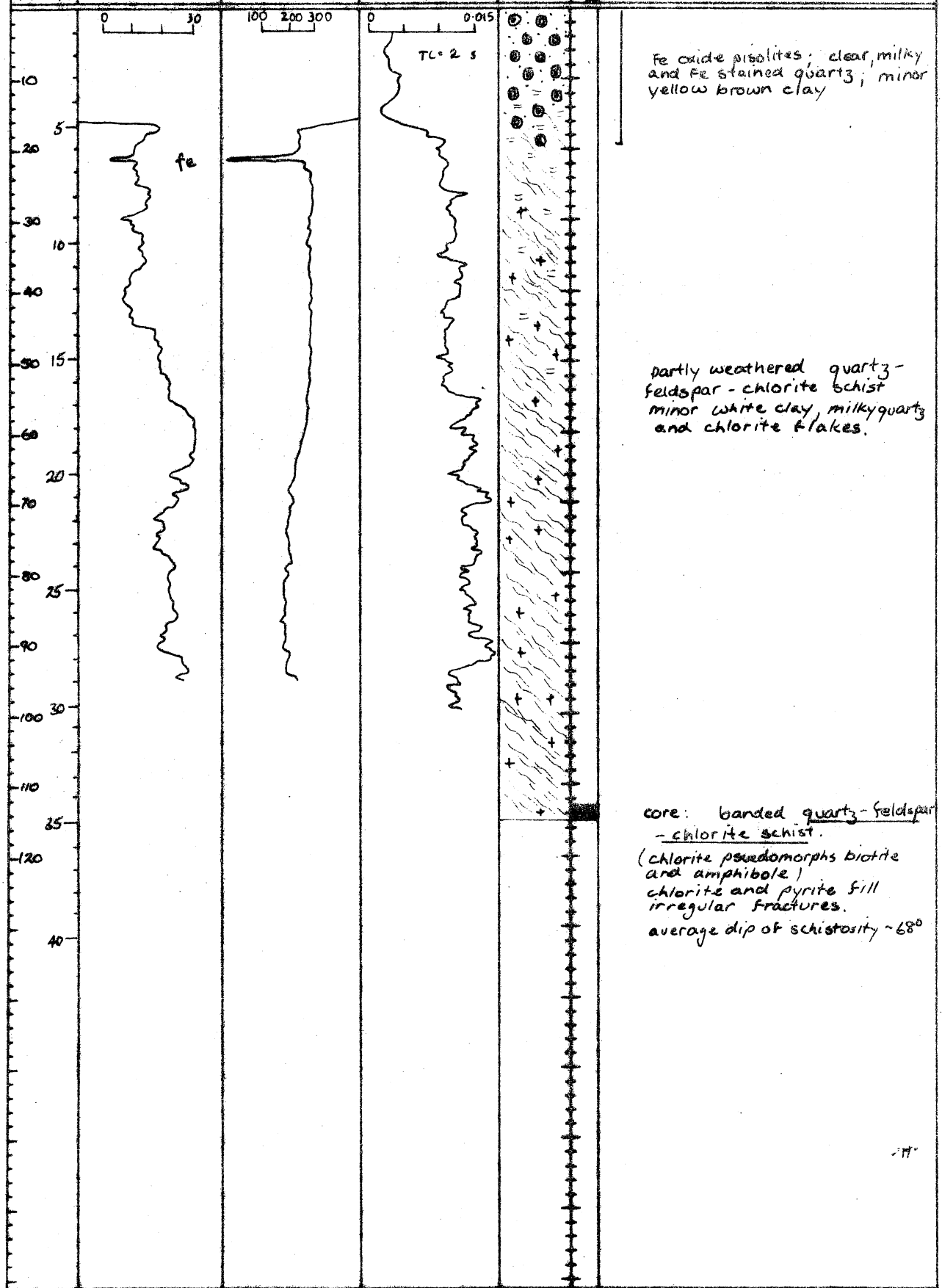
BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION KOONGARRA TRAVERSE

HOLE NO. BMR CAHILL 35 CO-ORDINATES 12° 52' 132° 53'

| DEPTH ft m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|




Fe oxide pisolites; clear, milky and Fe stained quartz; minor yellow brown clay

partly weathered quartz-feldspar-chlorite schist minor white clay, milky quartz and chlorite flakes.

core: banded quartz-feldspar-chlorite schist.
(chlorite pseudomorphs biotite and amphibole)
chlorite and pyrite fill irregular fractures.
average dip of schistosity ~68°

| DRILLER | AIR 0 - 20' | COMMENCED 17/9/1974 | LOGGED BY P.G.S.S. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 20' - 115' | COMPLETED 18/9/1974 | DRAWN BY P.G.S.S. |

M(Pt)122

D53/A/108

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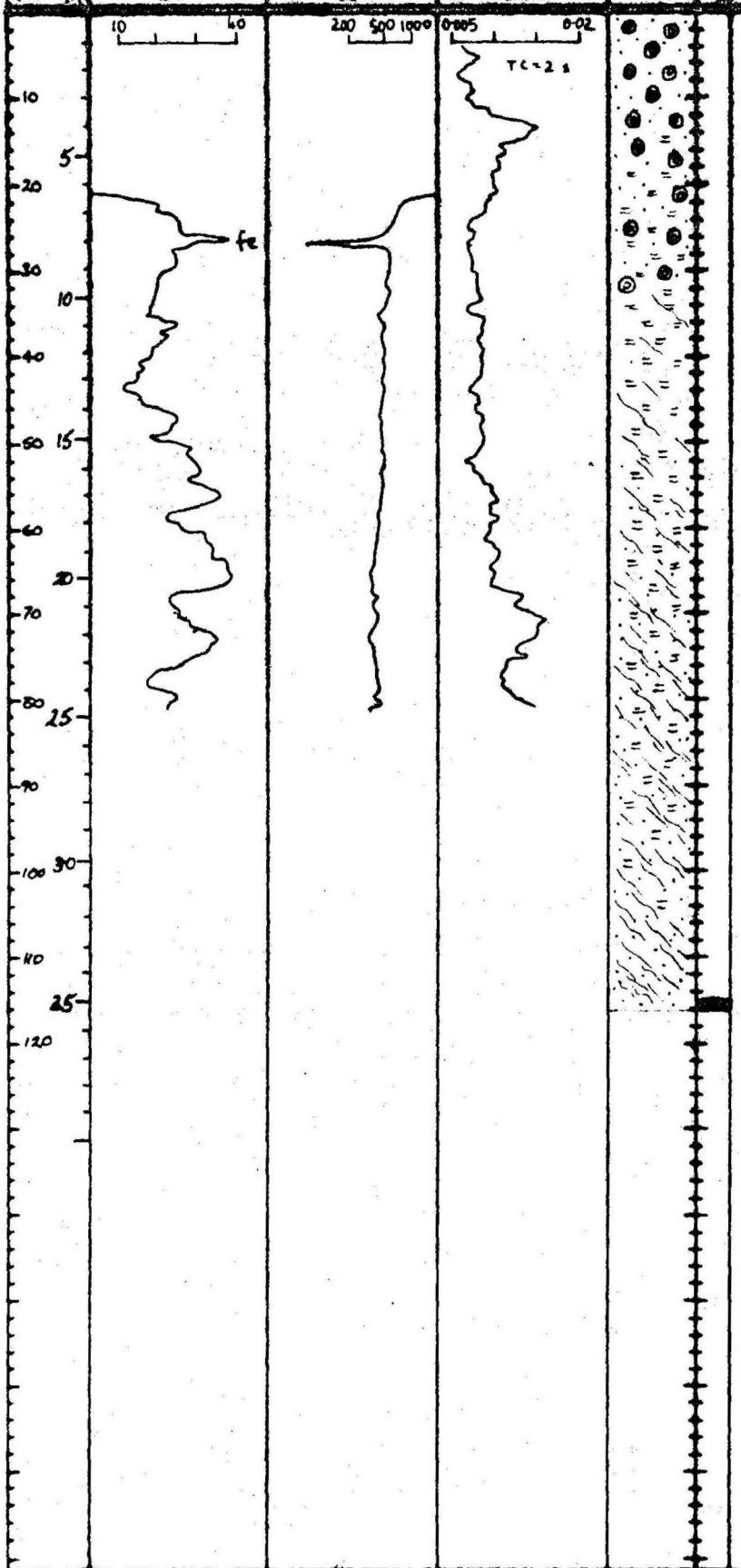
BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: NOONGARRA TRAVERSE

HOLE NO: BMR CRHW 36 — CO-ORDINATES: 12° 52' 132° 53'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites; milky and Fe stained quartz; ferricrete; minor white, yellow and brown clay

Ferruginised schist; foliated clay white and yellow containing magnetite; milky quartz and minor quartzite

weathered magnetite - mica (chlorite, muscovite) - quartz schist. minor quartzite and white clay

core: banded magnetite - muscovite - chlorite - quartz schist.
chlorite and pyrite in small fractures.
average dip of schistosity ~50°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0'-30' | COMMENCED 18/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 30'-116' | COMPLETED 19/9/1974 | DRAWN BY P.G.S.S., L.H. |

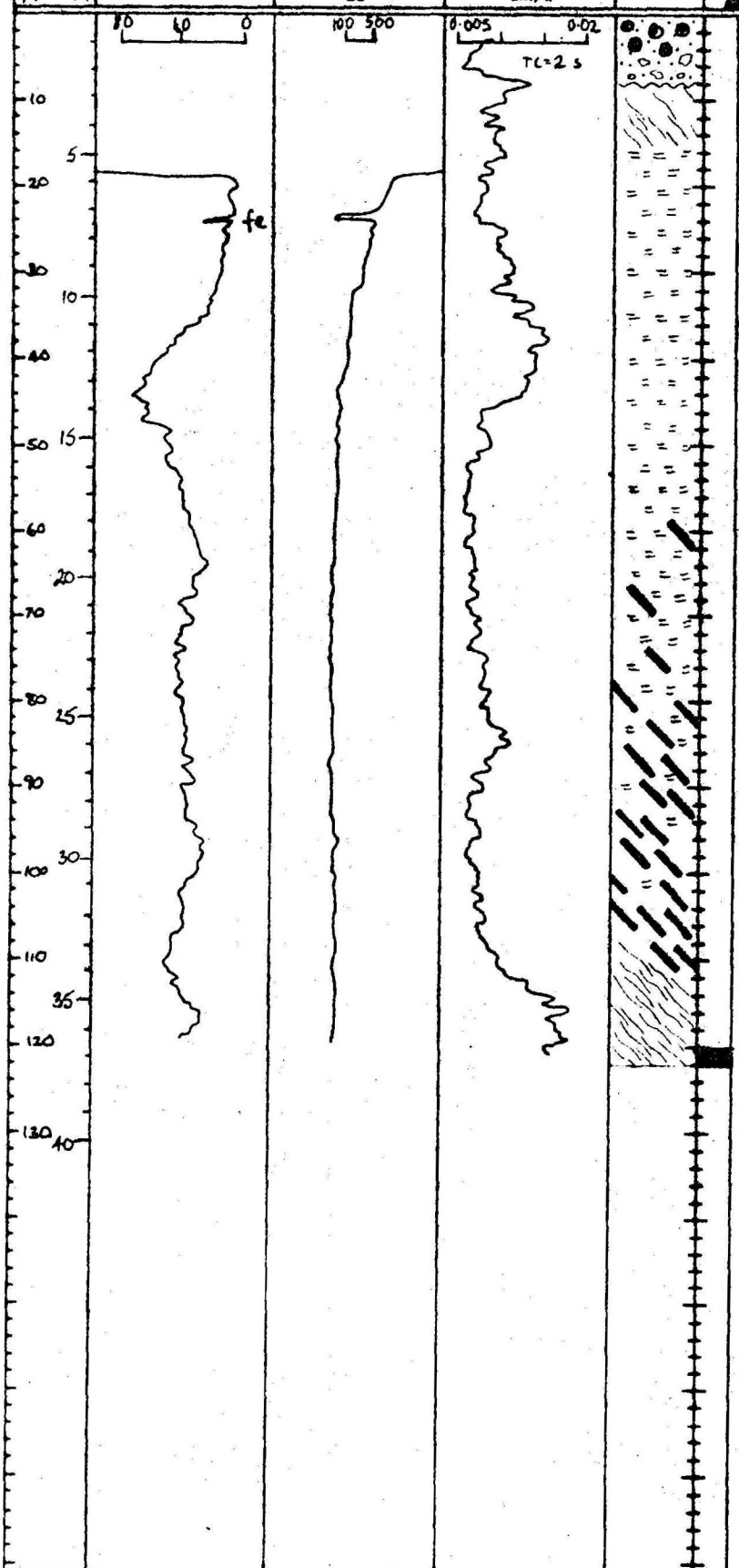
M(Pf)122 D83/A/109

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONBARRA TRAVERSE

HOLE NO: BMR CAHILL 37 — CO-ORDINATES: 12° 52' 132° 53'




| | | | |
|---|---|---|---|
| DRILLER | AIR 0 – 25' | COMMENCED 18/9/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 25' – 122' | COMPLETED 19/9/1974 | DRAWN BY P.G.S., W.H. |

M(Pf)122

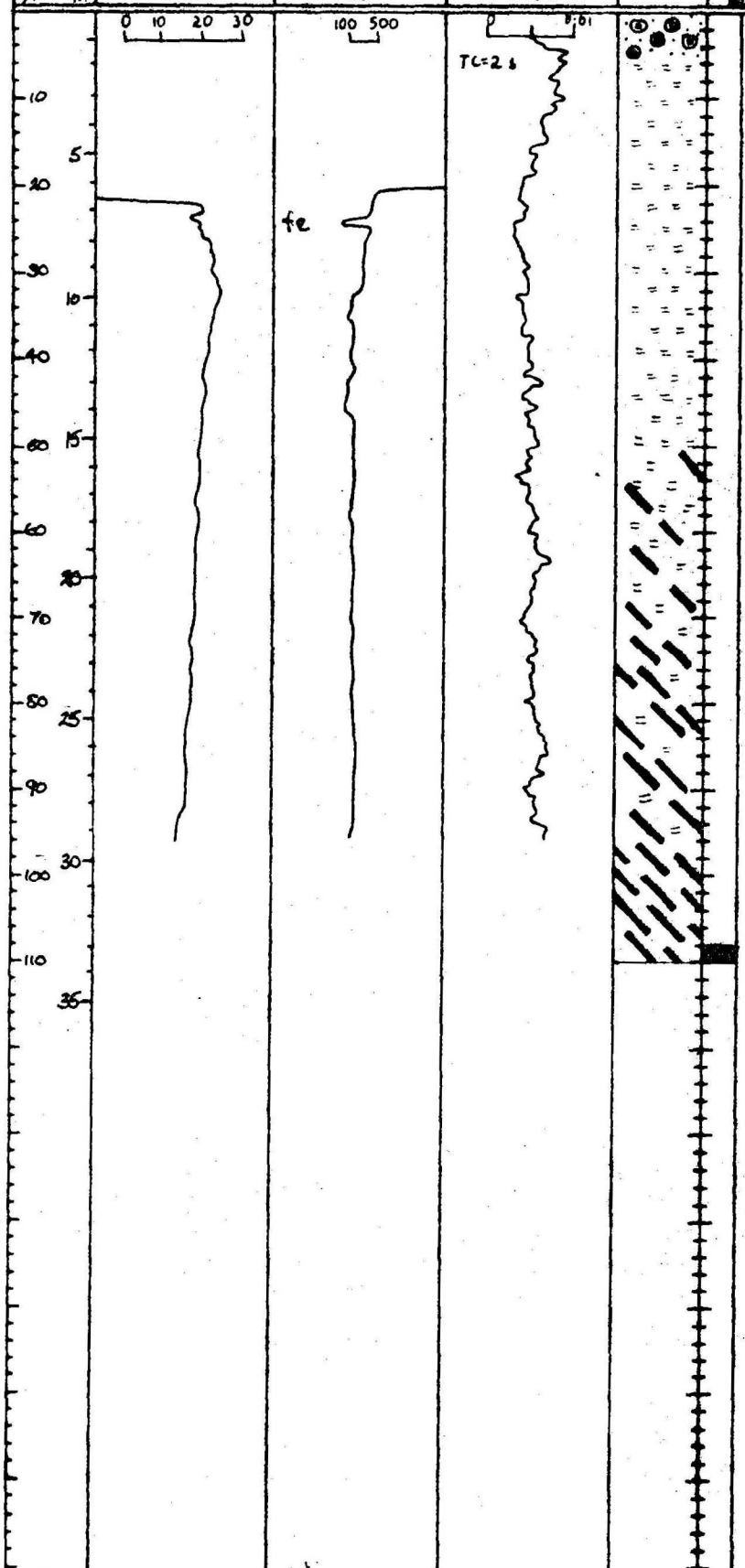
D 53/A/110

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONGARRA TRAVERSE

HOLE NO: BMR CANIL 58 — CO-ORDINATES: 12° 53' 132° 53'




Fe oxide pisolites, ferricrete, Fe stained quartz

yellow brown clay

mottled pale and dark green clay (weathered amphibolite), minor milky quartz.

partly weathered amphibolite mottled green clay, minor milky quartz.

core: amphibolite

average dip of foliation ~ 65°

| | | | |
|---|---|---|---|
| DRILLER: E.L. | AIR: 0 - 70' | COMMENCED: 19/9/1974 | LOGGED BY: P.G.S-S. |
| TYPE: MAYNEW 1000 | WATER: 70 - 110' | COMPLETED: 14/9/1974 | DRAWN BY: P.G.S-S, I.H. |

M(Pf)122

DS3/A/111

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS LOCATION: KOONBARRA TRAVERSE

HOLE NO.: AMR CANILL 89 CO-ORDINATES: 12° 51' 132° 53'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTIVITY LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | -100 -10 | 100 200 500 1000 | 0 0.01 | | |
| 10 | | | TC=2 s | | red brown ferruginous quartz gravel and sand |
| 5 20 | | | | | |
| 30 | fe | | | | white and brown foliated clay |
| 10 40 | | | | | |
| 50 15 | | | | | |
| 60 | | | | | white and pale green foliated clay minor weathered amphibolite, milky quartz |
| 20 70 | | | | | |
| 80 25 | | | | | |
| 90 | | | | | core: amphibolite average dip of foliation ~70° |
| 100 30 | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 35' | COMMENCED 19/9/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 35' - 90'3" | COMPLETED 20/9/1974 | DRAWN BY P.G.S.S, J.H. |

M(Pf)122

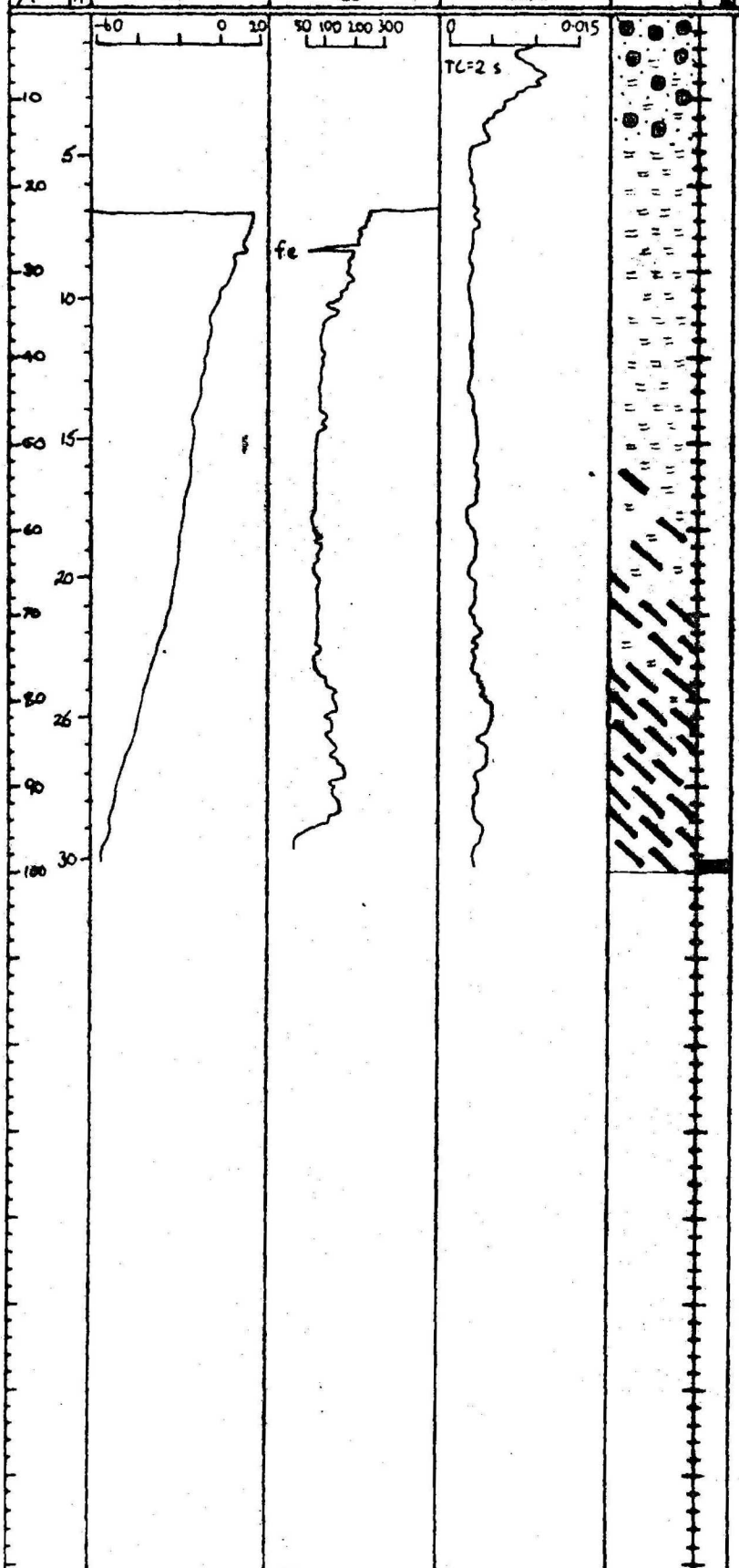
D53/A/112

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONBARRA TRAVERSE

HOLE NO.: BMR CANILL 40 — CO-ORDINATES: 12° 52' 132° 53'




DESCRIPTION OF CORE AND CUTTINGS

milky and Fe stained quartz; Fe oxide pisolites; white, yellow and brown clay.

mottled pale green and white foliated clay (weathered amphibolite)

partly weathered amphibolite; pale green clay, milky quartz

core: amphibolite
quartz-scapolite veins.
dip of foliation ~60° to 65°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0-40' | COMMENCED 19/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 40'-100' | COMPLETED 20/9/1974 | DRAWN BY P.G.S.S., J.H. |

M(Pf)122

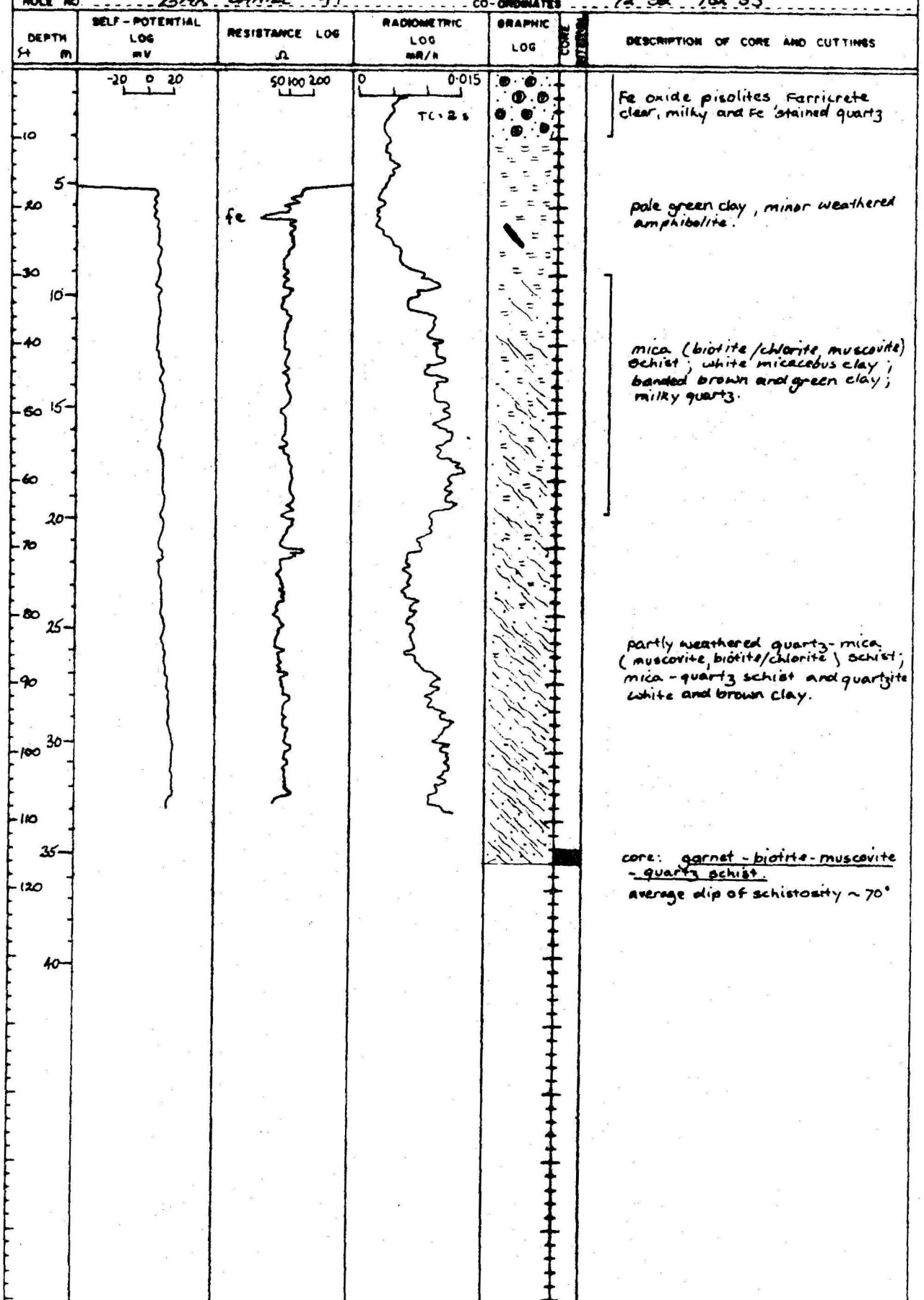
D53/A/113

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVER — LOCATION: KOONGARRA, TRAVERSE

HOLE NO: BMR CAHILL 41 — CO-ORDINATES: 12° 52' 132° 53'




| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 40' | COMMENCED 23/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 40 - 116' | COMPLETED 28/9/1974 | DRAWN BY P.G.S.S., I.H. |

M(Pf)122

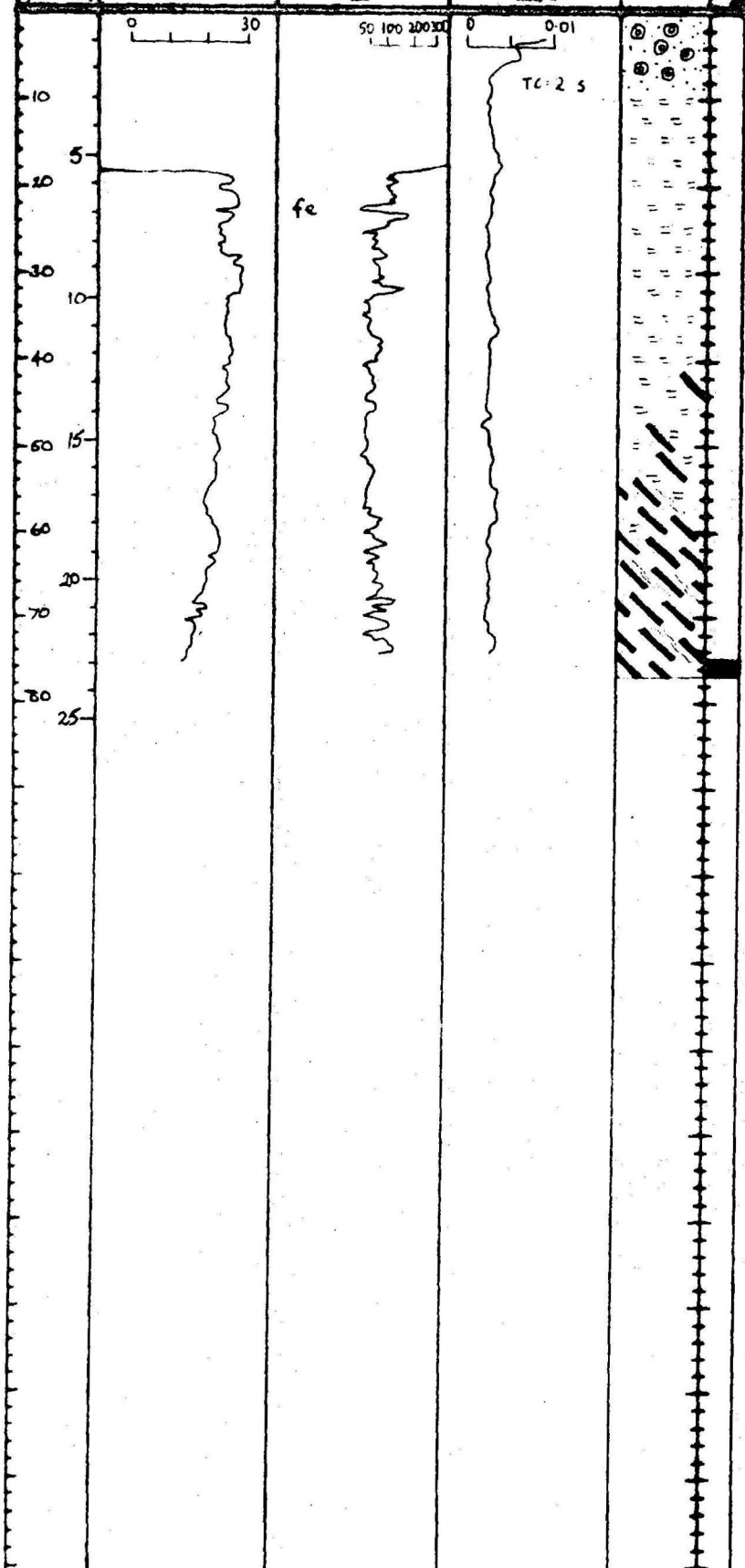
DS3/A/114

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVER — LOCATION: KOONBARRA TRAVERSE

HOLE NO.: BMR CAHILL 42 — CO-ORDINATES: 12° 52' 132° 53'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, ferricrete, milky quartz

white and brown clay, milky quartz

pale green, white yellow and brown foliated clay

weathered amphibolite, mainly pale green and white foliated clay.

partly weathered amphibolite minor chlorite-feldspar-quartz schist

core: amphibolite
average dip of foliation ~ 75°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 20' | COMMENCED 24/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 20' - 77' | COMPLETED 24/9/1974 | DRAWN BY P.G.S.S., I.H. |

M(P1)122

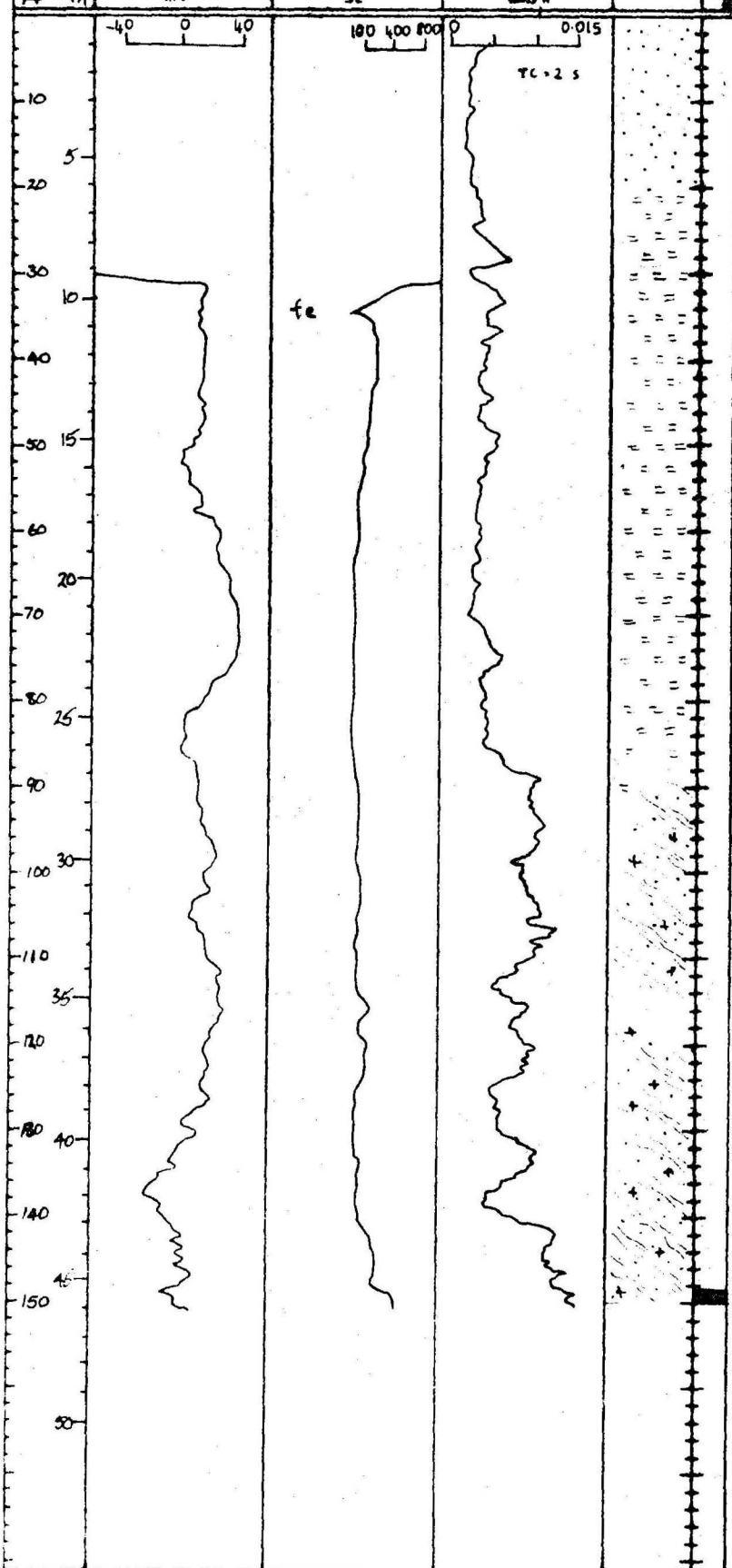
D53/A/115

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONSARRA TRAVERSE

HOLE NO.: BMR CAMILL 43 — CO-ORDINATES: 12° 52' 132° 53'




DESCRIPTION OF CORE AND CUTTINGS

Ferricrete, milky quartz

white foliated clay, minor green and brown clay and weathered amphibolite

brown clay, minor white & green clay, weathered amphibolite

pale green and brown foliated clay, weathered amphibolite

Feldspar - quartz - mica (muscovite, biotite/chlorite) schist; mica schist; milky quartz, trace pyrite.

core: banded feldspar - garnet - quartz - mica (biotite, muscovite) schist and biotite - muscovite - feldspar - quartz schist.
dip of planar schistosity ~ 70°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 40' | COMMENCED 24/9/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 40' - 150' | COMPLETED 24/9/1974 | DRAWN BY P.G.S.S. |

M P(1)22

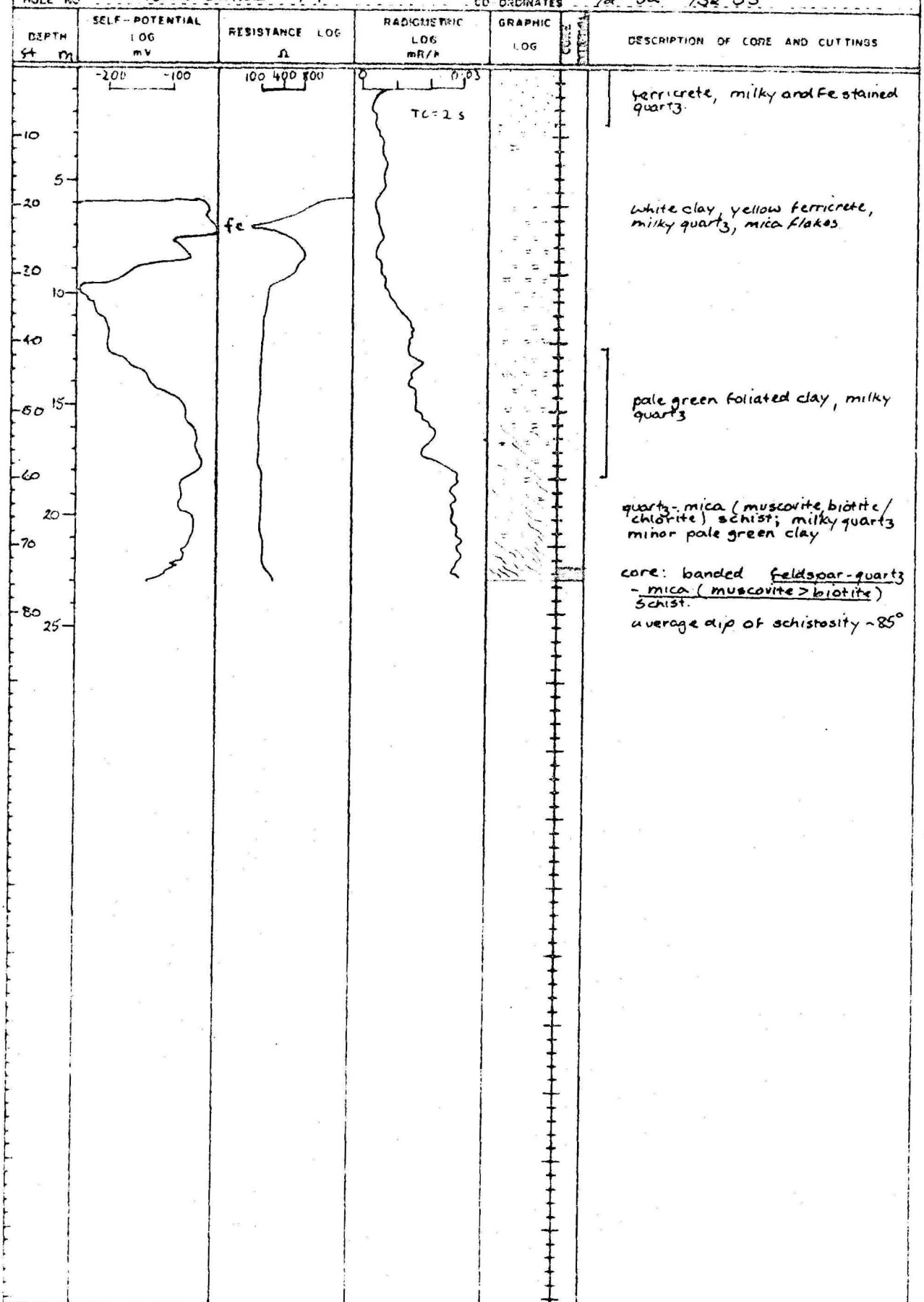
DS3/A/116

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION KOONBARRA TRAVERSE

HOLE NO BMR CAHILL 44 CO ORDINATES 12° 52' 132° 53'




| DRILLER | AIR 0-35' | COMMENCED 24/9/1974 | LOGGED BY P.G.S.S |
|---|---|---|---|
| TYPE EASTVIEW 1000 | WATER 35'-75' | COMPLETED 24/9/1974 | DRAWN BY P.G.S.S, L.H. |

D53/A/11

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION KOONBARRA TRAVERSE

HOLE NO BMR CAHILL 45 CO-ORDINATES 12° 52′ 132° 53′

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|---|
| | | -50 0 | 100 300 500 | 0 0·015 | | | |
| 10 | | | | TC-2 s | | | pale brown clay containing quartz + mica. Fe oxide pisolites, Fe stained quartz |
| 20 | 5 | fe | | | | | |
| 30 | 10 | | | | | | white and brown foliated clay |
| 40 | | | | | | | |
| 50 | 15 | | | | | | partly weathered biotite/chlorite - amphibole - quartz schist; milky quartz |
| 60 | 20 | | | | | | core: apatite - biotite - amphibole - quartz schist desseminated pyrite. average dip of schistosity ~68° |

| DRILLER | AIR 0-20′ | COMMENCED 25/9/1974 | LOGGED BY P.G.S.S. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 20′-57′ | COMPLETED 25/9/1974 | DRAWN BY P.G.S.S, L.H. |

M(P1)122

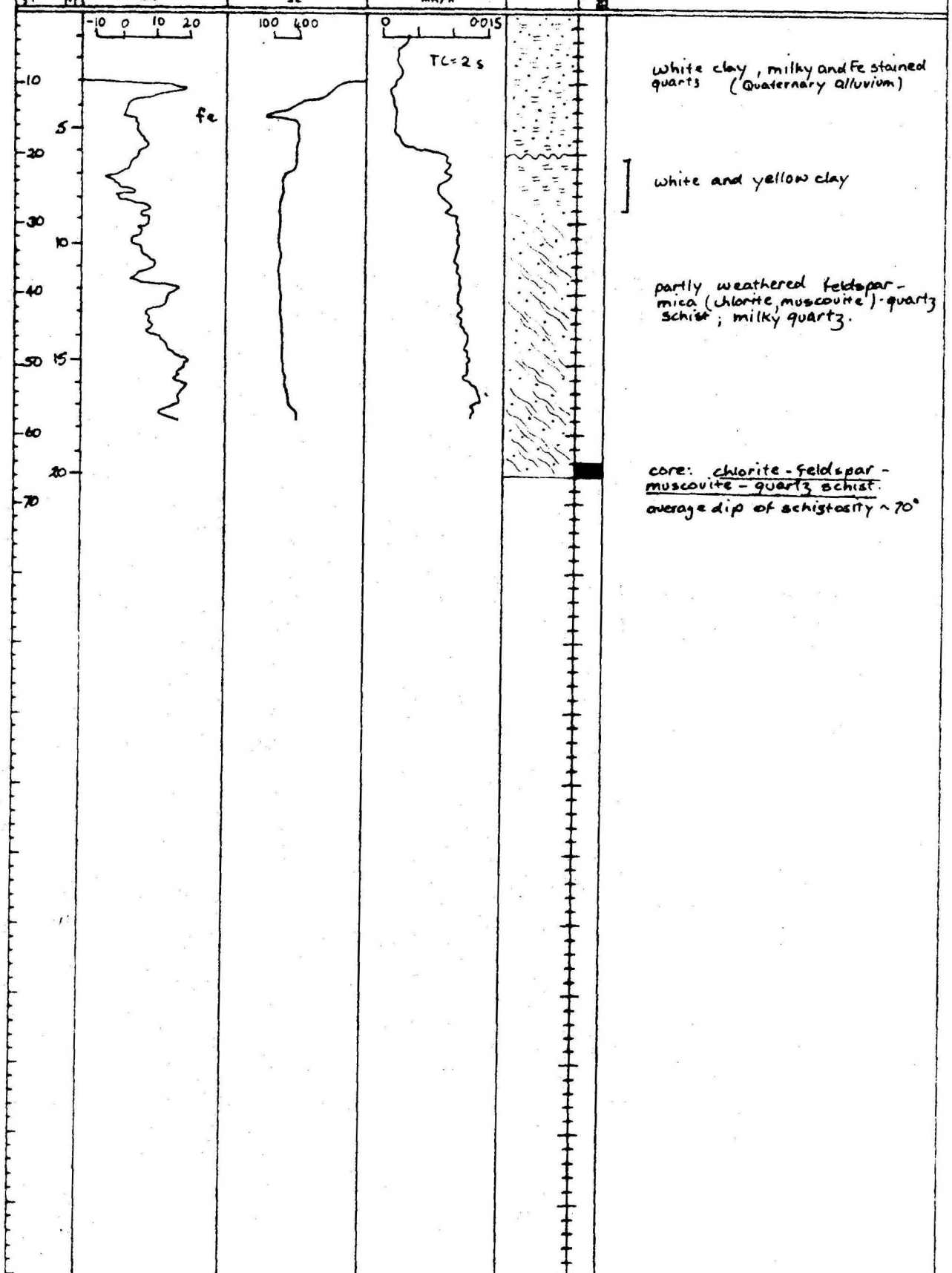
DS3/A/118

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONAMARRA TRAVERSE

HOLE NO.: BMR CAMILL 46 — CO-ORDINATES: 12° 52' 132° 53'




| | | | |
|---|---|---|---|
| DRILLER: E.L. | AIR: 0-20' | COMMENCED: 25/9/1974 | LOGGED BY: P.G.S.S. |
| TYPE: MAYHEW 1000 | WATER: 20'-66' | COMPLETED: 25/9/1974 | DRAWN BY: P.G.S.S., I.H. |

M(Pf)122

D S3/9/119

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: KOONGARRA TRAVERSE

HOLE NO.: BMR CAMIL 47 — CO-ORDINATES: 12° 53' / 132° 53'

| DEPTH ft | DEPTH m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | | -10 0 10 20 | 500 1000 | 0·005 0·02 | | |
| | | | | TC·2 s | | white and grey sandy clay |
| 10 | | | fe | | | ferruginised silicified sandstone breccia (fault) |
| | 5 | | | | | |
| 20 | | | | | | |
| 30 | | | | | | |
| | 10 | | | | | |
| 40 | | | | | | foliated white, yellow and brown micaceous clay, milky quartz |
| 50 | 15 | | | | | |
| 60 | | | | | | |
| | 20 | | | | | |
| 70 | | | | | | |
| 80 | 25 | | | | | ferruginised feldspar-mica-quartz schist; pegmatoid muscovite chlorite and quartz; minor grey clay. |
| 90 | | | | | | |
| 100 | 30 | | | | | core: partly weathered biotite-feldspar-muscovite-quartz schist. dip of schistosity ~35° to 40° |
| 110 | | | | | | |
| | 35 | | | | | |

| | | | |
|---|---|---|---|
| DRILLER: L.K. | AIR: 0 - 15' | COMMENCED: 25/9/1974 | LOGGED BY: P.G.S. |
| TYPE: MAYHEW 1000 | WATER: 15'-102' | COMPLETED: 25/9/1974 | DRAWN BY: P.G.S.S, I.H. |

M(P1)122 — DS3/A/120

# APPENDIX 4

## GEOLOGICAL AND GEOPHYSICAL LOGS, JABIRU TRAVERSE

Drill holes:

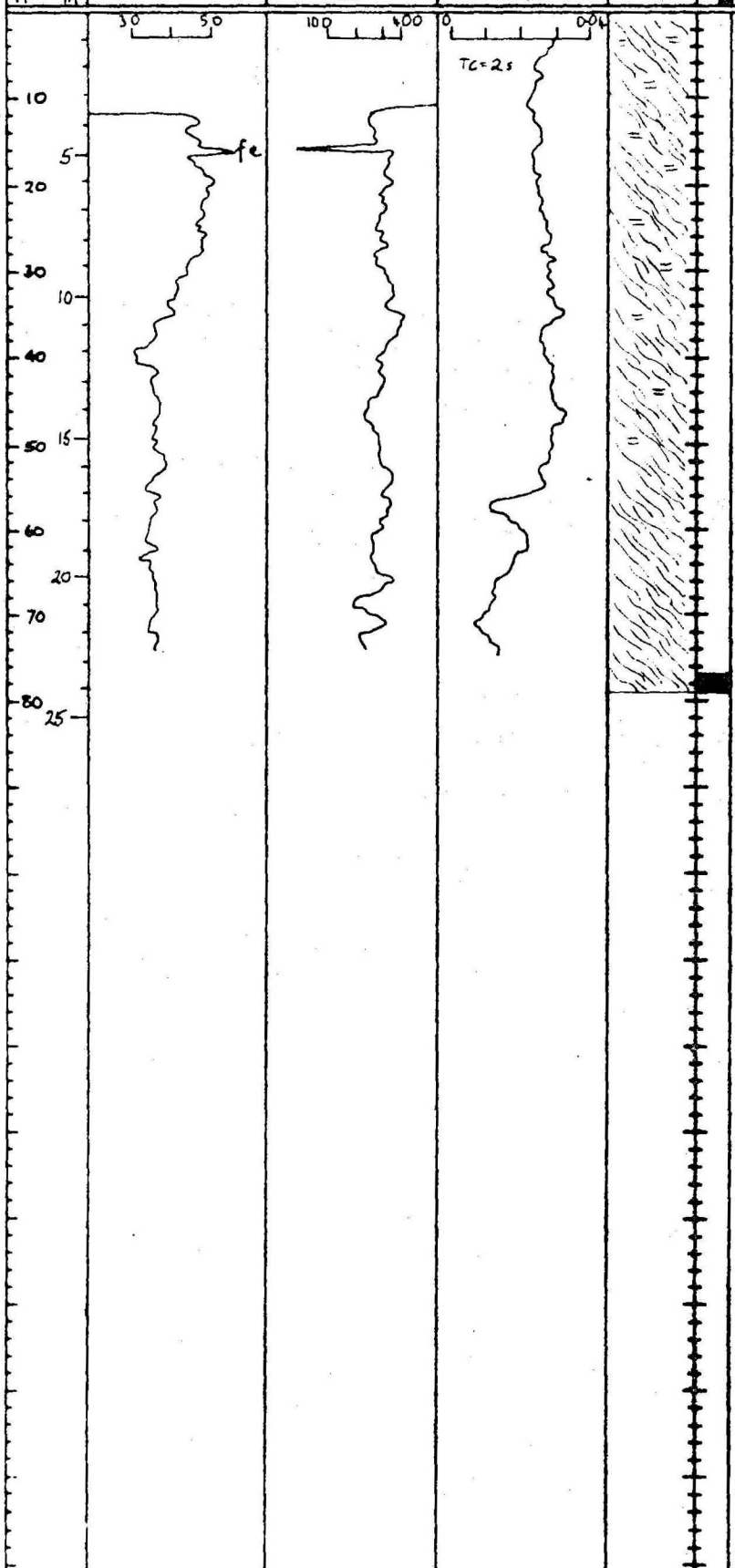
Cahill Nos. 48-77

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVER — LOCATION: JABIRU TRAVERSE

HOLE NO.: BMR CANILL 48 — CO-ORDINATES: 012° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

Ferruginised mica-quartz schist, quartzite, milky quartz, mined brown clay

partly weathered and ferruginised quartz-chlorite schist, milky quartz

core.
hematite-quartz-chlorite schist
(chlorite may be altered amphibole)
average dip of foliation ~ 85°

| | | | |
|---|---|---|---|
| DRILLER: L.K. | AIR: 0 - 38 ft. | COMMENCED: 1/10/1974 | LOGGED BY: P.G.S.S. |
| TYPE: MAYNEN 1000 | WATER: 3% - 79 ft. | COMPLETED: 2/10/1974 | DRAWN BY: PGSS, L.H. |

M(P1)122

D53/A/121

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVER LOCATION JABIRU TRAVERSE

HOLE NO. BMR CAMILL 49 CO-ORDINATES 012° 37' 132° 56'

| DEPTH ft m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 10 20 30 40 | 50 150 | 0·005 0·02 | | | |
| 10 | Pe | | TC=2s | | | quartz sand, Fe oxide pisolites gravels yellow clay |
| 5 | | | | | | |
| 20 | | | | | | |
| 30 | | | | | | weathered feldspar-quartz-mica schist, milky and Fe stained quartz white to pale green clay |
| 10 | | | | | | |
| 40 | | | | | | |
| 50 15 | | | | | | |
| 60 | | | | | | partly weathered feldspar-mica (biotite/chlorite, muscovite) quartz schist, milky quartz |
| 20 | | | | | | |
| 70 | | | | | | |
| 80 25 | | | | | | core: feldspar-muscovite-quartz schist average dip of schistosity = 60° |

| | | | |
|---|---|---|---|
| DRILLER L.K. | AIR 0 – 20 ft | COMMENCED 2/10/1974 | LOGGED BY P.G.S-S. |
| TYPE MAYHEW 1000 | WATER 20 – 71 ft | COMPLETED 2/10/1974 | DRAWN BY PGS-S, L.H. |

M/D4/122

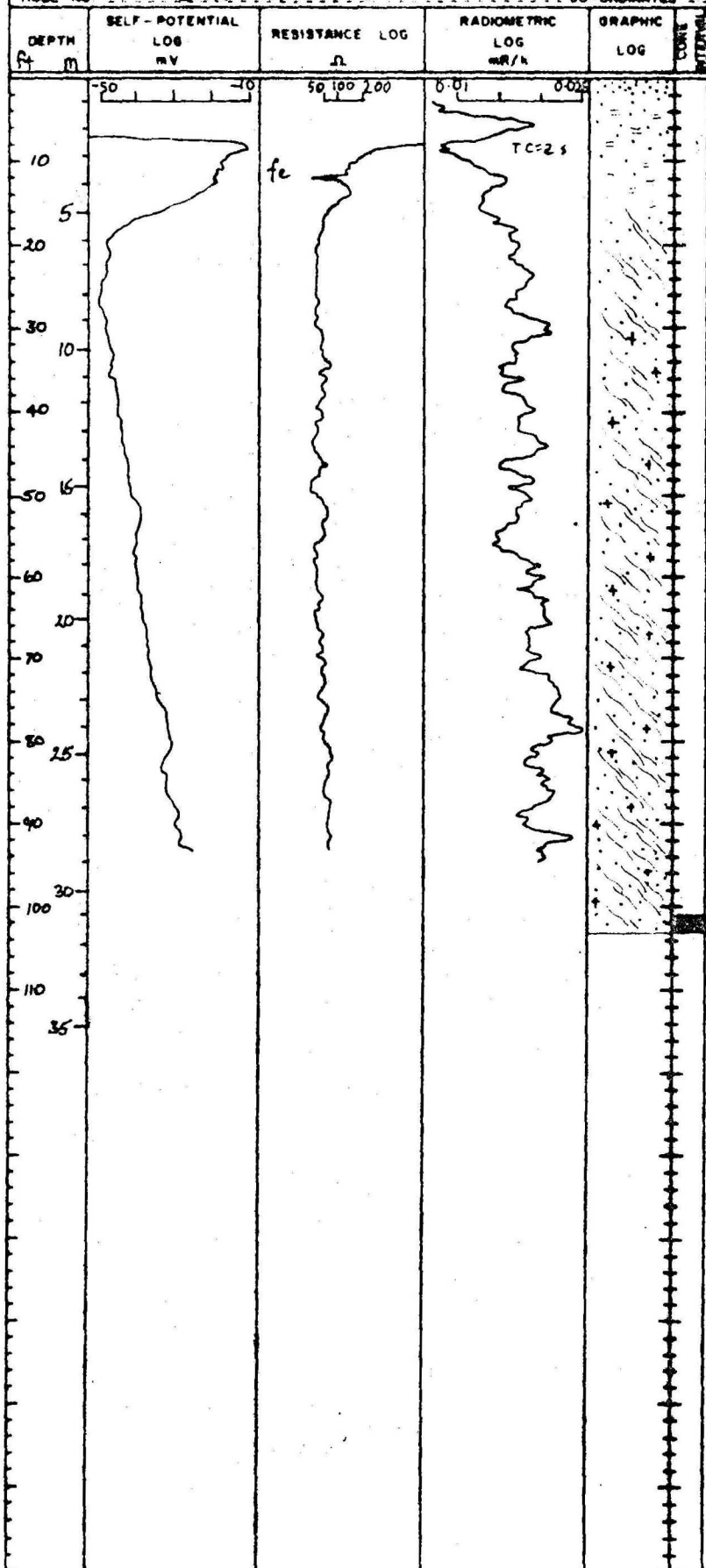
DS3/A/122

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVER — LOCATION: JABIRU TRAVERSE

HOLE NO: BMR CANILL 50 — CO-ORDINATES: 012° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

grey-brown quartz sand

red brown sand and clay

foliated grey micaceous clay

ferruginised quartz-mica and mica schist, milky quartz

partly weathered feldspar - mica (biotite/chlorite, muscovite) - quartz schist.
pegmatoid quartz and feldspar

core: banded muscovite-biotite - feldspar - quartz schist.
average dip of schistosity ~ 40°

| | | | |
|---|---|---|---|
| DRILLER: E.L. | AIR: 0 - 15 ft | COMMENCED: 2/10/1973 | LOGGED BY: P.G.S. |
| TYPE: MAYHEW 1000 | WATER: 15 - 103 ft | COMPLETED: 3/10/1974 | DRAWN BY: P.G.S., I.H. |

M(Pf)122

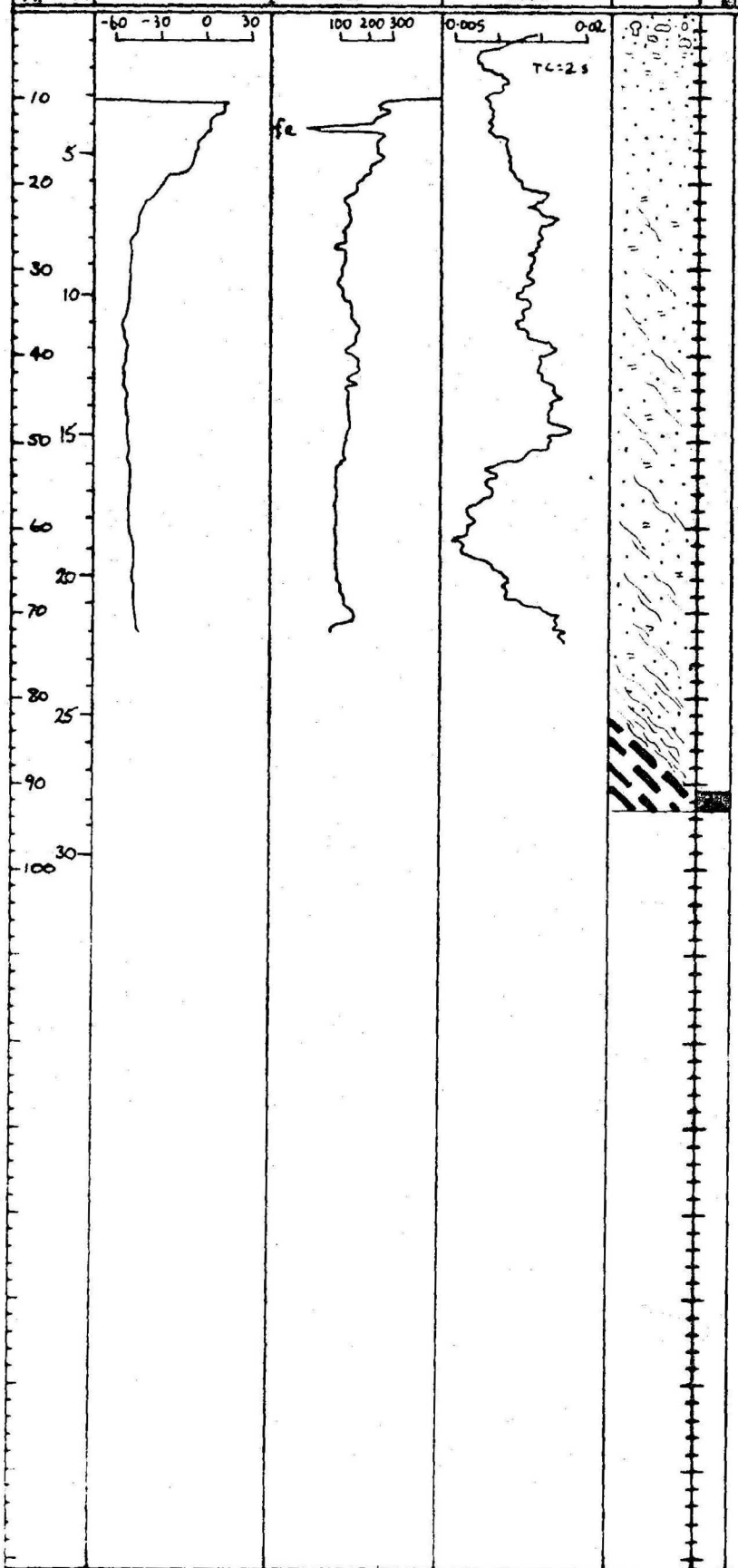
DS3/A/123

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVER — LOCATION: JABIRU TRAVERSE

HOLE NO.: BMR CANILL 51 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

unconsolidated quartz gravel and sand

brick red sandy clay

off white and brown micaceous sand

yellowish brown clayey micaceous quartz sand, minor ferroginised mica schist

partly weathered quartz-mica (muscovite, chlorite) schist, mica quartz schist, milky quartz

core: amphibolite
garnetiferous, disseminated pyrite.
average dip of foliation ~ 55°

| | | | |
|---|---|---|---|
| DRILLER: E.L. | AIR: 0 - 55 ft | COMMENCED: 1/10/1974 | LOGGED BY: P.G.S. |
| TYPE: MAYHEW 1000 | WATER: 55 - 93 ft. | COMPLETED: 2/10/1974 | DRAWN BY: P.G.S., I.H. |

M(P1)122

DS3/A/124

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVER LOCATION JABIRU TRAVERSE

HOLE NO BMR CAMILL 52 CO-ORDINATES 12° 37' 132° 56'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | -30 0 30 | 100 300 500 | 0 0.01 | | | |
| | | | TC>2 s | | | Fe oxide pisolites, ferricrete Fe stained quartz, light grey quartz sand |
| 10 | | fe | | | | |
| 5 | | | | | | white and pink clay |
| 20 | | | | | | |
| 30 | | | | | | |
| 10 | | | | | | mottled red brown, white and yellow clay (weathered amphibolite) |
| 40 | | | | | | |
| 50 15 | | | | | | |
| 60 | | | | | | partly weathered amphibolite minor green and white clay |
| 20 | | | | | | core: amphibolite sheared and fractured average dip of foliation ~45° |
| 70 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER L.K. | AIR | COMMENCED 3/10/1974 | LOGGED BY P.G.S-S |
| TYPE MAYHEW 1000 | WATER 0 — 66 ft | COMPLETED 3/10/1974 | DRAWN BY P.G.S-S, I.H. |

M(P1)122

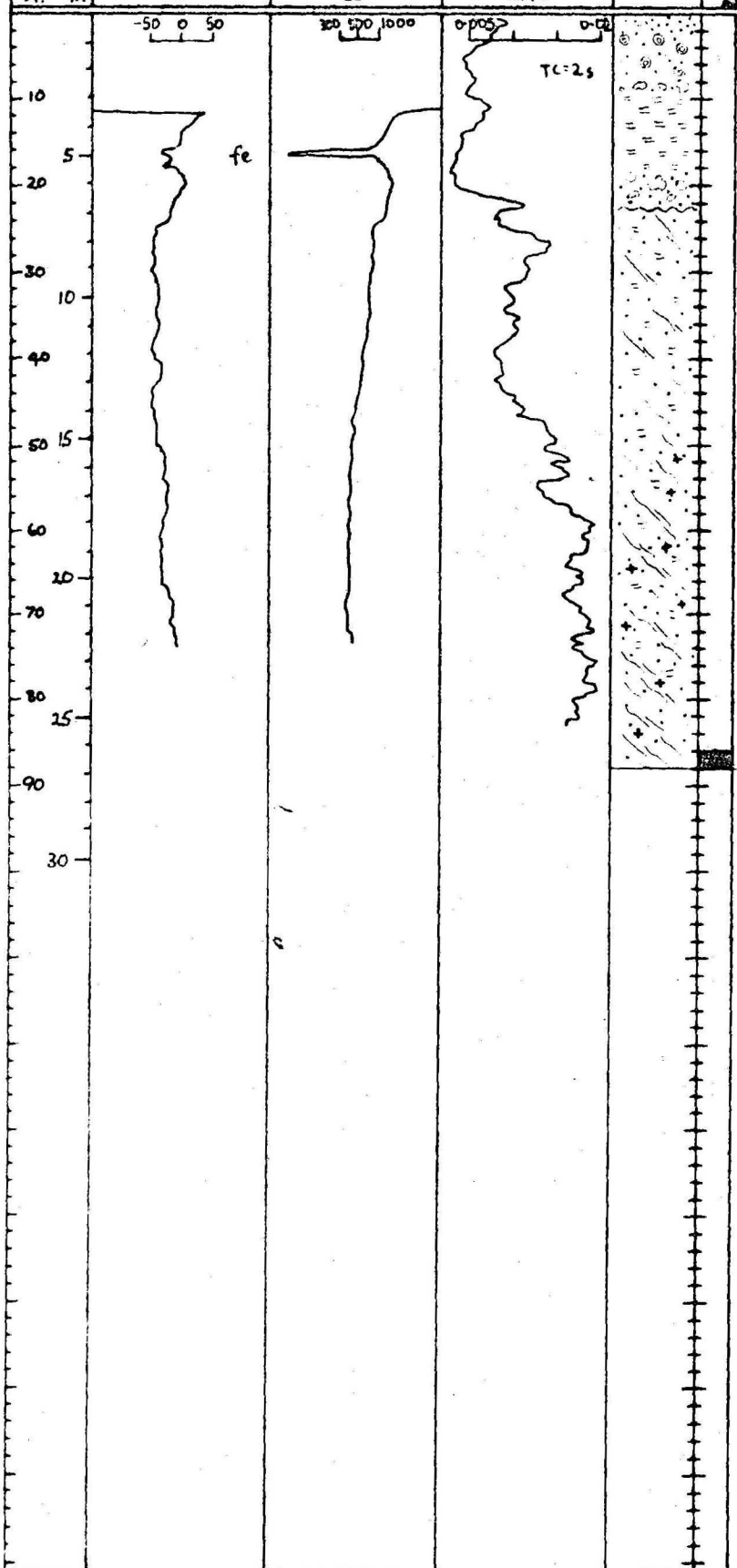
D33/A/125

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVER — LOCATION: JABIRU TRAVERSE

HOLE NO.: BMR CAHILL 53 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

grey quartz sand

Fe oxide pisolites, ferricrete

quartz gravel

brick red micaceous clay

greyish white foliated clay

quartz gravel and sand

brick red and yellow micaceous quartz sandy clay (weathered mica - feldspar - quartz schist)

weathered mica (muscovite, biotite/chlorite) - feldspar - quartz schist.
mica (muscovite biotite/chlorite) schist, milky quartz, minor white clay.

mica - feldspar - quartz schist

core: muscovite - biotite/chlorite - feldspar - quartz schist

average dip of planar schistosity ~45°

| DRILLER E.L. | AIR 0 - 65 ft | COMMENCED 3/10/1974 | LOGGED BY P.G.S. |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 65 - 88 ft. | COMPLETED 4/10/1974 | DRAWN BY P.G.S., I.H. |

M(Pf)127

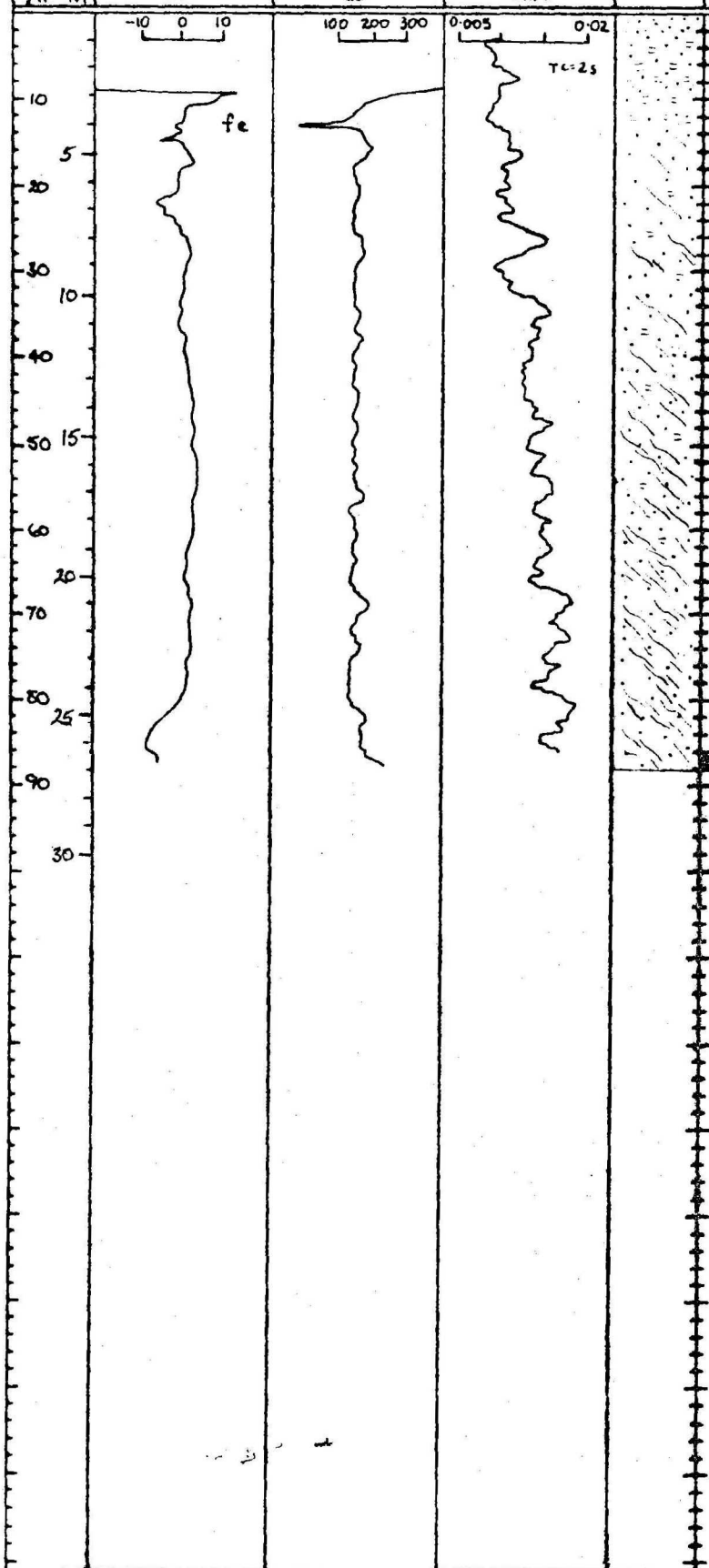
D 53/A/126

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO.: BMR CANILL 54 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

ferricrete, white and red brown clay, milky quartz

partly weathered feldspar-mica (biotite/chlorite, muscovite)-quartz schist; minor quartz-mica schist, green clay, pegmatoid quartz and feldspar.

feldspar-mica (muscovite, biotite chlorite)-quartz schist pegmatoid quartz and feldspar

core: feldspar-muscovite-biotite-quartz schist.
chlorite alteration halos around fractures.
average dip of schistosity ~ 45°

| | | | |
|---|---|---|---|
| DRILLER: L.K. | AIR: | COMMENCED: 3/10/1974 | LOGGED BY: P.G.S.S. |
| TYPE: MAYHEW 1000 | WATER: 0 – 68 ft. | COMPLETED: 4/10/1974 | DRAWN BY: P.G.S.S., I.H. |

M(Pf)122

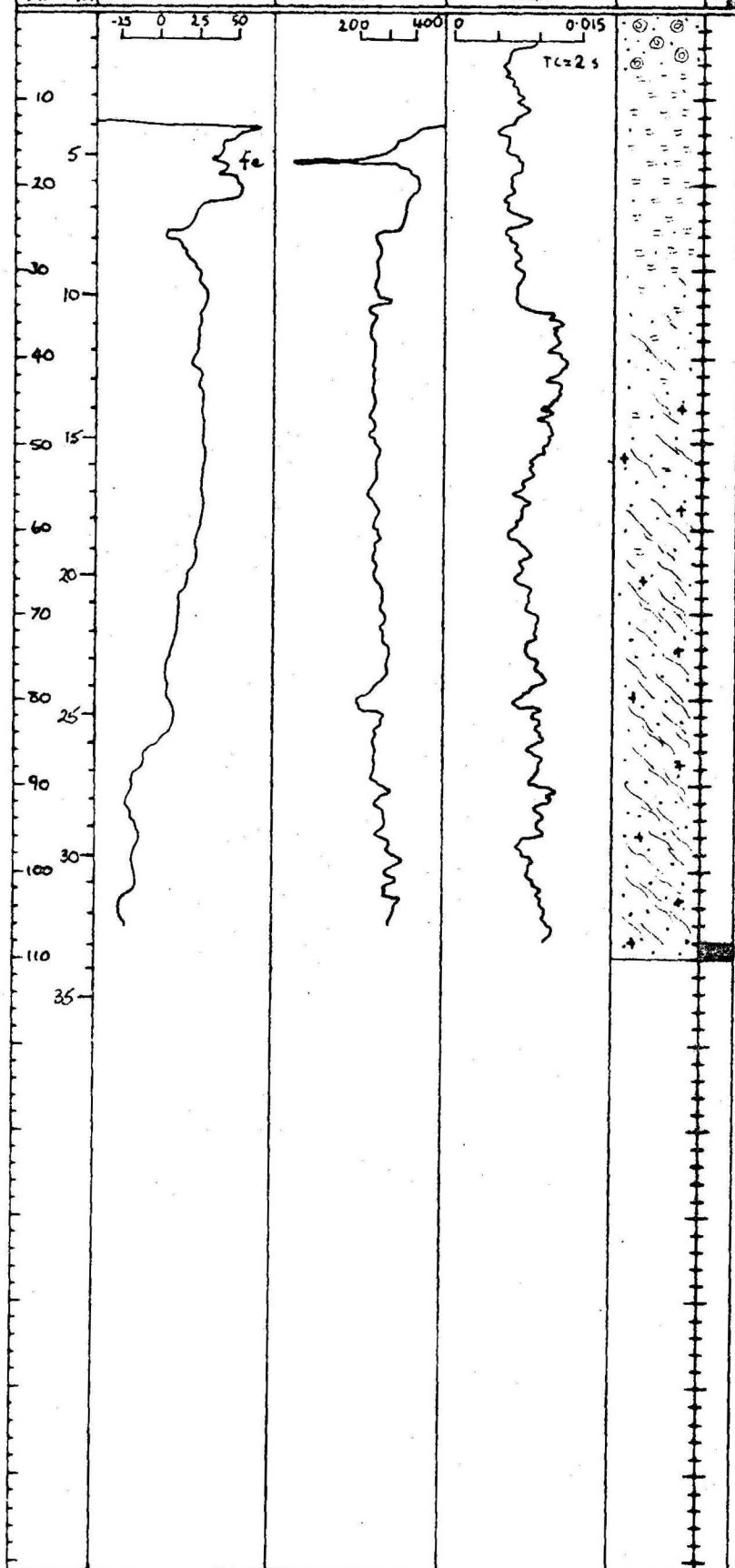
DS3/A/127

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO: BMR CAHILL 55 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, ferricrete
Fe stained quartz

white and yellow foliated clay
minor weathered mica-quartz schist.

partly weathered feldspar-mica (muscovite, biotite/chlorite) - quartz schist, pegmatoid quartz and feldspar, minor white clay.

feldspar - mica (muscovite, biotite/chlorite) - quartz schist, pegmatoid quartz and feldspar

core: banded feldspar-mica (biotite/chlorite, muscovite) - quartz schist.
average dip of kinked schistosity ~70°

| DRILLER | AIR 0 - 37 ft. | COMMENCED 4/10/1974 | LOGGED BY P.G.S-S |
|---|---|---|---|
| TYPE MAYHEW 1000 | WATER 37 - 110 ft | COMPLETED 4/10/1974 | DRAWN BY P.G.S-S, I.H. |

M(P1)122

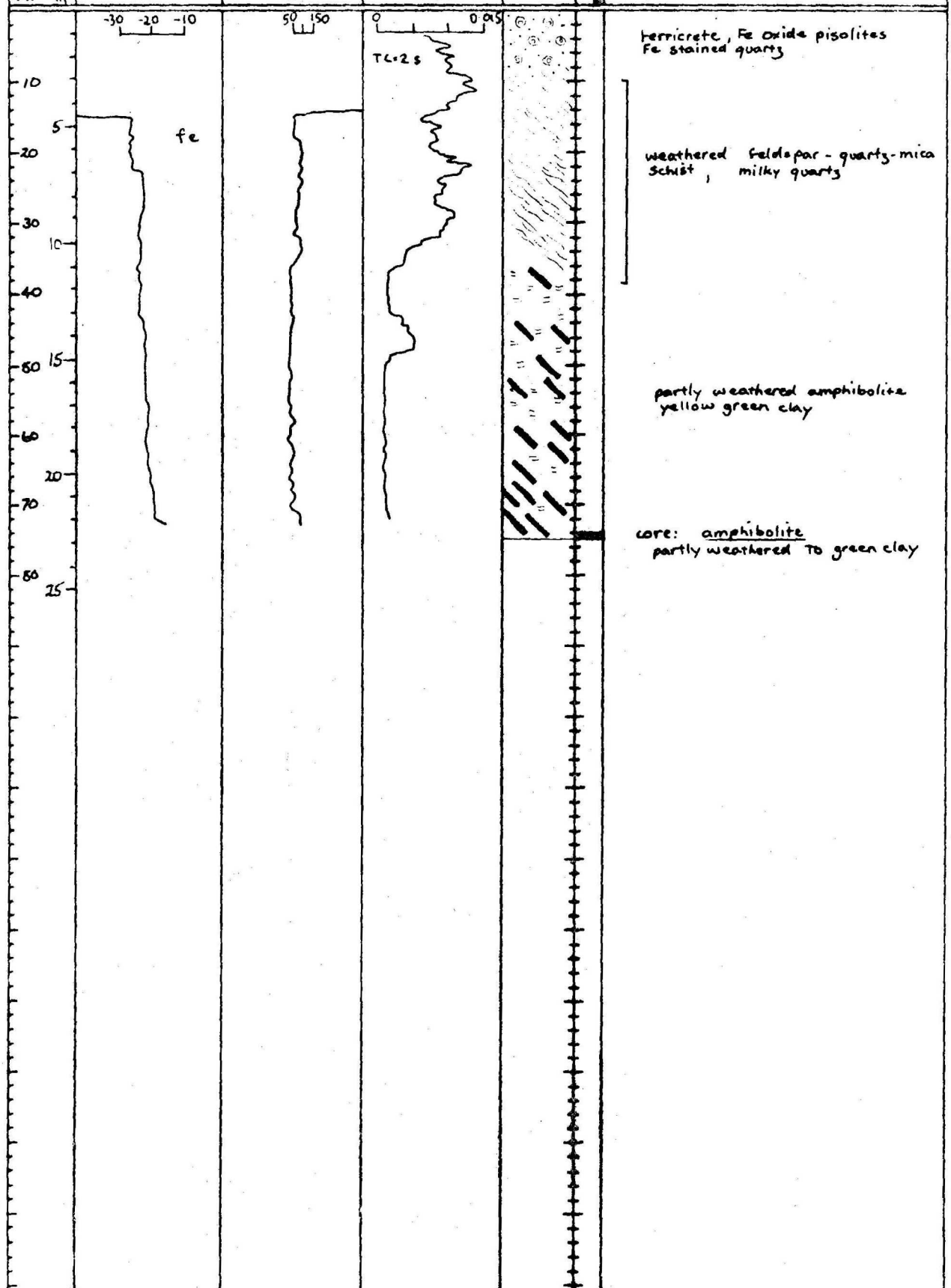
D53/A/128

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO: BMR CAHILL 56 — CO-ORDINATES: 12° 37' 132° 56'




| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 25 ft. | COMMENCED 4/10/1974 | LOGGED BY P.G.S-S |
| TYPE MAYHEW 1000 | WATER 25 - 75 ft. | COMPLETED 4/10/1974 | DRAWN BY P.G.S-S, I.H. |

M(Pf)122

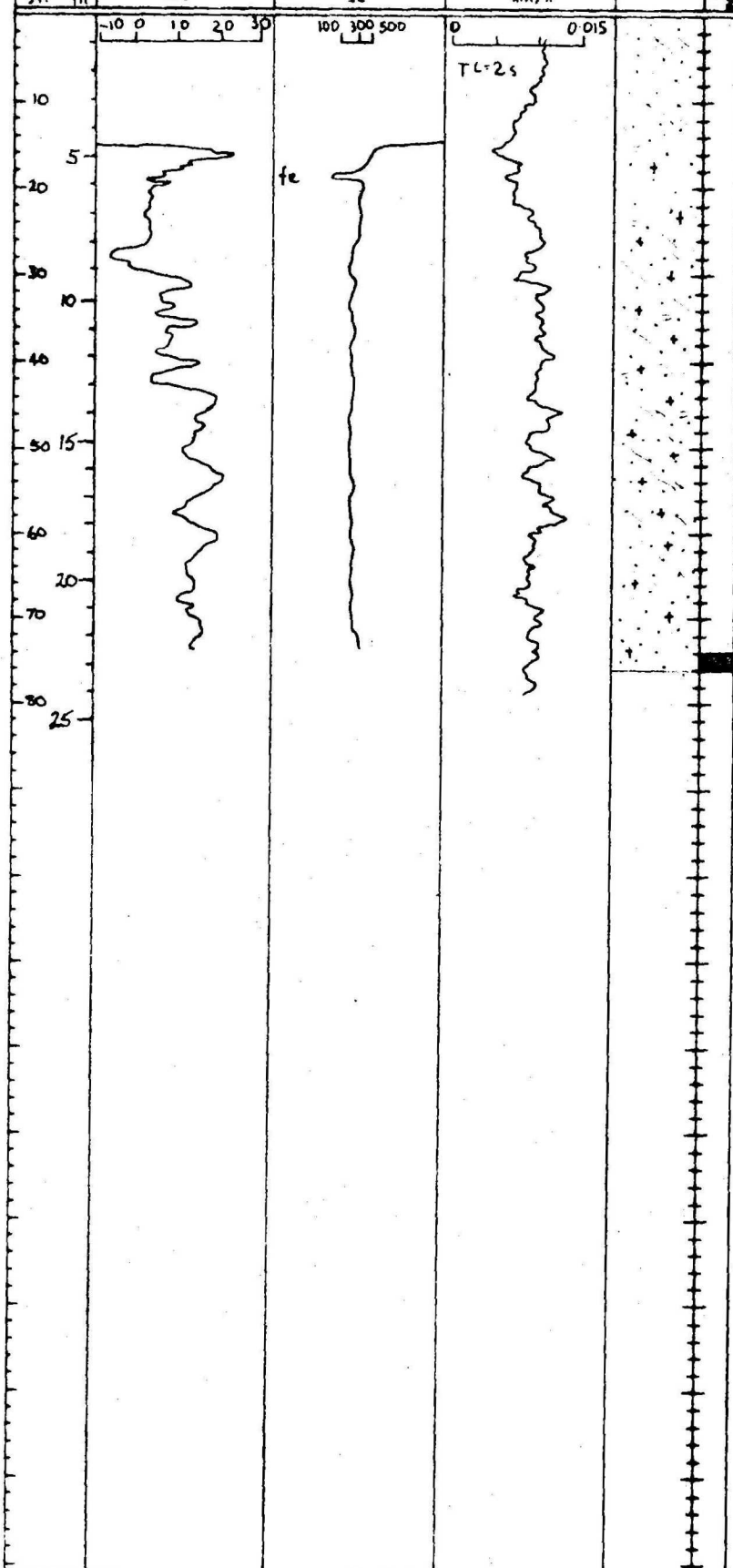
DS3/A/129

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION JABIRU TRAVERSE

HOLE NO BMR CAHILL 57 CO-ORDINATES 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

Serruginised mica schist, Ferricrete, Fe stained quartz

partly weathered muscovite-biotite/chlorite-feldspar-quartz schist, pegmatoid quartz and feldspar, minor white and pale green clay.

core: foliated muscovite-biotite feldspathic quartzite. average dip of foliation ~ 40°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 55ft | COMMENCED 4/10/1974 | LOGGED BY P.G.S-S |
| TYPE MAYHEW 1000 | WATER 55 - 76ft | COMPLETED 4/10/1974 | DRAWN BY P.G.S-S, I.H. |

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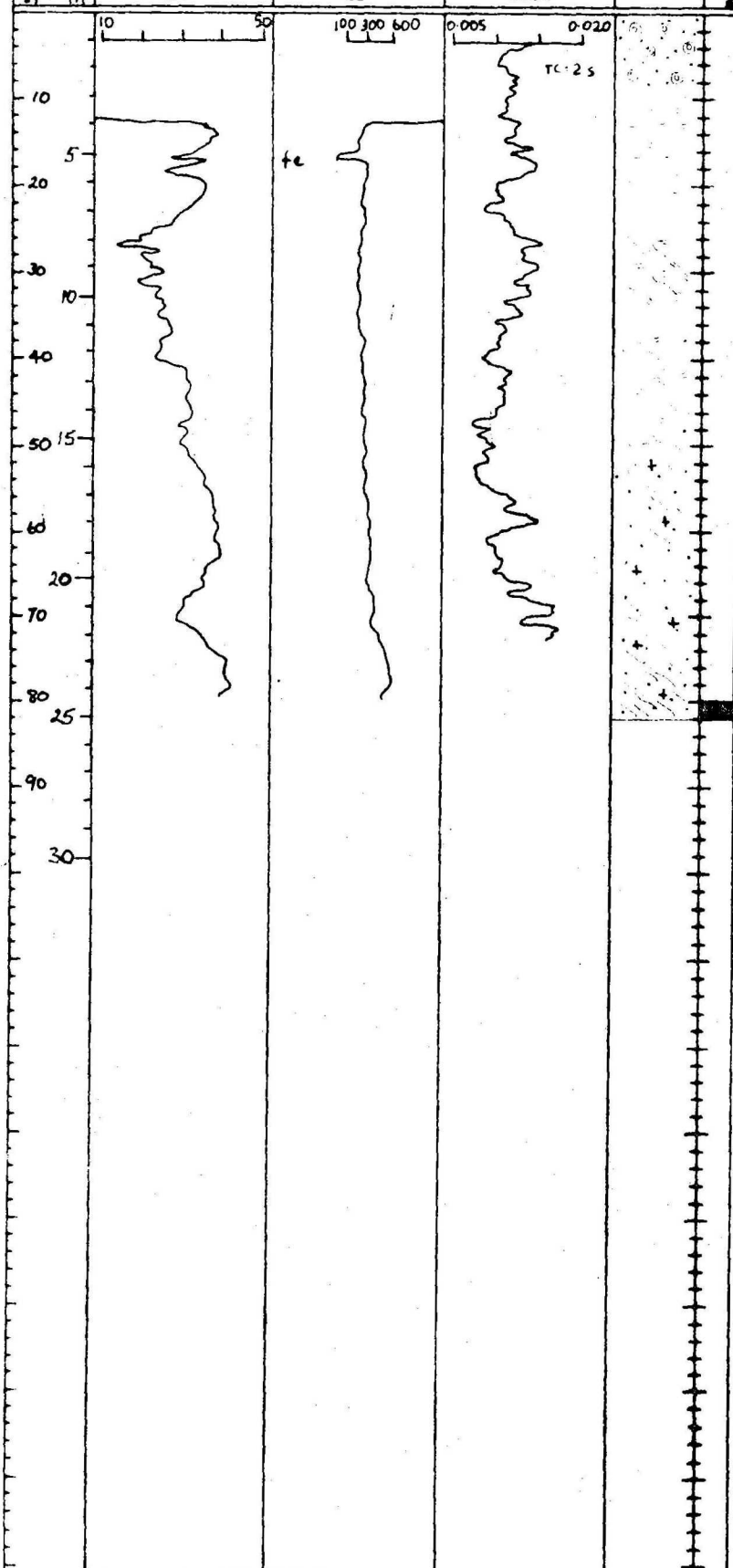
D53/A/130

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO: BMR CAMILL 58 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

ferricrete, Fe oxide pisolites, clear and Fe stained quartz

foliated white and brown micaceous clay, weathered mica schist, milky quartz

feldspar - mica (muscovite, biotite) - quartz schist, milky quartz, mica (muscovite, biotite/chlorite) schist.

core: banded feldspar - biotite - muscovite - quartz schist. average dip of schistosity ~ 35°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 40 ft | COMMENCED 4/10/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 40 - 82 ft. | COMPLETED 7/10/1974 | DRAWN BY P.G.S., L.H. |

M(Pf)122

D53/A/131

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS — LOCATION JABIRU TRAVERSE

HOLE NO BMR CAHILL 59 — CO-ORDINATES 12° 37' 132° 56'

| DEPTH ft. m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE MATERIAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| | 0 — 40 | 100 — 250 | 0·005 — 0·015 | | | |
| 10 | | | TC>2s | | | ferricrete, Fe oxide pisolites, milky quartz |
| 5 | | | | | | |
| 20 | fe | | | | | partly weathered feldspar-mica quartz schist, feldspar-quartz-mica (muscovite, biotite/chlorite) schist, pegmatoid quartz and feldspar, minor foliated pale green clay. |
| 30 10 | | | | | | |
| 40 | | | | | | |
| 50 15 | | | | | | |
| 60 | | | | | | |
| 20 | | | | | | |
| 70 | | | | | | |
| 80 25 | | | | | | core: banded garnet-feldspar-quartz-mica (muscovite > biotite) schist and garnet-biotite/chlorite-muscovite-feldspar-quartz schist. veined by quartz, chlorite & garnet. average dip of schistosity ~45° |
| 90 | | | | | | |
| 30 | | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 50 ft | COMMENCED 7/10/1974 | LOGGED BY P.G.S.S. |
| TYPE NAYLEN 1000 | WATER 50 - 87 ft | COMPLETED 7/10/1974 | DRAWN BY P.G.S.S., I.H. |

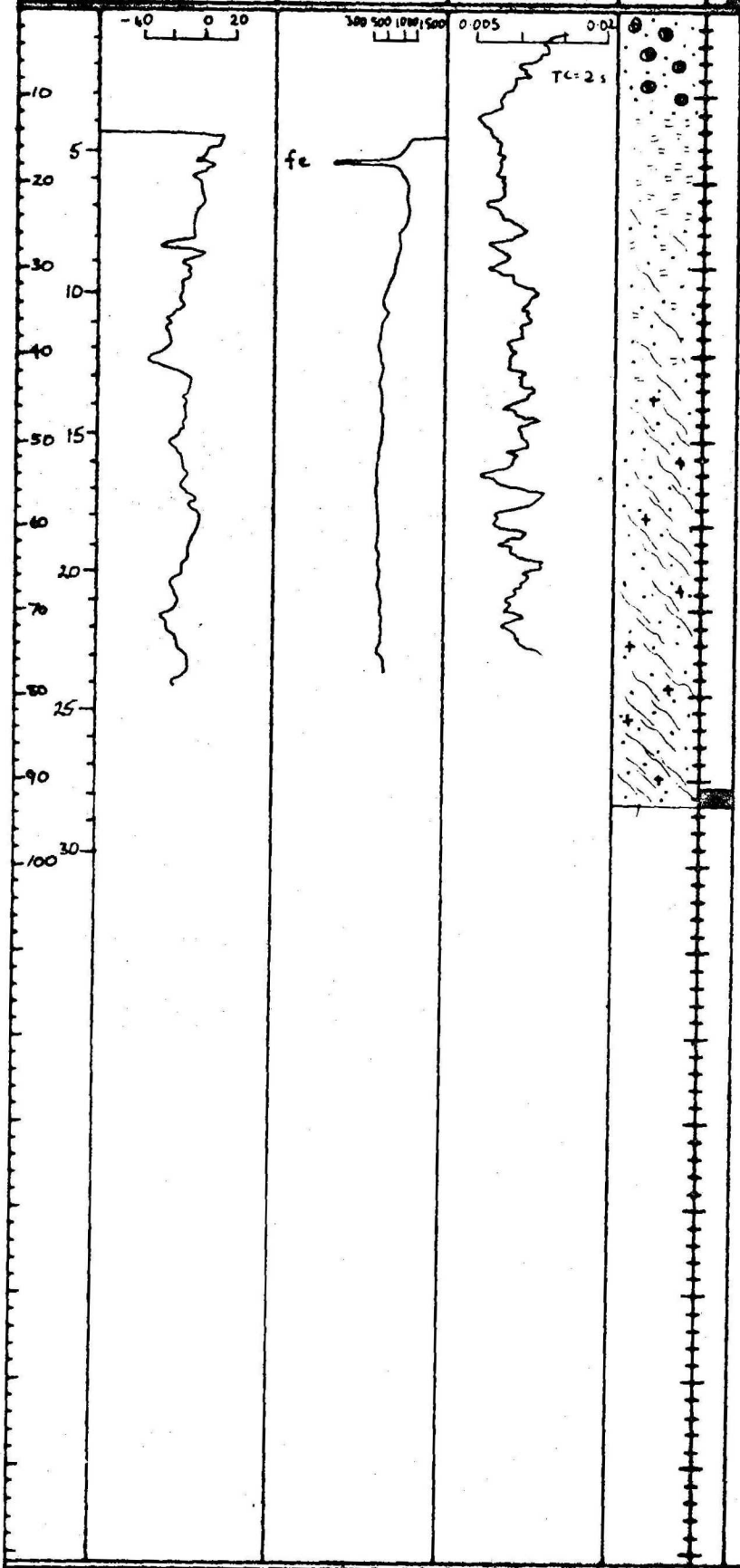
M(P)122 DS3/A/132

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO.: BMR CAHILL 60 — CO-ORDINATES: 12°37' 132°56'




DESCRIPTION OF CORE AND CUTTINGS

ferricrete, Fe oxide pisolites milky and Fe stained quartz

white micaceous clay

white and brown micaceous clay weathered quartzite, milky quartz.

partly weathered feldspar-mica - quartz schist, pegmatoid quartz and feldspar, mica flakes.

core: feldspar - mica (muscovite biotite/chlorite) - quartz schist. average dip of schistosity ~ 40°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 85 M | COMMENCED 7/10/1974 | LOGGED BY P.G.S-S. |
| TYPE MAYHEW 1000 | WATER 56 - 83 M | COMPLETED 7/10/1974 | DRAWN BY P.G.S-S., L.H. |

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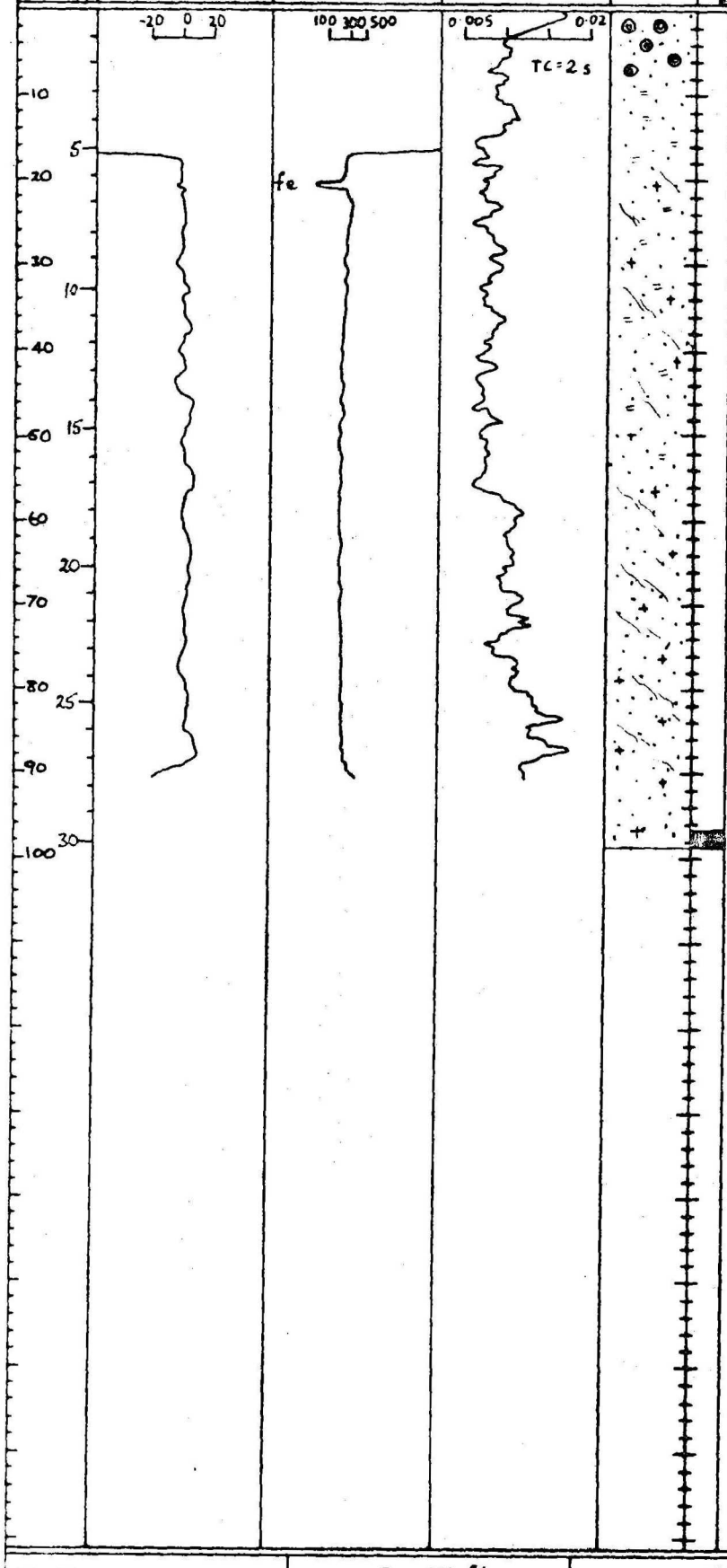
D53/A/133

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION JABIRU TRAVERSE

HOLE NO BMR CAHILL 61 CO-ORDINATES 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

ferricrete, Fe oxide pisolites milky and Fe stained quartz

mica - feldspar - quartz schist. and quartzite., micaceous white clay.

mica (chlorite muscovite) - feldspar quartzite, clear quartz, minor mica (muscovite, chlorite) schist.

core: banded foliated chlorite - muscovite - feldspathic quartzite.
average dip of foliation ~ 35°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 50 ft | COMMENCED 7/10/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 60 - 99 ft | COMPLETED 7/10/1974 | DRAWN BY P.G.S.S., I.H. |

M(Pf)122

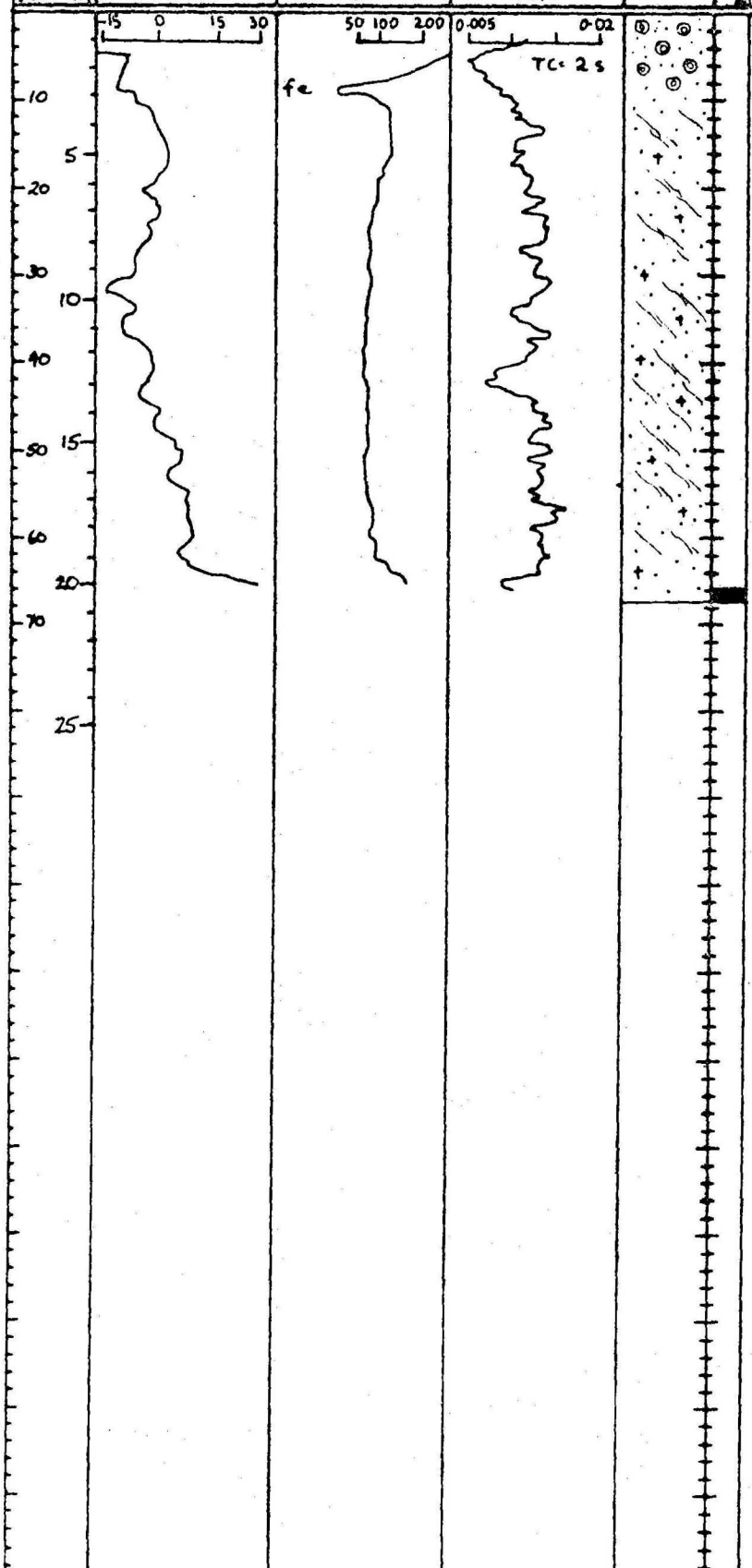
DS3/A/134

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO.: BMR CAHILL 62 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, ferricrete, clear, milky and Fe stained quartz

mica (muscovite, chlorite) - quartz - feldspar schist. mica schist pegmatoid feldspar and quartz.

core: foliated muscovite feldspathic quartzite. brecciated and veined by quartz feldspar, muscovite, biotite, garnet and tourmaline

average dip of foliation ~45°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 40 ft | COMMENCED 7/10/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 40 - 67'6" | COMPLETED 7/10/1974 | DRAWN BY P.G.S.S., I.H. |

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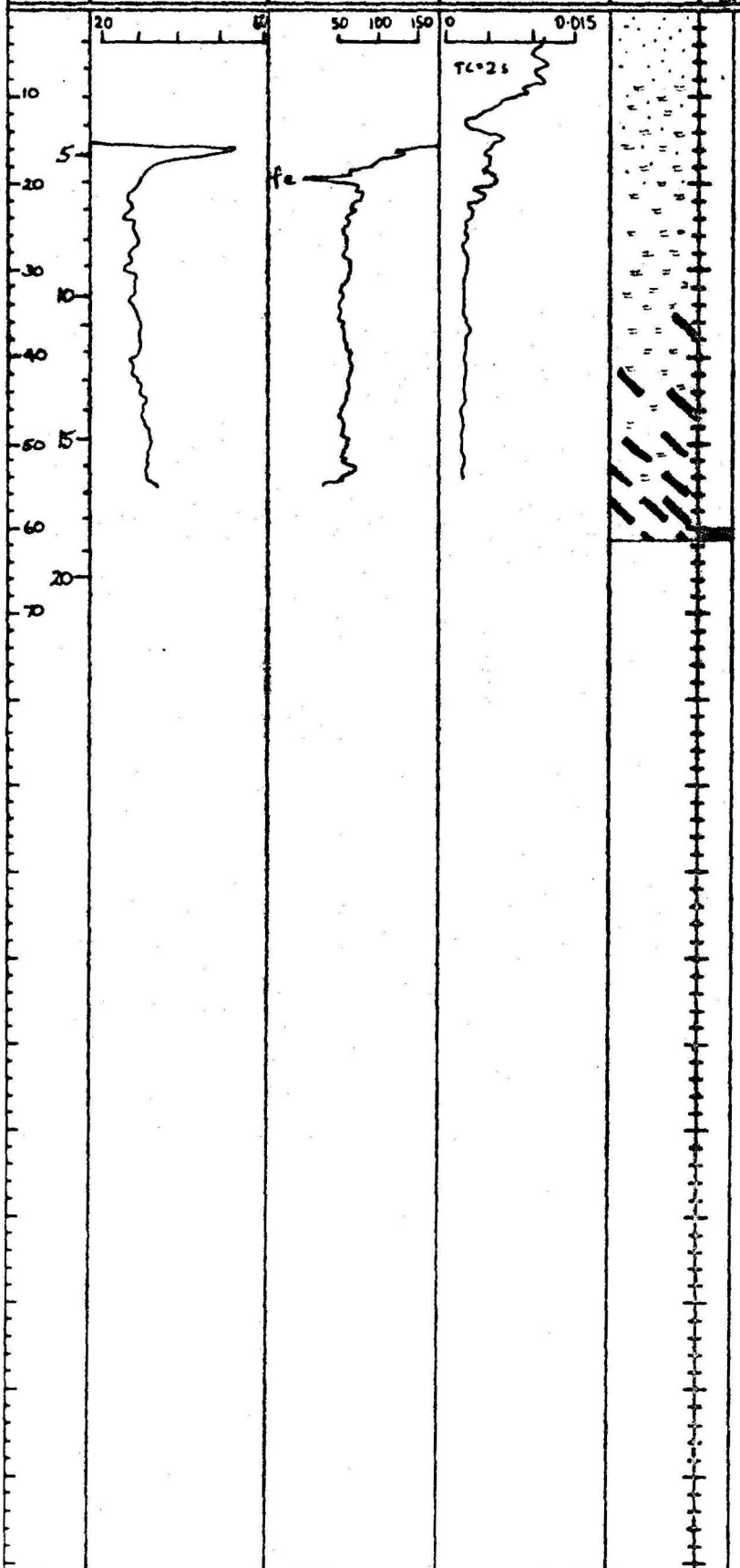
BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO.: BMR CAHILL 63 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

Ferricrete, Fe stained quartz

white clay, minor ferricrete and Fe stained quartz

pale green, white and brown foliated clay, weathered amphibolite, milky quartz.

core: amphibolite
average dip of foliation ~ 45°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 25' | COMMENCED 5/10/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 25 - 61½' | COMPLETED 8/10/1974 | DRAWN BY P.G.S.S., L.H. |

M(Pf)122

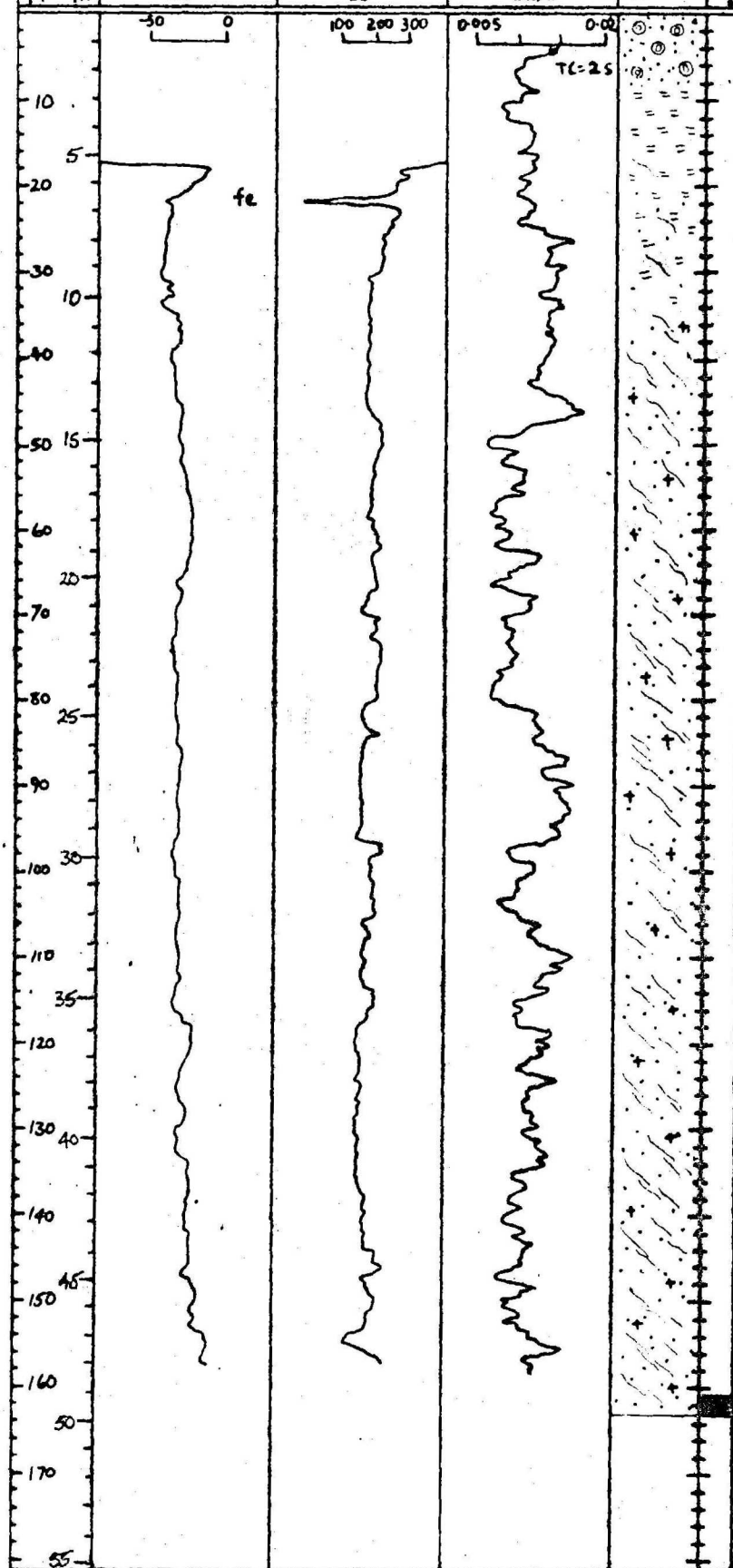
D53/A/136

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO: BMR CAHILL 64 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

ferricrete, Fe oxide pisolites milky and Fe stained quartz

white and brown foliated micaceous clay

brown foliated micaceous clay

partly weathered mica (muscovite biotite/chlorite) - feldspar-quartz schist, mica schist, pegmatoid quartz, feldspar and tourmaline.

core: mica (biotite, muscovite) - feldspar - quartz schist. average dip of schistosity ~40°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 50 ft | COMMENCED 5/10/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 50 - 163 ft | COMPLETED 8/10/1974 | DRAWN BY P.G.S.S., L.H. |

M(Pf)122

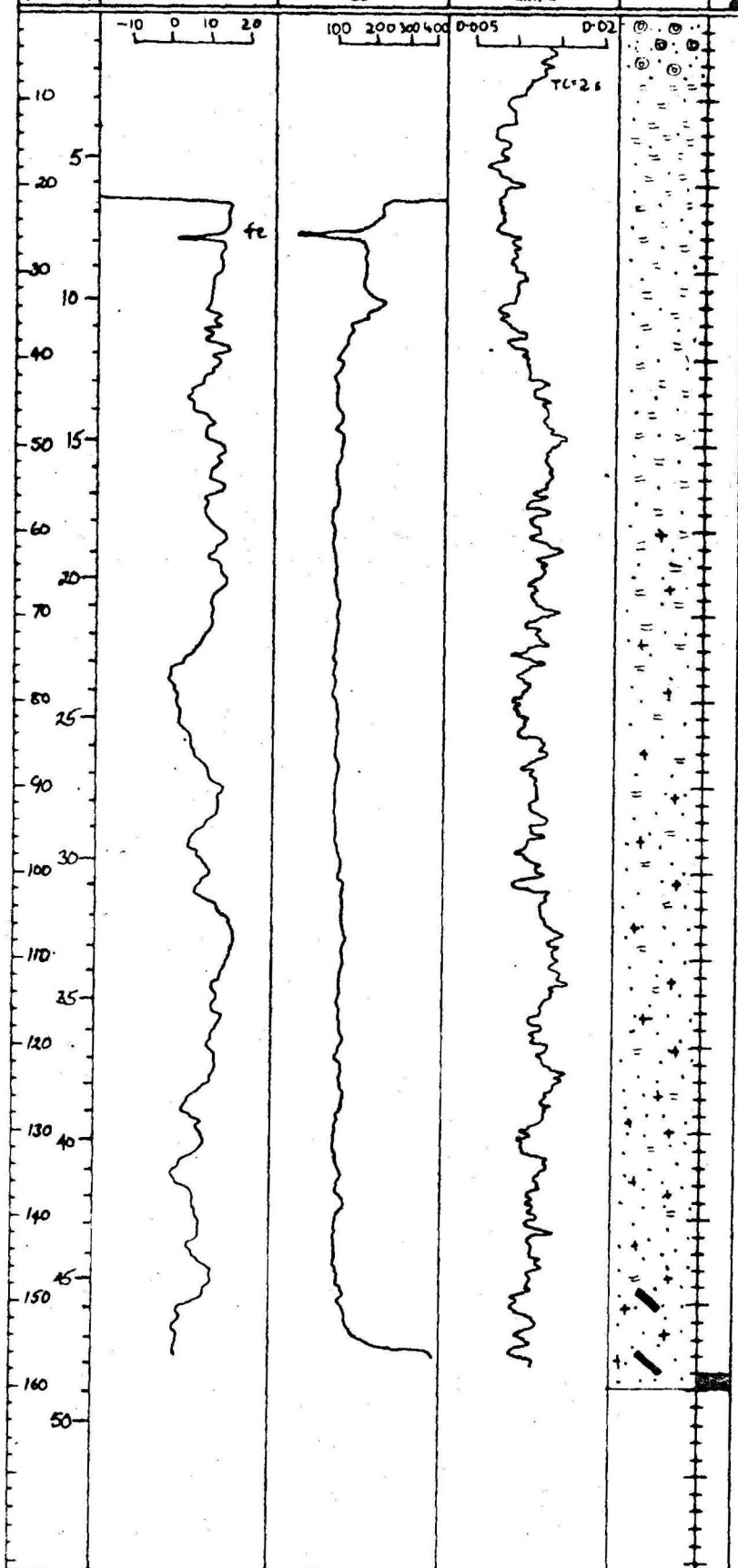
D53/A/137

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION JABIRU TRAVERSE

HOLE NO BMR CAHILL 65 CO-ORDINATES 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

ferricrete, Fe oxide pisolites clear, milky + Fe stained quartz

white and pale green micaceous clay mica quartzite

white and dark grey clay, mica quartzite

yellow-brown and red brown foliated micaceous clay, quartz

greenish brown chloritic clay weathered biotite/chlorite - feldspathic quartzite, chloritic quartzite, pegmatoid quartz and feldspar

core: foliated amphibole - biotite - feldspathic quartzite
average dip of foliation ~35°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 – 90 M | COMMENCED 8/10/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 50 – 160 M. | COMPLETED 8/10/1974 | DRAWN BY P.G.S.S., I.H. |

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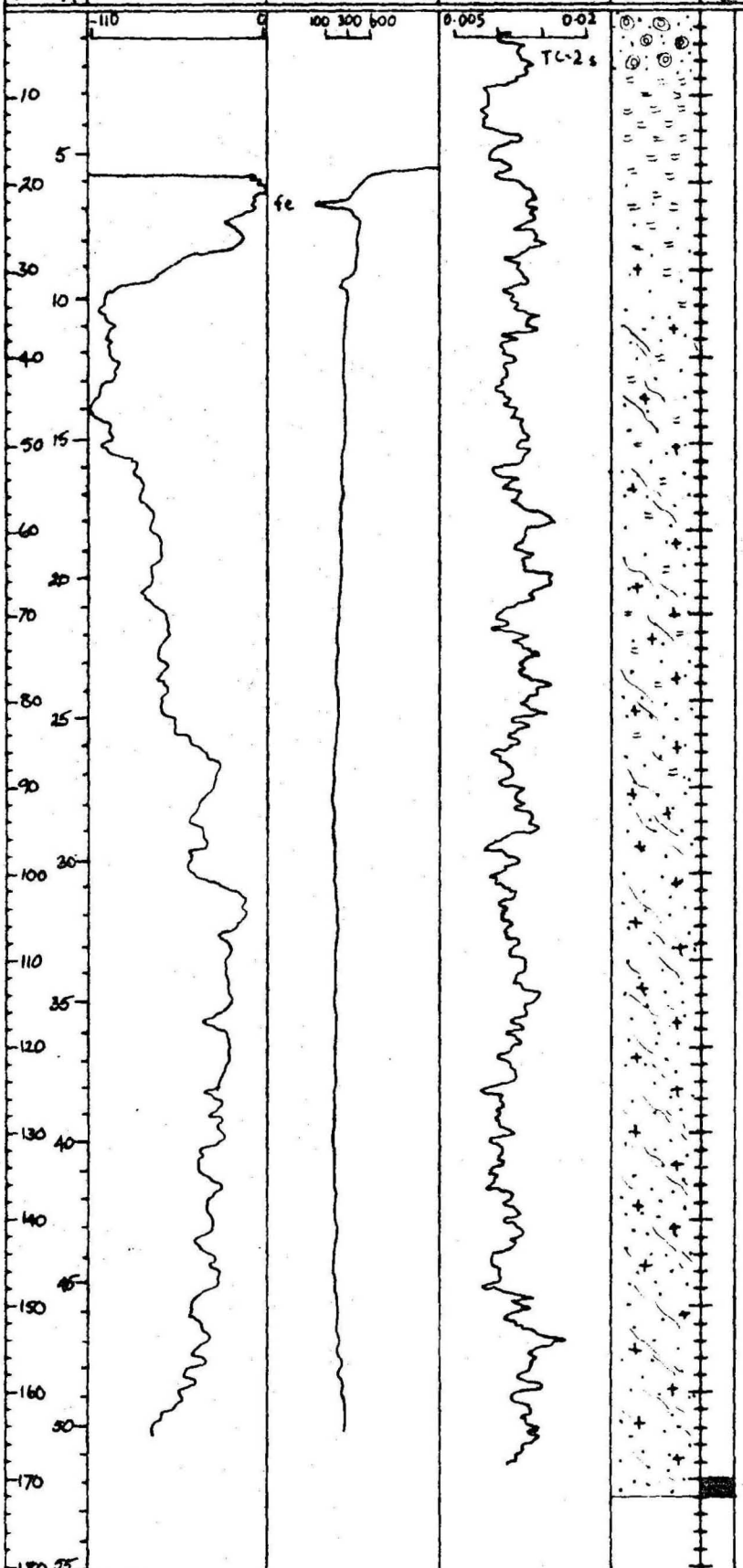
BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO: BMR CAHILL 66' — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

ferricrete, Fe oxide pisolites clear and milky quartz

white clay, milky quartz

white and brown foliated clay

partly weathered mica (muscovite, biotite/chlorite) feldspathic quartz schist and quartzite, pegmatoid quartz and feldspar, minor mica schist and micaceous white clay.

muscovite - biotite/chlorite - feldspathic quartz schist + quartzite minor pegmatoid quartz and feldspar, quartz - mica schist.

core: banded foliated garnet - muscovite - biotite - feldspathic quartzite and muscovite - biotite - feldspar - quartz schist. average dip of foliation ~ 20°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 55 ft. | COMMENCED 8/10/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 55 - 172 ft. | COMPLETED 8/10/1974 | DRAWN BY P.G.S.S, I.H. |

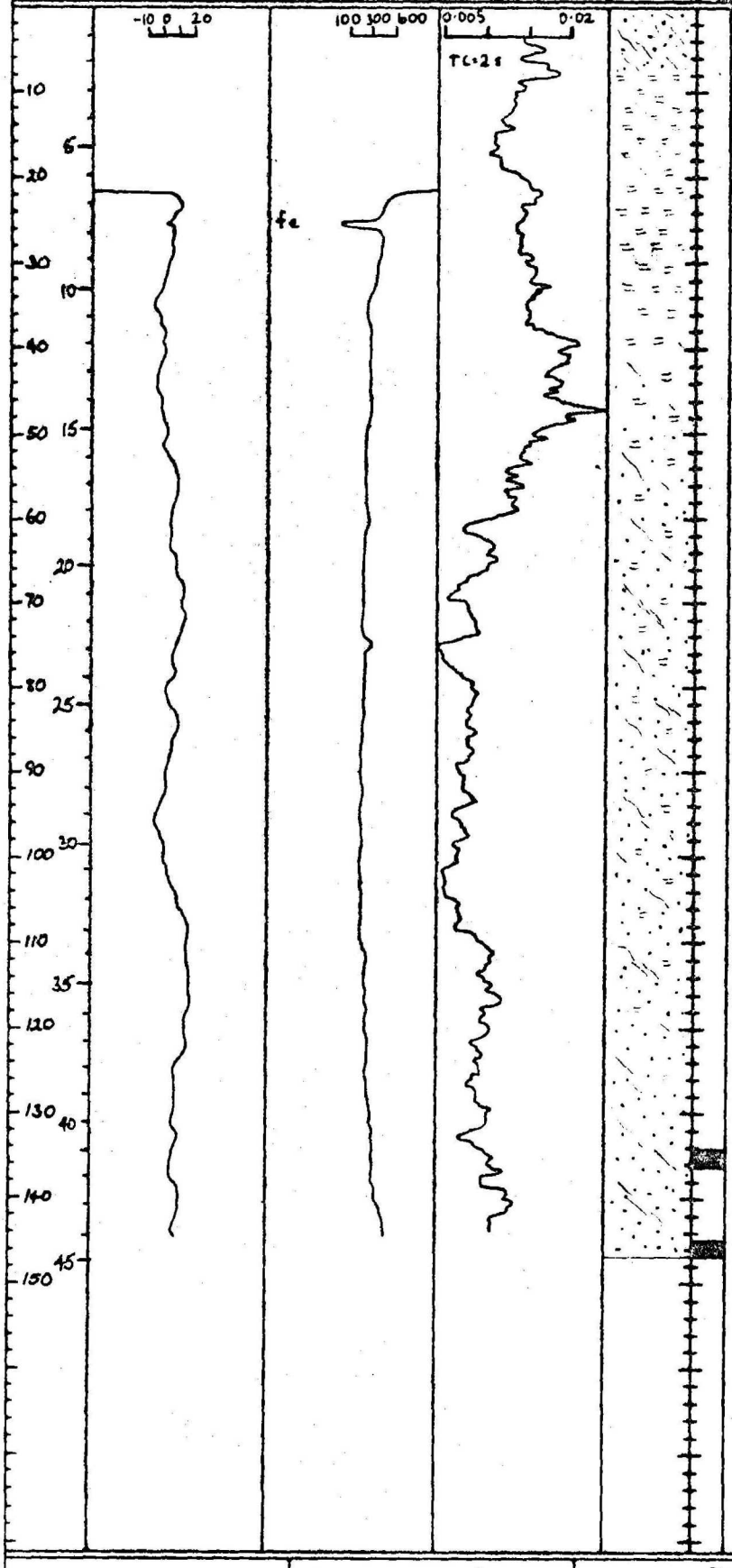
M(P1)122 D S3/A/139

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO: BMR CAMILL 67 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

Ferricrete, milky quartz, ferruginised mica schist.

white micaceous foliated clay
clear + milky quartz

white and brown micaceous foliated clay
feldspar - mica (muscovite biotite/chlorite) - quartz schist and quartzite
clear and milky quartz

core 1. feldspar - mica (muscovite biotite/chlorite) quartz schist and quartzite.

core 2. feldspar - mica (muscovite biotite/chlorite) - quartz schist and quartzite.
average dip of schistosity ~ 80°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 50.4 | COMMENCED 8/10/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 50 - 147.4 | COMPLETED 9/10/1974 | DRAWN BY P.G.S.S., I.H. |

M(Pt)122 — D53/A/140

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION JABIRU TRAVERSE

HOLE NO. BMR CAMILL 68 CO-ORDINATES 12° 37' 132° 56'

| DEPTH ft m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| | -30 0 10 | 50 100 200 | 0 0·04 | | |
| 10 | | | TC·2s | | Fe oxide pisolites, yellow-brown clay, milky quartz. |
| 5 20 | te | | | | weathered dark grey, brown and purple carbonaceous quartz-chlorite schist. |
| 30 10 | | | | | |
| 40 | | | | | |
| 50 15 | | | | | |
| 60 20 | | | | | dark grey, brown and green clay weathered, hematised quartz-mica (biotite/chlorite, muscovite) schist, mica schist and quartzite. minor milky quartz. |
| 70 | | | | | |
| 80 25 | | | | | |
| 90 | | | | | |
| 100 30 | | | | | |
| 110 | | | | | |
| 35 | | | | | core: foliated muscovite-feldspathic quartzite. average dip of foliation ~50° |
| 120 | | | | | |

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 85 ft | COMMENCED 9/10/1974 | LOGGED BY P.G.S-S. |
| TYPE MAYHEW 1000 | WATER 85 - 115 ft. | COMPLETED 10/10/1974 | DRAWN BY P.G.S-S, I.H. |

M(P1)122

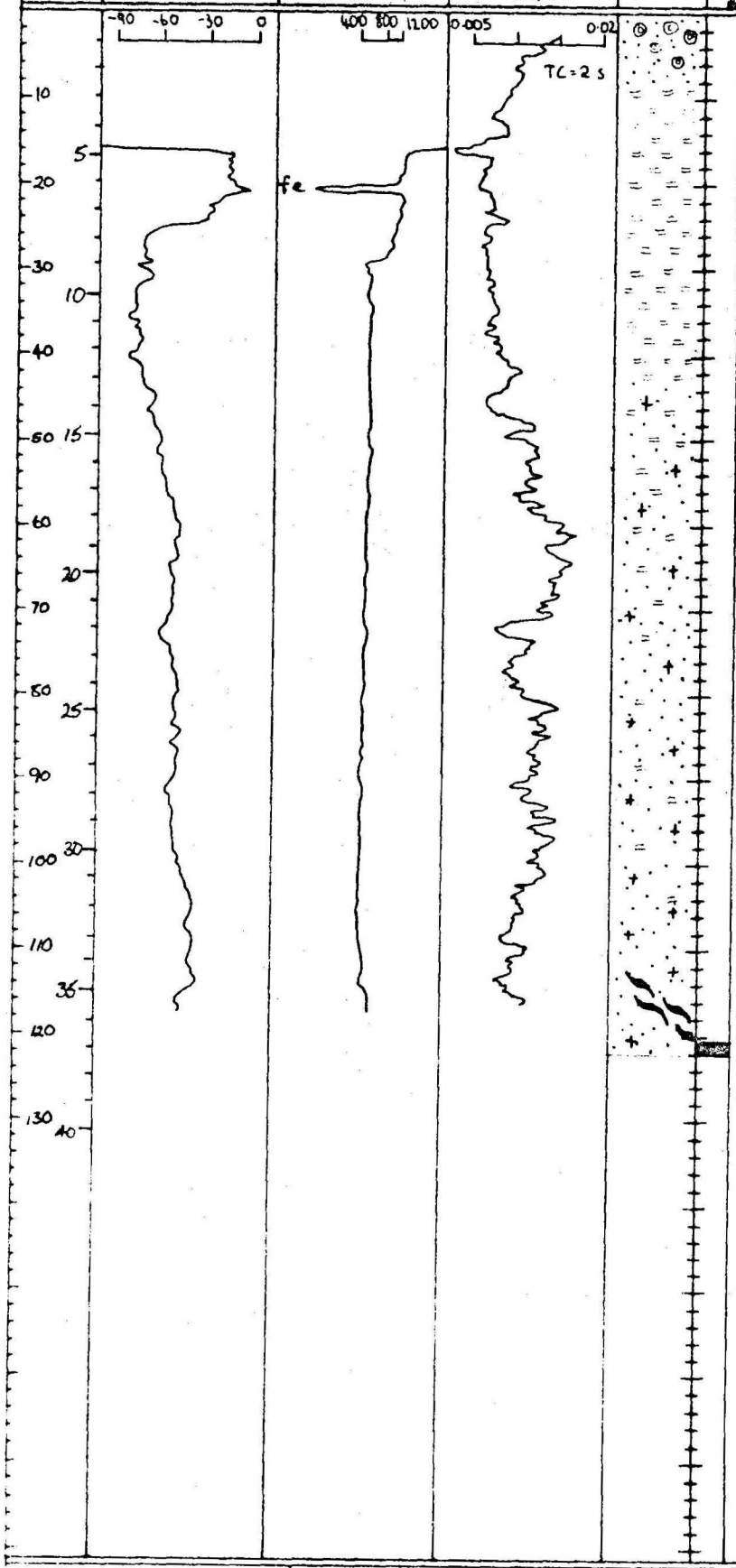
DS3/A/141

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO.: BMR CAHILL 69 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, ferricrete

mottled yellow and white micaceous clay, minor ferricrete.

white and brown foliated micaceous clay

partly weathered chloritised feldspathic quartzite, clear and milky quartz, minor white and brown micaceous clay.

core:
120'-121': muscovite-feldspar-quartz gneiss.
121-122': chloritised feldspathic quartzite
average dip of foliation ~ 70°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 40 ft. | COMMENCED 9/10/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 40 - 122 ft. | COMPLETED 9/10/1974 | DRAWN BY P.G.S.S., I.H. |

M:PF1122

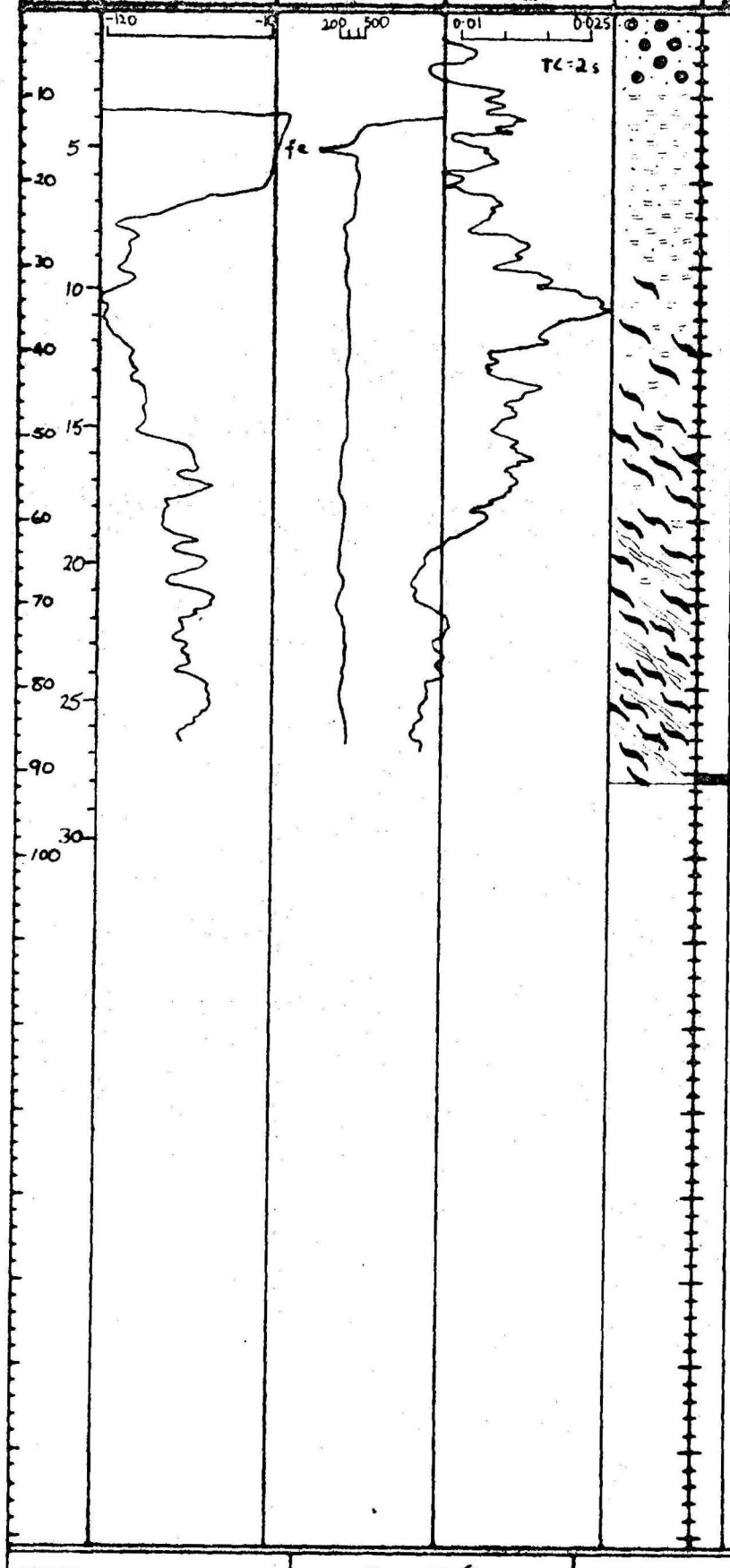
D53/A/142

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO.: BMR CAHILL 70 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

ferricrete, Fe oxide pisolites milky quartz.

white clay, round quartz grains, mica flakes.

white and yellow clay

pegmatoid quartz and feldspar (gneiss), minor brown clay and mica flakes.

pegmatoid quartz and feldspar (gneiss), quartz-feldspar-tourmaline (vein), minor chlorite schist.

core:
90'-90'6": muscovite-quartz-feldspar gneiss
90'6"-91': mica (muscovite, chlorite)-quartz schist.
average dip of foliation 45°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 40 ft | COMMENCED 9/10/1974 | LOGGED BY P.G.S. |
| TYPE MAYHEW 1000 | WATER 40 - 91 ft | COMPLETED 9/10/1974 | DRAWN BY P.G.S., I.H |

M(Pf)122

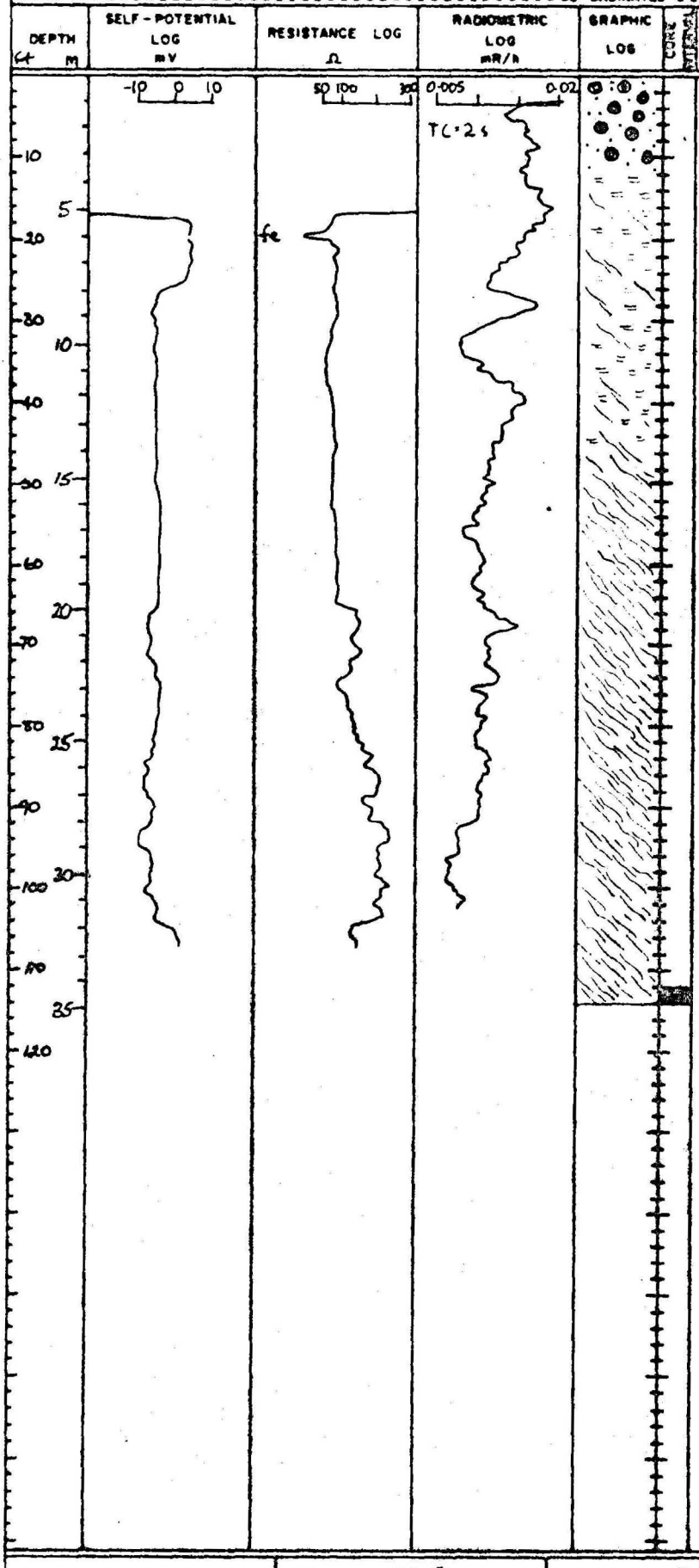
D 53/H/143

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO.: BMR CAMILL 71 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxide pisolites, ferricrete milky quartz

white and brown micaceous quartz rich clay, minor milky quartz and chlorite-quartz schist.

hematised quartz-muscovite-chlorite schist, clear and milky quartz.

core: hematised, sheared and brecciated quartz-muscovite-chlorite schist. (altered feldspathic schist)

average dip of schistosity in unbrecciated section ~45°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0 - 60 ft | COMMENCED 9/10/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 60 - 114 ft | COMPLETED 10/10/1974 | DRAWN BY P.G.S.S., L.H. |

M(Pf)122

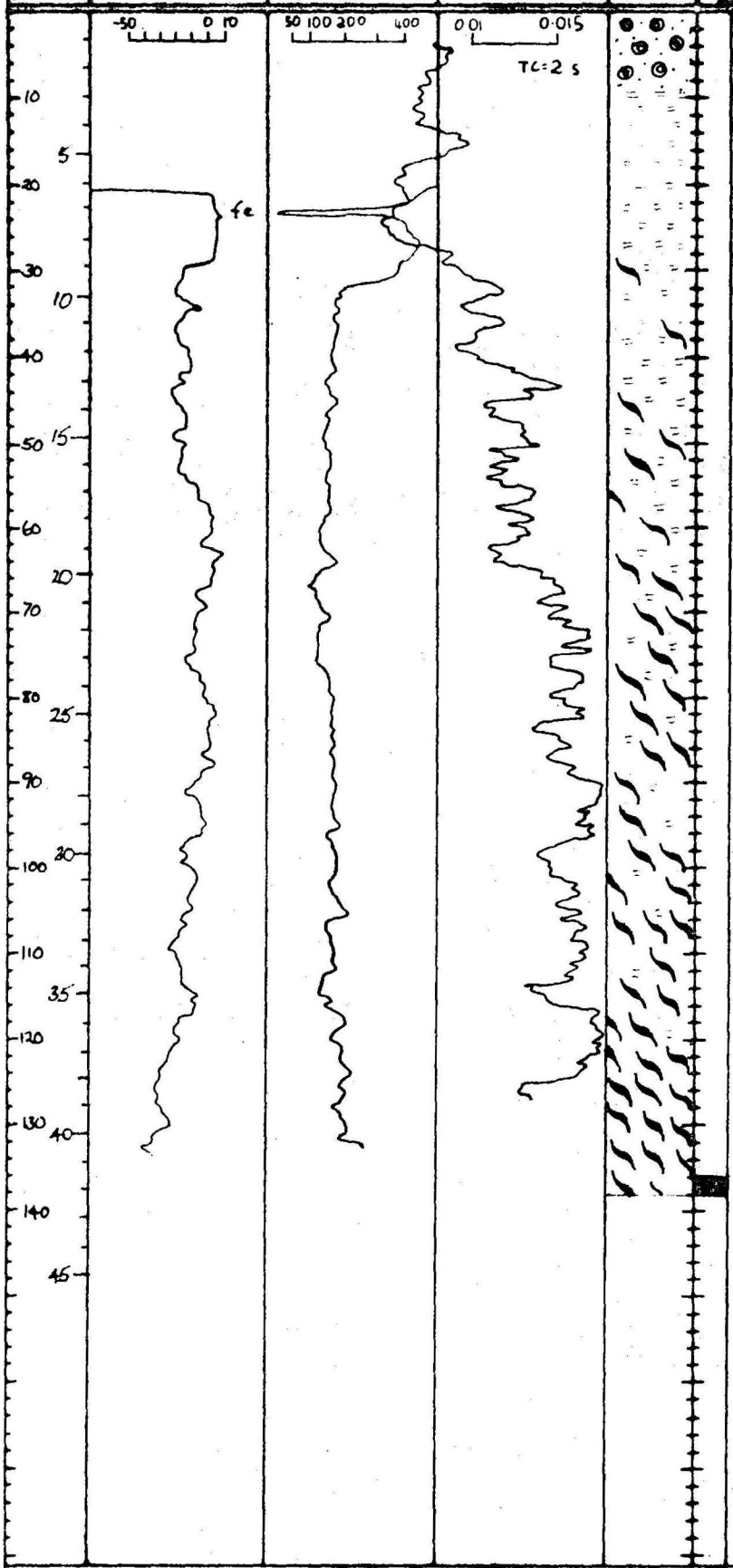
053/9/144

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO.: BMR CAHILL 72 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxides, ferricrete, milky quartz

white micaceous clay, ferricrete, ferruginised mica flakes, minor quartz tourmaline.

white and brown micaceous quartz rich clay - clear, milky and Fe stained quartz with minor tourmaline, muscovite - biotite/chlorite - quartz gneiss.

pegmatoid clear and milky quartz, feldspar and muscovite - biotite/chlorite - quartz gneiss. minor pink micaceous clay and quartz - tourmaline.

core: muscovite - biotite/chlorite - feldspar - quartz gneiss. pyrite and chlorite in fractures. average dip of foliation ~55°

| | | | |
|---|---|---|---|
| DRILLER | AIR 0' - 65' | COMMENCED 9/10/1974 | LOGGED BY P.G.S.S. |
| TYPE MATHEW 1000 | WATER 65' - 138' | COMPLETED 10/10/1974 | DRAWN BY P.G.S.S., I.H. |

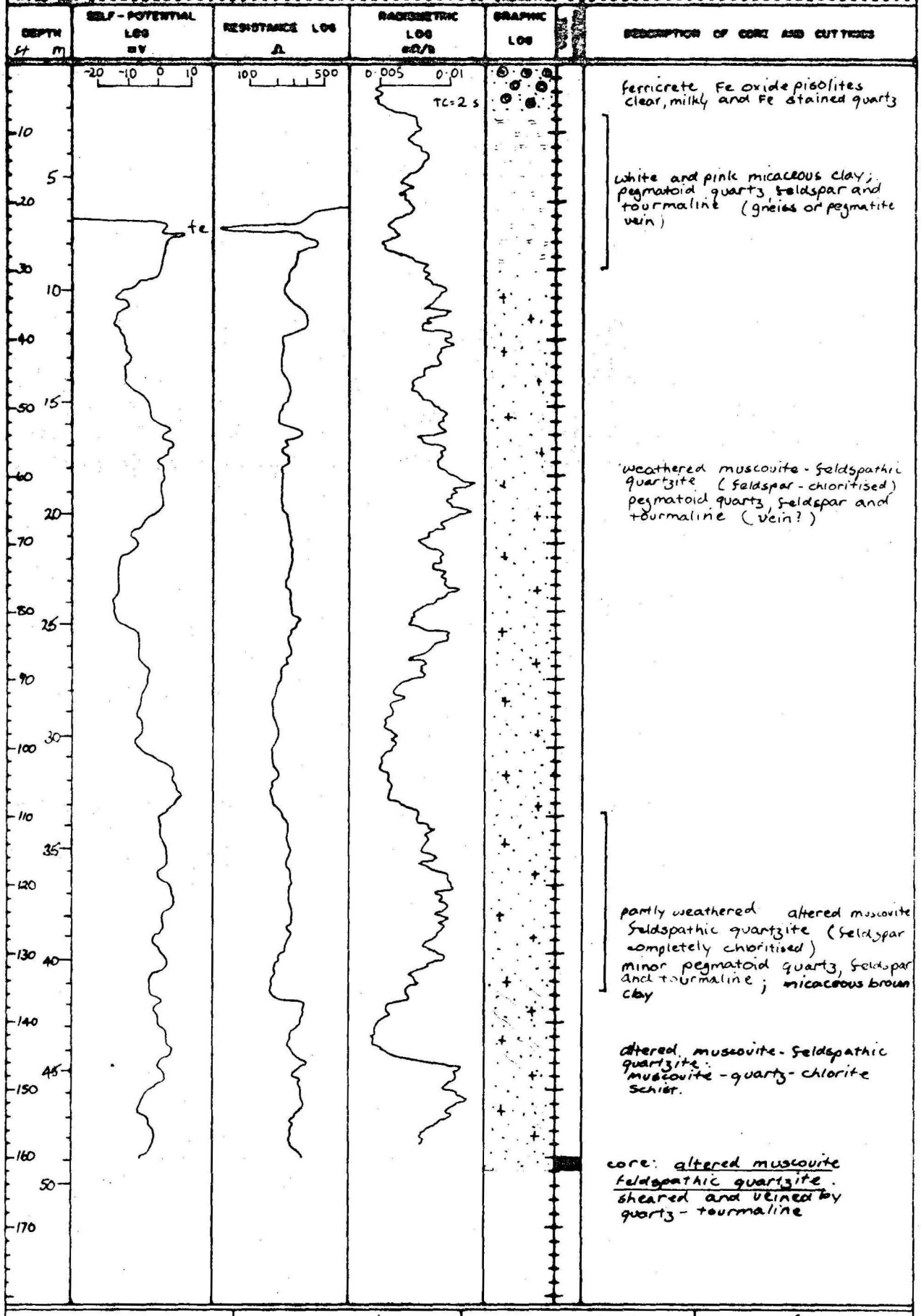
M(Pf)122 D53/A/145

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO.: BMR CAHILL 73 — CO-ORDINATES: 12° 37' 132° 56'




| | | | |
|---|---|---|---|
| DRILLER | AIR 0' - 70' | COMMENCED 10/10/1974 | LOGGED BY P.G.S-S. |
| TYPE MAYHEW 1000 | WATER 70' - 162' | COMPLETED 10/10/1974 | DRAWN BY P.G.S-S, I.H. |

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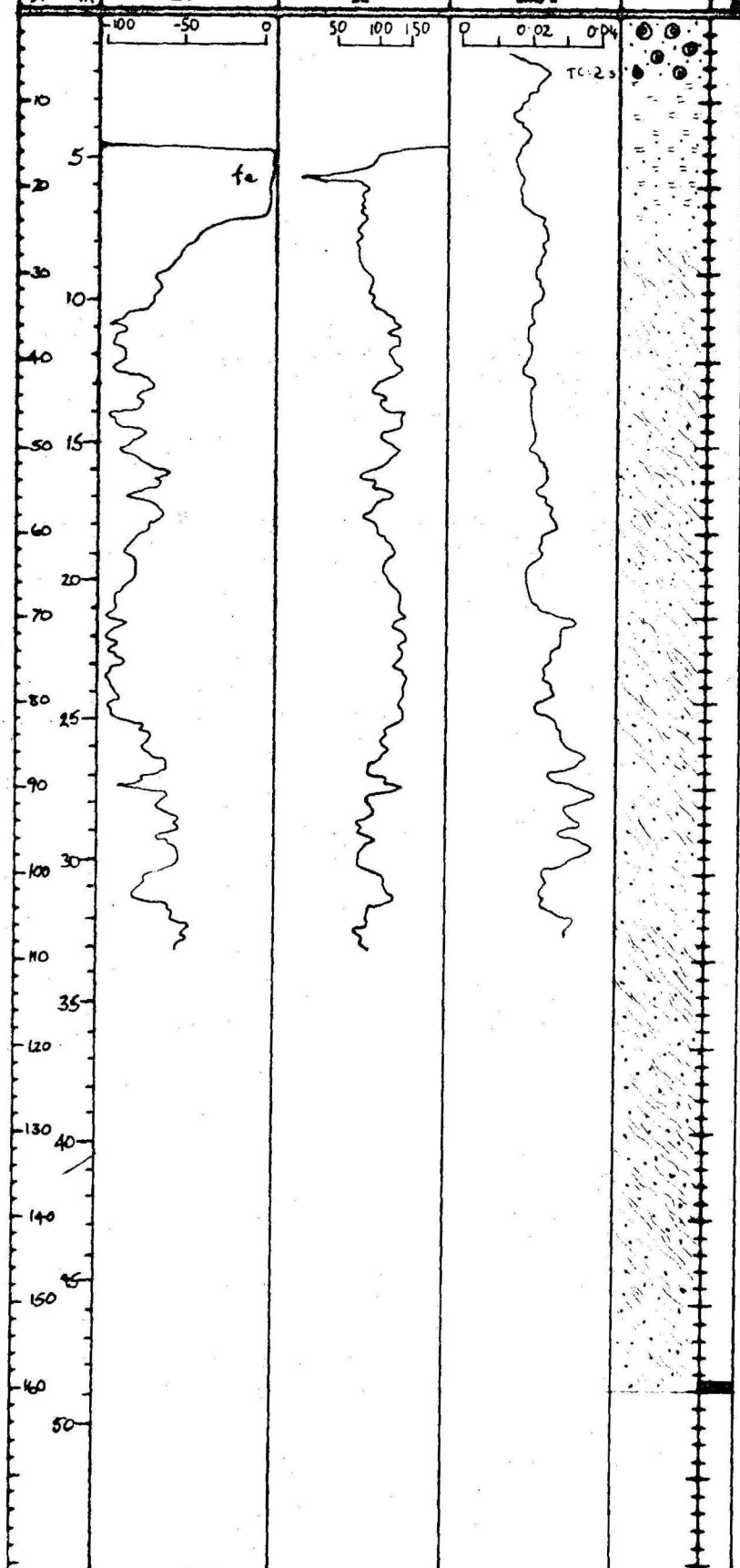
BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO: BMR CAMILL 74 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

Fe oxides pisolites, ferricrete quartz pebbles

brown clay

yellowish green chloritic sandy clay

pink and brown ferruginous quartz mica sand, weathered and ferruginised quartz-mica and mica-quartz schist.

white and yellowish green clay partly weathered quartz-chlorite-muscovite schist, quartz-feldspar-mica (chlorite, muscovite) schist. milky quartz. mi schists slightly carbonaceous

partly weathered and Fe stained muscovite-chlorite-quartz schist (chloritised feldspathic quartzite)

core: muscovite-sericite/chlorite-quartz schist (chloritised feldspathic quartzite) partly weathered + jointed average dip of schistosity 35°

| | | | |
|---|---|---|---|
| DRILLER: L.K. | AIR: 0'-70' | COMMENCED: 10/10/1974 | LOGGED BY: P.B.S. |
| TYPE: MAYHEW 1000 | WATER: 70'-160' | COMPLETED: 11/10/1974 | DRAWN BY: P.G.S., I.H. |

M(Pf)122

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BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO.: BMR CAHILL 75 — CO-ORDINATES: 12° 37' 132° 56'

| DEPTH ft / m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|
| 10 | | | 0·005 0·02 TC·2s | | Fe oxide pisolites, ferricrete, ferruginised mica schist, clear and milky quartz |
| 5 | | | | | |
| 20 | | | | | |
| 30 | | | | | |
| 10 | | | | | |
| 40 | | | | | |
| 50 15 | | | | | weathered ferruginised and chloritised muscovite-biotite/chlorite feldspathic quartzite/ white and brown micaceous clay, milky quartz. |
| 60 | | | | | |
| 20 | | | | | |
| 70 | | | | | |
| 80 25 | | | | | |
| 90 | | | | | |
| 100 30 | | | | | |
| 110 | | | | | |
| 35 | | | | | |
| 120 | | | | | |
| 130 40 | | | | | core: hematised and sheared chloritised muscovite-biotite-feldspathic quartzite average dip of foliation ~18° |

| | | | |
|---|---|---|---|
| DRILLER: E.L. | AIR: | COMMENCED: 11/10/1974 | LOGGED BY: P.G.S.S. |
| TYPE: MAYHEW 1000 | WATER: 0 – 125' | COMPLETED: 11/10/1974 | DRAWN BY: P.G.S.S., I.H. |

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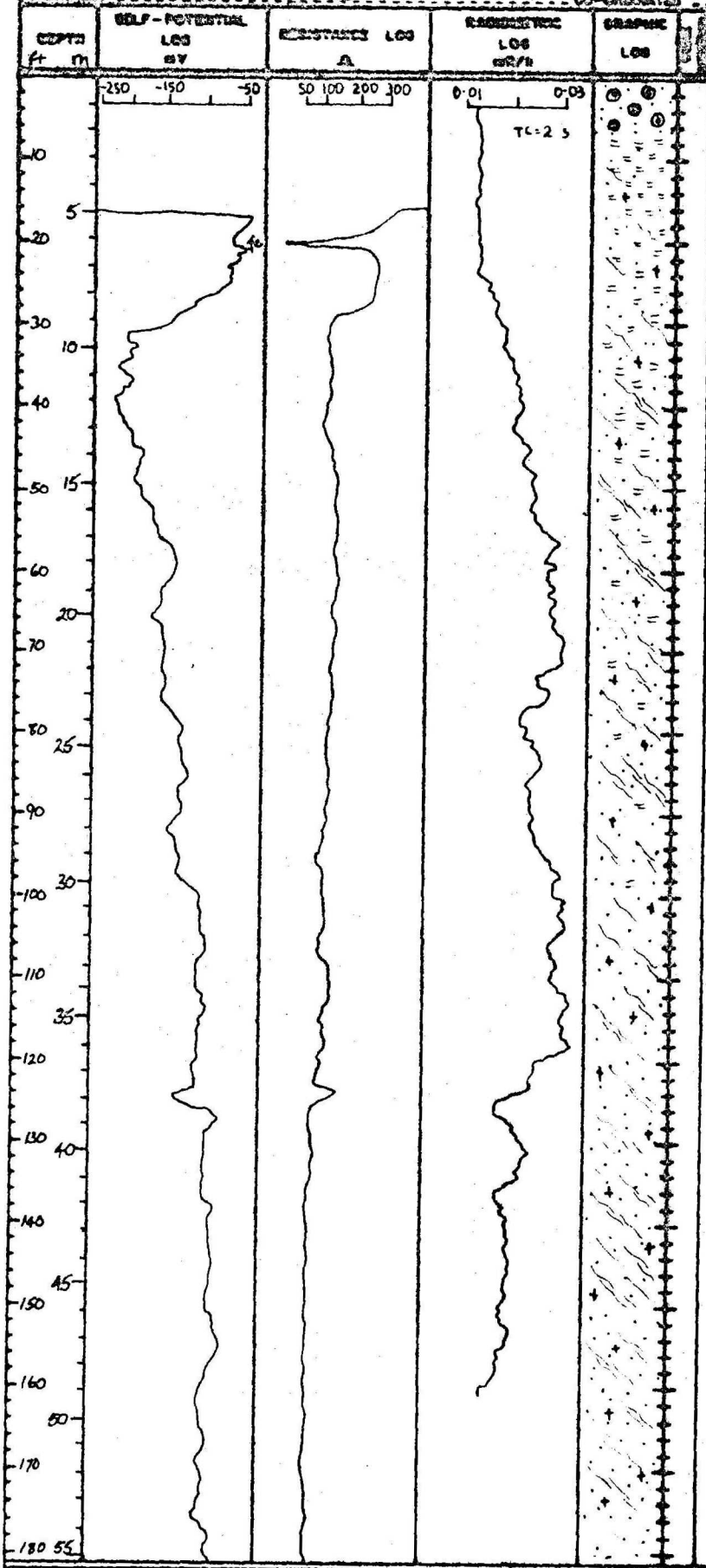
BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO: BMR CAHILL 76 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

Fe. oxide pisolites, ferricrete milky quartz

white micaceous clay weathered - mica - feldspathic quartz schist.

white and brown micaceous clay minor milky quartz and weathered mica feldspathic quartz schist.

chloritic yellow brown and pink clay. milky quartz weathered mica feldspathic quartz schist.

partly weathered feldspar - mica (muscovite, chlorite) - quartz schist. milky quartz, minor quartz-tourmaline.

| | | | |
|---|---|---|---|
| DRILLER: F.L. | AIR: | COMMENCED: 11/10/1974 | LOGGED BY: P.G.S-S |
| TYPE: MAYHEW 1000 | WATER: 0 - 204' | COMPLETED: 12/10/1974 | DRAWN BY: P.G.S-S, J.H. |

M(Pf)122

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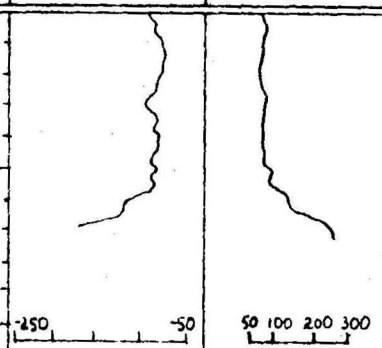
BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT ALLIGATOR RIVERS LOCATION JABIRU TRAVERSE

HOLE NO BMR CAHILL 76 CO-ORDINATES 12° 37' 132° 56'

| DEPTH ft m | SELF-POTENTIAL LOG mV | RESISTANCE LOG Ω | RADIOMETRIC LOG mR/h | GRAPHIC LOG | CORE INTERVAL | DESCRIPTION OF CORE AND CUTTINGS |
|---|---|---|---|---|---|---|
| 190 | | | | | | quartz-chlorite-dolomite schist. muscovite-quartz schist minor pegmatoid quartz + dolomite |
| 60 | | | | | | |
| 200 | | | | | | core: banded muscovite-quartz-chlorite-dolomite schist. average dip of schistosity ~ 0° |
| 210 | | | | | | |
| 65 | -250 -50 | 50 100 200 300 | | | | |



| | | | |
|---|---|---|---|
| DRILLER E.L. | AIR | COMMENCED 11/10/1974 | LOGGED BY P.G.S.S. |
| TYPE MAYHEW 1000 | WATER 0 - 204' | COMPLETED 12/10/1974 | DRAWN BY P.G.S.S., I.H. |

M 24122

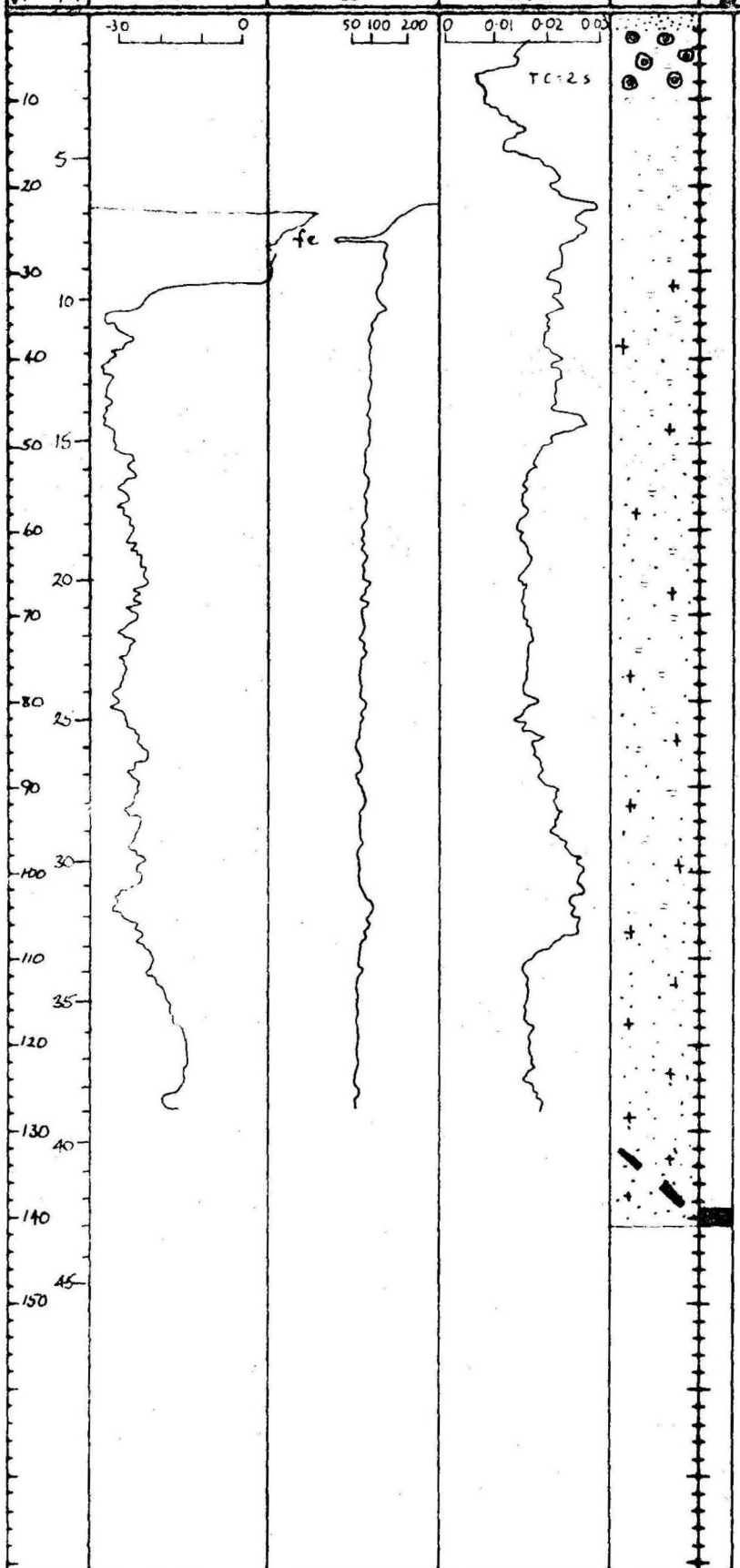
DS3/A/150

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

# GEOLOGICAL LOG OF DRILL HOLE

PROJECT: ALLIGATOR RIVERS — LOCATION: JABIRU TRAVERSE

HOLE NO.: BMR CAHILL 77 — CO-ORDINATES: 12° 37' 132° 56'




DESCRIPTION OF CORE AND CUTTINGS

sand

brick red sandy clay, ferricrete Fe oxide pisolites

mottled white clay, weathered schist, milky quartz.

weathered mica (muscovite biotite/chlorite) - feldspar - quartz schist; quartz - feldspar - mica schist; green sand clay; pegmatoid quartz and feldspar.

mica (muscovite biotite/chlorite) feldspar - quartz schist; feldspar - quartz - mica schist.

core: biotite/chlorite - amphibole - feldspathic quartzite.

average dip of foliation ~30°

| | | | |
|---|---|---|---|
| DRILLER L.A. | AIR 0 - 40' | COMMENCED 11/10/1974 | LOGGED BY P.G.S. |
| TYPE [illegible] 1000 | WATER 40' - 141' | COMPLETED 11/10/1974 | DRAWN BY P.G.S-S, I.H. |

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APPENDIX 5, MODAL ESTIMATES OF COMPOSITION OF LOWER PROTEROZOIC ROCKS, MOUNT BASEDOW TRAVERSE

| Drill hole no. | BMR Reg. No. | quartz | feldspar | biotite | biotite or chlorite | chlorite | muscovite | phlogopite | amphibole | garnet | staurolite | kyanite | diopside | apatite | tourmaline | opaques | scapolite | sphene | carbonate | epidote | clinozoisite | Rock Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JJ 1 | 74121162 | 75 | 24 | tr | | | 1 | | | | | | | | | tr | | | | | | feldspathic quartzite |
| 2 | 63 | 60 | 25 | 12 | | | 1 | | | tr | | | | tr | tr | 2 | | | | | | feldspathic quartz schist |
| 3 | 64 | 75 | 15 | | | | 10 | | | | | | | tr | | tr | | tr | | | | " " |
| 3 | 65 | 95 | 1 | - | 3 | - | 1 | | | | | | | tr | | | | tr | | | | quartzite |
| 4 | 66 | 13 | 7 | | | | | | 78 | | | | | tr | | 1 | | 1 | | | | amphibolite |
| 5 | 67 | 20 | 10 | | | | | | 68 | | | | | tr | | 1 | | 1 | | | | " |
| 6 | 68 | 20 | 5 | tr | | | | | 72 | | | | | tr | | 3 | | tr | | | | " |
| 7 | 69 | 40 | | 5 | | | | | 15 | | | | 37 | | | 1 | | | 2 | | | metacarbonate |
| 7 | 70 | 45 | 40 | - | 15 | - | | | | | | | | tr | | | | | | | | feldspathic schist |
| | | 35 | | - | 60 | - | | | | 4 | | | 1 | | | | | | | | | mica schist |
| 8 | 71 | 80 | 12 | 3 | | tr | 5 | | | tr | | | | tr | | tr | | | | | | feldspathic quartz schist |
| 9 | 72 | 30 | 15 | 10 | | 3 | 40 | | | 2 | | | | tr | tr | tr | | | | | | feldspathic schist |
| 10 | 74121242 | 50 | 28 | | | 5 | 15 | | | | | | | tr | | tr | | | 1 | | | feldspathic quartz schist |
| 11 | 74121173 | 20 | 5 | | | | | | 75 | | | | | tr | | tr | | tr | | | | amphibolite |
| 12 | 74 | 48 | | | | | | | 50 | | | | 2 | | | | | 1 | | | | " |
| 13 | 75 | 50 | 25 | | | 5 | 20 | | | tr | | | | tr | tr | 1 | | | | | | feldspathic schist |
| 14 | 76 | 55 | 25 | - | 5 | - | 15 | | | | | | | tr | tr | tr | | | | | | feldspathic quartz schist |
| 15 | 77 | 71 | 15 | - | 4 | - | 10 | | | tr | | | | tr | tr | tr | | | | | | " " |
| 16 | 78 | 30 | 10 | 10 | | | 50 | | | | | | | tr | tr | tr | | | | | | mica schist |
| 17 | 79 | 64 | 20 | 10 | | | 5 | | | 1 | | | | tr | tr | tr | | | | | | feldspathic quartz schist |
| 18 | 80 | 25 | 8 | 35 | | tr | 30 | | | 2 | | | | tr | tr | tr | | | | | | mica schist |
| 19 | 81 | 22 | 3 | | | | | | 75 | | | | | tr | | 1 | | | | | | amphibolite |
| 20 | 82 | 67 | 25 | 7 | | | 1 | | | | | | | tr | | tr | | | | | | feldspathic quartzite |
| 21 | 83 | 20 | 10 | | | | | | 67 | | | | | tr | | 1 | | 2 | | | | amphibolite |
| 22 | 84 | 25 | 5 | | | | | | 68 | | | | | tr | | 1 | | | | | 1 | " |
| 23 | 85 | 30 | 20 | 20 | | tr | 29 | | | tr | | | | tr | tr | 1 | | | | | | feldspathic schist |
| 24 | 86 | 35 | 35 | 14 | | 2 | 14 | | | | | | | tr | | 1 | | | tr | | | " " |
| 25 | 87 | 77 | 15 | 5 | | tr | 3 | | | tr | | | | tr | tr | 1 | | | | | | feldspathic quartz schist |
| 25 | 88 | 45 | 20 | 8 | | tr | 27 | | | | tr | | | tr | tr | 1 | | | tr | | | feldspathic schist |
| 26 | 89 | | | | | 23 | 45 | | | | 1 | 20 | | tr | 1 | 10 | | | | | | mica schist |
| 27 | 90 | 35 | 2 | 1 | | | | | 60 | | | | | tr | | 2 | | | | | | amphibolite |
| 28 | 91 | 50 | 40 | 10 | | tr | | | | | | | | tr | tr | | | tr | | | | feldspathic quartzite |
| 29 | 92 | 30 | 3 | | | | | | 65 | | | | | tr | | 2 | | | | | | amphibolite |
| 30 | 93 | 3 | 40 | | | 20 | 34 | | | | | | | tr | tr | 2 | | | tr | 1 | | feldspathic schist |
| 31 | 94 | 43 | 20 | - | 5 | - | 30 | | | tr | | | | tr | tr | 2 | | | | | | " " |
| 32 | 95 | 65 | 28 | | | 5 | 1 | | | | | | | tr | | tr | | | 1 | | | feldspathic quartzite |
| 33 | 96 | 10 | 8 | | | | | | 77 | | | | | | | 3 | 1 | | tr | | 1 | amphibolite |
| 34 | 97 | 53 | 10 | | | 10 | 25 | | | | | | | tr | tr | 2 | | | | | | feldspathic quartz schist |
| 35 | 98 | 28 | tr | tr | | | | | 70 | | | | | tr | | 2 | | | | | | amphibolite |
| 36 | 99 | 20 | tr | | | 3 | 73 | | | 1 | tr | | | tr | | 3 | | | | | | mica schist |
| 37 | 74121200 | 10 | | | | 5 | 59 | | | 1 | | 20 | | tr | | 5 | | | | 1 | | " |
| 38 | 01 | 30 | 2 | | | 20 | 41 | | | 3 | 2 | | | tr | tr | 2 | | | | | | " |
| 39 | 02 | 20 | tr | 15 | | | 47 | | | 15 | 2 | | | | tr | 1 | | | | | | " |
| 40 | 03 | 59 | | 15 | | tr | 15 | | | 5 | 5 | | | tr | | 1 | | | | | | mica quartz schist |
| 41 | 04 | 52 | 5 | 4 | | | 35 | | | 1 | | | | tr | tr | 3 | | | | | | " |
| 42 | 05 | 53 | | - | 5 | - | 35 | | | 5 | tr | | | tr | tr | 2 | | | | | | " |
| 43 | 06 | 35 | 3 | | | 5 | 53 | | | 2 | | | | tr | tr | 2 | | | | | | mica schist |
| 44 | 07 | 20 | 1 | | | 20 | 57 | | | tr | | | | tr | tr | 2 | | | | | | " |
| 45 | 08 | 25 | 5 | | | | | | 67 | | | | | | | tr | | 2 | | | 1 | amphibolite |
| 46 | 09 | 10 | 10 | | | | | | 78 | | | | | tr | | tr | | 2 | | | tr | " |
| 47 | 10 | 50 | 25 | | | 10 | 15 | | | | | | | tr | tr | tr | | | | | | feldspathic quartz schist |

APPENDIX 5. (Continued)

| Drill hole no. | BMR Reg. No. | quartz | feldspar | biotite | biotite or chlorite | chlorite | muscovite | phlogopite | amphibole | garnet | staurolite | kyanite | diopside | apatite | tourmaline | opaques | scapolite | sphene | carbonate | epidote | clinozoisite | Rock Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 48 | 74121711 | 78 | 15 | 7 | | | | | | | | | | tr | | tr | | | | | | quartzite |
| 48 | 17 | 32 | 8 | 25 | | | 35 | | | | | | | tr | | tr | | | | | | mica schist |
| 49 | 13 | 40 | 1 | | | | | | 53 | | | | | tr | | 3 | | | | | 3 | amphibolite |
| JJ 50 | 74121714 | 60 | 20 | 12 | | | 8 | | | | | | | tr | | tr | | | | | | feldspathic quartz schist |
| 51 | 15 | 27 | 5 | 1 | | | | | 65 | | | | | tr | | 1 | | 1 | | | | amphibolite |
| 52 | 16 | 44 | 2 | 1 | | 1 | | | 50 | | | | | tr | | 1 | | 1 | | | | " |
| 53 | 17 | 50 | 18 | | | 3 | 5 | | | tr | | | | tr | | 1 | | | 3 | | tr | feldspathic quartzite |
| 54 | 18 | 60 | 5 | 10 | | | 20 | | | tr | | | | tr | tr | tr | | | | | | mica quartz schist |
| 55 | 19 | 45 | 23 | - | 15 | - | 15 | | | 1 | | | | tr | tr | 1 | | | | | | feldspathic schist |
| 56 | 20 | 68 | 13 | 11 | | | 8 | | | | | | | tr | tr | tr | | | | | | feldspathic quartz schist |
| 57 | 21 | 35 | 5 | - | 10 | - | 50 | | | tr | | | | tr | | tr | | | | | | mica schist |
| 58 | 22 | 45 | 8 | | | 7 | 40 | | | | | | | tr | tr | 4 | | | | | tr | " " |
| 59 | 23 | 83 | 7 | | | 3 | 7 | | | | | | | tr | tr | tr | | | | | | quartzite |
| 60 | 24 | 67 | 15 | 3 | | 5 | 10 | | | | | | | tr | | tr | | | | | | feldspathic quartz schist |
| 61 | 25 | 50 | 5 | | | | 10 | 15 | 15 | | | | | | | 5 | | | 1 | | | carbonaceous mica quartz schist |
| 62 | 26 | 57 | 15 | | | | | 20 | 7 | | | | | | | 4 | | | 2 | | | " " " " |
| 63 | 27 | 50 | 10 | | | | | 25 | 15 | | | | | tr | | 2 | tr | | tr | | | " " " " |
| 64 | 28 | 20 | 2 | | | | 50 | 20 | tr | | | | | | | 8 | | | | | | carbonaceous mica schist |
| 65 | 29 | 80 | 10 | 5 | | | 5 | | | | | | | tr | | tr | | | | | | feldspathic quartz schist |
| 66 | 30 | 60 | 30 | 5 | | | 5 | | | | | | | tr | | | | | | | | " " " |
| 67 | 31 | 70 | 25 | 3 | | | 2 | | | | | | | tr | | tr | | | | | | gneiss |
| 68 | 32 | 55 | 40 | | | | 5 | | | | | | | tr | | 1 | | | | | | " |
| 69 | 33 | 8 | 2 | 15 | | | 70 | | | | | | | | tr | 5 | | | | | | carbonaceous mica schist |
| 70 | 74121234 | 30 | 5 | 20 | | | 43 | | | 1 | | | | tr | | 1 | | | | | | " " " |

APPENDIX 6. MODAL ESTIMATES OF COMPOSITION OF LOWER PROTEROZOIC ROCKS, KOONGARRA TRAVERSE

| Drill hole No. | BMR Reg. No. | quartz | feldspar | biotite | biotite or chlorite | chlorite | muscovite | amphibole | garnet | apatite | tourmaline | opaques | scapolite | sphene | Rock Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ca 16 | 74121100 | 70 | 20 | | | | 10 | | | tr | | | | | feldspathic quartzite |
| 17 | 01 | 80 | 10 | | | 4 | 6 | | | tr | | | | | quartzite and feldspathic quartz schist |
| 18 | 02 | 30 | 75 | - | 25 | - | 20 | | | tr | tr | | | | feldspathic schist |
| 19 | 03 | 72 | 15 | | | 3 | 10 | | | tr | | | | | feldspathic quartz schist |
| 20 | 04 | 50 | 25 | | | 5 | 10 | | | tr | tr | tr | | | " " " |
| 21 | 05 | 69 | 25 | - | 5 | - | 1 | | | tr | | tr | | | feldspathic quartzite |
| 22 | 06 | 67 | 20 | | | 5 | 8 | | | tr | | tr | | | feldspathic quartz schist |
| 23 | 07 | 10 | tr | | | | | 83 | | tr | | 1 | | | amphibolite |
| 24 | 08 | 75 | 15 | 10 | | | tr | | | tr | | | | | feldspathic quartz schist |
| 25 | 09 | 67 | 25 | | tr | tr | 7 | | | tr | | 1 | | | " " " |
| 26 | 10 | 70 | 20 | 10 | | tr | tr | | | tr | | tr | | | " " " |
| 27 | 11 | 14 | tr | | | | | 85 | | tr | | tr | | | amphibolite |
| 28 | 12 | 40 | 40 | - | 15 | - | 5 | | | tr | | tr | | | feldspathic schist |
| 29 | 13 | 85 | 5 | 10 | | | | | | tr | | | | | quartzite |
| 30 | 14 | 65 | 15 | 20 | | | | | | tr | | tr | | | feldspathic quartz schist |
| 30 | 74121236 | 65 | 25 | 7 | | | 3 | | | tr | tr | tr | | | " " " |
| 31 | 74121115 | 55 | 37 | 8 | | | 1 | | | tr | | | | | feldspathic quartzite |
| 32 | 16 | 70 | 24 | - | 4 | - | tr | | 1 | tr | tr | 1 | | | " " |
| 33 | 17 | 45 | 3 | 20 | | | 30 | | 2 | tr | tr | tr | | | mica schist |
| 34 | 18 | 66 | 25 | 7 | | | 2 | | | tr | tr | tr | | | feldspathic quartz schist |
| 35 | 19 | 20 | 40 | | | 38 | | | | tr | | 2 | | | chloritised amphibolite |
| 36 | 20 | 50 | | | | 15 | 15 | | | tr | | 20 | | | mica quartz schist |
| 37 | 21 | 40 | 10 | | | 20 | 30 | | | tr | | tr | | | mica schist |
| 38 | 22 | 30 | 30 | tr | | | | 40 | | | | tr | | | amphibolite |
| 39 | 23 | 10 | 20 | | | | | 70 | | | | tr | | | " |
| 40 | 24 | 40 | 9 | | | | | 50 | | | | tr | 1 | | " |
| 41 | 25 | 68 | | 5 | | | 25 | | 1 | tr | | 1 | | | mica quartz schist |
| 42 | 26 | 10 | 20 | | | 5 | | 65 | | | | tr | | | amphibolite |
| 43 | 74121127 | 45 | 1 | 25 | | 1 | 25 | | 3 | | | tr | | | mica schist |
| 43 | 74121239 | 80 | 10 | 5 | | | 5 | | tr | tr | tr | tr | | | feldspathic quartz schist |
| 44 | 74121120 | 45 | 4 | 15 | | | 35 | | tr | tr | | 1 | | tr | mica schist |
| 45 | 29 | 50 | | 7 | | | | 40 | | 3 | | | | | amphibolite |
| 46 | 30 | 60 | 9 | | | 5 | 25 | | | tr | | 1 | | | mica quartz schist |
| 47 | 74121131 | 60 | 7 | 1 | | | 29 | | | tr | | 3 | | | mica quartz schist |

APPENDIX 7. MODAL ESTIMATES OF COMPOSITION OF LOWER PROTEROZOIC ROCKS, JABIRU TRAVERSE

| Drill hole No. | BMR Reg. No. | quartz | feldspar | biotite | biotite or chlorite | chlorite | muscovite | amphibole | garnet | apatite | tourmaline | opaques | sphene | carbonate | Rock Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CA 48 | 74121132 | 30 | | | | 67 | | | | | | 3 | | | mica schist |
| 49 | 33 | 65 | 10 | | | | 25 | | | tr | | tr | | | feldspathic quartz schist |
| 50 | 34 | 60 | 20 | 15 | | | 5 | | | tr | | | | | " " " |
| 51 | 35 | 15 | 15 | | | | | 60 | 3 | tr | | 7 | | | amphibolite |
| 52 | 36 | 10 | 20 | | | | | 70 | | | | | | | " |
| 53 | 37 | 73 | 20 | - | 5 | - | 2 | | | tr | tr | tr | tr | | feldspathic quartz schist |
| 54 | 38 | 65 | 5 | 15 | | | 15 | | | tr | tr | tr | | | mica quartz schist |
| 55 | 39 | 55 | 15 | - | 15 | - | 15 | | | tr | tr | tr | | | feldspathic quartz schist |
| 56 | 40 | 5 | 15 | | | | 1 | 78 | | | | tr | 3 | | amphibolite |
| 57 | 41 | 75 | 20 | 3 | | | 1 | | 1 | tr | tr | | | | feldspathic quartzite |
| 58 | 42 | 65 | 10 | 10 | | | 15 | | tr | tr | tr | | | | feldspathic quartz schist |
| 59 | 43 | 25 | 5 | 20 | | | 50 | | 1 | tr | 1 | tr | | | mica schist |
| 59 | 74121240 | 66 | 25 | - | 3 | - | 5 | | 1 | tr | tr | tr | | | feldspathic quartz schist |
| 60 | 74121144 | 65 | 15 | - | 10 | - | 10 | | tr | tr | tr | tr | | | " " " |
| 61 | 45 | 75 | 20 | | | 2 | 3 | | | tr | | 1 | | | feldspathic quartzite |
| 62 | 46 | 42 | 50 | | | | 7 | | 1 | | 1 | tr | | | " " |
| 63 | 47 | 3 | 10 | | | | | 84 | | | | 1 | 2 | | amphibolite |
| 64 | 48 | 75 | 15 | 5 | | | 5 | | tr | tr | tr | tr | | | feldspathic quartz schist |
| 65 | 49 | 45 | 44 | 6 | | | | 5 | | | | tr | tr | | feldspathic quartzite |
| 66 | 50 | 46 | 50 | 2 | | | 1 | | 1 | | | tr | | | " " |
| 67 | 51 | 85 | 5 | - | 3 | - | 7 | | | tr | | tr | | | quartzite |
| 68 | 52 | 45 | 48 | | | | 7 | | | | | tr | | | feldspathic quartzite |
| 69 | 53 | 50 | 45 | | | tr | 5 | | | tr | | tr | | | gneiss |
| 69 | 74121241 | 60 | 30 | | | 10 | tr | | | tr | | | | | chloritized feldspathic quartz schist |
| 70 | 74121154 | 29 | 70 | | | tr | 1 | | | | | 1 | | | gneiss |
| 71 | 55 | 20 | | | | 50 | 30 | | | | | | | | chloritized feldspathic schist |
| 72 | 56 | 60 | 36 | - | 2 | - | 2 | | | | | tr | | | gneiss |
| 73 | 57 | 60 | 33 | | | | 5 | | | | | 2 | | | feldspathic quartzite |
| 74 | 58 | 60 | | | | | 36 | | | | | 4 | | | altered feldspathic quartzite |
| 75 | 59 | 50 | 44 | 5 | | | 1 | | | tr | | 1 | tr | | feldspathic quartzite |
| 76 | 60 | 12 | | | | 35 | 3 | | | | | tr | | 50 | chlorite dolomite schist |
| 77 | 74121101 | 65 | 25 | - | 3 | - | | 7 | | tr | | tr | tr | | feldspathic quartzite |