DEPARTMENT OF MINES
SOUTH AUSTRALIA

GEOLOGICAL SURVEY.

DELHI-FROME-SANTOS INNAMINCKA NO 1 WELL
SUBSURFACE STRATIGRAPHY
AND MICROPALAEONTOLOGICAL STUDY

by

N.H. Ludbrook
Palaeontologist

Rept. Bk. 655
G.S. 1607
S.R. 11/5/37
Pal. Rep. 2/60

8th February 1960

CONFIDENTIAL

DELHI - FROME - SANTOS

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FINAL REPORT

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ABSTRACT

Innamincka No. 1 Well was drilled to a depth of 12,638 feet and penetrated a sedimentary sequence of Mesozoic and Palaeozoic rocks ranging in age from Cretaceous to (?)Devonian. Marine Cretaceous (Albian) carbonaceous mudstones and siltstones were entered at 1700 feet and at 3920 feet the boring passed out of the marine Albian-Aptian sequence into non-marine arkosic sandstones of Neoconian age. Between 4620 feet and 5920 feet a non-marine sequence of grey micaceous sandstones and siltstones with coal bands of Jurassic age was intersected followed by (?) Triassic non-marine red, green and grey sericitic and dolomitic siltstone and white sandstone between 5920 and 6750 feet. At 6750 the well passed into Upper Permian carbonaceous siltstones and sandstone with coal.

An angular unconformity occurred between 7010 and 7040 feet where the well entered a sequence of red beds dipping at 25 degrees. The sediments consist of red and green sandy calcareous siltstones and cross-bedded sandstones, the age of which is not known with certainty but is believed to be Devonian. Boring ceased in these rocks at 12638 feet.

1. INTRODUCTION

Innamincka No. 1 Well was spudded in on 29th March, 1959 as part of an oil exploration programme in the Great Artesian Basin by Delhi Australian Petroleum Limited, Frome Broken Hill Company Limited and Santos Limited. The well was sited near the apex of Innamincka Dome (Sprigg 1958, p.2482) in the north east of South Australia, latitude 27°29'21.3" and longitude 140°55'07.7".

The well was abandoned on 13th November 1959 at 12638 feet.

This report presents lithological data and stratigraphic data based on identification of mollusca and foraminifera by N. H. Ludbrook and of plant spores by B. E. Balme (University of Western Australia). Both core and cutting samples were examined over the whole sequence; cores were taken at 500-foot intervals and cuttings at 10-foot intervals.

Drafting of the micropalaeontological and geological logs was done by Mrs. A. O. Wolverson.

2. STRATIGRAPHY

Stratigraphic units in Innamincka No. 1 Well are as follows:-

	Depth (feet)
Cretaceous	
Winton Formation (Cenomanian)	232-1700
Upper Albian rocks	1700-2280
Middle Albian rocks	2280-2680
?Lower Albian rocks	2680-2770
Roma Formation equivalents (Aptian)	2770-3920
Transitional Beds and Blythesdale Group equivalents	
Aptian-Neocomian rocks	3920-4620
Jurassic	
Upper Jurassic rocks	4620-5150
(?)Middle Jurassic rocks	5150-5490
Lower or Middle Jurassic rocks	5490-5920
Triassic	
(?) Triassic rocks	5920-6541
(?) Triassic rocks	6541-6750
Permian	
Upper Permian rocks	6750-7010
Palaeozoic Red Beds (?Devonian)	7010-12638

Only the Cretaceous sediments carried foraminifera. The Jurassic, Triassic and Permian strata were of non-marine origin and completely lacking in marine fossils.

The section penetrated in the well is very similar to that in Topagoruk Test Well No. 1, Alaska (Collins and Bergquist 1958) except that most of the section in Topagoruk carried foraminifera and other marine fossils.

3. CRETACEOUS

The Cretaceous microfaunal sequence is tabulated in Table 1. Except for a few species described by Howchin (1895) and Crespin (1944, 1953), the foraminifera are undescribed and an open nomenclature has been employed throughout. Specific identifications have been made only where topotype material was available for comparison. The sequence is similar to that in Santos Oodnadatta No. 1 Bore (Ludbrook, 1959) for which 960 feet of continuous core in the Albian-Aptian provided reliable record of foraminiferal zonation. In Innamincka No. 1 Well only the first appearance of each species in cuttings is regarded as significant in view of the contamination of ditch samples during drilling.

The foraminifera are listed alphabetically in Table 2 with the depth at which they first appeared and their known range elsewhere.

Inoceramus prisms occurred in most samples below 1850 feet and a few ostracoda were present in nearly all samples below 2180 feet. Radiolaria occurred below 2730 feet.

(1) Cenomanian - Winton Formation - Thickness 1468 feet

The first samples received came from 232 feet when the well was in equivalents of the Winton Formation. This consists of a sequence of carbonaceous limestone, calcareous siltstone and micaceous siltstone and mudstone with abundant plant remains and coal fragments. With the exception of three pauperate specimens of Cibicides at 470 feet no foraminifera were recovered. Most samples below 420 feet contain one or two megaspores of the water fern Azolla which was first identified for the writer by Dr. I. C. Cookson from specimens picked from the Cretaceous of Australian Oil and Gas Company's Loxton Bore. Since then the megaspores have appeared in the Albian-Cenomanian of all bores examined in the Great Artesian Basin.

Azolla is also associated with limonitized iridescent plant fragments which have been observed only in the Albian-Cenomanian of the Basin.

Although it is paralic to some extent the formation is considered to have been deposited mostly in freshwater lagoons.

(2) Upper Albian - Thickness 580 feet.

At 1700 feet the well entered grey carbonaceous and calcareous siltstones and mudstones with arenaceous foraminifera and Inoceramus prisms. The calcareous species are relatively rare, and mostly in the lower half of the interval. Mollusca occurring in Core 4 at 2044 to 2064 feet include Nucula cf. quadrata Etheridge, Aucellina hughendenensis Etheridge, Inoceramus etheridgei Eth, fil. and Inoceramus sp, Tatella maranoana Eth fil., cf. Astarte wollumbillaensis Moore, Dentalium wollumbillaensis and Natica (Lunatia) variabilis Moore.

(3) Middle Albian - Thickness 400 feet.

Below 2280 feet there was a sequence of very calcareous siltstones and pyritic limestones with numerous calcareous foraminifera including Globigerina sp. 4, related to G. cretacea d'Orbigny, which, in uncontaminated material, appears to be restricted to the Middle and ?Lower Albian.

Mollusca occurring in Core 5 at 2508 to 2520 feet included Pseudavicula anomala Moore, Inoceramus etheridgei Eth. fil., Inoceramus sp., Aucellina hughendenensis Etheridge, Falciferella breadeni, Brunnschweiler, Falciferella sp., Dimitobelus sp.

The Upper and Middle Albian sequence is equivalent in part at least to the Tambo Formation of Queensland.

(4) (?) Lower Albian - Thickness 90 feet

Calcareous mudstones between 2680 feet and 2770 feet contain Verneuilina howchini Crespin and Bigenerina loeblichae Crespin. The upper limit of these species in Oodnadatta No. 1 Well is the glauconitic zone with abundant brachiopods tentatively placed in the Lower Albian . It is not known with certainty whether the base of the Albian should be placed at 2680 feet or at 2770 feet in Innamincka Well since the glauconitic zone with brachiopods was not present.

(5) Aptian - Roma Formation equivalents - Thickness 1150 feet

This formation is composed of grey carbonaceous pyritic mudstones and glauconitic siltstones with a characteristic foraminiferal succession, in which Ammobaculoides romaensis,

Haplophragmoides chapmani, are followed downwards by Miliammina sp. 1, Ammobaculoides coonanaensis, Patellina jonesi, Textularia anacoor-aensis.

Comparison of the first appearance of foraminiferal species with their known range elsewhere in South Australia is shown in Table 2.

(6) Aptian-Neocomian Transitional beds and Blythesdale Group equivalents - Thickness 700 feet

Below 3920 feet the marine Aptian passed conformably into non-marine grey-buff medium arkosic sandstones with micaceous silty patches. The sandstone is tightly packed with only a small amount of cement. Plant remains and coaly matter are abundant. Muscovite is common in the silt patches. The sandstones are lithologically similar to those outcropping on the southern margin of the Basin on the north eastern flanks of the Flinders Ranges. These are considered to be mostly of Neocomian age though the uppermost extend into the basal Aptian. B. E. Balme has determined the age of the microflora at 4043'6" feet as Neocomian-Aptian.

4. JURASSIC

(1) Upper Jurassic-Blythesdale Group equivalents - Thickness 530 feet.

The non-marine sandstone sequence continues below 4620 feet and the fine light grey-white loosely consolidated micaceous sandstone with carbonaceous siltstone patches of Core 11 appears to be equivalent of the lower part of the Blythesdale Group. The microflora at 5063 feet is considered by B. E. Balme to be of Upper Jurassic age.

The upper limit of the Upper Jurassic sandstone has been somewhat arbitrarily placed; the base of the Blythesdale equivalents has been placed at 5150 feet.

(2) Middle Jurassic ?Walloon Coal Measures equivalents - Thickness 340 feet

Underlying the sandstones of the Blythesdale Group are a sequence of dark grey micaceous siltstone and carbonaceous siltstone

with coal. This formation appears to be equivalent to the Walloon Coal Measures as redefined by Whitehouse (1954, p.8)

(3) Lower Jurassic ?Marburg Formation equivalents - Thickness 430 feet

This formation was entered at 5490 feet and consists of non-marine light grey to buff white medium to coarse angular somewhat arkosic sandstone with large patches of carbonaceous matter. The microflora is considered by B. E. Balme to be Lower or perhaps Middle Jurassic. The stratigraphical position of the sandstone is comparable with that of the Marburg Formation as described by Whitehouse, 1954, p. 8.

5. (?) TRIASSIC

(1) ?Triassic (?) Bundamba Group equivalents - Thickness 621 feet

A well marked lithological change occurs at 5920 feet where the well entered grey sericitic siltstone, dolomitic and arkosic sandstone and very fine-grained grey siliceous shale passing downwards into red and green sericitic siltstone. The age of this formation is not known for certain. Its position in the stratigraphic sequence is comparable with that of the Bundamba Group as defined by Whitehouse (1954, p.7).

(2) ?Triassic (?) Moolayember equivalents. - Thickness 209 feet

At 6541 feet the well passed into fine-grained grey dolomitic sericitic siltstone and fine-grained sandstone passing into green and red dolomitized siltstone which turns olive-green on exposure. The age of this formation also is not known with certainty. It may be the stratigraphic equivalent of the Moolayember Shales.

The base of the Mesozoic is somewhat arbitrarily placed at 6750 feet.

6. PERMIAN

Upper Permian coal measures - Thickness 260 feet

The youngest Palaeozoic formation in the section is a sequence of dark grey carbonaceous siltstone, silty sandstone and buff grey arkosic cross-bedded sandstone with abundant muscovite. Sandstones are strongly cross-bedded and plant remains are common.

Coal occurred between 6860 and 6890 feet.

At 6897 feet an intraformational conglomerate band with heterogeneous pebbles occurs in buff-grey arkosic sandstone.

The lithology of this formation resembles that of Permian rocks of fluvio-glacial origin in South Australia.

The age of the coal at 6870-6890 feet is determined by B. E. Balme as follows:-

> "The microflora is entirely Permian and not older than upper Artinskian. My opinion is that the coal is of Kungurian-Kazanian age, and comes from strata equivalent in age to part of the Newcastle Coal Measures in New South Wales and part of the Liveringa Formation in Western Australia."

7. PALAEOZOIC (?DEVONIAN)

Red bed sequence - Thickness 5598 feet+

An angular unconformity occurs in the section between 7010 and 7040 feet. Owing to contamination of the cuttings by cavings from overlying formations it is difficult to place the unconformity accurately. At 7010 feet chips of fine dolomitic silty sandstone with heavy mineral banding were observed which are interpreted as belonging to the rocks below the unconformity but which may originate from the ?Triassic sandstones above. Between 7010 and 7050 the rocks consist of sandstones, pyritic below 7030.

Below 7050 feet the well passed through a red bed sequence of siltstones and sandstones. The dominant lithology is of red, chocolate and grey mottled calcareous sandy siltstones with micaceous siltstones, mudstones and cross-bedded fine sandstones with frequent slump structures. The sandstones and sandy siltstones are characterized by fine to medium fairly well rounded quartz grains set in a fine dense calcareous or dolomitic ground mass with glauconite and mica. Heavy mineral banding is common in the green-grey siltstones near the top of the sequence.

Organic remains are rare and very poorly preserved. Minute calcareous shell fragments were detected in Core 18 at 7485 to 7487 feet, including at 7487 feet a fragment very closely resembling shells

of Lingula occuring in beds at the base of the Mootwingee Series. Worm burrows are frequent, and show in most cores as well as occasionally in cuttings. Core at 11553 feet had a three-inch band which was extensively burrowed. Burrows are generally parallel to or at a low angle to the bedding. They commonly occur at a lithological change from sandstone to mudstone.

B. E. Balme recovered a few dark coloured pteridophyte spores from core at 7201 feet. The red beds are believed to be rapidly deposited geosynclinal sediments. They are lithologically very similar to the Middle Cambrian Lake Frome Group (Daily, 1956, p.115) but no positive evidence could be obtained to support the correlation.

On the slender evidence of the few organic remains recovered, the red bed sequence is tentatively determined as Devonian, thick formations of which occur in Western New South Wales.

The formation dips at approximately 25 degrees. It had not been completely penetrated when the well was abandoned at 12638 feet.

8 LITHOLOGICAL DESCRIPTION

Based on cuttings taken every ten feet and on cores where indicated.

Core	Depth (feet)	Lithology
	232- 240	Grey carbonaceous limestone (kunkar), with abundant plant remains.
	240- 250	Grey carbonaceous limestone with abundant woody plant remains in a calcareous, fine sandy matrix.
	250- 260	Grey carbonaceous soft powdery limestone with abundant carbonized plant fragments.
	260- 270	As 250-260; abundant plant remains and green minerals.
	270- 280	Carbonaceous limestone as above; abundant coaly matter.

Core	Depth (feet)	Lithology
	280- 310	Carbonaceous sandy limestone with abundant brown woody fragments.
	310- 330	Carbonaceous sandy limestone as above; abundant green minerals.
	330- 360	Highly carbonaceous sandy limestone with abundant coaly matter.
	360- 370	Grey carbonaceous calcareous siltstone with abundant carbonized plant remains.
	370- 380	Greenish grey carbonaceous sandy siltstone with abundant plant remains, green minerals, chlorite, much organic matter.
	380- 410	Greenish grey carbonaceous siltstone.
	410- 420	Greenish grey carbonaceous siltstone, with abundant green minerals, pyrite.
	420- 430	Greenish grey carbonaceous siltstone with abundant plant remains, green minerals, tourmaline. Azolla present.
	430- 440	Greenish grey carbonaceous siltstone with abundant coaly matter.
	440- 450	Siltstone as above, with abundant coaly matter, green minerals and pyrite.
	450- 470	Greenish grey carbonaceous sandy siltstone.
	470- 485	Greenish grey siltstone with abundant plant remains, green minerals, pyrite. Three specimens of pauperate Cibicides present.
1	485- 505	Cut 20 feet, recovered 19.7 feet. At 485 feet pale greenish-grey micaceous siltstone with abundant green mineral grains muscovite, biotite and chlorite. 487'3" Grey carbonaceous mudstone with abundant plant remains, chlorite and other micas, green minerals, micaceous hematite. 488'3" Grey carbonaceous mudstone with abundant plant remains. 489'6" As above.

Core	Depth (feet)	Lithology
		491'3" Grey carbonaceous mudstone with plant stems.
		495'3" Greenish grey rubbly mudstone with chlorite.
		496'6" Grey carbonaceous mudstone.
		498'4" Grey fine carbonaceous mudstone.
		500'8" Grey-green rubbly silty mudstone.
		503'2" Grey-green arkosic siltstone with green clay minerals, chlorite, felspar, carbonaceous matter.
	505- 520	Greenish grey arkosic siltstone and sandstone with plant remains.
	520- 530	Siltstone and sandstone as above. Azolla present.
	530- 540	Siltstone and sandstone as above.
	540- 550	Siltstone and sandstone as above. Azolla present.
	550- 720	Greenish grey siltstone and sandstone with carbonaceous matter and plant remains.
	720- 760	Grey marl with coal.
	760- 770	Grey carbonaceous calcareous mudstone. Azolla present.
	770- 800	Grey carbonaceous calcareous mudstone.
	800- 810	Grey carbonaceous calcareous mudstone with pyrite.
	810- 860	Grey carbonaceous mudstone with abundant plant remains.
	860- 870	Green-grey carbonaceous mudstone and sandstone with green and red mineral grains.
	870- 880	Green-grey carbonaceous arkosic sandstone.
	880- 990	Green-grey carbonaceous arkosic sandstone and siltstone with coal fragments.
	990-1005	Green grey arkosic sandy siltstone and mudstone. Azolla present.

Core	Depth (feet)	Lithology
2	1005-1025	Cut 20 feet, recover 14.4 feet.
		1006'6" Greenish grey siltstone and mudstone with carbonaceous strings.
		1007'6" Greenish-grey siltstone with carbonaceous strings.
		1009'6" Greenish grey fine grained carbonaceous siltstone.
		1011'6" Greenish grey siltstone with plant fragments.
		1013'4" Fine greenish grey micaceous mudstone with plant fragments.
		1018'6" Fine green-grey carbonaceous mudstone
	1025-1050	Green-grey sandy siltstone and mudstone with carbonaceous matter and pyrite.
	1050-1100	Sandy siltstone and mudstone as above with pyrite crystals.
	1100-1140	Greenish-grey sandy siltstone and mudstone
	1140-1150	Greenish grey sandy siltstone with coal fragments.
	1150-1160	Greenish-grey sandy siltstone. Azolla present.
	1160-1220	Greenish grey arkosic silty sandstone.
	1220-1270	Greenish grey arkosic silty sandstone with coal fragments.
	1270-1280	Greenish grey calcareous silty sandstone
	1280-1300	Greenish grey calcareous siltstone with coal fragments.
	1300-1310	Greenish grey calcareous mudstone with carbonaceous matter.
	1310-1320	Greenish grey calcareous and carbonaceous siltstone.
	1320-1330	Siltstone as above - Azolla present
	1330-1380	Greenish grey carbonaceous and glauconitic siltstone.
	1380-1450	Siltstone as above with some coaly matter.

Core	Depth (feet)	Lithology
	1450-1470	Brown mudstone and sandy siltstone with carbonaceous matter.
	1470-1510	Brown carbonaceous mudstone.
	1510-1525	Carbonaceous mudstone with Azolla.
3	1525-1543.6	Cut 18.6 feet, recovery 12 feet 6 inches. Highly carbonaceous mudstone rich in plant remains. Worm tracks.
	1540-1600	Highly carbonaceous mudstone with coal chips and abundant plant remains.
	1600-1610	Grey mudstone with abundant plant remains, medium angular quartz grains, green and grey minerals, muscovite, magnetite.
	1610-1620	Grey sandy mudstone with plant remains. Azolla present.
	1620-1630	Grey highly carbonaceous mudstone.
	1630-1640	Coal.
	1640-1660	Grey carbonaceous mudstone with abundant plant remains, some pyritized.
	1660-1680	Grey carbonaceous mudstone with plant remains and pyrite.
	1680-1690	Grey carbonaceous mudstone with irridescent limonitized (?) plant spores. Azolla present
	1690-1700	Grey carbonaceous mudstone.
	1700-1710	Grey carbonaceous and calcareous mudstone with abundant plant remains, washings coarse with medium angular quartz grains, green minerals calcite, pyrite, magnetite. First foraminifer appears.
	1710-1720	Mudstone as above. No foraminifera.
	1720-1730	Coal. Azolla present
	1730-1750	Dark grey very carbonaceous mudstone with coal chips. Foraminifera
U Albian	1750-1760	Grey-green carbonaceous siltstone with medium subangular quartz grains, felspar

Core	Depth (feet)	Lithology
		biotite, green minerals, chlorite, fossil wood and leaves. Foraminifera.
	1760-1770	Siltstone as above with abundant coaly matter. Foraminifera.
	1770-1780	Siltstone, as above, with iridescent limonitic plant fragment, Azolla
	1780-1800	Siltstone as above, with coal and pyrite.
	1800-1810	Greenish grey carbonaceous sandy siltstone with abundant plant remains, Azolla
	1810-1820	Siltstone as above, with abundant coal fragments.
	1820-1850	Greenish-grey carbonaceous sandy siltstone with coal fragments, pyrite, Azolla
	1850-1860	Greenish-grey carbonaceous siltstone with fine to medium angular quartz grains, felspathic material, pale green minerals, pyrite, carbonized plant fragments, Azolla, first Inoceramus prism.
	1860-1870	Greenish-grey arkosic sandstone with pyrite.
	1870-1880	Sandstone as above with coal fragments, iridescent limonitic sphere, pyrite, medium quartz grains.
	1880-1890	Greenish grey calcareous siltstone with coaly matter, Inoceramus prisms.
	1890-1900	Greenish-grey arkosic sandy siltstone.
	1900-1910	Siltstone as above, with abundant plant remains.
	1910-1920	Greenish-grey arkosic sandy siltstone. First Textularia
	1920-1930	Greenish grey arkosic sandy siltstone. Textularia common.
	1930-1940	Siltstone as above.
	1940-1950	Greenish grey arkosic sandy siltstone, with Inoceramus.

Core	Depth (feet)	Lithology
	1950-1960	Greenish grey arkosic sandy siltstone, with abundant plant remains. Azolla, no foraminifera
	1960-1970	Siltstone as above, with pyrite, molluscan fragments.
	1970-1990	Very carbonaceous sandy siltstone with pyrite, iridescent spheres, Azolla, foraminifera.
	1990-2010	Greenish grey glauconitic sandy siltstone.
	2010-2020	Greenish grey glauconitic sandy siltstone with coaly material.
	2020-2030	Greenish grey glauconitic sandy siltstone
	2030-2040	Siltstone as above with molluscan fragments. First Lenticulina.
4	2044-2064	Cut 20 feet, recovered 15.6 feet.

2045'6" Dark grey and greenish grey banded mudstone, very carbonaceous, with abundant plant remains. Washings mainly aggregates of fine angular quartz grains with pyrite, chlorite, hematite, green clay minerals, iridescent limonitic fragments.

2046'6" Grey carbonaceous mudstone with molluscan shell fragments. Inoceramus prisms and plant fragments scattered throughout the matrix.

2049'6" Grey carbonaceous mudstone with pyrite and mollusca including Inoceramus, Aucellina. Abundant plant remains.

2051'9" Grey carbonaceous siltstone with Azolla, iridescent limonitic fragments, abundant plant fragments and mollusca

2054'6" Greenish grey micaceous siltstone with fine angular quartz aggregates, pyrite, pale green clay material, chlorite, abundant plant remains. Iridescent limonitic material,

Core	Depth (feet)	Lithology
		bryozoan and mollusca
		2058'6" Greenish grey micaceous and carbonaceous siltstone with mollusca.
	2064-2070	Greenish grey siltstone as above with abundant plant remains.
	2070-2100	Greenish grey siltstone with subangular quartz grains, greenish clay minerals, pyrite, coal fragments. Foraminifera and Inoceramus abundant. Iridescent spheres.
	2100-2110	Grey carbonaceous sandy siltstone with abundant plant remains. Azolla.
	2110-2120	Grey arkosic siltstone with angular quartz grains, grey green grains and abundant plant remains.
	2120-2150	Grey-green silty sandstone with Azolla
	2150-2160	Grey carbonaceous sandy siltstone with medium angular quartz grains, pyrite, glauconite, carbonaceous matter, Inoceramus
	2160-2190	Grey carbonaceous sandy siltstone with abundant carbonaceous matter and pyrite. Foraminifera common.
	2190-2220	Grey arkosic carbonaceous siltstone with coal fragments, pyrite.
	2220-2230	Grey arkosic carbonaceous siltstone as above with abundant Inoceramus.
	2230-2240	Grey arkosic carbonaceous silty sandstone.
	2240-2250	Grey arkosic carbonaceous silty sandstone with abundant pyrite and carbonized plant remains.
	2250-2260	Grey carbonaceous sandy siltstone with abundant plant remains.
	2260-2280	Siltstone, as above, with angular quartz grains, Inoceramus and plant remains.

Core	Depth (feet)	Lithology
	2280-2290	Grey carbonaceous, calcareous sandy siltstone.
	2290-2300	Grey calcareous sandy siltstone with pyrite and plant remains.
	2300-2310	Siltstone as above. First appearance of Cibicides sp. 1.
	2310-2370	Grey calcareous siltstone rich in Inoceramus prisms.
	2370-2380	Grey calcareous carbonaceous siltstone with pyrite, Inoceramus.
	2380-2390	Siltstone, as above. First appearance of Bulimina sp. A
	2390-2430	Siltstone as above, Abundant plant remains.
	2430-2450	Grey calcareous siltstone with carbonaceous matter and pyrite. Pyrite infilling of foraminifera.
	2450-2480	Grey calcareous siltstone rich in Inoceramus prisms.
	2480-2490	Grey calcareous siltstone, very pyritic with abundant Inoceramus.
	2490-2508	Grey calcareous and carbonaceous siltstone.
	2508-2520	Cut 12 feet, recovery 9.7 feet.
		2511'4" Grey carbonaceous mudstone with Inoceramus
		2512'7" Grey carbonaceous mudstone with Inoceramus and Falciferella.
		2515'6" As above.
		2515'8" As above, with Pseudavicula anomala
		2516'8" Grey mudstone with Inoceramus and Pseudavicula anomala.
	2520-2530	Grey calcareous and carbonaceous siltstone with abundant Inoceramus.
	2530-2540	Greenish-grey calcareous arkosic siltstone rich in Inoceramus prisms.
	2540-2550	Grey limestone and calcareous siltstone.

Core	Depth (feet)	Lithology
	2550-2560	Grey calcareous arkosic siltstone.
	2560-2570	Grey very carbonaceous mudstone.
	2570-2590	Grey limestone with Inoceramus, iridescent shell fragments, pyritized molluscan fragments and foraminifera.
	2590-2600	Grey calcareous siltstone and sandstone.
	2600-2630	Grey calcareous siltstone with abundant Inoceramus and very abundant Globigerina.
	2630-2650	Dark grey limestone; abundant Inoceramus and Globigerina.
	2650-2680	Grey very pyritic limestone with Inoceramus
	2680-2690	Grey pyritic limestone; first Verneuilina.
	2690-2710	Grey calcareous siltstone with coal fragments, pyrite, glauconite; fauna poor.
	2710-2740	Grey calcareous mudstone with abundant coal fragments.
	2740-2770	Mudstone as above, with pyrite and Inoceramus
	2770-2780	Grey carbonaceous mudstone, somewhat arkosic with angular quartz grains, felspar, pyrite, green minerals.
	2780-2790	Grey carbonaceous sandy mudstone.
	2790-2900	Grey carbonaceous mudstone.
	2900-2920	Grey carbonaceous and calcareous mudstone, with calcite veins.
	2920-2930	Grey carbonaceous and calcareous mudstone. Belemnite fragments.
	2930-3000	Grey carbonaceous mudstone.
	3000-3018	Grey carbonaceous and pyritic mudstone.
6	3018-3029	Cut 11 feet; recovered 10 feet. Grey carbonaceous pyritic mudstone.
	3029-3040	Grey carbonaceous mudstone.
	3040-3050	Grey calcareous mudstone.
	3050-3090	Grey calcareous mudstone with belemnite fragments.

Core	Depth (feet)	Lithology
	3090-3150	Grey calcareous mudstone with abundant pyrite and bright green glauconite.
	3150-3220	Grey calcareous mudstone with calcareous foraminifera, belemnites and Dentalium
	3220-3240	Grey calcareous mudstone; pyritic replacement of foraminifera.
	3240-3330	Grey pyritic mudstone.
	3330-3350	Grey pyritic mudstone and glauconitic siltstone
	3350-3390	Green-grey calcareous glauconitic and pyritic siltstone. Arkosic, with medium angular quartz-grains, pyrite, bright green glauconite and carbonaceous matter.
	3390-3440	Green-grey glauconitic siltstone with abundant bright green glauconite and Bigenerina
	3440-3526	Green grey glauconitic siltstone.
7	3526-3538	Cut 12 feet; recovery 2 feet. Greenish grey calcareous siltstone with glauconite, plant remains, calcite, fine angular quartz grains.
	3538-3550	Greenish grey calcareous and glauconitic siltstone.
	3550-3610	Grey pyritic mudstone and limestone with fine muscovite.
	3610-3620	Grey pyritic mudstone and limestone as above. Quinqueloculina present (cf. Tilcha Bore 1740-1760')
	3620-3630	Grey limestone and pyritic mudstone with Patellina jonesi.
	3630-3640	Grey pyritic mudstone and limestone with Verneuilina howchini and Bigenerina loeblichae
	3640-3670	Grey glauconitic, calcareous and pyritic siltstone, carbonaceous matter and bright green glauconite.
	3670-3720	Grey glauconitic siltstone and carbonaceous mudstone.

Core	Depth (feet)	Lithology
	3720-3730	Grey carbonaceous mudstone with Textularia anacooraensis
	3730-3760	Grey carbonaceous mudstone and buff limestone fragments.
	3760-3830	Dark grey pyritic mudstone.
	3830-3870	Dark grey pyritic mudstone with calcite veins rich in pyrite, chips of sandstone, pyrite, bright green glauconite.
	3870-3920	Dark grey pyritic mudstone.
	3920-3937	Buff grey arkosic sandstone with Trochammina raggatti (? from Aptian above).
8	3937-3947	Cut 10 feet; recovered 3.2 feet. Fine buff grey arkosic sandstone with fine to medium angular quartz grains, felspar, calcite, green minerals, micas.
	3947-4000	Fine buff-grey arkosic sandstone with carbonaceous matter.
	4000-4010	Arkosic sandstone as above, with abundant coaly matter and plant remains.
	4010-4030	Buff grey arkosic sandstone, partly ferruginized with dark red hematitic matter (? = ferruginized sandstones of Blythesdale Group on Gardiner M.S.).
9	4030-4048	Cut 18 feet; recovered 15 feet. Grey, fine-grained compacted arkosic sandstone with abundant plant remains.
	4050-4210	Cuttings all heavily contaminated with cement.
	4210-4220	Buff fine arkosic sandstone with some silty chips. Abundant fine muscovite flakes.
	4220-4230	Buff fine arkosic sandstone fairly closely packed.
	4230-4250	Buff arkosic sandstone with some coarse grains and silty patches.
	4250-4280	Buff sandstone and dark buff-brown siltstone with abundant plant remains.

Core	Depth (feet)	Lithology
	4280-4360	Buff fine arkosic sandstone with micaceous silty patches, calcite veins and plant remains.
	4360-4410	Fine light buff sandstone and darker carbonaceous siltstone.
	4410-4420	Sandstone and siltstone as above; some coarse quartz grains.
	4420-4440	Fine to coarse sandstone and carbonaceous siltstone; abundant coarse quartz grains.
	4440-4460	Fine sandstone, and carbonaceous siltstone, sometimes laminated; plant remains, muscovite, calcite; coarse quartz grains rare.
	4460-4470	Fine to coarse buff sandstone with mostly angular coarse quartz grains; chips of fine even-grained sandstone. Carbonaceous and somewhat calcareous siltstone.
	4470-4500	Coarse mostly angular quartz grains, fine even-textured sandstone and carbonaceous siltstone.
	4500-4530	Grey-buff arkosic siltstone and sandstone with abundant carbonaceous matter, some chlorite.
	4530-4548	Grey-buff arkosic siltstone and sandstone with some very coarse quartz grains.
10	4548-4559	4550 feet. Buff somewhat arkosic sandstone with medium angular quartz grains, fairly tightly packed, with only a small amount of cementing material. Occasional sub-rounded grey quartz grains and dark grey carbonaceous silty particles. 4557 feet. Light buff-white sericitic sandstone with brown silty areas carrying abundant muscovite.
	4560-4570	Buff arkosic sandstone and siltstone with abundant carbonaceous matter and some coarse quartz grains.

Core	Depth (feet)	Lithology
	4570-4580	Sandstone and siltstone as above; blue opaline quartz grain.
	4580-4600	Sandstone and siltstone as aobve, quartz grains of very variable grain size, large grains with fractured surfaces.
	4600-4620	Buff medium grained arkosic sandstone with minor coarse grains and some chlorite.
	4620-4670	Buff medium grained sandstone with green clay minerals.
	4670-4680	Buff medium and fine sandstone with plant remains, mica.
	4680-5010	Grey-buff carbonaceous siltstone and sandstone.
	5010-5020	Buff coarse to fine loosely consolidated sandstone with patches of siltstone, plant remains and coaly fragments.
	5020-5030	Sandstone and siltstone as above with abundant plant remains.
	5030-5059	Sandstone as above; minor siltstone.
11	5059-5069	Fine light grey-white micaceous sandstone with medium even-sized angular quartz grains and patches of carbonaceous siltstone with plant remains. The sandstone is loosely consolidated and crumbles easily.
	5069-5100	Fine light grey micaceous sandstone with siltstone patches, banded in parts.
	5100-5110	Light grey carbonaceous siltstone and fine to coarse arkosic sandstone with muscovite, laminated in places. Plant remains plentiful.
	5110-5120	Grey finely cross bedded and banded siltstone and sandstone with coal fragments, mica, carbonized plant remains.
	5120-5130	Siltstone and sandstone as above, with some coarse grains. Quartz grains in sandstone angular with fractured surfaces. Some lamin-

Core	Depth (feet)	Lithology
		ation. Matrix arkosic.
	5130-5150	Coarse to fine sandstone and siltstone with coal fragments.
	5150-5160	Dark grey carbonaceous siltstone and sandstone with carbonized plant remains and coal.
	5160-5170	Coal and carbonaceous siltstone. Some arkosic sandstone (?cavings).
	5170-5180	Dark grey micaceous siltstone. Fine arkosic sandstone.
	5180-5190	Fine dark grey carbonaceous sandstone with arkosic sandstone and micaceous siltstone. Abundant plant remains minor coal fragments.
	5190-5250	Dark grey micaceous siltstone with abundant plant remains, fine arkosic sandstone with angular to subangular grains and coaly patches. Some coarse grains.
	5250-5270	Dark grey carbonaceous mudstone and siltstone with coal fragments and abundant plant remains. Minor arkosic sandstone (?cavings)
	5270-5290	Dark grey carbonaceous siltstone with coal fragments. Some chips of banded arkosic sandstone.
	5290-5310	Grey arkosic sandstone with medium angular to subangular quartz grains. Carbonaceous siltstone with some coal.
	5310-5320	Grey carbonaceous siltstone and sandstone with some banding.
	5320-5340	Medium arkosic sandstone and siltstone with carbonaceous bands.
	5340-5360	Dark brown-grey carbonaceous siltstone and fine arkosic sandstone.
	5360-5370	Siltstone as above, some coal fragments.
	5370-5380	Dark brown-grey very carbonaceous sandy siltstone and medium arkosic sandstone, coaly matter and abundant carbonized plant remains.

Core	Depth (feet)	Lithology
	5380-5430	Grey medium arkosic sandstone with carbonized plant remains, and dark brown-grey siltstone.
	5430-5470	Dark grey carbonaceous siltstone and arkosic sandstone.
	5470-5490	Light grey arkosic sandstone and dark carbonaceous siltstone.
	5490-5500	Light grey sandstone with medium to coarse quartz grains, angular with fractured surfaces and crystal faces. Minor siltstone.
	5500-5520	Fine carbonaceous sandstone, somewhat arkosic with angular quartz grains abundant plant remains. Carbonaceous siltstone and some coarse angular sandstone.
	5520-5540	Coarse angular loosely compacted sandstone and carbonaceous siltstone. Grain size variable.
	5540-5550	Coarse, angular, somewhat arkosic sandstone.
	5550-5569	Medium coarse angular quartz sandstone, somewhat arkosic. Grey carbonaceous siltstone with plant remains.
12	5569-5579	Buff white sandstone with large patches of carbonaceous matter. The sandstone is friable and consists of even-sized quartz grains with very little cementing matter.
	5579-5590	Medium-coarse angular quartz sandstone, some coarse grains and chips of calcareous sandstone.
	5590-5600	Coarse angular sandstone with little cement and patches of brown siltstone.
	5600-5610	Medium to coarse angular sandstone and carbonaceous siltstone. Some coarse grains, coarse grey quartz (angular) and opaline quartz.
	5610-5620	Medium to coarse angular sandstone with small amount of kaolinitic cement, some carbonaceous

Core	Depth (feet)	Lithology
		banding. Carbonaceous siltstone fragments and some coal.
	5620-5630	Medium angular arkosic sandstone, carbonaceous sandstone and siltstone. Green grains, coal fragments, calcite with cone-in-cone structure.
	5630-5640	Coarse angular quartz sandstone with kaolinitic cement. Some green grains ferro-magnesian mineral and chlorite.
	5640-5650	Coarse arkosic sandstone and carbonaceous siltstone with coaly matter, siderite.
	5650-5670	Coarse arkosic sandstone and coarse angular quartz sandstone with interlocking grains, carbonaceous siltstone.
	5670-5680	Medium-coarse arkosic sandstone with angular grains and thin veins of coal. Fragments of arkosic sandstone with occasional pyrite, ferromagnesian minerals, light green grains. Chips of carbonaceous siltstone.
	5680-5700	Coarse to medium arkosic sandstone with variable grain size. Some chips of calcareous siltstone and carbonaceous siltstone and coal fragments.
	5700-5750	Medium arkosic sandstone interbedded with siltstone.
	5750-5770	Sandstone and siltstone as above; very coarse angular quartz grains and thin bands of coal.
	5770-5800	Medium arkosic sandstone with thin coal bands; occasional grains of bright green clay mineral.
	5800-5810	Medium arkosic sandstone with coal particles. Occasional grains of bright green clay mineral, grey quartz, coal.

Core	Depth (feet)	Lithology
	5810-5830	Medium arkosic sandstone with angular quartz, relatively small amount of cement, some coarse grains.
	5830-5840	As above, with coal bands.
	5840-5850	Sandstone as above with coarse subrounded grains of grey quartz.
	5850-5860	Sandstone as above, coarse quartz grains more abundant.
	5860-5870	Arkosic sandstone and silty sandstone. Brown silty matter in matrix, quartz grains angular.
	5870-5880	As above, with coal fragments.
	5880-5890	Arkosic sandstone with quartz grains of varying size, some coarse subrounded grey quartz grains.
	5890-5900	Arkosic sandstone with quartz grains of varying size. Coal fragments.
	5900-5910	Arkosic sandstone with quartz grains of varying size, coarse grey subangular grains common. Abundant coarse slightly milky quartz.
	5910-5920	Sandstone as above but finer grained on the whole with fine to medium quartz grains. Many coarse quartz grains and thin coal band.
	5920-5930	Grey sericitic siltstone and sandstone; chips of arkosic sandstone.
	5930-5950	Grey sericitic siltstone and fine to medium micaceous sandstone.
	5950-5960	Grey sericitic siltstone and arkosic sandstone with occasional glauconite grain.
	5960-5970	Dark grey sericitic siltstone and arkosic sandstone with fine angular grains in fine matrix. Fine carbonaceous bands and coal nodule in siltstone.
	5970-5990	Fine white sandstone and grey siltstone; sandstone with tourmaline and other heavy

Core	Depth (feet)	Lithology
		minerals. Brownish nodules.
	5990-6000	Light grey dolomitic sandstone with abundant brownish nodules and dark grey siltstone. Some red siltstone.
	6000-6010	Grey white arkosic sandstone and dolomitic siltstone with fine muscovite and brownish nodules.
	6010-6020	White medium fine arkosic sandstone and dark grey siltstone. Some light grey dolomitic siltstone.
	6030-6050	Arkosic sandstone, green siltstone, and red siltstone.
	6050-6060	White fine grained arkosic sandstone. Some carbonaceous siltstone and green sericitic siltstone.
	6060-6079	White fine grained arkosic sandstone with red siltstone. Abundant brown nodules in green siltstone.
13	6079-6089	6080' Very fine grained grey siliceous shale with sericite, muscovite and pyrite. 6081'6" Chocolate sericitic shale band. 6087' Light grey white very fine sandstone with fine angular quartz grains in a very fine ground mass.
	6089-6100	White arkosic sandstone.
	6100-6110	White arkosic sandstone with minor red and pale-green siltstone.
	6110-6140	Fine-white arkosic sandstone with angular quartz grains. Dolomitic siltstone and some coal.
	6140-6150	Grey dolomitic siltstone, arkosic sandstone, some chocolate siltstone.
	6150-6170	Grey-white arkosic sandstone with medium angular to subangular quartz grains with

Core	Depth (feet)	Lithology
		fractured surfaces and crystal faces. Carbonaceous matter and occasional black heavy mineral grains. Probable cavings of siltstone and dolomitic siltstone.
	6170-6180	Grey-white arkosic sandstone and green-grey sericitic siliceous siltstone with nodules. Some red siltstone with green and red mottling.
	6180-6190	Grey-white arkosic medium sandstone. Grey carbonaceous siltstone. Green-grey sericitic siltstone with brown nodules. Red siltstone with green mottling.
	6190-6200	Green-grey sericitic siliceous siltstone with some brown nodules; grey-white arkosic sandstone, red and mottled siltstone.
	6200-6210	Greenish grey and red sericitic siliceous siltstone with nodules. Grey-white arkosic sandstone.
	6210-6220	Grey-white arkosic sandstone, some carbonaceous siltstone green siltstone and red siltstone.
	6220-6230	Arkosic sandstone, grey siltstone, red siltstone carbonaceous siltstone and coal fragments.
	6230-6240	Dark grey carbonaceous siltstone and coal matter. Grey and red sericitic siltstone; arkosic sandstone.
	6240-6250	Red and grey sericitic siltstone. Grey-white arkosic sandstone.
	6250-6260	Grey white sandstone. Grey and red sericitic siltstone. Some carbonaceous siltstone.
	6260-6270	Red and green sericitic siltstone. White arkosic sandstone. Some coal fragments.
	6270-6280	White sandstone, green-grey and red sericitic siltstone.
	6280-6290	Red and green sericitic siltstone. Carbonaceous siltstone. White arkosic sandstone.

Core	Depth (feet)	Lithology
	6290-6340	Red and green siltstone, white sandstone, some carbonaceous matter.
	6340-6350	White medium arkosic sandstone, red and green siliceous siltstone.
	6350-6360	Green and red siliceous siltstone, white sandstone and carbonaceous siltstone.
	6360-6380	Green and red siliceous siltstone with brown nodules and white sandstone. Some carbonaceous siltstone.
	6380-6390	White sandstone; red and green siltstone as above.
	6390-6400	Green and red siltstone and white sandstone. Some carbonaceous mudstone.
	6400-6410	Grey-white sandstone. Green-grey and red siltstone.
	6410-6440	Red and green siltstone and white sandstone.
	6440-6450	Green and red siltstone. Some sandstone and carbonaceous siltstone.
	6450-6480	Green and red siltstone and grey-white sandstone.
	6480-6541	Red and green siliceous siltstone, some sandstone.
14	6541-6552	Recovery 10.7 feet. 6541'2" Grey dolomitic sericitic siltstone 6543' Fine grained grey silty sandstone with angular quartz grains, muscovite flakes, some red mottling. 6544' Fine grained grey sandstone with green glauconite grains, angular quartz grains and muscovite. 6545'6" Grey very fine grained sandstone grading to siltstone with abundant muscovite. 6547' Very fine grained grey sericitic siltstone with microscopic brown ring structure

Core	Depth (feet)	Lithology
		varying from circular to irregular, but mostly circular. Bedding irregular, slumping evident.
		6548' Grey dolomitized sericitic sandstone with silty patches, and pyrite. Some irregularity of bedding, slumping. Small nodules.
		6549' Chocolate siltstone with some grey mottling. Nodules.
		6550+2" Grey dolomitized sericitic sandstone.
	6553-6570	Green and red dolomitized siltstone. Core turns olive green on exposure.
	6570-6620	Green and red siltstone and light grey sandstone. Some carbonaceous siltstone.
	6620-6640	Light grey very fine sandstone with carbonaceous fragments; green and red siltstone.
	6640-6650	Green and red siltstone and sandstone. Carbonaceous siltstone.
	6650-6660	Green and red siltstone; carbonaceous fragments.
	6660-6670	Green and red fine sandstone and siltstone with carbonaceous matter.
	6670-6680	Fine light grey-white sandstone consisting of fine angular quartz grains in a fine ground mass, carbonaceous matter, green glauconite grains, red and green siltstone.
	6680-6700	As sample above. Sandstone fine to medium grained.
	6700-6750	Fine light grey-white sandstone, medium-grained, with some carbonaceous fragments and red and green siltstone.
	6750-6770	Dark grey carbonaceous siltstone, some sandstone chips, a little green-grey and red siltstone.

Core	Depth (feet)	Lithology
	6770-6800	Dark grey carbonaceous siltstone with plant fragments in a fine ground mass. Sandstone as above; red and green sericitic siltstone.
	6800-6810	Carbonaceous siltstone and fine light grey sericitic sandstone. Red and green siltstone.
	6810-6821	Grey white arkosic sandstone with carbonaceous patches. Medium angular quartz grain with fractured faces. Carbonaceous siltstone. Red and green siltstone.
15	6821-6847	Recovery 16.4 feet.

The sediments are strongly crossbedded from 6822 feet.

6821' Dark grey carbonaceous siltstone.

6822' Dark grey carbonaceous siltstone, abundant muscovite, some cross-bedding and slumping.

6823' Dark grey carbonaceous silty sandstone slumping and crossbedding evident, abundant black coal material on bedding planes, medium angular quartz grains and coarse subrounded grains.

6824' Buff-grey arkosic sandstone, fine fairly even sized angular quartz grains, muscovite carbonized plant remains on bedding planes.

6825' Buff-grey arkosic cross-bedded sandstone, with muscovite and abundant carbonaceous matter on bedding planes.

6826-7' As 6825', cross-bedding evident, carbonaceous matter abundant.

6828' As 6826-7' with abundant muscovite.

6829' Buff-grey arkosic cross-bedded sandstone, even sized fine to medium quartz grains, abundant muscovite, carbonaceous matter on bedding planes.

Core	Depth (feet)	Lithology
		6830' Dark grey sandstone as above, size of quartz grains variable from fine and angular to coarse subrounded, coaly matter and muscovite.
		6831' As 6830', with bands of coal.
		6831'6"- 6833' Dark grey sandstone, irregularly bedded with thin irregular patches of coal throughout.
		6834' Dark grey sandstone, cross-bedding at about 30°, thin coal bands.
		6835' Dark grey sandstone, somewhat coarser grained and arkosic, patches of coal.
		6836' Core lost.
		6837' Medium to coarse grained arkosic sandstone with thin coal bands.
	6847-6870	Dirty white arkosic sandstone with medium and some coarse quartz grains, carbonaceous siltstone and grey and red siltstone. Coal fragments.
	6870-6890	Coal.
	6890-6897	Buff-grey arkosic sandstone, coal fragments, mottled red and grey sericitic siltstone with light brown nodules.
16	6897-6902	Recovery 4.9 feet.
		6897' Buff-grey fairly fine arkosic sandstone, irregularly bedded with muscovite and bands of coal.
		6897'6" An intraformational conglomerate band 1¼" wide with pebbles up to 1¼" long. Pebbles of various origin, some milky quartz, one pebble 0.9" of blue-grey quartz. One pebble of sandstone with heavy mineral bands probably derived from formation represented in Core 17.

Core	Depth (feet)	Lithology
		6898'-6899' Fine grained buff grey arkosic sandstone with muscovite.
		6900' Buff-grey coarse grained arkosic sandstone with coarse blue-grey quartz grains.
		6901'-6902' Buff-grey coarse arkosic sandstone with blue-grey quartz grains. Cross bedding evident.
	6902-6910	Grey and red sericitic siltstone with light brown nodules.
	6910-6940	Green-grey dolomitic siltstone, white arkosic sandstone and red siltstone.
	6940-6950	Medium carbonaceous sandstone with pyrite; pale grey and red mottled sericitic siltstone, coal;
	6950-6960	Medium carbonaceous sandstone, pale green-grey siltstone and some large sub-rounded quartz grains in a fine matrix.
	6960-6980	Light grey siltstone and fine sandstone. Carbonaceous siltstone, red siltstone.
	6980-6990	Grey dolomitic sandstone and siltstone.
	6990-7000	White kaolinitic sandstone, grey siltstone, chocolate siltstone and carbonaceous siltstone.
	7000-7010	Medium to coarse kaolinitic sandstone with angular grains, chocolate siltstone, coal, carbonaceous siltstone, grey siltstone, some coarse quartz grains.
	7010-7030	Fine dolomitic silty sandstone with heavy mineral banding, glauconite. Cavings of coarse kaolinitic sandstone, coal and carbonaceous siltstone.
	7030-7050	Coarse pyritic sandstone, sericitic siltstone, carbonaceous siltstone (cavings), coarse quartz grains.
	7050-7060	Grey dolomitic siltstone, minor sandstone.

Core	Depth (feet)	Lithology
	7060-7070	Grey dolomitic siltstone and sericitic siltstone. Pyrite, red siltstone, carbonaceous matter, coal (cavings)
	7070-7080	Grey siltstone with arkosic sandstone and red sericitic siltstone.
	7080-7090	Coarse arkosic sandstone with grains of variable size. Siltstone with coarse subrounded and subangular grains.
	7090-7100	Pale green sandy siltstone with heavy mineral bands; grey-buff kaolinitic medium coarse sandstone. Laminated carbonaceous siltstone with plant remains (cavings).
	7100-7110	Light grey pyritic siltstone and micaceous siltstone, some red siltstone.
	7120-7160	Dark grey sericitic siltstone with some red mottling.
	7160-7180	Light grey micaceous siltstone, red micaceous siltstone, with white arkosic sandstone and fine grained quartzite.
	7180-7194	Light grey micaceous siltstone, dark fine-grained mudstone, light greyOwhite sandstone with glauconite, little red siltstone.
17	7194-7207	Recovery 10.7 feet.
		7194' Grey dolomitic silty sandstone with medium quartz grains in a fine ground mass. Green glauconite grains and flecks of what may be carbonaceous matter.
		7195-7196' As 7194'. Dip of 30°.
		7197-7198' Grey dolomitic sandy siltstone with medium quartz grains in a fine ground mass. Glauconite and heavy mineral grains in conspicuous bands. Cross bedding and slumping.
		7199' At 7199' a 1-foot band of light grey quartzite with silt slumping. Heavy mineral bands and bright green glauconite.

Core	Depth (feet)	Lithology
		7200' Dark grey siltstone.
		7200-7204' Paler grey quartzite. General dip of 30°, heavy mineral banding.
		7205' Light bluish-grey quartzite with glauconite and heavy minerals, angular quartz grains in fine ground mass.
	7207-7240	Light grey dolomitic silty sandstone grey siltstone, red siltstone and micaceous siltstone.
	7240-7260	Red and grey siltstone as above and white sandstone.
	7260-7270	Grey-green micaceous siltstone and red siltstone.
	7270-7290	Mostly whitish sandstone with some red and grey siltstone.
	7290-7310	Green-grey siltstone, red sandstone, white glauconitic sandstone.
	7310-7320	Red and green siltstone and white sandstone.
	7320-7360	Green-grey micaceous siltstone, red micaceous siltstone, calcareous fine sandstone with glauconite.
	7360-7370	Red calcareous siltstone.
	7370-7380	Grey siltstone with brown nodules.
	7380-7400	Grey and red siltstone and sandstone.
	7400-7410	Dark grey micaceous siltstone.
	7410-7430	Grey siltstone and sandstone as above with glauconite. Red micaceous siltstone.
	7430-7450	Red micaceous siltstone with some grey siltstone.
	7450-7477	Red and grey micaceous siltstone and sandstone Some siltstone consists of scattered quartz grains in very fine ground mass. Sandstone with abundant glauconite.

Core	Depth (feet)	Lithology
18	7477-7490	7477' Light grey dense limestone, dip 30°, well bedded with abundant heavy mineral grains and green glauconite. Few quartz grains in matrix, brown flakes of thin biotite wrapped around quartz grains. 7478-7479' Well-bedded light grey dense limestone with plant remains, pyrite, (?) glauconite. 7479'6" Light grey dense calcareous sandstone or sandy limestone with angular quartz grains in fine ground mass. 7480' As 7479'6", with abundant green (?) glauconite and biotite. 7481' Well bedded light grey dense limestone with abundant heavy minerals, ? carbonaceous matter, chlorite, (?) glauconite. 7482' Chocolate and grey mottled sandy limestone. Chocolate mottling apparently due to chemical action. Angular (some coarse) quartz grains in calcitic matrix. Graphitic material, mica fairly abundant. 7482'6" Mottled grey and chocolate sandy limestone with medium quartz grains in a fine ground mass containing muscovite. 7483'-7484' Chocolate and grey irregularly mottled sandy limestone, bedding not obvious megascopically. 7485' Grey and chocolate mottled calcareous sandstone, quartz grains of varying size and angularity, some well rounded, in calcareous matrix. Minute shell fragments occur occasionally in the matrix. 7486' As 7485', rare shell fragments, only visible microscopically.

Core	Depth (feet)	Lithology
		7487' As 7485', brown fragment of what may be Lingula but not identified with certainty.
	7490-7500	Red siltstone and white sandstone with glauconite.
	7500-7510	Red micaceous siltstone.
	7510-7530	Red and grey calcareous micaceous siltstone.
	7530-7540	Red micaceous calcareous siltstone, green-grey siltstone and white sandstone with glauconite.
	7540-7550	Red and grey fine sandstone with glauconite, red and grey micaceous siltstone.
	7550-7560	Red and grey micaceous and calcareous siltstone, red sandstone.
	7560-7580	Grey sericitic siltstone and red calcareous siltstone.
	7580-7610	Red and grey mottled sericitic siltstone, calcareous in part.
	7610-7650	Red and grey-green sericitic siltstone mostly non-calcareous.
	7650-7690	Red calcareous and micaceous siltstone, green micaceous siltstone.
	7690-7720	Red and green-grey calcareous sandstone and micaceous calcareous siltstone. Glauconite abundant in grey sandstone and siltstone; present in red siltstone. Abundant brown nodules.
	7720-7750	Red and grey calcareous micaceous siltstone.
	7750-7770	Red calcareous siltstone.
	7770-7790	Red calcareous siltstone and green-grey glauconitic sandstone.
	7790-7810	Red fine calcareous sandstone with glauconite.
	7810-7820	Red and grey micaceous siltstone.
	7820-7835	Depth correction - no sample.

Core	Depth (feet)	Lithology
	7835-7850	Red and green-grey calcareous sandy siltstone.
	7850-7870	Red fine calcareous sandstone and siltstone; some gypsum.
	7870-7890	Red calcareous micaceous siltstone with fine calcite veins.
	7890-7910	Red siltstone and white sandstone with glauconite.
	7910-7917	Red calcareous and micaceous sandy siltstone.
19	7917-7924	Recovery poor.
		7917' Banded red and mottled green and red calcareous and micaceous sandy siltstone with numerous worm burrows.
		7918' Red calcareous siltstone; no bedding evident but worm tracks present.
		7919' Red calcareous sandy siltstone with some mottling. Cross bedding: worm tracks.
		7920! Red calcareous sandy siltstone with abundant mica. Subrounded quartz grains in a fine ground mass; heavy mineral banding.
		7921-22'Red calcareous sandy micaceous siltstone with fine quartz grains and mica fragments in a fine calcareous ground mass. Some slumping, a little mottling-green patch with glauconite.
		7924' Mottled red and grey calcareous sandy siltstone. Glauconite visible in green patches.
	7924-7940	Light grey-white and buff sandstone with glauconite, red calcareous siltstone.
	7940-7960	Medium red-buff sandstone, red micaceous siltstone and green siltstone. Calcareous.
	7960-7970	Light buff sandstone, chocolate micaceous siltstone and green siltstone.
	7970-7980	Light red calcareous siltstone and fine sandstone.

Core	Depth (feet)	Lithology
	7980-7995	Buff, cream and reddish sandstone with glauconite; some chocolate and green siltstone; calcareous.
20	7995-8016	Recovery 9.4 feet. Dip 23° to 25° 7996' Red micaceous slightly calcareous siltstone with worm burrows. Red micaceous calcareous siltstone; some grey patches. 7996-7 Red cross bedded calcareous nad micaceous sandstone with some siltstone and slumping. Abundant mica. Worm burrows at 7997 feet. Burrows lack mica. 7998-9' Red cross-bedded calcareous sandstone and siltstone; heavy mineral banding. 8000' Massive red calcareous sandstone, finely current bedded and interbedded with micaceous siltstone with some small green patches; quartz grains in fine tight ground mass; some glauconite. 8001' Massive red calcareous sandstone, cross-bedded; some green mottling. 8002' Red calcareous siltstone with worm burrows. 8003' Red siltstone with conspicuous slumping; some sandstone. 8004' Massive grey-red calcareous and micaceous sandy siltstone.
	8016-8030	Red calcareous siltstone and mudstone; buff sandstone with glauconite.
	8030-8050	Red-buff and light buff sandstone and minor micaceous siltstone, Calcareous.
	8050-8060	Whitish sandstone with glauconite; buff sandstone; chocolate siltstone. Calcareous.

Core	Depth (feet)	Lithology
	8060-8080	Red siltstone and buff sandstone. Calcareous.
	8080-8090	White and buff sandstone (glauconitic); chocolate calcareous siltstone and green siltstone.
	8090-8100	Chocolate red calcareous siltstone and mudstone; green siltstone; some buff sandstone.
	8100-8110	Chocolate red calcareous siltstone; some green siltstone. Buff and white siltstone with glauconite.
	8110-8120	Red calcareous mudstone and siltstone; green siltstone; buff and green-white sandstone.
	8120-8130	Buff and white glauconitic sandstone. Chocolate siltstone and green siltstone. Calcareous.
	8130-8140	Red micaceous and calcareous siltstone and buff sandstone. White sandstone with glauconite and green siltstone.
	8140-8150	Red calcareous siltstone; green siltstone; buff sandstone and white sandstone with glauconite.
	8150-8160	Red calcareous siltstone and mudstone; green siltstone; buff sandstone.
	8160-8170	Chocolate calcareous siltstone and fine red-buff sandstone with glauconite and mica.
	8170-8180	Grey-buff sandstone-very micaceous - and grey-white sandstone.
	8180-8190	Light chocolate micaceous siltstone greenish siltstone and fine sandstone.
	8190-8217	Chocolate micaceous and calcareous siltstone and fine sandstone. Green siltstone.
21	8217-8237	8217-8 Massive red and green-grey mottled calcareous siltstone, fine quartz grains and mica scattered in dense, fine ground mass. 8219 Massive red calcareous siltstone, no bedding showing.

Core	Depth (feet)	Lithology
21		8220 Massive red calcareous siltstone, some green patches.
		8222 Massive red calcareous siltstone showing cross-bedding and slumping.
		8223-4 Massive calcareous finely cross-bedded red siltstone.
		8225 Massive calcareous, micaceous in patches, red siltstone, some slumping dip 25°.
		8226 As above, cross-bedded.
		8226'6" As 8225 irregularly cross-bedded, bedding rather undulating
		8227' Very micaceous red siltstone, some mottling, very slightly calcareous.
		8228-9 Red calcareous siltstone with cross-bedding and slumping, mud pellets.
		8230 As above, but irregularly bedded, some mottling; calcareous bands.
		8231 Red micaceous siltstone.
		8232-3 Massive siltstone with alternate dark and light red bands, well but irregularly bedded dip 25°.
		8234 Red and green mottled siltstone, micaceous in patches. A good deal of mud slumping and some doubtful worm tracks.
		8235 Red and green-grey siltstone; worm tracks on green band.
		8236 Massive red cross-bedded micaceous calcareous siltstone.
		8237 Dense and massive green-grey micaceous siltstone with calcite veining.
	8237-8260	Red and green calcareous siltstone. White sandstone with glauconite.
	8260-8280	Red calcareous, siltstone, buff sandstone and grey siltstone.

Core	Depth (feet)	Lithology
	8280-8290	Buff sandstone and red siltstone. Green-grey siltstone.
	8290-8300	Chocolate calcareous siltstone and mudstone. Minor buff sandstone.
	8300-8310	Buff and white sandstone with glauconite. Some chocolate siltstone and green siltstone. Calcareous.
	8310-8330	Chocolate siltstone and buff sandstone with fairly abundant glauconite.
	8330-8340	Buff and white sandstone with glauconite. Some chocolate siltstone and green siltstone.
	8340-8350	Chocolate siltstone and pink-buff sandstone. Some chocolate mudstone.
	8350-8360	Buff sandstone with glauconite. Chocolate and green siltstone, some chocolate mudstone.
	8360-8380	Chocolate siltstone and buff sandstone.
	8380-8392	Buff sandstone and chocolate siltstone.
22	8392-8415	8392 Red massive calcareous siltstone with gypsum. 8393-5 Red massive calcareous siltstone, slump structures. 8395 Red massive siltstone, some green-grey mottling; worm burrows. Calcareous. 8396-8402 Red micaceous siltstone, some green mottling at 8400. Calcareous. 8403-5 Massive red calcareous siltstone, bedding evident. 8406 Red bedded calcareous siltstone, worm burrows. Dip 25°. 8407' Red micaceous siltstone with worm burrows and fine cross bedding. Calcareous. 8408-11 Red massive siltstone, considerable slumping. Calcareous. 8412-5 Red banded siltstone with much slumping. Calcareous.

Core	Depth (feet)	Lithology
	8415-8430	Buff sandstone with glauconite and chlorite, chocolate calcareous siltstone.
	8430-8440	Chocolate calcareous siltstone and buff and green sandstone.
	8440-8510	Red and chocolate siltstone and buff and green sandstone.
	8510-8520	Red siltstone and mudstone, some green siltstone and buff sandstone.
	8520-8530	Buff sandstone with glauconite. Green siltstone and chocolate siltstone.
	8530-8550	Red and chocolate mudstone and siltstone; white glauconitic sandstone.
	8550-8560	Red and chocolate siltstone, some white sandstone.
	8560-8570	Chocolate calcareous mudstone and siltstone; some sandstone as above.
	8570-8580	Chocolate calcareous siltstone and buff sandstone.
	8580-8600	Buff sandstone; some siltstone. Calcareous.
	8600-8610	Chocolate calcareous siltstone and mudstone. Green siltstone; some sandstone.
	8610-8620	Chocolate calcareous mudstone and siltstone; green siltstone.
	8620-8630	Buff sandstone and chocolate siltstone and mudstone. Calcareous.
	8630-8640	Chocolate calcareous siltstone and buff sandstone.
	8640-8650	Buff and white sandstone with glauconite. Red and chocolate calcareous siltstone and green siltstone.
	8650-8660	Chocolate siltstone and green siltstone. Some buff sandstone.
	8660-8670	As 8640-8650.

Core	Depth (feet)	Lithology
	8670-8680	Buff white and pinkish sandstone with glauconite. Some chocolate siltstone.
	8680-8720	Red calcareous siltstone and mudstone. Some green siltstone and buff sandstone.
	8720-8730	Buff sandstone and chocolate calcareous siltstone. Green siltstone. Calcareous.
	8730-8750	Red siltstone and mudstone, green siltstone, some buff and white sandstone. Calcareous.
	8750-8760	Red, chocolate, and green siltstone. Buff and white sandstone. Calcareous.
	8760 8770	Buff and light green sandstone. Chocolate calcareous siltstone.
	8770-8790	Red mudstone, chocolate and dark grey siltstone. Some buff sandstone. Calcareous.
	8790-8810	Chocolate, calcareous siltstone. Some buff sandstone.
	8810-8820	Grey-white and buff sandstone. Chocolate and green siltstone. Calcareous.
	8820-8830	Chocolate and green siltstone.
	8830-8840	Fine buff-white sandstone (glauconitic) Chocolate siltstone. Cal
	8840-8850	White sandstone and buff sandstone. Red siltstone. Green sericitic siltstone. Red mudstone. Calcareous.
	8850-8870	Chocolate siltstone, buff fine sandstone and green siltstone. Calcareous.
	8870-8879	Red calcareous mudstone. Some chocolate siltstone and green siltstone.
23	8879-8899	8879-8883 Massive red calcareous siltstone, some mica. 8884-8 Green and red mottled calcareous siltstone. 8888-9 Siltstone as above, bedded 8890-1 Bedded red and green siltstone, small slump structures.

Core	Depth (feet)	Lithology
	8892-4	Red calcareous siltstone; slumping
	8895-6	Mottled red and green siltstone.
	8897	Red calcareous siltstone; slumping.
	8898	Red calcareous siltstone.
	8899	Mottled red and green siltstone.
	8900-8910	Red calcareous mudstone; chocolate micaceous siltstone; some buff sandstone.
	8910-8940	Buff fine sandstone; red mudstone and green siltstone. Calcareous.
	8940-8960	Red calcareous mudstone, some sandstone.
	8960-8970	Red calcareous mudstone.
	8970-8990	White and buff sandstone; chocolate calcareous siltstone.
	8990-9000	Chocolate siltstone and mudstone. Green siltstone and buff sandstone.
	9000-9010	Chocolate calcareous siltstone and buff sandstone.
	9020-9030	Buff and white sandstone and chocolate siltstc Some pale green siltstone.
	9030-9040	Red calcareous mudstone and siltstone. Buff sandstone with glauconite.
	9040-9050	Chocolate siltstone and buff fine sandstone with glauconite. Calcareous.
	9050-9090	Red mudstone and chocolate siltstone. Some whitish sandstone.
	9090-9100	Buff sandstone, pale green sandstone and chocolate siltstone. Micaceous.
	9100-9110	Chocolate siltstone, red mudstone and buff-white sandstone.
	9110-9120	Buff sandstone and chocolate siltstone. Calcareous.
	9120-9130	Chocolate siltstone and some dark chocolate mudstone. Little sandstone.
	9130-9140	White and buff sandstone. Chocolate calcareou siltstone.

Core	Depth (feet)	Lithology
	9140-9160	Chocolate siltstone and mudstone. Some sandstone. Calcareous.
	9160-9170	Buff sandstone, chocolate siltstone and mudstone, green siltstone. Calcareous.
	9170-9180	Chocolate, calcareous siltstone; white and buff sandstone with abundant glauconite.
	9180-9200	Chocolate siltstone; some sandstone as above.
	9200-9210	Fine calcareous chocolate and buff sandstone; some siltstone.
	9210-9220	Red calcareous mudstone; some buff sandstone.
	9220-9230	Fine chocolate, buff and whitish sandstone with glauconite. Calcareous.
	9230-9250	Red calcareous mudstone.
	9250-9260	Chocolate-red, calcareous mudstone and buff and white sandstone with glauconite.
	9260-9270	Chocolate siltstone; buff sandstone; green siltstone as above.
	9270-9280	Buff, white and chocolate fine sandstone and chocolate mudstone. Calcareous.
	9280-9300	Buff sandstone and chocolate siltstone.
	9300-9310	White and buff sandstone; green sandstone with glauconite; chocolate siltstone. Calcareous.
	9310-9320	Red calcareous siltstone; buff and white sandstone. Calcareous.
	9320-9330	Buff and green sandstone; chocolate calcareous siltstone.
	9330-9350	Chocolate calcareous siltstone, buff sandstone, mottled green and chocolate mudstone.
	9350-9370	Chocolate micaceous siltstone; green siltstone and buff sandstone. Calcareous.
	9370-9380	Buff-white and green sandstone; chocolate calcareous mudstone.
	9380-9397	Chocolate siltstone and mudstone.

Core	Depth (feet)	Lithology
24	9397-9414	Recovered 9397-9407. 10 feet.
		9397 Chocolate red hard, dense micaceous and calcareous siltstone.
		9398 As above, with slump structures and worm burrows. Red and green mottling.
		9399-9400 Red micaceous and calcareous siltstone and mudstone, some cross bedding. Dip approx. 25°.
		9401 As above; mottling.
		9402 Siltstone as above, finer grained; slumping.
		9403 Siltstone as above, dark bands, some mottling.
		9404 Siltstone as above with fine grained dark red mudstone.
		9405 Siltstone as above; mottling.
		9406 Chocolate micaceous siltstone.
	9414-9440'	Red and chocolate siltstone and mudstone, some sandstone. Calcareous.
	9440-9460	Red siltstone, chocolate mudstone showing slickensiding; green siltstone. Calcareous.
	9460-9470	Very fine calcareous sandstone and siltstone-green and chocolate. Some chocolate mudstone.
	9470-9480	Chocolate calcareous mudstone and siltstone.
	9480-9490	Chocolate calcareous siltstone and buff sandstone.
	9490-9500	Red siltstone and mudstone; some green siltstone and buff sandstone. Calcareous.
	9500-9520	Red calcareous mudstone and chocolate micaceous siltstone; some buff sandstone and green siltstone.
	9520-9530	Buff sandstone; fine chocolate sandstone and siltstone. Calcareous.

Core	Depth (feet)	Lithology
	9530-9550	Chocolate micaceous siltstone; buff glauconitic sandstone; dark chocolate mudstone; some green siltstone. Calcareous.
	9550-9560	Chocolate calcareous siltstone and micaceous mudstone, slickensided, green siltstone and buff sandstone.
	9560-9570	Buff and white calcareous sandstone; chocolate micaceous siltstone.
	9570-9580	Chocolate siltstone and buff and white sandstone. Calcareous.
	9580-9590	Chocolate siltstone, green siltstone, buff sandstone; some chocolate mudstone. Calcareous.
	9590-9630	Buff fine sandstone, chocolate siltstone, green siltstone. Calcareous.
	9630-9650	Chocolate calcareous siltstone and micaceous siltstone. Buff sandstone and green-white sandstone.
	9650-9660	Red calcareous mudstone and buff sandstone; chocolate siltstone.
	9660-9670	Chocolate siltstone and buff sandstone with glauconite.
	9670-9690	Red calcareous mudstone; grey-white sandstone.
	9690-9700	Buff and white sandstone with pyrite and glauconite; chocolate siltstone and mudstone. Calcareous.
	9700-9710	Chocolate calcareous mudstone and siltstone; Buff sandstone and green siltstone.
	9710-9730	Chocolate and green calcareous siltstone; buff and green sandstone.
	9730-9740	Red mudstone, chocolate siltstone, some sandstone. Calcareous.
	9740-9760	Chocolate calcareous and micaceous siltstone. Buff sandstone and green siltstone.
	9760-9790	Red calcareous mudstone. Chocolate siltstone; some sandstone with glauconite.

Core	Depth (feet)	Lithology
	9790-9800	Chocolate calcareous siltstone. Red mudstone, green siltstone and some whitish sandstone.
	9800-9810	White and buff sandstone. Green sandstone, chocolate siltstone. Calcareous.
	9810-9820	Red mudstone, chocolate siltstone. Green sandstone and siltstone.
	9820-9830	Buff and white calcareous sandstone; micaceous chocolate siltstone.
	9830-9840	Chocolate calcareous siltstone; buff and white sandstone. A little green siltstone.
	9840-9850	Chocolate calcareous siltstone and mudstone; buff sandstone and green siltstone.
	9850-9870	White glauconitic sandstone, buff sandstone, chocolate calcareous siltstone, green siltstone.
	9870-9880	Chocolate siltstone, buff and white sandstone; green sandstone with glauconite.
	9880-9887	White glauconitic sandstone, buff sandstone and chocolate siltstone.
25	9887-9910	Recovered 19 feet.
		9890 Chocolate-red calcareous siltstone; fine cross bedding.
		9891-9895 Chocolate red calcareous siltstone with some mottling.
		9896-9898 Chocolate calcareous siltstone with slumping and cross bedding.
		9899-9900 Red and green mottled calcareous siltstone.
		9901 Siltstone as above; worm tracks.
		9902-9909 Red and green mottled calcareous siltstone.
	9910-9920	Chocolate calcareous siltstone; buff sandstone and green siltstone and sandstone.
	9920-9950	Chocolate-red calcareous siltstone; buff sandstone and green siltstone.

Core	Depth (feet)	Lithology
	9950-9960	Buff sandstone, green sandstone, chocolate calcareous siltstone.
	9960-9970	Fine cross-bedded sandstone, chocolate micaceous siltstone, green siltstone, buff sandstone.
	9970-9980	Chocolate micaceous siltstone, green siltstone; white and buff sandstone.
	9980-10010	Buff and white sandstone with glauconite. Chocolate siltstone, green siltstone.
	10010-10020	White sandstone with glauconite. Buff sandstone. Chocolate siltstone and green siltstone.
	10020-10040	Chocolate calcareous siltstone and buff sandstone.
	10040-10050	White glauconitic sandstone and light buff sandstone. Some chocolate and green siltstone.
	10050-10080	Chocolate calcareous siltstone; white sandstone with glauconite; green siltstone.
	10080-10090	Red and chocolate calcareous siltstone, some sandstone and chocolate mudstone.
	10090-10100	Whitish glauconitic and micaceous sandstone. Minor chocolate and green micaceous siltstone
	10100-10110	Light buff fine sandstone and siltstone.
	10110-10130	Chocolate calcareous siltstone and light buff sandstone; some chocolate micaceous siltstone.
	10130-10140	Buff and white sandstone; red and green siltstone.
	10140-10150	Chocolate calcareous siltstone and buff sandstone.
	10150-10160	Chocolate micaceous siltstone. Some green, buff and white sandstone. Calcareous.
	10160-10170	Buff sandstone. Chocolate and green siltstone.
	10170-10190	Fine chocolate and buff sandstone, chocolate siltstone and green siltstone.

Core	Depth (feet)	Lithology
	10190-10210	Fine buff and white sandstone; chocolate micaceous and calcareous siltstone.
	10210-10220	Red and chocolate siltstone. Buff sandstone.
	10220-10230	Red and chocolate calcareous siltstone. Some sandstone and green siltstone.
	10230-10240	Buff and white sandstone; green and chocolate siltstone. Calcareous.
	10240-10250	Chocolate calcareous siltstone. Buff and white sandstone.
	10250-10260	Chocolate micaceous siltstone and green siltstone. Some buff sandstone.
	10260-10270	Buff sandstone; chocolate fine sandstone and siltstone. Calcareous.
	10270-10280	Red calcareous siltstone; buff-white sandstone.
	10280-10300	Chocolate and red calcareous siltstone; buff and white sandstone.
	10300-10320	Chocolate siltstone, buff sandstone, green siltstone.
	10320-10330	Red, chocolate and green calcareous siltstone. Chocolate micaceous siltstone and buff sandstone.
	10330-10340	Red and chocolate calcareous siltstone; some buff sandstone.
	10340-10358	Chocolate and green calcareous siltstone. White and buff sandstone.
26	10358-10381	No recovery from 10358-10359.5 10359.5 Red banded siltstone and mudstone. Slumping. 10360 Red very micaceous banded siltstone and fine sandstone - some slumping and mottling. Dip 25-30 degrees. 10361 Red siltstone and mudstone, mottling slumping and cross bedding, micro ripple marks. 10362 Calcareous mottled siltstone.

Core	Depth (feet)	Lithology
		10363 Mottled siltstone and mudstone - some mica and heavy mineral banding.
		10364 Red calcareous mudstone.
		10365 Red calcareous mudstone with some mottling; worm tracks.
		10366 Red calcareous mudstone; slumping.
		10367 Very calcareous mottled mudstone.
		10368 Red very calcareous mudstone with limestone band; slumping.
		10369-10370 Red very calcareous mudstone; slumping.
		10371 Red and light buff-red banded and irregularly bedded calcareous mudstone; slumping.
		10372 Mudstone as above, mottled.
		10373-10375 Grey-green and red calcareous mudstone, somewhat micaceous, no bedding evident.
		10376-10378 Slightly micaceous red mudstone, calcareous in patches.
		10379-10381 No recovery.
	10381-10390	Red and chocolate calcareous siltstone, some sandstone.
	10390-10400	Red chocolate and green siltstone, some sandstone.
	10400-10420	Light buff, white and green sandstone with glauconite. Dark chocolate siltstone and some micaceous mudstone. Calcareous.
	10420-10430	Dark chocolate and green siltstone; buff sandstone. Calcareous.
	10430-10440	Dark chocolate siltstone, micaceous and calcareous, green siltstone, buff sandstone, chocolate mudstone.
	10440-10460	Red and chocolate calcareous mudstone and siltstone; buff sandstone.

Core	Depth (feet)	Lithology
	10460-10470	Red and chocolate mudstone and siltstone; a little sandstone. Calcareous.
	10470-10480	Chocolate and red micaceous siltstone and buff sandstone; some green siltstone. Calcareous.
	10480-10490	Buff and red sandstone with glauconite; dark chocolate siltstone. Calcareous.
	10490-10500	Red and chocolate micaceous siltstone; chocolate mudstone, green siltstone and buff sandstone.
	10500-10510	Dark chocolate siltstone and mudstone, green siltstone and buff sandstone. Calcareous.
	10510-10520	Chocolate micaceous siltstone, some green mottling; some buff sandstone. Calcareous.
	10520-10530	Chocolate calcareous siltstone; white, pink and buff sandstone; green siltstone; calcite veining.
	10530-10540	Red, chocolate and green micaceous siltstone and mudstone. Calcareous.
	10540-10560	Chocolate and red micaceous siltstone; green siltstone and buff sandstone. Calcareous.
	10560-10570	Buff sandstone, very glauconitic; dark chocolate siltstone, green siltstone. Calcareous.
	10570-10590	Buff and red fine sandstone, chocolate and green siltstone. Calcareous.
	10590-10610	Buff and white calcareous sandstone and chocolate siltstone.
	10610-10620	Chocolate and red siltstone; buff and white sandstone; some green siltstone.
	10620-10630	Red and chocolate calcareous siltstone; green siltstone and buff sandstone.
	10630-10640	Fine light-buff very glauconitic sandstone and chocolate siltstone.
	10640-10650	Chocolate calcareous siltstone; buff sandstone; green siltstone.

Core	Depth (feet)	Lithology
	10650-10660	Buff and pink-red sandstone; chocolate micaceous siltstone; green siltstone.
	10660-10680	Chocolate calcareous siltstone; buff sandstone; green siltstone.
	10680-10690	Chocolate and red calcareous siltstone; some buff sandstone.
	10690-10700	Buff and pink-red sandstone; chocolate micaceous siltstone; green siltstone.
	10700-10710	Chocolate and red calcareous siltstone; buff and red-buff sandstone.
	10710-10740	Red and chocolate calcareous siltstone; buff sandstone.
	10740-10750	Chocolate and green calcareous siltstone; buff sandstone.
	10750-10760	Red mudstone and chocolate micaceous siltstone and green siltstone; buff and white sandstone.
	10760-10770	Chocolate calcareous siltstone; buff sandstone and white glauconitic sandstone.
	10770-10780	Chocolate siltstone and buff sandstone.
	10780-10790	Buff sandstone and white sandstone; chocolate micaceous siltstone.
	10790-10800	Red and chocolate calcareous siltstone; cream and buff sandstone.
	10800-10820	Chocolate and red calcareous siltstone; green siltstone; buff sandstone.
	10820-10850	Red and chocolate calcareous siltstone; cream and buff sandstone.
	10850-10870	Chocolate micaceous siltstone; red siltstone, green siltstone, buff sandstone.
	10870-10881	Dark chocolate calcareous siltstone; green siltstone and buff sandstone.
27	10881-10897	10881-2 Red calcareous mudstone - slumping. 10883 Red calcareous mudstone - slumping and mottling.

Core	Depth (feet)	Lithology
		10884 Red very calcareous mudstone, buff mottling..
		10885 Red calcareous mudstone, with calcite veining. Micaceous siltstone.
		10886 Mudstone as above; heavy mineral banding.
		10887. Calcareous micaceous siltstone.
		10888 Red calcareous mudstone; some fracturing and veining.
		10889-10892 Red calcareous mudstone with fine cross bedding.
		10893 Fine even-grained calcareous siltstone.
		10894-10895.8 Mottled green and red calcareous siltstone.
	10897-10920	Chocolate and red micaceous siltstone; green siltstone and buff sandstone.
	10920-10950	Chocolate calcareous siltstone; buff sandstone.
	10950-10960	Chocolate and green siltstone; buff sandstone.
	10960-10970	Red and chocolate siltstone; green siltstone and buff sandstone.
	10970-11000	Buff and white sandstone, chocolate calcareous and micaceous siltstone.
	11000-11020	Chocolate micaceous siltstone; green siltstone, buff sandstone. Calcareous.
	11020-11040	Red and chocolate siltstone; green siltstone, buff sandstone. Calcareous.
	11040-11060	Chocolate siltstone; green siltstone, buff sandstone. Calcareous.
	11060-11070	Buff sandstone and greenish white glauconitic sandstone. Chocolate siltstone and green siltstone.
	11070-11080	Chocolate micaceous siltstone; red and green siltstone and buff sandstone.

Core	Depth (feet)	Lithology
	11080-11090	Red calcareous siltstone, chocolate siltstone, some white and buff sandstone.
	11090-11100	Chocolate micaceous siltstone, red siltstone and buff sandstone.
	11100-11120	Chocolate micaceous siltstone, green siltstone and buff sandstone. Calcareous.
	11120-11130	Chocolate micaceous siltstone and red siltstone; buff sandstone.
	11130-11140	Red and chocolate calcareous siltstone; green siltstone and buff sandstone.
	11140-11160	Chocolate micaceous siltstone, green siltstone and buff sandstone. Calcareous.
	11160-11180	Chocolate and red calcareous siltstone, green siltstone and buff sand.
	11180-11190	Chocolate and green calcareous siltstone, green siltstone and buff sandstone.
	11190-11200	Chocolate and green calcareous siltstone; some buff sandstone.
	11200-11210	Chocolate calcareous siltstone, red siltstone, green siltstone, some buff sandstone.
	11210-11220	Green siltstone, buff sandstone and minor chocolate siltstone. Calcareous.
	11220-11230	Chocolate micaceous siltstone, green siltstone and buff sandstone. Calcareous.
	11230-11240	Chocolate siltstone; green siltstone and buff sandstone. Calcareous.
	11240-11250	Red and chocolate calcareous siltstone and mudstone. Some buff sandstone.
	11250-11260	Chocolate and red calcareous siltstone, green siltstone and buff sandstone.
	11260-11270	Chocolate siltstone and green mudstone, buff sandstone. Calcareous.
	11270-11280	Red and chocolate calcareous siltstone, green siltstone and buff sandstone.

Core	Depth (feet)	Lithology
	11280-11300	Chocolate and green micaceous siltstone.
	11300-11310	Chocolate and red calcareous siltstone, some green siltstone and buff sandstone.
	11310-11340	Chocolate and green siltstone; buff sandstone. Calcareous.
	11340-11350	Chocolate, red and green siltstone; buff sandstone.
	11350-11360	Green-white glauconitic sandstone, green siltstone, chocolate siltstone and red mudstone.
	11360-11380	Red and chocolate calcareous siltstone; buff sandstone.
	11380-11396	Red siltstone and mudstone; buff sandstone and green siltstone. Calcareous.
28	11396-11399	Chocolate calcareous siltstone with calcite veins, some mottling.
29	11399-11423.5	11399 Chocolate dense finely cross-bedded calcareous siltstone, fine shearing, calcite veins. 11400 Banded chocolate and blue-grey fine sandstone, fractured, slickensided. 11400.5-11401 Fine-grained chocolate mudstone, slickensiding. 11402 Mottled and cross-bedded chocolate, buff and green calcareous siltstone and mudstone, slickensided and fractured. 11403-4 Banded and cross-bedded calcareous sandy siltstone and mudstone with calcite veining, fracturing and slickensiding. 11405 Chocolate mudstone, slickensided, nodules on bedding planes. Calcite infilling of ? trails. 11406-11410 Chocolate calcareous mudstone, some mottling and shearing.

Core	Depth (feet)	Lithology
		11411-11416 Chocolate and greenish-grey mottled calcareous siltstone, much slumping, calcite veining and slickensiding.
		11417-8 Mottled chocolate and grey calcareous mudstone and siltstone. Much slumping.
		11419 Chocolate and grey strongly cross-bedded micaceous siltstone.
		11420-11421 Coarsely banded chocolate calcareous mudstone.
		11421-11423.5 Chocolate and grey-green calcareous mudstone with calcite veining and slickensiding.
30	11423.5-11454	11423.5-11424 Cross bedded chocolate and buff calcareous fine sandstone with irregular limestone bands and calcite stringers across bedding planes; fracturing, slumping; micaceous patches.
		11425-11428 Chocolate calcareous mudstone Dip 32°.
		11429-11432 Chocolate and green-grey mottled calcareous siltstone, calcite veining, micaceous patches. Dip 51° at 11429 feet, 47° at 11432 feet.
		11433 Chocolate and green banded calcareous siltstone.
		11434 Chocolate and green banded calcareous siltstone and mudstone, considerable fracturing.
		11435-11438 Chocolate and green mottled calcareous and micaceous siltstone and mudstone. Dip 28° at 11438 feet.
		11439 Chocolate micaceous and slightly calcareous mudstone with possible worm burrows.

Core	Depth (feet)	Lithology
		11440-11443 Mudstone as above, with calcite veins slumping and fracturing.
		11444 Chocolate and green cross-bedded siltstone and mudstone, non-calcareous. Dip 35°.
		11445 Banded and moderately cross-bedded chocolate and buff calcareous mudstone and siltstone. Slumping, calcite stringers and worm burrows.
		11446 Mottled chocolate and green calcareous siltstone and sandstone, fracturing and calcite veining.
		11447 Cross-bedded fine sandstone and siltstone. Dip 75°.
		11448 Chocolate mudstone. Dip 38°.
		11449-11454 Chocolate and green-grey mottled mudstone, slightly micaceous, poorly bedded non-calcareous, conchoidal fracturing.
31	11455-11469	11455-11458 Chocolate and green-grey mottled calcareous mudstone, with worm burrow. Dip 31°.
		11459-11462 Light chocolate calcareous sandstone with lenticular patches on bedding plane. Calcite veins. Dip 34° at 11460, 31° at 11462.
		11462-11465 Light grey to chocolate calcareous sandstone as above, fractures and small fault. Calcite veins.
		11465.5-11466 Mottled reddish chocolate and grey calcareous siltstone.
		11467-11469 Light grey to chocolate calcareous sandstone with calcite bands and veins.
32	11506-11544	11506-11507 Massive cross-bedded calcareous sandstone. Dip 30 degrees.

Core	Depth (feet)	Lithology
		11508 Well bedded green and grey calcareous sandstone.
		11509-11511 Chocolate-brown cross-bedded siltstone with green-grey very calcareous lenses and sandstone bands. Slumping.
		11512 Dark chocolate slightly micaceous siltstone and sandstone as above.
		11512.3-11516 Red and grey mottled calcareous and micaceous mudstone.
		11517-11518 Fine chocolate and light brown cross-bedded calcareous sandstone.
		11519-11521 Chocolate red and grey calcareous siltstone with cross-bedding and slumping.
		11522-11526 Chocolate red calcareous mudstone.
		11527-11528 Chocolate red and grey-buff calcareous siltstone and sandstone with fine cross-bedding, slumping.
		11529-11533 Chocolate red calcareous mudstone.
		11534-11540 Grey and brown-grey massive silty calcareous sandstone with cross-bedding and slumping. Dip 24°.
		11541 Chocolate siltstone.
	11542-11543	Grey and brown-grey massive calcareous siltstone with much slumping, slurries.
	11544	Banded massive calcareous siltstone, Dip 24°.
33	11544-11568	11545 Dense banded buff-grey and chocolate calcareous siltstone. Dip 29°.
		11545'6"Chocolate micaceous mudstone.
		11546 Mottled and slickensided calcareous mudstone. Dip 26°.
		11547 Chocolate calcareous siltstone. Some slickensiding.
		11548 Mottled and irregularly banded and cross-bedded calcareous siltstone with fine slurries.

Core	Depth (feet)	Lithology
		11549-11550 Siltstone as above, with calcite veins.
		11551 Green-grey micaceous calcareous siltstone.
		11552-11553 Siltstone as above, with cross-bedding and shearing. Extensively burrowed for 3 inches at 11553 feet. Glauconite present.
		11554-11556 Finely cross-bedded chocolate micaceous siltstone.
		11557-11559 Mottled grey-green and chocolate calcareous siltstone.
		11560 Green-grey calcareous siltstone - slumping and doubtful burrowing.
		11561 Chocolate siltstone.
		11562-11563 Finely cross-bedded buff and chocolate calcareous sandstone. Dip 22°.
		11564-11565 Green-grey calcareous siltstone.
		11566-11568 Chocolate mudstone.
	11568-11570	Chocolate red sandstone and siltstone. Fine compact quartz sandstone and micaceous siltstone. Calcareous green siliceous siltstone with quartz grains, glauconite and mica in a fine ground mass. Buff fine-grained sandstone; angular grains, glauconite. Some slickensiding showing in fine siltstone chips.
	11570-11580	Red and chocolate calcareous and micaceous siltstone and sandstone. Glauconite present. Buff and green sandstone with angular quartz grains, brown mica and glauconite in fine ground mass. Siltstone consists of medium angular quartz grains in fine ground mass.
	11580-11590	Red and chocolate micaceous siltstone. Green siltstone with glauconite. Minor buff sand-

Core	Depth (feet)	Lithology
		stone with angular quartz grains, mica and glauconite.
	11590-11600	Buff sandstone with glauconite grains. Red-chocolate micaceous siltstone and red calcareous mudstone.
	11600-11620	Chocolate micaceous siltstone, calcareous. Green siliceous siltstone with glauconite. Buff sandstone and chocolate mudstone, slickensided. Sandstone with glauconite and orange-red grains.
	11620-11630	Chocolate siltstone with fine mica. Buff sandstone and minor green siltstone.
	11630-11640	Chocolate and grey-green micaceous siltstone and sandstone. Calcareous.
	11640-11650	Buff sandstone with glauconite and mica as before. Chocolate siltstone, some green siltstone.
	11650-11670	Chocolate siltstone with fine mica. Buff sandstone as above. Green-grey siliceous sandstone.
	11670-11700	Chocolate siltstone with fine mica. Light buff sandstone with angular to subangular grains, glauconite and calcite cement. Green very fine sandstone. Calcite veins, slickensiding.
	11700-11710	Chocolate siltstone as above. Light buff sandstone with conspicuous glauconite grains. Green very fine siliceous sandstone. Slickensiding.
	11710-11730	Red and chocolate calcareous siltstone with calcite veins. Light buff sandstone with glauconite. Slickensided mudstone.
	11730-11740	Chocolate calcareous siltstone and mudstone with light buff sandstone.

Core	Depth (feet)	Lithology
	11740-11750	Chocolate micaceous calcareous siltstone.
	11750-11760	Chocolate and red calcareous siltstone. Light buff sandstone.
	11760-11770	Chocolate siltstone and green-grey siltstone. Less than 10 per cent sandstone.
	11770-11780	Fine light buff-red sandstone with glauconite; red and chocolate micaceous siltstone.
	11780-11790	Red and chocolate micaceous siltstone and mudstone with slickensiding. Buff sandstone with glauconite; green siltstone.
	11790-11800	Red and green micaceous siltstone and slickensided mudstone. Buff sandstone with glauconit
	11800-11810	Chocolate mudstone and siltstone, occasional green sandy siltstone with glauconite.
	11810-11830	Chocolate micaceous siltstone with slickensiding and calcite veining. Less than 10 per cent buff sandstone.
	11830-11840	Chocolate micaceous siltstone with calcite veins and buff sandstone with glauconite.
	11840-11850	Chocolate siltstone and buff sandstone as above; chocolate mudstone.
	11850-11870	Chocolate calcareous siltstone, buff sandstone and green siltstone.
	11870-11880	Buff sandstone with glauconite, minor chocolate and green siltstone.
	11880-11890	Chocolate calcareous siltstone; buff sandstone with glauconite; some green siltstone.
	11890-11900	Chocolate siltstone with calcite veins.
	11900-11930	Chocolate siltstone and slickensided mudstone. Worm burrows. Light buff sandstone and green siltstone (non-calcareous).
	11930-11960	Chocolate and red micaceous siltstone, green siltstone; buff and white sandstone with glauconite; calcite veining.

Core	Depth (feet)	Lithology
	11960-11980	Chocolate slickensided mudstone; chocolate and green siltstone; buff and white sandstone.
	11980-11990	Red siltstone and mudstone (slickensided). Chocolate micaceous siltstone; buff sandstone.
	11990-12050	Red micaceous siltstone and green siltstone. Buff sandstone; white sandstone with glauconite.
	12050-12067	Chocolate calcareous siltstone and mudstone buff sandstone; green siltstone.
34	12068-12079	12068-12070 Chocolate micaceous calcareous cross-bedded mudstone and buff sandstone. 12071-12073 Cross-bedded light chocolate siltstone and sandstone. Calcareous. 12074-12078 Chocolate mudstone with calcite veins and slumping. 12079 Cross-bedded sandstone and siltstone 12080-12081 Banded and cross-bedded buff and brown-red sandstone with calcite veins.
	12080-12090	Chocolate micaceous mudstone and siltstone. Green siltstone, buff sandstone, some banding. Calcareous.
	12090-12100	Light red fine sandstone, chocolate siltstone, green siltstone. Calcareous.
	12100-12140	Chocolate calcareous siltstone; buff sandstone and white sandstone with glauconite. Green siltstone.
	12140-12160	Chocolate calcareous siltstone and mudstone. Buff sandstone; green siltstone.
	12160-12170	Red siltstone and sandstone.
	12170-12180	Red micaceous siltstone; some green siltstone and buff sandstone.
	12180-12200	Red micaceous siltstone and mudstone. Green siltstone and buff sandstone with glauconite. White sandstone with pyrite. Calcite veins.

Core	Depth (feet)	Lithology
	12200-12210	Red mudstone as above, with calcite veins. Green siltstone and buff sandstone with glauconite.
	12210-12220	Red calcareous siltstone and sandstone with calcite veins. ? Worm burrows.
	12220-12250	Red micaceous and calcareous siltstone and mudstone and fine sandstone. Buff sandstone and green sandy siltstone.
	12250-12260	Buff sandstone and fine red sandstone and siltstone. Calcareous.
	12260-12280	Red and buff sandstone and siltstone with glauconite. Some green siltstone.
	12280-12290	Red micaceous siltstone, green siltstone, buff sandstone.
	12290-12300	Red and green micaceous siltstone, fine sandstone with glauconite and chlorite.
	12300-12310	Light buff sandstone with glauconite. Red and green calcareous micaceous siltstone.
	12310-12360	Red micaceous siltstone, green siltstone and fine sandstone with glauconite. Buff sandstone with glauconite. Some chocolate mudstone. Calcareous.
	12360-12370	Red micaceous siltstone; buff sandstone with glauconite; calcite.
	12370-12380	Buff sandstone, red siltstone and green siltstone.
	12380-12390	Dark red siltstone. Buff fine sandstone with glauconite. Heavy minerals including tourmaline and hematite in a fine ground mass.
	12390-12400	Red calcareous mudstone and chocolate siltstone.
	12400-12410	Chocolate micaceous siltstone and buff sandstone with glauconite.
	12410-12420	Chocolate micaceous siltstone and buff sandstone with glauconite. Chocolate mudstone. Calcareous.

Core	Depth (feet)	Lithology
	12420-12430	Chocolate micaceous siltstone, green siltstone and buff sandstone with glauconite.
	12430-12440	Red-buff sandstone with glauconite. Red and chocolate micaceous siltstone; green siltstone.
	12440-12450	Red and chocolate micaceous siltstone red-buff sandstone, cream sandstone with glauconite. ? Worm burrows.
	12450-12470	Red and chocolate siltstone; buff sandstone with glauconite; green siltstone; chocolate mudstone. Worm burrows.
	12470-12480	Red micaceous siltstone; green fine sandstone red-buff to white sandstone with glauconite.
	12480-12500	Red and chocolate calcareous siltstone; light buff sandstone with glauconite.
	12500-12510	Red and buff fine sandstone with glauconite. Green and red siltstone. Red mudstone.
	12510-12520	Red siltstone and sandstone; chocolate micaceous siltstone; pink-buff sandstone; green-grey siltstone; green micaceous sandstone.
	12520-12530	Red sandstone and siltstone as before; calcite veins.
	12530-12540	Red micaceous siltstone; red sandstone; white sandstone with glauconite.
	12540-12550	Red calcareous mudstone, slickensided. Red siltstone. Some green siltstone.
	12550-12560	Chocolate micaceous siltstone and calcareous mudstone - slickensided - buff sandstone; green siltstone with glauconite.
	12560-12576	Red calcareous mudstone, buff sandstone, chocolate siltstone.
35	12576-12586	12576 Mottled red and green siltstone - no bedding. 12577-12578 Red siltstone, some green mottling as above. Dip 24 degrees.

Core	Depth (feet)	Lithology
		12579-12581 Red finely cross-bedded sandstone and siltstone, some slumping. Dip 22° at 12581 feet.
		12582-12586 Red and green mottled finely micaceous siltstone. Dip 24 degrees.
	12586-12590	Red calcareous mudstone, chocolate micaceous siltstone, buff and green sandstone and siltstone. Worm burrows.
	12590-12600	Chocolate micaceous siltstone; red and buff sandstone, red mudstone.
	12600-12610	Red mudstone, chocolate siltstone, buff sandstone.
	12610-12620	Chocolate micaceous siltstone, buff glauconitic sandstone, some red mudstone.
	12620-12630	Buff sandstone and red siltstone, some green mottling.
	12630-12638	Red-buff sandstone with some chocolate siltstone; green siltstone.
		Well abandoned - dry hole

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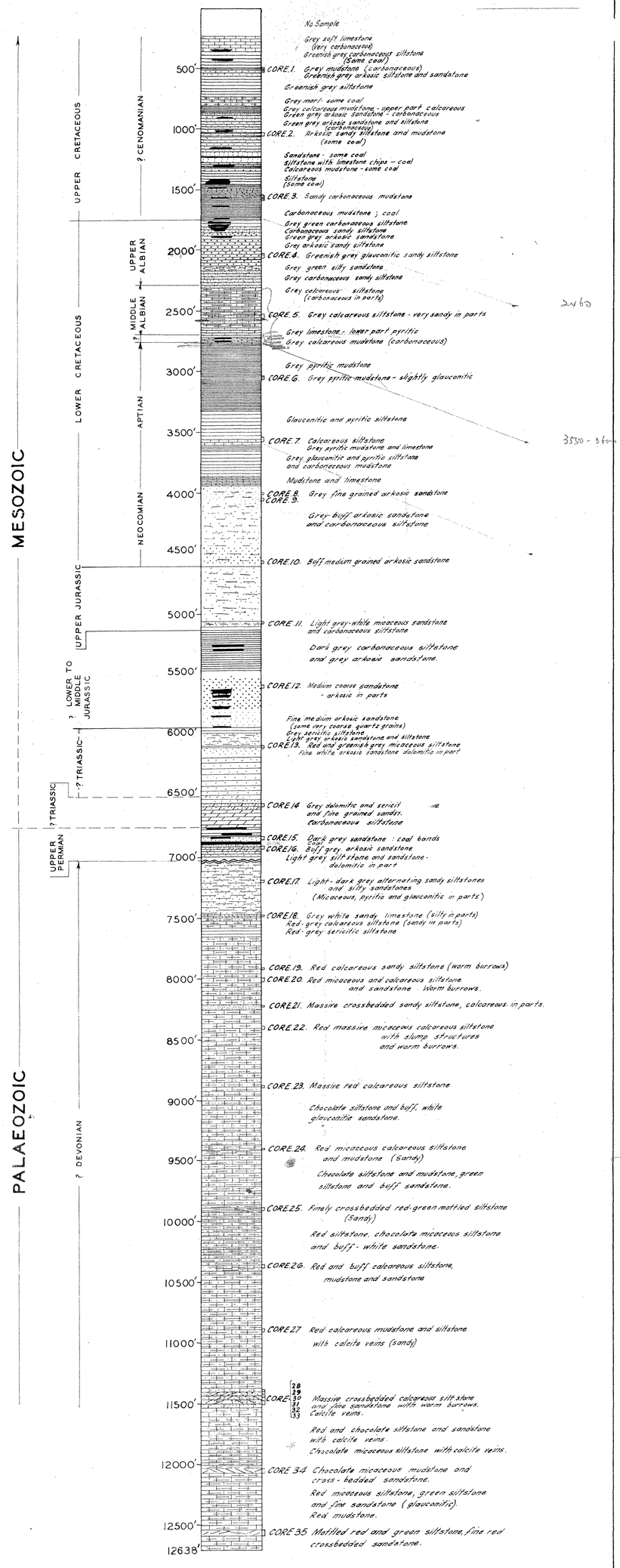


S.A. DEPARTMENT OF MINES

INNAMINCKA BORE

GEOLOGICAL LOG

SCALE :- 500' TO 1"

59-382
Cb

To accompany report by N.H. Ludbrook

11-12-59

INNAMINCKA No. 1 WELL

MICROPALAEONTOLOGICAL LOG
CRETACEOUS SECTION

V	VERY RARE	1 - 2	SPECIMENS
R	RARE	3 - 5	
F	FREQUENT	6 - 10	
C	COMMON	11 - 25	
A	ABUNDANT	> 25	

S. A. DEPARMENT OF MINES.

To accompany report by N. H. Ludbrook.

L 60-4
Cb
16-2-60

TABLE 2

LOWER CRETACEOUS FORAMINIFERA

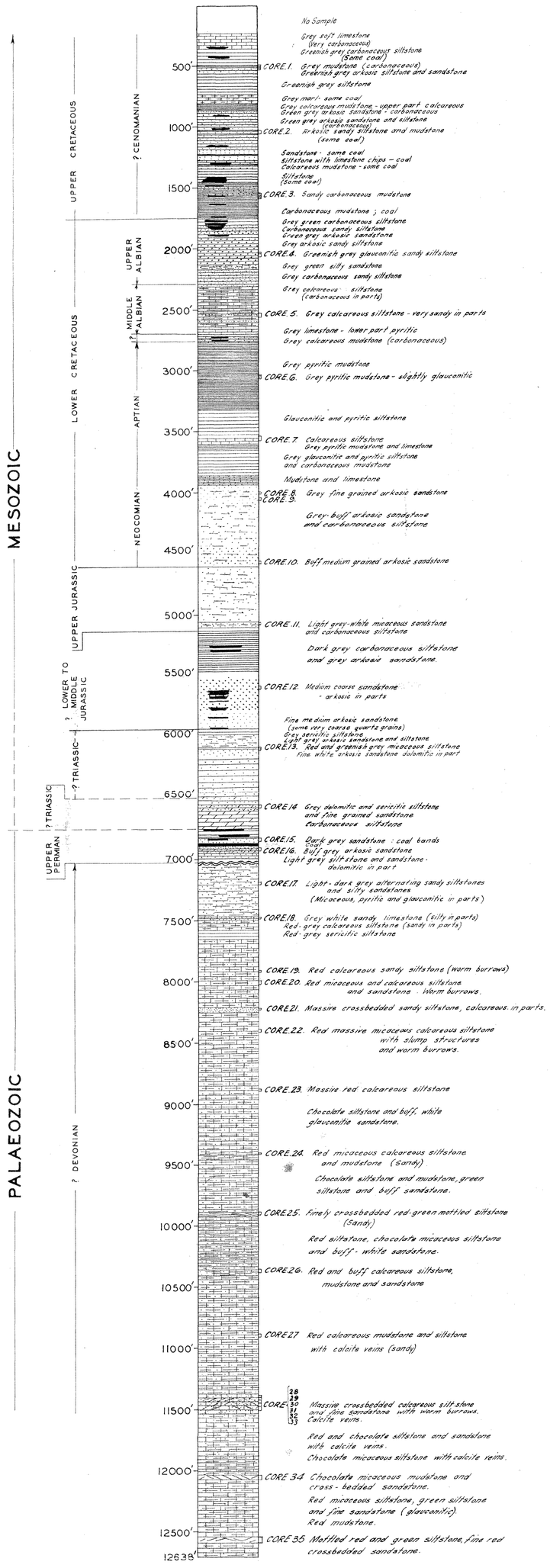
Species	First appearance (depth-feet)	Known range elsewhere in S. Aust.
Ammobaculites australis (Howchin)	2030-2040	Albian-Aptian
Ammobaculites fisheri Crespin	1980-1990	Albian-Aptian
Ammobaculites sp. 3	2045'6"	L. Albian-Aptian.
Ammobaculites minimus Crespin	2250-2260	Aptian.
Ammobaculoides romaensis Crespin	?2051'9"	Aptian
Ammobaculoides coonanaensis Crespin	3160-3170	Aptian
Ammomarginulina sp. 1	1980-1990	Albian-Aptian
Anomalina sp. 1	2530-2540	M. Albian-Aptian
Anomalina sp. 2	2045'6"	M. Albian-Aptian
Anomalina sp. 3	2840-2850	-
Bigenerina loeblichae Crespin	2740-2750	Lower Mid. Albian-Aptian
Bulimina sp. 1	2600-2610	M. Albian-Aptian.
Bulimina sp. 2	3590-3600	M. Albian-Aptian.
Bulimina sp. 3	3023'6"	Aptian.
Bulimina sp. A	2380-2390	L. Upper Albian-Aptian.
Cibicides sp. 1	2440-2450	M. Albian-Aptian.
Darbyella sp. 1	3750-3760	Aptian.
Dentalina sp. 1	3020'3"	M. Albian-Aptian.
Dentalina sp. 2	2516'6"	M. Albian-Aptian.
Dentalina sp. 3	2800-2810	M. Albian.
Dentalinopsis sp. 2	3220-3230	M. Albian-Aptian.
Dorothia sp. 2	2080-2090	M. Albian-Aptian.
Dorothia sp. 3	2420-2430	M. Albian-Aptian.
Epistomina australiensis Crespin	3160-3170	M. Albian-Aptian
Frondicularia sp. 2	2780-2790	-

Species	First appearance (depth-feet)	Known range elsewhere in S. Aust.	
Gaudryina sp. 1	2340-2350	M.-L. Albian.	✓
Gaudryinella sp. 1	3260-3270	L. Albian-Aptian.	
Gaudryinella sp. 3	2680-2690	Aptian.	✓
Gaudryinella sp. 4	3910-3920	-	
Globigerina sp. 4	2490-2500	M.-L. Albian.	✓
Globulina sp. 1	2045'6"	M. Albian-Aptian.	✓
Guttulina sp. 1	2513'8"	-	✓
Gyroidina sp. 1	2280-2290	M. Albian-Aptian.	✓
Haplophragmoides sp. 1	2049'8"	U. Albian-Aptian.	✓
Haplophragmoides sp. 2	2120-2130	Albian.	✓
Haplophragmoides sp. 3	2670-2680	M.-L. Albian.	
Haplophragmoides chapmani Crespin	2680-2690	L. Albian-Aptian.	✓
Haplophragmoides sp. 5	2750-2760	M. Albian-Aptian.	✓
Haplophragmoides dickinsoni Crespin	2049'8"	M. Albian-Aptian.	✓
Haplophragmoides sp. 8	2049'8"	-	✓
Haplophragmoides sp. 9	2051'9"	-	✓
Hyperammina sp. 1	2051'9"	U. Albian-Aptian.	✓
Involutina sp. 1	2058'6"	U. Albian-Aptian	✓
Lagena sp. 1	2770-2780	Albian	✓
Lagena sp. 2	2513'8"	M. Albian	
Lagena sp. 5	2430-2440	Aptian.	✓
Lenticulina gunderbookaensis Crespin	2030-2040	Albian-Aptian	
Lenticulina sp. 3	3060-3070	Albian-Aptian	✓
Lenticulina australiensis Crespin	2054'6"	Aptian.	✓
Lingulina sp. 1	2560-2570	M. Albian-U. Aptian.	
Lingulina sp. 2	3020'3"	M. Albian-Aptian.	✓
Lingulina sp. 4	2440-2450	-	

Species	First Appearance (depth-feet)	Known range elsewhere in S. Aust.
Marginulina sp. 1	2045'6"	Albian-Aptian.
Marginulina sp. 1A	2930-2940	
Marginulina sp. 2	2513'8"	Albian-Aptian.
Marginulina sp. 3	2054'6"	M. Albian.
Marginulina sp. 4	2370-2380	M. Albian.
Marginulina sp. 5	2420-2430	M. Albian-U. Aptian
Marginulina sp. 5A	2460-2470	M. Albian
Marginulina sp. 6	2051'9"	M. Albian-Aptian.
Marginulina sp. 7	2790-2800	L. Albian-Aptian
Marginulina sp. 8	2480-2490	Aptian.
Marginulina marreensis Crespin	3530-3540	Aptian.
Marginulina sp. 10	2730-2740	Aptian.
Marginulina sp. 11	3640-3650	Aptian.
Marginulina sp. 13	3720-3730	Aptian.
Marginulinopsis subcretaceus Crespin	3340-3350	Aptian
Miliammina sp. 1	3020'3"	L. Aptian
Nodosaria sp. 1	2054'6"	Albian-Aptian.
Nodosaria sp. 3	2750-2760	M.-L. Albian.
Nodosaria sp. 5	2410-2420	M.-L. Albian.
Nodosaria sp. 7	2513'8"	M. Albian.
Nodosaria sp. 8	3527	M. Albian.
Patellina jonesi Howchin	3610-3620	Aptian.
Pelosina lagenoides Crespin	3018'6"	U. Albian-Aptian.
Pseudoglandulina sp. 1	2513'8"	M. Albian-Aptian
Pseudoglandulina sp. 2	2420-2430	M. Albian.
Pyrulina sp. 1	2450-2460	Aptian.
Pyrulina sp. 2	3740-3750	-
Quinqueloculina sp. 1	2513'8"	Aptian.

Species	First appearance (depth-feet)	Known range elsewhere in S. Aust.	
Ramulina sp. 1	2440-2450	M.-L. Albian.	
Reophax sp. 1	2020-2030	-	
Reophax sp. 2	1930-1940	-	✓
Robulus sp. 1	2380-2390	M. Albian-Aptian.	✓
Robulus sp. 2	2230-2240	M. Albian.	
Robulus sp. 4	2360-2370		✓
Saracenaria sp. 1	2516'6"	M. Albian-Aptian.	✓
Saracenaria sp. 2	2280-2290	M.-L. Albian.	
Saracenaria sp. 3	2509'8"	M. Albian-Aptian.	✓
Siphotextularia sp. 1	2513'8"		✓
Spiroplectammina edgelli Crespin	2049'8"	M. Albian-Aptian.	✓
Spiroplectammina sp. 2	2513'8"	L. Albian-Aptian.	✓
Spiroplectammina sp. 3	2054'6"	M. Albian.	
Textularia sp. 1	2054'6"	U. Albian-L. Aptian.	✓
Textularia sp. 2	2058'6"	Albian-Aptian.	✓
Textularia sp. 3	1910-1920	L. Albian-Aptian.	✓
Textularia sp. 4	3710-3720	Aptian.	✓
Textularia sp. 5.	4030-4040	Aptian.	✓
Textularia anacooraensis Crespin	3710-3720	L. Aptian.	✓
Trochammina sp. 1	2340-2350		
Trochammina sp. 2	2010-2020	U. Albian-L. Aptian.	✓
Trochammina minuta Crespin	2440-2450	M. Albian-Aptian.	✓
Trochammina sp. 5	2800-2810	L. Albian-Aptian.	
Trochammina raggatti Crespin	3920-3930	Lowermost Aptian.	
Trochammina sp. 7	1990-2000	Aptian.	
Trochammina sp. 8	1700-1710		✓
Vaginulina sp. 1	2410-2420	M. Albian-Aptian.	
Vaginulina sp. 2	2170-2180	U. Albian-U. Aptian.	
Vaginulina sp. 3	3690-3700	Albian-Aptian.	
Valvulineria infracretacea Crespin	2230-2240	M. Albian-Aptian.	✓

Species	First appearance (depth-feet)	Known range elsewhere in S. Aust.	
Valvulineria sp. 2	2058'6"	Albian-Aptian.	✓
cf. Valvulineria sp. 3	2420-2430	M. Albian-Aptian.	✓
Verneuilina howchini Crespin	2680-2690	L. Albian-Aptian.	✓
Verneuilinoides sp. 1	2049'8"	U. Albian-Aptian.	✓
Virgulina sp. 1	2470-2480	-	



S.A. DEPARTMENT OF MINES

INNAMINCKA BORE

GEOLOGICAL LOG

SCALE:- 500' TO 1"

59-382
Cb

To accompany report by N.H. Ludbrook

11-12-59