SECTION 3 - LITHOLOGICAL DESCRIPTION

SUPPLY-1

CORE DESCRIPTIONS

| FROM | TO | |
|---|---|---|
| 10.30 | 30.43 | Weathered Zone: |

Mudstone: Silty, greyish orange-pink to pale red, moderate reddish brown mottling and veining along joints, fractures and bedding. Minor dark yellowish-orange to dark yellowish-brown mottling - due to oxidation of pyrite? Grades into unit below over 2.5m. Core broken and incohesive over several intervals.

Dip: 65° at 15.10m
Dip: 57° at 27.33m
Dip: 57° at 29.70m.

| | | |
|---|---|---|
| 30.43 | 44.60 | Mudstone: silty, slightly silty in part, with interbeds of fine-grained sandstone. |

Mudstone: dark greenish grey to greenish black, minor greenish grey.

Sandstone: interbeds light olive grey to greenish grey, graded, fining upwards, current-bedded.

Pyrite common as disseminations, and on fractures. Coarser sandstone interbeds occasionally soft-sediment deformed into boudins, and thicker towards base. Basal sand unit 0.32m thick.

Some fractures infilled with dolomite.

Dip: 55° at 37.70m.
Dip: 48° at 42.50m.

| | | |
|---|---|---|
| 44.60 | 51.90 | Mudstone: silty, grading down to siltstone within internally structureless units (up to 25cm) separated by finely laminated claystone and carbonaceous mudstone units (up to 4cm). |

Mudstones: brownish grey to brownish black.
Laminated mudstone: greenish grey, dark greenish grey, olive-black. Pyrite common as granular aggregates near tops of mudstone units, and in anastomosing fractures.

Dip: 42° at 49.05m.
Dip: 47° at 51.90m.

51.90 - 62.30 Mudstone: finely laminated, light brownish grey/olive grey/brownish black, slightly silty, carbonaceous. Fine interbeds of sandstone (up to 2cm) in basal portion of unit. Pyrite abundant as small irregular aggregates and nodules, and lining fractures; some disseminations.

N.B. 54.30-56.93m: interpret as FAULT ZONE: core broken, with abundant slickensiding and polished surface, brecciation and minor displacements observed where core intact.

62.30 -84.40 Mudstone: as for interval 44.60 - 51.90m except greater proportion of silty mudstone, siltstone and fine-grained sandstone beds (up to 40cm thick): Cyclical, fining upwards (in some cases) from fine sandstone through siltstone to silty mudstone. Laminated claystone/mudstone interbeds up to 20cm in thickness. Soft sediment deformation and compaction features occasionally associated with base of each cycle. Pyrite present as disseminations, and as small aggregates along bedding planes. Pyrite increasing downwards.

Dip: 55° at 64.20m.
Dip: 58° at 69.50m.
Dip: 59° at 75.50m.
Dip: 63° at 81.30m.

84.40 - 91.90 Mudstone: silty in part, very finely laminated, brownish grey, brownish black and minor light brownish grey. Tends to darken downward with increasing carbonaceous content. Abundant anastomosing fractures, with polishing and slickensiding along planes around 85.10m.

Dip: 64° at 89.80m.

91.19 - 110.70 Mudstone: as above, but with thin interbeds of minor fine-grained sandstone. Dusky yellow-green to greyish green, finely interbedded with brownish black and greyish black carbonaceous laminae. Intensely fractured and disturbed by small-scale faulting in interval 96.90 - 96.60m. Glauconite lense, highly deformed, at 96.40m. Very fine sandstone interbed from 99.03-99.30m. Some sandstone interbeds display soft-sediment deformation. Core broken and shattered 105.50-106.10m.

Dip: 63° at 95.50m.
68° at 98.30m.
75° at 106.70m.

Unit faulted at base. Darkening downward due to increase in carbonaceous content.

110.70 - 116.05 Mudstone: silty in part, finely laminated, dominantly brownish black to greyish black, with thin olive-grey and brownish grey interbeds.

Dip: 66° at 113.00m

Intensely fractured in part, jointed throughout with slickensiding, and partial brecciation. Faulted zone 114.90 - 119.40m; intensely fractured, brecciated, core broken and partly comminuted.

116.05 - 127.14 Mudstone: dominantly greyish green, with thin olive-grey, and brownish black carbonaceous laminae. Generally organic-poor. Generally firm, but jointed and fractured in part. Some contorted bedding. Minor pyrite, minor glauconite lenses.

Dip: 38° at 119.30m.
27° at 122.60m.

127.14 - 170.3 Mudstone: interbeds on sub-centimetre scale of brownish grey, olive-grey and brownish black, and dusky yellow-green. Pyrite nodules occasional.

Generally silty.

Dips: highly variable across fractures, from 5°-85°.

Numerous zones of fracturing, brecciation and slickensiding, with incohesive core in places.

154.35 Calcite vein infill (2mm)

157.7-157.9 - slickensided zone.

159.41-159.53 - limestone nodule with pyrite aggregates.

162.25-163.5 - brecciated zone - incohesive core in places - both soft sediment deformation and brittle fracture associated calcite fracture infills.

168.89-170.3 - brecciated zone as above.

170.3 - 182.5 Mudstone: Brownish grey, brownish black, greyish black finely laminated. Colour reflects high carbonaceous content. Occasional pyrite nodules - common anastomosing calcite fracture infills - major fractures sub-vertical and minor sub-horizontal.

172.15 - pyrite lense.

Common soft sediment deformation and brittle fracture.

176.85 - 0.5cm pyrite band.

177.6 - pyrite nodule 5mm x 20cm.

182.2 - 182.3 - example of calcite vein infill.

Dips: 12° at 153.10m
27° at 159.36m
15° at 162.02m
14° at 167.66m
25° at 171.41m
5° at 176.00m
5° at 181.50m

KEYWORDS

Hodgson Downs SD5314; Drill Rotary; Drill Stratigraphic; Petroleum; Geochemistry; Drilling Mud; Geophys Borehole; Hydrocarbon Potential; Analysis Source Rock; Maturation; Reservoir; Source; Proterozoic; Geothermal; Petrography; Porosity

LOCATION

Hodgson Downs SH5314; EP4; Supply-1; McArthur Basin; Northern Territory