

POROSITY AND PERMEABILITY OF SEDIMENTS

Porosity and permeability was determined visually from cuttings and core samples. Some solution porosity is noticeable in core No. 1 (above the top of the Water Table). This core and cuttings suggest that the general leached nature of the section and the high porosity in the Sandstones is due to the removing of the carbonate matrix by solution leaving unconsolidated insoluble sand in cavernous layers. In caving sections of the hole (below 550 feet) porosity and permeability is extremely high (as much as 30% was described from cuttings).

G E O L O G Y

Previous Work:

The Johnny's Creek Anticline is a large surface structure in the western part of the Amadeus Basin. Regional geological surveys have been carried out in the area by various workers, the most recent being by R. Hopkins of Magellan Petroleum Corporation, completed in August, 1964. No geophysical investigation has been conducted in the area. The nearest well is the East Mereenie No. 1 well some twelve miles to the north. As the anticline has obvious large surface closure, no effort was made to map closure at depth with seismic work. Limited stratigraphic control was interpolated from the Parana Hill and Gardiner Range areas some 20 miles east and 40 miles north respectively.

Formations Penetrated:

STRATIGRAPHIC TABLE

Note: All elevations are relative to K.B. Exact subsea depths will not be available until the surface elevation is measured. K.B. elevation is very approximately 2200 feet a.s.l.

<u>Age</u>	<u>Formation</u>	<u>Top</u>	<u>Thickness</u>
Ordovician	Upper Pacoota	Surface	320' (penetrated)
Ordovician	Lower Pacoota	320'	230'
Cambrian	Goyder	550'	327' (penetrated)

Detailed Stratigraphy:

Surface - 550' (Penetrated thickness 550')

Pacoota Sandstone:

Age: Paleozoic (Ordovician)

Surface - 320' (Penetrated thickness 320')

Upper Pacoota:

Sandstone, fine to coarse grained, well to poorly sorted, pink, white, yellow, brown, minor beds white, orange, yellow Siltstone, some very minor interbeds black Shale. Some patchy asphaltic material scattered through Sandstone (predominately between 150' and 200'). Some minor red, brown Shales through lower part of section. Sandstone has leached appearance in cuttings.

320' - 550' (Thickness 230')

Lower Pacoota:

Sandstone: pink, yellow, white, light brown, very fine to coarse grained, well to medium sorted, quartz generally clear, angular to sub-rounded, slightly micaceous, kaolinitic in part, calcareous. Minor interbeds white, yellow, brown Siltstone.

550' - 877' (Penetrated thickness 327')

Goyder Formation:

Age: Paleozoic (Cambrian)

Goyder:

Sandstone: grey, yellow, brown, white, unconsolidated in general, fine to coarse grained, poor to medium sorting, quartz clear (generally), angular to rounded, calcareous in part, slightly glauconitic in part, occasionally oolitic, minor scattered thin beds, hard, consolidated Sandstone (quartzitic in nature), scattered minor argillaceous streaks and inclusions. Extremely porous nature and leached appearance of Sandstones throughout section is due to solution work.

The section penetrated does not present a typical Pacoota - Goyder section because most of the carbonate section of the Goyder has been removed by ground water leaving behind unconsolidated loose sands.