PR9120

OMEGA OIL N.L.

KYALLA HORIZONTAL DRILLING PROJECT

JAMISON-1

KYALLA FORMATION - SELF SOURCING OIL BEARING SHALE UNITS

GEOLOGICAL SYMBOLS

Conglomerate		F	Faulting
Sandstone		Py	Pyrite
Siltstone		f	Fracturing
Mudstone		G	Glauconite
Limestone			Interclasts
Dolomite		C	Calcite
Chert		L	Lithic grains
Anhydrite			Mineralisation
Volcanics (basalt)			Caverns
Dolerite sill			
Plutonics			
Lenses			

SELF SOURCING SHALE BED (based on hydrocarbon show descriptions and resistivity logs)

← Geochemical sampling point

VERTICAL SCALE = 1:1 000

AGE: PROTEROZOIC

FORMATION: KYALLA FORMATION; JAMISON SANDSTONE; MOROAK SANDSTONE

SP-mv 0 100 200

CALIPER-inch 2 7 12

GAMMA RAY-API 0 200 400

ROCK EVAL S1 VALUES (kg/tonne)

TOTAL ORGANIC CARBON (TOC) (CORBET TN)

DEPTH (m)

LITHOLOGY

RESISTIVITY LOGS

DEEP RES.-OHMM 2 20 000

SHALL RES.-OHMM 2 20 000

SELF SOURCING SHALE BEDS

BED "A" 3m

BED "B" 7m

BED "C" 23m

BED "D" 15m

BED "E" 19m

BED "F" 5m

BED "G" 7m

GAS DETECTION ppm 0 0 1000 10000

TOTAL GAS

BUTANE

METHANE

ETHANE

PROPANE

ROCK EVAL S1	TOC	DEPTH (m)
	0.52	
1.05	0.58	
0.47	2.37	
	0.33	1000
2.64	2.51	
3.59	3.23	
2.75	2.55	
	0.28	
1.89	2.25	
0.51	0.84	
0.08	0.41	
	0.36	
	0.29	
	0.35	
	0.28	1100
0.35	0.62	
0.84	1.03	
0.68	0.97	
0.16	0.40	
0.12	0.39	
0.11	0.43	1200
0.43	0.95	
0.49	0.70	
0.71	1.02	
0.18	0.46	1300
0.22	0.52	
0.22	0.51	
0.46	0.80	
0.72	1.11	
0.82	0.76	
1.12	0.66	1400
0.06	0.63	
0.24	0.66	
1.69	2.22	
1.32	2.18	
1.51	2.64	1500
0.53	1.44	
0.57	1.40	
1.15	1.33	
1.54	8.97	
0.92	2.47	1600
0.83	1.40	
1.10	2.42	
1.72	2.67	
0.91	1.65	
0.71	1.89	
0.27	1.47	1700
0.20	1.29	
1714.32		
1766.85 E.O.H.		

GEOTHERMALLY OVERMATURE FOR SIGNIFICANT OIL RETENTION

HYDROCARBON SHOW DESCRIPTIONS

968.80-1081.60m
MUDSTONE/SILTY MUDSTONE with minor variable interbedded SILTSTONE/SANDSTONE.
Mudstone ranges in colour from medium grey to greyish black and dark brownish (olive) grey, with lighter colours tending to be silter and darker colours finer (and more organic rich, evidenced by very small carbonaceous peaks)

Siltstone and (up to very fine) sandstone occur as light to medium light grey laminae and thin laminae (almost all <10mm, mostly <5mm) with very rare, slightly thicker beds (up to 3cm below 1055 metres, some of which are finely cross laminated. These coarser interbeds generally comprise less than 5% of any given interval, often <2%

HYDROCARBON SHOWS: Pin-point oil bleeds occur very commonly over much of this interval, exuding from almost every sandstone/siltstone lamina. These coarser laminae are very tight and oil actually exudes from the sharp contacts with the adjacent mudstone, suggesting it resides in (and migrates through) microfractures and bed partings, rather than in intergranular porosity (which seems to be virtually nonexistent). The oil is dark olive brown/green in colour and continues to slowly exude for several hours with some associated gas bubbles, yielding a moderate to strong hydrocarbon odour and displaying a moderate to bright blue white fluorescence. Gas detection mostly reads 400-800 ppm total gas, but ranges up to 2000 ppm, with significant C5+

1081.60-1320.70m
HYDROCARBON SHOWS: Pin point oil bleeds occur much less commonly than in the interval above. Below 1095 metres they occur very sporadically (one or two every few metres), with a small zone of common to abundant bleeds at 1108.1-1108.5 metres.

Between 1145-1165 metres pin-point bleeds become common over small, sporadic zones associated with fractures and/or slightly coarser sandstone beds (eg. 1145.9m), but are then absent (with minor exceptions around 1200m) down to 1255 metres. From 1255 to 1270 metres, pin point bleeds are sparse but increasing with depth, becoming common to abundant from 1270 to 1283 metres, then waning again to very sparse down to the base of the interval.

All of these bleeds fluoresce dull to moderately bright, blue to blue-white, and the more prolific intervals show moderate increases of gas above background levels

1320.70-1418.0m
HYDROCARBON SHOWS: Extremely sparse pin-point bleeds and minor exsolving gas associated with the (lessened occurrences) of coarser interbeds

1418.0-1483.9m
HYDROCARBON SHOWS: Sparse to extremely sparse pin-point oil bleeds and exsolving gas associated with the coarser interbeds. Slightly more frequent bleeds and slightly higher gas readings occur patchily from about 1430 to 1465 metres (in response to higher sand content).

1483.9-1492.17m
HYDROCARBON SHOWS: Only very patchy, faint bluish fluorescence was detected in a few cross-bedded units below 1490 metres with no significant variation from background gas detected

1492.17-1741.32m
HYDROCARBON SHOWS: Very minor, very sparse pin-point bleeds with dull-moderate blue-white fluorescence occur infrequently and decreasingly with depth becoming completely absent below about 1650 metres. Below 1500 metres patchyto solid, but very dull, yellow-orange fluorescence occurs commonly within sandstone beds, unlike the blue-white fluorescence, which is generally restricted to bed partings (fractures at contacts with mudstone) and to rare porous patches within sands, the yellow-orange fluorescence is somewhat pervasive throughout the beds and thus may represent an earlier hydrocarbon phase.

Minor gas bubbles exsolving from the core continue to accompany the blue-white fluorescing bleeds, and persist beyond down to the base of the interval, but decrease with depth. However, no major changes to background gas levels occur over this interval

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