

Well Index Sheet: Moby-1

Location	Latitude	38 ^o 01' 44.25" S		Participating Interests		
	Longitude	148 ^o 30' 27.40" E		Bass Strait Oil Company Ltd (Operator)		40%
	UTM Co-ordinates	632,316.41m E 5,789,884.86m N		Eagle Bay Resources NL		25%
	Datum	AGD 66		Moby Oil & Gas Limited		35%
	Elevation	+21.5m				
	Water Depth	53m (MSL)				
Permit	VIC/P47			Primary Objective		Gurnard Fm
Rig on Contract	02:45 Hrs 5 th October 2004			Secondary Objective		Kingfish Fm
Spudded	16:45 Hrs 7 th October 2004					
Reached T.D.	20:30 Hrs 11 th October 2004			Completion Details/Plugs		
Rig Released	13:00 Hrs 17 th October 2004			Plug # 1	660 – 505m	42.8 bbls of 15.8 ppg Class G
Structure Type		Faulted 4-way dip anticline		Plug # 2	370 – 270m	43 bbls of 15.8 ppg Class G
Rig	DOGC Semi-Submersible	"Ocean Patriot"		Plug # 3	160 - 100	30 bbls of 15.8 ppg Class G
Status	P & A	Gas Discovery		Casing Details		
Hole Size (mm)	660 x 914	445	311	Size (mm)	Wt (ppf)	Depth (m)
Depth (m)	101	325	328	508 x 762	133 x 330	97.5
Hole Size (mm)	216			340	68	321.76
Depth (m)	660					
Total Depth	660mMD	638.5mTVDSS				

Formation	Depth (mMD RT)	Depth (mTVD SS)	Thickness (m)	TWT (ms)	Remarks
Gippsland Limestone (Seafloor)	74.5	53.0	435.9	70.7	
Lakes Entrance Fm	510.4	488.9	45.1	513.5	
Early Oligocene Wedge	553.0	531.5	2.5	557.0	
Gurnard Fm	555.5	534.0	31.5	559.0	
Kingfish Fm	587.0	565.5	2.5	590.1	
Strzelecki Group	589.5	568.0	70.5+	592.6	
TOTAL DEPTH	660.0	638.5		651.7	Approx. TWT

WIRELINE LOGGING SUMMARY

RUN	TOOL STRING	INTERVAL (M)	BHT (C)/TIME SINCE CIRC.	PLAYBACK SCALES
1	DLL-MLL-MAC-ZDL-CNL-DSL-TTRM	659 – 321.5m (GR-MAC to 75m)	42.7 @ 584.8m/8.5 Hrs	1:200 1:500
2	RCI-GR	613 – 558.5m; 22 P/T with 13 repeat draw-downs; 1 x LS; 17 good; 4 x curtailed; take 2 x 840cc gas samples at 568.8m and 1 x 4l water sample at 588.5m	44.4 @ 573.9m/23.25 Hrs	1:200 1:500
3	SLR (VSP)	650 – 90m	45 @ 633.2m/40.9 Hrs	
4	SWC-GR	651.5 – 538m (Shot 25; Rec 25)	NR	

CORE SUMMARY

Core	Interval	Cut	Recovered	%
NO CONVENTIONAL CORES WERE CUT				

SIDEWALL CORES

SWC No.	DEPTH (mRT)	REC (cm)	Actual Lithology	SWC No.	DEPTH (mRT)	REC (cm)	Actual Lithology
1	651.50	4.2	sandstone	14	571.00	4.2	siltstone
2	621.00	3.5	sandstone	15	569.00	3.8	sandstone
3	605.00	3.5	sandstone	16	568.50	3.6	sandstone
4	597.50	3.5	sandstone	17	567.30	3.0	sandstone
5	590.00	3.5	sandstone	18	566.00	5.0	sandstone
6	588.00	5.0	sandstone	19	563.00	3.5	sandstone
7	586.00	4.3	sandstone	20	561.30	4.1	siltstone
8	585.00	4.4	sandstone	21	560.00	5.0	sandstone
9	584.00	3.2	sandstone	22	558.50	5.0	sandstone
10	580.00	3.5	siltstone	23	555.90	4.5	claystone
11	575.70	4.8	sandstone	24	547.00	4.2	calcilutite
12	574.00	3.5	siltstone	25	538.00	5.0	calcilutite
13	572.00	4.0	sandstone				

WELL TESTING SUMMARY

DRILL STEM TESTS (DSTs) No DSTs were conducted								
Test No.	Formation	Perforation Interval (m)	Flow Min	Shut Min	Ship Psig	Fthp Psig	Chokes	Remarks

DRILLING SUMMARY

The Diamond Offshore General Company MODU "Ocean Patriot" was mobilized from the Tap Oil Tawatawa-1 location off the east coast of New Zealand and towed across the Tasman Sea by two AHSV's ("Far Grip" & "Pacific Wrangler"). Moby-1 operations commenced at 02:45 Hrs 5th October 2004, when the first anchor was dropped at the Moby-1 location. Anchor handling operations were delayed by bad weather, while additional delays were caused by having to re-run a number of anchors. Positioning the rig on location was completed by 05:30 Hrs 7th October 2004 at which time the rig was ballasted down to drilling draft. The final location for Moby-1 was confirmed as being 2.4m from the proposed location on a bearing of 270.28° True. The final fix for Moby-1 was:

Latitude: 38° 01' 44.25" S

Longitude: 148° 30' 27.40" E

Easting: 632, 316.41m

Northing: 5, 789, 884.86m

DATUM: AGD 66.

The TGB was run and landed at 74.5mMD RT. Made up 914mm (36") BHA and ran in hole with ROV assisting through TGB and tagged seafloor at 74.5m corrected to Mean Sea Level (MSL). The water depth at Mean Sea Level was recorded as 53.0m, with a drill floor elevation of 21.5m. The well was spudded at 16:45 Hrs 7th October 2004 with a 914mm (36") hole drilled from seafloor (74.5mMD RT) to a depth of 101mMD RT, pumping 50 bbl gel sweeps every 9m. Ran 762mm (30") casing and cemented with 758.8 sacks (160.8 bbl), cement slurry at 15.8 ppg.

Made up 445mm (17 ½") BHA and installed guide ropes to BHA and guide lines. Ran in hole and tagged cement at 96.7mMD RT. Drilled cement and casing shoe from 96.7mMD to 98mMD RT and continued drilling to 325mMD RT, pumping 40 bbl guar gum sweeps every 15m and 50 bbl gel sweeps before every connection. Pumped 100

bbl hi-vis sweep at 1100gpm and conducted wiper trip to 762mm (30") casing shoe. Took weight at 315mMD RT and reamed back to 325mMD RT. Circulated bottoms up at 1100 gpm and displaced hole to 350 bbl hi-vis mud. Dropped single shot survey tool and pulled out of hole to 203mMD RT. Recovered survey tool and continued pulling out of hole, jetting 762mm (30") housing on the way out of hole.

Ran 340mm (13 3/8") casing to 321.8mMD RT and cemented with 140 bbls (295 sacks) of 12.5 ppg Class G Lead cement followed by 71 bbls (335 sacks) of 15.8 ppg Class G Tail cement. Displaced cement with 116 bbls of seawater. Bumped plugs and pressure tested casing to 2000 psi. Observed returns to seabed throughout cementing. Ran BOP's while testing choke and kill lines to 300 psi for 5 minutes and 3000 psi for 10 minutes and marine riser. Landed BOP's and pressure tested wellhead connection to 300 psi for 5 minutes and 3000 psi for 10 minutes.

Made up 311mm (12 1/4") bit and ran in hole. Washed down from 286mMD RT and tagged top of cement at 295.5mMD RT. Drilled plugs, cement and shoe track and cleaned rat hole to 325mMD RT. Drilled ahead in 311mm (12 1/4") hole from 325m to 328mMD RT. Displaced well to 10 ppg KCL/Polymer mud system, displacing choke and kill lines. Pressure tested lines to 1000 psi and performed FIT to 1.7 SG (14.16 ppg), OK. Pulled out of hole laying down 311mm (12 1/4") BHA.

Made up 216mm (8 1/2") BHA and ran in hole to 328mMD RT and drilled ahead to 660mMD RT (TD), taking Anderdrift survey every connection. Circulated hole clean, dropped multi-shot and pulled out of hole from 660m to 248mMD RT, working tight spots between 612m and 560mMD RT. Finished pulling out of hole and retrieved EMS tool.

Rigged up Baker Atlas for running wireline logs and ran the following logs; RUN#1: DLL-MLL-MAC-ZDL-CNL-DSL-TTRM over the interval 659-321.5mMD RT with GR-MAC through casing to 75mMD RT; RUN#2: RCI-GR over the interval 558.3-612.8mMD RT for pressures and samples; RUN#3: SLR-GR (VSP survey) over the interval 659-80mMD RT and RUN#4: SWC-GR over the interval 651.5-538mMD RT; shot 25 cores, recovered 25 cores; rigged down Baker Atlas.

Commenced plug and abandonment operations at 22:30 Hrs 13th October 2004. Picked up and ran in hole with 73mm (2 7/8") tubing cement stinger on 127mm (5") drill pipe to 650mMD RT and pumped 42.8 bbls of 15.8 ppg Class G cement slurry setting Plug#1 from 660mMD to 505mMD RT. Pulled out of hole to 370mMD RT and pumped 43 bbls of 15.8 ppg Class G cement slurry setting Plug#2 from 370mMD to 270mMD RT. Ran in hole with 127mm (5") open ended drill pipe and tagged top of cement Plug#2 at 259mMD RT. Pressure tested casing against lower annular to 500 psi, OK. Picked up 340mm (13 3/8") cement retainer and ran in hole to 160mMD RT and set same. Pumped 30 bbls of 15.8 ppg Class G cement slurry, setting cement Plug#3 from 160m to 100mMD.

Picked up wellhead jetting tool and wear bushing retrieval tool and ran in hole to 74mMD RT while jetting stack and wellhead. Landed out wear bushing retrieval tool and pulled out of hole. Pulled riser and BOP's and secured same. Picked up 508mm x 762mm (20" x 30") spear and cutting assembly and ran in hole stabbing into 18 3/4" wellhead and cut 508mm (20") casing at 77.39mMD RT and pulled out of hole with casing cut-off stub and housing. Re-dressed spear and RIH, stabbing into 762mm (30") housing, cutting 762mm (30") casing at 76.84mMD RT.

Commenced anchor handling operations at 18:00 Hrs 16th October 2004. Last anchor racked at 13:00 Hrs 17th October 2004 and the rig released to Santos. Total time on Moby-1 location was 12.427 days.

GEOLOGICAL SUMMARY

Moby-1 was spudded at 16:45 Hrs 7th October 2004 and penetrated a sedimentary section ranging in age from Tertiary to Late Cretaceous. The stratigraphic section encountered was essentially as predicted with all of the formation tops slightly high to prognosis. The geological formations and data encountered for each hole section are discussed below.

The Miocene to Pliocene Gippsland Limestone was encountered at seafloor (covered by a veneer of Recent sediments) at 74.5mMD RT (-53mTVDSS), the upper part of which down to a depth of 325mMD RT was drilled riserless in the 914mm (36") and 445mm (17 1/2") hole sections. Intermediate 340mm (13 3/8") casing was subsequently run to 321.8mMD RT and the BOP's and marine riser nipped up, below which 311mm (12 1/4") hole was drilled to 328mMD RT and 216mm (8 1/2") hole was drilled to total depth at 660mMD RT (-638.5mTVDSS). The main hole sections to total depth were wireline logged after reaching TD and provide the depth control for the stratigraphic sub-divisions included herein, together with the assistance of biostratigraphic control.

The lower part of the Gippsland Limestone below 325mMD RT consists of argillaceous calcilutite with minor

calcarene and argillaceous calcisiltite. The base Gippsland Limestone/Top Lakes Entrance Formation is identified at 510.4mMD RT (-488.9mTVDSS). It was encountered 63.9 metres low to prognosis, based upon the appearance of marl in the section. The Oligocene to early Miocene Lakes Entrance Formation consists of marl grading to and interbedded with argillaceous calcilutite, calcilutite and calcareous claystone. The basal part of the Lakes Entrance Formation is differentiated at 553mMD RT (-531.5mTVDSS) and defined herein as the Early Oligocene Wedge.

The primary objective Middle Eocene Gurnard Formation was intersected at 555.5mMD RT (534mTVDSS), 16m high to prediction and consists of argillaceous and silty sandstone, siltstone with minor greensand and claystone. All lithologies are generally rich in glauconite. The Early Eocene Kingfish Formation was intersected at 587mMD RT (565.5mTVDSS), 9.5m high to prognosis. The interval which is only 2.5m thick and consists of feldspathic lithic sandstone, rests unconformably on the Early Cretaceous (Late Albian) Strzelecki Group at 589.5mMD RT (-568.0mTVDSS), 17m high to prognosis. The Strzelecki Group consists predominantly of argillaceous lithic sandstone.

The well reached TD within the Strzelecki Group at 660mMD RT (-638.5mTVDSS), which was reached at 20:34 Hrs 11th October 2004. Baker Atlas wireline logs were run at this depth. The primary wireline log recorded was the DLL-MLL-MAC-DSL-ZDL-CN-TTRM-4401 which was logged from 659m to 321.5mMD RT, after which the GR-MAC were logged up through casing to the seafloor, although the acoustic signal deteriorated towards the seafloor. This log represents the primary depth control for Moby-1. TD was shallow to driller's TD by 1m owing to possible fill on bottom and the 340mm (13 3/8") casing shoe was found 0.25m shallower than driller's depth. The second logging run was with the RCI-GR tool for formation pressures and samples, which was logged from 613m to 558.5mMD RT after being tied into the first logging run for depth control. A total of 40 pre-test levels were attempted which included 13 repeat tests and 4 tests were tight; collected 2 x gas samples at 568.8mMD RT within the Gurnard Formation and 1 x formation water sample at 588.5mMD RT from the Kingfish Formation.

The third run in the hole was for a VSP/checkshot survey with the SLR tool across the interval 650-90mMD RT and the fourth run was to acquire percussion sidewall cores (SWC-GR). Twenty five (25) shots attempted and 25 cores were successfully recovered (100%).

Trace to minor amounts of total gas consisting entirely of methane (C₁) were recorded upon commencement of first drilling returns in the 311mm (12 1/4") hole section below 325mMD RT and which continued in the 216mm (8 1/2") hole section. Trace amounts of ethane (C₂), pentane (C₃), iso-butane (iC₄) and n-butane (nC₄) were recorded below approximately 468mMD RT. Background gas levels increased slightly below 515mMD, increasing further to low to moderate levels of methane (C₁) and ethane (C₂) and continuing trace C₃ to C₅ below 556mMD. The maximum total gas recorded was 1.64% at 570mMD, consisting of 18,184ppm C₁, 178ppm C₂, 23ppm C₃, 6ppm iC₄, 4ppm nC₄ and 5ppm iC₅ and 3ppm nC₅. Background levels remained moderately uniform to 587mMD, decreasing progressively below this depth to TD.

Sandstone cuttings over the gross interval 562–574mMD RT exhibited 5-20% dull – moderately bright yellow fluorescence, with a slow to moderately fast blue-white cut and solid blue-white ring residue. At 568–571mMD RT, fluorescence increased to 60% dull to moderately bright yellow fluorescence, with an instantaneous blue-white cut and a solid blue-white residue. Nil to trace fluorescence only occurred below 574mMD RT. Weak to moderate fluorescence was exhibited in eleven sidewall core samples over the gross interval 555.9-586mMD RT, entirely within the Gurnard Formation.

Final total depth was 660mMD RT (-638.5mTVDSS). This is 35 metres below the originally programmed total depth of the well.

Log evaluation, analysis of the RCI pressure and sampling data and core analysis confirms the likely presence of a 21m gross column of gas within the Gurnard Formation, with an estimated free water level at approximately 555mTVDSS. Core measured porosities through the Gurnard Formation average 36.8% (31.6-39.2%), while measured permeabilities are in the range of 102-1850md (average 543 md). These latter figures are some 30% higher than those recorded from petrographic analyses and do not reconcile with the low mobilities observed with the RCI tool or with the general log response expected from gas-filled sands of such high permeability and porosity.

Moby-1 was plugged and abandoned as a new field gas discovery and the rig released at 13:00 hrs 17th October 2004.