

CR28822A

OIL COMPANY OF AUSTRALIA LIMITED

BARGIE No.3

WELL COMPLETION REPORT

ATP 269P - QUEENSLAND

by

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D0051322



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Enclosure 3	Halliburton Mudlog	1:500
Enclosure 4	Synthetic Seismogram	

OIL COMPANY OF AUSTRALIA LIMITED

WELL DATA CARD
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Location:	Latitude:	26°27'09.4"S
	Longitude:	143°44'47.6"E
	Seismic SP:	Station 1360
	Line:	HQ84-223
Elevation:	GL:	185.6 metres
	KB:	190.9 metres
Map:	Eromanga	1 : 250,000
Grid:	Easting:	773 872.85
	Northing:	7 071 254.68
Date spudded:	14/05/1995	1400 hours
Date rig release:	26/05/1995	2400 hours
Type Structure:	Anticline -	Four way closure.

Status:	Dry Hole	Plugged
Rig:	Century - 2	
Total Depth:	Driller:	1686.5m.
	Logger:	1684.5m.
Plugs:		
	1	1630-1580m. 55 sacks
	2	1509-1459m. 55 sacks
	3	1324-1274m. 56 sacks
	4	1115-1065m. 56 sacks
	5	218- 168m. 59 sacks
	6	Surface 20 sacks
Casing :	Size	Shoe
(a) Surface	244mm.	190.2m.
(b) Production		

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STRATIGRAPHIC UNITS PENETRATED

AGE	UNIT	Depth	Elevation	Thickness
E. CRETACEOUS	WINTON	5.0	185.6	490.0
E. CRETACEOUS	MACKUNDA	495.0	-304.4	110.0
E. CRETACEOUS	ALLARU	605.0	-414.4	247.0
E. CRETACEOUS	TOOLEBUC	852.0	-661.4	6.0
E. CRETACEOUS	WALLUMBILLA	858.0	-667.4	232.5
E. CRETACEOUS	CADNA-OWIE	1090.5	-899.9	82.5
E. CRETACEOUS	MURTA	1173.0	-982.4	18.0
L. JURASSIC	NAMUR	1191.0	-1000.4	108.0
L. JURASSIC	WESTBOURNE	1299.0	-1108.4	83.0
L. JURASSIC	IW SONIC MARKER	1362.5	-1171.9	
L. JURASSIC	ADORI	1382.0	-1191.4	49.0
M. JURASSIC	BIRKHEAD	1431.0	-1240.4	53.0
M. JURASSIC	HUTTON	1484.0	-1293.4	127.0
E. JURASSIC	BASAL JURASSIC	1611.0	-1419.9	19.5
DEVONIAN	ETONVALE	1630.5	-1439.4	54.0
	T.D. (Logs)	1684.5	-1493.9	

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WELL DATA CARD

OCA BARGIE-3

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WIRELINE LOGS

Type Log	Run	Interval	BHT / Time
DLL - SP - GR - Caliper	1	1680.0 - 194.0 metres	100.0°C after 4.9 hours
MSFL	1	1684.6 - 1049.0 metres	100.0°C after 4.9 hours
BCS - GR (Sonic)	1	1673.0 - 194.0 metres	100.0°C after 4.9 hours
SLD - CNL - GR	1	1684.5 - 1049.4 metres	92.2°C after 10.0 hours
FED-GR	1	1665.7 - 1039.4 metres	100.0°C after 4.9 hours

FORMATION TESTS

No	Interval / Formation (metres)	Periods (mins)	EMP IP/FP (psi)	EMP FSIP (psi)	Fluid to surface (mins)	Surface Press. (max) (psi)	TC. mm.	BC. mm.	Rev. Out	Result.
1	basal Jurassic 1614.0 -20.1D 1612.0 -18.1L	6 open 67 close 122 open 120 close	22 / 46 51 / 392	2409 2325	-	0	9.53	19.1	No	Weak air blow, NGTS Rec: 265m. muddy water. (Rw=2.6@21°C)

FULL HOLE CORES

No.	Interval	Formation	Cut (m)	Rec.(m)
1	1615.00 - 1633.50 m. (D)	basal Jurassic ss. / Etonvale Fm.	18.50	18.50
	1613.00 - 1631.50 m. (L)			
2	1633.50 - 1652.00 m. (D)	Etonvale Fm.	18.50	18.50
	1631.50 - 1650.00 m. (L)			

PERFORATIONS

Interval	Formation	Shots / m.

Interval	Formation	Shots / m.

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WELL DATA CARD

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LOG INTERPRETATION

[illegible]

CORE ANALYSIS (Drillers depths)

Interval	Por.	Perm.	So	Sw
1615.66	12.1	0.59		
1615.92	10.6	0.15		
1616.31	8.7	1.89		
1616.93	6.2	< 0.01		
1617.30	15.9	18.6		
1617.96	2.0	0.01		
1618.28	15.9	6.4		
1618.84	18.0	3.60		
1619.14	10.4	0.02		
1619.79	5.9	0.01		
1620.30	6.9	< 0.01		
1622.26	11.5	3.53		
1623.04	13.4	7.8		
1624.61	18.4	1210		
1626.63	13.4	83.9		

[illegible]

SIDEWALL CORES

[illegible][illegible]

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WELL DATA CARD

OCA BARGIE-3

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SUMMARY

Bargie-3 was located in ATP 269P Queensland, about 53 kilometres east northeast of the town of Eromanga. The closest well was Bargie-1 (1994), approximately 2.6 km. to the south.

The well was sited on the northern end of the Bargie Structure, which is an anticlinal structure trending approximately north-south. The primary objective was the basal Jurassic sandstone which flowed oil in Bargie-1.

Bargie-3 spudded on May 14th, 1995 and surface hole (311mm./12.25") was drilled to 194.0m. Surface casing (244mm./9.625") was set at 190.2m. and 216mm. (8.5") hole was drilled to total depth. Total depth (driller) of 1686.5m. was reached on May 23rd, 1995.

At Bargie-3, a normal Eromanga Basin sedimentary section was encountered, unconformably overlying an Adavale Basin sequence. The Jurassic tops were low to prognosis by up to 12m.

The overall basal Jurassic sandstone had poor to good reservoir quality. The Bargie-1 oil sand equivalent was cored in Bargie-3 but it had only fair reservoir quality and on test, recovered 265m. of muddy water.

After logging, the well was plugged and the rig released on 26th. May 1995.

Wellsite
Geologist:

D.A. Short

Card Prepared by: D.A. Short / S.M. Robbie

Date: 08/95

1.0 SUMMARY

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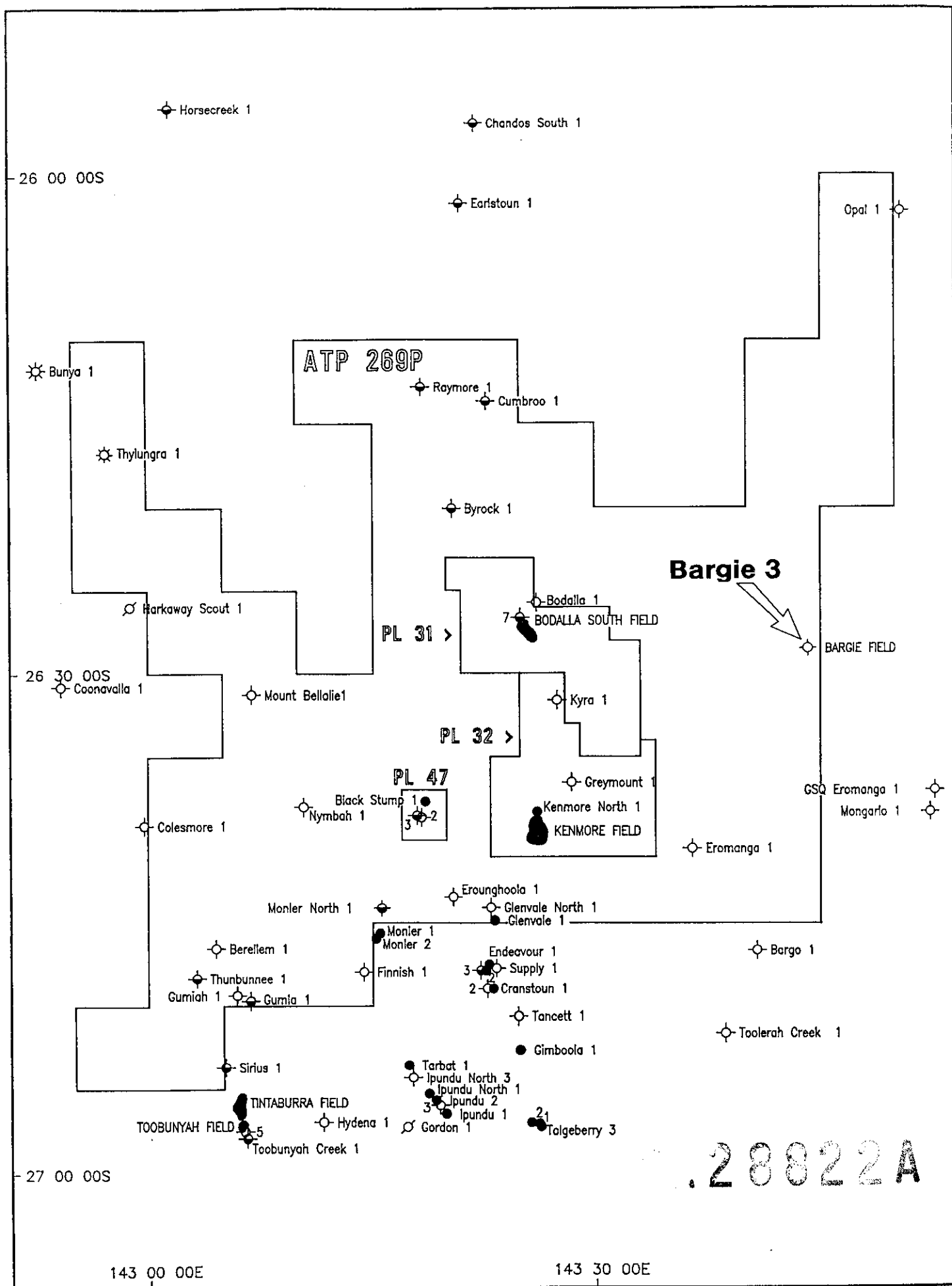


Figure 1

OIL COMPANY OF AUSTRALIA

ATP 269P - Bargie #3

Well Location

2.0 WELL HISTORY

2.1 General Data

- 2.1.1 Well Name and Number : BARGIE No.3
- 2.1.2 Location : Latitude : 26°27'09.4"S
Longitude : 143°44'47.6"E
Easting : 773 872.85
Northing : 7 071 254.68
Seismic : Station 1360
Line HQ84-223
- 2.1.3 Elevations : G.L. : 185.6m. A.S.L.
K.B. : 190.9m. A.S.L.
- 2.1.4 Petroleum Tenement : ATP 269P Queensland
- 2.1.5 Name of Operator : OIL COMPANY OF
AUSTRALIA LIMITED
A.C.N. 001 646 331
1st Floor, North Court,
John Oxley Centre,
339 Coronation Drive,
MILTON QLD 4064
- 2.1.6 Other Participants : BEACH PETROLEUM N.L.,
A.C.N. 007 617 969
C/- CLAREMONT PETROLEUM N.L.
Level 7,
345-355 George Street
SYDNEY N.S.W. 2000
- BLIGH OIL & MINERALS N.L.
A.C.N. 009 799 455
Level 18
200 Mary Street
BRISBANE QLD 4000
- PETROMIN N.L.
A.C.N. 009 778 787
C/- SANTOS LIMITED
A.G.L. House
60 Edward Street
BRISBANE QLD 4000

- 2.1.7 Date Drilling Commenced: 1400 hours 14th May, 1995
- 2.1.8 Date Drilling Completed : 1830 hours 23rd May, 1995
- 2.1.9 Date Rig Released : 2400 hours 26th May, 1995
- 2.1.10 Drilling Time to T.D. : 12.4 days
- 2.1.11 Total Depth : Driller : 1686.5m.
Logger : 1684.5m. (Extrap.)
- 2.1.12 Status : Plugged and abandoned.

2.2 Rig Data

2.2.1	Drilling Contractor	:	Century Drilling Limited 357 Greenhill Road TOORAK GARDENS SA 5065
2.2.2	Rig	:	Number 2 Make - Ideco Capacity - 145,150 kg/320,000 lbs
2.2.3	Draw Works	:	Type - Ideco H-44-CSC Drive System - 2 Caterpillar 3408-DITA Transmission - Allison 5860 Drill Line - 28mm/1-1/8"
2.2.4	Mast	:	Type - Ideco KM-117-358AH Height - 36 metres/118 ft Capacity - 162,390 kg/358,000 lbs
2.2.5	Substructure	:	Floor Height - 5.0 metres / 16.4 feet KB Height - 5.3 metres / 17.4 feet
2.2.6	Rotary Table	:	Type - Ideco SR-23-E
2.2.7	Hook Block	:	Type - Ideco UTB-265 Capacity - 269 tonnes/265 tons
2.2.8	Swivel	:	Type - Ideco TL-200
2.2.9	Mud Pumps (2)	:	Type - National 7-P50 Triplex Power - Caterpillar D.379 TAC Output - 500 hp
2.2.10	Mud System	:	Tanks - 414 bbl shaker tank 400 bbl suction tank
2.2.11	Shale Shakers (2)	:	Type - Double Life Linear Motion
2.2.12	Desander	:	Type - Harrisburg DSN 1000 Cones - 2 x 254 mm / 10"

2.2.13	Desilter	:	Type -	Combination mud cleaner / desilter with Harrisburg 6 x 8 centrifugal pump
2.2.14	Ram Type BOP	:	Type - Bore Size - Rating -	Shaffer LWS 346 mm/13 5/8" 34,475 kpa/5000 psi
2.2.15	Annular Type BOP	:	Type - Bore Size - Rating -	Hydril GK 346 mm/13 5/8" 34,475 kpa/5000 psi
2.2.16	Accumulator	:	Type -	Koomey 120 LS Type 80
2.2.17	Kill Line	:	Size -	2 x 51mm/2" 5000psi gate valve manual C.I.W.
2.2.18	Drill Pipe	:	Size - Weight - Grade - Connection -	4.5" 16.6 lb/ft E 4" IF
2.2.19	HW Drill Pipe	:	Size - Grade - Connection -	4.5" E 4" IF
2.2.20	Drill Collars	:	Number/Size - Connection - Number/Size - Connection -	3 x 8" 6.625" reg 21 x 6.25" 4" IF

2.3 Drilling Data

- 2.3.1 The following is the daily operations summary for Bargie-3. It has been compiled from the tour sheets and daily drilling reports. Onsite drilling supervision for Oil Company of Australia Limited was provided by L. Norstrom. Further details are provided in the time/depth curve (Figure 2) and the time analysis chart (Figure 3).

The depths in the following summary are those reached at 2400 hours on each day with the operations given for that day.

Date	Depth	Operation
14.05.95	129.0m.	Spud Bargie-3 @ 1400 hours 14/05/1995 - Dynadrill 311mm. hole to 39m. - POH - Layout and service dynadrill - Make up new bit & BHA - RIH - Wash and ream to bottom - Circulate & survey - Drill with surveys to 129m.
15.05.95	194.5m.	Drill with surveys to 194.5m. - Wiper trip - Circulate and condition hole - POH & layout 8" drill collars - Rig for & run 244mm. casing - Head up, circulate and reciprocate casing - Cement casing with 300 sacks "A" & 1% CaCl ₂ @ 190.2m. - WOC - Install "A" section - Nipple up BOP's
16.05.95	387.0m.	Nipple up BOP's, choke manifold and flare line - Pressure BOPS with cup tester as per programme - OK - Make up bit and BHA, RIH, tag cement @180m. - Drill out cement and shoe - Drill to 349m. - POH to retrieve survey barrel - RIH to 339m. - Wash and ream to bottom - Drill to 387m.
17.05.95	923.0m.	Drill with surveys to 923m.
18.05.95	1143.0m.	Drill with surveys to 1143m. - Circulate bottoms up - POH - Ream tight hole 653-557m. - Change bit - RIH to shoe - Slip drilling line.
19.05.95	1340.0m.	RIH to 1121m. - Wash and ream to bottom, work junk sub - Drill with survey to 1340m.
20.05.95	1520.0m.	Drill with survey to 1520m.
21.05.95	1615.0m.	Drill to 1615m. - Circulate bottoms up - Drop survey - Strap out - Make up core barrel / bit - Safety meeting - RIH to shoe - Slip and cut drilling line - Run BOP drill - RIH to 593m. - Wash and ream to 600m.

- 22.05.95 1643.0m Ream tight sections - Cut core#1 1615 to 1633.5m. - Break core - POH - Recover 100% core - Service core barrel - Hold safety meeting - Make up core barrel - RIH to 1622m. - Wash and ream to bottom - Cut core#2 1633.5 to 1643m.
- 23.05.95 1686.5m Cut core#1 1643 to 1652m. - Circulate - Break core - POH - Recover 100% core - Service and layout core barrel - Make up bit & BHA - RIH to shoe - Slip drill line - RIH to 1607m. - Wash and ream to bottom - Drill to 1686.5m. - Circulate bottoms up - POH - Safety meeting - Rig for and run wireline logs.
- 24.05.95 1686.5m. Run wireline logs and velocity survey.
- 25.05.95 1686.5m. Complete logs / velocity survey - Rig down loggers - Make up inflate test tools - RIH. - Head up - DST#1 (1614.0-20.0m. - driller / 1612.0-18.0m. - logger) - Pull free - POH - Collect samples, recover recorders, layout test tools - RIH with BHA, break kelly connection, POH sideways.
- 26.05.95 1686.5m Lay out kelly and swivel - RIH open ended to shoe - Slip drill line - RIH to 1630m., picking up extra drill pipe - Hold safety meeting - Run plugs - Lay out excess drill pipe - WOC - RIH and tag top cement plug @ 158m. - POH and lay out drill pipe - Flush BOPs and all lines - Nipple down and lay out BOP's Remove "A" section, clean mud tanks, pumps and surface equipment - Rig release @ 2400 hours on 26th May, 1995.

2.3.2 Hole Sizes and Depths :

12.25" / 311mm. to 194.5m.
8.5" / 216mm. to Total Depth

2.3.3 Casing and Cementing :

Surface

Size - 9.625" / 244 mm.
Weight - 36 lb/ft 53.6 kg/m
Grade - J55
Shoe Setting Depth - 190.2m.
Quantity of Cement - 300 sacks "A" + 1% CaCl₂
Interval Cemented - To surface

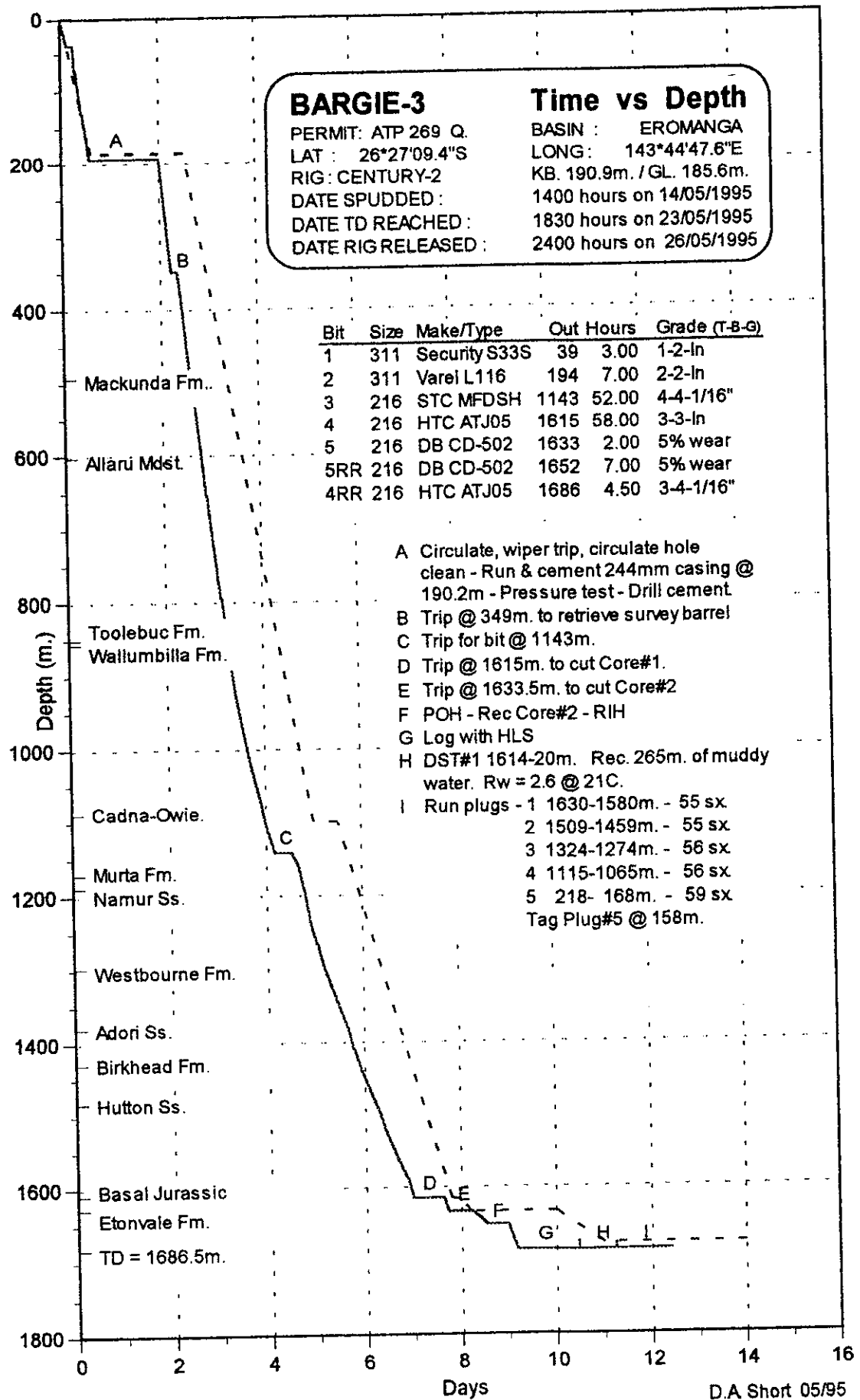
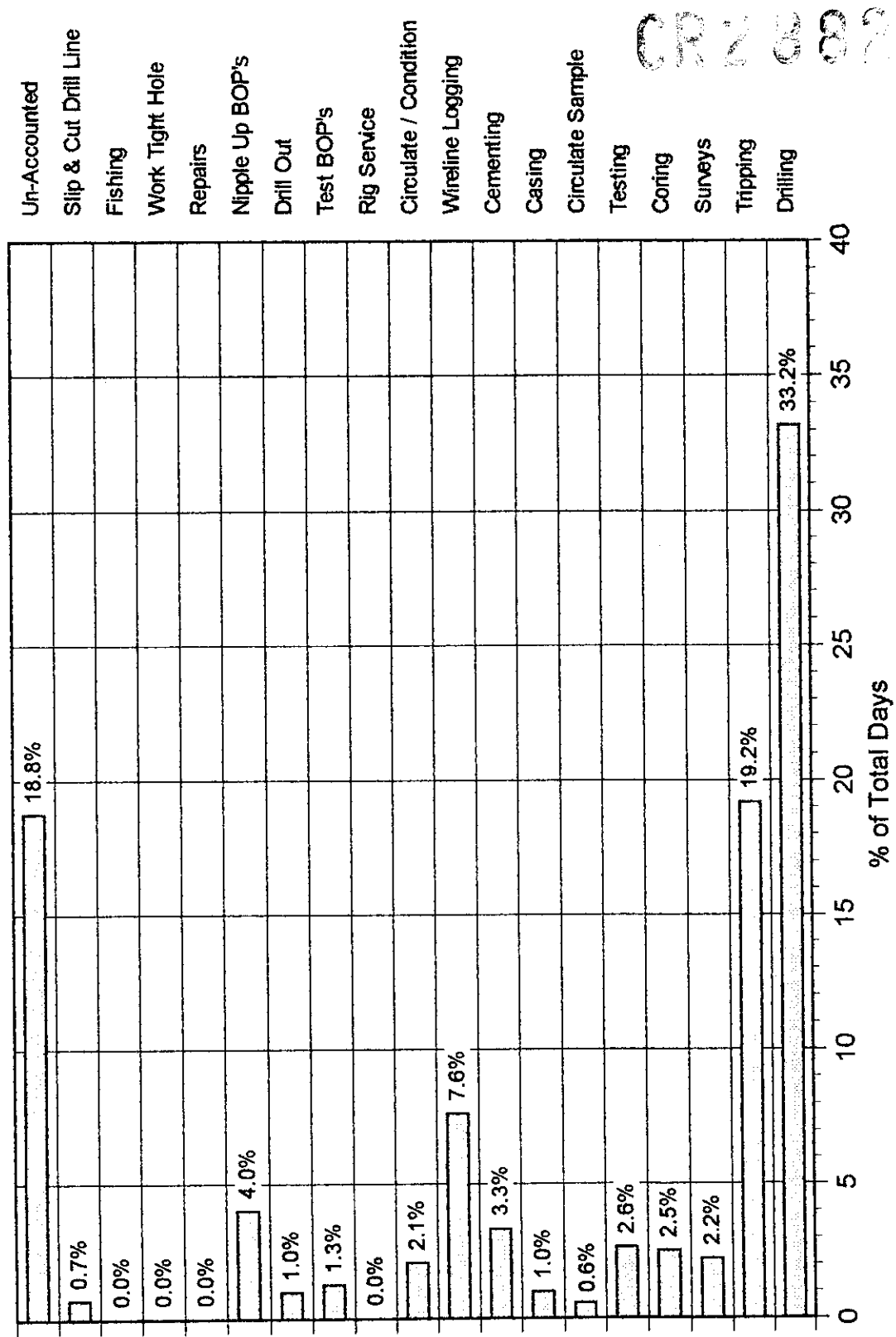


Figure 2



BARGIE No.3 - Time Breakdown Chart

2.3.4 Deviation Surveys :

Depth (metres)	Deviation (degrees)	Depth (metres)	Deviation (degrees)	Depth (metres)	Deviation (degrees)
31	0.75	489	0.75	1254	0.50
60	0.50	643	0.50	1397	0.25
116	1.00	796	1.25	1607	0.75
194	0.75	949	1.25	1674	1.00
336	0.25	1102	1.25		

2.3.5 Drilling Fluid :

- (a) Spud - 194.5m. Fluid - Fresh water - Gel
Additives - Bentonite, Caustic, Lime.
- (b) 194.5m.. - TD. Fluid - KCl - Polymer
Additives - KCl, Polypac, Caustic, Barytes,
Bentonite, Lime, OS-1, Bacban III

2.3.6 Physical Mud Properties :

Date	Wt.	Vis.	WL	FC	pH	KCl	Solids	Cl-
15/05	8.6							
16/05	8.7	36			9.0	5.0	2.6	25000
17/05	9.0	33	16.6	3	9.0	4.5	4.7	24500
18/05	9.7	38	8.4	1	9.0	6.3	9.8	34000
19/05	9.6	43	6.1	1	9.5	5.0	9.0	26500
20/05	9.6	42	6.4	1	9.5	5.0	9.4	26500
21/05	9.7	45	5.8	1	10.0	5.0	9.7	27000
22/05	9.8	43	5.8	1	9.5	5.0	10.1	26500
23/05	9.8	43	5.8	1	10.0	5.0	10.4	29500
24/05	9.8	43	5.8	1	10.0	5.0	10.4	29000
25/05	9.9	49	6.0	1	9.5	5.0	11.4	29000

Chemicals Used :

Product	Units	Amount
Bacban (6 lb)	4 drums	24 lb
Barytes (25 kg)	120 sacks	3000 kg
Caustic Soda (25 kg)	26 sacks	650 kg
KCl (25 kg)	676 sacks	16900 kg
Lime (25 kg)	6 sacks	150 kg
MI Gel (100 lb)	69 sacks	6900 lb
Polypac (25 kg)	70 sacks	1750 kg
OS-1 (25 kg)	7 sacks	175 kg

2.3.7 Water Supply :

Water was obtained from a dam about 0.5kms. from the lease.

2.3.8 Perforation Record :

None

2.3.9 Plugging and Cementing :

Plug#1	1630 - 1580m.	55 sacks
Plug#2	1509 - 1459m.	55 sacks
Plug#3	1324 - 1274m.	56 sacks
Plug#4	1115 - 1065m.	56 sacks
Plug#5	218 - 168m.	59 sacks
Plug#6	Surface	20 sacks

2.4 Logging and Testing

2.4.1 Wellsite Geologist :

D. A. Short

2.4.2 Mudlogging :

Mudlogging services were provided by Halliburton SDL. Cuttings gas was monitored from surface casing shoe to total depth using a hot-wire gas detector and a FID gas chromatograph.

A mudlog recording lithology, penetration rate, mud gas and other data was prepared and is an enclosure to this report.

2.4.3 Ditch Cutting Samples :

Cuttings were collected at 10m. intervals from casing shoe to 1060.0m. and then at 3m. intervals to T.D. The cuttings samples and sets were:

<u>Sample Type</u>	<u>No. Sets</u>
Unwashed	1
Washed	2
Samplex Trays	1

2.4.4 Coring :

- 1 basal Jurassic ss. / Etonvale Fm.
1615.00-33.50m.(D) / 1613.00-31.50m.(L)
Rec: 18.5m. (100%)
- 2 Etonvale Fm.
1633.50-52.00m.(D) / 1631.50-50.00m.(L)
Rec: 18.5m. (100%)

2.4.5 Sidewall Cores :

None.

2.4.6 Testing :

DST No.: 1 (Inflate Straddle)
Formation : basal Jurassic sandstone
Interval : 1614.0-1620.1m. (D) / 1612.0-1618.1m. (L)
Result: Weak air blow. NGTS
Recovery : 265m. of slightly muddy water. (Rw 2.6@21°C)

2.4.7 Wireline Logs :

One suite of logs was run by Halliburton Logging Services

<u>Type Log</u>	<u>Interval</u>
DLL-SP-GR-Cal	1680.0 - 194.0 m
MSFL	1684.6 - 1049.0 m
BCS-GR (Sonic)	1673.0 - 194.0 m
SLD-CNL-GR	1684.5 - 1049.4 m
FED-GR	1665.7 - 1039.4 m

2.4.8 Temperature Surveys :

Wireline logging recorded the following bottom hole temperatures :-

1. 100.0°C/ 4.9 hours after circulation ceased.
2. 92.2°C/10.0 hours after circulation ceased.

2.4.9 Velocity Survey :

A velocity survey was run by Velocity Data Pty Ltd.

3.0 GEOLOGY

3.1 Reasons for Drilling

Bargie-3 was proposed to test the northerly extent of the lower Jurassic oil accumulation within the Bargie Structure at a location approximately 2.6km. north of Bargie-1. It was envisaged that a similar depositional sequence will be intersected as that seen at Bargie-1, given the continuity of the basal Jurassic section in the Bodalla South oilfield. Bargie-2, located 0.9 km. south of Bargie-1 was drilled immediately prior to Bargie-3 and encountered a tight oil filled basal Jurassic sand.

The Bargie Oilfield was discovered by the drilling of Bargie-1 in January 1994. The structure is an elongate feature (up to 9.1 km² to LCC), trending NNE-SSW, with a maximum mapped vertical closure of about 20ms at the basal Jurassic level.

The Bargie-1 exploration well was a test of the Jurassic Hutton Sandstone and basal Jurassic Formations within a four way dip closure on the little explored eastern flank of ATP 269P. It was drilled primarily to test the hypothesis of early migrated oil from the mature Permian section in the central part of ATP 269P. The well also addressed the relationship between palaeo and present day closure.

The primary target, the Hutton Sandstone was intersected close to prognosis and comprised predominantly quartzose sandstone with fair to excellent inferred porosity. No hydrocarbon shows were observed, and the formation was subsequently interpreted from wireline logs to be water wet.

The secondary target in Bargie-1, the basal Jurassic Formation was intersected 34 metres high to prognosis. Fluorescence was observed over a 16 metre interval within mid basal Jurassic sands. A test over a 5.5 metre interval (1609.5-1615.1 mRT) recovered 21.5 barrels of 46° API oil with no water. Separate tests above and below this interval each flowed water to surface at over 1000 barrels per day with no associated hydrocarbons.

The well was cased and completed over the interval 1609.7 - 1614 mRT. Production testing began in April 1994. The initial oil rate was 161 BOPD with water cut measured between 0-2 BWPD.

The thickness for the inferred good quality sand based on the seismic modeling response has not been mapped at the Bargie Field due to limited well control. The average thickness of the oil sand at Bodalla South wells 1, 2, 3, 5 and 6 is 9.4 metres. At Bargie-1, this thickness is 5.5 metres. Bargie-3 was expected to encounter a similar thickness sand as that at Bargie-1.

3.2 Stratigraphic Prognosis

The stratigraphic prognosis was made utilising the results of nearby wells and the available extensive seismic coverage.

A comparison between prognosed and actual formation tops is given below.

FORMATION	PREDICTED TOP	ACTUAL TOP	DIFFERENCE
	Metres	Metres	Metres
WINTON	5.5	5.0	0.5
MACKUNDA	495.5	495.0	0.5
ALLARU	605.5	605.0	0.5
TOOLEBUC	838.5	852.0	-13.5
WALLUMBILLA	848.5	858.0	-9.5
CADNA-OWIE*	1093.5	1090.5	3.0
MURTA MEMBER	1169.5	1173.0	-3.5
NAMUR MEMBER	1188.5	1191.0	-2.5
WESTBOURNE	1291.5	1299.0	-7.5
IW SONIC MARKER*	1357.5	1362.5	-5.0
ADORI	1375.5	1382.0	-6.5
BIRKHEAD	1419.5	1431.0	-11.5
HUTTON*	1490.5	1484.0	6.5
BASAL JURASSIC*	1602.5	1611.0	-8.5
ETONVALE*	1627.5	1630.5	-3.0
PROPOSED T.D.	1657.5	1686.5	-29.0

*Geophysical prognosis

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3.3 Stratigraphy

WINTON FORMATION

5.0 - 495.0 metres

Thickness : 490.0 metres

260.0 - 495.0 m SILTSTONE with SANDSTONE interbeds and minor COAL.

SILTSTONE, white to light grey, light grey-brown, soft to firm, minor carbonaceous material, minor lithics, very argillaceous and grades to claystone in part, calcareous in part.

SANDSTONE, white to grey, light to dark grey, light grey-green, very fine to fine, sub-angular to sub-rounded, moderate to well sorted, abundant green lithic / quartzite grains, feldspathic, calcareous in part, friable, poor porosity.

COAL, dull black, sub-vitreous lustre, grades to carbonaceous shale.

ATP 269P - SOUTH WEST QUEENSLAND

THE STRATIGRAPHY OF THE EROMANGA / COOPER / ADAVALE BASINS

GEOLOGICAL TIME	ERA	SYSTEM	SERIES	STAGE	PALY ZONE	STRATIGRAPHY	SECTION	OIL	DISCOVERIES / FLOWRATES / RECOVERIES			
100	MESOZOIC	CRETACEOUS	L?	CENOMANIAN	APK 7	WINTON FORMATION						
							MACKUNDA FM.					
					ALBIAN TO APTIAN	APK 6	ALLARU MUDSTONE					
							TOOLEBUC FM.					
						APK 5 to APK 3	WALLUMBILLA FORMATION					
					BARRIEMIAN	APK 3						
					NEOCOMMAN	HAUTERIVIAN	APK 2	CADNA - OWIE FORMATION				
						WALANGINIAN						
						BERRIASIAN						
140				JURASSIC	L	TITHONIAN TO OXFORDIAN	APK 1	HOOBY SST. MURTA MEMBER				
							NAMUR SANDSTONE MBR.					
							WESTBOURNE FORMATION					
					CALLOVIAN	APJ 6					Finnish 1 10 L SMCO Glenvale 1 18 BOPD 27 bbls Kenmore 1 5 bbls	
							ADORI SANDSTONE					
					BATHONIAN	APJ 5	BIRKHEAD FORMATION				Gumla 1 17.1 bbls Kenmore 5 100 BOPD (initially)	
					BAJOCIAN						Bodalla South 1 888 BOPD	
					AALENIAN TO	APJ 4 to APJ 3	HUTTON SANDSTONE				Gumla 1 4.76 bbls Kenmore 1 470 BOPD	
					SINEMURIAN	APJ 2 to APJ 1	BASAL JURASSIC				Black Stump 1 42.2 bbls Bodalla South 1 2057 BOPD Kenmore 1 990 BOPD	
195			TRIASSIC									
				MID-LATE	CARNIAN		TINCHOO FORMATION	GILPEPPEE MEMBER				
					LADINIAN	APT 3		DOONMULLA MBR.				
					ANISIAN							
				E	SCYTHIAN	APT 2 to APT 1	ARRABURY FM.					
230		PALAEOZOIC	PERMIAN	L	TATARIAN TO SAKMARIAN	APT 6-5	TOOLACHEE FM.					
					E		APT 3 to APT 1	PATCHAWARRA FM.				
280												
345		DEVONIAN	MID-LATE	FAMENNIAN TO GIVETIAN		ETONVALE FORMATION						
							COOLADDI DOLOMITE					
							LISSOY SANDSTONE					
365						BASEMENT						

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MACKUNDA FORMATION

495.0 - 605.0 metres

Thickness : 110.0 metres

495.0 - 605.0 m SANDSTONE with SILTSTONE interbeds.

SANDSTONE, light grey to grey-green, grey-brown, very fine to fine, sub-angular to sub-rounded, moderate to well sorted, abundant grey-green to green lithic / quartzite grains, minor glauconite, minor feldspar, trace biotite, moderate clay matrix, weak calcite cement in part, moderately hard, poor porosity.

SILTSTONE, white to light brown, soft, micro-micaceous, carbonaceous material, grades to silty claystone in part.

ALLARU MUDSTONE

605.0 - 852.0 metres

Thickness : 247.0 metres

605.0 - 633.0m. Interbedded SANDSTONE and SILTSTONE.

SANDSTONE, light grey, grey-brown, grey-green, very fine, sub-angular to sub-rounded, moderate to well sorted, green glauconite and green quartzite grains, lithic, feldspathic, trace mica and carbonaceous material, moderate clay matrix, moderately hard, poor porosity.

SILTSTONE, light grey-brown, soft, sandy in part, minor carbonaceous material, argillaceous.

633.0 - 852.0m. SILTSTONE, light to moderate grey, grey-brown, soft to firm, minor grey-green and sandy, minor carbonaceous material, very argillaceous and grades to claystone in part, very calcareous in part and grades to limestone with calcite / shell fragments.

TOOLEBUC FORMATION

852.0 - 858.0 metres

Thickness : 6.0 metres

852.0 - 858.0 m SILTSTONE, moderate to dark brown, firm, very thin carbonaceous laminae, calcareous with minor shell fragments.

WALLUMBILLA FORMATION

858.0 - 1090.5 metres

Thickness : 232.5 metres

858.0 - 1090.5 m SILTSTONE, light to moderate grey, becoming moderate to dark grey with depth, soft to firm, very argillaceous and grades to claystone with depth, rare carbonaceous fragments, occasionally sandy and glauconitic, trace calcite / shell fragments, rare pyrite.

CADNA-OWIE FORMATION

1090.5 - 1173.0 metres

Thickness : 82.5 metres

1090.5 -1138.0m. Interbedded SANDSTONE and SILTSTONE.

SANDSTONE, white to light grey, light brown, very fine to medium, sub-angular to sub-rounded, moderate sorted, lithic, feldspathic, trace mica and carbonaceous material, minor glauconite, silty, clay matrix, calcareous in part, friable to moderately hard, poor to fair and rare good porosity.

SILTSTONE, light brown, firm, micaceous, carbonaceous specks and laminae, argillaceous in part, sandy in part.

1138.0 - 1173.0m. SILTSTONE, white to light brown, light grey to grey-brown, soft to firm, very argillaceous in part, predominantly carbonaceous, micaceous, lithic, feldspathic, grades to very fine sandstone in part, slightly calcareous.

MURTA MEMBER

1173.0 - 1191.0 metres

Thickness : 18.0 metres

1173.0 - 1180.0m. SILTSTONE, light to moderate grey to grey-brown, firm, micaceous, carbonaceous.

1180.0 - 1191.0m. SANDSTONE with minor SILTSTONE.

SANDSTONE, white, very fine to fine, occasionally medium and coarse, sub-angular to sub-rounded, moderate sorted, minor lithic, mica and feldspar, moderate clay matrix, silica cement, friable to moderately hard, poor to fair porosity.

SILTSTONE, light to moderate grey to grey-brown, firm, micaceous, carbonaceous.

NAMUR MEMBER

1191.0 - 1299.0 metres

Thickness : 108.0 metres

- 1191.0 - 1234.0m. SANDSTONE, clear to white, very fine to fine, sub-angular, moderate sorted, trace lithic / quartzite grains, friable to loose, good porosity.
- 1234.0 - 1246.0m. Interbedded SILTSTONE and SHALE with minor SANDSTONE and rare COAL.
SILTSTONE, light to moderate grey, light to dark brown, firm, micaceous, carbonaceous, occasionally shaly and grades to coal.
SHALE, dark brown, very carbonaceous and grades to coal.
SANDSTONE, white, very fine to fine, sub-angular to sub-rounded, moderate sorted, trace lithic / quartzite grains, trace silty carbonaceous laminae, moderate clay matrix, friable, fair to good porosity.
COAL, dull black, sub-vitreous lustre.
- 1246.0 - 1299.0m. SANDSTONE with occasional SILTSTONE.
SANDSTONE, clear to white, very fine to fine, occasionally medium, sub-angular, moderate to well sorted, occasional quartz overgrowths, trace lithic / quartzite grains and feldspar, trace dispersive clay matrix, friable to loose, moderate calcite cement in part, good porosity.
SILTSTONE, light brown, firm, micaceous, coaly, / carbonaceous laminae.

WESTBOURNE FORMATION

1299.0 - 1382.0 metres

Thickness : 83.0 metres

- 1299.0 - 1313.0m. SILTSTONE with minor SHALE and SANDSTONE.
SILTSTONE, white to light brown, firm to hard, micro-micaceous, very fine carbonaceous specks, grades to very fine grained sandstone in part.
SHALE, light to moderate grey.
SANDSTONE, white to pale grey, very fine, sub-rounded, well sorted, grades to siltstone, minor lithics and feldspar, silica cement, moderately hard, poor porosity.

- 1313.0 - 1382.0 m Interbedded SANDSTONE and SILTSTONE.
SANDSTONE, off-white, very fine, sub-rounded, well sorted, trace clay matrix, weak silica cement, friable, fair to good porosity.
SILTSTONE, light brown, firm, micro-micaceous, very fine carbonaceous specks, grades to and laminated with very fine grained sandstone.

ADORI SANDSTONE

1382.0 - 1431.0 metres

Thickness : 49.0 metres

- 1382.0 - 1431.0m. SANDSTONE, clear to white, very fine to medium, sub-angular, moderate to well sorted, trace mica and lithic / quartzite grains, trace clay matrix, friable to loose, weak silica cement, good porosity.

BIRKHEAD FORMATION

1431.0 - 1484.0 metres

Thickness : 53.0 metres

- 1431.0 - 1484.0m. Interbedded SANDSTONE and SILTSTONE with minor COAL.
SANDSTONE, white to light brown, very fine to occasionally medium, angular to sub-rounded, poor to moderate sorted, silty, moderate grey-green lithic / quartzite grains, feldspathic, very abundant dispersive clay matrix, slightly calcareous, friable, poor to fair porosity.
SILTSTONE, light brown, soft to firm, sandy, carbonaceous specks, micaceous, very argillaceous and grades to claystone in part.
COAL, dull black, sub-vitreous lustre.

HUTTON SANDSTONE

1484.0 - 1611.0 metres

Thickness : 127.0 metres

- 1484.0 - 1611.0m. SANDSTONE with minor SILTSTONE.
SANDSTONE, clear to white, pale grey, very fine to medium, some coarse, sub-angular to sub-rounded, poor to moderate sorted, minor quartz overgrowths, minor grey lithic / quartzite grains and feldspar, rare garnet, trace clay matrix, silica cement, friable, fair to mostly good porosity. Interval 1590-1600m. has grains with a yellow-brown "stain" / colouration - nil fluorescence. Colouration

appears to be associated with the micro-fine matrix filling some porosity and adhering to some grain surfaces.

SILTSTONE, light brown, soft to firm, very argillaceous and grades to claystone, carbonaceous, micaceous.

Basal JURASSIC

1611.0 - 1630.5 metres

Thickness : 19.5 metres

- 1611.0 - 1613.0m. SILTSTONE, light grey, firm to hard, carbonaceous specks and laminae, lithic, feldspathic.
- 1613.0-1617.3m. SANDSTONE, white to brown, very fine to fine, occasionally medium, abundant clay matrix, fair porosity. Laminated with numerous silty / carbonaceous laminae; minor silty / shaly bands; thin coaly laminae / bands.
- 1617.3-1620.0m. SILTSTONE / SANDSTONE interbeds, grading down to dark brown to black very thinly laminated, very carbonaceous SHALE.
- 1620.0-1622.7m. SANDSTONE, white to light brown, fine, poor porosity with abundant thin silty carbonaceous laminae, occasional coaly bands.
- 1622.7-1625.0m. SANDSTONE, white, medium to coarse, becoming very coarse at base, minor quartz overgrowths, minor silty carbonaceous laminae, trace to moderate clay matrix, good porosity.
- 1625.0-1629.5m. SILTSTONE and SHALE.
SILTSTONE, dark brown, carbonaceous, minor thin sandstone laminae.
SHALE, dark brown, carbonaceous / coaly laminae.
- 1629.5-1630.5m. SANDSTONE, white to light brown, very fine to fine, silty, conglomeratic at base, poor to fair porosity.

ETONVALE FORMATION

1630.5 - 1684.5 metres

Thickness : >54.0 metres

- 1630.5 - 1684.5m. SANDSTONE, white to pale green, very fine to medium, mostly fine, sub-rounded, moderate to well sorted, abundant yellow-orange and green to grey-green lithic / quartzite grains, dispersive clay matrix, friable, poor to fair porosity.

TOTAL DEPTH

Driller: 1686.5 metres

Logger: 1684.5 metres (Extrapolated depth).

3.4 Hydrocarbon Shows

In the basal Jurassic, the sand had no shows or fluorescence and a DST of the sand recovered 265m. of formation water..

4.0 DISCUSSION AND CONCLUSIONS

Bargie-3 encountered a similar section to Bargies 1&2, although formation tops were generally low to prognosis. Reservoir quality in the basal Jurassic sandstone was fair to good but the Bargie-1 "oil sand" recovered only water on test. From the DST, recoveries in Bargie-2 (oil) and Bargie-3 (water), the oil / water contact in the Bargie Field would appear to be between - 1416m. (B#2) and - 1423m. (B#3).

Table 1 : BARGIE No.3 - STRATIGRAPHIC TABLE

AGE	FORMATION	K.B. DEPTHS	MSL DEPTHS	THICKNESS
E. CRETACEOUS	WINTON	5.0	185.6	490.0
E. CRETACEOUS	MACKUNDA	495.0	-304.4	110.0
E. CRETACEOUS	ALLARU	605.0	-414.4	247.0
E. CRETACEOUS	TOOLEBUC	852.0	-661.4	6.0
E. CRETACEOUS	WALLUMBILLA	858.0	-667.4	232.5
E. CRETACEOUS	CADNA-OWIE	1090.5	-899.9	82.5
E. CRETACEOUS	MURTA MEMBER	1173.0	-982.4	18.0
L. JURASSIC	NAMUR MEMBER	1191.0	-1000.4	108.0
L. JURASSIC	WESTBOURNE	1299.0	-1108.4	83.0
L. JURASSIC	IW SONIC MARKER	1362.5	-1171.9	
L. JURASSIC	ADORI	1382.0	-1191.4	49.0
M. JURASSIC	BIRKHEAD	1431.0	-1240.4	53.0
M. JURASSIC	HUTTON	1484.0	-1293.4	127.0
E. JURASSIC	BASAL JURASSIC	1611.0	-1419.9	19.5
DEVONIAN	ETONVALE	1630.5	-1439.4	54.0
	T.D. (Logs)	1684.5	-1493.9	

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