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**INTEQ**



## **END OF WELL REPORT**

**WOODSIDE ENERGY LTD**

**THYLACINE - 1**

**MAY 2001**

**by**

**BAKER HUGHES INTEQ**

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# Woodside Energy Ltd: Thylacine-1

## Final Well Report

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## 1. Operations Summary

### 1.1 Introduction

Baker Hughes INTEQ Mudlogging provided formation evaluation, drill monitoring and pressure evaluation services for Thylacine -1 from spud until abandonment. Data was processed and stored using Drillbyte V.2.3.1 software.

Thylacine-1 was planned as a 2390-metre vertical exploration well to evaluate the hydrocarbon-bearing potential of the Waarre formation on the Thylacine structure. The basal Waarre Sandstone was prognosed as the secondary objective for the well.

The well was spudded at 03:30 hours on 05 May 2001, drilling the 36" hole from the seabed at 126.4mBRT to 182mBRT using seawater and high viscosity prehydrated gel (PHG) sweeps. The 30" conductor casing was run with the swedged 20" shoe set at 181mBRT. The 17.5" hole was then drilled riserless with rates of penetration averaging 26m/hr, using seawater with guar sweeps and hi-vis sweeps to section TD of 752mBRT. After the 13.375" casing was run, the BOPs were then run, landed and tested as per programme.

After drilling out the surface casing shoe track, the 12.25" hole was displaced to a KCI/PHPA/Glycol (Aquadrill) mud system with an initial mud weight of 1.10sg. A Formation Integrity Test (FIT) was performed, yielding an EMW of 2.1 sg. The 12.25" hole was drilled with a fixed cutter bit and mud motor, drilling from 752m to 1116mBRT with penetration rates about 80m/h. Thereafter, average penetration rates were about 32m/hr. Between 1400m to 1480mBRT, although the background gas remained low, increasing amounts of cavings were observed. The mud weight was increased to 1.18sg, and no more cavings were seen after that. Moderate downhole mud losses were recorded at about 1605mBRT. After a CaCO<sub>3</sub> LCM pill was circulated, these losses healed. Section TD for the 12.25" hole was 1855mBRT. A single composite wireline log was run, but the string was unable to pass 1834mBRT due to fill on bottom. A full wiper trip was performed to condition the hole with the mud weight raised to 1.24sg. The 10.75" / 9.625" casing was then run and cemented with the casing shoe set at 1850mBRT.

The 8.5" hole was drilled with the KCI/PHPA/Glycol (Aquadrill) mud system initially weighted to 1.24sg. A Leak-Off Test (LOT) was performed at the shoe depth of 1850mBRT, yielding an EMW of 2.12 sg. Drilling continued reaching the core point at 2165m. A 36m core was cut from 2165m to 2201m with the recovery calculated at 99.3%. Drilling resumed until Thylacine-1 reached its Total Depth of 2710mBRT at 1950hrs on the 18<sup>th</sup> of May 2001.

Following an extended wireline logging programme, a 7" liner string was run and cemented. Thylacine-1 was then plugged and suspended. The Ocean Bounty was towed off location on the 28<sup>th</sup> of May 2001.

## 1.2 Well and Rig Information

Well Name:	Thylacine -1	
Well Type:	Vertical Exploration Well	
Operator:	Woodside Energy Ltd.	
Location:	Offshore Otway Basin, offshore Victoria, Australia	
Block:	T /30P	
Final Coordinates:	Latitude	39° 14' 27.592" S
	Longitude	142° 54' 4.169" E
Rig:	Ocean Bounty	
Type:	Semi-submersible MODU	
Rig Floor - Seabed:	126.4.0 mBRT	
Rig Floor - MSL	25 mLAT	
Spud Date:	5 May 2001	
Total Depth:	2710 mBRT	
Status:	Cased & Suspended	
Baker Hughes INTEQ:	Data Engineers:	Romeo Tena Rommel Tadiar Joseph Bardelosa
	Logging Geologists:	Ajitoro Matt Ronan
	Sample Technicians	Richard Hatcher Elaine Spence

## **Section 2**

### **Drilling and Engineering**

## 2.1 Bit Run Summaries

### 36" Phase: 05 May 2001

#### Bit Run 1 Summary

Bit Number	RB 1
Bit Size	36"
Bit Type	Varel L111A
S/N	3546
Jets	Open
Depth In, mBRT	126.4
Depth Out, mBRT	182
Metres Drilled	55.6
Drilling Hours	1.6
TBR, krevs	6.2
Circulating Hours	2.7
Average ROP, m/hr	34.8
API Condition	Not Graded

#### **Drilling Parameters**

WOB, tonnes	0.2 - 3.0
RPM	19 - 77
Torque kft-lbs.	0.6 - 4.25
Pump Pressure, psi	61 - 1453
Flow In, gpm	156 - 1192

#### **Mud System**

Seawater & hi-viscosity Gel	1.03 sg
Sweeps	

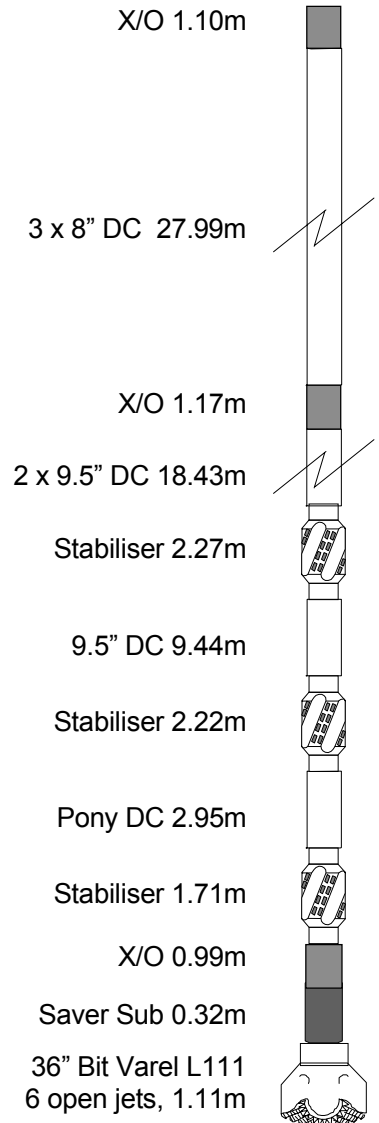
#### **Lithology**

Returns to seabed.

#### **Drilling Summary**

After running anchors, the TGB was run in with the 36" drilling assembly and set. The 36" bit tagged the seabed at 126.4mBRT. Thylacine-1 was spudded at 03:30hrs on 05 May 2001. The section was drilled using seawater, with hi-vis prehydrated gel (PHG) sweeps pumped every 9 metres. At section TD of 182mBRT, a 100bbbls hi-vis PHG pill was swept around. A TOTCO survey tool was dropped and indicated a bottomhole inclination of 1°. The hole was then displaced with 350bbbls PHG before the bit was pulled to surface to run the 30"/ 20" conductor casing.

### **BHA 1 69.72m**



**17½" Phase : 05 - 06 May 2001****Bit Run 2 Summary**

Bit Number	NB 2
Bit Size	17½"
Bit Type	Smith MGSSH
S/N	LW4961
Jets	3 x 14, 1 x 16
Depth In, mRT	182m
Depth Out, mRT	752m
Metres Drilled	570
Drilling Hours	21.4
TBR, krevs	127.5
Circulating Hours	26.3
Average ROP, m/hr	26.6
API Condition	1-1-WT-O-E-1-NO-TD

**Drilling Parameters**

WOB, tonnes	0.1	-	15.8
RPM	63	-	111
Torque kft-lbs.	0.9	-	6.4
Pump Pressure, psi	1051	-	3728
Flow In, gpm	495	-	1459

**Mud System**

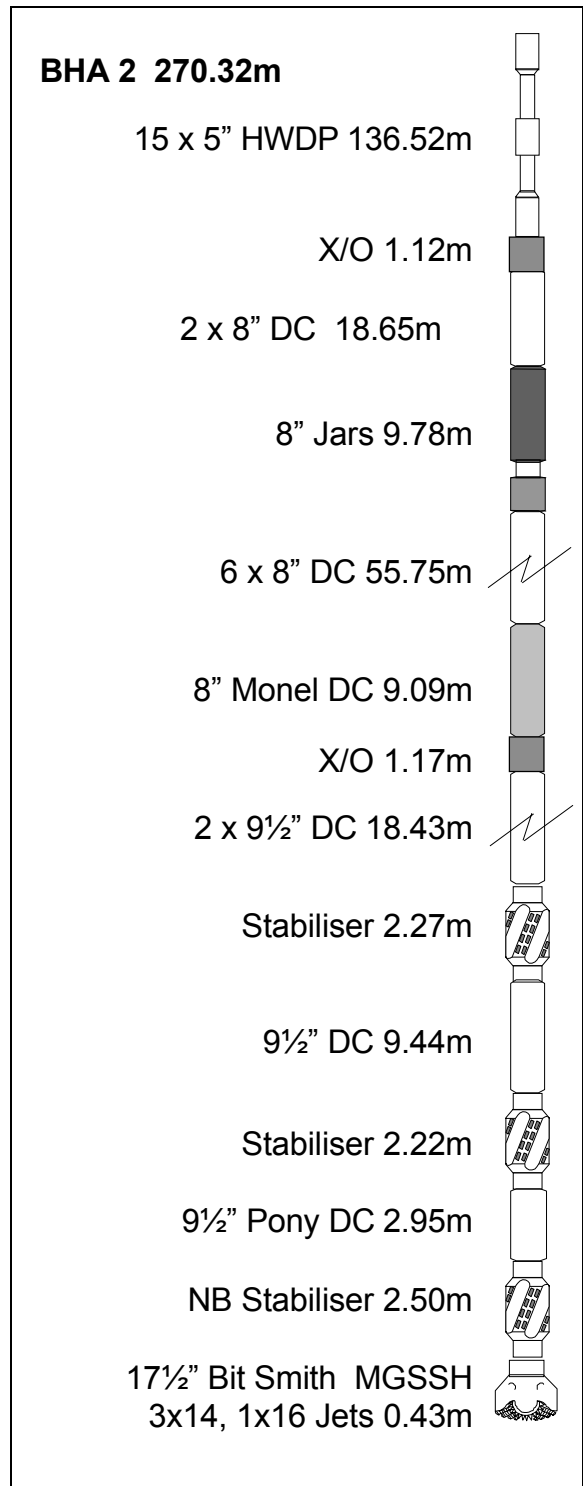
Seawater & hi-viscosity Gel	1.03 sg
Sweeps	

**Lithology**

Returns to seabed.

**Drilling Summary**

NB 2 was made up to a packed drilling assembly and run in, drilling out the 20" casing shoe at 181mRT. New formation was drilled from 182mBRT with 50bbls guar gum sweeps pumped every 9 metres drilled and 100 bbls prehydrated gel (PHG) spotted at each connection. Penetration rates were moderate, averaging about 27 m/hr for the whole run. Section TD was reached at 752mBRT. A 200 bbls havis PHG pill was swept around the hole before displacing the hole to a 690 bbls PHG inhibitive pill. The bit was then pulled out of the hole to run the 13.375" casing.



**12¼" Phase: 08 - 10 May 2001****Bit Run 3 Summary**

Bit Number	NB 3
Bit Size	12¼"
Bit Type	Hughes BD535
S/N	1212604
Jets	7 x 12
Depth In, mRT	752
Depth Out, mRT	1855
Metres Drilled	1103
Drilling Hours	34.3
TBR, krevs	420.8
Circulating Hours	45.8
Average ROP, m/hr	32.2
API Condition	2-6-WT-A- X-2-(CT,RO,PN)-TD

**Drilling Parameters**

WOB, mt	0.4	-	13.7
RPM (surface + motor)	143	-	261
Torque kft-lbs.	1.5	-	10.7
Pump Pressure, psi	1781	-	3740
Flow In, gpm	635	-	1374

**Mud System**

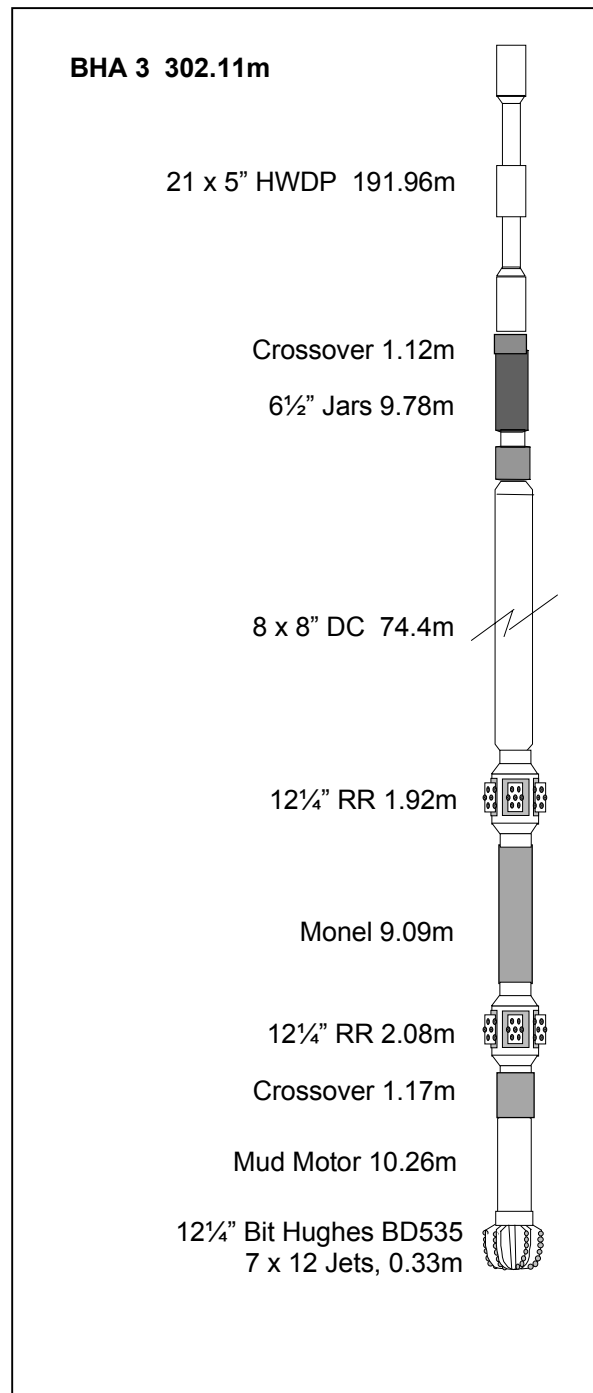
KCI / PHPA /Glycol 1.18 sg  
(Aquadri) w/ Penetrex

**Lithology**

Calclutite, Claystone, Siltstone & Sandstone

**Drilling Summary**

After running BOPs and marine riser, NB 3 was made up to a mud motor and run in, tagging cement at 704mBRT. Cement, shoe track, the casing shoe at 745.3mBRT three metres of new formation to 755mBRT were drilled out. The hole was displaced to a KCI/PHPA/Glycol (Aquadri) and Penetrex mud system before drilling new formation. The bit was pulled back to the shoe and a Formation Integrity Test (FIT) performed. With a mud weight of 1.10sg, an Equivalent Mud Weight (EMW) of 2.1sg was recorded. Drilling continued from 755mBRT. The mud weight was increased to 1.18sg after 1227mBRT, in response to the appearance of small amounts of blocky claystone cavings at the shakers. From 1420 to 1483mBRT, maximum cavings size increased to about 40mm and the mud weight was increased to 1.19sg, after which no more cavings were seen. At 1605mBRT, mud losses of up to 40 bbls/hr were seen, but the addition of CaCO<sub>3</sub> LCM to the mud healed any losses quickly. Average background gas remained low at less than 0.08% throughout. Section TD was reached at 1855mBRT. After circulating the hole clean, an Electronic Multishot (EMS) survey



tool was dropped and the bit tripped to surface. No hole problems were encountered.



**8½" Phase: 14 - 15 May 2001****Bit Run 4 Summary**

Bit Number	NB 4
Bit Size	8½"
Bit Type	Hughes HC408
S/N	1905297
Jets	4 x 12
Depth In, mRT	1855
Depth Out, mRT	2165
Metres Drilled	310
Drilling Hours	17.6
TBR, krevs	122.5
Circulating Hours	23.9
Average ROP, m/hr	17.6
API Condition	3-1-BT-N-X-I-CT-CP

**Drilling Parameters**

WOB, mt	5.4	-	14.3
RPM	34	-	152
Torque kft-lbs.	1.3	-	5.9
Pump Pressure, psi	2298	-	4158
Flow In, gpm	367	-	688

**Mud System**

KCI / PHPA /Glycol (Aquadriil)	1.24	-	1.30 sg
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**Lithology**

Claystone &amp; Sandstone

**Drilling Summary**

NB4 was made up with a directional-gamma-resistivity-sonic-density (LWD) tool and run in, tagging cement at 1821mBRT. Cement, shoe track, casing shoe at 1850mRT and rathole to 1855mBRT were drilled out. After four metres of new formation were drilled to 1859mBRT, the bit was pulled back to the shoe and a Leak-Off Test (LOT) performed. With a mud weight of 1.24sg, an Equivalent Mud Weight (EMW) of 2.12sg was recorded. Drilling continued and from 1900 to 2050mRT, blocky cavings were observed at the shakers. The mud weight was increased slowly to 1.28sg while drilling. Background gas increased steadily with depth. Sandstones were encountered about 2049mRT. High gas levels, with peaks up to 18%, were recorded. No connection gases, pit level gains or gas-cut mud was seen, but in an attempt to lower background gas levels, the mud weight was increased to 1.30sg. After meeting the required criteria, coring point was found at 2165mBRT. After circulating returns to surface, the bit was pulled to surface with no problems encountered.

**BHA 5 309.66m**

15 x 5" HWDP 136.78m

2 x 6½" DC 18.75m

6½" Jars 9.67m

12 x 6½" DC 112.05m

6½" RR 1.62m

6½" DC 9.36m

PBL Circ Sub 2.47m

8½" RR 1.82m

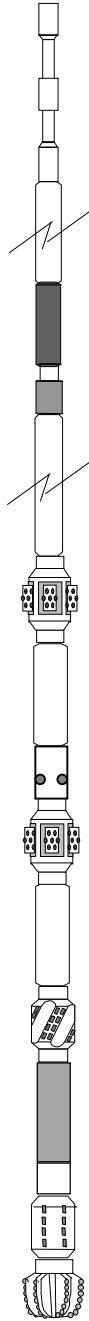
MWD 8.44m

8½" Stab 1.48m

ARC6 Tool 5.83m

Bit Sub 0.92m

Dog Sub .18m

8½" Bit Hughes HC408  
4 x 12 Jets, 0.29m

**8½" Phase: 15 May 2001****Bit Run 5 Summary**  
**Coring Run No.1**

Bit Number	CB 1
Bit Size	8½"
Bit Type	Security CD93
S/N	7981360
Jets	Flow ports TFA 1.0 in <sup>2</sup>
Depth In, mRT	2165
Depth Out, mRT	2201
Metres Drilled	36
Drilling Hours	2.2
TBR, krevs	12.7
Circulating Hours	5.9
Average ROP, m/hr	16.4
API Condition	2-4-BT-S-X-I-CT-TD

**Drilling Parameters**

WOB, mt	1.9	-	5.5
RPM	79	-	101
Torque kft-lbs.	2.7	-	4.9
Pump Pressure, psi	813	-	1162
Flow In, gpm	192	-	255

**Mud System**

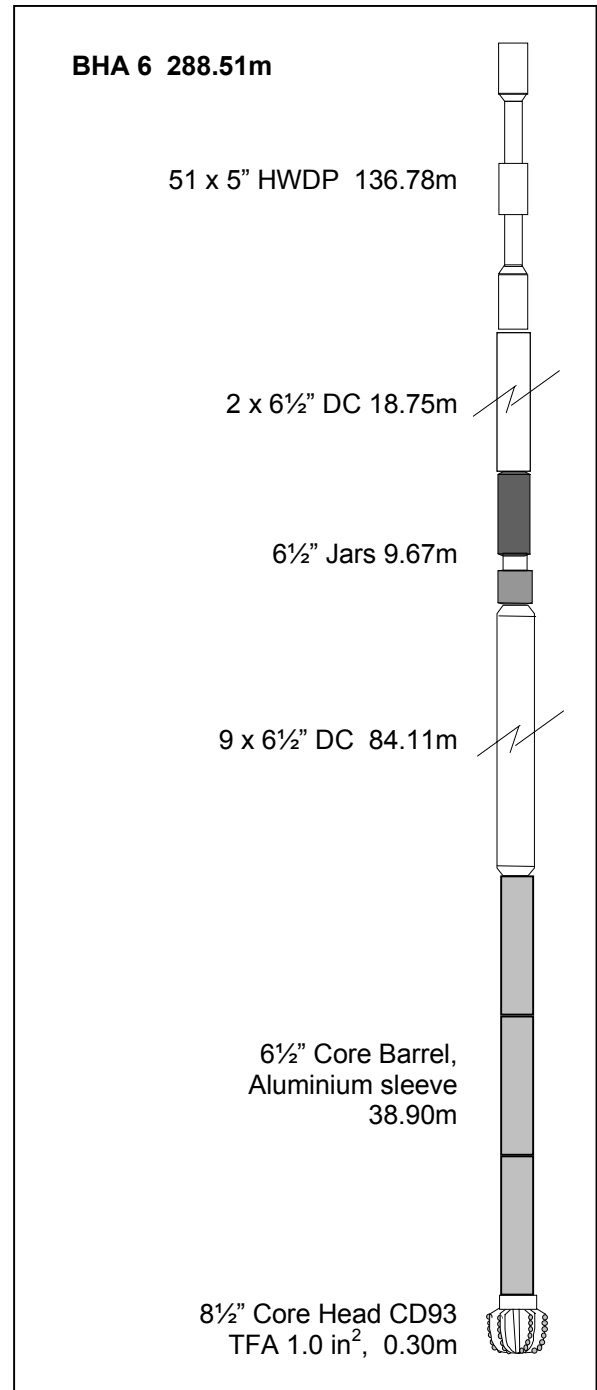
KCI / PHPA /Glycol  
(Aquadriil) 1.30 sg

**Lithology**

Sandstone & Claystone

**Drilling Summary**

The core head CB1 was made up a core barrel with aluminium core sleeve and run in hole. Breaking circulation at 2124mBRT, the hole was reamed lightly to bottom. Coring commenced at 2165mBRT and a full 36 metres of core was cut. Gas levels of up to 5.5% were recorded while coring and it was decided to circulate the gas out of hole until levels had dropped below 1%. When this was achieved, the core was pulled to surface without incident. A total of 35.73m, or 99.3% of the cored length was recovered.



**8½" Phase: 15 - 18 May 2001****Bit Run 6 Summary**

Bit Number	NB 5
Bit Size	8½"
Bit Type	Hughes HC408
S/N	1905298
Jets	4 x 12
Depth In, mRT	2201
Depth Out, mRT	2710 TD
Metres Drilled	509
Drilling Hours	36.7
TBR, krevs	255
Circulating Hours	75.3
Average ROP, m/hr	13.9
API Condition	3-1-WT-A-X-I-CT-TD

**Drilling Parameters**

WOB, mt	3.6	-	11.8
RPM	96	-	125
Torque kft-lbs.	1.9	-	6.6
Pump Pressure, psi	3762	-	4089
Flow In, gpm	574	-	614

**Mud System**

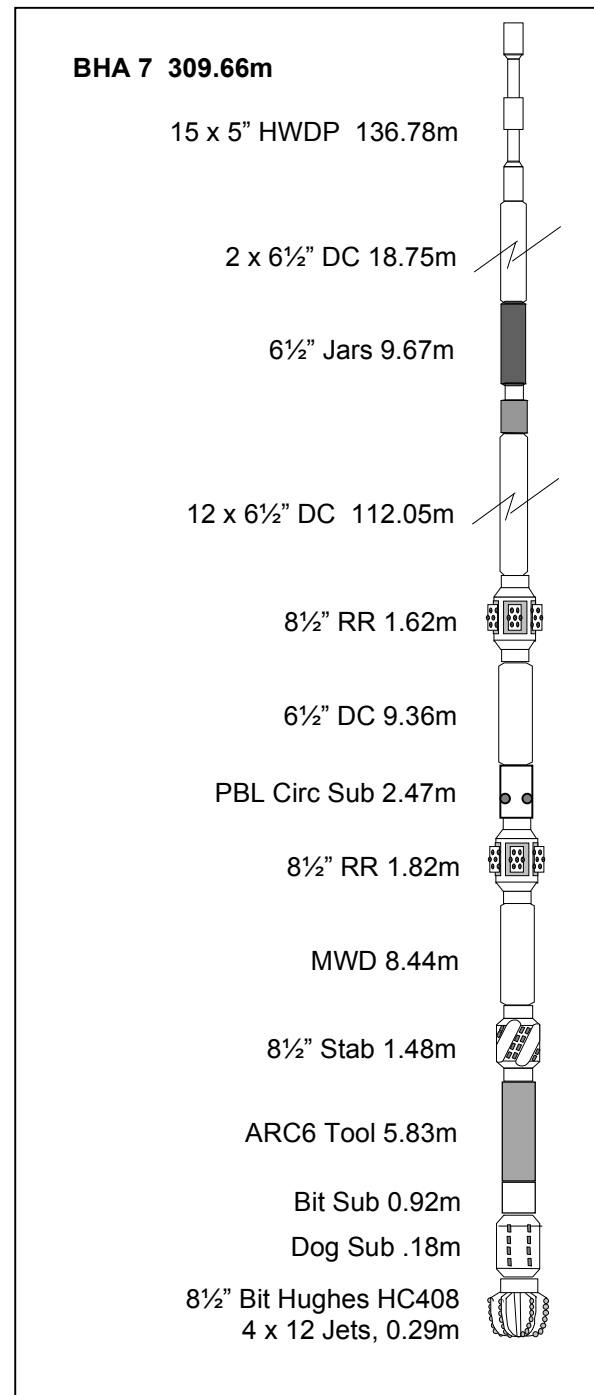
KCI / PHPA /Glycol (Aquadriil)	1.31	-	1.33 sg
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**Lithology**

Claystone, Siltstone & Sandstone

**Drilling Summary**

After the coring run, a new bit and LWD tool were made up to the previous packed drilling assembly and run in hole. While reaming through the cored section between 2165 and 2201mBRT, the in-string LWD tool was unable to acquire data due to an equipment malfunction at surface. This was rectified and data was collected while drilling, although inclination survey data was unavailable below 2447mBRT. Penetration rates were not as fast as expected, due to the dispersive nature of claystones drilled as well as the abrasiveness and hardness of the sandstones encountered. Between 2201 and 2354mBRT, maximum gas recorded was about 8%. Very small connection gases were detected at 2219 and 2249mBRT while cutting the mud weight back with water to 1.30sg. The mud weight was brought back to 1.32sg and no further connection gases were observed. Below 2250mBRT, gas levels dropped down to a 0.1% background level. Rough sea conditions required drilling with reduced drillpipe stand lengths (doubles) to compensate for up to 6m heaves. Minimal backreaming was performed prior to connections. Drilling continued until the well's Total Depth was reached at 19:30hrs on 18 May 2001. After circulating all returns out of the hole,



the well was flow checked before pulling out. Hole was good from 2710 to 2555mBRT, but washing and backreaming through tight spots was required from 2555 to 2173mBRT, with up to 70 klbs drag and 15 kft-lbs torque recorded at 2211mBRT. A short wiper trip was made from the casing shoe at 1850m to 2710m with no tight spots encountered. After circulating the hole clean - only small amounts of cavings were produced - the bit was pulled to surface with no further problems encountered to run wireline logs.

## 2.2 Casing and Cementing Summaries

### 30" / 20" Casing

Hole Size 36"  
Depth 182m

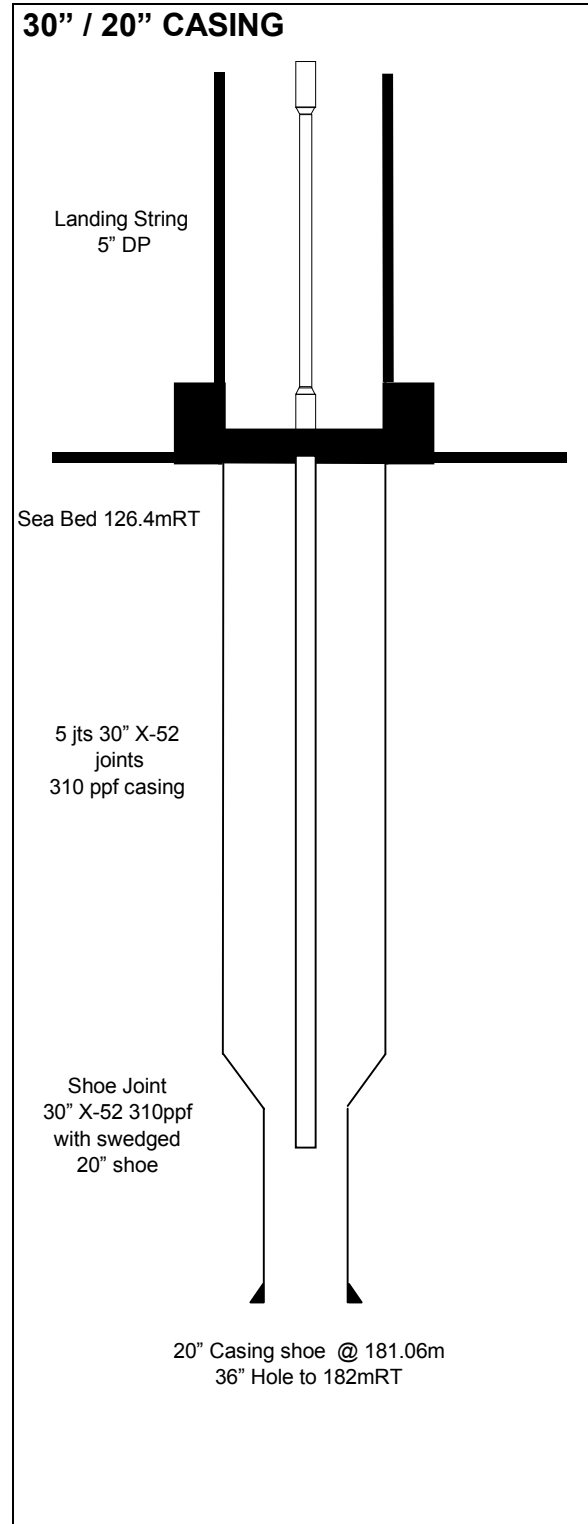
Casing  
OD 30" / 20"  
ID 27"  
Weight 310 lb/ft

Shoe Depth 181.06m

Cement Single Stage, Tail  
Type Class G  
Sacks 1060 sxs  
Slurry Density 1.91 sg  
Mix Water 5.15 gal/sx  
Yield 1.16 ft<sup>3</sup>/sx

### **Summary**

The 30" conductor casing with 20" swedged shoe joint assembly and PGB was filled with seawater and run in to 181.06m. The PGB angle was 1 degree starboard after landing with 10,000lbs set down. The lines were tested to 1000 psi OK. 10 bbls water with fluorescent dye was pumped followed by 216bbls of 1.91sg slurry (1060 sxs mixed with 5.15 gal/sx water) at 5.25bpm. The cement was displaced with 16.4bbl seawater at 6bpm. The displacement went as planned. ROV observed fluorescent dye returns at seabed followed by good cement returns throughout the job. Cement was visible around the wellhead after the completion of the job. No backflow was observed. After waiting on cement the running tool was then released and pulled out of hole.

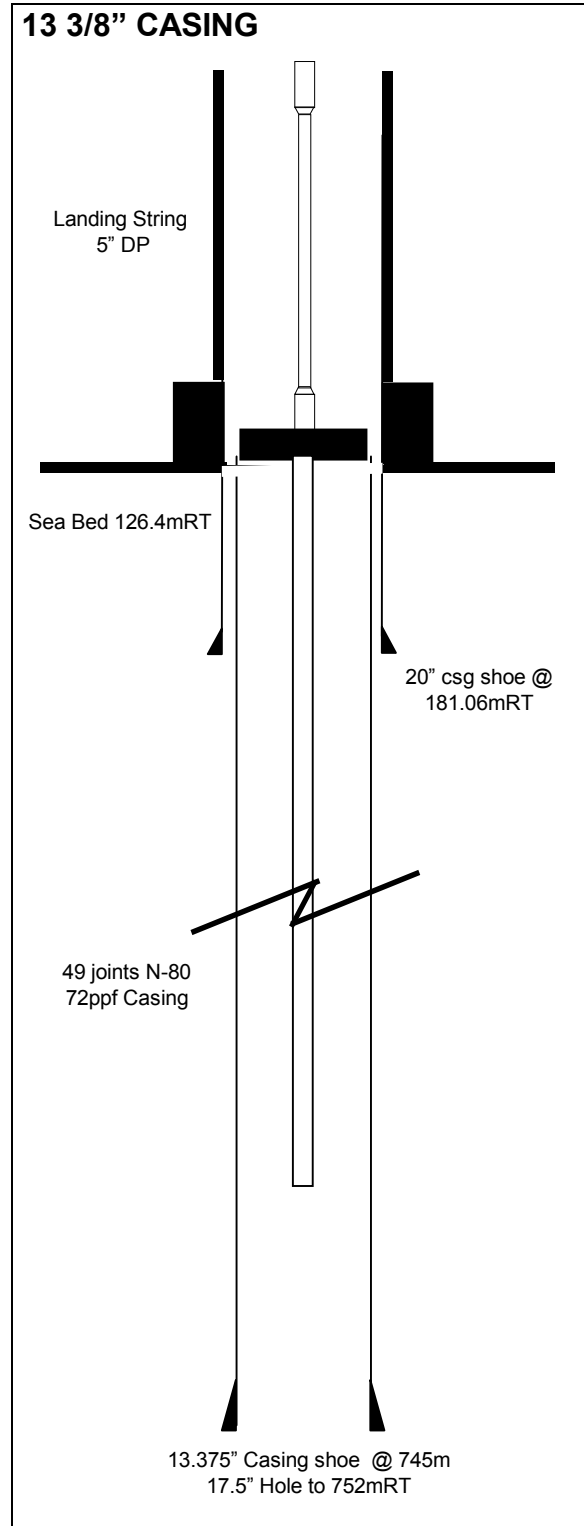


**13 3/8" Casing**

Hole Size	17½"
Depth	752m
<b>Casing</b>	
OD	13.375"
ID	12.347"
Weight	72 lb/ft N-80 New VAM
Shoe Depth	745.2m
<b>Cement</b>	
Type	Lead Slurry class"G"
Sacks	881 sx
Slurry Density	1.5 sg
Mix Water	13.13 gal/sx
Yield	2.23 ft <sup>3</sup> /sx
Additives	Liquid Additive Ext.
<b>Cement</b>	
Type	Tail Slurry class"G"
Sacks	532sx
Slurry Density	1.9 ppg
Mix Water	5.15 gal/sx
Yield	1.16 ft <sup>3</sup> /sx

**Summary**

Forty nine joints of 9.625" casing including the shoe and housing joint were run and landed with the shoe at 745.2mBRT. The 18-3/4" wellhead to 30' housing connection was confirmed with 50 klbs overpull. The casing was pre-circulated with 294bbls seawater at 15bpm. Cement lines were tested OK to 4000psi. Drop the first dart then pumped 10bbls dye water chased by 348 bbls 1.5 sg lead slurry ( 881 sx Class G with econolite liquid extender) followed by 110bbls 1.90 sg tail slurry (532 sxs class G) mixed and chased at 6.1bpm. The bottom dart landed out after 5.2 bbl pumped and the bottom plug released at 1800 psi. With the required cement volume pumped, the top dart was released and landed on the top plug after 5.3bbls. The top plug sheared out at 1200 psi. The cement was displaced with 424.5 bbls 1.24 sg mud using the rig pumps. The plug was bumped with 1300 psi. The pressure was held for 5 mins and released with floats holding OK. The casing was tested to 3500 psi for 10 min upon bumping the plug. Once the cement job was complete, the running tool was unlatched and pulled to surface.

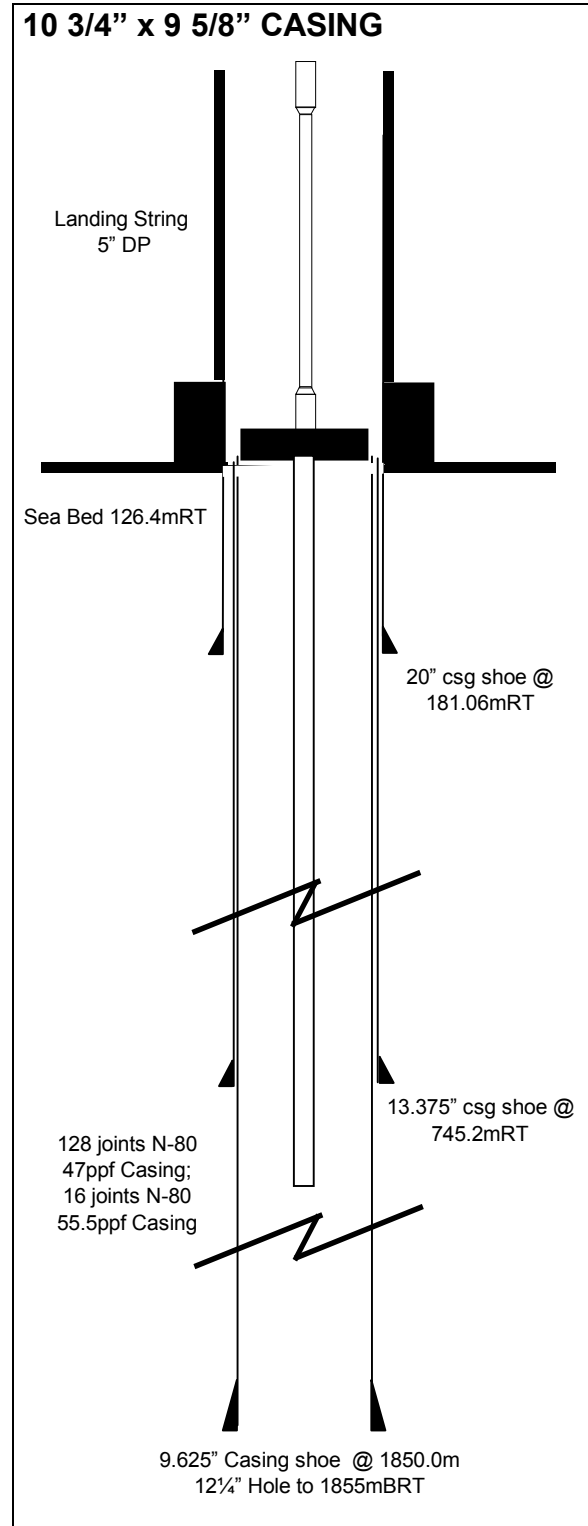


**10 3/4" x 9 5/8" Casing**

Hole Size	12 1/4"
Depth	1855mBRT
<b>Casing</b>	
OD	10 3/4" x 9 5/8"
ID	9.76" x 8.681"
Weight	55.5 lb/ft N-80 New VAM 47.0 lb/ft N-80 New VAM
Shoe Depth	1850m
<b>Cement</b>	
Type	Lead Slurry class"G"
Sacks	324 sx
Slurry Density	1.5 sg
Mix Water	12.48 gal/sx
Yield	2.14 ft <sup>3</sup> /sx
Additives	Liquid Additive Ext.
<b>Cement</b>	
Type	Tail Slurry class"G"
Sacks	329sx
Slurry Density	1.9 sg
Mix Water	5.17 gal/sx
Yield	1.16 ft <sup>3</sup> /sx

**Summary**

128 joints of 9-5/8" and 16 joints 10-3/4" casing including the shoe and housing joint were run with the shoe at 1849.85mBRT. The 10-3/4" casing hanger landout to the 18-3/4" wellhead landing shoulder was confirmed and the seal assembly latched. The casing was precirculated with 430 bbls of 1.24sg mud at 15bpm and the cement lines were tested to 5000psi for 5 min. The dart was dropped, then pumped 10 bbls water and chased with 132bbls 1.5 sg slurry (324sx class G with econolite liquid extender) followed by 68bbls 1.9sg tail slurry(329sx class G), mixed and chased at 1.6bpm with 840 psi pumping pressure. The bottom dart landed at the bottom plug after pumping 5.2bbl and the bottom plug released at 1800 psi. After the total required cement volume was pumped the top dart was released and landed on the top plug after 5.3bbls. The top plug was sheared out at 1200psi. The cement was displaced with 425.5bbls 1.24sg mud. The plug was bumped with 1300 psi, held for 5 mins and released with the floats holding OK. The casing was tested to 3500psi for 10 min. After pressure /function testing of the BOP's the casing hanger running tool was released with 85 klbs overpull.



## 7" Liner

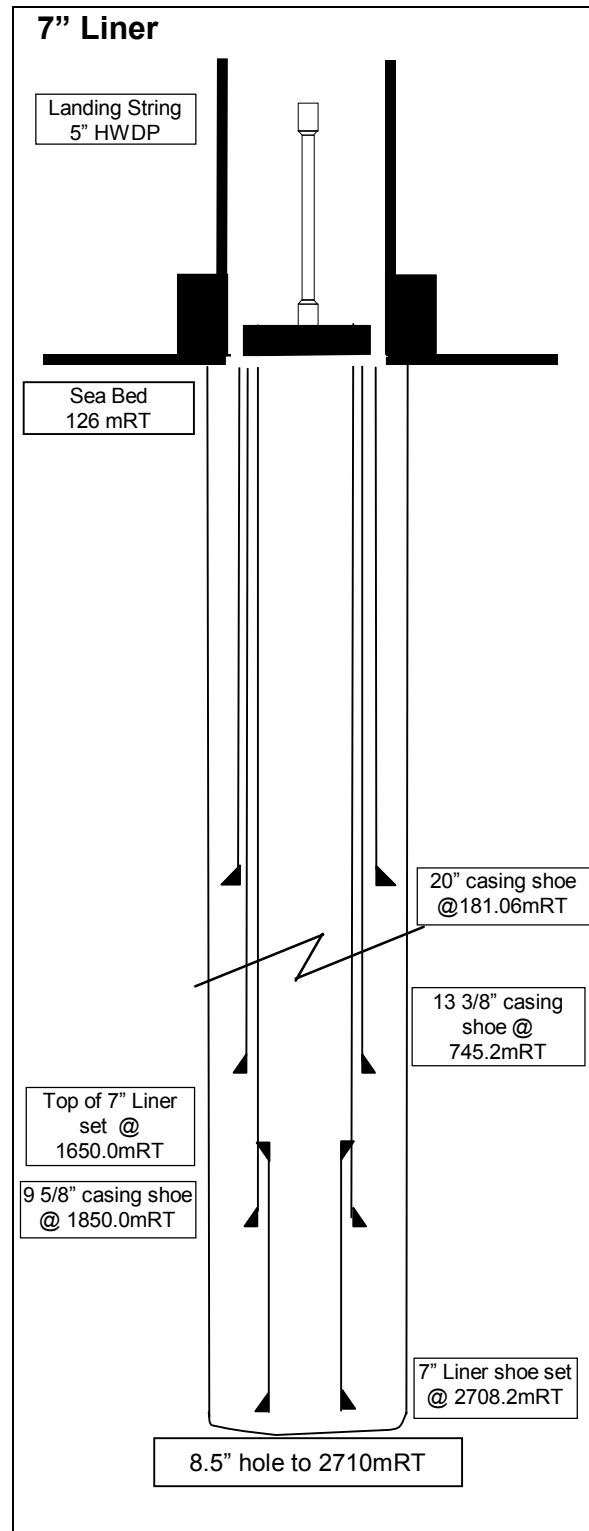
Hole Size 8-1/2"  
 Depth 2710mBRT

Liner  
 OD 7"  
 ID 6.184"  
 Weight 29 lb/ft L-80 New VAM  
 Shoe Depth 2708.2mRT

Cement Type Tail Slurry class"G"  
 Sacks 423sx  
 Slurry Density 1.9 sg  
 Mix Water 5.48 gal/sx  
 Yield 1.54 ft<sup>3</sup>/sx

### Summary

87 joints of 7" liner including the shoe, float collar and landing collar were ran with the liner hanger and running tool on 5 stands 5" heviwate drillpipes followed by 5" drillpipes to 2708mRT. The shoe was set at 2708.2m while the top of the liner was at 1650mBRT overlapping 200m with the 9-5/8" casing. With the liner set, circulated the liner volume while rotating at 25 rpm. Displaced 50 bbls of dual spacer at 1.3sg with the rig pumps. Dropped dart and pumped 10bbls of drillwater. Mixed and pumped 87 bbls of slurry (432sx class G, 5.48gal/sx mix water, SSA-1 35%BWOC, Halad 413L 0.39gal/sx, SCR-100L 0.03 gal/sx,CFR-3L 0.31 gal/sx, GasCon 469 0.30gal/sx) then displaced with120bbls of 1.3sg inhibited hi-vis. Wiper plug sheared after 91 bbls. Pumped a further 123.5 bbls to bump the plug. The liner was rotated throughout the job, ceasing rotation 5 bbls before the plug bumped. Final circulating pressure at 1250 psi at 2 bpm. The plug was bumped to 4000 psi that was held for 10 mins, OK. The liner was set to packer and was unstung from the liner top. Reverse circulated the 9-5/8" casing volume and dumped 20 bbls cement contaminated mud. Laid down cementing head and POOH.



## **Section 3**

### **Geology and Shows**



## GEOLOGY AND SHOWS

Formation Evaluation for Thylacine-1 commenced from below the 13.375" casing shoe which was set at 745 mBRT to the well's Total Depth of 2710 mBRT. Sampling rates were dependent on rate of penetration. Washed cuttings samples were collected at the following intervals:

From (m)	To (m)	Sampling Interval (m)
750	900	10
900	1000	20
1000	1850	10
1850	1855	5
1855	1858	3
1858	1966	9
1966	2050	6
2050	2200	3
2200	2710 TD	5

During the course of the well, all gas equipment was checked and calibrated before drilling. A carbide tracer was run at 1931m to ensure lag times were correct. Cuttings samples were analysed for calcimetry as requested by the WEL Wellsite Geologists.

The lithological units observed during the drilling Thylacine-1 are described below. For more detailed descriptions, see Appendix-1, Formation Evaluation Log.

### 36" HOLE SECTION

**Seabed to 182m: Returns to Seabed**

### 17 1/2" HOLE SECTION

**182m to 752m: Returns to Seabed**

### 12 1/4" HOLE SECTION

**752m to 800m: CALCAREOUS CLAYSTONE interbedded with SANDSTONE**

**CALCAREOUS CLAYSTONE:** Light grey to medium grey, occasionally very light grey, soft to firm, amorphous, subblocky, trace fine quartz grains, trace carbonaceous material, trace glauconite.

**SANDSTONE :** Light gray, with dominantly clear and pink, generally loose quartz grains, occasional friable aggregates, very fine to fine grained, subangular to subrounded, occasionally rounded, poor to moderately sorted, poor to moderately cemented, trace calcareous cement, trace pyrite nodules, trace carbonaceous material, trace glauconite, fair visible porosity.

There were no oil shows in this interval.

**800m to 1170m : CALCAREOUS CLAYSTONE interbedded with CALCILUTITE**

**CALCAREOUS CLAYSTONE :** Medium light grey, olive grey, soft to firm, amorphous, subblocky to blocky, silty in part, trace calcite crystals, trace carbonaceous material, trace glauconite, trace pyrite nodules, trace fossil fragments.

**CALCILUTITE :** Very light grey, white, soft to firm, amorphous, subblocky, trace calcite crystals.

There were no oil shows in this interval.

**1170m to 1260m: SANDSTONE interbedded with minor CLAYSTONE**

**SANDSTONE** : Very light grey, clear to translucent quartz grains, predominantly loose and clean, occasional friable aggregates, occasional hard to very hard aggregates, fine to medium grained, subangular to subrounded, occasionally rounded, poorly to moderately sorted, pyrite cement, occasional weak calcareous cement, trace glauconite, poor visible porosity.

**CLAYSTONE** : Light brownish grey to brownish black, olive black, dusky brown to dusky yellowish brown, greyish brown, soft to firm, subblocky to blocky, trace calcite crystals, trace glauconite, trace pyrite, non- to slightly calcareous.

There were no oil shows in this interval.

**1260m to 1410m: CLAYSTONE interbedded with minor SANDSTONE**

**CLAYSTONE** : Brownish grey to brownish black, olive black, very light grey, soft to firm, subblocky to blocky, trace glauconite, trace pyrite, non- to slightly calcareous.

**SANDSTONE** : Very light grey, clear to translucent quartz grains, predominantly loose and clean, occasional friable aggregates, occasional hard to very hard aggregates, fine to medium grained, subangular to subrounded, occasionally rounded, poorly to moderately sorted, pyrite cement, weak calcareous cement, trace glauconite, poor visible porosity.

There were no oil shows in this interval.

**1410m to 1430m: CLAYSTONE interbedded with minor SANDSTONE**

**CLAYSTONE** : Pale yellowish brown to dark yellowish brown, light brownish grey to brownish grey, soft, amorphous, subblocky, trace glauconite, trace pyrite.

**SANDSTONE** : Very light grey, clear to translucent quartz grains, predominantly loose and clean, occasional friable aggregates, occasional hard to very hard aggregates, fine to medium grained, subangular to subrounded, occasionally rounded, poorly to moderately sorted, pyrite cement, weak calcareous cement, trace glauconite, poor visible porosity.

There were no oil shows in this interval.

**1430m to 1620m: CLAYSTONE interbedded with minor SANDSTONE and CALCILUTITE**

**CLAYSTONE** : Dark yellowish brown to dark reddish brown, medium grey to medium dark grey, moderate reddish brown, soft, dispersive, amorphous, subblocky, trace glauconite, trace pyrite, trace calcite crystals, trace carbonaceous material, occasionally sandy, non- to slightly calcareous, grading to Siltstone in parts.

**SANDSTONE** : Very light grey, clear to translucent quartz grains, predominantly loose and clean, occasional friable aggregates, occasional hard to very hard aggregates, fine to medium grained, subangular to subrounded, occasionally rounded, poorly to moderately sorted, pyrite cement, weak calcareous cement, trace glauconite, poor visible porosity.

**CALCILUTITE** : Very light grey, white, soft, sticky, amorphous, trace calcite crystals.

There were no oil shows in this interval.

**1620m to 1855m: CLAYSTONE interbedded with minor SANDSTONE**

**CLAYSTONE** : Light grey to medium dark grey, light brownish grey to brownish grey, olive grey, soft to firm, dispersive in parts, amorphous, subblocky, trace glauconite, trace pyrite, non- to slightly calcareous.

**SANDSTONE** : Very light grey, clear to translucent quartz grains, predominantly loose and clean, fine to medium grained, occasionally very fine grained, subangular to subrounded, occasionally rounded, poorly to moderately sorted, trace glauconite, trace micropyrte, poor inferred porosity.

There were no oil shows in this interval.

**8 ½" HOLE SECTION****1855m to 2040m : CLAYSTONE**

**CLAYSTONE:** Medium grey to dark grey, occasionally olive grey, brownish grey, soft to firm, dispersive in part, amorphous, subblocky to blocky, trace pyrite, trace glauconitic, trace carbonaceous material, trace very fine quartz grains, non calcareous.

**2040m to 2260m : CLAYSTONE interbedded with minor SANDSTONE**

**CLAYSTONE:** Medium grey to dark grey, olive grey to olive black, soft to firm, very dispersive, amorphous, subblocky to blocky, sandy in part, trace glauconite, trace pyrite aggregates, trace carbonaceous material, non to slightly calcareous.

**SANDSTONE:** Very light grey, clear to translucent quartz grains, friable aggregates, occasionally loose grains, fine to medium, subangular to subrounded, slightly spherical, moderately sorted, siliceous cement, abundant argillaceous matrix, trace glauconitic trace pyrite, trace carbonaceous material, trace dark brown to grey lithic fragments, poor to fair inferred porosity.

Show : < 5% yellowish orange fluorescence, no cut.

**2260m to 2540m: SANDSTONE interbedded with minor CLAYSTONE**

**SANDSTONE:** Very light grey, clear to translucent quartz grains, friable aggregates, occasionally loose grains, fine to medium, occasionally coarse, subangular to subrounded, slightly spherical, moderately sorted, siliceous cement, abundant argillaceous matrix, trace glauconitic trace pyrite, trace carbonaceous material, trace dolomite, poor visible porosity.

**CLAYSTONE:** Medium grey to dark grey, soft to firm, dispersive, amorphous, subblocky to blocky, silty in part, trace glauconitic, trace pyrite nodule, trace carbonaceous material, non to slightly calcareous.

There were no oil shows in this interval.

**2540m to 2620m: CLAYSTONE interbedded with minor SANDSTONE**

**CLAYSTONE:** Medium grey to medium dark grey, occasionally dark grey, light grey, soft to firm, dispersive in part, amorphous, subblocky to blocky, silty in part, trace fine quartz grains, trace glauconite, trace pyrite aggregates, trace carbonaceous material, non calcareous.

**SANDSTONE:** Very light grey, clear to translucent quartz grains, friable aggregates, occasionally loose grains, fine to medium, subangular to subrounded, slightly spherical, moderately sorted, siliceous cement, trace calcareous cements, trace glauconitic, trace pyrite nodule, trace carbonaceous material, trace dolomite, poor visible porosity.

There were no oil shows in this interval.

**2620m to 2710m(TD): CARBONACEOUS SILTSTONE interbedded with SANDSTONE and CLAYSTONE.**

**CARBONACEOUS SILTSTONE:** Medium dark grey to greyish black, firm to hard, subblocky to blocky, laminae in part, abundant carbonaceous material, rare coal fragments, non calcareous.

**CLAYSTONE:** Medium grey to medium dark grey, occasionally dark grey, light grey, soft to firm, dispersive in part, amorphous, subblocky to blocky, silty in part, trace glauconite, trace pyrite aggregates, trace carbonaceous material, non calcareous.

**SANDSTONE:** Very light grey, clear to translucent quartz grains, friable - hard aggregates, occasionally loose grains, fine to medium, subangular to subrounded, poor to moderately sorted, siliceous cement, trace calcareous cements, trace carbonaceous material, trace dolomite, poor visible porosity.

There were no oil shows in this interval.

<b>Drilling Rate Summary for All Lithology Intervals on Thylacine-1</b>			
<b>Depth Interval (m)</b>	<b>RATE OF PENETRATION (m/hr)</b>		
	<b>Minimum</b>	<b>Maximum</b>	<b>Average</b>
752 - 800	19.5	150.5	58.9
800 - 1170	12.4	364.2	107.6
1170 - 1260	2.1	167.9	50.7
1260 - 1410	11.4	92.3	37.9
1410 - 1430	24.8	97.7	49.5
1430 - 1620	5.3	182.6	46.2
1620 - 1855	6.7	96.8	31.9
1855 - 2040	5.3	34.9	17.6
2040 - 2260	4.0	82.8	24.2
2260 - 2540	6.8	43.6	19.0
2540 - 2620	6.9	34.8	15.4
2620 - 2710 TD	3.2	25.5	12.5

<b>Summary of Gas Readings Recorded for All Lithology Intervals on Thylacine-1</b>													
<b>Interval (m)</b>		<b>Total Gas (%)</b>				<b>Chromatograph Analysis (%)</b>							
		<b>Range</b>		<b>Max Gas at (m)</b>	<b>Av. Total Gas</b>		<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>iC4</b>	<b>nC4</b>	<b>iC5</b>	<b>nC5</b>
<b>From</b>	<b>To</b>	<b>From</b>	<b>To</b>										
182	750	Returns to Seabed				Min	-	-	-	-	-	-	-
					Max	-	-	-	-	-	-	-	
750	800	0.01	0.03	757	0.02	Min	0.002	-	-	-	-	-	-
						Max	0.01	-	-	-	-	-	-
800	1170	0.01	0.11	1166	0.04	Min	0.004	-	-	-	-	-	-
						Max	0.081	-	-	-	-	-	-
1170	1260	0.01	0.96	1186	0.12	Min	0.005	-	-	-	-	-	-
						Max	0.44	-	-	-	-	-	-
1260	1410	0.01	0.04	1271	0.02	Min	0.004	-	-	-	-	-	-
						Max	0.026	-	-	-	-	-	-
1410	1430	0.01	0.02	1414	0.02	Min	0.01	-	-	-	-	-	-
						Max	0.012	-	-	-	-	-	-
1430	1620	0.01	0.07	1575	0.03	Min	0.005	-	-	-	-	-	-
						Max	0.051	-	-	-	-	-	-
1620	1855	0.03	0.19	1839	0.09	Min	0.017	-	-	-	-	-	-
						Max	0.143	-	-	-	-	-	-
1855	2040	0.02	0.39	2032	0.12	Min	0.007	0.000	0.000	-	-	-	-
						Max	0.272	0.020	0.006	-	-	-	-
2040	2260	0.03	18.07	2149	4.02	Min	0.003	0.000	0.000	0.000	0.000	0.000	0.000
						Max	12.482	0.366	0.123	0.017	0.018	0.005	0.003
2260	2540	0.07	6.14	2303	0.66	Min	0.041	0.005	0.000	0.000	0.000	0.000	0.000
						Max	5.139	0.108	0.043	0.005	0.007	0.003	0.003
2540	2620	0.04	0.15	2588	0.10	Min	0.016	0.002	0.001	0.000	0.000	0.000	-
						Max	0.119	0.010	0.004	0.002	0.002	0.001	-
2620	2710 TD	0.05	0.19	2652	0.09	Min	0.021	0.003	0.002	0.000	0.000	0.000	0.000
						Max	0.122	0.011	0.005	0.002	0.003	0.002	0.001



SAMPLE TYPE	No. of Sets	COMPOSITION			PACKING DETAILS
		Sample	Depth Interval (m)		
		Box No.	From	To	
<b>Sets 1, 2, 3, 4, 5, (200 g) : Washed &amp; Air Dried</b>	5	1	752	900	Small Boxes #1-21 are packed in 3 Shipping boxes.
		2	900	1000	
		3	1000	1260	
		4	1260	1450	
		5	1450	1560	
		6	1560	1700	
		7	1700	1830	
		8	1830	1939	
		9	1939	2038	
		10	2038	2092	
		11	2092	2131	
		12	2131	2176	
		13	2176	2230	
		14	2230	2300	
		15	2300	2365	
		16	2365	2435	
		17	2435	2505	
		18	2505	2570	
		19	2570	2630	
		20	2630	2685	
		21	2685	2710 TD	
<b>Set 6 (30 g) : Washed &amp; Air Dried FIS (Fluid Inclusion Study)</b>	1	1	752	1000	Small Boxes #1-11 are packed in 2 Shipping boxes.
		2	1000	1260	
		3	1260	1600	
		4	1600	1850	
		5	1850	2020	
		6	2020	2110	
		7	2110	2191	
		8	2191	2320	
		9	2320	2455	
		10	2455	2600	
		11	2600	2710 TD	
<b>Set 7: Mud Samples 50 ml Pyrex bottles</b>	1	1	752	2210	2 Small Boxes
		2	2255	2710 TD	
<b>Set 8: Samplex Trays</b>	1	1	752	2710 TD	1 Large Box
<b>Sets 9: Charts / worksheets</b>	1	1	752	2710 TD	1 Small Box
<b>Set 10: Mud Gas Isotope Logging (MGIL) Samples</b>	1	1	1824	2268	1 Large Box
<b>Set 11: Mud Sample Taken During Core #1 (2165-2201m)</b>	1	1	2175		4 x 500ml plastic bottles

**INTEQ**

**ALL BOXES TO BE SENT TO WOODSIDE WAREHOUSE FOR ONWARD DISTRIBUTION:**

<b>DISTRIBUTION</b>	<b>Destination &amp; Address</b>	<b>Attention of:</b>
<b>Washed &amp; Dried Set 1: BRS (AGSO)</b>	<b>BRS, c/o AGSO Building</b> Cnr. Jerrabomberra Ave & Hindmarsh Dr Symonston, ACT 2609	Mr E. Resiak Note: to be forwarded as per BRS sample submission form
<b>Washed &amp; Dried Set 2: VIC DNRE</b>	<b>DNRE Core Sample Library</b> South Rd. (off Sneydes Rd) Werribee, Victoria, 3030	Note: to be forwarded to VIC DNRE
<b>Core #1 Mud Samples (sent by air 16 May 01)</b>	<b>GEOTECH</b> 41-45 Furnace Road, Welshpool, Perth, W.A.	Wendy Woodward
<b>a) Washed and Dried Sets 3, 4 &amp; 5: b) Set 8: Samplex Trays</b>	<b>WEL</b> c/o Core Laboratories 447-449 Belmont Ave Kewdale, WA 6105	Gary Kemp
<b>a) Set 7: Mud Samples b) Set 10: (MGIL)</b>	<b>Core Laboratories, Perth</b>	Forward to Geotech fridge Forward to Geotech
<b>a) Set 6: Washed and Dried (30g) FIS b) Set 9: Charts &amp; Worksheets</b>	<b>Core Laboratories, Perth</b>	Forward to Ops Geologist Mike Rapaic, WEL, Perth
<b>Sidewall Cores</b>	Operations Geologist, WEL, Perth	Handcarried by WSG

## **Section 4**

### **Pressure Evaluation**

## 4.1 PORE PRESSURE EVALUATION

An average sea water density of 1.03 sg was assumed as the normal saline pressure gradient for all calculations for Thylacine-1. Using real-time data, such as the hydrocarbon gas trend, lithology, flowline temperature, character of drilled cuttings, constant drilling fluid parameters, corrected drilling exponent (Dxc) data, real-time MWD data including bulk density estimates and resistivity data, as well as wireline logging data, pore pressure estimates were made during the drilling of Thylacine-1. For more details, please refer to Appendix 3, "Pressure Summary Plot". Corrected Drilling Exponent (Dxc) data collected while drilling was not reliable for most of this well due to the use of fixed cutter bits.

### 36" Hole Section

The 36" hole was drilled from seabed at 126.4m to 182mBRT. The section was short, with returns dumped to the seabed. With an average penetration rate of about 52m/hr and low weight-on-bit, the plotted Dxc data curve showed initially a near vertical trend then a lean to the right with depth. This trend indicated a normal pore pressure in shaley formations. The variations in the penetration rates and the Dxc over this shallow interval were due to the varying drillability of the lithologies consisting of very soft, possibly unconsolidated, sediments and possibly cemented layers and calcarenite boulders of the Port Campbell Limestone. The pore pressure is estimated to have remained normal at 1.03 sg EMW down to 182mBRT.

### 17½" Hole Section

This section was drilled from 182m to 753mBRT with an insert bit. As in the 36" section, pore pressure forecasts can only be based on the Dxc curve as returns were directed to the seabed. The Dxc continued the rightward trend from 182m to 400m with a scatter range of 0.12 - 0.8 units, coinciding with penetration rates ranging from 17 - 970 m/hr. The section is still part of the soft and possibly unconsolidated sediments of the sea floor where drilling is possibly more of jetting action than bit cutting. From 400m to 753m the Dxc steepened to near vertical, though maintaining an overall rightward trend. The penetration rates slowed to 29m/hr average, suggesting entry to a more consolidated and possibly compacted formation. The hole was kept open by circulating guar gum sweeps every joint drilled and prehydrated gel spotted at each connections. The pore pressure was estimated to be normal at 1.03sg EMW down to 753mBRT.

### 12 ¼" Hole Section

The 12 ¼" hole section was drilled with a Hughes BD535 PDC bit and a mud motor from 753m to 1855mBRT. Prior to drilling the hole was displaced and conditioned to KCL/PHPA/Glycol and Penetrex mud system weighing 1.10sg. Pore pressure estimation, owed to the use of the PDC bit and mud motor, relied on the relationship of mud weight, gas and cavings, and the temperature log rather than the Dxc. From 753m to 1110m the bit pierced through claystone/shale lithologies at 112m/hr penetration speed. The Dxc notably veered to the left, seen as due to the fast ROP of the PDC/mud motor in soft clays. Normal pressure at 1.03 sg EMW in this section, was indicated by the low background gas, (< 0.1%), nil connection gas, rare-trace splintery cavings, and the normal temperature gradient (26.6 - 37.5 deg C).

From 1110m to 1510m the lithologies changed to interbedded cemented sandstone and hard claystones that slowed penetration to 46m/hr. The gas had a small peak of 1.0% methane equivalent in the sandstones, yet the background remained at less than 0.1%. The flowline temperature (37.7 - 41.8 deg C) had lower gradient at .01 deg/m. Blocky type cavings measuring 30-40mm showed up in the shakers. The mud weight was increased to 1.18sg and further topped up to 1.19sg to control the cavings. At 1.19 sg the hole stopped unloading the cavings. At this section the pore pressure was estimated to be slightly above normal in the range 1.03- 1.10sg.

From 1510m to 1855mBRT the pore pressure was maintained at the 1.03 -1.1sg levels as the well penetrated a thick claystone/shale sequence. With a 1.9 sg drilling fluid in the hole, the background gas gradually crept to 0.10 - 0.12% near the bottom. The cavings were reduced to less than 5%. The flowline temperature had a near vertical plot yet the changes in temperature were subjected to mud movements in the pits.



## 8½" Hole Section

The 8-1/2" was drilled with a Hughes HC408 PDC bit from 1855m to 2165m, then with a Sec CD93 core bit from 2165m to 2201m and then back to the Hughes HC408 PDC bit from 2201m to 2710mBRT TD. The drilling fluid was KCL-PHPA-Glycol throughout that weighed 1.24sg initially and was gradually weighted up to 1.33sg at different stages until the total depth.

The section from 1855m to 2046m was soft to firm claystone that was drilled at 18.8m/hr average penetration. With this low penetration the Dxc plotted a near vertical trend that slightly turned to the right near the bottom. The gas background increased steadily from 0.02 - 0.28% while the flowline temperature showed a normal gradient (31.8 - 52.0 deg C). There was no connection gas recorded and no drag noted. The pore pressure was estimated to be 1.03 - 1.1 sg. In the shakers stress relief blocky cavings started to show up towards the bottom depth that prompted an increase in the mud to 1.28sg, furthering the overbalanced condition downhole. Increasing the mudweight proved to be the solution to the sloughing claystone of the offset well (Minerva-2A).

The sandstones with claystone interbeds were intersected from 2049m - 2329mBRT. This section was drilled at an average rate of 23.0m/hr, including the cored section from 2165m - 2201m. The Dxc was walking leftward from 2049m to 2165m corepoint, shifted to rightward trend while coring and maintained a near vertical trend from 2201m to 2329m when drilling resumed with the PDC bit. The flowline temperature continued to increase with depth as expected and the drilling ran smoothly without drags and anomalous torque. The gas dramatically soared, reaching peaks up to 18% and the background elevated to 3-4%. Trip gases were recorded at 1855m (0.9%) and 2165m (0.82%). Flowchecks at drillbreaks showed the well to be static. Cavings estimated about 5% were dominated by blocky stress relief fragments measuring up to 30mm with minor to traces of the splintery elongated types. To lower the background gas the mudweight was increased to 1.32sg. The pore pressure at this point was still estimated at 1.03sg - 1.10sgEMW as the elevated gas levels were expected of the reservoir and no other parameters suggested an increase in pore pressure. Having had no hole problems the mud was diluted with water to 1.30sg. At this point two small connection gasses were recorded at 2219m (0.1%) and 2249m (0.2%). The mudweight was brought back to 1.32sg and the connection gasses were halted. The pore pressure was estimated to have increased to 1.1sg - 1.2 sg EMW in the claystone interbeds and with 1.32sg mud the pore pressure was under control.

From 2329m to 2710m total depth, the hole pierced through interbedded sandstones and claystones at an average 16.4m/hr rop. The sandstones were hard and abrasive while the claystones were firm to occasionally dispersive. The mudweight was maintained at 1.32sg while drilling this section. The Dxc was near vertical with a general rightward trend (0.72-1.36 units). The flowline temperature indicated a normal trend (45.4 - 49.5 deg C) as it heated with depth. The gas background steadily decreased from 0.48% to - 0.07%. with minor peaks up to 0.33% while connection and kelly cut gasses were absent. The cavings in the shakers were reduced to less than 5% consisting of the blocky types. The drilling went without downhole problems, ie drag and high torque. Based on the above, the pore pressure was estimated to have returned to normal at 1.03- 1.10sg EMW max. Coming out of the hole after circulating bottoms up at TD the hole was tight and required backreaming from 2555m to 2173mBRT. The mudweight was raised to 1.33sg to counter the sloughing shales.

## 4.2 FRACTURE PRESSURE EVALUATION

Fracture pressure estimation for Thylacine-1 was made using the Baker Hughes INTEQ zero tensile strength method. For a full explanation of this method, refer to INTEQ Manual MS-156 "The Theory and Evaluation of Formation Pressures".

With no returns to surface it was not possible to estimate the fracture pressure through the 36 and 17½" hole sections. A Formation Integrity Test (FIT) was performed at the 12.25" casing shoe and a Leak-Off Test (LOT) at the 9.625" casing shoe depth, with the results shown below:

Casing Depth	Casing Size		Hole Size		Test Mud Density	LOT EMW	Test type
	In	mm	in	mm	(SG)	(SG)	
mRT							
752	13.375	340	12.25	311	1.10	2.1	FIT
1850	9.625	244	8.5	216	1.24	2.12	LOT

A KCL/PHPA/Glycol water-based mud system weighted initially at 1.10sg was used to drill the 12.25" hole section. Fast drilling was the norm in this section which resulted in occasional overloading of the shakers screen and mud surges after connections. Extra mud dribbled off the shakers with the cuttings. There were no losses downhole at anytime. A flow check made at 1601m showed no static loss to the formation. The effective circulating density throughout this hole section ranged from 1.13sg to a maximum of 1.2sg EMW. The range was way below the 2.1sg EMW formation strength recorded at the casing shoe.

The 8½" section was drilled to a total depth of 2710m using the same type of mud system weighted initially at 1.25sg. Due to drilled solids, the mud system naturally incremented to 1.27sg. No mud loss was observed at this stage. The mudweight was then increased to 1.31sg at 2165m as a precaution against rising gas levels and was further weighted up to 1.33sg at 2500m. Several flow checks subsequently conducted at various points throughout the section showed no static loss downhole. The fracture pressure gradient of the section was not reached by the 1.4sg maximum ECD imposed by the mud pumps against the formation while drilling.

## Tables

Table 1: Bit Run Summary

Tables






OPERATOR				WELL NAME				LOCATION				CONTRACTOR				RIG																												
WOODSIDE ENERGY LTD				THYLACINE-1				T/30P				DIAMOND OFFSHORE GENERAL COMPANY				MODU OCEAN BOUNTY																												
  				PUMP 1 - OILWELL A1700 PT 6" LINER (36, 17½, 12¼ & 8½") PUMP 2 - OILWELL A1700 PT 6" LINER (36, 17½, 12¼ & 8½") PUMP 3 - OILWELL A1700 PT 6" LINER (36, 17½, 12¼ & 8½")				BIT DULL CHARACTERISTICS								REASONS PULLED																												
								BC - Broken Cone	CI - Cone Interference	JD - Junk Damage	PB - Pinched Bit	SS - Self-Sharpening	BHA - Bottomhole Assembly	LOG - Run Logs	FM - Formation Change	TD - Total / Csg depth	BT - Broken Teeth	CR - Cored	LC - Lost Cone	PN - Plugged Nozzle	TR - Tracking	DMF - Downhole Motor failure	RIG - Rig repair	HP - Hole Problems	TQ - Torque	BU - Balled Up	CT - Chipped Teeth	LN - Lost Nozzle	RG - Rounded Gauge	WO - Washed-Out Bit	DSF - Drill String failure	CM - Condition Mud	HR - Hours	TW - Twist-Off	CC - Cracked Cone	FC - Flat Crested Wear	LT - Lost Teeth	RO - Ring Out	WT - Worn Teeth	DST - Drill Stem Test	CP - Core Point	PP - Pump Pressure	WC - Weather Conditions	CD - Cone Dragged
BIT RUN	BIT No.	MAKE	TYPE	TFA sq.in.	JETS	SERIAL No.	DEPTH IN m	METRES ON BIT	HRS ON BOTTOM	AV ROP m/hr	IADC HRS	WOB Tonnes	RPM S/M	TBR krev	SPP psi	GPM	TQ	GRADE								MW SG	REMARKS																	
																		I	O	D	L	B	G	O	R																			
36" HOLE SECTION 126.4 - 182mBRT																																												
1	RB 1	Varel	L111A	4.712	Open	3546	126.4	55.6	1.6	34.8	2.3	0.2-3.0	65/-	6.2	61-1453	156-1192	0.6-4.25	not graded								1.03																		
17½" HOLE SECTION 182 - 752mBRT																																												
2	NB2	Smith	MGSSH	0.647	3 x14, 1x16	LW4961	182	570	21.3	26.8	26.5	0.1-15.8	97/-	127.5	1051-3728	495-1459	0.9-6.4	1	1	WT	O	E	1	NO	TD	1.03																		
12¼" HOLE SECTION 752 - 1855mBRT																																												
3	NB3	Hughes	BD535	0.773	7 x 12	1212604	752	1103	34.3	32.2	44.8	0.4-13.7	112/102	420.8	1781-3740	635-1374	1.5-10.7	2	6	WT	A	X	2	CT,RO,PN	TD	1.18	PDM, MWD																	
8½" HOLE SECTION 1855 - 2710mBRT																																												
4	NB4	Hughes	HC408	0.442	4 x 12	1905297	1855	310	17.6	17.6	24.5	5.4-14.3	119/-	122.5	2298-4158	367-688	1.3-5.9	3	1	BT	N	X	I	WT	CP	1.24-1.30	MWD																	
5	CB1	DBS	CD93	1.0	flow ports	7981360	2165	36	2.2	16.4	2.5	1.9-5.5	96/-	12.7	813-1162	192-255	2.7-4.9	2	4	BT	S	X	I	CT	TD	1.30	coring run																	
6	NB5	Hughes	HC408	0.442	4 x 12	1905298	2201	509	36.7	13.9	43.5	3.6-11.8	116/-	255.0	3762-4089	574-614	1.9-6.6	3	1	WT	A	X	I	CT	TD	1.31-1.33	MWD																	
NOTE: Bit run number = BHA number ; NB = New Bit RB = Rerun Bit PDM = Downhole Motor																																												
TOTAL DEPTH (m)								2710.0		mBRT																																		

Table 2: Bit Hydraulics Summary

Tables

 <span style="float: right;"></span> <h2 style="text-align: center;">Table 2: BIT HYDRAULICS SUMMARY</h2>																								
OPERATOR <b>WOODSIDE ENERGY LTD</b>							WELL NAME <b>THYLACINE-1</b>							LOCATION <b>T/30P</b>			CONTRACTOR <b>Diamond Offshore General Co.</b>					RIG <b>MODU OCEAN BOUNTY</b>		
Drillstring Abbreviations											Hydraulics Models													
<b>N</b> Normal <b>M</b> MWD <b>T</b> Turbine <b>C</b> Core <b>P</b> Positive Displacement Motor											Power Law Model used for drilling with Mud Bingham Model used for coring and drilling with sea water													
Bit No.	Depth In (m)	Hole Size in	Calc'd Hole Size in	JETS x 1/32"	Drill String Type	Mud Density sg	Mud Type	PV / YP	Flow Rate gpm	ECD sg	Annular Velocities				Jet Vel m/sec	HHP hp	HSI hp/sq in	Impact Force lbf	Bit Pressure Loss psi	% Bit Loss	Theoretical Pressure Loss psi	Actual Pressure Loss psi		
											DP Riser m/min	DP OH m/min	DC OH m/min	DC critical m/min										
<b>36" HOLE SECTION 126.4 - 182mBRT</b>																								
RB1	126.4	36	36	Open	N	1.03	SW / Gel sweeps	1 / 1	156-1192	1.03	-	-	4.6	25.2	15.3	8.2	0	163.4	19	6.8	285	630		
<b>17½" HOLE SECTION 182 - 752mBRT</b>																								
NB2	182	17½	17½	3x14, 1x16	N	1.03	SW / Gel sweeps	1 / 1	855-1053	1.03	-	28.0	36.4	25.5	159.1	1283.0	5.4	2442.0	2090	69.8	2994	3254		
<b>12 1/4" HOLE SECTION 752 - 1855mBRT</b>																								
NB3	752	12¼	12¼	7 x 12	M, P	1.10-1.19	KCl/PHPA/Glycol (Aquadriil) & Penetrex	25 / 33	800-1062	1.12-1.26	17.5	51.2	112.9	193	108.0	553.4	4.8	1552.3	1112	36.5	3304	3049		
<b>8 ½" HOLE SECTION 1855 - 2710mBRT TD</b>																								
NB4	1855	8½"	9 / 8½"	4 x 12	N, M	1.24-1.30	KCl/PHPA/Glycol (Aquadriil)	27 / 34	631	1.40	12.9	-	135.6	198.2	139.7	748	13.4	1622	2034	56.5	3598	3800		
CB1	2165	8½"	8½"	TFA 1.0 sq in	Core	1.31		34 / 40	195	1.37	4.0	26.0	37.6	213.7	19.1	4	0.1	69	38	5.8	655	918		
NB5	2201	8½"	8½"	4 x 12	N, M	1.32-1.33		32 / 36	587	1.44	12.0	93.9	168.6	230.8	130.0	616	11	1436	1801	46.5	4116	3981		

Woodside Energy Limited  
Thylacine-1

May 2001

Latitude:	<b>39° 14' 27.524" S</b>	Field Strength:	<b>61218 nT</b>
Longitude:	<b>142° 54' 43.914" E</b>	Grid Convergence:	<b>1.200 deg</b>
Section Azimuth:	<b>0.00</b>	Total Azimuth Corr:	<b>9.880 deg</b>
Dip:	<b>-70.40</b>	North Reference:	<b>Grid North</b>
Declination:	<b>11.08</b>	Computation Method:	<b>Minimum Curvature</b>

### Directional Survey Listing

MEASURED DEPTH (m)	INCLINATION ANGLE (deg)	AZIMUTH ANGLE (deg)	VERTICAL DEPTH (m)	LATITUDE +N/S- (m)	DEPARTURE +E/W- (m)	VERTICAL SECTION (m)	DOGLEG (deg/10 m)	Survey Type
0.00	0.00	0.00	0.00	-2.50	6.30	-2.50	0.00	Tie-in
44.00	0.50	184.05	44.00	-2.69	6.29	-2.69	0.34	EMS
76.00	0.94	188.10	76.00	-3.09	6.24	-3.09	0.41	EMS
104.00	0.46	145.02	103.99	-3.41	6.27	-3.41	0.73	EMS
132.00	0.87	102.96	131.99	-3.55	6.54	-3.55	0.66	EMS
162.00	0.69	81.11	161.99	-3.57	6.94	-3.57	0.34	EMS
190.00	0.89	169.39	189.99	-3.76	7.15	-3.76	1.19	EMS
217.00	0.71	280.86	216.99	-3.94	7.02	-3.94	1.47	EMS
244.00	0.79	174.59	243.99	-4.09	6.88	-4.09	1.33	EMS
271.00	0.75	177.81	270.98	-4.45	6.90	-4.45	0.07	EMS
298.00	0.92	175.72	297.98	-4.84	6.93	-4.84	0.19	EMS
327.00	0.99	178.06	326.98	-5.33	6.95	-5.33	0.08	EMS
356.00	1.05	177.33	355.97	-5.84	6.97	-5.84	0.06	EMS
385.00	1.09	179.22	384.97	-6.38	6.99	-6.38	0.06	EMS
415.00	0.98	167.44	414.96	-6.92	7.05	-6.92	0.24	EMS
444.00	0.87	182.37	443.96	-7.38	7.09	-7.38	0.27	EMS
473.00	0.99	184.78	472.95	-7.85	7.06	-7.85	0.13	EMS
502.00	0.99	134.86	501.95	-8.28	7.22	-8.28	0.86	EMS
531.00	0.84	250.56	530.95	-8.52	7.20	-8.52	1.60	EMS
560.00	0.67	325.84	559.95	-8.46	6.90	-8.46	0.96	EMS
589.00	0.80	318.39	588.94	-8.16	6.67	-8.16	0.17	EMS
617.00	0.91	323.74	616.94	-7.84	6.41	-7.84	0.15	EMS
646.00	1.00	319.58	645.94	-7.46	6.11	-7.46	0.12	EMS
675.00	1.07	323.51	674.93	-7.05	5.78	-7.05	0.10	EMS
704.00	0.98	313.42	703.93	-6.66	5.44	-6.66	0.21	EMS
733.00	0.93	313.01	732.92	-6.33	5.09	-6.33	0.05	EMS
752.00	0.89	310.74	751.92	-6.13	4.87	-6.13	0.09	EMS
781.00	0.82	277.05	780.92	-5.96	4.49	-5.96	0.52	EMS
812.00	0.62	256.03	811.92	-5.97	4.11	-5.97	0.32	EMS
843.00	0.82	261.69	842.91	-6.04	3.72	-6.04	0.21	EMS
874.00	0.63	227.91	873.91	-6.19	3.38	-6.19	0.44	EMS
905.00	0.49	276.90	904.91	-6.29	3.12	-6.29	0.47	EMS
936.00	0.55	254.16	935.91	-6.31	2.85	-6.31	0.21	EMS
967.00	0.59	253.41	966.91	-6.40	2.55	-6.40	0.04	EMS
998.00	0.53	260.69	997.91	-6.47	2.26	-6.47	0.09	EMS
1029.00	0.66	224.81	1028.90	-6.62	1.99	-6.62	0.37	EMS
1060.00	0.63	259.62	1059.90	-6.77	1.69	-6.77	0.37	EMS
1091.00	1.16	280.21	1090.90	-6.75	1.22	-6.75	0.59	EMS
1122.00	1.43	291.05	1121.89	-6.55	0.55	-6.55	0.35	EMS
1153.00	1.71	172.79	1152.88	-6.87	0.25	-6.87	2.61	EMS

Table 3: Survey Data Summary

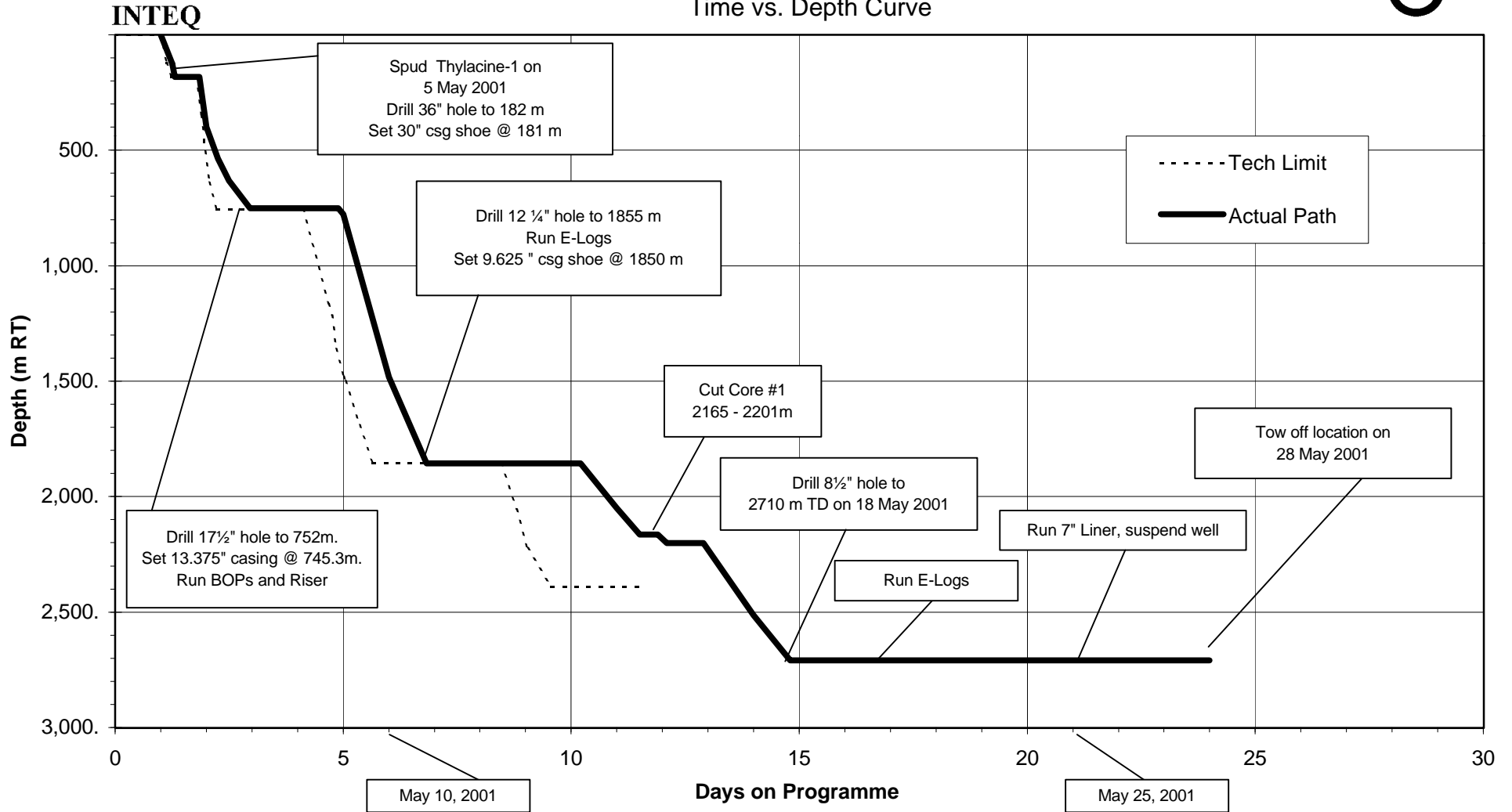
Tables

MEASURED DEPTH (m)	INCLINATION ANGLE (deg)	AZIMUTH ANGLE (deg)	VERTICAL DEPTH (m)	LATITUDE +N/S- (m)	DEPARTURE +E/W- (m)	VERTICAL SECTION (m)	DOGLEG (deg/10 m)	Survey Type
1184.00	0.81	292.56	1183.88	-7.25	0.10	-7.25	2.15	EMS
1215.00	0.85	272.56	1214.88	-7.15	-0.33	-7.15	0.28	EMS
1246.00	0.88	281.83	1245.87	-7.10	-0.79	-7.10	0.14	EMS
1277.00	0.91	283.50	1276.87	-6.99	-1.27	-6.99	0.04	EMS
1308.00	0.78	289.48	1307.87	-6.86	-1.70	-6.86	0.15	EMS
1339.00	0.84	303.25	1338.86	-6.67	-2.09	-6.67	0.20	EMS
1370.00	0.89	301.40	1369.86	-6.42	-2.49	-6.42	0.06	EMS
1401.00	0.84	303.67	1400.86	-6.16	-2.88	-6.16	0.06	EMS
1432.00	0.93	306.14	1431.85	-5.89	-3.28	-5.89	0.09	EMS
1463.00	0.94	323.43	1462.85	-5.54	-3.63	-5.54	0.27	EMS
1494.00	1.13	303.89	1493.84	-5.16	-4.04	-5.16	0.39	EMS
1525.00	1.18	302.57	1524.84	-4.82	-4.56	-4.82	0.05	EMS
1556.00	0.72	334.98	1555.83	-4.47	-4.91	-4.47	0.67	EMS
1587.00	0.73	346.84	1586.83	-4.10	-5.04	-4.10	0.15	EMS
1618.00	1.07	326.99	1617.83	-3.67	-5.24	-3.67	0.44	EMS
1649.00	0.80	349.84	1648.82	-3.21	-5.44	-3.21	0.44	EMS
1680.00	0.91	349.60	1679.82	-2.76	-5.52	-2.76	0.11	EMS
1711.00	1.03	355.10	1710.81	-2.24	-5.59	-2.24	0.15	EMS
1742.00	0.90	3.57	1741.81	-1.72	-5.60	-1.72	0.19	EMS
1773.00	1.17	5.03	1772.80	-1.16	-5.55	-1.16	0.26	EMS
1804.00	1.63	12.01	1803.80	-0.41	-5.43	-0.41	0.47	EMS
1835.00	1.88	11.25	1834.78	0.52	-5.24	0.52	0.24	EMS
1888.38	2.09	27.56	1888.13	2.24	-4.62	2.24	0.11	MWD
1973.18	2.40	17.34	1972.86	5.31	-3.37	5.31	0.06	MWD
2059.60	2.97	20.52	2059.19	9.13	-2.05	9.36	0.07	MWD
2145.69	2.46	21.36	2145.18	12.94	-0.60	12.94	0.06	MWD
2233.45	2.18	23.26	2232.87	16.23	0.75	16.23	0.03	MWD
2318.15	1.83	30.40	2317.52	18.87	2.07	18.87	0.05	MWD
2390.75	1.50	32.45	2390.09	20.68	3.17	20.68	0.05	MWD
2447.71	1.48	41.38	2447.03	21.86	4.05	21.86	0.04	MWD

Table 4: Time vs Depth Curve



**Woodside Energy Ltd**  
**THYLACINE-1**  
 Time vs. Depth Curve





## **Appendix**

# **Formation Evaluation Log**

1: 500

# **Drilling Data Plot**

1: 2500

# Pressure Data Plot

1: 2500

# **Pressure Summary Plot**

1: 7500

# **Gas Ratio Analysis Plot**

1: 500