WEST TUNA W-27

FINAL WELL REPORT

Prepared by

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Section 1
General Well Summary

WELL DATA

Operator	: Esso Australia Ltd	
Platform	: West Tuna	
Well name	: West Tuna W-27	
Country	: Australia	
Location	: Gippsland Basin	
Structure	: Tuna M-1	
Field	: West Tuna	
Permit	: Vic/ L4	
Location AMG co-ordinates	5 771 797.70 mN	621 531.67 mE
Location local co-ordinates	Lat: 38° 11' 36.366" S	Long: 148° 23' 16.245" E
Target Local co-ordinates	805.43 mN	2,828.94 mW
Profile	: Deviated	
Reference depth	: Rotary Table	
RT to Seabed	: 95.69 metres	
RT above M.S.L.	: 34.69 metres	
Sea-water depth	: 61.00 metres	
Proposed total depth	: 3564 metres	
Actual total depth	: 3567 metres	
True vertical depth	: 1437.69 metres	
Spudded on	: 3rd December 2001	
Total depth reached on	: 27th December 2001	

Drilling Contractor

Drilling Contractor	: NABORS ISDL
Rig name	: 453
Rig type	: Platform

Drilling Phases

Diameter (inch)	From (m)	To (m)	Mud Type
12¼"	155	859	Seawater / Gel
8½"	859	3008	KCl / glycol / PHPA
6"	3008	3567	KCl / glycol / PHPA

Cased Hole

Casing Diameter (inch)	Casing Type	Shoe Depth (m)
20"	Conductor Shoe	155 MDKB
$9^{5}/_{8}$"	Surface	854.8 MDKB
7"	Production	3000 MDKB
4½"	Liner	2841.7 to 3561.5 MDKB

MUD LOGGING

Logging Unit Number: 95

Engineers: M. Smith, P. Rady, G. Fawns, M. Boyd.

Sampling Interval

Sample Type	Number of sets	Quantity per set	Sampling interval	From (m)	To (m)
Washed and Dried	3	100 grams	10 metres	3100	3230
Washed and Dried	3	100 grams	5 metres	3230	3567

Cuttings Distribution

Company	Washed and Dried Sample Set
Esso Australia	1
Victorian Department of Energy and Minerals	1
Australian Bureau of Resources	1

WELL SUMMARY

West Tuna W-27 is a long reach infill well east of the West Tuna platform with the primary objective to enhance recovery of the M-1 oil reservoir. The well was drilled to a total depth of 3567 mMDRT (1437.69 mTVDRT) in 6" hole and completed with a single oil completion string of 3½" tubing in 7" intermediate production casing and 4½" production liner.

West Tuna W-27 was spudded at 01:45 hours on the 3rd of December 2001.

After turning the rig around from West Tuna W-16, a 12¼" steerable assembly, with a Hycalog DS 195 PDC bit was made up and used to drill this hole section with a Gel/Water mud system. A mud weight of 9.5 ppg was maintained by dilution with water and prehydrated Gel. The final depth for this section was 859 m. The $9^{5}/_{8}$" casing was run and cemented at 854.8 m. An 8½" MWD steerable assembly with a Geodiamond S75HPX bit was made up and run in hole to drill the cement, shoe track and 4 m of new formation to 863 m. The well was displaced to a 8.9 ppg KCl/PHPA/Polymer mud, prior to the P.I.T. being performed (12.5 ppg EMW at 440 psi). The well was then drilled to 2353 m and a wiper trip to the $9^{5}/_{8}$" casing shoe conducted. The well was then drilled to the final section depth of 3008 m. 7" casing was run and cemented at 3000 m.

A 6" LWD/MWD steerable assembly with a Geodiamond S75HPX bit was made up and run in the hole to drill the cement, shoe track and 5 m of new formation to 3013 m where a P.I.T. was performed (16.0 ppg EMW at 1160 psi with 10.7 ppg MW). The well was then drilled ahead to 3035 m where the bit was pulled after nut plug and caustic pills failed to unblock jets. After unblocking the jets the same bit was made up and run in hole to drill ahead from 3035 m to 3271 m where the bit was pulled to replace the Anadrill AND tool. A new bit and a replacement LWD/MWD tool were made and run in hole and drilled ahead from 3271 m to a total depth of 3567 m. Baracarb-25 and Baracarb-100 were added to the mud system prior to entering the Latrobe Formation to bridge the pore throats and reduce the likelihood of differential sticking and seepage losses, despite this, at 3311 m the bit was unable to be steered and minor differential sticking was occurring. The mud weight was cut back from 11.4 ppg to 11.0 ppg and drilling continued to 3424 m where the hole again gave problems with the angle dropping and an inability to steer the bit. After backreaming to 3213 m and reducing the mud weight from 11.0 ppg to 10.8 ppg, the bit was able to drill ahead effectively to total depth at 3567 m.

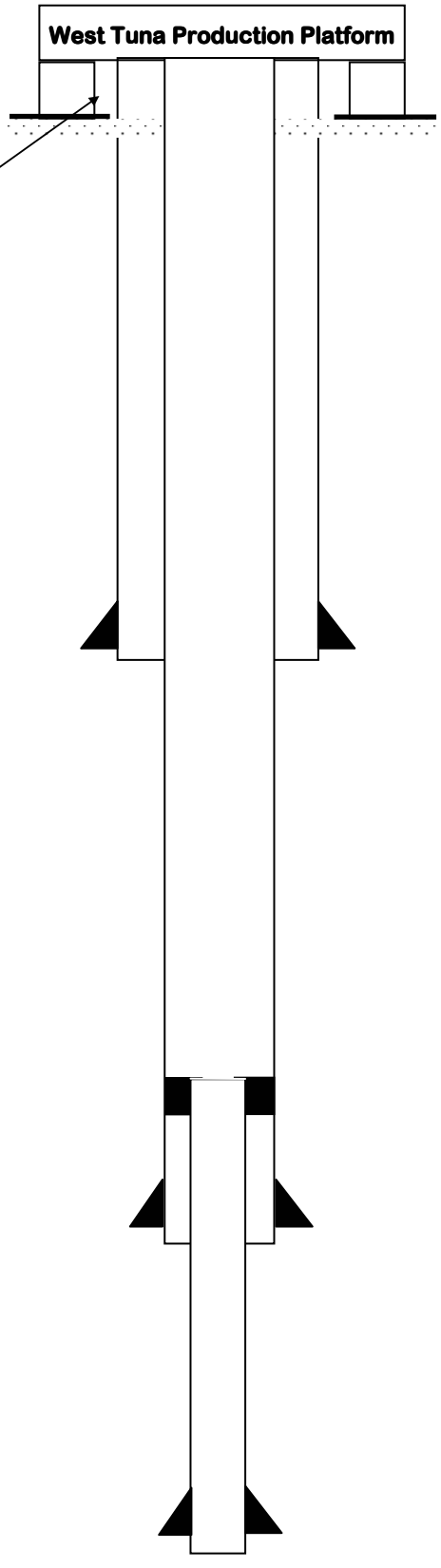
West Tuna W-27 reached a total depth of 3567 m (1437.69 mTVD) at 07:30 hours on 27th December 2001. The final survey at a depth of 3547.45 m had an inclination of 73.43° and an azimuth of 74.01°. 4½" liner was set at a depth of 3561.50 m. West Tuna W-27 was completed as a single oil string with 3½" completion tubing run to 2843.2 m. West Tuna W-27 was handed over to Production at 18:00 hours on 6th January 2002.

WELL PROFILE

Rotary Table to Mean Sea Level 34.69 m

Rotary Table to Sea Bed 95.69 m

20" conductor shoe at 155 m



Nabors Rig 453

Spudded W-27
3rd December 2001
From 155 m

155 m - 859 m
Mud Weight 8.7-9.5 ppg

$9^5/_8$" Surface casing at 854.8 m

12¼" Hole to 859 m

837 m - 3008 m
Mud Weight 8.8-10.5 ppg

Liner Hanger set at 2841.7 m

7" Intermediate casing set at 3000 m

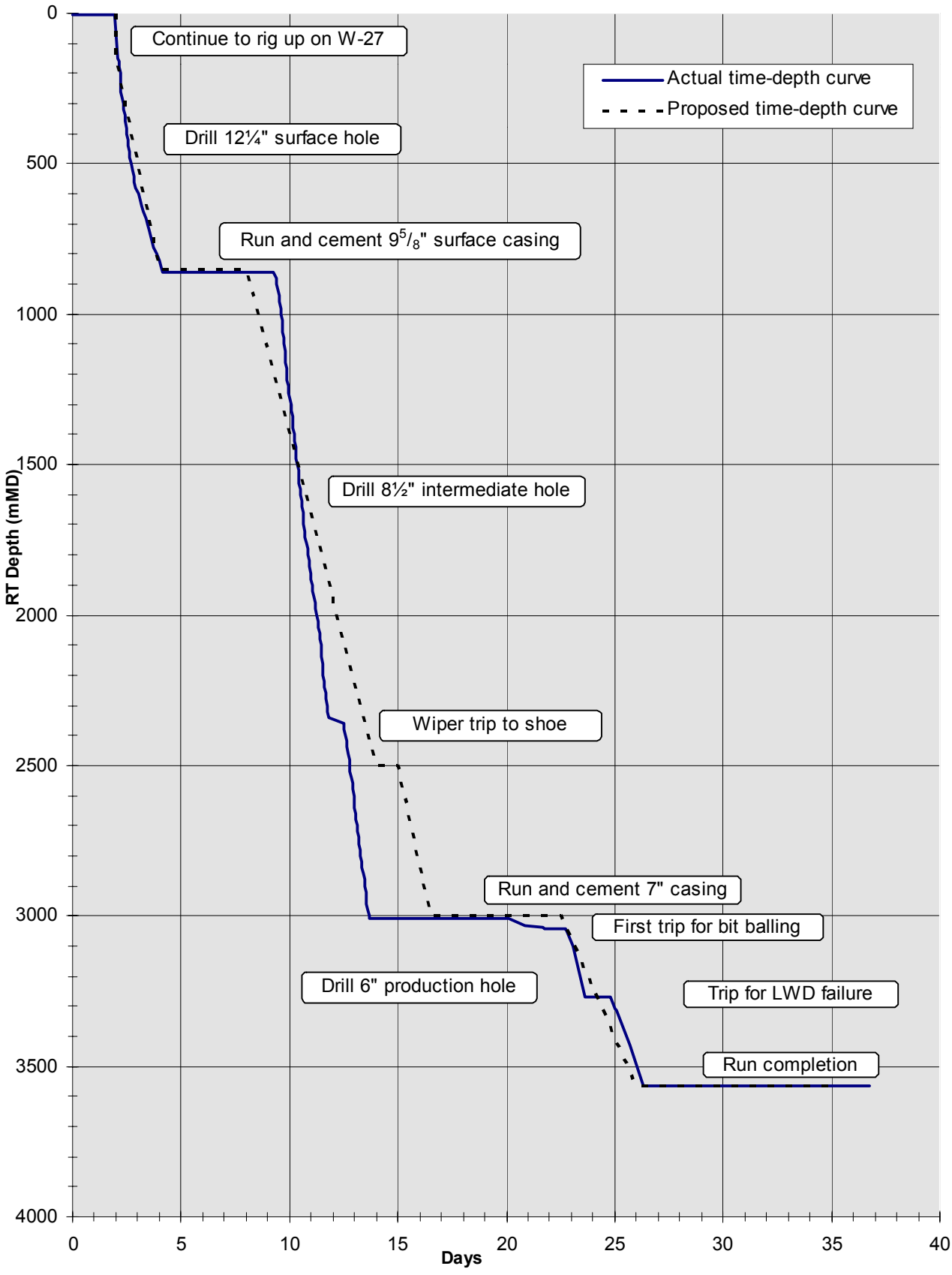
8½" Hole drilled to 3008 m

4½" Production liner set at 3561.5 m

6" Hole drilled to 3567 m

Revision	Date	Issued by	Approved by	Remarks
1	07-01-2002	Geoservices Unit 95	Base Mudlogging Coordinator	

TIME-DEPTH CURVE (measured depth)



Revision	Date	Issued by	Approved by	Remarks
1	07-01-2002	Geoservices Unit 95	Base Mudlogging Coordinator	

BIT RUN SUMMARY

BIT	Size (")	Type	Jets	In (m)	Out (m)	Hours	Condition
1RR2	12¼"	Hycalog DS195	5 x 18	155	859	33.71	1-2-WT-A-X-IN-CT-TC
2	8½"	GeoDiam S75HPX	7 x 14	859	3008	50.37	4-1-CT-C-X-IN-NO-TC
3	6"	GeoDiam S75HPX	5 x 15	3008	3035	8.39	0-1-WT-A-X-IN-PN-PR
3RR	6"	GeoDiam S75HPX	5 x 15	3035	3271	16.21	1-3-WT-S-X-IN-BT-DTF
4	6"	GeoDiam S75PX	5 x 15	3271	3567	14.06	3-3-WT-S-X-IN-CT/BT-TD

CASING DATA

Type	Size (Inches)	Weight (lb/ft)	Grade	Thread	Depth (mMDRT)
Conductor	20"	84	K-55	BTC	155
Surface	$9^5/_8$"	47	L-80	LT&C	854.8
Production	7"	26/29	L-80	LT&C	3000
Liner	4½"	12.6	13Cr-80	VAM-ACE	3561.5

CEMENTING DATA

Casing details	Cement Type	Dry Cement Volume (sx)	Cement Additives	Mix Water (bbls)	Slurry Volume (bbls)	Slurry Density (ppg)	Cement to/from (mMDRT)	Casing Pressure Test (psi)
$9^5/_8$" LEAD	ABC Class G	712	14.6 gal/10 bbls Econolite	220.4	280.5	12.5	Surf-667.8	2000
TAIL		338	0.25 gals/10 bbls NF-5	41.5	70	15.9	854.8-667.8	
7"	ABC Class G	830	3 gal/10 bbls HR-6L 2 gal/10 bbls CFR-3L	98	147	15.8	2361-3000	2000
4½"	ABC Class G	363	32 gal/10 bbls Halad-413L 2 gal/10 bbls SCR-100	45	75	15.8	2628-3561.5	3000

WELL DIRECTIONAL PROFILE

(From Geoservices ALS Software)

WELL DIARY

1st December 2001 Reinstate rig over W-27. Nipple up diverter.

2nd December 2001 Continue to nipple up diverter and install flowline. Function test koomey remote panel. Lay out and clean 5" HWDP and BHA. Pick up 5" HWDP and rabbit. Function test diverter. Howco pressure test lines. Pick up and make up BHA.

3rd December 2001 Continue to pick up and make up BHA and run in hole to 152 m. Tag formation at 152 m. Rotary and slide drill ahead from 152 m to 342 m. Rig service. Rotary and slide drill ahead from 342 m to 594 m.

4th December 2001 Continue to rotary drill and slide from 594 m to 814 m.

5th December 2001 Continue to rotary drill and slide from 814 m to 859 m. Circulate hole clean and pull out of hole to 140 m. Circulate casing clean and run in hole to 859 m. Circulate hole clean, spot 150 bbls high viscosity pill and pull out of hole. Clean and clear rig floor and rig up to run $9^5/_8$" casing. Run $9^5/_8$" casing as per ESSO program.

6th December 2001 Continue to run $9^5/_8$" casing as per ESSO program. Circulate casing on rig pumps. Pressure test lines. Howco mix, pump and displace cement. Check float monitor and wait on cement. Remove flowline and fill up line from bell nipple and prepare to lay out same. Dump and clean pits. Rig down cement head, lift bell nipple. Furmanite cut $9^5/_8$" casing. Lay out casing and bell nipple. Conduct hazard hunt.

7th December 2001 Nipple down diverter and final cut $9^5/_8$" casing. Weld the "A" section to top of $9^5/_8$" casing. Lay out casing, riser and conductor head. Rig up mud mixing lines. Dress pumps to 6" liners. Pressure test BOP's and safety v/v 300/3000 psi - OK.

8th December 2001 Nipple up BOP stack, riser, bell nipple and return lines. Function and pressure test. Make up wear bushing running tool whilst Howco pressure test casing 2000 psi for 15 minutes - OK. Run wear bushing. Rig up to run in hole 3½" drill pipe and lay out same.

9th December 2001 Continue to run in hole 3½" drill pipe and lay out same. Pick up 5" drill pipe and rack back. Pick up BHA and run in hole. Pick up 5" drill pipe and continue to run in hole.

10th December 2001 Continue to run in hole with 5" drill pipe. Wash cement stringers from 812 m to tag cement at 817 m. Drill cement to float collar at 830 m. Rig up Howco and pressure test casing to 2000 psi. Drill shoe track and 4 m of new hole. Displace well to 8.8 ppg mud, circulate and condition. Rig up Howco and conduct P.I.T. to EMW of 12.5 ppg. Drill steer and survey 8½" hole from 859 m to 1289 m, occasionally waiting for high winds to abate before making connections.

11th December 2001 Drill steer and survey 8½" hole from 1289 m to 1885 m.

12th December 2001 Drill steer and survey 8½" hole from 1885 m to 2353 m. Circulate hole clean and pull out of hole.

13th December 2001 Flow check well and continue to pull out of hole to shoe. Circulate hole clean. Slip and cut drilling line, perform rig service. Run in hole from shoe, wash last stands to bottom and continue to drill, steer and survey 8½" hole from 2353 m to 2628 m.

14th December 2001 Drill, steer and survey hole from 2628 m to 3008 m. Circulate hole clean, pump slug and pull out of hole circulating hole clean over tight sections.

15th December 2001 Continue to pull out of hole to shoe. Service rig and run in hole to section TD, circulate bottoms up and pull out of hole to surface, lay out BHA.

16th December 2001 Continue to lay out BHA. Rig up to and run 7" casing.

17th December 2001 Run in hole with 7" casing to 3000 m. Circulate casing and blend mud to make 11.0 ppg. Cement casing as per program, displace and bump plug. Wait on cement, pressure test casing to 2000 psi. Nipple down BOP's.

18th December 2001 Install casing slips, nipple down riser, dress 7" casing stub, pick up and install "B" section. Nipple up riser and test BOP's. Lay out test assembly, slip and cut drilling line. Rig up to lay out 5" drill pipe. Lay out 5" drill pipe.

19th December 2001 Continue to lay out 5" drill pipe. Pull test tool from wellhead. Run wearbushing. Change handling gear. Pick up and run 3 ½" HWDP and pipe.

20th December 2001 Pick up and run 3 ½" HWDP and pipe. Rack back HWDP and 10 stands of drillpipe. Make up BHA and load source. Run in, picking up 276 singles. Run in on stands from 2898 m to tag float collar at 2976 m. Drill shoe track.

21st December 2001 Continue to drill shoe track and 5 m of new hole. Circulate and condition mud. Pull back into casing and conduct P.I.T. to 16.0 ppg EMW. Circulate while increasing mud weight from 10.7 ppg to 11.0 ppg. Attempt to drill ahead, probable bit balling. Mix and pump 30 bbls caustic pill. Drill from 3013 m to 3015 m. Mix and pump 30 bbls nut plug pill. Mix and pump 40 bbls caustic pill. Weight up mud to 11.4 ppg. Drill from 3015 m to 3029 m. Mix and pump nut plug pill. Pump slug and pull out of hole from 3035 m.

22nd December 2001 Pull out of hole and download source. Break and clean bit, balled with Lakes Formation Shale. Reprogram ADN/MWD, run in and load source. Run in hole, washing through obstruction at 2555 m, to 2955 m. Wash from 2955 m to 2974 m. Pull back to 2955 m and remove leaking wash pipe. Wash down to 2975 m and ream through obstruction. Wash and ream from 2975 m to 3035 m. Drill 6" hole from 3035 m to 3041 m. Pull back to 2954 m and replace Kelly hose.

23rd December 2001 Continue to change out Kelly hose. Reinstate high pressure hoses and replace shock hose. Howco pressure test 500/5000 psi. Wash and ream from 2955 m to 2984 m. Pump total of 40 bbls caustic pill; 5 bbls every 10 minutes; to clean bit. Wash and ream from 2984 m to 3013 m. Carry out repairs to mud pump. Wash and ream from 3013 m to 3041 m. Drill, steer and survey 6" hole from 3041 m to 3090 m.

24th December 2001 Drill, steer and survey 6" hole from 3090 m to 3271 m. Circulate bottoms up. Back ream to 2955 m, to clean hole. Rig service; pump slug and pull out of hole.

25th December 2001 Pull out of hole and download source. Break bit and change out LWD/MWD. Make up new bit to tools and shallow test. Load radioactive source and run in on HWDP. Run in hole to 3214 m, filling every 10 stands. Log hole from 3214 m to 3271 m. Drill ahead from 3271 m to 3307 m; pump repair at 3299 m.

26th December 2001 Drill from 3307 m to 3311 m; unable to steer. Circulate and work string while conditioning mud weight down from 11.4 ppg to 11.0 ppg. Steer, slide and rotate from 3311 m to 3424 m. Flow check and backream to 3213 m. Circulate 1½ times Latrobe Formation volume. Run in hole and wash last 2 stands to bottom. Drill ahead to 3455 m, unable to steer. Circulate and work string while conditioning mud.

27th December 2001 Circulate and work string while condition mud weight down from 11.0 ppg to 10.8 ppg. Steer, slide and rotate from 3455 m to 3567 m. Circulate 1½ times Latrobe Formation volume. Flow check and pump out to 3510 m. Pull out of hole to top of Latrobe at 3234 m. Backream from 3234 m to 3127 m. Pull out of hole into shoe. Slip and cut drilling line and conduct rig service. Run in hole, precautionary wash last 2 stands to bottom. Circulate Latrobe volume and backream to 3098 m. Pull out of hole to shoe, circulate. Pull out of hole.

28th December 2001 Continue to pull out of hole to BHA. Remove radioactive source and download tool. Break bit and layout tools. Clear floor. Make up liner cement head and pressure test 500/5000 psi. Rig up and run 4½" liner.

29th December 2001 Continue to run liner 4½" to 726 m. Change running gear and run in on drillpipe to 3561.5 m. Make up cement head and lines. Break circulation and test lines. Circulate with Howco, unable to work string. Set hanger at 2841.7 m. Mix, pump and displace cement. Bump plug with 1750 psi. Layout cement head and pull out of hole with liner setting tool.

30th December 2001 Continue to pull out of hole and layout liner running tool. Pull wearbushing and jet BOP's. Run wear bushing and make up 6" speed mill bit and scraper. Run in hole for casing scraper run. Tag cement at 2628 m and drill to 2837 m. Work scraper over interval 2800 m to 2830 m. Pump 40 bbls high viscosity pill and displace well to seawater. Rig up to and Howco pressure test casing to 300/3000 psi. Pull out of hole.

31st December 2001 Continue to pull out of hole. Layout bit and scraper. Changing running gear for $2^{7}/_{8}$" tubing. Pick up bit and scraper. Run in on tubing to 731 m. Change running gear and run in on 3½" drillpipe to liner hanger. Work through liner section. Run in the hole to 3540 m and pump high viscosity pill and circulate hole clean.

01st January 2002 Pressure test liner 300/3000 psi. Displace to completion brine. Pull out of hole and layout bit and scraper. Slip and cut drilling line. Conduct scheduled BOP test. Rig up Schlumberger sheave and crown. Pick up TCP guns and run on $2^{7}/_{8}$" tubing to 741 m. Change running gear and run in on 3½" drillpipe.

02nd January 2002 Continue to run in hole to 3499 m, space out. Pull up to 3496.89 m and rig up Schlumberger. Make up side entry sub and run wireline GR/CCL to 3475 m. Pump down from 800 m. Correlate TCP gun depth and pull out of hole. Rig up to Howco and pressure up on TCP guns against Hydril. No indication of firing. Howco maintain pressure until second firing head activates. Open Hydril and Howco pump and establish injection rate, 0.25 bbls/minute. Flow check to monitor drink rate. Pull out of hole to 1862 m.

03rd January 2002 Continue pulling out of hole to 741 m, rig down 3½" running gear and rig up $2^{7}/_{8}$" running gear. Pull out of hole and lay out $2^{7}/_{8}$" tubing from 741 m to surface, recover pip tag and spent gun. Wait on weather. Rig up to and pick up and make up 7" packer and tailpipe assembly and run in hole to 28 m, rig up 3½" handling equipment and run in hole with 3½" drill pipe to 2837 m and tag liner lap at 2837 m. Run in from 2837 m to 2839.9 m and confirm land out. Drop ball and wait 60 minutes for ball to drop. Howco pump down and seat ball, pressure up to 3000 psi, set packer and attempt to shear off packer. Ball seat sheared at 3450 psi, pick up 35 klbs overpull and release from packer. Pull out of hole, flow check - OK and continue to pull out of hole.

04th January 2002 Continue to pull out of the hole. Break and lay out packer running tool. Make up wearbushing running tool and pull same. Make up jetting tool and jet wellhead. Rig up 3½" tubing handling equipment. Pick up and make up seal assembly and run in the hole with 3½" completion to 2382 m. Pick up and make up TRSSSV and pressure test.

05th January 2002 Continue to run in the hole with tubing and control line from 2382 m to 2802 m. Make up TDS, roll pumps and sting into packer, stop pumps and sting into packer to land out. Space out and install tubing hanger. Pick up and make up tubing hanger assembly. Make up landing joints, run hanger, engage same and confirm latch with 10 klbs pick up. Install FOBV and HES lubricator. HES run in hole with N test tool to 2827 m, attempt to pump down XN nipple, no go. Pull out of hole. Run in hole with pump out plug and set at 766 m. Pressure test, plug sheared at 2000 psi. Pull out of hole, redress plug and rerun. Pressure test to 2500 psi lock in pressure, pressure PA to 2000 psi. Bleed down PA and tubing. Lay out HES lubricator, FOBV, landing joints and hanger running tool. Cameron run BPV.

06th January 2002

Continue to run BPV. Nipple down BOP's and riser, bleed down and disconnect koomey lines from BOP. Cameron terminate control line, install thread protector, pick up and install Xmas tree. Pressure test same. Cameron pull BPV. Rig up Totco BOP's, riser, FOBV and HES lubricator, Howco pressure test 300/3000 psi. Open well, Howco attempt to pump through pump open plug - no go. HES run in hole and retrieve pump open plug @ 766 m. Rig down HES BOP's and lubricator and reinstate platform grating. Prepare drawworks for ETRS testing, prepare BOP's for removal, remove south side stairway and landing, prepare wireline work for W-48. Hand over W-27 to production at 18:00 hours.

Section 2
Geological Summary

FORMATION TOPS

DESCRIPTION	MD (m) - RT	TVD (m) - RT
Top of Gippsland Limestone	Not Applicable	
Top of Lakes Entrance	2635	1103.8
Top of Latrobe Group	3234	1343.8
Top of Coarse Clastics	3263	1352.0
TOTAL DEPTH	**3567**	**1437.69**

GEOLOGICAL SUMMARY

GIPPSLAND FORMATION

Spud - 710 m **LIMESTONE**

CALCARENITE Light grey to light olive grey, yellowish grey in part, translucent in part, very fine to fine grained, occasional medium and coarse to very coarse decreasing with depth, moderately well sorted, argillaceous in part and grading to Claystone, common to abundant fossils and fossil fragments, trace to minor to nodular pyrite increasing with depth, trace glauconite increasing with depth, trace carbonaceous and lithic specks, friable to occasional moderately hard, fair to good inferred and visual porosity becoming poor with depth, no fluorescence.

710 m - 860 m **LIMESTONE**

CALCISILTITE Light grey to light olive grey, yellowish grey in part, grading to Calcarenite, commonly argillaceous, common to abundant fossil fragments, trace carbonaceous specks, soft to common firm, sticky, dispersive in part, sub-blocky.

860 m - 1740 m **LIMESTONE**

CALCILUTITE Very light grey to pale olive grey, light olive grey to olive grey in parts, occasional silty material, trace carbonaceous specks, common fossils and fossil fragments, minor to locally common disseminated pyrite, minor calcite grains, predominantly soft, commonly firm, sub-blocky to blocky.

1740 m - 2365 m **MARL**

MARL Light to medium grey, olive grey to medium grey, minor to locally common fossils and fossil fragments, trace disseminated pyrite, trace to locally common calcite grains, common ooids, soft to firm, commonly moderately hard, sub-blocky to blocky.

LAKES ENTRANCE FORMATION:

2365 m - 3234 m **CLAYSTONE**

CLAYSTONE Light grey, olive grey to dark olive grey, medium grey to occasional dark grey, calcareous, silty in part and locally grading to Siltstone, trace disseminated pyrite, trace to common Ooids, Forams and microfossil fragments, trace carbonaceous and lithic specks, trace disseminated glauconite with depth, rare sparry calcite fragments, dominantly firm to soft, occasional moderate hard, sub-blocky to blocky.

LATROBE FORMATION:

3234 m - 3263 m **Interbedded, SILTSTONE, CLAYSTONE and SANDSTONE**

SANDSTONE Clear to translucent, opaque, fine to very coarse, predominantly medium to coarse, very poorly sorted to poorly sorted with depth, rounded to angular, dominantly sub-angular to sub-rounded, common pyrite nodules, common bit fractured grains, trace glauconite nodules, predominantly loose, fair inferred porosity, no fluorescence.

CLAYSTONE Dark to pale yellow orange, light to medium grey, mottled green yellow orange, mottled green grey, arenaceous in part, trace glauconite nodules, very soft to dispersive, sub-blocky to amorphous.

SILTSTONE Medium brown to dark brown grey, arenaceous and siliceous in part, calcareous, abundant carbonaceous, minor nodular pyrite, firm to moderately hard in part, blocky to sub-blocky.

COARSE CLASTICS:

3263 m - 3567 m **SANDSTONE with minor SILTSTONE**

SANDSTONE Clear to translucent, opaque, milky white, fine to very coarse, dominantly medium to coarse, poorly sorted, angular to rounded, dominantly sub-angular to sub-rounded, com very angular bit fractured grains, local minor pyritic cement grading to trace with depth, occasional to common nodular pyrite, generally loose and clean, fair to good inferred porosity.

SILTSTONE (1) Medium to dark brown, brown grey, arenaceous to carbonaceous in part, calcareous, argillaceous in part, micromicaceous, trace disseminated pyrite, firm, sub-blocky to sub-fissile, fissile in part.

SILTSTONE (2) Light grey, argillaceous, slightly micromicaceous, very soft to soft, dispersive, amorphous, sub-blocky to blocky. (NB as cavings.)

SILTSTONE (3) Light to medium grey, light brown grey, argillaceous to arenaceous, calcareous, trace carbonaceous specks, trace calcite fragments, trace disseminated pyrite, soft to firm, blocky to sub-blocky.

GAS REPORT

No gas was recorded while drilling out of the 20" conductor at 155 m. Gas was first recorded at 318 m and consisted of C_1 (Methane). The composition of the gas remained unchanged throughout the 12¼" hole section with total hydrocarbon gas detected beginning at around 5 units and increasing steadily to an average background of 15 units with peaks of up to 20 units.

Due to a lesser volume of rock being drilled in the 8½" hole section, only C_1 was seen ranging between 0.1% and 0.3% until the Claystone of the Lakes Entrance formation. Minor peaks were detected from 1360 m to 2920 m and ranged from 2 units to 8 units above background gas and appear to be ROP based. The gas level in this section until the Lakes Entrance formation ranged from 5 to 25 units with the average being around 10 units. In the Claystone of the Lakes Entrance formation the trend of the gas curve was to increase gradually from an average of around 10 units at 2500 m up to 30 units near 2990 m. The gas consisted predominantly of C_1 with C_2 gradually increasing from 2680 m onwards from trace amounts to 0.05%. There were no significant gas peaks throughout this hole section with the trend of the gas curve matching the penetration rate and mud weight influences.

The 7" casing was set at 3000 m and from 3008 m, as expected with a smaller diameter, the 6" hole produced less gas with background levels of 2 to 4 units being recorded until the Latrobe formation. The composition of the gas in this section was predominantly 100% C_1, with occasional trace amounts of C_2. On penetrating the Latrobe formation at 3234 m there was an increase in gas levels increasing from 3 units to a peak of 258 units. The composition of the gases also changed with an increase in heavier gases (C_2 to C_5) indicating a hydrocarbon bearing lithology. Gas levels throughout the Latrobe were very erratic due to drilling difficulties and gas levels, varying from 10 units up to a peak of 258 units, reflected this. Beneath the oil water contact (3503 m) gas levels gradually dropped to around 15 units at TD.

Localised increases in background gas are attributable to the penetration rate which was dependant upon the drilling method, being either rotary or slide, carried out at the time. No CO_2 or H_2S was detected while drilling West Tuna W-27.

Gas peaks through the Latrobe Group

Depth metres	**Total Gas** units	**C_1 %**	**C_2 %**	**C_3 %**	**iC_4 %**	**nC_4 %**	**iC_5 %**	**nC_5 %**
3260	258	4.71	0.19	0.06	0.01	0.01	0.01	0.01
3277	125	1.30	0.08	0.03	0.01	0.01	0.01	0.01
3295	201	2.56	0.14	0.06	0.01	0.02	0.01	0.01
3328	200	2.05	0.13	0.07	0.01	0.02	0.01	0.01
3340	123	1.16	0.09	0.06	0.01	0.02	0.01	0.01
3356	131	1.28	0.08	0.04	0.01	0.01	0.01	0.01
3372	207	2.27	0.15	0.08	0.01	0.01	0.01	0.01
3410	123	1.33	0.08	0.04	0.01	0.02	0.01	0.01
3443	194	1.94	0.10	0.06	0.01	0.02	0.01	0.01
3480	70	0.55	0.04	0.04	0.01	0.02	0.01	0.01
3512	49	0.42	0.03	0.03	0.01	0.01	0.01	0.01