



TUNA A-30

FINAL WELL REPORT

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Tuna A-30	DRILLING LOG --	1:1000 scale from Spud to 2862 metres
Tuna A-30	GAS RATIO LOG --	1:200 scale from 2500 to 2862 metres

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Section 1

General Well Summary

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WELL DATA

Operator : Esso Australia Ltd
Platform : Tuna
Well name : Tuna A-30
Country : Australia
Location : Gippsland Basin
Structure : Tuna M-1
Field : Tuna
Permit : Vic/ L9

Location AMG co-ordinates 5 774 225.50 mN 624 224.9 mE

Location local co-ordinates Lat: 38° 10' 16.235" S Long: 148° 25' 5.588" E

Target Local co-ordinates 879.64 mN 1,821.5 mE

Profile : Deviated
Reference depth : Rotary Table
RT to Seabed : 90.72 metres
RT above M.S.L. : 31.32 metres
Sea-water depth : 59.40 metres
Proposed total depth : 2730.6 metres
Actual total depth : 2862 metres
True vertical depth : 1477.67 metres
Spudded on : 22nd August 2002
Total depth reached on : 02nd September 2002

Drilling Contractor

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

Drilling Phases

Diameter (inch)	From (m)	To (m)	Mud Type
12¼"	148.8	838	Seawater and Gel sweeps
8½"	838	2862	KCl / Glycol / PHPA

Cased Hole

Casing Diameter (inch)	Casing Type	Shoe Depth (m)
20"	Conductor Shoe	148.8 MDRT (Existing)
9 ⁵ / ₈ "	Surface	832.1 MDRT
7"	Production	2851.3 MDRT

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MUD LOGGING

Logging Unit Number: 95

Engineers: G. Fawns, R. Pereira, P. Rady, M. Smith.

Sampling Interval

Sample Type	Number of sets	Quantity per set	Sampling interval	From (m)	To (m)
Washed and Dried	3	100 grams	10 metres	2370	2530
Washed and Dried	3	100 grams	5 metres	2530	2862

Cuttings Distribution

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

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WELL SUMMARY

Tuna A-30 is a conventional well designed to enhance well spacing and recovery in the north-eastern part of the M-1 reservoir. The well was drilled to a Total Depth of 2862 m MDRT (1477.67 m TVDRT) in 8½" hole and completed with a single oil completion string of 3½" tubing in 7" production liner.

Tuna A-30 was spudded at 10:30 hours on 22nd August 2002 after jetting out of the 20" conductor shoe.

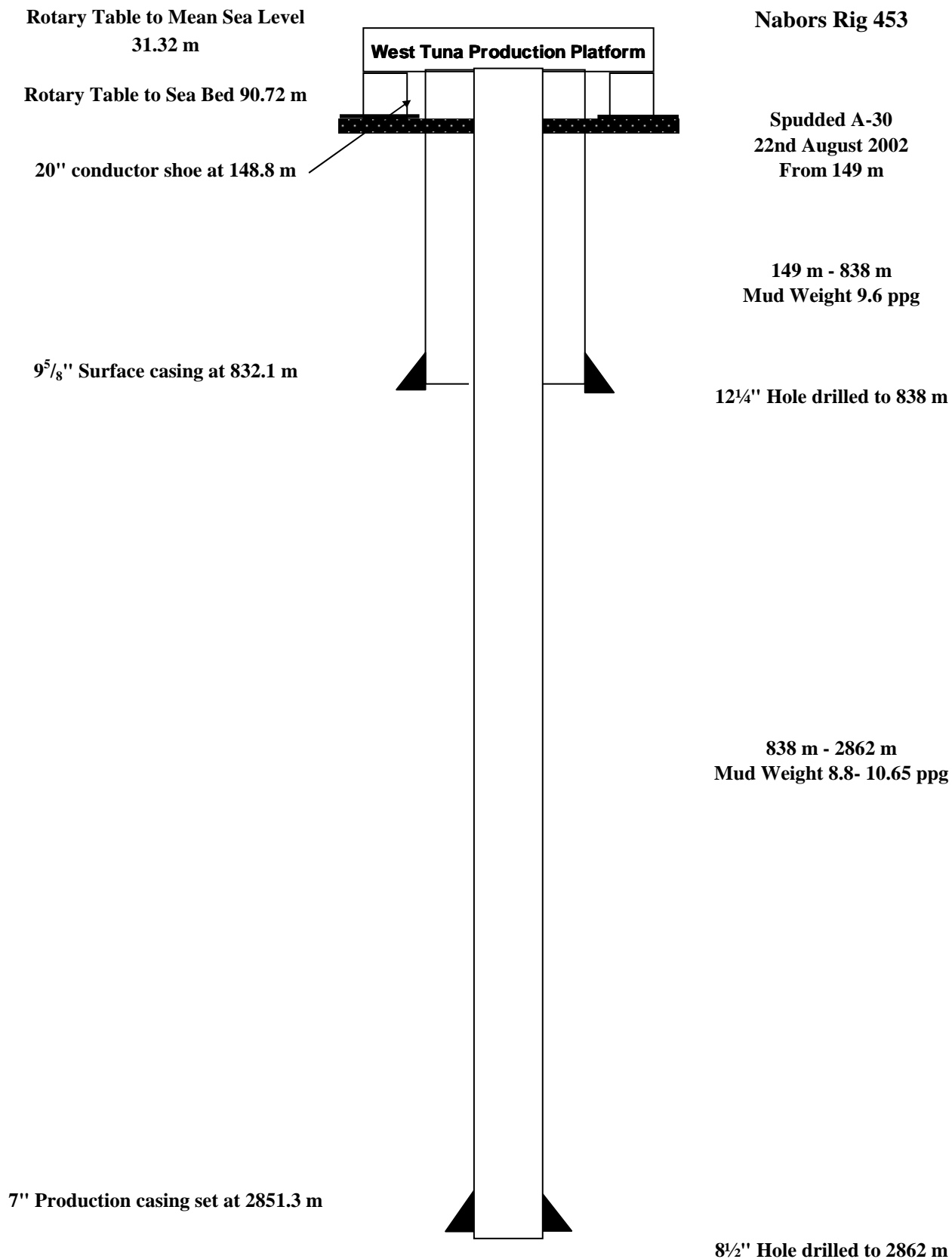
After skidding the rig from Tuna A-29, a 12¼" jetting assembly was made up and run in hole, jetting to 222 m using a Gel/Water mud system and running Gyro surveys as required due to potential well interference with the existing Tuna A-32 well. The jetting assembly was pulled at 222 m and a 12¼" steerable assembly was made up and run in the hole drilling ahead to casing point at 838 m. A mud weight of 9.6 ppg was maintained by dilution with water and prehydrated Gel. The 9⅝" casing was run and cemented, setting the shoe at 832.1m. An 8½" steerable assembly was made up and run in the hole drilling the float, shoe track, rathole and 5 m of new formation. The well was displaced to an 8.8 ppg KCl/PHPA/Polymer mud system before a P.I.T. was performed (13.0 ppg EMW at 500 psi with 8.8 ppg) to ESSO requirements. The assembly was pulled and an 8½" LWD/MWD steerable assembly made up and run in the hole to 843 m and drilled ahead to 2421 m where it was pulled to replace the RAB tool. During the trip, tight hole was encountered at several depths from 1930 m to 1020 m; with overpull of 30 klbs. The string was worked through these tight sections to clean the hole. After changing the tools, the steerable assembly was run in the hole and the well was drilled to a depth of 2771 m. After analysis of LWD logs the well was drilled a further 91 m to a Total Depth of 2862 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. Finagreen - EBL and Barablok were added during the last drilled section to reduce torque and counteract potential sloughing of coals, respectively.

Tuna A-30 reached a Total Depth of 2862 m (1477.67 mTVD) at 20:15 hours on 02nd September 2002. The final survey at a depth of 2841.21 m had an inclination of 68.73° and an azimuth of 65.88°. 7" production casing was run to a depth of 2851.3 m and was completed as a single oil string with 3½" completion tubing. Tuna A-30 was handed over to Production on 15-09-2002 at 14:00 hours.

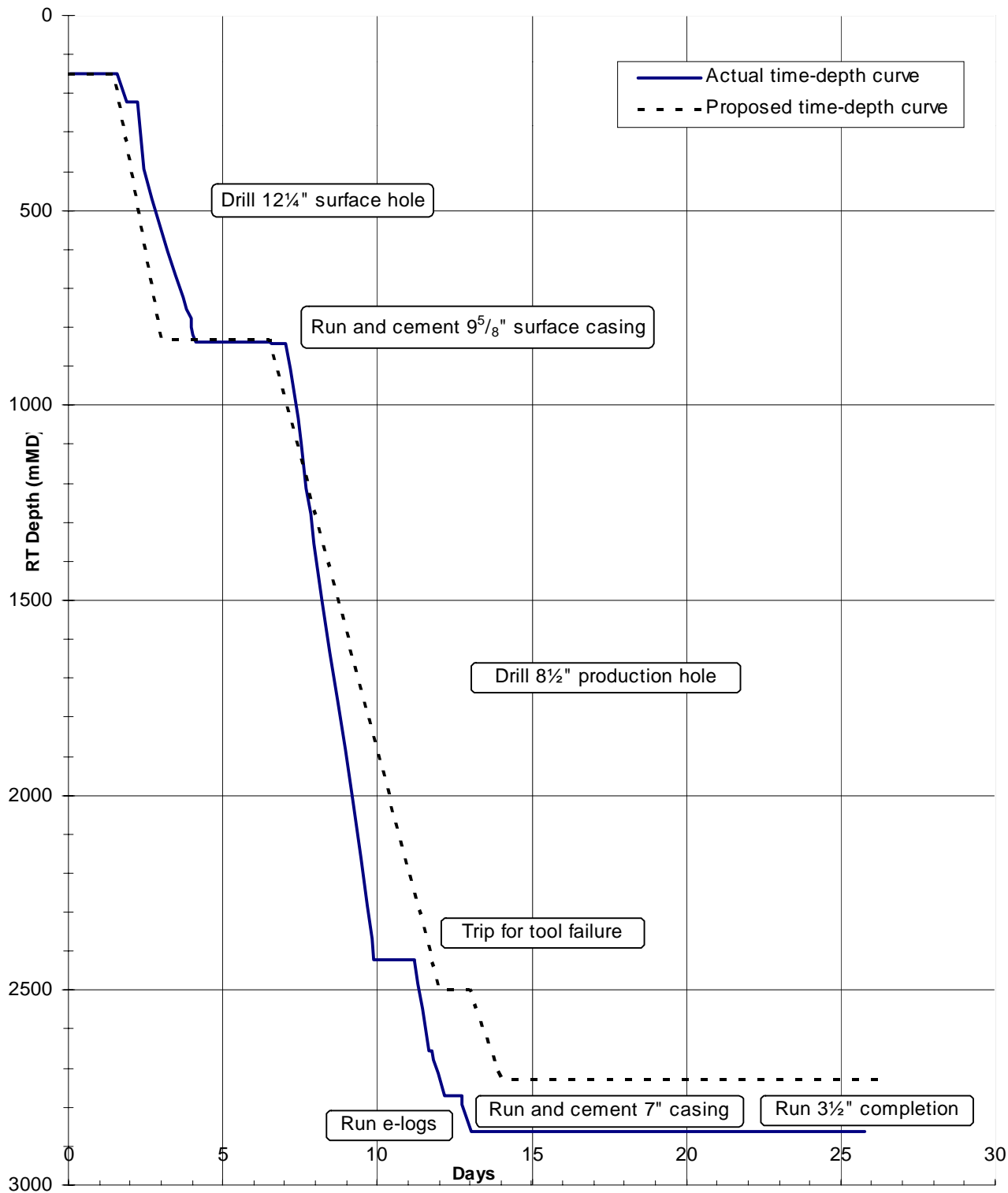
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WELL PROFILE



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TUNA A-30 TIME-DEPTH CURVE (measured depth)



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BIT RUN SUMMARY

BIT	Size (")	Type	Jets	In (m)	Out	Hours	Condition
1	12¼	Security MPSF	1 x 28	149	222	2.33	1-1-A-WT-E/E/E-IN-NO-BHA
2RR3	12¼	Hycalog DS195	5 x 18	222	838	31.86	2-2-WT/CT-A/S-X-IN-NO-TC
3RR	8½	Hughes MX-20D	3 x 22	838	843	0.69	1-2-WT-A-E/E/E-IN-BT-BHA
4	8½	Geodiamond S75HVPX	7 x 15	843	2421	43.31	0-0-NO-A-X-IN-NO-DTF
4RR	8½	Geodiamond S75HVPX	7 x 15	2421	2862	15.84	1-3-WT/CT-A/T-X-IN-NO-TD

CASING DATA

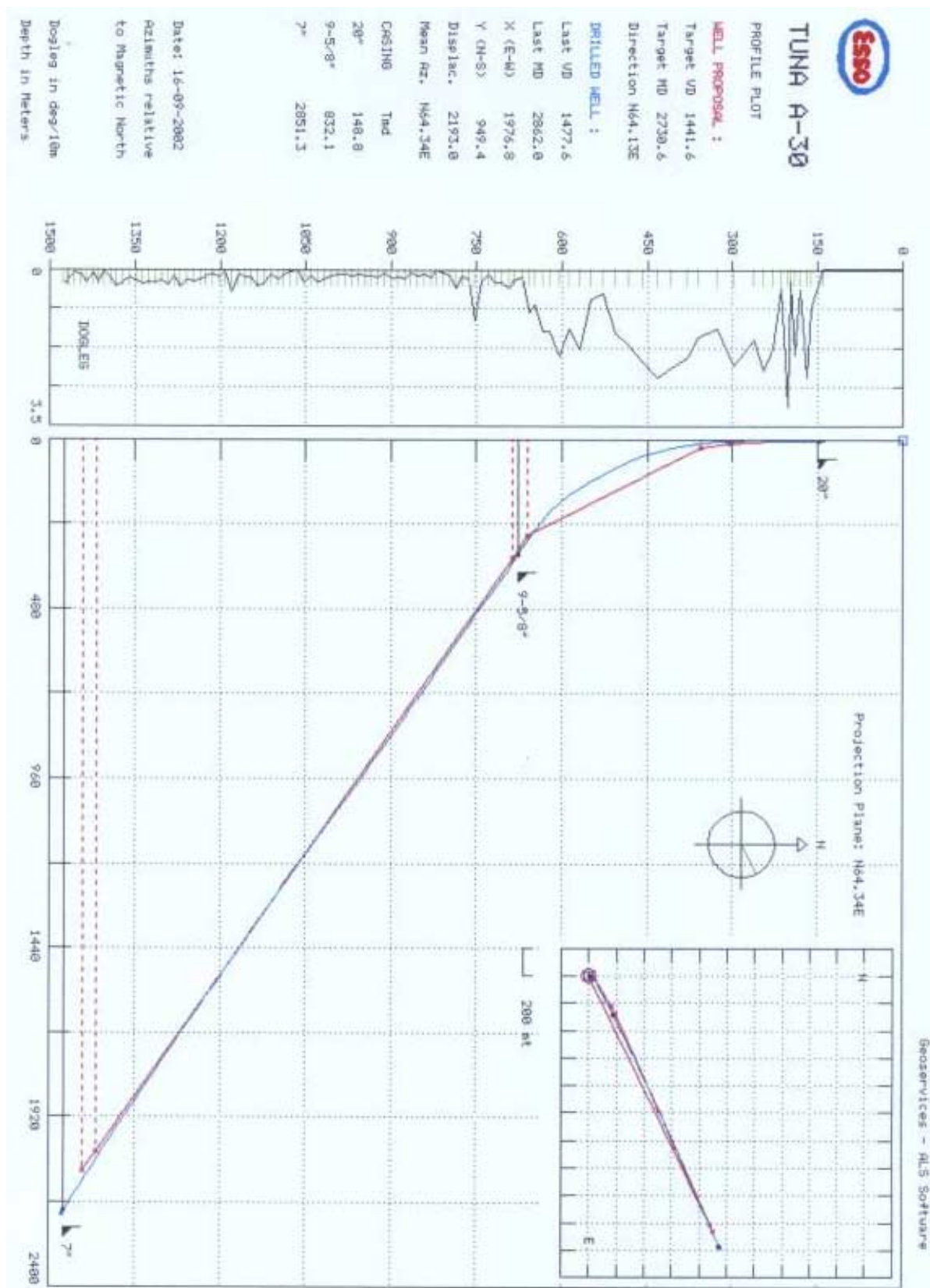
Type	Size (Inches)	Weight (lb/ft)	Grade	Thread	Depth (mMDRT)
Conductor	20"	133	K-55	BTC	148.8
Surface	9 ⁵ / ₈ "	47	L-80	LT&C	832.1
Production	7"	26	L-80	LT&C	2851.3

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 "	ABC Class G	686	14.6 gal/10bbl Econolite	212	270	12.5	Surf-644.5	2000
		300	0.25 gal/10bbl NF-5	37	62	15.8	644.5-832.1	
7"	ABC Class G	581	32 gal/10 bbl Halad-413L, 1 gal/10bbl SCR-100L 5 gal/10bbl CFR-3L 0.25 gal/10bbl NF-5	72	120	15.8	2139.5-2851.3	2000

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WELL DIRECTIONAL PROFILE
(From Geoservices ALS Software)



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WELL DIARY

20th August 2002	Prepare to skid rig to Tuna-A30 at 21:00.
21st August 2002	Skid and reinstate rig over Tuna-A30. Install riser, flow line, Hydril Annular and Bell Nipple. Nipple up diverter, change TDS handling equipment to 4½" IF.
22nd August 2002	Continue to nipple up diverter and pump through same. Pick up and make up 12¼" jetting assembly and run in hole to 103 m. Rig up Schlumberger wire line equipment and continue to run in hole to 149 m washing and reaming last stand. Drill from 149 m to 150 m whilst displacing hole to Gel mud. Drill and jet 12¼" hole from 150 m to 222 m Gyro surveying as required. Back ream from 222 m to 213 m and pull out of hole from 213 m. Lay out jetting assembly. Make up and run in hole with BHA #2 to 200 m and conduct Gyro survey.
23rd August 2002	Rig down Schlumberger and run in hole to 222 m. Drill, steer and survey 12¼" hole from 222 m to 435 m (Gyro at 293 m). Work string whilst circulating hole clean and continue to drill, steer and survey 12¼" hole from 435 m to 606 m.
24th August 2002	Continue to drill, steer and survey 12¼" hole from 606 m to 838 m.
25th August 2002	Pull out of hole racking back HWDP and laying out jars and 12¼" steerable assembly. Rig up Weatherford and run in hole with 9 ⁵ / ₈ " casing and cement as per ESSO program. Wait on cement.
26th August 2002	Wait on cement, rig down and lay out cement head, casing running tool, landing joint and 9 ⁵ / ₈ " running gear. Lay out bell nipple, annular diverter spool, ball v/v, overboard line and lower riser. Cameron remove cement sleeve, dress compact housing and nipple up wing v/v's. Nipple up fast lock, lower riser, BOP's, bell nipple, flowline and pressure test BOP's.
27th August 2002	Continue to pressure test, run wear bushing and lay out 10 joints HWDP. Pick up and run in hole with 8½" drilling assembly tagging cement at 801 m. Drill cement, shoe track and rat hole to 834 m. Pump Hi-Vis sweep, circulate and displace hole to new mud. Drill out rat hole to 838 m and 3 m of new formation to 841 m. Attempt PIT - not conclusive. Drill 2 m new formation to 843 m and conduct PIT to 13 ppg EMW with 8.8 ppg mud at 500 psi. Pull out of hole from 843 m for bit and BHA change. Make up new 8½" bit and BHA and run in hole to 843 m. Drill, steer and survey from 843 m to 898 m. Losses over shakers, pull off bottom and rack back 1 stand to circulate and condition mud. Run back to bottom and drill, steer from 898 m to 908 m.
28th August 2002	Drill, steer and survey 8½" hole from 908 m to 1497 m.
29th August 2002	Drill, steer and survey 8½" hole from 1497 m to 2022 m.
30th August 2002	Drill, steer and survey 8½" hole from 2022 m to 2421 m. Rotate and work string while circulating hole clean. Rack back 1 stand per ½ hour to 2277 m. Flow check and pull out to tight hole at 1930 m. Run in hole to 2007 m. Rotate and work string while circulating. Rack back from 2007 m to 1988 m. Pull out of hole to 1860 m -30k overpull. Run in hole to 1901 m. Rotate and work string while circulating. Rack back from 1901 m to 1807 m. Pull out of hole to 1679 m - 30k overpull. Run in hole to 1727 m. Rotate and work string while circulating.
31st August 2002	Back ream from 1727 m to 1020 m. Pull out of the hole to 920 m and circulate. Pull out of the hole to the shoe and conduct rig service. Pull out of the hole to BHA and download source and data. Change RAB tool and shallow test MWD. Run in hole to 2350 m. Wash and ream to bottom. Rotate and work string, while conditioning mud. Drill, steer and survey 8½" hole from 2421 m to 2425 m.
01st September 2002	Drill, steer and survey 8½" hole from 2425 m to 2660 m. Rotate and work string, while conditioning mud. Drill, steer and survey 8½" hole from 2660 m to 2771 m. Reciprocate and circulate at maximum pump rate and rotation, while cleaning shakers.

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02nd September 2002	Rotate, pump and work string, while racking back from 2771 m to 2682 m. Flow check and pull out of hole from 2682 m to 927 m. Circulate hole and pull back into shoe. Conduct rig service and cut and slip drill line. Run in hole to bottom and circulate hole. Drill, steer and survey 8½" hole from 2771 m to 2793 m. Rotate and work string, while circulating. Drill, steer and survey 8½" hole from 2793 m to 2862 m. Rotate and work string, while circulating hole clean. Add Finagreen EBL and Barablok to the mud system and rack back 1 stand every ½ hour. Conduct wiper trip to 3 stands above TOL at 2533 m. Rotate and work string, while circulating 1½ times bottoms up.
03rd September 2002	Run in hole from 2451 m to 2862, precautionary wash and ream last 2 stands. Rotate and work string, whilst circulating hole clean. Rack back to 2770 m. Note pressure drop in drill string. Pull out of hole wet to wash pipe at 2509 m and lay out. Pull out of hole to 920 m and circulate hole clean. Pull out of hole and remove source, download data and layout BHA. Pick up BHA and logging tools and run in hole to 2833 m. Wash and ream last stand to bottom. Circulate prior to deploying tools.
04th September 2002	Work string and circulate bottoms up at 2862 m. Pull out of the to 2804 m. Halliburton perform dynamic test, 4 bbls/min, 1000 psi. Load and pump messenger. Tag with 1100 psi, shear open ports with 1300 psi, 800 psi drop. Confirm tools engaged at 2856 m. Log hole from 2856 m to 2393 m. Pull out of hole to BHA at 220 m. Rack back BHA and lay out tools. Make up clean out BHA and run in hole to bottom. Precautionary wash and ream last 2 stands. Rotate and work string whilst circulating 2 times Latrobe open hole volume. Back ream from 2862 m to 2444 m. Rotate and work string while circulating. Run back to bottom. Rack back from 2862 m to 2791 m.
05th September 2002	Pull out of hole from 2791 m to 910 m. Work string while circulating. Pull out of hole and lay out BHA. Pull wear bushing and jet BOPs and MC2 housing. Rig up Weatherford and dress floor to run 7" casing. Pick up and make up shoe track. Run in hole with 7" casing to 2500 m.
06th September 2002	Run in hole with 7" casing to 2831 m. Pick up 7" hanger and rig up cement head. Space out and set shoe set at 2851 m. Circulate and condition mud. Mix, pump and displace cement as per ESSO program. Bump plug and hold pressure. Bleed back and confirm float holding. Wait on cement. Rig down cement head, layout landing joint and clear rig floor. Jet BOPs and MC2; run seal assembly. Test lower void. Slip and cut drilling line and conduct rig service. Change out TDS saver sub and BOP rams for 3½" drill pipe and tubing. Halliburton pressure test. Run wear bushing.
07th September 2002	Pick up and make up 7" casing assembly and run in hole BHA to 225 m. Continue to run in hole, picking up 3½" drill pipe from the deck, to 2772 m. Work scraper over intervals 2580 m to 2620 m; 2630 m to 2670 m; 2685 m to 2725 m on the way in. Wash from 2772 m to 2815 m. Ream cement stringers from 2815 m to 2825 m and tag cement. Circulate hole clean and pump HiVis sweep. Displace hole to 8.9 ppg brine. Pressure test to 2000 psi for 15 minutes. Pump heavy brine pill and pull out of hole, laying out 3½" drill pipe from 2825 m to 2734 m. Wait on weather.
08th September 2002	Continue to wait on weather. Rig service. Pull out of hole from 2734 m to 225 m, laying out drill pipe. Lay out HWDP and break out scraper assembly. Retrieve wear bushing. Rig up shooting nipple, FOBV, HCW and pumping lines.
09th September 2002	Rig up Schlumberger and run in hole with guns to perforate. Correlate guns and perforate. Pull out of hole. Make up 6" gauge ring and run in hole. Pull out of hole. Monitor well while waiting on weather. Rig service.
10th September 2002	Continue to wait on weather. Test BOP's while laying out completion tubing on pipe deck. Dress rig floor and prepare to run 3 1/2" completion. Hold JSA and pre-job meeting. Pick up and run in hole with completion tubing.

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11th September 2002	Continue to run in hole with completion tubing to 2708m. Make up hanger and pressure test control lines to 5000 psi. Run in hole and land out. Make up test assembly, confirm HSV seated, increase pressure and set packers. Attempt to engage tubing hanger, no go, backed out at pup joint. Back out landing joint from pup joint, clean thread and add Baker Lok, screw back into pup joint and wait for Baker Lok to cure.
12th September 2002	Rig service, wait on Baker Lok to cure and attempt to unscrew hanger, no go. Rig up Halliburton wireline and set plugs. Pull out of hole with wireline and prepare to nipple down and lift BOPs to access production tubing hanger.
13th September 2002	Continue to nipple down and lift BOPs and riser. Break down landing joint and replace, engage tubing hanger. Reinstate BOPs and test. Confirm Tubing hanger engaged. Pressure test and shear HSVs. Nipple down BOPs, terminate control lines and prepare well head. Install TOTCO BOP and riser and rig up to wireline.
14th September 2002	Run in hole with HES wireline to retrieve CGLV, no go, pull out of hole. Run in hole with new CGLV and set, pull out of hole and pressure test. Run wireline logs, HES run in hole with blind box, unable to pass 2708m, pull out of hole. Run in hole with wireline and attempt to open upper sleeves, no go. Pull out of hole and inspect tool. Run in hole with wireline to retrieve CGLV at 2715m.
15th September 2002	Pull out of hole. Check wireline tools and run in hole to open upper and lower sleeves. Pull out of hole and complete wireline operations on well as per programme. Rig down HES lubricator, riser and BOPs. Install Christmas tree and reinstall grating over A30. Prepare to skid rig. Rig released to A5 at 14:00 hrs.

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Section 2

Geological Summary

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FORMATION TOPS

DESCRIPTION	MD (m) - RT	TVD (m) - RT	TVD (m) - SS
Top of Gippsland Limestone	Not Applicable		
Top of Lakes Entrance	1907.0	1110.1	1078.8
Top of Latrobe Group	2533.0	1355.2	1323.9
Top of Coarse Clastics	2627.5	1392.2	1360.9
TOTAL DEPTH	2862	1477.67	1446.35

GEOLOGICAL SUMMARY**GIPPSLAND FORMATION:**

149 m - 570 m

CALCARENITE**CALCARENITE:**

Yellowish grey to light olive grey, pale grey, occasional off white and light brown, very fine to fine grained with occasional medium to coarse loose quartz grains, argillaceous in part, fossils and shell fragments, common to trace glauconite, trace disseminated and nodular pyrite, trace carbonaceous and lithic specks, soft to moderately hard, friable in part, poor visual porosity, no fluorescence.

570 m - 850 m

CALCARENITE, CALCISILTITE and CALCILUTITE**CALCARENITE:**

Light grey to light brown grey, olive grey, very fine to fine grained with occasional medium to very coarse loose quartz grains, common lutitic matrix, fossils and shell fragments, common calcite fragments, trace to minor glauconite, trace disseminated pyrite, trace carbonaceous and lithic specks, soft to moderately hard, friable in part, poor visual porosity, no fluorescence.

CALCISILTITE:

Very light grey to yellowish grey, olive grey, common lutitic matrix, arenaceous in part and grading to Calcarenite, common to abundant fossil fragments, trace glauconite and pyrite, trace carbonaceous and lithic inclusions and specks, firm to moderately hard, in part dispersive to very soft, blocky to amorphous.

CALCILUTITE:

Very pale grey to off white, medium to dark grey in part, silty in part, occasionally grading to Calcisiltite, trace fossil fragments, trace carbonaceous specks, minor disseminated pyrite, very soft to sticky, dispersive in part, amorphous to blocky.

850 m - 1380 m

CALCISILTITE and CALCILUTITE**CALCISILTITE:**

Pale olive grey to dark olive grey, grades to Calcilutite, common lithic specks, common to occasional fossil and calcite fragments, occasional carbonaceous specks and disseminated pyrite, soft to firm, occasional moderate hard, sub-blocky to amorphous.

CALCILUTITE:

Very light grey to olive grey, silty in part, occasional grading to Calcisiltite, trace fossil fragments, trace carbonaceous specks, trace quartz grains, minor disseminated pyrite, very soft to sticky, dispersive in part, amorphous to sub-blocky.

1380 m - 1530 m

CALCISILTITE and MARL**CALCISILTITE:**

Pale olive grey to medium olive grey, argillaceous and grading to Marl, common to abundant disseminated pyrite, common lithic, occasional calcite fragments and carbonaceous specks, minor glauconite, firm, hard to very hard in part, sub-blocky.

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MARL: Olive grey to dark olive grey, occasional disseminated pyrite, occasional lithic specks, minor carbonaceous specks, grade to Calcisiltite in part, firm to moderate hard in part, sub-blocky to blocky.

1530 m - 1907 m **MARL**

MARL: Light to medium grey, occasional light olive grey, argillaceous, silty in part, trace carbonaceous and lithic specks, trace pyrite, trace fossil and calcite fragments, soft to occasionally firm, sub-blocky to amorphous.

LAKES ENTRANCE FORMATION:

1907 m - 2533 m **CALCAREOUS CLAYSTONE**

CALCAREOUS CLAYSTONE: Light to medium olive grey, light to medium grey, local silty, occasional to trace carbonaceous Specks, occasional to common disseminated pyrite, occasional to trace foraminifera and ooids, rare glauconite, local trace lithic, soft to firm, moderately hard in part, sub-blocky, amorphous to blocky.

LATROBE FORMATION:

2533 m - 2627.5 m **Interbedded CLAYSTONE, SILTSTONE and SANDSTONE**

CLAYSTONE: Medium yellowish orange, medium to light brown, yellowish brown, pinkish grey, off white, mottled white and green, moderately glauconitic, very silty and grading to Siltstone in part, arenaceous in part with very fine to fine loose quartz grains in matrix, micromicaceous in part, trace carbonaceous flecks and microlaminations, soft, dispersive, amorphous.

SILTSTONE: Medium to light brown, light yellowish brown, very argillaceous and grading to Claystone, slightly sandy with trace free very fine quartz grains, moderate glauconite, trace pyrite, soft, blocky.

SANDSTONE: Medium to dark brown, light grey, off white, fine to very fine, common medium to coarse loose grains, poorly sorted, sub-rounded to rare rounded, weak to nil siliceous cement, trace quartz overgrowth, common white to light grey dispersive argillaceous matrix, trace nodular pyrite, predominantly clean and loose, friable aggregates, poor inferred porosity, no fluorescence.

COARSE CLASTICS:

2627.5 m - 2702 m **SANDSTONE with minor SILTSTONE**

SANDSTONE: Quartzose, clear to frosted, very fine to very coarse, predominantly medium, moderately sorted to poorly sorted with depth, common angular shards, sub-angular to sub-rounded, trace siliceous cement and locally trace pyrite cement, loose, good inferred porosity.

FLUORESCENCE: 2680 m - 2705 m, Trace to 20% very dull pale bluish yellow fluorescence, no cut, pale white crush cut, no residue.

SILTSTONE: White to light grey, yellowish grey, light brown grey, locally common arenaceous, very argillaceous grading to CLAYSTONE, minor micromicaceous, locally carbonaceous, dispersive very soft to soft, firm in part, amorphous to sub-blocky in part.

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LATROBE GROUP:

2702 m - 2862 m

INTERBEDDED SANDSTONE, SILTSTONE, CLAYSTONE & COAL**SANDSTONE:**

Quartzose, clear to translucent, frosted, opaque, milky white, fine to very coarse, dominantly medium to coarse, poorly sorted, common fractured grains, trace silty matrix, clean, loose, good inferred porosity.

FLUORESCENCE:

2740 m - 2760 m, Trace to 5% dull pin point bluish white fluorescence, no cut, weak crush cut, faint ring residue.

SILTSTONE (1):

Light to medium brown, brown black, very carbonaceous grading to COAL, micromicaceous in part, dispersive in part, soft to firm in part, amorphous, subfissile in part.

SILTSTONE (2):

light to medium grey, light grey green, light grey brown, very argillaceous grading to CLAYSTONE, trace to locally common carbonaceous flakes and microlaminations, soft to firm, sub-blocky to subfissile.

CLAYSTONE:

Light to medium grey brown, light yellowish brown, buff, slightly silty, minor micromicaceous, carbonaceous inclusions, trace disseminated and nodular pyrite, soluble and dispersive, very soft, amorphous.

COAL:

Dark brown black, black, very dull to earthy, woody to lignitic texture, argillaceous, grading to CARBONACEOUS SILTSTONE, soft to firm, angular to subfissile.

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GAS REPORT

Initial traces of background gas were first observed in the Gippsland formation at around 400 m. This gas consisted of C₁ (Methane) and remained below 5 units throughout the 12¼" hole section. For the 8½" hole section of the Gippsland formation, the background gas levels, also remained below 5 units. In the Claystone of the Lakes Entrance formation there was little change in the gas trend or character until 2340 m where background gas crept up to around 5 units and traces of C₂ and C₃ were recorded. After a trip at 2421 m the background gas dropped to 3 units and remained at that level until the Latrobe was drilled through.

On penetrating the Latrobe formation at 2533 m there was a marked increase from 3 units to 200 units and the composition of the gases also changed with an increase in heavier gases (C₂ to C₅) indicating a hydrocarbon bearing lithology. On penetration of the first sandstone lithology of the Coarse Clastics a maximum 223 units was recorded. A peak 398 units was recorded in the oil zone. The gas level rapidly decreased after the Oil Water Contact. The need to slide during the drilling of the Coarse Clastics impacted upon initial gas readings. In the rest of the Latrobe group, there was a considerable variation in gas readings, due to the changing lithology's. A peak of 162 units at 2744 m, related to an oil on rock zone. A larger peak of 497 units at 2782 m, related to gas cap above a water wet sand. Coal beds gave readings of 100 units to 200 units.

Connection gas was detected from 855 m to 2510 m and ranged from 0.5 unit to 10 units above background gas. After 2510 m the connections were masked by the increased gas readings in the Latrobe Formation.

Localised increases in background gas are attributable to both lithology variations and the penetration rate which was dependant upon the drilling method, being either rotary or slide, carried out at the time. No CO₂ or H₂S was detected while drilling Tuna A-30.

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 %
2546	236	3.67	0.25	0.11	0.02	0.03	0.01	0.01
2563	200	3.20	0.23	0.11	0.02	0.03	0.01	0.01
2599	258	3.44	0.24	0.12	0.02	0.04	0.01	0.01
2620	266	4.07	0.28	0.14	0.03	0.05	0.01	0.01
2636	223	2.89	0.21	0.10	0.02	0.03	0.01	0.01
2652	206	2.72	0.18	0.09	0.02	0.03	0.01	0.01
6669	140	1.99	0.15	0.08	0.02	0.03	0.01	0.01
2682	398	2.94	0.35	0.26	0.07	0.14	0.06	0.06
2693	215	2.07	0.28	0.21	0.06	0.11	0.05	0.05
2744	162	1.66	0.20	0.11	0.03	0.05	0.02	0.02
2760	119	1.21	0.13	0.07	0.02	0.03	0.02	0.02
2775	259	2.24	0.27	0.15	0.03	0.06	0.02	0.02
2782	497	3.99	0.48	0.24	0.05	0.10	0.03	0.03
2823	95	0.99	0.10	0.05	0.01	0.02	0.01	0.01

Revision	Date	Issued by	Approved by	Remarks
1	16-09-2002	Geoservices Unit 95	Base Mudlogging Coordinator	