



# **TUNA A-29**

## **FINAL WELL REPORT**

Prepared by  
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Tuna A-29	DRILLING LOG --	1:1000 scale from Spud to 3075 metres
Tuna A-29	GAS RATIO LOG --	1:200 scale from 2670 to 3075 metres

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1	26-08-2002	Geoservices Unit 95	Base Mudlogging Coordinator	

## **Section 1**

### **General Well Summary**

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**WELL DATA**

Operator : Esso Australia Ltd  
Platform : Tuna  
Well name : Tuna A-29  
Country : Australia  
Location : Gippsland Basin  
Structure : Tuna M-1  
Field : Tuna  
Permit : Vic/ L9

Location AMG co-ordinates 5 774 227.30 mN 624 227.50 mE

Location local co-ordinates Lat: 38° 10' 16.237" S Long: 148° 25' 5.513" E

Target Local co-ordinates (M-1) 391.54 mN 2,275.36 mE  
(M-2) 414.45 mN 2,302.98 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 : 3068 metres  
Actual total depth : 3075 metres  
True vertical depth : 1563.19 metres  
Spudded on : 27th July 2002  
Total depth reached on : 11th August 2002

**Drilling Contractor**

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

**Drilling Phases**

Diameter (inch)	From (m)	To (m)	Mud Type
12¼"	164.9	934	Seawater and Gel sweeps
8½"	934	3075	KCl / Glycol / PHPA

**Cased Hole**

Casing Diameter (inch)	Casing Type	Shoe Depth (m)
20"	Conductor Shoe	164.9 MDRT (Existing)
9 <sup>5</sup> / <sub>8</sub> "	Surface	928.0 MDRT
7"	Production	3067.6 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	2670	2820
Washed and Dried	3	100 grams	5 metres	2820	3075

**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

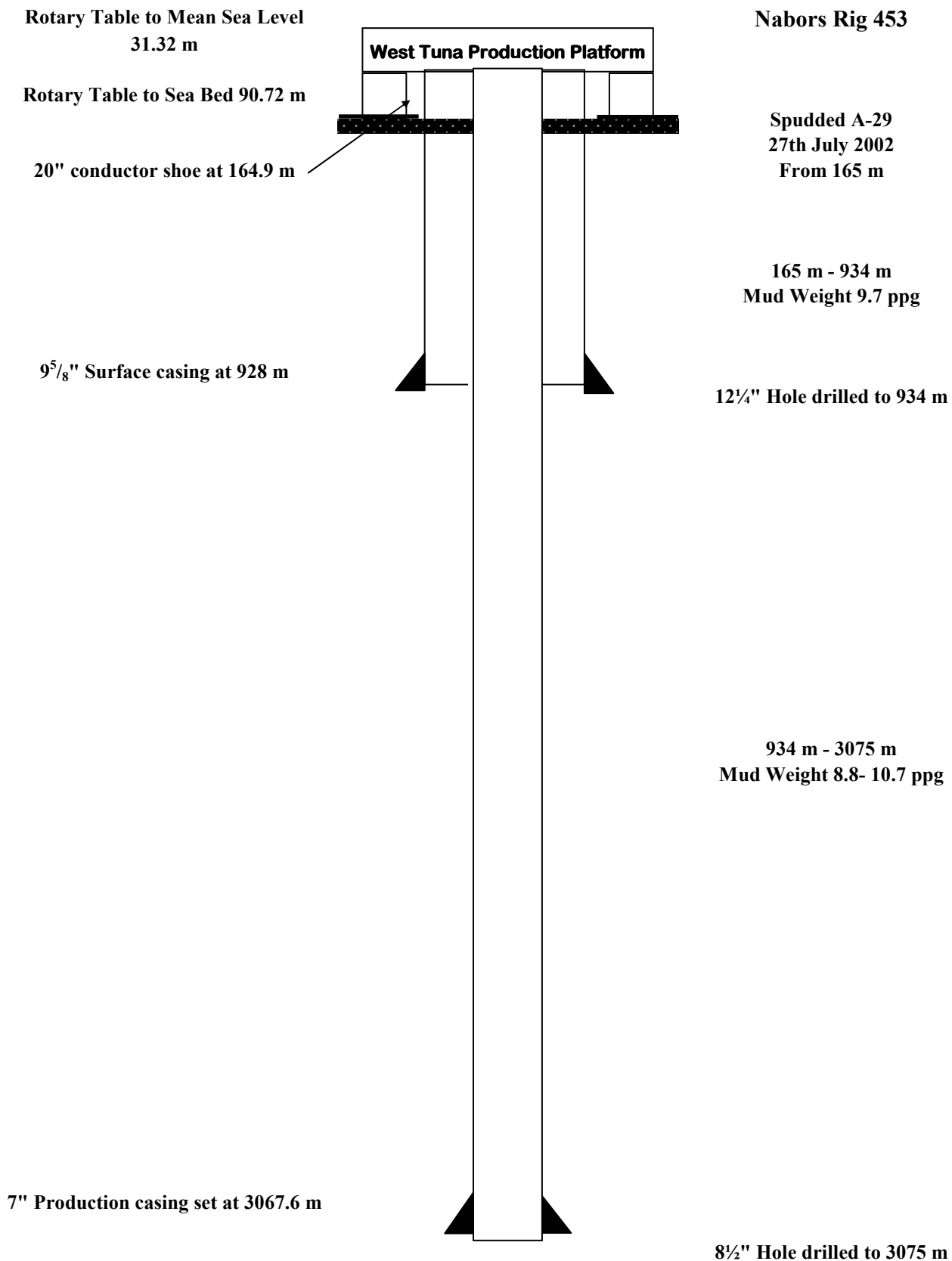
Tuna A-29 is a conventional well designed to optimise well spacing in the north-western part of the Tuna field and capture incremental M-1 and appraise M-2 oil reserves. The well was drilled to a Total Depth of 3075m MDRT (1563.19 m TVDRT) in 8½" hole and completed with a single oil completion string of 3½" tubing in 7" production liner.

**Tuna A-29 was spudded at 22:30 hours on 27th July 2002 after drilling out of the 20" conductor shoe.**

After skidding the rig from Tuna A-31, a 12¼" steerable assembly was made up and drilled to casing point, using a Gel/Water mud system. A mud weight of 9.7 ppg was maintained by dilution with water and prehydrated Gel. The final depth for this section was 934 m. The 9⅝" casing was run and cemented at 928.0m. An 8½" assembly was made up and run in the hole drilling the shoe track and 3 m of new formation. The well was displaced to an 8.8 ppg KCl/PHPA/Polymer mud system, before a L.O.T. was performed (16.1 ppg EMW at 780 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. The drill string was pulled and the bit changed at 1192 m, due to slow ROP. The well was then rotary and slide drilled through the drop and turn point at 2515 m. A precautionary wiper trip conducted at 2796 m, back to the 9⅝" casing shoe, encountered tight hole at several depths from 2080 m to 1126 m; with overpull between 20 and 30 klbs. The string was worked through these tight sections to clean the hole. Tripping back to bottom, after working through one tight hole section from 2478 m to 2565 m, downhole tool failure required a trip out of the hole. After changing the tools, the steerable assembly was run in the hole and the well was drilled to a Total Depth of 3075 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 was added from 2905 m to reduce increased torque in the Coarse Clastics.

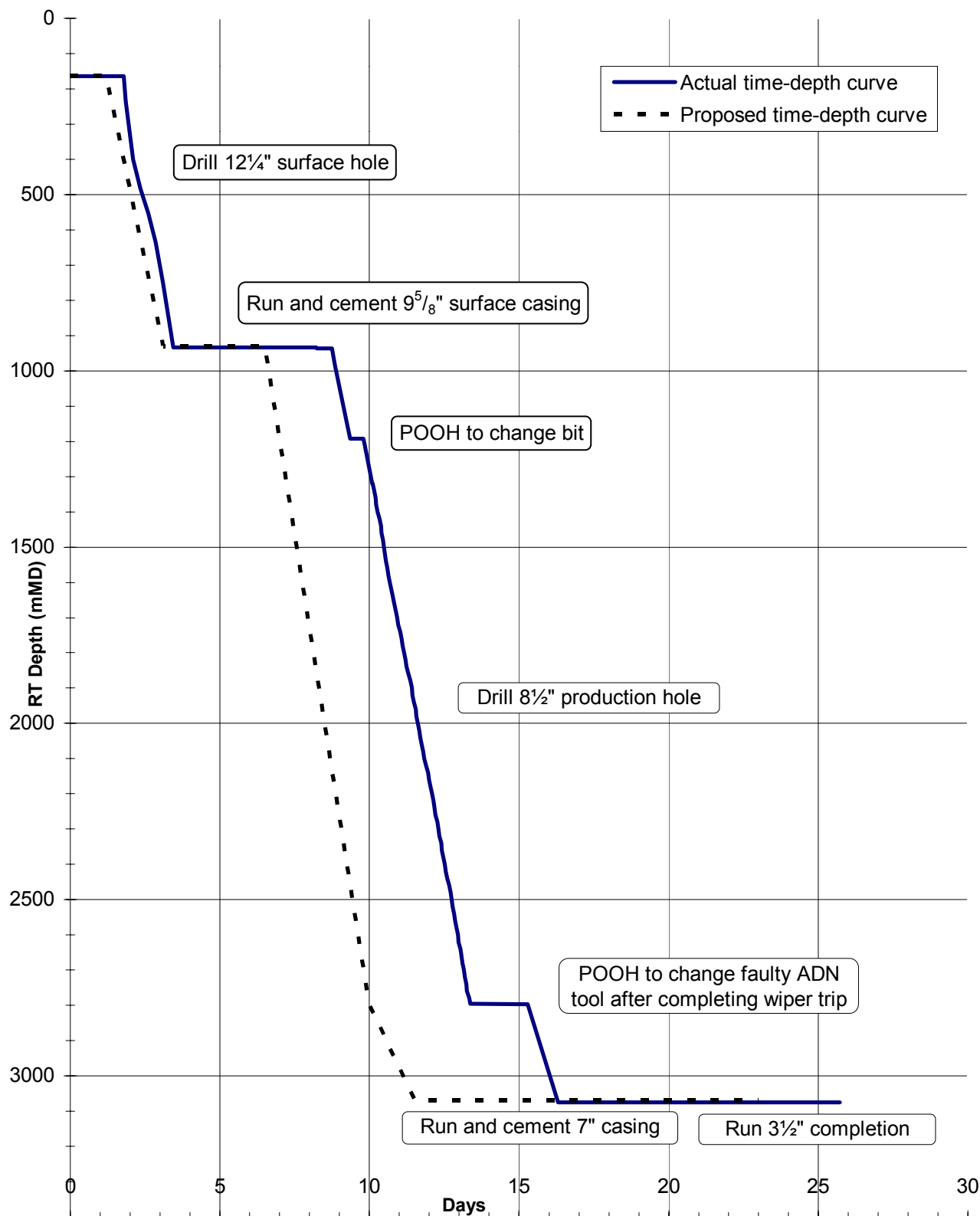
**Tuna A-29 reached a Total Depth of 3075 m (1536.19 mTVD) at 10:45 hours on 11th August 2002.** The final survey at a depth of 3053.55 m had an inclination of 26.87° and an azimuth of 314.20°. 7" production casing was run to a depth of 3067.6 m and was completed as a single oil string with 3½" completion tubing. Tuna A-29 was handed over to Production on 20-08-2002 at 21:00 hours.

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**WELL PROFILE**

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### TUNA A-29 TIME-DEPTH CURVE (measured depth)



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**BIT RUN SUMMARY**

BIT	Size (")	Type	Jets	In (m)	Out	Hours	Condition
1RR2	12¼	Hycalog DS195	5 x 18	165	934	24.63	1-2-WT/CT-A/S-X-IN-NO-TC
2RR	8½	Hughes MX-20D	2 x 22	934	937	0.16	1-2-WT-A-E/E/E-IN-BT-BHA
3	8½	Hughes HCM606	6 x 16	937	1192	11.14	0-0-NO-A-X-IN-NO-PR
4	8½	Geodiamond S73HPX	8 x 15	1192	2796	54.67	1-1-WT-A-X-IN-JD/BU-DTF
5RR	8½	Geodiamond S73HPX	8 x 15	2796	3075	13.46	1-4-CT/BT-T-X-IN-JD-TD

**CASING DATA**

Type	Size (Inches)	Weight (lb/ft)	Grade	Thread	Depth (mMDRT)
Conductor	20"	133	K-55	BTC	164.9
Surface	9 <sup>5</sup> / <sub>8</sub> "	47	L-80	LT&C	928.0
Production	7"	26	L-80	LT&C	3067.6

**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 <sup>5</sup> / <sub>8</sub> "	ABC Class G	785	14.6 gal/10bbl Econolite	245	310	12.5	Surf-575	2000
		300		37	62	15.9	575-928	
7"	ABC Class G	620	32 gal/10 bbl Halad-413L  1 gal/10bbl SCR-100L  5 gal/10bbl CFR-3L  0.25 gal/10bbl NF-5	100	128	15.8	Surf-3067.6	2500

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## WELL DIRECTIONAL PROFILE (From Geoservices ALS Software)



TUNA A-29

PROFILE PLOT

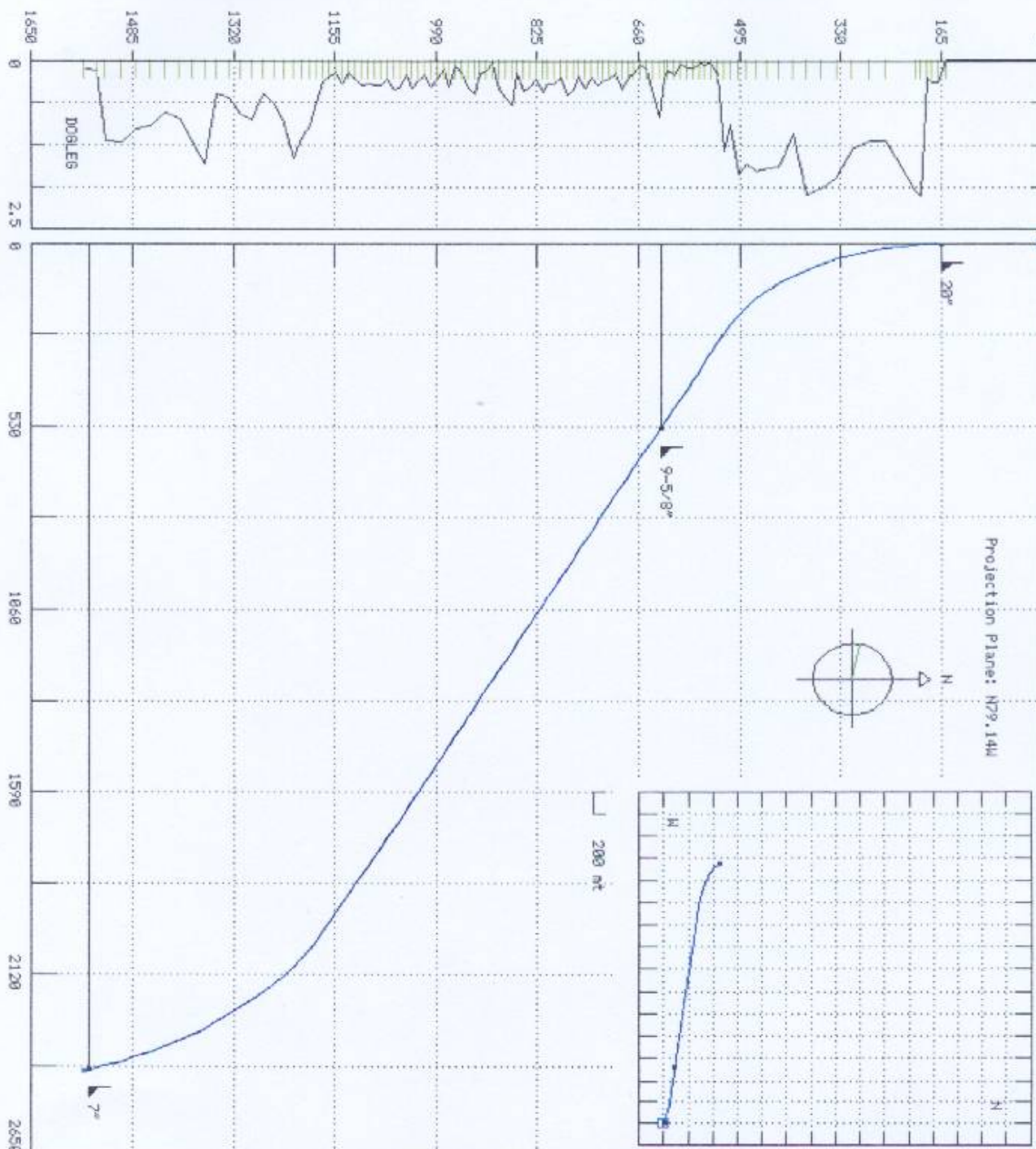
DRILLED WELL :

Last VD 1563.1  
Last MD 3075.0  
X (E-W) -2353.5  
Y (N-S) 451.2  
Displac. 2396.4  
Mean Az. N79.14W  
Casing Twd  
20" 164.9  
9-5/8" 928.8  
7" 3067.6

Date: 26-08-2002

Azimuths relative  
to Magnetic North

Dogleg in deg/10m  
Depth in Meters



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**WELL DIARY**

<b>26th July 2002</b>	Skid rig to Tuna-A29 at 13:45. Reinstate rig.
<b>27th July 2002</b>	Continue to reinstate rig. Nipple up diverter and hook up Koomey lines. Function test diverter. Make up BHA and run in hole, tagging cement at 157 m. Displace to gel mud and wash to conductor shoe at 165 m. Drill, steer and survey 12¼" hole from 165 m to 235 m.
<b>28th July 2002</b>	Drill, steer and survey 12¼" hole from 235 m to 635 m.
<b>29th July 2002</b>	Drill, steer and survey 12¼" hole from 635 m to 934 m. Circulate hole clean and rack back pipe to 825 m. Wiper trip to shoe, circulate clean and run back to bottom.
<b>30th July 2002</b>	Circulate hole clean, flow check, pump slug and pull out of hole to shoe at 165 m. Circulate 2 times bottoms up and continue to pull out of hole and lay out BHA. Rig up Weatherford equipment to run 9 5/8" casing and run in hole with same, as per ESSO program. Pick up and make up MC2 and run in hole with landing joints. Install cement head, pumping lines and land out casing at 928.0 m.
<b>31st July 2002</b>	Circulate casing 1½ times volume, cement as per ESSO program. Wait on cement. Rig down surface lines, diverter, risers, bell nipple and cement sleeve. Run riser, land BOP and nipple up same.
<b>1st August 2002</b>	Continue to nipple up riser, BOP and Flowline. Conduct Shell and Stack tests. Run in hole with wear bushing, function test BOP and trouble shoot problem with Annular open function. Nipple down Bell nipple and Flowline; change out 13 5/8" Annular element and reinstall Bell nipple and Flowline.
<b>2nd August 2002</b>	Pull wear bushing, test Annular BOP and Shell test. Install wear bushing, pick up and make up stands of 5" drill pipe and rack back. Lay out jars and excess HWDP. Pick up and make up BHA and run in hole with same. Pick up and run in hole with 5" drill pipe.
<b>3rd August 2002</b>	Continue to run in hole 879 m and pressure test casing. Tag cement at 901 m, drill out cement, shoe track and rat hole to 934 m. Displace to KCL/Polymer mud and drill 3 m new hole to 937 m. Circulate and condition mud, perform Leak Off Test with 8.8 ppg / 780 psi (EMW 16.1 ppg). Slug pipe and pull out of hole. Change bit and BHA and run in hole to 928 m. Wash and ream to 937 m. Drill, steer and survey 8½" hole from 937 m to 984 m.
<b>4th August 2002</b>	Drill, steer and survey 8½" hole from 937 m to 1192 m. Slow ROP. Circulate hole clean, pump slug and pull out of hole for bit change. Run in hole, wash and ream last two stands to bottom. Drill, steer and survey 8½" hole from 1192 m to 1211 m.
<b>5th August 2002</b>	Drill, steer and survey 8½" hole from 1211 m to 1411 m, circulate 1½ times bottoms up and weight up mud to 9.8 ppg. Continue to drill, steer and survey from 1411 m to 1668 m.
<b>6th August 2002</b>	Drill, steer and survey 8½" hole from 1668 m to 1868 m, circulate 1½ times bottoms up and conduct SCR's. Continue to drill, steer and survey 8½" hole from 1868 m to 2102 m.
<b>7th August 2002</b>	Drill, steer and survey 8½" hole from 2102 m to 2551 m.
<b>8th August 2002</b>	Drill, steer and survey 8½" hole from 2551 m to 2796 m. Circulate hole clean. Rack back 1 stand per ½ hour to 2625 m. Flow check. Pull out of hole from 2652 m to tight hole at 2080 m. Run in hole from 2080 m to 2150 m. Rotate and work string whilst cleaning hole. Rack back to 2044 m whilst circulating hole clean and working stand. Pull out of hole wet from 2044 m to 1784 m (30 klbs overpull). Run in hole 1 stand to 1813 m (20 klbs overpull at 1966 m and 1961 m). Rotate and work string whilst circulating hole clean. Rack back 1 stand per ½ hour from 1813 m to 1784 m (excess cuttings at bottoms up). Pull out of hole wet from 1784 m to 1634 m (20 to 30 klbs overpull). Run in hole 2 stands from 1634 m to 1695 m. Rotate and work string whilst circulating bottoms up. Back ream from 1695 m to 1554 m. attempt to pull out of hole wet - no go, 30 klbs overpull. Run in hole from 1554 m to 1583 m. Rotate and work string whilst circulating hole clean at 1583 m (excess cuttings at bottoms up).

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<b>9th August 2002</b>	Pull out of hole from 1583 m to 1518 m (30 klbs overpull). Back ream from 1518 m to 1411 m. Pull out of hole wet from 1411 m to 1126 m (20 klbs overpull). Back ream from 1126 m to 926 m. Orientate tool. Slip and cut 80' dill line. Conduct rig service. Run in hole from 926 m to 2478 m. Wash and ream tight hole from 2478 m to 2565 m. Run in hole from 2565m to 2796 m, precautionary wash and ream last 2 stands to bottom. ADN failure. Rotate and work string whilst circulating hole clean. Pull out of hole from 2796 m to 755 m. Flow check at shoe. Pull out of hole to surface to change out ADN, Power Pulse and RAB6.
<b>10th August 2002</b>	Anadrill remove source and layout ADN, MWD and RAB6. Inspect bit and realign motor (0°) and ADOS. Make up new ADN, MWD and RAB6, shallow test tools. No go. Failure with MWD. Lay out ADN and MWD. Replace MWD and reinstate ADN, shallow test same - OK. Set bend in motor at 1.15° and realign ADOS. Anadrill load source and run in hole to 184 m. Continue to run in hole from 184 m to 1755 m, while filling every 15 stands. Rig service. Run in hole from 1755 m to 2739 m. Fill every 10 stands. Precautionary wash and ream from 2739 m to 2796 m. Circulate and condition mud. Drill, steer and survey 8½" hole from 2796 m to 2948 m.
<b>11th August 2002</b>	Drill, steer and survey 8½" hole from 2948 m to Total Depth of 3075 m at 10:45 hours. Rotate and work string, whilst circulating 2 times Latrobe volume. Back ream from 3075 m to 2796 m and flow check. Circulate hole clean. Rack back 1 stand per ½ hour to 2680 m. Run in hole from 2680 m to 3075 m, precautionary wash last stand to bottom Circulate 2 times Latrobe volume. Flow check and back ream from 3075 m to above top of Latrobe at 2796 m. Circulate. Rack back to 2710 m at 1 stand per ½ hour. Run in hole from 2710 m to 3075 m, precautionary wash last 2 stands to bottom. Circulate and condition mud, while racking back to top of Latrobe. Circulate hole clean and pull out of hole to 2739 m.
<b>12th August 2002</b>	Flow check at 2739 m, slug pipe and continue to pull out of hole to 1012 m. Rotate and work string, whilst circulating hole clean. Pull out of hole to 926 m. Slip and cut 80' drill line and conduct rig service. Run in hole to bottom, precautionary wash last 2 stands. Rotate and work string, whilst circulating hole clean. Pull out of hole to 897m. Shut down due to weather.
<b>13th August 2002</b>	Continue to wait on weather. Run in hole from 897 m to 3075 m, precautionary wash and ream last 2 stands to bottom. Rotate and work string whilst cleaning hole and conditioning mud. Pull out of hole to TOL and pump slug. Continue to pull out of hole.
<b>14th August 2002</b>	Continue to pull out of hole to BHA. Download source and data. Layout and flush tools. Pull wear bushing and change out rams. Rig up for casing and run shoe track. Run 7" production casing.
<b>15th August 2002</b>	Continue to run 7" Production casing to 3047 m. Make up hanger, running tool and landing joint and stab into MC2 at 3067 m. Rig up cement head and lines. Circulate and condition mud. Mix, pump and displace cement as per ESSO program. Bump plug and hold 2000 psi for 15 minutes; bleed back. Rig down cement head and lines. Layout running tool and landing joint. Rig down casing running gear and jet well. Run seal assembly and pressure test. Change UPRs, LPRs and TDS.
<b>16th August 2002</b>	Continue to change UPRs, LPRs and TDS. Pressure test BOP, choke and standpipe manifolds. Make up 7" scraper BHA and run in hole on 3½" drill pipe.
<b>17th August 2002</b>	Continue to run in hole, picking up 3½" drill pipe. Work scraper over interval 2830 m to 2870 m and tag cement at 3041 m. Displace to sea water and drill cement to 3043 m. Displace to inhibited brine and pressure test casing. Pull out of hole, laying down pipe.
<b>18th August 2002</b>	Continue to pull out and lay out 3½" drill pipe, HWDP and 7" scraper. Retrieve wear bushing and jet BOPs and MC2. Rig up tubing handling gear. Make up and run SXAR guns and hanger. Run in hole on 3½" tubing.

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**19th August 2002**

Continue to run in hole with SXAR guns on tubing, to 2443 m. Install TRSSV and control lines; pressure test same. Run in hole to 2899 m. Rig up Schlumberger wireline; break circulation and pressure test. Correlate depth, space out and rig down Schlumberger. Pressure test control line and make up landing joint. Rig up slickline and FOBV. Run in hole with N-test tool and set in X-N nipple.

**20th August 2002**

Pressure tubing to set AHC packer at 2859 m. Pull out of hole and rig down. Engage tubing hanger and test seals. Rig up lubricator and FOBV; run in with N-test tool and set at 2863 m. Pressure tubing and lock in. Pressure test Production Annulus. Pull out of hole without X-test tool, fish for same. Rig down, clear floor and install BPV. Rig down Bell Nipple, BOPs and riser. Install Xmas tree. Rig up lubricator, pull BPV and rig down lubricator. Install pump in flange on Xmas tree. Reinstate deck grating. End of well.

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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	2304	1107	
Top of Latrobe Group	2820	1357	
Top of Coarse Clastics	2859	1385	
<b>TOTAL DEPTH</b>	<b>3075</b>	<b>1563.19</b>	

**GEOLOGICAL SUMMARY****GIPPSLAND FORMATION:**

165 m - 510 m

**CALCARENITE****CALCARENITE:**

Yellowish grey to light olive grey, occasional off white and light brown, very fine to fine grained, argillaceous in part, fossils and shell fragments, trace to minor Glauconite, rare disseminated Pyrite, trace Quartz grains, soft to moderately hard, friable in part, poor visual porosity, no fluorescence.

510 m - 810 m

**CALCISILTITE****CALCISILTITE:**

Very light grey to yellowish grey, common argillaceous matrix, occasional grading to Calcarenite, common to abundant fossil fragments, rare Calcite crystals, trace disseminated Pyrite, firm to moderately hard, sub-blocky to amorphous.

810 m - 930 m

**CALCARENITE****CALCARENITE:**

Very pale grey to yellowish brown, very fine to fine, common medium fragments, common argillaceous matrix, abundant fossils and shell fragments, trace lithic, trace Quartz grains, predominantly loose, friable in part, poor inferred porosity, no fluorescence.

930 m - 1680 m

**CALCISILTITE and CALCILUTITE****CALCISILTITE:**

Very light grey to yellowish grey, common argillaceous matrix, grading to Calcilutite, common to abundant fossil fragments, rare Calcite crystals, trace disseminated Pyrite, trace carbonaceous specks, soft to firm, sticky, sub-blocky to amorphous.

**CALCILUTITE:**

Very light grey to olive grey, silty in part, occasionally 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.

1680 m - 1920 m

**CALCISILTITE and MARL****CALCISILTITE:**

Pale grey to olive grey, argillaceous grading to Calcilutite, common fossil fragments, occasionally disseminated Pyrite, sticky to soft, amorphous, sub-blocky in part.

**MARL:**

Light grey to medium grey, occasionally light olive grey, argillaceous, silty in part, trace carbonaceous specks, trace Pyrite, trace fossils, soft to occasionally firm, sub-blocky to amorphous.

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1920 m - 1980 m

**MARL and CALCAREOUS CLAYSTONE****MARL:**

Light grey to medium grey, occasionally light olive grey, argillaceous, silty in part, trace carbonaceous specks, trace Pyrite, trace fossils, soft to occasionally firm, sub-blocky to amorphous.

**CALCAREOUS CLAYSTONE:**

Light olive grey to dark olive grey, grading to Marl, slightly micromicaceous, common lithic specks, firm to moderately hard, sub-blocky.

1980 m to 2304 m

**CALCAREOUS CLAYSTONE****CALCAREOUS CLAYSTONE:**

Light olive grey to medium olive grey, light grey to medium grey, silty in part, common lithic trace disseminated Pyrite, trace Foraminifera, soft to firm, occasionally very soft, sub-blocky, occasionally amorphous.

**LAKES ENTRANCE FORMATION:**

2304 m - 2820 m

**CLAYSTONE****CLAYSTONE:**

Light to medium olive grey, light to medium grey, dark olive grey, yellowish grey, calcareous, locally silty, micromicaceous in part, occasionally to common carbonaceous specks, occasionally to common disseminated Pyrite, rare Glauconite, locally occasionally to common Foraminifera and ooids, locally trace lithic, soft to firm, moderately hard in part, sub-blocky, amorphous to blocky.

**LATROBE FORMATION:**

2820 m - 2859 m

**Interbedded CLAYSTONE and SILTSTONE****CLAYSTONE:**

Olive grey to medium grey, common carbonaceous specks, slightly micromicaceous, firm to moderately hard, sub-blocky

**SILTSTONE:**

Greyish orange to dark brown, olive grey to brown, dark yellowish orange, argillaceous, Fe staining in part, occasionally to common Quartz grains, occasionally to common Glauconite, common carbonaceous specks in part, locally Mica flakes, soft in part, moderately hard to hard, sub-blocky.

**COARSE CLASTICS:**

2859 m - 2969 m

**SANDSTONE with minor CARBONACEOUS SILTSTONE and CLAYSTONE****SANDSTONE:**

Quartzose, clear to frosted, medium to very coarse, moderately sorted, commonly angular, sub-angular to sub-rounded, trace siliceous cement and locally rare pyrite cement, trace silty / argillaceous matrix, commonly loose, good inferred porosity.

**FLUORESCENCE:**

2890 m to 2920 m, trace to 5% moderately bright yellow green pin point fluorescence, greenish yellow slow blooming cut, no residue.

**CARBONACEOUS SILTSTONE:**

Yellowish brown, trace micromicaceous, firm, sub-blocky to blocky.

**CLAYSTONE:**

Greyish orange to light brown, calcareous in part, rare disseminated Pyrite, rare ooid, commonly soft to dispersive, occasionally firm, amorphous, occasionally sub-blocky.

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**TUNA/FLOUNDER CHANNEL:**

2969 m - 3075 m      **SANDSTONE interbedded with CARBONACEOUS SILTSTONE, CLAYSTONE and COAL**

**SANDSTONE:**      Quartzose, clear to translucent, frosted, milky, fine to dominantly medium to very coarse, moderately to poorly sorted, sub-rounded to rounded, occasionally angular fragments, poor cement, clean, loose, good inferred porosity, no fluorescence.

**CARBONACEOUS SILTSTONE:**      Dusky yellowish brown, dark yellowish orange to moderate brown, brownish black, grading to Coal in part, locally common interbedded arenaceous, micromicaceous, firm to moderately hard, sub-blocky to sub-fissile.

**CLAYSTONE:**      Greenish grey, off white to yellowish grey, grading to Siltstone, dispersive to sticky, occasionally soft, amorphous.

**COAL:**      Brownish black, earthy to sub-vitreous, moderately hard, grading to Carbonaceous Siltstone, lignitic, sub-angular to uneven fracture.

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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 C<sub>1</sub> (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. The gas detected was C<sub>1</sub>, ranging from 2 units to 5 units.

On penetrating the Latrobe formation at 2820 m, there was little increase in gas levels, due to the lithology and penetration rate. A marked increase from 2 units to 60 units, occurred with a change in lithology from 2835 m. The composition of the gases also changed with an increase in heavier gases (C<sub>2</sub> to C<sub>5</sub>), indicating a hydrocarbon bearing lithology. Higher peaks were detected on penetration of the first sandstone lithology of the Coarse Clastics, a maximum 160 units being recorded. The gas level rapidly decreased after the Oil Water Contact.

While drilling the Tuna / Flounder Channel sequence, the interbedded lithology's including Coal, caused the gas level to vary considerably, between 5 units and 65 units. The gas showed only a trace of heavies.

Connection gas was detected from 1355 m to 2880 m and ranged from 0.5 units to 10 units above background gas.

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 CO<sub>2</sub> or H<sub>2</sub>S was detected while drilling Tuna A-29.

### Gas peaks through the Latrobe Group

Depth metres	Total Gas units	C <sub>1</sub> %	C <sub>2</sub> %	C <sub>3</sub> %	iC <sub>4</sub> %	nC <sub>4</sub> %	iC <sub>5</sub> %	nC <sub>5</sub> %
2841	57	0.67	0.04	0.02	Tr	0.01	Tr	Tr
2870	157	2.29	0.13	0.07	0.01	0.02	0.01	0.01
2901	146	1.35	0.15	0.12	0.03	0.05	0.02	0.03
2979	25	0.38	0.02	0.01	Tr	Tr	Tr	Tr
3009	23	0.35	0.02	Tr	Tr	Tr	Tr	Tr
3034	65	0.95	0.04	0.01	Tr	Tr	Tr	Tr
3046	40	0.54	0.02	Tr	Tr	Tr	Tr	Tr
3059	23	0.42	0.02	Tr	Tr	Tr	Tr	Tr

Revision	Date	Issued by	Approved by	Remarks
1	26-08-2002	Geoservices Unit 95	Base Mudlogging Coordinator	