ESSO AUSTRALIA LIMITED

BLACKBACK A1 &
BLACKBACK A1-ST1

FINAL WELL REPORT

Prepared By

Geoservices

Geoservices Overseas S.A.

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CONTENTS

Log prints from 687 m to 4273 mMD (Blackback A-1) and 3684 m to 4695.5 mMD (Blackback A-1 ST1)

Gas Ratio Logs & Mudlog (1:200) are to be done for Blackback A-1 ST1 only, from 50 m above the Latrobe to TD.

Section 1

General Well Summary

WELL DATA

Operator : Esso Australia
Platform : SEDCO 702
Well name : Blackback A-1 & ST1
Country : Australia
Location : Gippsland Basin
Well Type : Subsea Development
Field : Blackback

Local co-ordinates Latitude = 148° 33' 11.274" E Longitude = 38° 32' 31.677" S

AMG co-ordinates X = 635 355.1 m E Y = 5 732 873.4 m N

Profile : Deviated 59 degrees
Reference depth : Rotary Table
Elevation RT A.M.S.L. : 25.90 metres
Sea-water depth : 395.00 metres
Proposed total depth (MDRT) : 4663.00 m MDRT (2901.00 m TVDRT)
Actual total depth : 4273.00 metres (30-3-1999)
True vertical depth : 2695.40 metres
Spudded on : 24th of February 1999
Blackback A-1, ST1 kicked off on : 1st of April 1999
Actual total depth of sidetrack : 4695.50 metres
True vertical depth of sidetrack : 2921.00 metres
Total depth reached on : 11th of April 1999

Drilling Contractor

Drilling Contractor : Schlumberger Sedco Forex
Rig name : SEDCO 702
Rig type : Semi-Submersible

Drilling Phases

Diameter (inch)	From (m)	To (m)	Mud Type
36"	428.0 m	491.0 m	Seawater and High viscosity sweeps
26"	491.0 m	687.0 m	Seawater and High viscosity sweeps
17½"	687.0 m	1310.0 m	Gel Polymer
12¼"	1310.0 m	4695.5 m	Petrofree Synthetic Oil

Cased Hole

Casing Diameter (inch)	Casing Type	Shoe Depth (m)	Top Liner (m)
30"	Vetco- Surface	487.00 m	
20"	Vetco	682.00 m	418.0 m
$13^3/_8$"	Buttress	1302.12 m	

MUD LOGGING

Logging Unit Number : 93

Engineers
Paul McGilveray
Greg Fawns
Noel Elliott
Gavin J. Fernandes
Benjamin Hern

Mudlogging Engineers : Joseph Hinton
Alan Dunn
Cherie Clark-Moore
Andy Philps

Cuttings Collection

Sample Type	Number of sets	Quantity per set	Sampling interval	From (m)	To (m)
Washed and Dried	3	100 grams	10 metres	4380	4530
	3	100 grams	5 metres	4535	4695

Cuttings Distribution

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

N.B. 30 metre spot samples collected from 687 m to 4380 m below which samples were collected and bagged for splits.

WELL SUMMARY

The Blackback A-1 well was drilled from the Sedco Forex 702 semi-submersible in 396 metres of water and was the first of three subsea development wells located in Bass Strait, VIC L-20 license, Australia. The well was designed to be drilled as a build and hold directional well at 59.5° maximum angle to total depth of 4663 m MD, 2901 m TVD DF. It was programmed to encounter the highly productive Latrobe (Cretaceous) formation, encountered downdip in the Terakihi-1 exploration well.

The A-1 was drilled to completion first because of it's expected high productivity and reserves base. It also provided reservoir information for further field development. An oil column thickness of 25 metres was expected, requiring one set of perforations in the upper portion of the oil zone due to the possibility of early water production from a strong water drive. Total depth was set at 2901 m TVD, 40 metres below the OWC (2834 m SS) to allow logging through the reservoir section and sufficient rat hole for future completion and workover operations.

Terakihi-1 is the closest offset well located 3.0 km to the northwest of the A-1 surface location. Drilled as a vertical well in 1990, significant shows of oil and gas were encountered before the well was plugged and suspended, with a maximum mud weight of 9.5 ppg. H2S was reported in the Terakihi-1 well with levels reaching 400 ppm from the formation samples. CO2 levels reached 0.35 %, abnormal pressures were not encountered.

Permanent downhole pressure/temperature gauges, with surface readout capability back to the Mackerel platform, will be installed in the wells completed to monitor reservoir performance. The rig is located in a major northeast to southwest shipping lane and recognized commercial fishing area and special collision avoidance measures were utilized whilst the rig was on location.

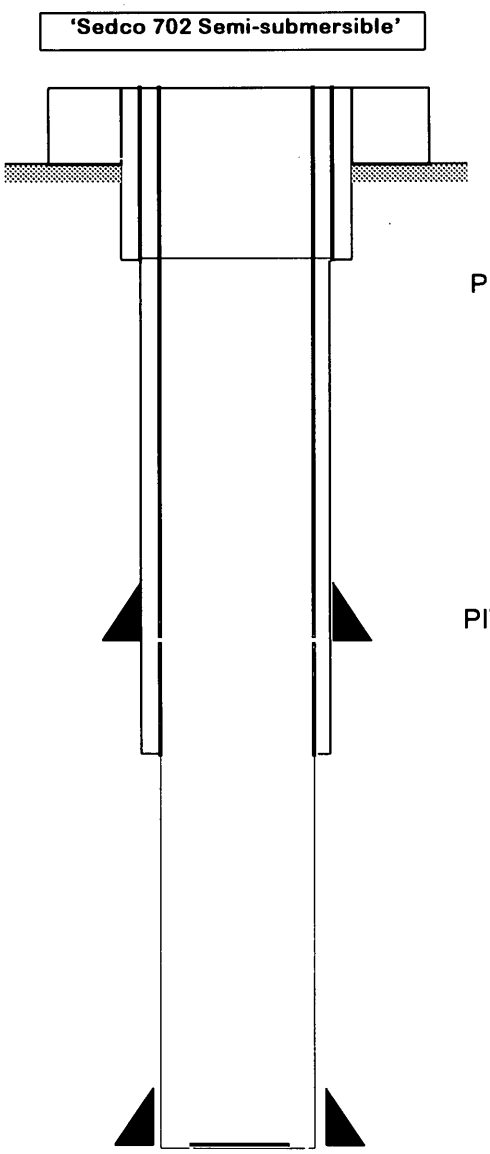
Blackback A-1 was drilled as a directional hole from spud to TD,, after batch setting 30" and 20" casing in A-1 and A-2 and 20" and $13^3/_8$" casing in the A-3 well. Blackback A-1 ST1 was drilled to a TD of 4695.5 mMD (2921 mTVD) before plugging back due to poor results and the rig was skidded to the A2 well. No H2S, CO2 or abnormal pressures were encounter in A1.

After running the BOP's and attaching to the CBG. The 17½" hole was drilled on the A-1 well from the top of the cement at 677 mMD, through the 20" casing shoe, and into 3 metres of new formation. A pressure integrity test was conducted, with an equivalent mud weight result of 10.7 ppg. The hole was drilled (rotary & steer) to 856 m before pulling out, due to damage to the bit (metal plate embedded in body). A new Bit was run and attempted to drill ahead, before pulling out the hole @ 881 mMD due to a poor penetration rate. A magnet was run in to clean the hole before running in to drill ahead again to 928 mMD. The hole was cemented back due to junk in the hole and the well was re-drilled from 821 m and continue on to 1310 mMD with no hole problems. 13 3/8" Casing shoe was set at 1302.12 mMD. Drilled 12¼" hole, cement from 1277 mMD, through the 13 3/8" shoe and 3 metres of new hole to 1313 m before conducting a pressure integrity test, achieving a 12.5 ppg EMW. Drilled the 12¼" hole with surveys and directional drilling to 2148 m, circulated the hole clean & pulled out to change the BHA and again at 2286 mMD to improve hole angle and assist sliding. Drilled to 2624 mMD where due to bad weather, drilling was stopped and a wiper trip was made to the shoe. After running in, drilling continued down to 3420 mMD, wiper trips were performed at 3025 mMD & 3312 mMD. The BHA was changed and the drill string was run in the hole to drill to 4273 mMD (2695.4 mTVD), wiper trip performed at 3925 mMD. After circulating the hole clean, the bit was pulled out, encountering overpull and becoming stuck at 4050 m. The string was freed and worked, pumped & backreamed out to 3890 m before becoming irremediably stuck. Ran back off charge on wireline and pulled string out of the hole, top of fish at 3826 m.

A cement plug was run and the A1 well sidetrack, kick off from 3684 m. Pulled out string at 3791 mMD to change the motor and bit, ran string to bottom and continued drilling to TD. Performed wiper trips at 4071 m and 4294 mMD. Pulled out of the hole at 4388 mMD and removed stabilizers and motor before drilling Blackback A-1 ST1-1 to a TD of 4695.5 mMD (2921 mTVD). The hole was circulated clean before backreaming out of the hole, tight hole at 3441 mMD, packed off, re-gained circulation at 3490 m, continued to backream out. Wireline logging tool was run to 4666 m. A cement plug was run from TD back to 4473 m. A VSP log was run before setting a second cement plug at 1302 m, 13 3/8" casing shoe, suspending the well and moving onto A2.

The Latrobe formation came in lower than expected with limited reservoir sections above the expected OWC. Logs were run to help decide on the progress for further logging or to sidetrack. The well was plugged back and on the 20-4-99 and the rig was skidded to the A2 well.

WELL PROFILE



Rotary Table to Mean Sea Level
25.9 metres

Rotary Table to Sea Bed
421 metres

Blackback A-1 well
Blackback A-1 ST1

20" Conductor set at 682 mts

PIT @ 682 m EMW = 10.70 ppg

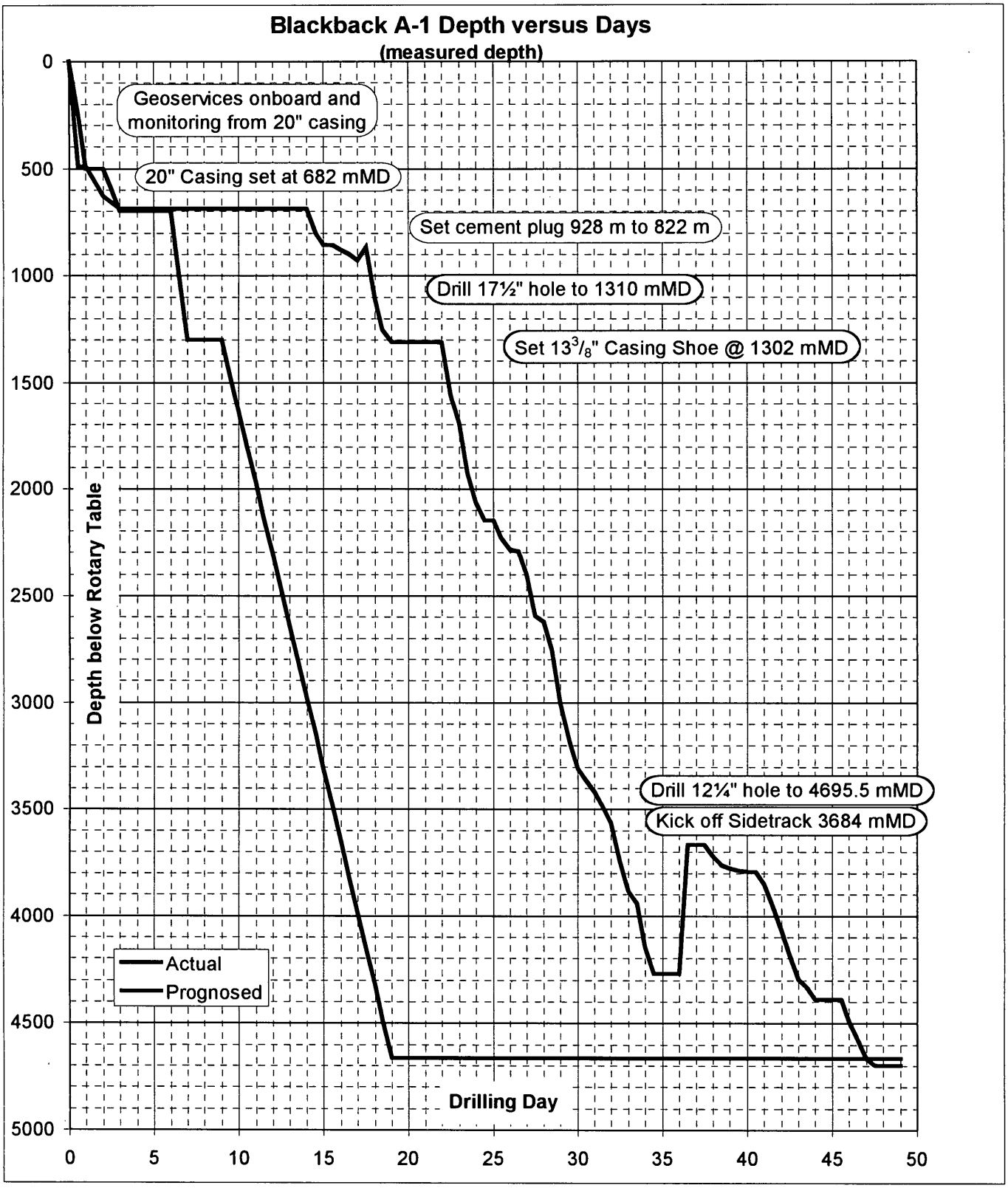
17½" hole drilled to 928 mMD
Cement plug to 822 m due to
junk in hole.-Drill to 1310 m MD

$13^{3}/_{8}$" Casing Shoe @ 1302.12m

PIT @ 1302 m EMW =.12.50 ppg

Drill 12¼" hole to 4273 mMD
Sidetrack from 3684 m
TD 12¼" Hole
4695 mMD, 2921 mTVD

Revision	Date	Issued by	Approved by	Remarks
1	01/02/99	Geoservices Unit 093	Base Mudlogging Coordinator	



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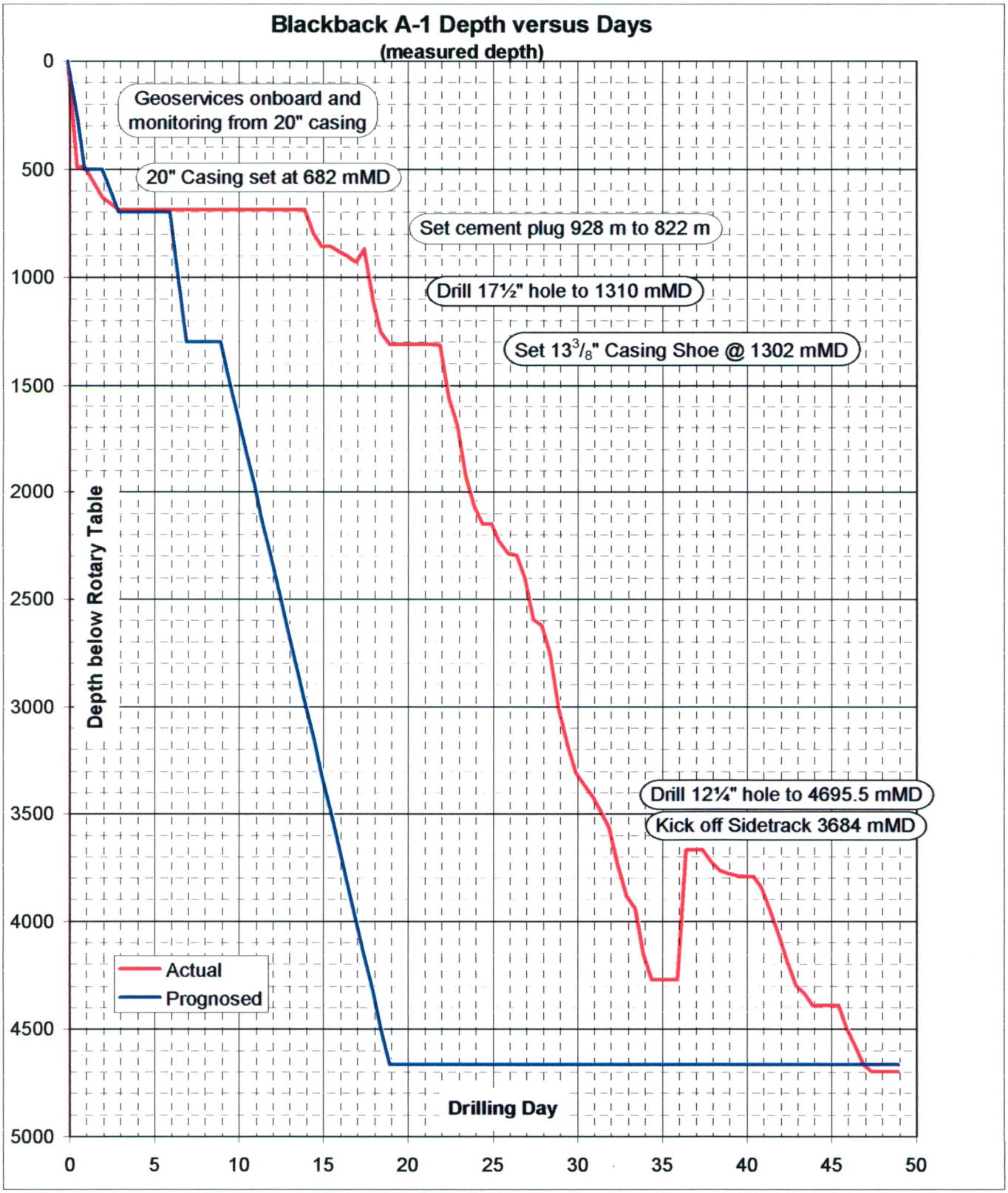

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CEMENTING DATA

CASING DETAILS	CEMENT TYPE	DRY CMT VOLUME (SX)	CMT ADDITIVES	MIX WATER (gps)	SLURRY VOL. (bbls)	SLURRY DENSITY (ppg)	CEMENT to/from (mMDRT)
$13^3/_8$"	Class G Howco	949	5.11 gps Fresh water Chemicals	5.11	196	15.8	852.0m 1302.0m
Plug & Suspend Plug 1	Class G Howco	421	4.73 gps Water SCR-100l retarder 2g/10 bbl Halad 413l fluidloss 32g/10 bbl Gascon 469 FW control 2g/10 bbl NFS Antifoam .5g/5 bbl	4.73	87	15.8	4490.0 m -4640.0 m
Plug 2	Class G Howco	725	5.11 gps Water SCR-100l retarder 2g/10 bbl Halad 413l fluidloss 32g/10 bbl Gascon 469 FW control 2g/10 bbl NFS Antifoam .5g/10 bbl	4.73 (88 bbl)	149	15.8	1450.0m -1520.0m

WELL DIARY

07 March 1999 Rig up four arm guide to drill pipe, attach guide lines and run down to 15 metres above CGB depth. Pull out pipe after installing latches to post of CGB and make up Riser to rack in derrick and set up riser running equipment. Move BOP over moon pool, make up LMRP to BOP's. Make up BOP, test, function lines and land out, install yellow pod and test. Clamp guide posts and lines, make up test cap to BOP and make up Riser to BOP. Pressure test choke and kill lines, test BOP, repair accumulator isolation valve on blue pod.

08 March 1999 Run Riser and BOP, pressure test choke and kill lines (250/5000 psi)as run to bottom. Adjust tension guide lines, make up ruckers and install. Pressure test lines and install storm loops. Use ROV to clean the well head and land the BOP and latch same. Pressure test casing and well head connector against shear ram. Lay out landing joint, install diverter and lay out riser running equipment. Run 5" drill pipe and HWDP with test tool to the well head and seat the tool for pressure testing of the BOP's.

09 March 1999 Pressure test BOP. Test diverter overboard. Test yellow pod, pressure test blue pod. Perforation depletion test on BOP, unseat test tool and pull out. Make up 17½" BHA, test mud motor and MWD. Tag cement at 677 metres, drill cement and shoe at 682 m, drill to 690 m and perform PIT, 10.8 ppg EMW. Drill and slide 17½" hole to 800 mMD.

10 March 1999 Drill and steer to 813 m MD and perform wiper trip to the 20" shoe @ 682 m. Circulate and boost riser. Flow check and run in the hole, no drag, hole good. Drill and steer to 856 m with surveys. Pump high viscosity slug and pull out. Perform kick drill. Change BHA and run in hole Bit #4. Drill and steer to 881 mMD, pull out due to poor penetration rate.

11 March 1999 Run in the hole with magnet and junk sub fishing assembly. Tag bottom and work pipe, flow check, pump slug and pull out of the hole. Make up 17½" BHA, MWD and motor and run in the hole. Wash down from 859 m to bottom 881 m, no fill. Drill ahead to 921 m and circulate bottoms up. Drill from 921 m to 928 m and pull out. Run cement plug assembly and cement from 928 m to 820 m MD, pump 125 bbl with Dowell unit, rig down, pull out and wait on cement.

12 March 1999 Wait on cement, make up 17½" BHA and run in the hole. Drill cement and kick off from 821 m, drill and slide to 1110 m. Backream all connections, take surveys and pump high viscosity sweeps.

13 March 1999 Continue to drill & slide 17½" hole from 1110 m to 1256 m. Back ream connections, surveys and high viscosity pills as required. Drill to casing point at 1310 m. Circulate hole clean with high viscosity. Pull out to 20" casing shoe @ 682 m and run in to bottom, circulate bottoms up and pull out

14 March 1999 Run $13^3/_8$" casing, cement and displace hole to sea water. Run seal assembly.

15 March 1999 Displace Riser to seawater. Re-attempt to set seal assembly (unsuccessful). Pull out with seal assembly attached to casing running tool. Make up mill and flush tool and test. Run in to well head, mill and flush casing hanger profile. Pull out and layout mill and flush tool. Make up casing hanger run tool, install seal assembly. Run in to well head, set seal assembly. Pressure test BOP and annular 200/3500 psi. Pull out of hole, lay out casing hanger run tool and make up well head wear bushing and set. Pressure test lines, and rams against casing. Flush heavy weight drill pipe before running in the hole.

16 March 1999 Continue to make up 12¼" BHA. Run in hole, repair RPM and drill cement from 1277 m, shoe @ 1302.12 m. Drill new 12¼" hole to 1313 m and perform a PIT.

17 March 1999 Continue with PIT, 12.5 ppg EMW. Mud weight 9.0 ppg. Continue to wash and ream 12¼" hole from 1313 m to 1562 m, wiping on each connection and carrying out surveys as required.

18 March 1999 Continue to wash and ream to bottom at 1964.0 m. Drill new 12¼" hole from 1964 m to 2064 m. Run surveys and boost the riser as required, reaming each connection.

19 March 1999 Continue drilling new hole to 2148 m, boosting riser and circulating the hole clean. After flow checking the hole the drillstring was pulled out of the hole. Pump out and backream to 1264 m. Circulate the hole clean and flow check. Pump slug and pull out drill string to surface to check the downhole motor and replace the bit with a Hughes bit S223. Alter the bottom hole assembly to assist sliding. Run in the drill string to 1264 m. Establish circulation. Slip and cut drill line and continue running in to 1670 m.

20 March 1999 Continue to run in from 1670 m to 1757 m. Wash and ream from 1757 m to tag bottom at 2148 m. (maximum down drag while reaming; 20 to 30 klbs). Drill 12¼" hole from 2148 m to 2286 m taking surveys and jetting riser every 6 hours. Slide from 2198 m to 2203 m. Flow check and pull out, flow checking at shoe.

21 March 1999 At the surface change the motor and set at 0.78° and make up to the bottom hole assembly. The drillstring was then run in the hole (maximum down drag while reaming; 20 to 30 klbs) and drilling 12¼" hole from 2286 m to 2402 m, back reaming and surveying on all connections.

22 March 1999 Continue drilling 12¼" hole from 2402 m to 2624 m, backreaming every connection and taking surveys. Circulate bottoms up, flow check and pull out to the $13^3/_8$" shoe to wait on weather. Flow check at shoe and wait on weather before running in again to bottom.

23 March 1999 Continue to run in the hole from 1900 m to 2595 m with maximum down drag of 40 to 50 klbs. The bit was washed and reamed from 2595 m 2624 m with no fill on bottom. SCR's were taken and then 12¼" hole was directionally drilled ahead from 2624 m to 2959 m, backreaming all connections and taking surveys. A H_2S and abandon rig drill was held with rig personnel being mustered. Drilling continued ahead from 2959 m to 3005 m, flow checking at 2959 m and 2975 m.

24 March 1999 Continue drilling 12¼" directional hole from 2975 m to 3025 m backreaming every connection. Circulate bottoms up and flow check off bottom. Pull out of hole from 3025 m to 2880 m, maximum drag upwards of 60 klbs and downwards of 50-60 klbs observed. Continue to pull out of hole to 2624 m, observing maximum drag upwards of 60-80 klbs and downward of 60-70 klbs. Run in hole to 3025 m and tag bottom, with no fill located, maximum drag of 60 klbs observed. Drill 12¼" directional hole from 3025 m to 3312 m, backreaming at each connection.

25 March 1999 Circulate bottoms up and jet riser till shakers clean. Flow check well off bottom , slug pipe and pull out from 3312 m to shoe at 1302 m. Service TDS & blocks. RIH from shoe to 3261 m and wash & ream to bottom (no fill). Drill 12¼" hole from 3312m to 3420 m. Circulate until shakers clean. flow check & hold risk assessment. Pull out of hole wet to 3290 m. Flow check and pump slug, work string. Continue to pull out of hole.

26 March 1999 Continue to pull out of hole to shoe. Flow check at shoe and hold Kick drill. Continue pulling out and rack BHA. Lay out MWD , break bit and lay out 12¼" Stabilizer, pony NMDC, sleeve and motor. Pick up motor and make up 12¼" sleeve, set angle and test motor at surface. Pick up float sub, stabilizer and NM pony DC. Pick up MWD, surface test and make up bit. Run in to shoe. Service TDS and blocks. grease crown. Continue running in to 3385 m. Wash down to 3385 m and tag bottom at 3420 m, no fill. Break in bit with light parameters and drill 12¼" hole to 3565 m, reaming on connections and taking surveys.

27 March 1999 Continue drilling 12¼" directional hole from 3565 m to 3793 m, backreaming and surveying at connections. Lift off bottom to trouble shoot gen failure. Resume drilling 12¼" directional hole from 3793 m to 3827 m. Lift off bottom for further trouble shooting gen failure, discover a partial blockage. Continue drilling 12¼" directional hole from 3827 m to 3885 m.

28 March 1999 Continue drilling 12¼" directional hole from 3885 m to 3925 m. Circulate bottoms up and flow check at 3925 m. Pull out of hole from 3925 m to 3783 m, observing a maximum drag of 100 klbs. Pump slug and flow check at 3783 m. Continue pulling out of hole from 3783 m to 2470 m. Run in hole from 2470 m to 3899 m, then wash down to 3925 m, finding no fill on bottom. Resume drilling 12¼" directional hole from 3925 m to 4150 m, flow checking at 4083 m and 4130 m.

29 March 1999 Continue drilling 12¼" directional hole from 4150 m to 4273 m, backreaming and surveying at connections. Circulate bottoms up at 4273 m. Pump out of hole from 4273 m to 4131 m. Circulate shakers clean and flow check at 4131 m, slug pumped but not equalized. Resume puling put of hole from 4131 m to 4092 m, overpull of 120 klbs observed. Run in hole to 4102 m then pump down to 4050 m. At 4050 m, string trapped by pressure and circulation lost. Ream from 4050 m to 4070 m, circulation re-established with cut pumps. Work string at 4070 m, rotating at 95 rpm and circulating at 718 gpm. Pump out of hole from 4070 m to 3890 m. Flow check and unsuccessfully attempt to move string by jarring, maximum overpull of 280 klbs measured. Run single shot wireline tool and run charge into string.

30 March 1999 Run in charge and fire. Circulate hole clean and flow check at 3890 m. Pull out of hole from 3890 m to 3783 m. Pump slug at 3783 m and observe equalization. Continue running out of hole to shoe. Carry out post jar inspection of top drive and crown, service top drive and slip and cut line. Pull out of hole from shoe to surface and run in hole with mule shoe to 3790 m. Wash in hole with mule shoe from 3790 m to top of fish at 3826 m. Pull up to 3824 m and circulate bottoms up.

31 March 1999 Complete circulating bottoms up, make up side entry assembly and cement hose and pump cement. Rig down side entry assembly and pull out of hole from 3824 m to 3380 m. Circulate at 3380 m noting some cement returns over shakers. Flow check at 3380 m and function test rams. Pump slug at 3380 m and continue pulling out of hole to shoe. Flow check at shoe and complete pulling out of hole to surface. Make up BOP test tool and run in hole. Test BOPs, and commence pulling out test assembly.

01 April 1999 Complete pulling out test assembly and function test rams. Run in hole with flex joint and wear bushing. Pull out of hole. Make up 12¼" BHA and run in hole to 1302 m, filling string every 10 stands. Continue running in hole to 3380 m, then wash and ream to 3667 m. Tag cement at 3667 m, with 20 klbs on bit. Dress top of cement from 3667 m to 3684 m, then drill 12¼" directional hole from 3684 m to 3723 m attempting to kick off Blackback A-1, ST1.

02 April 1999 Continue drilling 12¼" directional hole from 3723 m to 3776 m, in an attempt to kick off Blackback A-1, ST1, Bit tending to wander to original well bore.

03 April 1999 Continue drilling 12¼" directional hole from 3776 m to 3791 m. Break circulation and backream to 3650 m, observing no excess drag. Circulate bottoms up and clean boost riser. Flow check and pull five stands, observing no drag. Pump slug and continue pulling out of hole, observing no drag. Flow check at shoe.

04 April 1999 Complete pulling out of hole, replace mud motor and bit, then run in hole filling pipe every five stands. Service top drive at shoe and circulate. Continue running hole to 3705 m, then wash down to 3791 m, observing tight hole from 3784 m to bottom at 3791 m. Resume drilling 12¼" directional hole from 3791 m to 3846 m.

05 April 1999 Continue drilling 12¼" directional hole from 3846 m to 4071 m. Circulate bottoms up one and a half times, flow check and backream from 4071 m to 3928 m.

06 April 1999 Continue backreaming from 3928 m to 3650 m, encountering no drag. Circulate at maximum flow and rotate at 120 rpm until shakers clean. Pulled out 5 stands and ran in hole, washing down from 3995 m to 4071 m. Drill ahead to 4215 m, circulate and hang off on middle pipe rams for approaching vessel. Drill to 4294 m, circulate bottoms up due to drag increasing.

07 April 1999 Circulate, backream from 4294-4159 m, circulate until shakers clean, maximum pump rate and 120 rpm. Pulled out string to 4130 m, run in to 4246 m, wash to 4294 m bottom and drill to 4388 mMD, flow check at 4343 m, circulate bottoms up x 2, flow check, circulate until shakers clean, backream to 3724 mMD.

08 April 1999 Continue backreaming from 3724 m to shoe at 1302 m, with maximum pumps, boosting riser and rotating at 120 rpm. Circulate and boost riser until no cuttings observed over shakers, then flow check observing no flow. Function test BOPs and service top drive. Slip and cut and conduct further BOP function tests. Pump slug and pull out of hole to 635 m.

09 April 1999 Pulled out of the hole, laid out the motor and break out Bit. Make up 12¼" assembly, test MWD & run in to the shoe at 1302 m, filling pipe every 15 stands. Held H2S drill, broke circulation, reaming and washing at 2367, 2455, 2773 & 2977 m, filling every 10 stands. Ream and wash to bottom at 4388 m.

10 April 1999 Drill from 4388 m to 4534 m, backream each stand, surveys at connection, flow check at 4534 m. Circulate hole and monitor gas, flow check. Drill from 4534 m to 4578 m, limit ROP, flow check, pull off bottom and circulate hole clean due to hole condition.. Drill from 4578 to 4584 m, flow check, circulate gas out, flow check, drill to 4666 m, swept hole with 45 bbl LCM at 4598 m.

11 April 1999 Continue to Drill 12 1/4" hole from 4666 m to TD 4695 mMD, 2921 mTVD. Backream each stand, survey's on connections. Circulate 2x bottoms up, shakers clean, boost Riser. Flow check and backream out of the hole to 3600 m, maximum pumps and 150 rpm, boosting Riser. Circulate bottoms up and flow check, pump slug and pull out of hole to 3441 m. Work tight hole at 3441 m, packed off and unable to rotate. Work down and regaining rotation, circulation not regained until 3490 m. Circulate at maximum pump rate and 150 rpm. Backream from 3490 m to 2900 m at maximum pump rate and 150 rpm.

12 April 1999 Backream from 2900 m to 2100 m, circulate shakers clean., boost riser. Flow check well & pull out of the hole to the shoe & flow check. BOP drill. Service Top Drive, clean floor and pull out of the hole. Flow check, Lay out MWD, bit and BHA. Function shear ram. JSA for wireline run, make up logging run and load radioactive source, run tool to 4666 m, pull out and download sources. Clean and lay down tool string and run JSA for.

13 April 1999 Continue to lay down Schlumberger logging tools. Rig down compensator line and sheaves, clear rig floor. JSA for logging rig down, rig up seal assembly and joint. Make up 10 3/4" MS-700 casing hanger and seal assembly to pad port and launcher to joint of slick 5 1/2" HWDP & lay down same. JSA for rig up & pick up of 30 joints 3 1/2" drill pipe & stinger and run in the hole. Re-arrange derrick to access drill pipe. Run in to shoe 1302 m, BOP drill, attempt break circulation. Mud manifold valve open on spare mud hose, loss 10 bbl. Clean up mud spill. Break circulation, run in hole to 4658 m, wash down (1x80 spm-1000 psi), increase in pressure, no weight down, unable to circulate or rotate. Pull out to 4542 m, attempt to circulate, no success. Pull to 2339 m, attempt circulate at 4339, 4194, 4049, 3759, 3179 & 2600 m, no success. Re-gain rotation at 3759 m.

14 April 1999 Continue pulling out of hole with cement string to shoe. Attempt circulation with high rpm and pump rates without success. Pull out of hole flow checking below BOP. Clean cutting from stinger.

Run in hole with 3 1/2" cement stinger and circulate. Run wear bushing and running tool in hole and land BOP test plug. Pressure test and function test BOP. U-tube seawater to Dowell, then pull out of hole, laying out wear bushing and running tool. Run in hole with 3 1/2" cement assembly on 5 1/2" drill pipe.

15 April 1999 Run in hole with cement stinger, circulate at shoe. Run in to bottom 4695 m, work tight spots. Lost rotation 12:30 pm, tight hole. Circulate bottoms up, max 70 u gas. Vessel approaching rig zone, hang off until ship moves clear. Rig up cement hose, pump 87 bbl cement (15.8 ppg, 421 sz). Pull out to 4390 m, circulate bottoms up. Pull out, slug pumped at 4303 m, 70-90 max drag

16 April 1999 Continue pulling out of hole with 3.5" cement stinger on 5" pipe, 2665 m to shoe at 1302 m. Circulate. Kick drill. JSA for slip & cut, cut 115' drill line. Flow check and pull out of the hole. Make up wiper trip assembly. Change jars and RIH, circulating at shoe. Service top drive, blocks and crown, before continuing to run in hole to 2165 m. Beginning precautionary wash and ream from 2165 m to 2425 m, observing drag of 20 to 30 klbs both upwards and down, rotate at 85 rpm and pump at 359 gpm. Ream from 2425 m to 2454 m without pumps or rotation, drag of 130 klbs upward and 80 klbs down observed. Continue washing and reaming to 3500m. Pump at 750 gpm to 2860 m, increasing to 861 gpm at 3120 m., backream twice at each connection and rotate at 110 rpm whilst reaming down and 90 rpm whilst backreaming. Observe maximum torque of 6 to 20 kft lbs and weight of 370 klbs upwards and 160 klbs down, string weight 250 klbs. Increase mud weight from 10.6 ppg to 10.9 ppg.

17 April 1999 Continue washing and reaming from 3500 m to 4473 m, where cement was tagged with a weight of 15 klb. Backream each stand twice, pump at maximum rate of 862 gpm and rotate at 110 rpm. From 3700 m to 4251 m, maximum weight upwards of 380 klbs observed. Unable to ream with out rotating from 4251 m to 4473 m, observed a maximum weight of 350 klbs upward and 220 klb down. Circulate and condition mud by circulating bottoms up twice. Backream from 4470 m to 3113 m, pumping at 820 gpm and rotating at 115 rpm. Maximum weight, 60-70 klbs upward & 15-20 klb down, observed between 4470 m to 4260 m.

18 April 1999 Continue backreaming from 3113 m- 2150 m. Pull out of hole with out rotating or pumping, observing 40-50 klb drag. Pull two stands from 2150 m, without excess drag. Pull out of hole to shoe and circulate with three pumps at 95 spm, and rotating at 110 rpm until shakers clear of cuttings. Flow check, pump slug and complete pulling out of hole. Rig up and run in hole with Schlumberger GSAT/GR tools, but unable to proceed beyond 1334 m, so pull up to surface for extra tools to increase weight. Run in hole to 1515 m and unable to proceed further. Pull out and add further tools for weight and run in to 1915 m, and again unable to proceed deeper. Pull out of hole shooting seismic every 30 m, to 1320 m. Pull out and lay out tools.

19 April 1999 Rig down Schlumberger compensator line & sheaves. JSA on rig up tubing conveyed logging. Make up cross over from 5" HWDP to logging tool string & Schlumberger make up & test CSAT/ Gamma ray. Pick up to rotary table and test wet connector. Run in with tool on HWDP, 1 minute per stand, to shoe. JSA and rig up wireline sheave in derrick. Change out TDS saver sub due to high connections. Continue to run in, break circulation every 5 stands, circulate at 3150 m, 600 gpm-2300 psi. Rig up for TCL, pump down wet connector & latch, test tool. Run in hole @ 1 1/2- 2 minutes a stand, pumping 145 gpm, 500 psi, run to 3800 m.

20 April 1999 Continue running in from 3800 m to 4450 m, pumping at 145 gpm and recording 210 klb drag up and down. Take a VSP shot at 4450 m, and every 30 m to 3153 m. Unlatch wet connector and pull back wire line sheave. Pull out of hole from 3153 m to 1300 m, encountering no tight spots, flow check at shoe.

21 April 1999 Displace hole with 10.1 mud, cement plug 1520 m to 1302 m shoe, skid to A-2 well.

Section 2

Geological Summary

Revision	Date	Issued by	Approved by	Remarks
1	01/02/99	Geoservices Unit 093	Base Mudlogging Coordinator	

FORMATION TOPS (WELLSITE PICKS)

DESCRIPTION	MD (m) - RT	TVD (m) (26m RT)
GIPPSLAND LIMESTONE	426.00	426.00
Top of LAKES ENTRANCE	3910.00	2517.00
TOTAL DEPTH	4273.00	2695.10
Blackback A-1 ST1		
Top of LAKES ENTRANCE	3910.00	2517.50
Top of LATROBE	4568.00	2852.43
Top of COARSE CLASTICS	4570.50	2853.75
TOTAL DEPTH	4695.50	2921.00

GEOLOGICAL SUMMARY

687-720 m **LIMESTONE with minor SILTSTONE**

SILTSTONE: Medium to dark grey, argillaceous, minor calcareous fragments, and quartz grains, moderately hard, subblocky.

LIMESTONE: Light grey green, brown, translucent, fossiliferous, abundant forams and coral fragments, dispersed to hard, nil porosity, no fluorescence.

720-928 m **LIMESTONE**

LIMESTONE: Light grey olive green, Calcisiltite grading to Calcarenite with increasing depth, predominantly argillaceous, common arenaceous in part, very fine to fine grained, microcrystalline, trace fossil fragments and foraminifera, firm to moderately hard, nil porosity, no fluorescence.

Cement & Re-drill section

822-1550 m **LIMESTONE**

LIMESTONE: Light grey olive green, Calcisiltite grading to Calcarenite with increasing depth, predominantly argillaceous, common arenaceous in part, very fine to fine grained, microcrystalline, trace fossil fragments and foraminifera, firm to moderately hard, nil porosity, no fluorescence.

1550-1570 m **LIMESTONE**

LIMESTONE : Light to medium grey, Calcisiltite, trace Glauconite, argillaceous in part, soft to firm, blocky to subblocky, nil porosity, no fluorescence.

1570-2010m **LIMESTONE**

LIMESTONE: light olive grey to medium grey, Calcilutite, trace to common microscopic carbonaceous specks in part, firm to moderately hard in part, subblocky to blocky, nil porosity, no fluorescence.

2010-3910m **LIMESTONE**

LIMESTONE: light olive grey to medium grey, medium brown in part, Calcilutite grading to Calcisiltite, grading to Calcarenite with depth, trace to common microscopic carbonaceous specks in part, trace fossil fragments, trace glauconite, firm to moderately hard in part, subblocky to blocky, nil porosity, no fluorescence.

3910mMD (2517mTVD) **LAKES ENTRANCE FORMATION**

3910-4273m **CLAYSTONE WITH MINOR LIMESTONE**

CLAYSTONE: light to medium grey, very calcareous in part, common silty, trace carbonaceous fleck, rare glauconite, trace disseminated pyrite, very fine Limestone laminations in part, soft to firm, massive to amorphous.

LIMESTONE: medium grey to medium grey brown, grey green in part, Calcilutite grading to Calcisiltite, trace to common microscopic carbonaceous specks in part, firm, blocky, nil porosity, no fluorescence.

BLACKBACK A-1 SIDETRACK # 1

3684 (Kickoff)-3910m **LIMESTONE with minor Calcareous CLAYSTONE**

LIMESTONE: Medium olive grey to medium grey brown, Calcilutite grading to Calcisiltite, grading to Calcarenite in parts, trace carbonaceous specks in part, trace fossil fragments & forams, firm to moderately hard in part, subblocky to subfissile, nil porosity, no fluorescence.

CLAYSTONE: light to medium grey, very calcareous, common silty, trace carbonaceous fleck, trace glauconite & disseminated pyrite, soft to firm, blocky.

3910 mMD (2517mTVD) **LAKES ENTRANCE FORMATION**

3910-4549m **CLAYSTONE with minor LIMESTONE**

CLAYSTONE: light to medium grey, occasional dark green grey, very calcareous in part, common silty, trace carbonaceous fleck, rare glauconite, trace disseminated pyrite, very fine Limestone laminations in part, soft to firm, subfissile to subblocky.

LIMESTONE: light olive grey to medium grey, Calcilutite, argillaceous in part, trace disseminated pyrite, trace forams, soft to firm, subblocky to subfissile, nil porosity, no fluorescence.

4568mMD (2852.4mTVD) **LATROBE GROUP**

4568-4570.5m **SANDSTONE with minor CLAYSTONE, trace GREENSAND.**

SANDSTONE: clear to translucent grains, very fine to coarse, very poorly sorted, subangular to subrounded, weak calcareous cement, argillaceous matrix, common glauconite & pyrite nodules, loose, fair to good inferred porosity, nil fluorescence .

CLAYSTONE: medium light brownish grey to medium grey, occasionally silty, moderately calcareous in part, minor fine carbonaceous materials, trace disseminated pyrite, rare glauconite, soft to firm, subblocky to amorphous.

GREENSAND: dark green to black, very fine, well sorted, subangular to subrounded, glauconite pellets in green matrix, common pyrite nodules, soft, very poor to nil porosity, nil fluorescence .

4570.5mMD (2853.7mTVD) **TOP COARSE CLASTICS**

4570.5-4695.5m **SANDSTONE with minor CLAYSTONE and SILTSTONE**

SANDSTONE: clear to translucent grains, frosted, coarse to medium, occasionally very coarse, poorly sorted, subrounded to angular, weak siliceous cement, trace argillaceous matrix, trace white feldspar, common quartz overgrowths in part, occasional pyrite nodules, predominantly clean to loose grains, occasional friable aggregates, fair to good inferred porosity, no fluorescence.

CLAYSTONE: medium light brownish grey, occasionally silty, minor fine carbonaceous materials, plastic, soft to amorphous.

SILTSTONE: light to predominantly medium grey, occasional grey brown, argillaceous, grading to Claystone, trace disseminated pyrite and fine carbonaceous materials, firm to soft, subfissile to subblocky.

FLUORESCENCE REPORT

4580-4585 m **LITHOLOGY**

SANDSTONE: clear to translucent, very coarse to coarse, very poor sorted subangular to subrounded, weak calcareous cement, argillaceous matrix, common Glauconite and Pyrite nodules, loose, good inferred porosity.

FLUORESCENCE: 100% dull blue white, no cut.

ASSOCIATED GAS: Depth of Maximum Gas 4584 metres.
C_1 4:52%,C_2 0:59%,C_3 0:21%, iC_4 0:03%, nC_4 0:04%, iC_5 0:0%, nC_5 0:0%

GAS REPORT

During the 12.25" phase, a background gas level of around 15 units was observed upon entering the Lakes Entrance Formation. This varied between 10-15 units from 3910 m to 4175 metres, where background gas increased to the 15-20 unit range. Whilst drilling the Lakes Entrance formation, C1 was the only gas present in significant quantities. From 4520 metres, to the top of the LaTrobe Group, C2 was sporadically present in small quantities. Heavy gases, C3 through to nC4, appeared abruptly with the first major gas peak of 90 units at 4578 metres. Following the second major gas peak of 489 units at 4584 metres, background gas remained at 60-80 units, until dropping noticeably to 20-30 units, for the interval from 4657 metres to TD at 4695 metres. Heavy gases remained present below 4578 metres, in similar proportions to those measured during the two major peaks. No H2S or CO2 were recorded while monitoring the well.

Gas peaks through the Latrobe

Depth m	Total Gas units	C1 %	C2 %	C3 %	iC4 %	nC4 %	iC5 %	nC5 %
4578	90	1.25	0.17	0.06	0.01	0.01		
4584	489	4.52	0.59	0.21	0.03	0.04	Tr	Tr
4606	141	1.66	0.28	0.13	0.03	0.03		
4637	158	2.15	0.27	0.21	0.05	0.06		
4678	54	0.57	0.14	0.09	0.02	0.03		

TRIP GASES

Depth	Type	Units
4071	Wiper Trip	8
4297	Wiper Trip	6
4388	Bit Trip	8
4695	Cement plug	70
4473	Wiper Trip	12

PE614230

This is an enclosure indicator page.
The enclosure PE614230 is enclosed within the container PE908077 at this location in this document.

The enclosure PE614230 has the following characteristics:

ITEM_BARCODE	= PE614230
CONTAINER_BARCODE	= PE908077
NAME	= Mud Log for Blackback-A1. 1:500
BASIN	= GIPPSLAND
ONSHORE?	= N
DATA_TYPE	= WELL
DATA_SUB_TYPE	= MUD_LOG
DESCRIPTION	= Mud Log for Blackback-A1 (Master Log). 1:500. By Geoservices logging for Esso Australia Ltd. February 1999
REMARKS	=
DATE_WRITTEN	= 01-FEB-1999
DATE_PROCESSED	=
DATE_RECEIVED	= 16-JUN-1999
RECEIVED_FROM	= Esso Australia Ltd
WELL_NAME	= Blackback-A1
CONTRACTOR	= Geoservices
AUTHOR	=
ORIGINATOR	= Esso Australia Ltd
TOP_DEPTH	= 680
BOTTOM_DEPTH	= 4280
ROW_CREATED_BY	= DH00_SW

(Inserted by DNRE - Vic Govt Mines Dept)

PE614231

This is an enclosure indicator page.
The enclosure PE614231 is enclosed within the container PE908077 at this location in this document.

The enclosure PE614231 has the following characteristics:

ITEM_BARCODE	PE614231
CONTAINER_BARCODE	PE908077
NAME	Mud Log for Blackback-A1 ST1. 1:200
BASIN	GIPPSLAND
ONSHORE?	N
DATA_TYPE	WELL
DATA_SUB_TYPE	MUD_LOG
DESCRIPTION	Mud Log for Blackback-A1 ST1. 1:200. By Geoservices logging for Esso Australia Ltd. February 1999
REMARKS	
DATE_WRITTEN	01-FEB-1999
DATE_PROCESSED	
DATE_RECEIVED	16-JUN-1999
RECEIVED_FROM	Esso Australia Ltd
WELL_NAME	Blackback-A1 ST1
CONTRACTOR	Geoservices
AUTHOR	
ORIGINATOR	Esso Australia
TOP_DEPTH	4510
BOTTOM_DEPTH	4720
ROW_CREATED_BY	DH00_SW

(Inserted by DNRE - Vic Govt Mines Dept)

PE614232

This is an enclosure indicator page.
The enclosure PE614232 is enclosed within the container PE908077 at this location in this document.

The enclosure PE614232 has the following characteristics:

ITEM_BARCODE	PE614232
CONTAINER_BARCODE	PE908077
NAME	Mud Log for Blackback-A1 ST1. 1:500
BASIN	GIPPSLAND
ONSHORE?	N
DATA_TYPE	WELL
DATA_SUB_TYPE	MUD_LOG
DESCRIPTION	Mud Log for Blackback-A1 ST1 (Master Log). 1:500. By Geoservices logging for Esso Australia Ltd. February 1999
REMARKS	
DATE_WRITTEN	01-FEB-1999
DATE_PROCESSED	
DATE_RECEIVED	16-JUN-1999
RECEIVED_FROM	Esso Australia Ltd
WELL_NAME	Blackback-A1 ST1
CONTRACTOR	Geoservices
AUTHOR	
ORIGINATOR	Esso Australia Ltd
TOP_DEPTH	3650
BOTTOM_DEPTH	4720
ROW_CREATED_BY	DH00_SW

(Inserted by DNRE - Vic Govt Mines Dept)

PE614233

This is an enclosure indicator page.
The enclosure PE614233 is enclosed within the container PE908077 at this location in this document.

The enclosure PE614233 has the following characteristics:

ITEM_BARCODE	PE614233
CONTAINER_BARCODE	PE908077
NAME	Drilling Log for Blackback-A1. 1:1000
BASIN	GIPPSLAND
ONSHORE?	N
DATA_TYPE	WELL
DATA_SUB_TYPE	WELL_LOG
DESCRIPTION	Drilling Log for Blackback-A1. 1:1000. By Geoservices logging for Esso Australia Ltd. February 1999
REMARKS	
DATE_WRITTEN	01-FEB-1999
DATE_PROCESSED	
DATE_RECEIVED	16-JUN-1999
RECEIVED_FROM	Esso Australia Ltd
WELL_NAME	Blackback-A1
CONTRACTOR	Geoservices
AUTHOR	
ORIGINATOR	Esso Australia Ltd
TOP_DEPTH	680
BOTTOM_DEPTH	4280
ROW_CREATED_BY	DH00_SW

(Inserted by DNRE - Vic Govt Mines Dept)

PE614234

This is an enclosure indicator page.
The enclosure PE614234 is enclosed within the container PE908077 at this location in this document.

The enclosure PE614234 has the following characteristics:

ITEM_BARCODE	= PE614234
CONTAINER_BARCODE	= PE908077
NAME	= Drilling Log for Blackback-A1 ST1
BASIN	= GIPPSLAND
ONSHORE?	= N
DATA_TYPE	= WELL
DATA_SUB_TYPE	= WELL_LOG
DESCRIPTION	= Drilling Log for Blackback-A1 ST1. 1:1000. By Geoservices logging for Esso Australia Ltd. February 1999
REMARKS	=
DATE_WRITTEN	= 01-FEB-1999
DATE_PROCESSED	=
DATE_RECEIVED	= 16-JUN-1999
RECEIVED_FROM	= Esso Australia Ltd
WELL_NAME	= Blackback-A1 ST1
CONTRACTOR	= Geoservices
AUTHOR	=
ORIGINATOR	= Esso Australia Ltd
TOP_DEPTH	= 3650
BOTTOM_DEPTH	= 4720
ROW_CREATED_BY	= DH00_SW

(Inserted by DNRE - Vic Govt Mines Dept)

PE614235

This is an enclosure indicator page.
The enclosure PE614235 is enclosed within the container PE908077 at this location in this document.

The enclosure PE614235 has the following characteristics:

ITEM_BARCODE	PE614235
CONTAINER_BARCODE	PE908077
NAME	Gas Ratio Log for Blackback-A1 ST1
BASIN	GIPPSLAND
ONSHORE?	N
DATA_TYPE	WELL
DATA_SUB_TYPE	WELL_LOG
DESCRIPTION	Gas Ratio Log for Blackback-A1 ST1. 1:200. By Geoservices logging for Esso Australia Ltd. February 1999
REMARKS	
DATE_WRITTEN	01-FEB-1999
DATE_PROCESSED	
DATE_RECEIVED	16-JUN-1999
RECEIVED_FROM	Esso Australia Ltd
WELL_NAME	Blackback-A1 ST1
CONTRACTOR	Geoservices
AUTHOR	
ORIGINATOR	Esso Australia Ltd
TOP_DEPTH	4510
BOTTOM_DEPTH	4695
ROW_CREATED_BY	DH00_SW

(Inserted by DNRE - Vic Govt Mines Dept)

PE614236

This is an enclosure indicator page.
The enclosure PE614236 is enclosed within the container PE908077 at this location in this document.

The enclosure PE614236 has the following characteristics:

ITEM_BARCODE	PE614236
CONTAINER_BARCODE	PE908077
NAME	TVD Pressure Log for Blackback-A1 ST1
BASIN	GIPPSLAND
ONSHORE?	N
DATA_TYPE	WELL
DATA_SUB_TYPE	WELL_LOG
DESCRIPTION	TVD Pressure Log for Blackback-A1 ST1. 1:1000. Pore Pressure Evaluation Log. By Geoservices logging for Esso Australia Ltd. February 1999
REMARKS	
DATE_WRITTEN	01-FEB-1999
DATE_PROCESSED	
DATE_RECEIVED	16-JUN-1999
RECEIVED_FROM	Esso Australia Ltd
WELL_NAME	Blackback-A1 ST1
CONTRACTOR	Geoservices
AUTHOR	
ORIGINATOR	Esso Australia Ltd
TOP_DEPTH	3650
BOTTOM_DEPTH	4720
ROW_CREATED_BY	DH00_SW

(Inserted by DNRE - Vic Govt Mines Dept)

PE614237

This is an enclosure indicator page.
The enclosure PE614237 is enclosed within the container PE908077 at this location in this document.

The enclosure PE614237 has the following characteristics:

ITEM_BARCODE	= PE614237
CONTAINER_BARCODE	= PE908077
NAME	= TVD Pressure Log for Blackback-A1
BASIN	= GIPPSLAND
ONSHORE?	= N
DATA_TYPE	= WELL
DATA_SUB_TYPE	= WELL_LOG
DESCRIPTION	= TVD Pressure Log for Blackback-A1. 1:1000. Pore Pressure Evaluation Log. By Geoservices logging for Esso Australia Ltd. February 1999
REMARKS	=
DATE_WRITTEN	= 01-FEB-1999
DATE_PROCESSED	=
DATE_RECEIVED	= 16-JUN-1999
RECEIVED_FROM	= Esso Australia Ltd
WELL_NAME	= Blackback-A1
CONTRACTOR	= Geoservices
AUTHOR	=
ORIGINATOR	= Esso Australia Ltd
TOP_DEPTH	= 650
BOTTOM_DEPTH	= 4300
ROW_CREATED_BY	= DH00_SW

(Inserted by DNRE - Vic Govt Mines Dept)