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Note: All data, results and interpretations presented in this report are of a provisional nature and may be subject to revision as the final well completion report is prepared.

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BP Petroleum Development Ltd., Norway  
Operations Department  
Petroleum Engineering Division

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Approved by: T.N.D. Hares

Well 29/6-1  
Drill Stem Testing Field Report  
by  
G. Scotton

Stavanger  
May 1982

Report No.  
PED/82/03

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29/6-1 Drill Stem Testing

Field Report

Summary

SUMMARY OF CONTENTS

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Flopetrol Field Readings

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Flopetrol Field Readings

Sperry Sun Gauge Readings

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### Summary

Well 29/6-1 penetrated the top of the Jurassic (Brent) Formation at 4204.5 mBRT.

The formation was continuously cored from 4219.57 to 4339.65 mBRT, a total of 7 cores were recovered. Shows were observed throughout, but were very slight in core no. 7.

The preliminary log evaluation, together with the core data, indicated that moveable gas could exist down to 4329.5 mBRT, in an interbedded sand-shale sequence with moderate to low porosity. High values of water saturation were calculated for sand beds below 4377 mBRT. The log evaluation and the RFT data did not reliably define the level of the gas-water contact in the well. Three DSTs were undertaken in order to define the level of the gas water contact, confirm formation parameters and obtain samples of reservoir fluids.

The objectives and results of the three tests undertaken were as follows;

#### DST-1 4287 - 4301 mBRT

To determine the nature of the moveable fluids in the interval. The resistivity logs gave some low readings in the zone, which gave rise to high calculated water saturations. Porosity values were 10%, with core permeabilities of up to 400 md.

DST-1 produced formation water with a final flowrate of 1210 BWPD on an 8/64" adjustable choke. The final water chlorides concentration was 43,500 ppm. The final wellhead flowing pressures and temperatures were 3250 psig and 93°F respectively. Solution gas was present in insignificant quantities. A main pressure build-up of 796 minutes was observed, from which a transmissivity of 1030 md-ft was obtained. A test permeability of 22 md and a skin factor of +38 were calculated.

DST-2 4256 - 4260 mBRT

As DST No. 1 produced water a DST was required in this interval to better define the level of the gas water contact.

Core permeabilities in the interval were circa 2 md, log porosities were approximately 12%.

The test produced formation water, at a flowrate of 279 BWPD on a 4/64" choke. Final wellhead flowing pressures and temperatures were 3800 psig and 58°F respectively. Mechanical problems at the end of the test meant that a main pressure build-up was not recorded.

DST-3 4208.5 - 4218.5 mBRT

The objectives of this test were to obtain representative hydrocarbon samples, and to determine the formation parameters of the zone which was not cored. Average log porosity was 13%. The test produced gas at a final flowrate of 10.88 MMSCFD through an 8/64" choke on the steam heater. The choke itself was found to be badly washed out after the test. Condensate was produced at a final rate of 1405 STBD, the condensate/gas ratio was estimated to be 138 STB/MMSCF. At the end of the test some water cushion or invasion fluid was still being produced. The gas had a specific gravity of 0.705, and contained 0 ppm H<sub>2</sub>S, 2% CO<sub>2</sub>. The condensate had a gravity of 0.808 at 60°F (43.6 API).

Due to severely deteriorating weather, the test was terminated prematurely. No main p.b.u. was recorded.

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- Flowtest Summary Sheet
- Graphical Diary of Events
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- Rigsite Water Analysis
- Sample Data Sheets

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- Water Production Measurement with Tank

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## DST-1: Summary of Results

### 1. Tested Intervals

The following interval in the Jurassic formation was perforated for DST-1: (Ref. field FDC/CNL Log Run No. 8C)

4287 - 4301 mBRT

### 2. Sequence of Events

The main events during this test were as follows;

Initial flow period	5 minutes
Initial pressure build up	34 minutes
Main flow period	642 minutes
Main pressure build up	796 minutes

### 3. Flow and Shut-in Periods

In this test some difficulty was encountered cycling the annulus pressure operated test tools.

When indications of the APR-N tester valve opening were initially observed at surface, the well was opened up for a 5 minute initial flow on a 32/64" adjustable choke, and then shut in at surface for a period of 34 minutes. The surface pressure response (and later the downhole gauges) proved that the test tool had opened correctly.

The well was then re-opened on an 8/64" adjustable choke for the main flow period. This choke size was maintained throughout the flow as it was necessary to maintain considerable back-pressure on the formation to reduce the possibility of breaking down the cement bond between the test zone and upper gas-bearing zones. In this way the test was confined to the perforated interval only.

Formation water was produced at surface after approximately 300 minutes flowing time.

Stabilisation and clean up of the flow was never adequately achieved due to the low drawdown, as indicated by the wellhead flowing pressure and the flowrate. The formation water plus the small amounts of dissolved gas were sampled throughout the test.

After 642 minutes total flow time, the well was shut-in downhole and at surface to observe the main p.b.u. There were indications at surface that the APR-N tester valve started to leak some time into the build-up. Shut-in pressure, monitored at surface throughout the duration of the build-up, initially decreased when the well was closed in, but appeared to increase after 417 minutes.

#### 4. Fluid Production

The flowrate of water cushion returns was measured at the gauge tank until sump mud and formation water reached surface. As the mud was gas cut, the well was diverted overboard for a short period, after which it was returned to the tank. The well was diverted to the separator for a total period of 273 minutes to measure water rates through the Flocco meter. The total amount of gas produced was too small to enable constant flow through the orifice meter to be maintained; a portable gas meter was rigged up to the separator and an attempt made to monitor the gas flowrate from the well as closely as possible.

At the end of the main flow period the well was flowing formation water on an 8/64" adjustable choke at a rate of 1210 BPD (average rate for the whole test 860 BPD) together with dissolved gas (estimated rate 0.02 MMSCFD). The final WHFP and WHFT was 3250 psig and 93°F respectively.

There was no evidence of free hydrocarbon production during the flow period, on reversing out, or on top of the test tools when retrieved.

Using the gauge tank dips and separator meter readings, a total volume of 383 STB of formation water is estimated to have been produced at surface.

## 5. Fluid Sampling

Comprehensive atmospheric water samples were collected throughout the test.

Rigsite chlorides analysis showed that formation water reached surface after approximately 300 minutes total flowing time; the final value of total chlorides concentration being 43500 ppm.

The separator gas composition was measured using the Exlog chromatograph. Measurements were taken with Gastech and Draeger detection tubes for H<sub>2</sub>S, CO<sub>2</sub> and methyl mercaptans - average values were 0 ppm H<sub>2</sub>S, 8% CO<sub>2</sub>, 30 ppm CH<sub>3</sub>SH.

## 6. Pressure Build-Up Analysis

The field analysis has been based on data obtained from Sperry Sun Gauge No. 0172 located in the 3 1/2" drillpipe gauge carrier at 4282.65 mBRT. This is a conventional Horner analysis on the pressure build-up following the main flow period up until the attempts to pressure up the annulus to reverse out the string contents (elapsed build-up time 796 minutes).

The following data has been used;

Flowtime	642 minutes
Flowrate	860 BWPD (average)
Net interval tested	14m (46 ft)
Porosity	10%
Water FVF	1.1
Water viscosity	0.28 cp
Total compressibility	$7.97 \times 10^{-6} \text{ psi}^{-1}$
Wellbore radius	0.35 ft
Final flowing pressure	9673 psi
P <sub>1 hr</sub>	11,315 psi
Slope m	42 psi/cycle
Estimated formation pressure (P*)	11,326 psi
Transmissivity (kh)	1030 md.ft.

Permeability (k)	22 md
Skin factor (s)	+38
Actual productivity index	0.52 STBD/psi
Ideal productivity index	3.3 STBD/psi

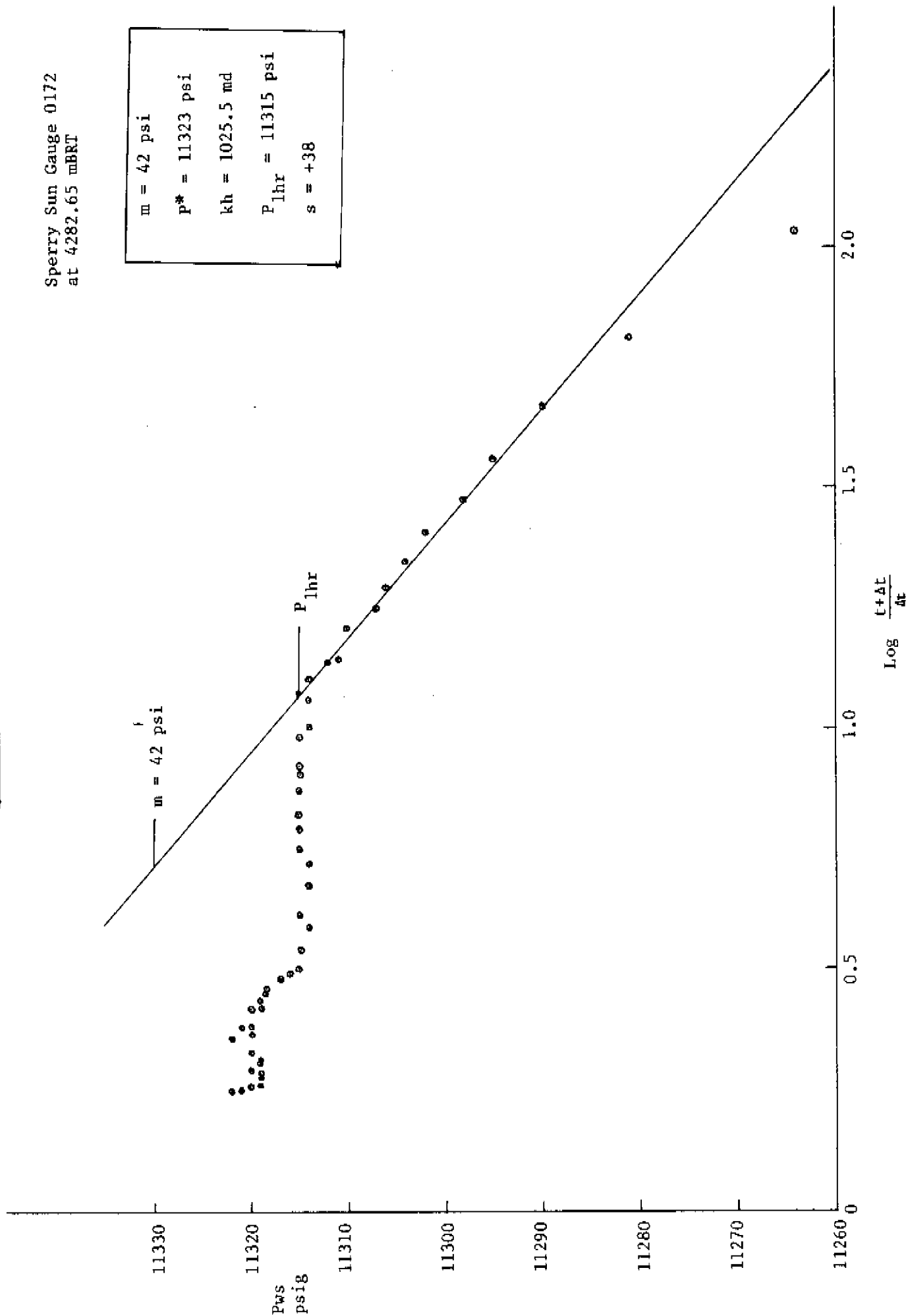
The early time slope has been used for the analysis and is assumed not to be affected by wellbore storage. The slope change may be due to the presence of the gas-water contact.

The test derived value of permeability-thickness product kh (1030 md-ft) is in very good agreement with the arithmetic average obtained from the core data (1050 md-ft).

DST-1 PRESSURE BUILD-UP BY HORNER METHOD

Sperry Sun Gauge 0172  
at 4282.65 mBRT

$m = 42$  psi  
 $p^* = 11323$  psi  
 $kh = 1025.5$  md  
 $P_{1hr} = 11315$  psi  
 $s = +38$



2. FIELD DATA

- Diary of Events
- DST Tool String
- Gauge Data Sheet
- Flowtest Summary Sheet
- Graphical Diary of Events
- Graphical Production History
- Rigsite Gas Analysis by Exlog Chromatograph
- Rigsite Gas Analysis by Detector Tubes
- Rigsite Water Analysis
- Sample Data Sheets

DIARY OF EVENTS		WELL No : <u>29/6-1</u>	DST No : <u>1</u>
		ZONE TESTED: <u>M. Jurassic</u>	PERFS. : <u>4287 - 4301 mBRT</u> (FDC/CNL Log Run 8C)
DATE	TIME	OPERATIONS	
11-04-82		W.O.W. to test B.O.P. and perforate.	
13-04-82	2245	Rig up Schlumberger RIH GR/CCL tool combination run no 13D.	
	0440	Perforated interval 4301-4291.78m. Run no 13B.	
	0820	" " 4287-4291.76m " " "	
	0930	RIH junk basket - could not get down - run not made.	
		RIH with drillpipe to circulate and condition mud.	
15-04-82	1220	Pull wear bushing and run hydril swedge.	
	1310	Pick up 3 1/2" drillpipe gauge carriers - commence RIH DST-1.	
	1327	Pick up BOBT cases.	
	1345	Installed both pressure gauges. Changed chart on temp. gauge.	
	1350	BOBT gauges through rotary.	
		Fill drillpipe gauge carriers with viscous slurry.	
	1415	Installed Sperry Sun gauges in 1st single of drillpipe.	
	1435	Installed Flopetrol gauges.	
	1515	Tailpipe, RTTS packer assembly picked up and run.	
		Installed APBT gauges.	
	1520	Run APR-N nitrogen chamber charge - 5000 psi.	
	1540	Make up single drill collar - pick up APR-M valve and make up to string.	
	1620	Make up lower 2 slip joints.	
	1632	Rig up to pressure test.	
	1650	Pressure test lines to 5000 psi ok.	
	1700	Pressure test down string to 5000 psi for 15 minutes ok.	
	1745	Run 1st stand 4 3/4 drillcollars.	
	1755	Pick up RTTS circulating valve - locked closed same.	
COMMENTS :			
P.E. : _____			

DIARY OF EVENTS		WELL No : <u>29/6-1</u>	DST No : <u>1</u>
		ZONE TESTED: <u>M. Jurassic</u>	PERFS. : <u>4287 - 4301 mBRT</u> (FDC-CNL Log Run 8C)
DATE	TIME	OPERATIONS	
15-04-82	1855	Run collars filling with seawater cushion.	
	1930	Picked up 3 upper slip joints.	
	1945	Rig up to pressure test.	
	1955	Pressure test lines to 5000 psi ok.	
	2005	Pressure test down string to 5000 psi - slight drop. Re-pump to 5000 psi for 10 minutes ok.	
	2027	Commence rigging up to run tubing.	
	2110	Run 1st single VAM N-80 12.7 lb.ft <sup>-1</sup> (lightweight) tubing.	
	2150	Rig up to pressure test on top of 1st single and 3 1/2 VAM box x 3 1/2 IF pin x-over.	
		Test to 5000 psi for 8 minutes ok.	
		Continue to run tubing - using Salvesens torque - turn indicator and External Leak Detector.	
	2150	Make up 1st stand of tubing - problems in handling short stands in the derrick due to rig roll.	
		Gatormating each made up connection to 5000 psi. Each pin and box being inspected by British Steel.	
16-04-82	0525	Continuing with VAM tubing stands 12.7 lb.ft <sup>-1</sup> .	
	0705	Total 68 stands N-80 tubing run - rig up to pressure test.	
	0720	Flush through lines prior to testing.	
	0725	Pressure test cement line - pump up following slight leak.	
	0745	Open lo-torc valve - pressure test down string to 6000 psi took 1 1/2 bbl. Held on for 15 min ok.	
	1340	Pick up penultimate stand of N-80 tubing. Tailpipe into top of liner 8m in on second joint of this stand.	
		String weight 185000 lb less blocks.	
		Open w.m.c.	
COMMENTS :			
RE. : _____			

DIARY OF EVENTS		WELL No : <u>29/6-1</u>	DST No : <u>1</u>
		ZONE TESTED: <u>M. Jurassic</u>	PERFS. : <u>4287 - 4301 mBRT</u> (FDC-CNL Log Run 8C)
DATE	TIME	OPERATIONS	
16-04-82	1350	Tailpipe into liner.	
		Pick up last stand of N-80 tubing. Packer 2.54m in on top single of this stand.	
	1405	Packer inside 7" liner.	
		Rig up to run VAM singles.	
	1415	Pick up and run 1st single L-80 VAM.	
	1745	Picked up 45 singles VAM tubing. String taking weight (up to 15000 lb) on last few stands - probably due to thick mud. Pull divertor. Rig up to pressure test down string.	
	1900	Flush through lines.	
	1915	Pressure test lines to 9500 psi. Leaking at kelly cock.	
	1930	Flush through lines.	
	1935	Pressure test lines to 9500 psi - significant pressure drop - leaking back through pump.	
	2015	Pressure test lines to 10,500 psi on Cameron manifold gauge. Close lo-torc valve at Halliburton pump - held for 7 minutes ok.	
	2050	Pressure up down string to 9650 psi on Cameron manifold gauge. Held for 15 minutes. Minor drop. Rig down following pressure test. Prepare to pick up Flopetrol EZ tree.	
	2145	Pick up Flopetrol EZ tree - make up to string. Function test latch mechanism ok. Checked pumping of glycol ok.	
	2230	Rig up to test down string - using Halliburton LT-20 swivel and S-15 valve with x-overs to 3 1/2" IF and using a chiksan x. over Fig 1502 x Fig 3002 male-male half (all of this equipment is part of the Halliburton rental package, BP Dyce). Pressure test successful - 15 minutes.	
COMMENTS :			
RE. : _____			

DIARY OF EVENTS		WELL No : <u>29/6-1</u>	DST No : <u>1</u>
		ZONE TESTED: <u>M. Jurassic</u>	PERFS. : <u>4287 - 4301 mBRT</u> (FDC/CNL Log Run 8C)
DATE	TIME	OPERATIONS	
16-04-82	2325	Prepare to run landing string. Some drag noticeable (up to 15000 lb)	
		while running the last few singles. The packer appears to require	
		time to work its way down probably due to the condition of the mud.	
17-04-82	0130	Completed running landing string. Rig down Salvesens Gatorhawk prior	
		to picking up flowhead.	
	0230	Picked up flowhead and made up to string. Land string in wellhead	
		3.9m in on single on flowhead. High tide which accounts for the 1m	
		error.	
		Rig up surface equipment prior to pressure test. Will use the	
		Halliburton 3002 chiksans from the 15M choke manifold connection from	
		the Halliburton pump, and x-over to the Flopetrol 2202 chiksans. This	
		will give us adequate spare flowline.	
		Close flowhead master valve and flowline wing valve prior to pressure	
		testing the lines and the body of the flowhead.	
	0330	Pressure up lines to 10,500 psi. Discover leak.	
		Close kill line valve - pressure up against this valve to 10,500 psi	
		for 15 minutes ok.	
		Discover swab valve on flowhead leaking slightly.	
	0352	Pressure up against flowhead master, swab and flowline wing valves	
		to 11,000 psi for 15 minutes ok.	
		Open master valve for test down string.	
	0445	Pressure up down string to 10,500 psi - took 3 1/4 bbl.	
		For kill line, used 3 Halliburton 2m chiksan loops plus 2 Flopetrol	
		1 1/2 m loops.	
		Held pressure for 15 min - ok. Bleed off and continue rigging up	
		surface equipment.	
	0645	Pressure tested downstream valves of choke manifold to 10,500 psi ok.	
COMMENTS :			
RE. : _____			

DIARY OF EVENTS		WELL No : <u>29/6-1</u>	DST No : <u>1</u>
		ZONE TESTED: <u>M. Jurassic</u>	PERFS. : <u>4287 - 4301 mBRT</u> (FDC-CNL Log Run 8C)
DATE	TIME	OPERATIONS	
17-04-82	0655	Pressure test u/s valves of choke manifold to 10,500 psi ok.	
	0705	Close kill line wing valve - bleed off kill line at pump by 1000 psi - observe for build up. Kill line valve ok.	
	0725	Line up equipment to pressure test down rig test line to 10,000 psi. Discover leaking chiksan swivel. Change out same - unfortunately this loop some way up the derrick. Therefore pick string up out of wellhead to eliminate rig heave.	
	0845	Re-land string. Flush through lines.	
	0855	Pressure up against heater inlet valves down rig test line. Discover leaking flange on line. Change out gasket.	
	0945	Held meeting with Sedco and service company personnel.	
	1035	Pressure up against heater inlet valves down rig test line. Bleed off ok.	
	1055	Prepare to set packer. Pick up 5m and insert slips string weight 260000 lb (incl. blocks and flowhead).	
	1140	Turn string to right following clearing away of chiksans from master valve and swivel.	
	1145	Packer set. Line up well to flow to gauge tank for initial flow period. Air in control panel to activate flowline hydraulic failsafe valve.	
	1205	Open to tank. SSTT valves open.	
	1220	Open kill line valve and pressure up string to 3000 psi to reduce differential across APR-N valve. Close kill valve and bleed off at Halliburton unit.	
	1222	Increase annulus pressure to 1800 psi for initial flow.	
	1235	Increase annulus pressure to 2000 psi.	
COMMENTS :			
RE. : _____			

DIARY OF EVENTS		WELL No : <u>29/6-1</u>	DST No : <u>1</u>
		ZONE TESTED: <u>M. Jurassic</u>	PERFS. : <u>4287 - 4301 mBRT</u> (FDC-CNL Log Run 8C)
DATE	TIME	OPERATIONS	
17-04-82	1245	Bleed off annulus pressure. Open kill valve and increase tubing head pressure to 4000 psi.	
	1248	4360 psi on tubing. Close kill valve.	
	1255	Pressure up annulus to 2000 psi to try to open valve - 44 strokes. 4500 psi on tubing due to squeeze.	
	1300	Bleed down tubing to 2500 psi. Close in and observe well - no indication of opening.	
	1309	Bleed off annulus pressure.	
	1315	Ensured annulus is taking mud by pressuring up against failsafe valve on kill line to 500 psi. On opening failsafe pump pressure lost - ie. communication to annulus.	
	1320	Pressure down string to 4500 psi with Halliburton 15M kill pump.	
	1325	Pressure up on annulus to 2000 psi - no indication - bleed off tubing to 2500 psi. Line up well to flow overboard.	
	1353	Bleed off annulus pressure.	
	1355	Bleed off tubing pressure.	
		Open kill valve - pressure down tubing to 5300 psi.	
	1405	Pressure up annulus to 2000 psi. 42 strokes.	
		Open choke manifold on a 32/64" choke attempt to flow fast to try to shock valve. Tubing bled down to 1000 psi.	
	1413	Bleed off annulus and re-pressure to 2000 psi - 42 strokes.	
	1420	Pressure down tubing to 5000 psi with annulus pressure held on string.	
	1423	Pressure down tubing to 6000 psi.	
		Steam hose on heater started to leak.	
	1434	Bleed off to 3000 psi on 32/64" choke.	
		Bleed off annulus pressure.	
	1435	Pressure up to 5000 psi.	
COMMENTS :			
RE. : _____			

DIARY OF EVENTS		WELL No : <u>29/6-1</u>	DST No : <u>1</u>
		ZONE TESTED: <u>M. Jurassic</u>	PERFS. : <u>4287 - 4301 mBRT</u> (FDC-CNL Log Run 8C)
DATE	TIME	OPERATIONS	
17-04-82	1440	Pressure up annulus to 2300 psi.	
	1442	Bleed off tubing to 3000 psi on 32/64" choke. Indications now that tool is open. Signs of build up. Possible that perforations were plugged and tool was open all the time - should see this when the gauges come to surface.	
		Bleed off tubing pressure to 0 psi.	
	1447	Shut-in well WHCIP climbing to 4950 psi. Divert well to tank. Pressure stabilised at 4900 psi. Close kill valve. Slight increase in annulus pressure observed. Will assume that the APR-N tool is open, and will attempt to confirm by flowing the well slowly.	
	1521	Open well on 8/64" adjustable choke - well flowing water cushion. WHFP 3920 psi. Commence pumping glycol to SSTT. Tank dip gave flowrate 518 bbl/day. String capacity 98 bbl. Sump capacity 5 bbl. WHFP 4400 psi. WHFT 55°F. Put water on burners.	
	1535	Tank dip gave flowrate 4 bbl/min.	
	1545	Annulus pressure on automatic choke. Limits annulus pressure to 2400 psi.	
	1550	Flowed 9 bbl since opening well. Choke plugging - working to clear.	
	1615	17.6 bbl flowed. Bottoms up at ca. 7 pm.	
	1630	Heater temperature at 120°F.	
	1645	WHFP 3810 psi. Downstream flowing pressure 0 psi.	
	1705	Flowrate 21 bbl/hr.	
COMMENTS :			
P.E. : _____			

DIARY OF EVENTS		WELL No : 29/6-1	DST No : 1
		ZONE TESTED: M. Jurassic	PERFS. : 4287 - 4301 mBRT (FDC-CNL Log Run 8C)
DATE	TIME	OPERATIONS	
17-04-82	1707	Relief valve on steam heater lifted, possibly due to plugged steam outlet.	
	1710	Fluctuating WHFP - now 4110 psi. Turn off burner pilots - save propane.	
	1735	Flowrate 636 bbl/day.	
	1740	WHFP still erratic as water cushion flows back. Washed out autoclave valve on choke manifold - change out same. Estimate formation fluid to surface 19.30.	
	1750	Well showing signs of plugging - working choke to clear.	
	1805	WHFP steadying out 3480 psi.	
	1820	WHFP 3430 psi.	
	1830	Strong smell of gas in water cushion. Muddy water now starting to appear. WHFP still steady.	
	1835	By pass gauge tank to overboard line.	
	1840	Fizzy water at surface. Gas measured for CO <sub>2</sub> 0.13% (Gastech tubes).	
	1845	Changed out another bubble hose valve. Working choke.	
	1845	0 ppm H <sub>2</sub> S - Gastech tubes.	
	1850	WHFP 3400 psi. Still plugging. Taking water samples at the separator - plugging still occurring. WHFT levelling out 72°F. Working choke - max. size 12/64". Annulus pressure dropped slightly to 2250 psi.	
	1900	Trace hydrocarbons as measured by detector tubes. Fluids contain little gas. Commence taking readings at d.w.t. every 15 minutes. Still injecting glycol to EZ tree.	
COMMENTS :			
RE. : _____			

DIARY OF EVENTS		WELL No : <u>29/6-1</u>	DST No : <u>1</u>
		ZONE TESTED: <u>M. Jurassic</u>	PERFS. : <u>4287 - 4301 mBRT</u> <u>(FDC-CNL Log Run 8C)</u>
DATE	TIME	OPERATIONS	
18-04-82	1925	Divert flow back to tank. Turn off propane at burners. As there is	
		so little gas it seems unlikely that gas can be measured at the	
		separator - will continue to the tank for the time being.	
		Exlog now taking gas samples 'under water' and measuring chroma-	
		tographic composition.	
		Schlumberger making resistivity measurements.	
		BP PE's taking water samples, measuring gas for CO <sub>2</sub> , H <sub>2</sub> S.	
	1940	Still no trace of H <sub>2</sub> S. CO <sub>2</sub> 2.7%.	
	1942	Hydrocarbon content on detector tubes increasing slightly. Still	
		only trace amounts.	
	1950	Observed very minor weep on adjustable choke inlet valve gasket -	
		very minor.	
		Cease pumping glycol to EZ tree.	
	1952	Replaced relief valve on heater - still leaking slightly.	
	1955	Gauge tank contents bubbling a little.	
	2005	CO <sub>2</sub> 4%.	
	2005	Flowrate from tank dip 1152 bbl/day.	
	2005	Testing for methyl mercaptans - 40 ppm indicated.	
	2005	Increase in hydrocarbons indicated.	
	2027	Flowrate from tank dip 979 bbl/day.	
	2037	Choke still plugging. Commence taking samples to check for sediment.	
		Approx 1% measured - has silty appearance (drilling mud)	
		Pressure on separator by-pass line ca. 80 psi.	
	2130	Commence building level in separator. Gas outlet closed.	
		Separator pressure 80 psi.	
	2200	Commence flowing water to tank from separator. Gas outlet closed.	
		Gas quantity too little to be measured at Danial orifice meter.	
COMMENTS :			
RE. : _____			

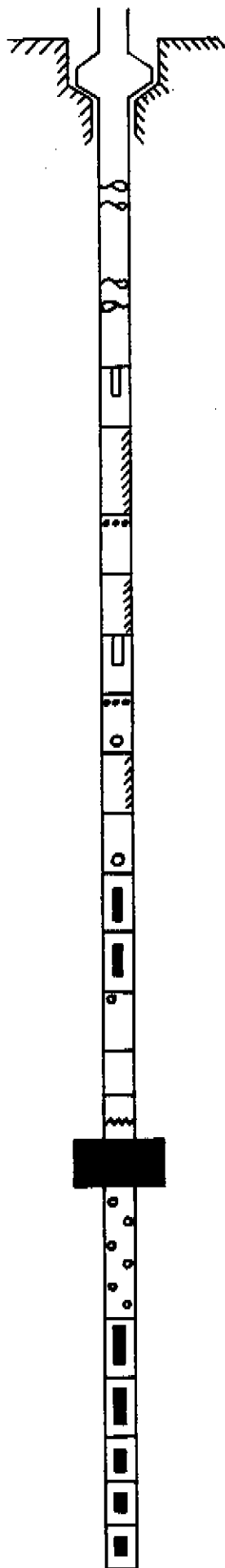
DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>1</u>
		ZONE TESTED: <u>M. Jurassic</u> PERFS. : <u>4287 - 4301 mBRT</u> (FDC-CNL Log Run 8C)
DATE	TIME	OPERATIONS
17-04-82		Rig up domestic gas meter on separator. Attempt to match well gas flowrate as closely as possible.
		No traces of condensate in separator.
		Exlog shows gas to be ca. 95% methane.
		S.G. = 0.685
18-04-82		Sediment - still one (1) percent.
	0045	Separator pressure 190 psi.
	0130	Measured gas flowrates as closely as possible in the circumstances.
		Measured water flowrates through separator for 3 1/2 hours.
		Measured all gas and water properties.
		Consider test objectives complete. By-pass separator and gauge tank to overboard.
	0203	Bleed off annulus pressure. Close APR-N valve.
		Allow surface pressure to bleed off to ca. 3500 psi.
	0204	Shut in well at choke manifold inlet valve - observe p.b.u.
		Lines apparently plugged to dead weight tester. Difficult to see what is happening to the surface pressure.
	0300	WHCIP 4850 psi. Probability that APR-N tool is not sealed correctly.
		Will monitor surface build up.
	0600	Wellhead CIP dropped throughout night to 4035 psi then suddenly started increasing. No obvious explanation except that APR-N valve was originally closed and suddenly developed a leak. Will reverse circulate nonetheless.
	1510	Line up well to overboard line. Pump glycol down to EZ tree to prevent plugging of ports on chemical injection line.
	1519	Increase annulus pressure to 2800 psi. No success.
		WHCIP 5350 psi.
COMMENTS :		
P.E. : _____		

DIARY OF EVENTS		WELL No : <u>29/6-1</u>	DST No : <u>1</u>
		ZONE TESTED: <u>M. Jurassic</u>	PERFS. : <u>4287 - 4301 mBRT</u> (FDC-CNL Log Run 8C)
DATE	TIME	OPERATIONS	
18-04-82	1523	Increase annulus pressure to 3000 psi - no success.	
	1525	" " " " 3200 " " "	
	1529	" " " " 3300 " " "	
	1534	" " " " 3500 " " "	
		75 strokes required.	
	1537	Increase annulus pressure to 3700 psi. No success.	
	1543	" " " " 3800 " " "	
	1548	Bleed down tubing to 3000 psi. Bleed off annulus pressure. WHCIP rose to ca. 4900 psi. Confirm leaking APR-N tool.	
	1601	As we cannot get the M tool to shear will activate the RTTS reverse circulating valve.	
		Opened 3 1/2" middle and 5" lower pipe rams.	
		Pick up 6 ft.	
	1607	Pick up 2 ft more. All upper 3 slip joints now open. Put in 5 turns to right.	
	1614	Bleed off tubing to 3000 psi. No annulus level drop. Probably have not picked up sufficiently to put the RTTS circulating valve in tension from below.	
		Land string back in wellhead. Close 3 1/2", 5" pipe rams.	
	1627	Make one more attempt to shear APR-M valve. Increase annulus pressure to 3750 psi. Observed APR-N tool opening on Foxboro gauge.	
		Put in an extra chiksan loop to enable string to be picked up higher in derrick.	
		Pressure test lines to 9500 psi.	
	1730	Close kill valve. Open master valve - equalised pressure.	
		Bleed down tubing to 3000 psi. Observed increase - N valve still leaking.	
COMMENTS :			
P.E. : _____			

DIARY OF EVENTS		WELL No : <u>29/6-1</u>	DST No : <u>1</u>
		ZONE TESTED: <u>M. Jurassic</u>	PERFS. : <u>4298 - 4301 mBRT</u> (FDC-CNL Log Run 8C)
DATE	TIME	OPERATIONS	
18-04-82	1733	Pick up ca. 6m - this will open all 5 slip joints. the RTTS circulating valve will be in tension. We are however, pulling against the seated packer.	
	1737	Torque up string to right to open valve.	
	1740	Bleed off tubing to watch annulus - 3000 psi.	
	1741	Trip tank level dropping - string reversing out. 16/64" choke.	
	1742	Commence filling annulus.	
		Need to close rams on pipe to pump the contents of the string out.	
	1813	Close 3 1/2" pipe rams.	
	1814	Reversing out 1000 psi pump pressure. 1600 psi WHFP. Taking samples.	
	1843	Mud at surface	
		Rig up to reverse circulate to pits.	
	2050	Prepare to pull packer. Hanging weight 260,000 lb.	
	2052	Pulled packer with 25000 lb overpull.	
		Recorded final hydrostatic pressure.	
		Run down into well. Still dragging. Also, on picking up.	
		Breakout Flopetrol flowhead.	
		Packer re-set.	
	2200	Lay out flowhead.	
		Packer appears to be unseated, but still pulling 30,000 lb.	
		Possibility that mud is very thick.	
		Pick up kelly to circulate the right way.	
	2230	Could not circulate down the string. RTTS circulating valve closed.	
		Attempt to torque string, but unable to maintain. Try torquing using kelly spinner.	
	2245	Prepare to reset packer - torque string using tubing tong - (app 5 turns).	
COMMENTS :			
P.E. : _____			

DIARY OF EVENTS		WELL No : 29/6-1	DST No : 1
		ZONE TESTED: M. Jurassic	PERFS. : 4287 - 4301 mBRT (FDC-CNL Log Run 8C)
DATE	TIME	OPERATIONS	
18-04-82	2307	Set packer.	
	2311	Circulate with kelly but cannot put left hand torque in the string because of subsea test tree (possibility that it could back out). Pulled packer loose - still circulating.	
19-04-82	0000	Lower kelly to rotary table and pump slug. RTTS circulating valve still open.	
	0030	Commence POH. Pulling wet. Valve either closed or plugged off.	
	0140	EZ tree at surface. Laid out same. Pumped slug and locked open RTTS by-pass - 4 turns to left. Continue laying out joints of L-80 tubing.	
	0900	Attempt injection to formation - pressured up annulus to 3000 psi - took 6 bbl - all bled back. On pulling N-80 stands, stand no. 88 laid out as damage to pin end on bottom joint incurred.	
	1015	Laid out Halliburton slip joints. Tubing all stood back on large timbers - now racked much better than before.	
	1110	RTTS circulating valve at surface - tool open. Extremely thick mud on valve shoulder - consistency of soft butter. Valve appears ok externally.	
	1200	Took sample from last stand of 4 3/4 drill collars - mud only - no traces of water or h/c. Laid out lower 2 slip joints - these appeared 'blued' by heat. Pressure tested Flopetrol choke manifold body, valves both upstream and downstream to 10,500 psi ok. Pressure tested SSTT body and below valve assembly to 10,500 psi ok.	
	1320	Laid out APR-N tool. Check nitrogen chamber charge 5200 psi - ok.	
COMMENTS :			
P.E. : _____			

DIARY OF EVENTS		WELL No : <u>29/6-1</u>	DST No : <u>1</u>
		ZONE TESTED: <u>M. Jurassic</u>	PERFS. : <u>4287 - 4301 mBRT</u> (FDC-CNL Log Run 8C)
DATE	TIME	OPERATIONS	
19-04-82		Breaks on some of tools hard to make - possibly due to the amount of torque imparted to the string?	
	1340	APBT cases in rotary. Extremely thick plugs of barite around these gauges.	
	1355	RTTS packer at surface. Rubbers slightly damaged - replace same. Shear sleeve not broken. Laid out APR-N tool - extreme plugging on top of valve - pipe scale and possibly a trace of sand.	
	1405	Tailpipe in rotary - appears plugged to certain extent.	
	1425	Flopetrol gauges out of 3 1/2" drillpipe ok - not locked in with barite.	
	1435	Sperry Sun gauges out.	
	1455	All tools out of hole.	
		APR-M valve pins show some evidence that pressure had reached tool - slight impression made.	
		APR-N tool isolation section showing evidence of barite plugging. Ball had a nick in it, and top seat washed slightly.	
		Metal in RTTS circulating valve - similar to that recovered in junk basket.	
		Cement in hydraulic by-pass - bhp gauges showed that on trying to open the APR-N tool, the hydraulic by-pass on the packer did not seal correctly - annulus pressure therefore communicated to the sump - below the packer - giving the peak in bhp of ca 13,000 psi. The formation could not have fractured however as we did not lose any mud.	
COMMENTS :			
END DST-1			
P.E. : _____			



WELL 29/6-1 - DST-1

DATUM TOP <u>13 5/8</u> WHB		<u>146.50</u>
HANG-OFF POINT	<u>0.45</u>	<u>146.95</u>
3 1/2" VAM TUBING 119 STANDS + SINGLE 12.7 LB/FT N-80 45 SINGLES 15.8 LB/FT L-80		
	<u>3842.06</u>	<u>3989.01</u>
3 SLIP JOINTS 2 OPEN, 1 CLOSED	<u>14.87</u>	<u>4003.88</u>
7 STANDS 4 3/4" D.C.	<u>197.39</u>	<u>4201.27</u>
RTTS CIRCULATING VALVE	<u>1.03</u>	<u>4202.30</u>
1 STAND 4 3/4" D.C.	<u>28.89</u>	<u>4231.19</u>
2 SLIP JOINTS BOTH CLOSED	<u>7.88</u>	<u>4239.07</u>
APR-M REVERSING VALVE	<u>2.23</u>	<u>4241.30</u>
1 SINGLE 4 3/4" D.C.	<u>9.55</u>	<u>4250.85</u>
APR-N VALVE	<u>3.93</u>	<u>4254.78</u>
APBT CASE	<u>1.42</u>	<u>4256.20</u>
APBT CASE	<u>1.43</u>	<u>4257.63</u>
HYDRAULIC BY-PASS	<u>2.11</u>	<u>4259.74</u>
BIG JOHN JARS	<u>1.57</u>	<u>4261.31</u>
SAFETY JOINT	<u>0.84</u>	<u>4262.15</u>
RTTS PACKER	<u>0.56</u>	<u>4262.71</u>
	<u>0.82</u>	<u>4263.53</u>
4 SECTIONS 1000 HOLE ANCHOR PIPE	<u>6.54</u>	<u>4270.07</u>
3 1/2" DRILL PIPE WITH AMERADAS	<u>9.82</u>	<u>4279.89</u>
3 1/2" DRILL PIPE WITH SPERRY SUN GAUGES	<u>10.01</u>	<u>4289.90</u>
BOBT CASE	<u>1.23</u>	<u>4291.13</u>
BOBT CASE	<u>1.23</u>	<u>4292.36</u>
BOBT CASE	<u>1.55</u>	<u>4293.91</u>

Owner	Gauge Type	Position in String	Distance from top Hanger	Gauge Depth MBRT	Gauge Depth mSS	Date Clock Set	Time Clock Set	Clock No.	Clock hrs.	Gauge No.	Range PSI	Calib. Temp. °F	Remarks
Halli-burton	BT Pressure	Above packer case		4254.97	4230.74	15.04	1510	10472	120	4509	0-15M		Bellows leaked hydraulic oil
"	"	"		4256.2	4231.97	"	1509	14008	120	4508	0-15M		Clock affected by temperature. Data only during RIH and POH.
Flopetrol	RPG-3	3 1/2" drillpipe	2.05	4272.37	4270.32	"	1311	E-9184	72	41128	0-20M	300°F	Clock stopped - data ok until then.
"	"	"	3.81	4274.13	4249.9	"	1315	17276	120	41126	0-20M	300°F	Clock stuck - no data.
"	"	"	5.95	4276.27	4252.04	"	1318	E877	120	36439	0-20M	300°F	Clock stuck - no data.
"	RT-7	"	7.7	4278.03	4253.8	"	1219	DMA577	120	48489	200-400	300°F	Good data
Sperry Sun	MRPG-3	"	2.76	4282.65	4258.42	15.04.82	1218		112	0172	0-15M	300°F	4 min sample mode, 17 hr delay. Gauge data ok but temp. sensor faulty.
"	"	"	5.77	4285.66	4261.43	"	1220		112	0190	0-15M	300°F	4 min sample mode, 17hr delay. Good gauge data.
"	"	"	8.75	4288.64	4264.41	"	1221		56	0138	0-15M	300°F	2 min sample mode, 17 hr delay. Failed downhole. Restarted on p.o.h.
Halli-burton	BT Pressure	Blanked off case below packer		4289.90	4265.67		1329	14226	120	5681	0-15M	300°F	Bellows leaked hydraulic oil.



### FLOW TEST SUMMARY SHEET

WELL No. 29/6-1	DST No. 1	DATE: 17-18/04/82					
FORMATION: Brent		PERF INT. 4287 - 4301 mBRT					
TEST STRING: Halliburton APR		WATER CUSHION: Full					
TIME H.M	EVENT	RATES - STBPD		PRESSURE - PSIG		TEMP F°	
		OIL	WATER	SEP GOR SCF/STB	WELL HEAD	SEPARATOR	SEPARATOR
1222	Initial attempts to open APR-N tool						
1521	APR-N tool open for main flow period 8/64" choke. Well initially flowed to gauge tank.						
1835	By-pass gauge tank - flow overboard.						
1840	Gas appearing in water.						
1925	Flow well to tank. Gas immeasurable.		1152		3480	78	
2027	Well plugging - not stable flow		979		3450	77	
2200	Flow well to separator, and then to tank (flowrates averaged).		860		3330		
0203	Shut well in at APR-N valve and at choke manifold. Observe pbu.	-	1210	-	3250	205	52
	Total flowing time - main flow period 642 minutes.						
	Total shut in time 796 minutes (prior to attempts made to shear APR-M reversing valve)						

FLUID SAMPLING	OIL	WATER		GAS	
ATMOSPHERIC		92		Includes water cushion, viscous gel, and samples taken during reversing out period.	
SEPARATOR					
WELL HEAD					
DOWNHOLE					
GRAVITIES	°API	1.045	Gm/cc	0.685	(AIR-1)
<u>COMMENTS:</u>	Gas contained 0 ppm H <sub>2</sub> S (Gastech tubes) ca 8% CO <sub>2</sub> Water chlorides 43000 ppm				

Accompanying note to graphical diary of events

Plot A shows the smoothed bottom hole pressure profile for the test as an illustration.

Plot B shows pressure data versus real time as recorded by Sperry Sun gauge 0172. It is evident that communication existed between the annulus and the gauges below the packer after the packer had been set ie. during initial attempts to open the APR-N valve (from 11:45 hours real time 17/04). This has been attributed to incomplete sealing of the packer hydraulic by-pass. Prior to this time, the gauge shows considerable noise upon completion of running of the landing string (from 01:30 hours real time 17/04). The reasons for this are not clear.

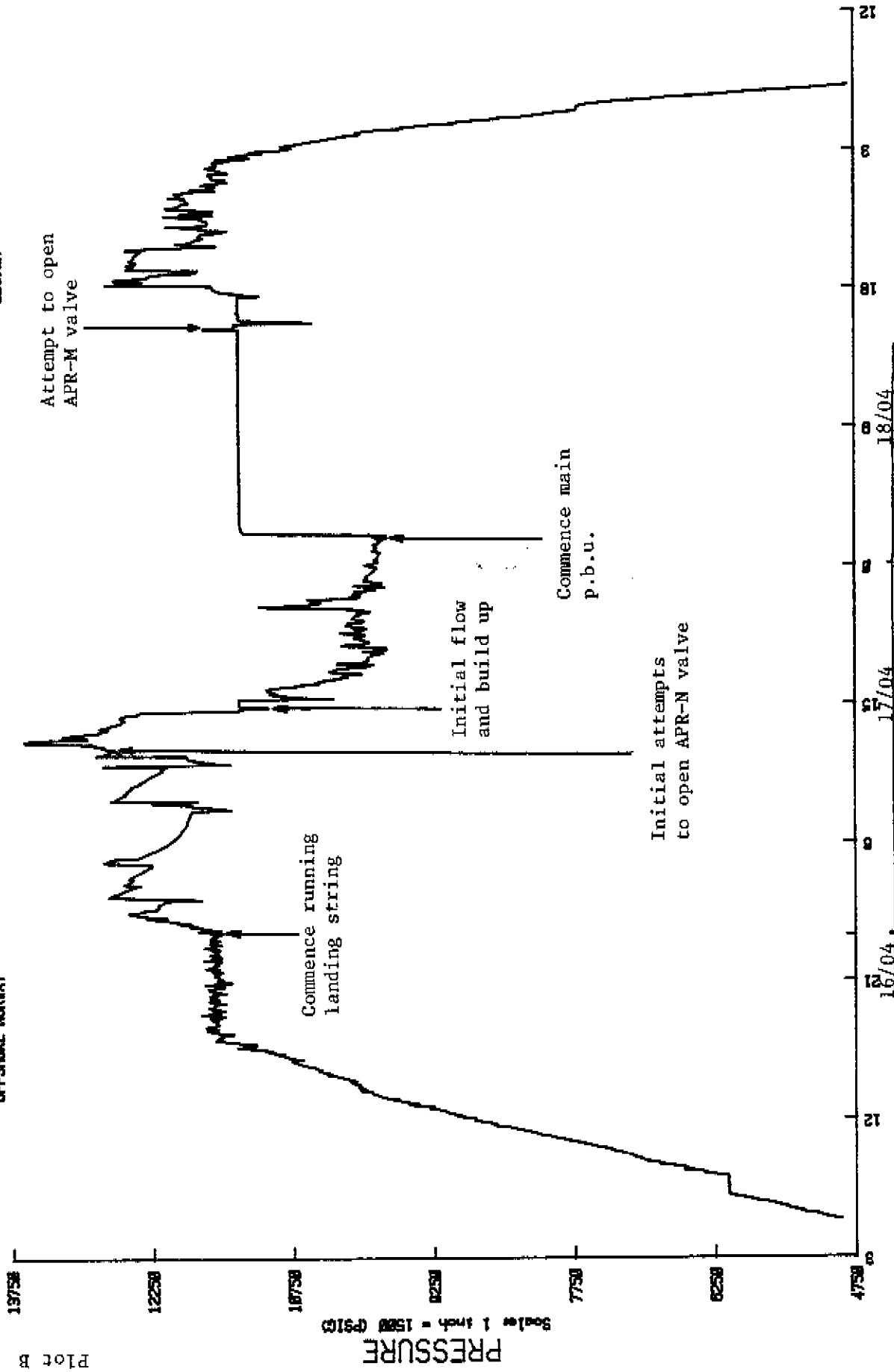
At the end of the main pressure build-up (after 796 minutes or 15:19 hours real time 17/04), unsuccessful attempts were made to open the APR-M reverse circulating valve. The gauge shows that there was some communication past the packer at this point, which has again been attributed to a leaking seal on the packer hydraulic by-pass.

EVENT	HRS	DOWNHOLE PRESSURE RECORD PSIG
R-I-H with Halliburton test tools and tubing to subsea test tree 119 stands + single N-80 12-7 1/2 ft <sup>1</sup> 45 singles L-80 15-8 1/2 ft <sup>1</sup>	23-58	
Pick up Flopetrol subsea test tree. Perform pressure tests above and below.	29-25	
Run landing string (11 singles L-80 15-8 1/2 ft <sup>1</sup> tubing + 1 single N-80 12-7 1/2 ft <sup>1</sup> ) Perform pressure tests down string. Rig up and test surface equipment.	39-67	
Set RTTS packer. Initial attempts made to open APR-N tester valve.	42-62	
Initial flow and shut-in periods completed.		
Well opened for main flow period on 3/16" adjustable choke.	53-82	
Well closed-in downhole and at surface for main pressure build-up period.	72-12	
Packer unset. Reverse circulate and condition mud.	75-75	
P.O.H test string following DST-1	90-17	

BRITISH PETROLEUM  
28/8-1  
WILDCAT  
OFFSHORE NORWAY

# NL Sperry-Sun, Inc. PRESSURE/TEMP. Vs TIME PLOT

15 APRIL 1982  
MSPG-1282-MOR  
8172  
08572A

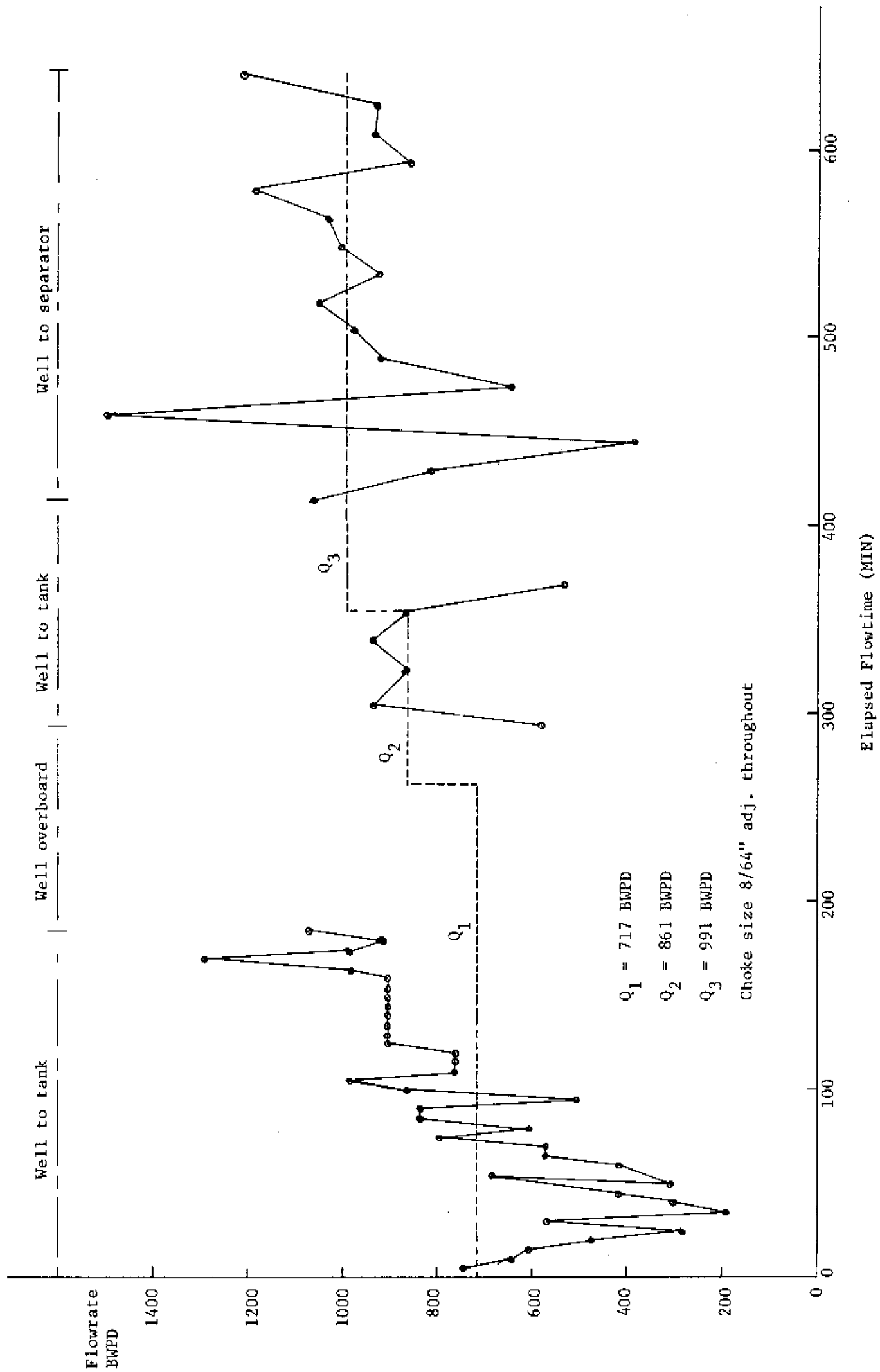


REAL TIME  
Scale: 1 inch = 6 hours

Accompanying note to Flowrate Analysis

The plot shows that stable flow was not achieved during the test. The time-weighted average of the mean flowrates during the three distinct intervals ( $Q_1$ ,  $Q_2$ ,  $Q_3$ ) gives a value of 860 BWP/D. The total volume of formation water produced at surface is estimated to be 383 bbl, including the string contents on reverse circulation.

DST-1 FLOWRATE ANALYSIS



Q<sub>1</sub> = 717 BWPD  
 Q<sub>2</sub> = 861 BWPD  
 Q<sub>3</sub> = 991 BWPD

Choke size 8/64" adj. throughout

Gas Chromatography Results (Exlog Mud Logging Unit)  
(percentage of total sample)

Time	C1	C2	C3	IC4	NC4
<u>17:04:82</u>					
20.35	94.9	5.1	-	-	-
20.50	94.8	4.4	0.64	0.37	0.77
21.25	93.1	5.68	1.06	0.04	0.09
21.45	93.5	5.7	0.67	0.05	0.07
22.00	94.4	4.4	0.88	0.06	0.09
22.15	94.4	4.7	0.74	0.04	0.06
22.30	93.9	5.2	0.71	0.04	0.06
23.00	94.6	5.1	0.73	0.04	0.06
23.15	93.9	5.2	0.75	0.02	0.05
23.30	94.3	4.7	0.79	0.03	0.06
23.45	93.5	5.5	0.77	0.43	0.07
<u>18:04:82</u>					
00.00	93.4	5.7	0.72	0.03	0.07
00.15	94.6	4.5	0.81	0.01	0.06
00.30	94.1	4.9	0.78	0.02	0.06
01.00	94.1	4.9	0.83	0.02	0.07
01.15	92.7	6.3	0.79	0.02	0.07
01.30	94.7	4.3	0.86	0.03	0.06
01.45	95.1	3.9	0.85	0.02	0.07
02.00	94.3	4.7	0.85	0.02	0.07

(Sampled gas dissolved in produced formation water)

DST GAS COMPOSITION MEASUREMENTS BY DETECTOR TUBES

Time	H <sub>2</sub> S 5-60 ppm		CO <sub>2</sub> 0.25-3.0%		CH <sub>3</sub> SH 5-70 ppm		Comment	
	Pump Stroke (n)	Reading (ppm)	Time	Pump Stroke (n)	Reading (%)	Time		Pump Stroke (n)
17/4/82								
1532	1	0	1536	1	0			
1537	1	0	1540	1	0			
1543	1	0	1545	1	0			
1551	1	0	1557	1	0			
1602	1	0						
1833	1	0	1838	2	0.13			
1852	2	0	1858	2	0.13	1858	H/C Trace	0.08
1925	H <sub>2</sub> S test on water sample	0.2 mg/l				1910	3	
1945	3	0	1940	1	2.7	1950	1	32
2000	4	0	2007	1	4.0	2010	1	40
2015	4	0	2020	1	8.0	2025	1	25
2045	5	0	2050	1	12.0	2055	1	30
2100	H <sub>2</sub> S test on water sample	0.4 mg/l						
2130	5	0	2140	1	12.0	2150	1	10
2205	H <sub>2</sub> S test on water sample	0.1 mg/l						
2220	5	0	2230	1	8.5	2240	3	0
2305	5	0	2315	1	8.0	2320	3	Trace

Measure point: bubble hose

"

"

"

"

"

"

"

Measure point: gauge tank

Measure point: gauge tank. Trace H/C

Measure point: gauge tank

"

Bypass line on separator

"

"

Gas line on separator

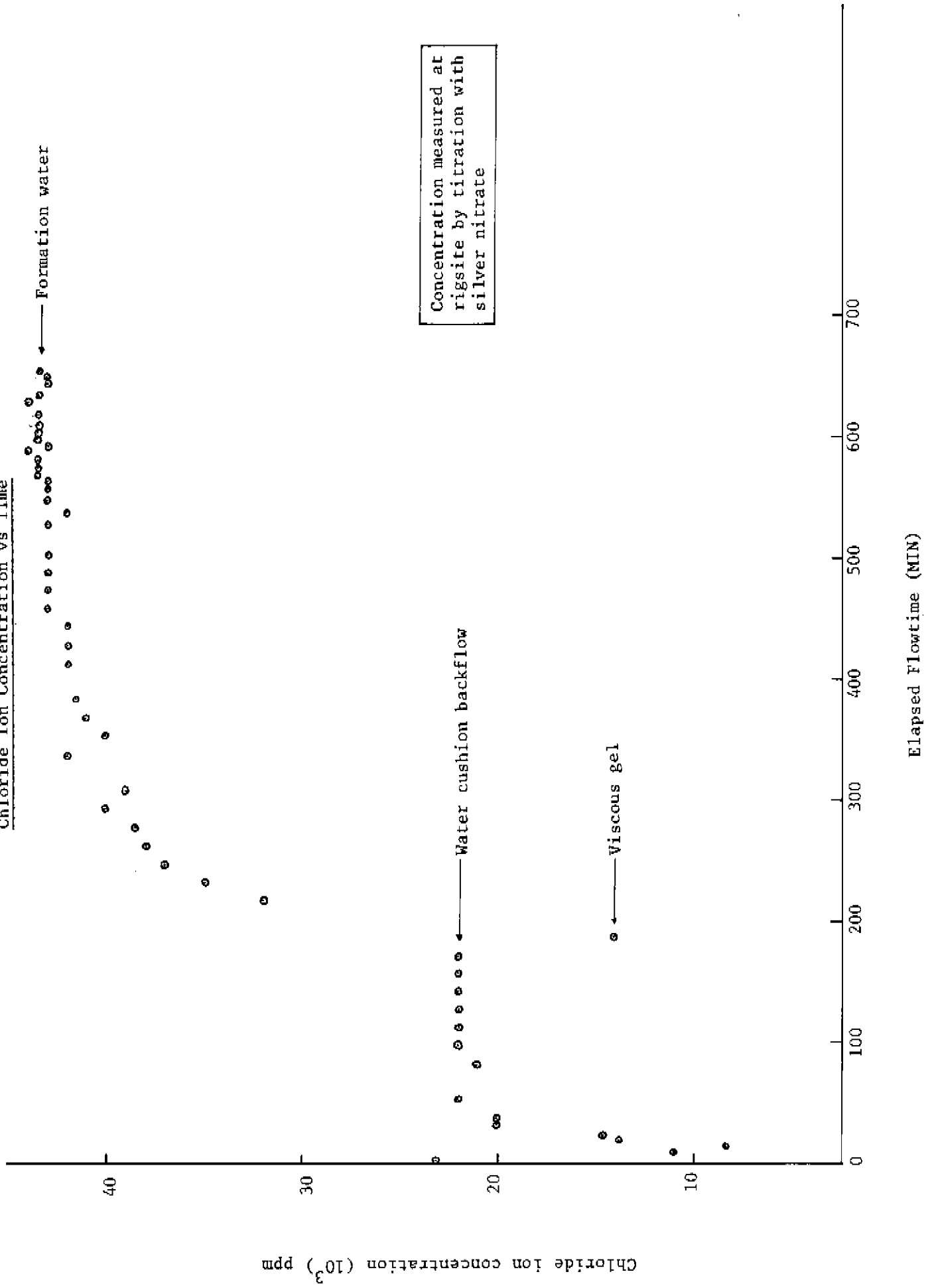
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DST GAS COMPOSITION MEASUREMENTS BY DETECTOR TUBES

Time	H <sub>2</sub> S 5-60 ppm			CO <sub>2</sub> 0.25-3.0%			CH <sub>3</sub> SH 5-70 ppm			Comment
	Pump Stroke (n)	Reading (ppm)	Time	Pump Stroke (n)	Reading (%)	Time	Pump Stroke (n)	Reading (ppm)	Time	
2335	H <sub>2</sub> S test on water sample 5	0.1 mg/l								
2350		0	2400	1	>6%	0010	5	Trace		Water line on separator
18/4/82										
0020		0	0030	1	>6%	0010	5	Trace		"
0045	H <sub>2</sub> S test on water sample 5	0.0 mg/l								Water line on separator
0110		0	0100	1	11.0	0120	5	Trace		Gas line on separator
0210		0	0200	1	11.0	0220	5	Trace		"

Chloride Ion Concentration vs Time



Formation Water Sample Data

Samples 1 - 9 water cushion samples on R.I.H., 10 - 80 flow period, 81 - 105 reversing out.

Date	Time Taken	Sample No	Resistivity at 60°F, $\Omega$ -m	NaCl from resistivity	Chloride from titration ppm	NaCl from chloride
17/4/82	1522	10	0.257	31000	19300	31800
"	1527	11	0.241	35000	22000	36300
"	1532	12	1.341	5100	11000	18100
"	1537	13	2.302	3100	8300	13700
"	1542	14	0.754	10000	13800	22800
"	1547	15	0.551	14000	14600	24100
"	1555	16	0.252	32000	20000	33000
"	1600	17	0.233	36000	20000	33000
"	1615	18	0.349	23000	22000	36300
"	1645	19	0.236	35000	21000	34650
"	1700	20	0.237	35000	22000	36300
"	1715	21	0.233	35000	22000	36300
"	1730	22	0.232	35000	22000	36300
"	1745	23	0.229	36000	22000	36300
"	1800	24	0.229	36000	22000	36300
"	1815	25	0.218	37000	22000	36300
"	1830	26	0.325	24000	14000	23100
"	1900	27	0.142	61000	32000	52800
"	1915	28	0.149	60000	35000	57750
"	1930	29	0.140	62000	37000	61050
"	1945	30	0.134	66000	38000	62700
"	2000	31	0.129	70000	38500	63500
"	2015	32	0.131	66000	40000	66000
"	2030	33	0.130	67000	39000	64350
"	-	34	-	-	-	-
"	2100	35	0.134	66000	42000	69300
"	2115	36	0.131	69000	40000	66000
"	2130	37	0.130	70000	41000	67650
"	2145	38	0.126	71000	41500	68500
"	-	39	-	-	-	-
"	2215	40	0.125	71000	42000	69300
"	2230	41	0.123	72000	42000	69300
"	2245	42	0.123	72000	42000	69300
"	2300	43	0.123	72000	43000	71000
"	2315	44	0.121	73000	43000	71000
"	-	45	-	-	-	-
"	2330	46	0.117	75000	43000	71000
"	-	47	-	-	-	-
"	2345	48	0.119	74000	43000	71000
"	-	49	-	-	-	-
"	-	50	-	-	-	-
"	2355	51	0.136	65000	43000	71000
18/5/82	0005	52	0.131	70000	42000	69300
"	0015	53	0.131	70000	43000	71000
"	0025	54	0.136	65000	43000	71000
"	-	55	-	-	-	-
"	0030	56	0.136	65000	43000	71000
"	0035	57	0.133	66000	43500	71800

Date	Time Taken	Sample No	Resistivity at 60°F, $\Omega$ -m	NaCl from resistivity	Chloride from titration ppm	Nacl from chloride
"	0040	58	0.134	65000	43500	71800
"	0045	59	0.133	66000	43500	71800
"	0050	60	0.134	65000	43500	71800
"	-	61	-	-	-	-
"	0055	62	0.134	66000	44000	72600
"	-	63	-	-	-	-
"	0100	64	0.132	67000	43000	71000
"	0105	65	0.136	65000	43500	71800
"	0110	66	0.117	75000	43500	71800
"	-	67	-	-	-	-
"	0115	68	0.133	66000	43500	71800
"	-	69	-	-	-	-
"	0120	70	0.118	75000	43500	71800
"	0125	71	0.133	66000	43500	71800
"	0130	72	0.134	65000	43500	71800
"	-	73	-	-	-	-
"	0135	74	0.117	75000	44000	72600
"	0140	75	0.118	75000	43500	71800
"	0145	76	0.117	75000	43500	71800
"	0150	77	0.122	70000	43000	71000
"	0155	78	0.123	70000	43000	71000
"	0200	79	0.125	70000	43500	71800
"	-	80	-	-	-	-
"	1740	81	0.124	70000	43000	71000
"	1741	82	0.135	65000	43000	71000
"	1742	83	0.119	74000	42000	69300
"	1743	84	0.120	73000	42000	69300
"	1745	85	0.120	73000	41500	68500
"	1748	86	0.124	70000	41500	68500
"	1752	87	0.117	75000	42500	70100
"	1757	88	0.121	71000	42000	69300
"	1800	89	0.120	73000	42500	70100
"	1802	90	0.123	73000	41500	68500
"	1805	91	0.120	73000	38000	62700
"	1808	92	0.131	67000	41500	70100
"	1810	93	0.125	70000	40000	66000
"	1812	94	0.122	71000	43500	71800
"	1814	95	0.128	69000	44500	73400
"	1816	96	0.134	66000	42500	70100
"	1818	97	0.120	73000	45500	75100
"	1820	98	0.124	72000	41500	68500
"	1822	99	0.125	70000	42000	69300
"	1824	100	0.120	73000	44000	72600
"	1826	101	0.125	70000	38500	63500
"	1828	102	0.123	73000	41500	68500
"	1830	103	0.120	73000	38500	63500
"	1832	104	0.122	71000	39000	64350
"	1840	105	0.123	73000	37000	61000

BP PETROLEUM DEVELOPMENT OF NORWAY A/S

SAMPLING DATA SHEET WELL No.: 29/6-1

TEST No.: 1 FORMATION: Brent

SAMPLE No.	DATE	TIME	SAMPLE TYPE	SAMPLE POINT	SAMPLING POINT		CONTAINER VOL & TYPE	REMARKS
					P - PSIG	T - °F		
1	15/4/82	1625	Viscous Gel	Cementline, rigfloor			Unless otherwise noted sample bottles	Viscous gel above APR-N, prior to test.
2	"	1632	"	"				
3	"	1825	"	"				
4	"	1834	Salt water	Waterhose, rigfloor			are 1 litre plastic bottles	Water cushion above APR-N, prior to test.
5	16/4/82	0254	"	"				
6	"	0645	"	"				
7	"	1141	"	"				
8	"	1500	"	"				
9	"	1756	"	"				
10	17/4/82	1522	Salt water	Data header				
11	"	1527	"	"				
12	"	1532	"	"				
13	"	1537	"	"				
14	"	1542	"	"				
15	"	1547	"	"				
16	"	1555	"	"				
17	"	1600	"	"				
18	"	1615	"	"				
19	"	1645	"	"				
20	"	1700	"	"				
21	"	1715	"	"				
22	"	1730	"	"				
23	"	1745	"	"				
24	"	1800	"	"				
25	"	1815	"	"				
26	"	1830	"	"				
27	"	1900	Formation water	Separator by-pass				Formation fluids at surface
28	"	1915	"	"				
29	"	1930	"	"				
30	"	1945	"	"				

SAMPLE No.	DATE	TIME	SAMPLE TYPE	SAMPLE POINT	SAMPLING POINT		CONTAINER VOL & TYPE	REMARKS
					P - PSIG	T - °F		
31	17/4/82	2000	Formation Water	Sampled before oil manifold			60 litres	
32	"	2015	"	"				
33	"	2030	"	"				
34	"	2045	"	"				
35	"	2100	"	"				
36	"	2115	"	"				
37	"	2130	Formation Water	Separator			60 litres	
38	"	2145	"	"				
39	"	2200	"	"				
40	"	2215	"	"				
41	"	2230	"	"				
42	"	2245	"	"				
43	"	2300	"	"				
44	"	2315	"	"				
45	"	2315	"	"			60 litres	
46	"	2330	"	"			45 gallons	
47	"	2330	"	"				
48	"	2345	"	"				
49	"	2340	"	"			60 litres	Flowing through separator
50	"	2345	"	"			45 gallons	
51	"	2355	"	"				
52	18/4/82	0005	"	"				
53	"	0015	"	"				
54	"	0025	"	"				
55	"	0020	"	"				
56	"	0030	"	"				
57	"	0035	"	"				
58	"	0040	"	"				
59	"	0045	"	"				
60	"	0050	"	"			60 litres	
61	"	0050	"	"				

BP PETROLEUM DEVELOPMENT OF NORWAY A/S

SAMPLING DATA SHEET WELL No.: 29/6-1

TEST No.: 1 FORMATION: Brent

SAMPLE No.	DATE	TIME	SAMPLE TYPE	SAMPLE POINT	SAMPLING POINT		CONTAINER VOL & TYPE	REMARKS
					P - PSIG	T - °F		
62	18/4/82	0055	Formation Water	Separator			60 litres	
63	"	0100	"	"			60 litres	
64	"	0100	"	"			60 litres	
65	"	0105	"	"			60 litres	
66	"	0110	"	"			60 litres	
67	"	0110	"	"			60 litres	
68	"	0115	"	"			60 litres	
69	"	0120	"	"			60 litres	
70	"	0120	"	"			60 litres	
71	"	0125	"	"			60 litres	
72	"	0130	"	"			60 litres	
73	"	0130	"	"			60 litres	
74	"	0135	"	"			60 litres	
75	"	0140	"	"			60 litres	
76	"	0145	"	"			60 litres	
77	"	0150	"	"			60 litres	
78	"	0155	"	"			60 litres	
79	"	0200	"	"			60 litres	Flowing through separator
80	18/4/82	0200	Formation Water	Separator			45 gallons	Well shut-in.
81	18/4/82	1740	Formation Water	Heater Inlet Valve				
82	"	1741	"	"				
83	"	1742	"	"				
84	"	1743	"	"				
85	"	1745	"	"				
86	"	1748	"	"				
87	"	1752	"	"				
88	"	1757	"	"				
89	"	1800	"	"				
90	"	1802	"	"				
91	"	1805	"	"				Reversing out

BP PETROLEUM DEVELOPMENT OF NORWAY A/S

SAMPLING DATA SHEET WELL No.: 29/6-1

TEST No.: 1 FORMATION: Brent

SAMPLE No.	DATE	TIME	SAMPLE TYPE	SAMPLE POINT	SAMPLING POINT		CONTAINER VOL & TYPE	REMARKS
					P - PSIG	T - °F		
92	18/4/82	1808	Formation Water	Heater Inlet Valve				
93	"	1810	"	"				
94	"	1812	"	"				
95	"	1814	"	"				
96	"	1816	"	"				
97	"	1818	"	"				
98	"	1820	"	"				
99	"	1822	"	"				
100	"	1824	"	"				
101	"	1826	"	"				
102	"	1828	"	"				
103	"	1830	"	"				
104	"	1832	"	"				
105	"	1840	Mud	"				Reversing out

Flopetrol Well Testing Data Sheets

# FLOPETROL

Client: B.P. PET. Dev.  
 Field: WILDCAT  
 Well: 29/6-1

## - WELL TESTING DATA SHEET -

Section: **7**  
 Page Report N: \_\_\_\_\_

Base: STANINGER

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS		WELL HEAD		SEPARATOR		PROD. RATES AND FLUID PROPERTIES			GOR	
	BOTTOM HOLE	TEMP.	TEMP.	TEMP.	TEMP.	TEMP.	OIL OR CONDENSATE	GAS			
Time	Cumul	Temp	Ig. press.	Cg. press.	Temp.	Press.	Rate	Gravity	Rate	Gravity	Units
		°F	PSIG.	PSIG.	°F	PSIG.		Air = 1			
2:16											
2:18											
2:22											
2:24											
2:29											
2:30											
2:35											
2:40											
2:45											
2:49											
2:50											
2:52											

TESTED INTERVAL : 4287 - 4291.8M  
 DEPTH REFERENCE : R.V.B. SDCO 704  
 DEPTH OF B.H. MEASUREMENTS : 4292.37M

LIQUID FLOW RATE MEASURING CONDITIONS :  
 Atmospheric Pressure

# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

Page Report N°: \_\_\_\_\_

Section : **7**

DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS				SEPARATOR				PROD. RATES AND FLUID PROPERTIES				GOR			
Time	Cumul M.W.	BOTTOM HOLE		WELL HEAD		Temp.	Pg. press.	Cg. press.	Temp.	Press.	OIL OR CONDENSATE		GAS		Rate	Gravity	
		Temp. °F	Pressure PSIG	Temp. °F	Pressure PSIG						Rate	Gravity	Rate	Gravity			
12.55				57	4560												
12.58			OPENED	CHOKE MANIPULATED ON	16/16					ADS CHOKE							
13.00				55	2650			CLOSED		CHOKE MANIPULATED							
13.05				55	2630												
13.09								BLID OFF ANNULARS		PRESSURE							
13.10				55	2420												
13.15				55	2410												
13.18								OPENED		KILL WIND VALVE							
13.20				57	4550												
13.22								CLOSED		KILL WIND VALVE							
13.25				57	4650												
13.30				57	4720												
13.33								OPENED		CHOKE MANIPULATED ON							
13.35				57	2820												
13.40				57	2810												
13.45				56	2810												
13.50				56	2500												

AND PRESSURE RAISED TO 2500 PSI

16/64 ADS CHOKES AND BLEED OFF WIND VALVE TO 2500 PSI





# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

Page Report N°:

Section : 7

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS			SEPARATOR			PROD. RATES AND FLUID PROPERTIES						
	BOTTOM HOLE	WELL HEAD	SEPARATOR	Rate	Gravity	BSW	Rate	Gravity	GAS	CUWM	WATER	PPM	CO2 / H2S
Time	Temp. °F	Pressure PSIG	Tg. temp. °F	Cg. press. PSIG	Temp. °F	Press. PSIG	Rate	Air=1	Rate	Rate	Rate	Rate	Units
15:45	24	10915	58	4550						9.06			
15:50	29		58	4550						11.04			
15:55	34		58	4590						11.70			
16:00	39	10983	59	4600						12.75			
16:05	44		59	4450						14.20			
16:10	49		59	4300						15.26			
16:15	54	10645	59	4150						17.64			
16:20	59		59	4050						19.08			
16:25	64		59	4090						21.07			
16:30	69	10393	59	4060						23.05			
16:35	74		60	4000						25.22			
16:40	79		61	3790						27.93			
16:45	84	10167	61	3810						30.84			
16:50	89		63	3740						33.74			
16:55	94		64	3700						35.49			
17:00	99	9974	64	3570						38.49			
17:05	104		65	3740						41.92			

# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

Page Report N°:

Section : **7**

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS			SEPARATOR			PROD. RATES AND FLUID PROPERTIES				GOR					
	BOTTOM HOLE	WELL HEAD	SEPARATOR	GAS	GAS	GAS	Oil-OR-CONDENSATE	Rate	Gravity	BSW		Rate	Gravity	Water	Rate	Gravity
Time	Temp. °F	Pressure P.S.I.G.	Temp. °F	Temp. °F	Cg. press. P.S.I.G.	Press. P.S.I.G.	Rate	Rate	Air=1	Rate	Air=1	Rate	Rate	Rate	Rate	Units
17:10	109		66	4110									44.56			
17:15	114	10252	66	3570									47.20	22,000		
17:20	119		66	3800									49.84			
17:25	124		66	3590									52.48			
17:30	129	9913	64	3580									55.65			
17:35	134		64	3550									58.82			
17:40	139		65	3800									61.99			
17:45	144	9864	64	3470									65.16	22,000		
17:50	149		65	3480									68.33			
17:55	154		66	3480									71.49			
18:00	159	9886	67	3475									74.66			
18:05	164		68	3475									78.09			
18:10	169		68	3480									82.58			
18:15	174	9828	68	3480									86.01	22,000		
18:20	179		69	3420									89.18			
18:25	184		MUD AT	SURFACE												
18:25	184		70	3400									92.87			

(CHECK PRESSURE)

# FLOPETROL

## \_WELL TESTING DATA SHEET\_ (Continuation)

Page Report N<sup>o</sup> :

Section : **7**

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS		WELL HEAD		SEPARATOR		PROD. RATES AND FLUID PROPERTIES			CUM. WATER	CUM. GAS	PPM	Units										
	BOTTOM HOLE	Temp. °F	Pressure PSIG	To temp. °F	Temp. °F	Press. PSIG	Rate	Gravity	Rate					Gravity	PPM	PPM							
17/4/22																							
18 30	189	3028	9770	70	3440							602											
18 35	194			71	3350																		
18 40	199			72	3330																		
18 45	204	Switch flow		to	Burners (Bubbles																		
18 45	204		9743	72	3400																		
18 50	209			72	3400																		
18 55	214			73	3440																		
19 00	219	3033	9934	74	3430																		
19 05	224			75	3400																		
19 10	229			76	3420																		
19 15	234		9978	76	3430																		
19 20	244	Switch flow		to	Gauge Tank																		
19 30	249	3040	9972	78	3480																		
19 45	264		9962	80	3350																		
20 00	279	3040	9915	81	3490																		
20 15	294		10104	77	3600																		
20 30	309	3041	9943	77	3490																		
<p>ESTIMATED AVERAGE FLOW RATE BETWEEN 18.25 HRS AND 20.15 HRS = 0.66 BBLs / MIN</p> <p>ESTIMATED CUMULATIVE PRODUCT VOLS: 583</p> <p>ESTIMATED CUMULATIVE PRODUCT VOLS: 938</p>											35,000	37,000	38,000	38,500	40,000	39,000							

# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

Page Report N°:

Section : 7

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS			WELL HEAD			SEPARATOR			PROD. RATES AND FLUID PROPERTIES			GAS		
	BOTTOM HOLE	Pressure	Temp.	Pressure	Temp.	Temp.	Rate	Gravity	BSW	Rate	Gravity	Rate	Gravity	Rate	Gravity
Time	Temp. OF	PSIG	OF	P.S.I.G.	OF	PSIG	BELLS/DAY	%	%	MB³/KF	Air=1	CU.M. WATER	PPM	CO2/H2S	Units
20 45		10032	78	3570			862					181.71			
21 00	3064	9977	78	3550			938	1				191.48	42,000	11%	0
21 15		10005	77	3450			862	1				200.45	40,000		
21 30	Switched flow														
21 30	3065	10728	77	3370			533					206.0	41,000		
21 45		10432	77	3430											
22 00	399	11044	77	3550											
22 00	3052	9953	80	3520			1062					219.33	42,000		
22 15		9791	82	3330			815					227.82		8%	0
22 30	3052	9870	83	3320			387	1.046				235.88	43,000		
22 45		9788	82	3415			1498					251.49	43,000	8%	0
23 00	3052	9884	82	3445			644					258.20	43,000		
23 15		9876	82	3400			920					267.79	43,000		
23 30	3054	9808	83	3400			978					277.98	43,000		
23 45		9831	87	3400			1050	1.045				288.91		9.5%	0
24 00	18th	April	1982												

gas meter and 2" Floor (1.35)



# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

Page Report N°: \_\_\_\_\_

Section : **7**

DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS			SEPARATOR			PROD. RATES AND FLUID PROPERTIES			GOR	
18/4/82 Time	Cumul M.W.	BOTTOM HOLE		WELL HEAD		Temp.	Press.	OIL OR CONDENSATE		GAS		Units
		Temp. °F	Pressure PSIG	Tg. temp. °F	Cg. press. PSIG			Rate	Gravity	Rate	Gravity	
02.40	38		112.47		4.990							
02.45	42		112.57		4.950							
02.50	47		112.62		4.870							
02.55	52		112.67		4.780							
03.00	57	306.6	112.68		4.730							
03.15	72		112.69		4.590							
03.30	87	306.1	112.71		4.470							
03.45	102		112.73		4.380							
04.00	117	305.1	112.75		4.320							
04.15	132		112.77		4.165							
04.30	147	304.9	112.77		4.135							
04.45	162		112.76		4.095							
05.00	177	304.3	112.78		4.060							
05.15	192		112.78		4.050							
05.30	207	304.0	112.78		4.035							
05.45	222		112.81		4.035							
06.00	237	303.7	112.83		4.035							





Flopetrol Gauge No. 41128  
Bottom Hole Pressure Calculations

# FLOPETROL

Client: B.P. PET. DEV.

Section: ANNEX 1.2

Base: S. J. ANGLES

Field: WAGDONT

Page: \_\_\_\_\_

Well: 29/6-1

Report N°: \_\_\_\_\_

## BOTTOM HOLE PRESSURE CALCULATIONS

RIGSITE  
READING

Well producing through: casing / tubing / drill pipe  
 Bottom hole temperature: 307.6°F at depth 4728 ft with R.T. # 48957

### INSTRUMENT DATA

Instrument type: \_\_\_\_\_  
 Press. element No. and range: \_\_\_\_\_  
 Recording element No.: \_\_\_\_\_  
 Clock No. and capacity: \_\_\_\_\_

### LOWER GAUGE

B.P.C-3  
4112.8 ; 0-20,000 PSI  
10113  
F-9184 72 hrs

### UPPER GAUGE

### CALIBRATION DATA

Calibration No. and date: \_\_\_\_\_  
 Calibration temperature: \_\_\_\_\_  
 Calibration range: \_\_\_\_\_  
 K: \_\_\_\_\_  
 a, (calibrated chart): \_\_\_\_\_  
 PRC, (non calibrated chart): \_\_\_\_\_

3B 22/3/82  
300°F  
6000 - 11,000 PSI  
10213.426 PSI/INCH  
+16.12 PSI

DATE-TIME		Choke size	W.H. pressure	Depth	Y	C*	P	Y	C*	P
Time	Cumul									
Y/M/D	H:M	INCH	PSIG	METRES	INCH		PSI			
					D.S.T. No 1.					
					15TH APRIL '82					
13.11					ENGAGED CLOCK AND STYLUS					
14.30					RECORDERS LANDED IN TALLPPE AND BEGAN R.I.H.					
					17TH APRIL '82					
11.44					SET PACKER @ 4262.71M B.R.T.					
14.45				4272.37	1.0958		11208			
14.45					OPEN WELL ON 16/64 ADS CHOKE					
14.47	2	16/64			0.9455		9676			
14.47	0				CLOSED CHOKE MANIFOLD					
14.49	2	—			1.0046		10277			
14.50	3	—	4950		1.0193		10427			
14.52	5	—			1.0692		10936			
14.54	7	—			1.0962		10936			

REMARKS :

\* Only used if its value is significant compared to the accuracy of the gauge.

# FLOPETROL

2

Section: ANNEX 1.2

- B.H. PRESSURE CALCULATIONS (Continuation) -

Page : \_\_\_\_\_  
Report N°: \_\_\_\_\_

				LOWER GAUGE			UPPER GAUGE			
DATE - TIME		Choke size	W.H. pressure	Depth	Y	C*	P	Y	C*	P
Time	Cumul									
HR/MIN	MIN	INCH								
	17TH	APRIL	'82							
14.55	8		4900	4272.37	1.0979		11229			
14.56	9		—		1.0991		11242			
14.58	11		—		1.1005		11256			
15.00	13		4890		1.1013		11264			
15.05	18		4890		1.1028		11279			
15.10	23		4890		1.1038		11290			
15.15	28		4890		1.1039		11291			
15.20	33		—		1.1040		11292			
15.21	34		—		1.1040		11292			
15.21	0	OPENED VEZEL ON 8/64 ADS. CHOKE								
15.30	9	8/64	4400	4272.37	1.0512		10752			
15.45	24		4550		1.0671		10915			
16.00	39		4600		1.0738		10983			
16.15	54		4150		1.0407		10645			
16.30	69		4060		1.0160		10393			
16.45	84		3810		0.9939		10167			
17.00	99		3570		0.9750		9974			
17.15	114		3870		1.0022		10252			
17.30	129		3580		0.9690		9913			
17.45	144		3470		0.9642		9864			
18.00	159		3475		0.9664		9886			
18.15	174		3430		0.9607		9828			
18.30	189		3440		0.9550		9770			
18.45	204		3400		0.9524		9743			
19.00	219		3430		0.9711		9934			
19.15	234		3430		0.9754		9978			
19.30	249		3480		0.9748		9972			
19.45	264		3350		0.9738		9962			

No. DOP 116 Litografen 8173

# FLOPETROL

Section: ANNEX 1.2

## - B.H. PRESSURE CALCULATIONS (Continuation) -

Page : \_\_\_\_\_  
Report N°: \_\_\_\_\_

DATE - TIME		Choke size INCH	W.H. pressure PSIG	LOWER GAUGE			UPPER GAUGE		
Time	Cumul			Depth	Y	C*	P	Y	C*
(HR/MIN)	MIN		PSIG	METRES	INCH		PSIG		
	17TH	APRIL	'82						
20.00	279	8/64	3490	4272.37	0.9692		9915		
20.15	294		3600		0.9877		10104		
20.30	309		3480		0.9719		9943		
20.45	324		3570		0.9807		10032		
21.00	339		3550		0.9753		9977		
21.15	354		3450		0.9780		10005		
21.30	369		2370		1.0488		10728		
21.45	384		2430		1.0198		10432		
22.00	399		3550		1.0797		11044		
22.15	414		3530		0.9729		9953		
22.30	429		3330		0.9571		9791		
22.45	444		3320		0.9648		9870		
23.00	459		3445		0.9568		9788		
23.15	474		3445		0.9662		9884		
23.30	489		3400		0.9654		9876		
23.45	504		3400		0.9587		9809		
24.00	519		3400		0.9610		9831		
	18TH	APRIL	'82						
00.15	534	8/64	3440	4272.37	0.9594		9815		
00.30	549		3340		0.9577		9798		
00.45	564		3440		0.9598		9819		
01.00	579		3390		0.9601		9822		
01.15	594		3350		0.9596		9817		
01.30	609		3350		0.9570		9790		
01.45	624		3270		0.9499		9718		
02.00	639		3250		0.9487		9706		
02.03	642				0.9455		9673		
02.03		BLEED	OFF	ANNULUS PRESSURE TO CLOSE APR-N					

# FLOPETROL

4

Section: ANNEX 1.2

## \_ B.H. PRESSURE CALCULATIONS (Continuation) \_

Page : \_\_\_\_\_  
Report N°: \_\_\_\_\_

				LOWER GAUGE				UPPER GAUGE		
DATE - TIME		Choke	W.H.	Depth	Y	C*	P	Y	C*	P
Time	Cumul	size	pressure							
HR/MIN	MIN	INCH	PSIG.	METRES	INCH		PSIG.			
	18TH	APRIL	'82							
02:04	CL	PSLD	CHUCKE	MANIFOLD						
02:05	2		4100	4272.37	0.9967		10196			
02:07	4		-		1.0357		10594			
02:09	6		-		1.0616		10859			
02:10	7		-		1.0798		11045			
02:12	9		-		1.0916		11165			
02:14	11		-		1.0938		11188			
02:15	12		-		1.0942		11192			
02:16	13		-		1.0948		11198			
02:18	15		-		1.0956		11206			
02:20	17		-		1.0963		11213			
02:25	22		-		1.0974		11224			
02:30	27		5010		1.0983		11234			
02:31	28		-		1.0987		11238			
02:32	29		-		1.0957		11207			
02:33	30		-		1.0969		11219			
02:34	31		-		1.0977		11227			
02:35	32		5010		1.0982		11233			
02:40	37		4990		1.0996		11247			
02:45	42		4950		1.1006		11257			
02:50	47		4870		1.1011		11262			
02:55	52		4780		1.1016		11267			
03:00	57		4730		1.1017		11268			
03:15	72		4590		1.1018		11269			
03:30	87		4470		1.1020		11271			
03:45	102		4380		1.1022		11273			
04:00	117		4320		1.1024		11275			
04:15	132		4165		1.1026		11277			

No. DOP 116 Licopran 8175

# FLOPETROL

5

Section: ANNEX 1.2

## - B.H. PRESSURE CALCULATIONS (Continuation) -

Page : \_\_\_\_\_  
Report N°: \_\_\_\_\_

				LOWER GAUGE				UPPER GAUGE		
DATE - TIME		Choke size	W.H. pressure	Depth	Y	C*	P	Y	C*	P
HR/MIN	Cumul MIN	INCH	PSIG	METRES	INCH		PSIG			
18 <sup>th</sup> APRIL '82										
04.30	147	—	4135	627.234	1.1026		11277			
04.45	162		4095		1.1025		11276			
05.00	177		4060		1.1027		11278			
05.15	192		4050		1.1027		11278			
05.30	207		4035		1.1027		11278			
05.45	222		4035		1.1029		11281			
06.00	237		4035		1.1031		11283			
06.30	267		4035		1.1033		11285			
07.00	297		4045		1.1033		11285			
07.30	327		4090		1.1033		11285			
08.00	357		4128		1.1035		11287			
08.30	387		4171		1.1036		11288			
09.00	417		4215		1.1036		11288			
09.30	447		4275		1.1038		11290			
10.00	477		4325		1.1038		11290			
10.30	507		4400		1.1038		11290			
11.00	537		4460		1.1039		11291			
11.30	567		4525		1.1039		11291			
12.00	597		4600		1.1039		11291			
12.30	627		4670		1.1039		11291			
CLOCK RAN OUT										

Flopetrol Gauge No. 48489  
Bottom Hole Temperature Calculations

# FLOPETROL

 Client: B.P. PET DEV

 Section: ANNEX 1.3

 Base: STAVANGER

 Field: WILDCAT

 Page:       

 Well: 29/6-1

 Report N°:       
RIGSITE  
READING

## BOTTOM HOLE TEMPERATURE CALCULATIONS

### INSTRUMENT DATA

 Temperature element No. 48489 Manufacturer C.R.C. Range 200-400°F  
 Recording element No. 4595 Clock No. DMA 577 Range 120HR

DATE - TIME		Choke size	Depth	W.H. temp.	. Y	Y + Yo	T	Remarks
Time	Cumul							
HR/MIN	MIN	INCH	METRE	°F	INCH		°F	
		15TH APRIL '82						
		CLUCK & STYLUS ON						
					DST - 1			
		17TH APRIL '82						
15.21	0	OPENED WELL ON			7/64" ADS CHOKE			
15.30	9	8/64	4278	55	.629		298.4	
16.00	39			59	.638		299.5	
16.30	69			59	.643		300.0	
17.00	99			64	.649		300.7	
17.30	129			64	.653		301.1	
18.00	159			67	.663		302.2	
18.30	189			70	.669		302.8	
19.00	219			74	.674		303.3	
19.30	249			78	.681		304.0	
20.00	279			81	.681		304.0	
20.30	309			77	.682		304.1	
21.00	339			78	.685		304.4	
21.30	369			77	.686		304.5	
22.00	399			77	.692		305.2	
22.30	429			82	.692		305.2	
23.00	459			82	.692		305.2	
23.30	489			82	.693		305.3	
24.00	519			87	.694		305.4	

No. DOP 117

# FLOPETROL

2

Section: ANNEX 1.3

## \_B.H. TEMPERATURE CALCULATIONS (Continuation)\_

Page : \_\_\_\_\_  
Report N°: \_\_\_\_\_

DATE-TIME		Choke size	Depth	W.H. temp.	Y	Y + Yo	T	Remarks
Time	Cumul							
HR:MIN	MIN	INCH	MESE	°F	INCH		°F	Units
18 <sup>TH</sup> APRIL 82								
00:30	549	8/64	4278	88	.698		305.8	
01:00	579			89	.699		305.9	
01:30	609			91	.700		306.0	
02:00	639			93	.702		306.2	
02:03	642				.703		306.3	
02:03	0	BLED OFF ANNULUS PRESSURE TO CLOSE APR-N.						
02:30	27				.716		307.6	
03:00	57				.706		306.6	
03:30	87				.701		306.1	
04:00	117				.697		305.1	
04:30	147				.689		304.9	
05:00	177				.684		304.3	
05:30	207				.681		304.0	
06:00	237				.678		303.7	
06:30	267				.677		303.6	
07:00	297				.673		303.3	
07:30	327				.672		303.1	
08:00	357				.669		302.8	
08:30	387				.669		302.8	
09:00	417				.668		302.7	
09:30	447				.667		302.6	
10:00	477				.666		302.5	
10:30	507				.666		302.5	
11:00	537				.665		302.4	
11:30	567				.662		302.0	
12:00	597				.661		301.9	
12:30	627				.660		301.8	
13:00	657				.658		301.6	

DOP 118



Water Production Measurement With Tank

# FLOPETROL

Client: B.P. Inst. Dev.

Field: WILCOAT  
Well: 29/6-1

Base: STAVANGER

## WATER OHE PRODUCTION RATE - MEASUREMENT WITH TANK -

Section: ANNEX: 1000

Page Report N°: 1

DATE - TIME	Gauge graduation	TANK VOLUME		STO GRAVITY		K	BSW %	Net volume of STO V <sub>0</sub> bbls	Net STO product. rate bbls/day	Cumulative production bbls
		Volume V bbls	Temp.	Gravity	Temp. Grav. 60°F					
15.21										
15.22										
15.25										
15.30										
15.35										
15.40										
15.45										
15.50										
15.55										
16.00										
16.05										
16.10										
16.15										

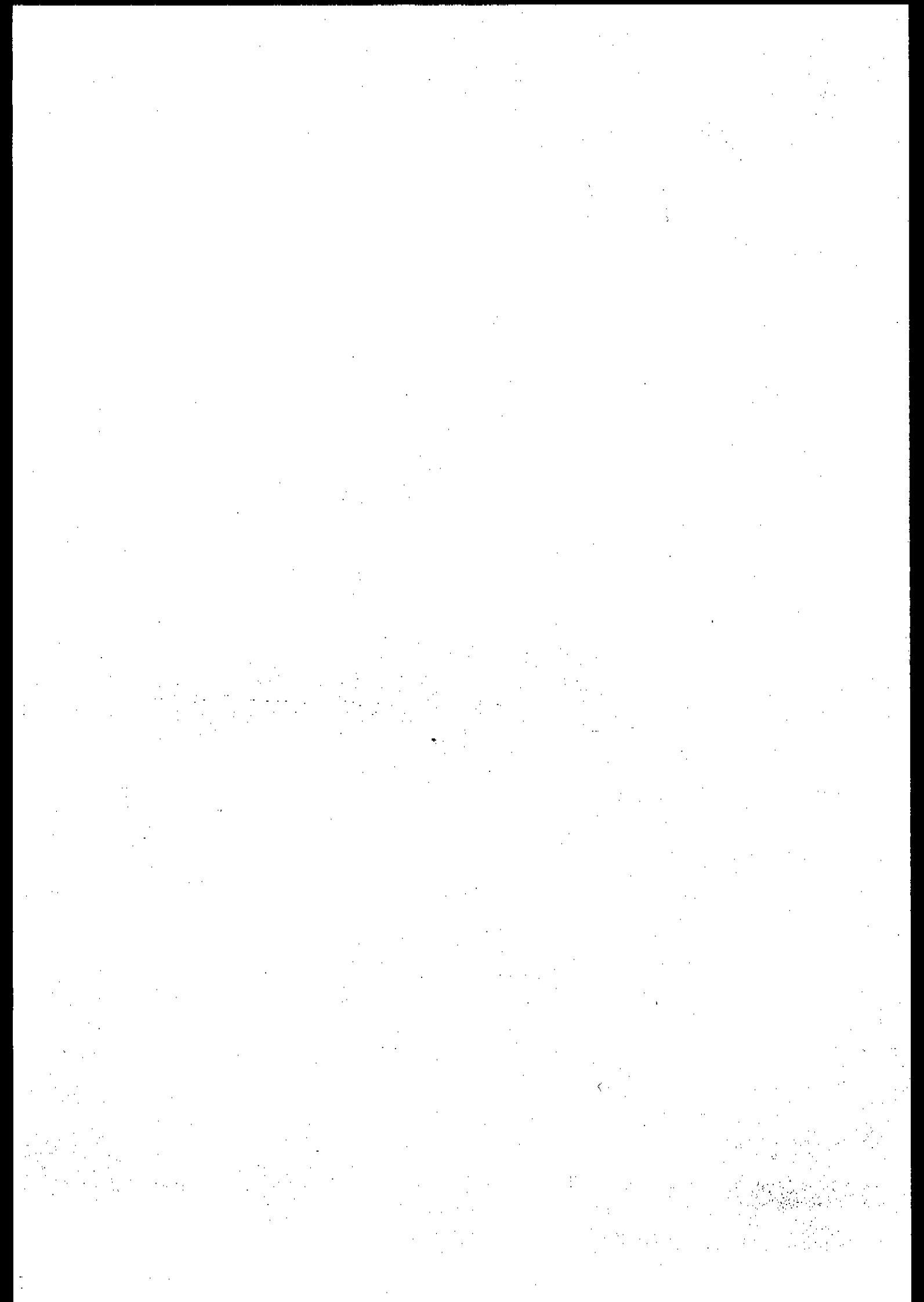
D.S.T. No. 1.

17th APRIL '82

OPENED CHOKER MANIFOLD ON 8/60 ADJ. CHOKER, FLOWING SEAWATER CUSHION TO GAUGE TANK

INITIAL READING

TESTED INTERVAL : 4287 - 4291  
PERFORMANCES



3

FLOPETROL MEASUREMENT WITH TANK -(Continuation )										Page Report N°: _____		Section: ANNEX _____	
DATE - TIME	Interval	Gauge graduation	TANK VOLUME		STO GRAVITY		K	BSW %	Net volume of STO V <sub>0</sub> BRCS	Net STO product. rate BRCS/day	Cumulative production BRCS	Units	
			Volume V BRCS	Temp. Grav. 60°F	Gravity	Temp.							
17/4/2													
16.20	5	125.5	1.45					1.45	418	19.09			
16.25	5	133.0	1.98					1.98	570	21.07			
16.30	5	140.5	1.98					1.98	570	23.05			
16.35	5	151.0	2.77					2.77	798	25.82			
16.40	5	159.0	2.41					2.11	608	27.93			
16.45	5	170.0	2.91					2.91	838	30.84			
16.50	5	181.0 300	2.91					2.91	838	33.75			
16.55	5	35	1.32					1.32	380	35.67			
17.00	5	48	3.43					3.43	988	38.50			
17.05	5	61	3.43					3.43	988	41.93			
17.10	5	71	2.64					2.64	760	44.57			
17.15	5	81	2.64					2.64	760	47.21			
17.20	5	91	2.64					2.64	760	49.85			
17.25	5	101	2.64					2.64	760	52.49			
17.30	5	113	3.17					3.17	913	55.66			
17.35	5	125	3.17					3.17	913	58.83			
17.40	5	137	3.17					3.17	913	62.00			

# FLOPETROL

## MEASUREMENT WITH TANK (Continuation)

Page Report N°: \_\_\_\_\_

Section: ANNEX \_\_\_\_\_

DATE - TIME Interval hr/min	Gauge graduation cm	TANK VOLUME		STO GRAVITY		K	BSW %	Net volume of STO V <sub>0</sub> BCLS	Net STO product. rate BCLS/day	Cumulative production BCLS
		Volume V BCLS	Temp.	Gravity	Temp.					
17/4/82										
17.40	137	3.17						3.17	913	62.00
17.45	149	3.17						3.17	913	65.17
17.50	161	3.17						3.17	913	68.34
17.55	173	3.17						3.17	913	71.51
18.00	45	3.17						3.17	913	74.68
18.05	58	3.43						3.43	988	78.11
18.10	75	4.49						4.49	1293	82.60
18.15	88	3.43						3.43	988	86.03
18.20	100	3.17						3.17	913	89.02
18.25	114	3.70						3.70	1066	92.72
18.45	SWITCHED	FLOW								
19.25	SWITCHED	FLOW TO GAUGE TANK								
20.00	131									155.57
20.15	154	6.08						6.08	584	161.65
20.20	167	3.43						3.43	988	165.54
20.30	68	6.33						6.33	760	171.42
20.45	102	8.98						8.98	562	180.40

ESTIMATED AVERAGE FLOW RATE BETWEEN 18.25hr & 20.15hr = 0.16 BCLS/min

ESTIMATED CUMULATIVE PRODUCTION



Water Production Measurement Through Separator.

No.: OOP 122

WATER

# FLOPETROL

Client: B.P. Ser. Dev.

~~OIL~~ PRODUCTION RATE -  
MEASUREMENT WITH METER -

Section: ANNEX 5

Field: WILDCAT  
Well: 29/6-1

Page: \_\_\_\_\_  
Report N: \_\_\_\_\_

Base: STAVANGER

DATE - TIME	Interval	Meter reading	Vs	BSW %	V <sub>0</sub> *	1 - Shr		OIL GRAVITY		K	Net volume of STO: V <sub>0</sub> Gallons/day	Net STO product. rate bbls/day	Cumulative production
						Factor	Temp.	Gravity	Temp.				
		88LS	88LS		88LS								
					17TH APRIL '82				D.S.T. N.G.I.				
21:30													
22:00		1057.00											
22:15	15	1067.99	10.99		11.07						11.07	1062	218.00
22:30	15	1076.42	8.43		8.49						8.49	815	226.53
22:45	15	1084.42	8.00		8.06						8.06	774	234.59
23:00	15	1094.92	15.50		15.61						15.61	1499	250.20
23:15	15	1106.58	6.66		6.71						6.71	664	256.91
23:30	15	1116.10	9.52		9.59						9.59	921	266.50
23:45	15	1126.22	10.12		10.19						10.19	978	276.69
24:00	15	1137.08	10.86		10.93						10.93	1049	287.62
					18TH APRIL '82								
00:15	15	1146.64	9.56		9.63						9.63	924	298.25
00:30	15	1157.01	10.37		10.44						10.44	1002	307.89

Shrinkage factor measured by Shrinkage tester  Tank   
 \*V<sub>0</sub> = V<sub>s</sub> x f x (1 - BSW) = Net oil volume at separator conditions. f = 1.0069

TESTED INTERVAL : \_\_\_\_\_  
 PERFORMANCES : \_\_\_\_\_



Sperry Sun Gauge Readings

Gauge Nos 0172 (Pressure only),  
0190 (Pressure and Temperature)

**PRESSURE TEST DATA SUMMARY**

 COMPANY: BRITISH PETROLEUM DEVELOPMENT LTD. NORWAY DATE: 15 APRIL 198

 FIELD: WILDCAT WELL NO: 29/6-1 JOB NO: MRPG-1202(B)-NOR

 TEST TYPE: FLOW/BUILD-UP TEST NO: DST NO: 1 RUN NO: 1 MAX B.H.T. 305  
 BRENT

 PERFORATION INTERVAL: 4287 - 4301 METRES ZONE: FORMATION

	TOP	MIDDLE	BOTTOM
GAUGE TYPE/NO.	MRPG/0172	MRPG/0190	MRPG/0138
PRESSURE SENSING DEPTH	4282.65 m BRT	4285.66 m BRT	4288.64 m BRT
ELEMENT SIZE	15 K	15 K	15 K
TIME MODE	4 MINUTES	4 MINUTES	2 MINUTES
BATTERY TYPE	SILVER OXIDE	SILVER OXIDE	SILVER OXIDE

EVENT	SURFACE TIMES & DATES		TEMP.
GAUGE START TIMES -			
0172	12:18	15.04.82	
0190	12:20	"	
0138	12:21	"	
GAUGES IN STRING, R.I.H.	14:13	"	
AT PACKER SETTING DEPTH	02:30	17.04.82	292
SET PACKER (AT 4262.71 m BRT)	11:45	"	294
ATTEMPT TO OPEN APR-N VALVE	12:20	"	294
APR-N OPEN (32/64" CHOKE)	14:42	"	294
WELL SHUT-IN FOR BUILD-UP	14:47	"	295
WELL OPENED ON 08/64" ADJ. CHOKE	15:21	"	296
WORKING CHOKE TO CLEAR PLUG	17:50	"	299
"    "    (MAX. CHOKE SIZE			
12/64")	18:50	"	301
CLOSE APR-N VALVE	02:03	18.04.82	304
SHUT-IN AT CHOKE MANIFOLD	02:04	"	304
ATTEMPT TO OPEN APR-M VALVE	15:19	"	299
ATTEMPT TO OPEN RTTS VALVE	16:07	"	300
ATTEMPT TO OPEN APR-M VALVE	16:27	"	300
REVERSE OUT ON 16/64" CHOKE	17:41	"	300
PULL PACKER (FINAL HYDROSTATIC)	20:52	"	299
RESET PACKER	23:07	"	297
POOH	00:30	19.04.82	296
GAUGES OUT OF STRING	14:30	"	296

M.R.P.G. PRESSURES ARE RELATIVE TO GAUGE CLOCK TIMES.

S.P.G. PRESSURES ARE RELATIVE TO TIME GRADIENT CALCULATED FROM SURFACE TIMES.

4/29/82

SPERRY-SUN INTERNATIONAL INC.  
MAGNETIC RECORDING PRESSURE GAUGE REPORT

PAGE 1

BRITISH PETROLEUM  
WILDCAT  
2976-1

OFFSHORE NORWAY  
15 APRIL 1982  
MRPG-1202-NOR

DST 1; RUN 1. GAUGE 0172; SENSING DEPTH 4282.65 M. (PRE-TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	12838.538	11:44	17- 4-82	SET PACKER AT 11:45
0.067	12756.934	11:48		
0.133	12716.132	11:52		
0.200	12706.111	11:56		
0.267	12676.046	12: 0		
0.333	12657.435	12: 4		
0.400	12636.676	12: 8		
0.467	12764.808	12:12		
0.533	12743.334	12:16		
0.600	12844.980	12:20		ATTEMPT TO OPEN APR-N VALVE
0.667	12837.106	12:24		
0.733	12870.749	12:28		
0.800	13550.778	12:32		
0.867	13590.149	12:36		
0.933	13552.210	12:40		
1.000	13498.524	12:44		
1.067	12924.436	12:48		
1.133	12928.015	12:52		
1.200	13184.279	12:56		
1.267	13132.024	13: 0		
1.333	13079.769	13: 4		
1.400	12919.425	13: 8		
1.467	12817.063	13:12		
1.533	12788.430	13:16		
1.600	12748.344	13:20		
1.667	12708.258	13:24		
1.733	12793.441	13:28		
1.800	12736.891	13:32		
1.867	12707.543	13:36		
1.933	12671.752	13:40		
2.000	12635.245	13:44		
2.067	12598.738	13:48		
2.133	12564.379	13:52		
2.200	12563.663	13:56		
2.267	12530.735	14: 0		
2.333	12567.242	14: 4		
2.400	12555.073	14: 8		
2.467	12582.990	14:12		
2.533	12555.073	14:16		
2.600	12525.724	14:20		
2.667	12391.150	14:24		
2.733	12381.129	14:28		
2.800	12360.370	14:32		
2.867	11331.736	14:36		
2.933	11331.736	14:40		OPEN APR-N VALVE

4/29/82

SPERRY-SUN INTERNATIONAL INC.  
MAGNETIC RECORDING PRESSURE GAUGE REPORT

PAGE 1

BRITISH PETROLEUM  
WILDCAT  
29/6-1

OFFSHORE NORWAY  
15 APRIL 1982  
MRPG-1202-NOR

DST 1, RUN 1. GAUGE 0172, SENSING DEPTH 4282.65 M. (INITIAL FLOW PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	11331.736	14:40	17- 4-82	OPEN APR-N VALVE
0.067	11286.640	14:44		BLEED-OFF TUBING ON 32/64"
0.133	11021.071	14:48		END OF INITIAL FLOW PERIOD

4/29/82

SPERRY-SUN INTERNATIONAL INC.  
MAGNETIC RECORDING PRESSURE GAUGE REPORT

PAGE 1

BRITISH PETROLEUM  
WILDCAT  
29/6-1

OFFSHORE NORWAY  
15 APRIL 1982  
MRPG-1202-NOR

DST 1; RUN 1, GAUGE 0172; SENSING DEPTH 4282.65 M. (INITIAL BUILD-UP PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	11021.071	14:48	17- 4-82	WELL SHUT-IN FOR BUILD-UP
0.067	11317.420	14:52		
0.133	11323.862	14:56		
0.200	11326.010	15: 0		
0.267	11328.157	15: 4		
0.333	11327.442	15: 8		
0.400	11328.873	15:12		
0.467	11328.873	15:16		
0.533	11328.157	15:20		END OF INITIAL BUILD-UP PERIOD

4/29/82

SPERRY-SUN INTERNATIONAL INC.  
MAGNETIC RECORDING PRESSURE GAUGE REPORT

PAGE 1

BRITISH PETROLEUM  
WILDCAT  
29/6-1

OFFSHORE NORWAY  
15 APRIL 1982  
MRPG-1202-NOR

DST 1, RUN 1. GAUGE 0172, SENSING DEPTH 4292.65 M. (SECOND FLOW PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	11328.157	15:20	17- 4-82	WELL OPENED TO FLOW
0.067	10316.251	15:24		ON 08/64" ADJ. CHOKE
0.133	10840.480	15:28		
0.200	10810.377	15:32		
0.267	10971.170	15:36		
0.333	10915.370	15:40		
0.400	10999.070	15:44		
0.467	10949.878	15:48		
0.533	11022.565	15:52		
0.600	11020.362	15:56		
0.667	11034.312	16: 0		
0.733	10994.665	16: 4		
0.800	10882.330	16: 8		
0.867	10735.487	16:12		
0.933	10631.963	16:16		
1.000	10666.471	16:20		
1.067	10466.765	16:24		
1.133	10494.665	16:28		
1.200	10412.433	16:32		
1.267	10420.509	16:36		
1.333	10259.716	16:40		
1.400	10258.248	16:44		
1.467	10167.940	16:48		
1.533	10214.195	16:52		
1.600	10151.053	16:56		
1.667	10015.957	17: 0		
1.733	10147.382	17: 4		
1.800	10360.304	17: 8		
1.867	10347.822	17:12		
1.933	10286.148	17:16		
2.000	10282.477	17:20		
2.067	10165.003	17:24		
2.133	9971.905	17:28		
2.200	10004.944	17:32		
2.267	9888.204	17:36		
2.333	10278.072	17:40		
2.400	9996.134	17:44		
2.467	9990.994	17:48		
2.533	9944.739	17:52		
2.600	9955.018	17:56		
2.667	9940.333	18: 0		
2.733	9946.207	18: 4		
2.800	9943.270	18: 8		
2.867	9907.294	18:12		
2.933	9875.723	18:16		
3.000	9778.806	18:20		

WORKING CHOKE TO CLEAR PLUG

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DST 1; RUN 1, GAUGE Q172; SENSING DEPTH 4282.65 M. (SECOND FLOW PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
3.067	9913.167	18:24	17- 4-82
3.133	9996.134	18:28	
3.200	9789.820	18:32	
3.267	9740.627	18:36	
3.333	9749.438	18:40	
3.400	9819.922	18:44	
3.467	10218.601	18:48	
3.533	10228.879	18:52	
3.600	10060.744	18:56	
3.667	9981.449	19: 0	
3.733	9932.991	19: 4	
3.800	9955.018	19: 8	
3.867	10029.173	19:12	
3.933	10013.755	19:16	
4.000	10088.645	19:20	
4.067	10091.581	19:24	
4.133	10072.492	19:28	
4.200	9977.044	19:32	
4.267	10047.529	19:36	
4.333	10245.032	19:40	
4.400	10022.565	19:44	
4.467	10075.429	19:48	
4.533	9991.728	19:52	
4.600	10090.847	19:56	
4.667	9962.360	20: 0	
4.733	10042.389	20: 4	
4.800	10180.421	20: 8	
4.867	10181.156	20:12	
4.933	10126.824	20:16	
5.000	10158.395	20:20	
5.067	10005.678	20:24	
5.133	9988.057	20:28	
5.200	10026.971	20:32	
5.267	10111.405	20:36	
5.333	10101.860	20:40	
5.400	10089.379	20:44	
5.467	10082.771	20:48	
5.533	10021.097	20:52	
5.600	10062.213	20:56	
5.667	10062.213	21: 0	
5.733	9919.775	21: 4	
5.800	9924.386	21: 8	
5.867	10163.534	21:12	
5.933	10112.874	21:16	
6.000	10968.967	21:20	
6.067	11110.671	21:24	
6.133	10770.729	21:28	

WORKING CHOKE TO CLEAR PLUG  
(MAX. CHOKE SIZE 12/64")

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DST 1, RUN 1. GAUGE 0172, SENSING DEPTH 4282.65 M. (SECOND FLOW PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
6.200	10584.239	21:32	17- 4-82
6.267	10476.310	21:36	
6.333	10455.752	21:40	
6.400	10516.691	21:44	
6.467	10548.263	21:48	
6.533	10595.986	21:52	
6.600	10062.947	21:56	
6.667	10140.774	22: 0	
6.733	10033.579	22: 4	
6.800	10029.173	22: 8	
6.867	10104.063	22:12	
6.933	10013.755	22:16	
7.000	10051.200	22:20	
7.067	10090.113	22:24	
7.133	9865.444	22:28	
7.200	9903.623	22:32	
7.267	9978.513	22:36	
7.333	9764.122	22:40	
7.400	10092.316	22:44	
7.467	9913.902	22:48	
7.533	9801.567	22:52	
7.600	9791.288	22:56	
7.667	9939.599	23: 0	
7.733	9983.652	23: 4	
7.800	9988.057	23: 8	
7.867	9946.941	23:12	
7.933	9950.612	23:16	
8.000	9967.499	23:20	
8.067	9957.220	23:24	
8.133	9927.852	23:28	
8.200	9919.775	23:32	
8.267	9901.420	23:36	
8.333	9894.078	23:40	
8.400	9869.849	23:44	
8.467	9875.723	23:48	
8.533	9850.025	23:52	
8.600	9853.696	23:56	
8.667	9921.244	0: 0	18- 4-82
8.733	9975.576	0: 4	
8.800	9935.928	0: 8	
8.867	9877.191	0:12	
8.933	9836.075	0:16	
9.000	9855.899	0:20	
9.067	9877.191	0:24	
9.133	9847.088	0:28	
9.200	9852.962	0:32	
9.267	9836.809	0:36	

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DST 1; RUN 1. GAUGE 0172, SENSING DEPTH 4282.65 M. (SECOND FLOW PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
9.333	9877.925	0:40	18- 4-82
9.400	9876.457	0:44	
9.467	9830.201	0:48	
9.533	9804.504	0:52	
9.600	9847.822	0:56	
9.667	9891.141	1: 0	
9.733	9863.241	1: 4	
9.800	9861.773	1: 8	
9.867	9847.822	1:12	
9.933	9877.191	1:16	
10.000	9868.380	1:20	
10.067	9883.799	1:24	
10.133	9833.138	1:28	
10.200	9822.859	1:32	
10.267	9836.075	1:36	
10.333	9796.427	1:40	
10.400	9789.820	1:44	
10.467	9747.235	1:48	
10.533	9883.799	1:52	
10.600	9744.298	1:56	
10.667	9764.122	2: 0	

END OF FLOW PERIOD

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DST 1, RUN 1. GAUGE Q172, SENSING DEPTH 4282.65 M. (SECOND BUILD-UP PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	9764.122	2: 0	18- 4-82	CLOSE APR-N VALVE
0.067	10844.151	2: 4		WELL SHUT-IN AT CHOKE MANIFOLD
0.133	11270.176	2: 8		
0.200	11286.640	2:12		
0.267	11295.230	2:16		
0.333	11300.240	2:20		
0.400	11303.819	2:24		
0.467	11307.399	2:28		
0.533	11309.546	2:32		
0.600	11310.978	2:36		
0.667	11312.409	2:40		
0.733	11315.273	2:44		
0.800	11316.704	2:48		
0.867	11317.420	2:52		
0.933	11318.852	2:56		
1.000	11318.852	3: 0		
1.067	11319.568	3: 4		
1.133	11319.568	3: 8		
1.200	11319.568	3:12		
1.267	11320.283	3:16		
1.333	11319.568	3:20		
1.400	11320.283	3:24		
1.467	11320.283	3:28		
1.533	11320.283	3:32		
1.600	11319.568	3:36		
1.667	11320.283	3:40		
1.733	11320.283	3:44		
1.800	11319.568	3:48		
1.867	11320.283	3:52		
1.933	11320.283	3:56		
2.000	11319.568	4: 0		
2.067	11320.283	4: 4		
2.133	11320.283	4: 8		
2.200	11319.568	4:12		
2.267	11320.283	4:16		
2.333	11320.283	4:20		
2.400	11319.568	4:24		
2.467	11320.283	4:28		
2.533	11319.568	4:32		
2.600	11319.568	4:36		
2.667	11319.568	4:40		
2.733	11319.568	4:44		
2.800	11318.852	4:48		
2.867	11319.568	4:52		
2.933	11319.568	4:56		
3.000	11319.568	5: 0		

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DST 1: RUN 1. GAUGE 0172, SENSING DEPTH 4282.65 M. (SECOND BUILD-UP PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
3.067	11319.568	5: 4	18- 4-82
3.133	11319.568	5: 8	
3.200	11319.568	5:12	
3.267	11319.568	5:16	
3.333	11319.568	5:20	
3.400	11318.852	5:24	
3.467	11320.283	5:28	
3.533	11319.568	5:32	
3.600	11318.852	5:36	
3.667	11319.568	5:40	
3.733	11319.568	5:44	
3.800	11320.283	5:48	
3.867	11320.283	5:52	
3.933	11319.568	5:56	
4.000	11320.283	6: 0	
4.067	11319.568	6: 4	
4.133	11319.568	6: 8	
4.200	11319.568	6:12	
4.267	11320.283	6:16	
4.333	11320.283	6:20	
4.400	11320.283	6:24	
4.467	11319.568	6:28	
4.533	11319.568	6:32	
4.600	11320.283	6:36	
4.667	11320.283	6:40	
4.733	11320.283	6:44	
4.800	11320.283	6:48	
4.867	11320.283	6:52	
4.933	11320.999	6:56	
5.000	11320.999	7: 0	
5.067	11320.999	7: 4	
5.133	11321.715	7: 8	
5.200	11322.431	7:12	
5.267	11321.715	7:16	
5.333	11321.715	7:20	
5.400	11321.715	7:24	
5.467	11321.715	7:28	
5.533	11321.715	7:32	
5.600	11322.431	7:36	
5.667	11323.147	7:40	
5.733	11322.431	7:44	
5.800	11322.431	7:48	
5.867	11323.147	7:52	
5.933	11323.147	7:56	
6.000	11323.147	8: 0	
6.067	11323.147	8: 4	
6.133	11323.862	8: 8	

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DST 1, RUN 1. GAUGE 0172, SENSING DEPTH 4282.65 M. (SECOND BUILD-UP PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
6.200	11323.862	8:12	18- 4-82
6.267	11323.147	8:16	
6.333	11323.862	8:20	
6.400	11323.862	8:24	
6.467	11324.578	8:28	
6.533	11323.862	8:32	
6.600	11323.862	8:36	
6.667	11324.578	8:40	
6.733	11324.578	8:44	
6.800	11323.862	8:48	
6.867	11324.578	8:52	
6.933	11323.862	8:56	
7.000	11324.578	9: 0	
7.067	11325.294	9: 4	
7.133	11325.294	9: 8	
7.200	11324.578	9:12	
7.267	11324.578	9:16	
7.333	11324.578	9:20	
7.400	11324.578	9:24	
7.467	11325.294	9:28	
7.533	11326.010	9:32	
7.600	11325.294	9:36	
7.667	11325.294	9:40	
7.733	11325.294	9:44	
7.800	11325.294	9:48	
7.867	11326.010	9:52	
7.933	11325.294	9:56	
8.000	11326.010	10: 0	
8.067	11326.010	10: 4	
8.133	11326.010	10: 8	
8.200	11326.010	10:12	
8.267	11326.010	10:16	
8.333	11326.726	10:20	
8.400	11326.010	10:24	
8.467	11326.010	10:28	
8.533	11325.294	10:32	
8.600	11326.010	10:36	
8.667	11325.294	10:40	
8.733	11325.294	10:44	
8.800	11325.294	10:48	
8.867	11325.294	10:52	
8.933	11325.294	10:56	
9.000	11325.294	11: 0	
9.067	11325.294	11: 4	
9.133	11325.294	11: 8	
9.200	11325.294	11:12	
9.267	11325.294	11:16	

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DST 1, RUN 1, GAUGE 0172, SENSING DEPTH 4282.65 M. (SECOND BUILD-UP PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
9.333	11324.578	11:20	18- 4-82
9.400	11325.294	11:24	
9.467	11324.578	11:28	
9.533	11324.578	11:32	
9.600	11324.578	11:36	
9.667	11323.147	11:40	
9.733	11323.862	11:44	
9.800	11323.862	11:48	
9.867	11323.862	11:52	
9.933	11323.147	11:56	
10.000	11323.862	12: 0	
10.067	11324.578	12: 4	
10.133	11323.862	12: 8	
10.200	11323.862	12:12	
10.267	11324.578	12:16	
10.333	11324.578	12:20	
10.400	11324.578	12:24	
10.467	11324.578	12:28	
10.533	11324.578	12:32	
10.600	11324.578	12:36	
10.667	11323.862	12:40	
10.733	11323.862	12:44	
10.800	11324.578	12:48	
10.867	11325.294	12:52	
10.933	11324.578	12:56	
11.000	11323.862	13: 0	
11.067	11323.862	13: 4	
11.133	11323.862	13: 8	
11.200	11324.578	13:12	
11.267	11324.578	13:16	
11.333	11324.578	13:20	
11.400	11324.578	13:24	
11.467	11324.578	13:28	
11.533	11324.578	13:32	
11.600	11324.578	13:36	
11.667	11324.578	13:40	
11.733	11324.578	13:44	
11.800	11325.294	13:48	
11.867	11325.294	13:52	
11.933	11325.294	13:56	
12.000	11325.294	14: 0	
12.067	11325.294	14: 4	
12.133	11324.578	14: 8	
12.200	11325.294	14:12	
12.267	11325.294	14:16	
12.333	11324.578	14:20	
12.400	11324.578	14:24	

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DST 1, RUN 1, GAUGE 0172, SENSING DEPTH 4282.65 M. (SECOND BUILD-UP PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
12.467	11324.578	14:28	18- 4-82
12.533	11324.578	14:32	
12.600	11324.578	14:36	
12.667	11325.294	14:40	
12.733	11325.294	14:44	
12.800	11326.010	14:48	
12.867	11326.010	14:52	
12.933	11325.294	14:56	
13.000	11326.010	15: 0	
13.067	11326.010	15: 4	
13.133	11326.010	15: 8	
13.200	11326.010	15:12	
13.267	11325.294	15:16	
13.333	11326.726	15:20	END OF BUILD-UP PERIOD

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DST 1, RUN 1, GAUGE 0172, SENSING DEPTH 4282.65 M. (POST-TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	11326.726	15:20	18- 4-82	ATTEMPT TO OPEN APR-M VALVE
0.067	11692.510	15:24		
0.133	11376.117	15:28		
0.200	11376.833	15:32		
0.267	11349.632	15:36		
0.333	11336.747	15:40		
0.400	11367.527	15:44		
0.467	10552.208	15:48		
0.533	10726.153	15:52		
0.600	11293.082	15:56		
0.667	11322.431	16: 0		
0.733	11323.862	16: 4		
0.800	11324.578	16: 8		ATTEMPT TO OPEN RTTS VALVE
0.867	11323.147	16:12		
0.933	11318.136	16:16		
1.000	11318.852	16:20		
1.067	11335.316	16:24		
1.133	11350.348	16:28		ATTEMPT TO OPEN APR-M VALVE
1.200	11330.305	16:32		
1.267	11330.305	16:36		
1.333	11331.021	16:40		
1.400	11331.021	16:44		
1.467	11330.305	16:48		
1.533	11331.021	16:52		
1.600	11331.021	16:56		
1.667	11331.736	17: 0		
1.733	11331.021	17: 4		
1.800	11331.021	17: 8		
1.867	11331.021	17:12		
1.933	11330.305	17:16		
2.000	11331.021	17:20		
2.067	11330.305	17:24		
2.133	11330.305	17:28		
2.200	11104.106	17:32		
2.267	11320.283	17:36		
2.333	11273.755	17:40		REVERSE-OUT ON 16/64" CHOKE
2.400	11464.163	17:44		
2.467	11520.713	17:48		
2.533	11546.482	17:52		
2.600	11570.105	17:56		
2.667	11589.432	18: 0		
2.733	11596.590	18: 4		
2.800	11596.590	18: 8		
2.867	11614.485	18:12		
2.933	12721.143	18:16		
3.000	12374.686	18:20		

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DST 1, RUN 1. GAUGE 0172; SENSING DEPTH 4282.65 M. (POST-TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
3.067	12615.202	18:24	18- 4-82
3.133	12332.453	18:28	
3.200	12429.089	18:32	
3.267	12630.234	18:36	
3.333	12513.555	18:40	
3.400	12344.622	18:44	
3.467	12263.018	18:48	
3.533	12255.144	18:52	
3.600	12237.249	18:56	
3.667	11853.569	19: 0	
3.733	11799.883	19: 4	
3.800	11770.534	19: 8	
3.867	11752.639	19:12	
3.933	12449.132	19:16	
4.000	12501.386	19:20	
4.067	12446.984	19:24	
4.133	12426.941	19:28	
4.200	12491.365	19:32	
4.267	12416.920	19:36	
4.333	12400.456	19:40	
4.400	12396.161	19:44	
4.467	12452.711	19:48	
4.533	12465.595	19:52	
4.600	12441.257	19:56	
4.667	12423.362	20: 0	
4.733	12419.067	20: 4	
4.800	12418.351	20: 8	
4.867	12416.204	20:12	
4.933	12391.866	20:16	
5.000	12380.413	20:20	
5.067	12363.233	20:24	
5.133	12348.917	20:28	
5.200	12504.965	20:32	
5.267	12500.671	20:36	
5.333	12147.771	20:40	
5.400	11833.526	20:44	
5.467	11555.788	20:48	
5.533	11697.520	20:52	
5.600	11978.122	20:56	
5.667	11855.717	21: 0	
5.733	11820.642	21: 4	
5.800	11799.883	21: 8	
5.867	11781.987	21:12	
5.933	11729.017	21:16	
6.000	11698.236	21:20	
6.067	11744.765	21:24	
6.133	11735.459	21:28	

PULL PACKER  
(FINAL HYDROSTATIC?)

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MAGNETIC RECORDING PRESSURE GAUGE REPORT

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BRITISH PETROLEUM  
WILDCAT  
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OFFSHORE NORWAY  
15 APRIL 1982  
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DST 1; RUN 1. GAUGE 0172; SENSING DEPTH 4282.65 M. (POST-TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
6.200	11727.585	21:32	18- 4-82
6.267	11718.995	21:36	
6.333	11566.525	21:40	
6.400	11482.059	21:44	
6.467	11441.973	21:48	
6.533	11733.311	21:52	
6.600	11719.711	21:56	
6.667	11703.247	22: 0	
6.733	12078.337	22: 4	
6.800	11671.751	22: 8	
6.867	11653.855	22:12	
6.933	11649.561	22:16	
7.000	11648.129	22:20	
7.067	11658.866	22:24	
7.133	11696.089	22:28	
7.200	11723.290	22:32	
7.267	11701.815	22:36	
7.333	11814.199	22:40	
7.400	12103.390	22:44	
7.467	11588.716	22:48	
7.533	11938.752	22:52	
7.600	11665.309	22:56	
7.667	11604.464	23: 0	
7.733	11590.147	23: 4	
7.800	11791.293	23: 8	RESET PACKER
7.867	12066.884	23:12	
7.933	12077.621	23:16	
8.000	11992.438	23:20	
8.067	11951.637	23:24	
8.133	11943.047	23:28	
8.200	11923.004	23:32	
8.267	11847.127	23:36	
8.333	11860.012	23:40	
8.400	11872.181	23:44	
8.467	11883.634	23:48	
8.533	11887.213	23:52	
8.600	12046.841	23:56	
8.667	11957.363	0: 0	19- 4-82
8.733	11938.036	0: 4	
8.800	11956.647	0: 8	
8.867	11991.723	0:12	
8.933	11892.224	0:16	
9.000	11900.098	0:20	
9.067	11565.810	0:24	
9.133	11829.947	0:28	COMMENCE POOH

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OFFSHORE NORWAY  
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DST 1; RUN 1. GAUGE 0190; SENSING DEPTH 4285.66 M. (PRE-TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	12826.109	11:46	17- 4-82	SET PACKER AT 11:45
0.067	12750.637	11:50		
0.133	12748.460	11:54		
0.200	12709.998	11:58		
0.267	12697.662	12: 2		
0.333	12678.794	12: 6		
0.400	12751.363	12:10		
0.467	12789.099	12:14		
0.533	12771.682	12:18		
0.600	12888.518	12:22		ATTEMPT TO OPEN APR-N VALVE
0.667	12874.004	12:26		
0.733	13426.254	12:30		
0.800	13631.624	12:34		
0.867	13626.544	12:38		
0.933	13572.843	12:42		
1.000	13032.930	12:46		
1.067	12946.573	12:50		
1.133	13215.804	12:54		
1.200	13100.564	12:58		
1.267	13139.607	13: 2		
1.333	13083.003	13: 6		
1.400	12889.244	13:10		
1.467	12829.737	13:14		
1.533	12790.550	13:18		
1.600	12744.832	13:22		
1.667	12831.189	13:26		
1.733	12809.418	13:30		
1.800	12747.734	13:34		
1.867	12708.547	13:38		
1.933	12668.634	13:42		
2.000	12632.350	13:46		
2.067	12596.791	13:50		
2.133	12543.090	13:54		
2.200	12561.958	13:58		
2.267	12573.569	14: 2		
2.333	12582.277	14: 6		
2.400	12598.242	14:10		
2.467	12590.260	14:14		
2.533	12556.878	14:18		
2.600	12514.062	14:22		
2.667	12399.403	14:26		
2.733	12381.987	14:30		
2.800	11317.400	14:34		
2.867	11333.366	14:38		OPEN APR-N VALVE

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DST 1, RUN 1, GAUGE 0190, SENSING DEPTH 4285.66 M. (INITIAL FLOW PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	11333.366	14:38	17- 4-82	OPEN APR-N VALVE
0.067	10823.932	14:42		BLEED-OFF TUBING ON 32/64"
0.133	9841.348	14:46		END OF INITIAL FLOW PERIOD

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DST 1; RUN 1. GAUGE 0190; SENSING DEPTH 4285.66 M. (INITIAL BUILD-UP PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	9841.348	14:46	17- 4-62	WELL SHUT-IN FOR BUILD-UP
0.067	11305.064	14:50		
0.133	11322.480	14:54		
0.200	11326.109	14:58		
0.267	11329.012	15: 2		
0.333	11329.012	15: 6		
0.400	11329.012	15:10		
0.467	11329.737	15:14		
0.533	11330.463	15:18		END OF INITIAL BUILD-UP PERIOD

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MAGNETIC RECORDING PRESSURE GAUGE REPORT

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DST 1, RUN 1, GAUGE 0190, SENSING DEPTH 4285.66 M. (SECOND FLOW PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	11330.463	15:18	17- 4-82	WELL OPENED TO FLOW
0.067	10331.914	15:22		ON 08/64" ADJ. CHOKE
0.133	10313.772	15:26		
0.200	10821.029	15:30		
0.267	10749.186	15:34		
0.333	10945.122	15:38		
0.400	10913.917	15:42		
0.467	10943.670	15:46		
0.533	10964.715	15:50		
0.600	11013.337	15:54		
0.667	11016.239	15:58		
0.733	11009.708	16: 2		
0.800	10397.226	16: 6		
0.867	10761.522	16:10		
0.933	10672.263	16:14		
1.000	10503.177	16:18		
1.067	10485.035	16:22		
1.133	10489.389	16:26		
1.200	10446.573	16:30		
1.267	10348.605	16:34		
1.333	10324.657	16:38		
1.400	10228.866	16:42		
1.467	10195.485	16:46		
1.533	10091.711	16:50		
1.600	10112.030	16:54		
1.667	10062.684	16:58		
1.733	9989.389	17: 2		
1.800	10125.819	17: 6		
1.867	10515.514	17:10		
1.933	10287.647	17:14		
2.000	10233.221	17:18		
2.067	10201.290	17:22		
2.133	10029.302	17:26		
2.200	9959.636	17:30		
2.267	9900.129	17:34		
2.333	10301.435	17:38		
2.400	10134.527	17:42		
2.467	9879.810	17:46		
2.533	9900.129	17:50		
2.600	9913.917	17:54		
2.667	9932.785	17:58		
2.733	9948.025	18: 2		
2.800	9953.104	18: 6		
2.867	9985.035	18:10		
2.933	9874.730	18:14		
3.000	9874.730	18:18		

WORKING CHOKE TO CLEAR PLUG

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 ANALYTIC RECORDING PRESSURE GAUGE REPORT

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DST 1; RUN 1. GAUGE 0190; SENSING DEPTH 4285.66 M. (SECOND FLOW PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
3.067	9746.283	18:22	17- 4-82
3.133	10131.624	18:26	
3.200	9849.331	18:30	
3.267	9718.707	18:34	
3.333	9724.512	18:38	
3.400	9723.787	18:42	
3.467	10158.475	18:46	
3.533	9865.296	18:50	
3.600	9889.244	18:54	
3.667	9952.379	18:58	
3.733	9942.219	19: 2	
3.800	10049.621	19: 6	
3.867	9860.942	19:10	
3.933	10016.965	19:14	
4.000	10102.596	19:18	
4.067	10055.427	19:22	
4.133	10061.958	19:26	
4.200	9961.813	19:30	
4.267	10011.160	19:34	
4.333	10066.312	19:38	
4.400	9874.004	19:42	
4.467	10086.631	19:46	
4.533	9908.112	19:50	
4.600	10059.781	19:54	
4.667	9996.646	19:58	
4.733	9985.035	20: 2	
4.800	10056.152	20: 6	
4.867	10202.742	20:10	
4.933	10157.023	20:14	
5.000	9970.521	20:18	
5.067	10204.919	20:22	
5.133	10000.274	20:26	
5.200	10005.354	20:30	
5.267	10096.791	20:34	
5.333	10010.434	20:38	
5.400	10104.774	20:42	
5.467	10077.923	20:46	
5.533	10008.983	20:50	
5.600	10006.805	20:54	
5.667	10040.913	20:58	
5.733	10053.250	21: 2	
5.800	9886.341	21: 6	
5.867	10146.863	21:10	
5.933	9987.938	21:14	
6.000	10135.252	21:18	
6.067	11097.517	21:22	
6.133	10757.168	21:26	

WORKING CHOKE TO CLEAR PLUG  
 (MAX. CHOKE SIZE 12/64")

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DST 1; RUN 1. GAUGE 0190; SENSING DEPTH 4285.66 M. (SECOND FLOW PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
6.200	10658.475	21:30	17- 4-82
6.267	10493.017	21:34	
6.333	10437.865	21:38	
6.400	10432.785	21:42	
6.467	10527.850	21:46	
6.533	10604.774	21:50	
6.600	10597.517	21:54	
6.667	10064.861	21:58	
6.733	9930.608	22: 2	
6.800	10106.225	22: 6	
6.867	10066.312	22:10	
6.933	10004.628	22:14	
7.000	10010.434	22:18	
7.067	10051.798	22:22	
7.133	9881.261	22:26	
7.200	9800.710	22:30	
7.267	9908.837	22:34	
7.333	9799.984	22:38	
7.400	9785.470	22:42	
7.467	9877.633	22:46	
7.533	9950.927	22:50	
7.600	9889.244	22:54	
7.667	9854.411	22:58	
7.733	9915.369	23: 2	
7.800	9978.504	23: 6	
7.867	9965.441	23:10	
7.933	9900.855	23:14	
8.000	9963.990	23:18	
8.067	9902.306	23:22	
8.133	9907.386	23:26	
8.200	9923.351	23:30	
8.267	9905.209	23:34	
8.333	9846.428	23:38	
8.400	9858.765	23:42	
8.467	9721.610	23:46	
8.533	9838.446	23:50	
8.600	9839.171	23:54	
8.667	9874.004	23:58	
8.733	9918.271	0: 2	18- 4-82
8.800	9956.007	0: 6	
8.867	9871.827	0:10	
8.933	9834.817	0:14	
9.000	9836.268	0:18	
9.067	9821.029	0:22	
9.133	9846.428	0:26	
9.200	9817.401	0:30	
9.267	9825.383	0:34	

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DST 1, RUN 1, GAUGE 0190, SENSING DEPTH 4285.66 M. (SECOND FLOW PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
9.333	9847.154	0:38	18- 4-82
9.400	9847.154	0:42	
9.467	9815.223	0:46	
9.533	9792.001	0:50	
9.600	9801.435	0:54	
9.667	9836.268	0:58	
9.733	9871.102	1: 2	
9.800	9828.286	1: 6	
9.867	9840.623	1:10	
9.933	9852.234	1:14	
10.000	9854.411	1:18	
10.067	9844.977	1:22	
10.133	9836.994	1:26	
10.200	9815.223	1:30	
10.267	9786.196	1:34	
10.333	9782.567	1:38	
10.400	9752.088	1:42	
10.467	9733.221	1:46	
10.533	9781.842	1:50	
10.600	9702.016	1:54	
10.667	9731.769	1:58	
10.733	9675.165	2: 2	

END OF FLOW PERIOD

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DST 1, RUN 1. GAUGE 0190, SENSING DEPTH 4285.66 M. (SECOND BUILD-UP PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	9675.165	2: 2	18- 4-82	CLOSE APR-N VALVE
0.067	11237.575	2: 6		WELL SHUT-IN AT CHOKE
0.133	11273.133	2:10		
0.200	11284.019	2:14		
0.267	11291.276	2:18		
0.333	11295.630	2:22		
0.400	11299.258	2:26		
0.467	11304.338	2:30		
0.533	11305.064	2:34		
0.600	11306.515	2:38		
0.667	11309.418	2:42		
0.733	11311.595	2:46		
0.800	11313.772	2:50		
0.867	11313.046	2:54		
0.933	11314.498	2:58		
1.000	11313.772	3: 2		
1.067	11313.772	3: 6		
1.133	11313.772	3:10		
1.200	11315.223	3:14		
1.267	11315.223	3:18		
1.333	11314.498	3:22		
1.400	11315.223	3:26		
1.467	11314.498	3:30		
1.533	11315.949	3:34		
1.600	11315.949	3:38		
1.667	11315.949	3:42		
1.733	11315.949	3:46		
1.800	11316.675	3:50		
1.867	11315.949	3:54		
1.933	11316.675	3:58		
2.000	11318.126	4: 2		
2.067	11318.126	4: 6		
2.133	11317.400	4:10		
2.200	11318.852	4:14		
2.267	11318.126	4:18		
2.333	11318.852	4:22		
2.400	11318.126	4:26		
2.467	11318.126	4:30		
2.533	11318.852	4:34		
2.600	11320.303	4:38		
2.667	11319.578	4:42		
2.733	11319.578	4:46		
2.800	11319.578	4:50		
2.867	11320.303	4:54		
2.933	11320.303	4:58		
3.000	11321.029	5: 2		

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DST 1, RUN 1, GAUGE 0190, SENSING DEPTH 4285.66 M. (SECOND BUILD-UP PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
3.067	11320.303	5: 6	18- 4-82
3.133	11319.578	5:10	
3.200	11319.578	5:14	
3.267	11319.578	5:18	
3.333	11319.578	5:22	
3.400	11320.303	5:26	
3.467	11318.852	5:30	
3.533	11318.852	5:34	
3.600	11318.852	5:38	
3.667	11319.578	5:42	
3.733	11318.852	5:46	
3.800	11318.852	5:50	
3.867	11318.852	5:54	
3.933	11318.126	5:58	
4.000	11319.578	6: 2	
4.067	11319.578	6: 6	
4.133	11319.578	6:10	
4.200	11320.303	6:14	
4.267	11321.029	6:18	
4.333	11321.029	6:22	
4.400	11321.755	6:26	
4.467	11321.755	6:30	
4.533	11322.480	6:34	
4.600	11321.029	6:38	
4.667	11321.755	6:42	
4.733	11321.755	6:46	
4.800	11321.029	6:50	
4.867	11321.029	6:54	
4.933	11321.755	6:58	
5.000	11321.029	7: 2	
5.067	11321.029	7: 6	
5.133	11321.029	7:10	
5.200	11320.303	7:14	
5.267	11320.303	7:18	
5.333	11320.303	7:22	
5.400	11320.303	7:26	
5.467	11321.029	7:30	
5.533	11320.303	7:34	
5.600	11320.303	7:38	
5.667	11320.303	7:42	
5.733	11320.303	7:46	
5.800	11320.303	7:50	
5.867	11320.303	7:54	
5.933	11320.303	7:58	
6.000	11319.578	8: 2	
6.067	11319.578	8: 6	
6.133	11320.303	8:10	

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DST 1, RUN 1, GAUGE 0190, SENSING DEPTH 4285.66 M. (SECOND BUILD-UP PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
6.200	11321.029	8:14	18- 4-82
6.267	11321.755	8:18	
6.333	11321.755	8:22	
6.400	11321.755	8:26	
6.467	11321.029	8:30	
6.533	11321.755	8:34	
6.600	11322.480	8:38	
6.667	11323.206	8:42	
6.733	11322.480	8:46	
6.800	11322.480	8:50	
6.867	11322.480	8:54	
6.933	11321.755	8:58	
7.000	11321.755	9: 2	
7.067	11322.480	9: 6	
7.133	11321.755	9:10	
7.200	11321.755	9:14	
7.267	11321.755	9:18	
7.333	11321.029	9:22	
7.400	11321.755	9:26	
7.467	11321.029	9:30	
7.533	11321.029	9:34	
7.600	11321.029	9:38	
7.667	11321.029	9:42	
7.733	11321.029	9:46	
7.800	11321.029	9:50	
7.867	11320.303	9:54	
7.933	11320.303	9:58	
8.000	11321.029	10: 2	
8.067	11321.029	10: 6	
8.133	11321.029	10:10	
8.200	11320.303	10:14	
8.267	11321.029	10:18	
8.333	11321.029	10:22	
8.400	11320.303	10:26	
8.467	11320.303	10:30	
8.533	11320.303	10:34	
8.600	11319.578	10:38	
8.667	11320.303	10:42	
8.733	11321.029	10:46	
8.800	11322.480	10:50	
8.867	11322.480	10:54	
8.933	11321.755	10:58	
9.000	11322.480	11: 2	
9.067	11322.480	11: 6	
9.133	11322.480	11:10	
9.200	11321.755	11:14	
9.267	11322.480	11:18	

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SHIPPY-SUN INTERNATIONAL INC.  
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WILDCAT  
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OFFSHORE NORWAY  
15 APRIL 1982  
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DST 1, RUN 1, GAUGE 0190, SENSING DEPTH 4295.66 M. (SECOND BUILD-UP PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
9.333	11322.480	11:22	18- 4-82
9.400	11322.480	11:26	
9.467	11321.755	11:30	
9.533	11322.480	11:34	
9.600	11322.480	11:38	
9.667	11321.755	11:42	
9.733	11321.755	11:46	
9.800	11321.755	11:50	
9.867	11321.029	11:54	
9.933	11321.029	11:58	
10.000	11321.029	12: 2	
10.067	11320.303	12: 6	
10.133	11320.303	12:10	
10.200	11321.029	12:14	
10.267	11320.303	12:18	
10.333	11320.303	12:22	
10.400	11320.303	12:26	
10.467	11320.303	12:30	
10.533	11320.303	12:34	
10.600	11319.578	12:38	
10.667	11321.029	12:42	
10.733	11321.029	12:46	
10.800	11321.755	12:50	
10.867	11321.755	12:54	
10.933	11321.755	12:58	
11.000	11321.755	13: 2	
11.067	11321.029	13: 6	
11.133	11321.755	13:10	
11.200	11321.029	13:14	
11.267	11322.480	13:18	
11.333	11321.755	13:22	
11.400	11321.755	13:26	
11.467	11321.755	13:30	
11.533	11322.480	13:34	
11.600	11321.755	13:38	
11.667	11321.029	13:42	
11.733	11321.755	13:46	
11.800	11321.029	13:50	
11.867	11320.303	13:54	
11.933	11320.303	13:58	
12.000	11320.303	14: 2	
12.067	11320.303	14: 6	
12.133	11320.303	14:10	
12.200	11319.578	14:14	
12.267	11318.852	14:18	
12.333	11319.578	14:22	
12.400	11320.303	14:26	

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DST 1, RUN 1. GAUGE 0190, SENSING DEPTH 4285.66 M. (SECOND BUILD-UP PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
12.467	11319.578	14:30	18- 4-82
12.533	11319.578	14:34	
12.600	11319.578	14:38	
12.667	11318.852	14:42	
12.733	11319.578	14:46	
12.800	11319.578	14:50	
12.867	11319.578	14:54	
12.933	11319.578	14:58	
13.000	11320.303	15: 2	
13.067	11319.578	15: 6	
13.133	11320.303	15:10	
13.200	11320.303	15:14	
13.267	11322.480	15:18	
13.333	11321.755	15:22	END OF BUILD-UP PERIOD

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DST 1; RUN 1. GAUGE 0190; SENSING DEPTH 4285.66 M. (POST-TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	11321.755	15:22	18- 4-82	ATTEMPT TO OPEN APR-M VALVE
0.067	11394.324	15:26		
0.133	11304.338	15:30		
0.200	11344.251	15:34		
0.267	11342.074	15:38		
0.333	11343.525	15:42		
0.400	11342.800	15:46		
0.467	11223.061	15:50		
0.533	10736.849	15:54		
0.600	11307.967	15:58		
0.667	11314.498	16: 2		
0.733	11320.303	16: 6		ATTEMPT TO OPEN RTTS VALVE
0.800	11322.480	16:10		
0.867	11314.498	16:14		
0.933	11312.321	16:18		
1.000	11408.112	16:22		
1.067	11398.678	16:26		ATTEMPT TO OPEN APR-M VALVE
1.133	11274.585	16:30		
1.200	11321.755	16:34		
1.267	11323.206	16:38		
1.333	11323.206	16:42		
1.400	11323.206	16:46		
1.467	11322.480	16:50		
1.533	11322.480	16:54		
1.600	11322.480	16:58		
1.667	11321.755	17: 2		
1.733	11322.480	17: 6		
1.800	11321.755	17:10		
1.867	11321.755	17:14		
1.933	11322.480	17:18		
2.000	11321.029	17:22		
2.067	11321.029	17:26		
2.133	11323.206	17:30		
2.200	11267.328	17:34		
2.267	11318.852	17:38		
2.333	11321.029	17:42		REVERSE-OUT ON 16/64" CHOKE
2.400	11491.566	17:46		
2.467	11541.639	17:50		
2.533	11563.409	17:54		
2.600	11577.197	17:58		
2.667	11600.419	18: 2		
2.733	11601.871	18: 6		
2.800	11598.968	18:10		
2.867	12257.168	18:14		
2.933	12417.546	18:18		
3.000	12482.132	18:22		

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DST 1; RUN 1. GAUGE 0190, SENSING DEPTH 4285.66 M. (POST-TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
3.067	12656.297	18:26	18- 4-82
3.133	12456.733	18:30	
3.200	12535.833	18:34	
3.267	12744.106	18:38	
3.333	12664.280	18:42	
3.400	12290.550	18:46	
3.467	12274.585	18:50	
3.533	12264.425	18:54	
3.600	12255.717	18:58	
3.667	11826.109	19: 2	
3.733	11786.922	19: 6	
3.800	11770.956	19:10	
3.867	12553.975	19:14	
3.933	12548.895	19:18	
4.000	12469.795	19:22	
4.067	12463.264	19:26	
4.133	12433.511	19:30	
4.200	12448.025	19:34	
4.267	12415.369	19:38	
4.333	12410.289	19:42	
4.400	12457.459	19:46	
4.467	12491.566	19:50	
4.533	12485.035	19:54	
4.600	12457.459	19:58	
4.667	12443.670	20: 2	
4.733	12441.493	20: 6	
4.800	12432.059	20:10	
4.867	12422.625	20:14	
4.933	12403.758	20:18	
5.000	12391.421	20:22	
5.067	12374.730	20:26	
5.133	12511.885	20:30	
5.200	12527.850	20:34	
5.267	12505.354	20:38	
5.333	11887.792	20:42	
5.400	11805.789	20:46	
5.467	11574.295	20:50	
5.533	12022.045	20:54	
5.600	11903.758	20:58	
5.667	11844.251	21: 2	
5.733	11821.755	21: 6	
5.800	11796.356	21:10	
5.867	11775.311	21:14	
5.933	11647.589	21:18	
6.000	11763.699	21:22	
6.067	11744.832	21:26	
6.133	11741.203	21:30	

PULL PACKER  
(FINAL HYDROSTATIC?)

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DST 1; RUN 1. GAUGE 0190; SENSING DEPTH 4285.66 M. (POST-TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
6.200	11728.141	21:34	18- 4-82
6.267	11651.943	21:38	
6.333	11512.611	21:42	
6.400	11453.830	21:46	
6.467	11422.625	21:50	
6.533	11741.203	21:54	
6.600	11718.707	21:58	
6.667	11563.409	22: 2	
6.733	11696.210	22: 6	
6.800	11673.714	22:10	
6.867	11656.297	22:14	
6.933	11657.023	22:18	
7.000	11662.829	22:22	
7.067	11667.183	22:26	
7.133	11817.400	22:30	
7.200	11730.318	22:34	
7.267	12090.260	22:38	
7.333	11604.048	22:42	
7.400	11628.721	22:46	
7.467	11990.115	22:50	
7.533	11680.245	22:54	
7.600	11654.846	22:58	
7.667	11605.499	23: 2	
7.733	11928.431	23: 6	
7.800	11806.515	23:10	
7.867	12160.652	23:14	
7.933	12038.010	23:18	
8.000	11973.424	23:22	
8.067	11941.493	23:26	
8.133	11932.785	23:30	
8.200	11920.448	23:34	
8.267	11869.650	23:38	
8.333	11879.810	23:42	
8.400	11903.032	23:46	
8.467	11906.660	23:50	
8.533	11885.615	23:54	
8.600	11986.486	23:58	
8.667	12052.524	0: 2	19- 4-82
8.733	11925.528	0: 6	
8.800	11898.678	0:10	
8.867	11878.358	0:14	
8.933	11926.980	0:18	
9.000	11938.591	0:22	
9.067	11798.533	0:26	
9.133	11848.605	0:30	

RESET PACKER

COMMENCE POOH

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DST 1; RUN 1. GAUGE 0190, SENSING DEPTH 4285.66 M. (PRE-TEST PERIOD)

DELTA TIME	TEMPERATURE	TIME	DATE	
0.000	294.3	11:46	17- 4-82	SET PACKER AT 11:45
0.067	294.3	11:50		
0.133	294.3	11:54		
0.200	294.3	11:58		
0.267	294.3	12: 2		
0.333	294.3	12: 6		
0.400	294.3	12:10		
0.467	294.3	12:14		
0.533	294.3	12:18		
0.600	294.3	12:22		ATTEMPT TO OPEN APR-N VALVE
0.667	294.3	12:26		
0.733	294.3	12:30		
0.800	295.0	12:34		
0.867	295.0	12:38		
0.933	295.0	12:42		
1.000	294.3	12:46		
1.067	294.3	12:50		
1.133	294.3	12:54		
1.200	294.3	12:58		
1.267	294.3	13: 2		
1.333	294.3	13: 6		
1.400	294.3	13:10		
1.467	294.3	13:14		
1.533	294.3	13:18		
1.600	294.3	13:22		
1.667	294.3	13:26		
1.733	294.3	13:30		
1.800	294.3	13:34		
1.867	294.3	13:38		
1.933	294.3	13:42		
2.000	294.3	13:46		
2.067	294.3	13:50		
2.133	294.3	13:54		
2.200	294.3	13:58		
2.267	294.3	14: 2		
2.333	294.3	14: 6		
2.400	294.3	14:10		
2.467	295.0	14:14		
2.533	295.0	14:18		
2.600	295.0	14:22		
2.667	294.3	14:26		
2.733	295.0	14:30		
2.800	294.3	14:34		
2.867	294.3	14:38		OPEN APR-N VALVE

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DST 1, RUN 1, GAUGE 0190, SENSING DEPTH 4285.66 M. (INITIAL FLOW PERIOD)

DELTA TIME	TEMPERATURE	TIME	DATE	
0.000	294.3	14:38	17- 4-82	OPEN APR-N VALVE
0.067	294.3	14:42		BLEED-OFF TUBING ON 32/64"
0.133	294.3	14:46		END OF INITIAL FLOW PERIOD

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DST 1; RUN 1. GAUGE 0190; SENSING DEPTH 4285.66 M. (INITIAL BUILD-UP PERIOD)

DELTA TIME	TEMPERATURE	TIME	DATE	
0.000	294.3	14:46	17- 4-82	WELL SHUT-IN FOR BUILD-UP
0.067	295.0	14:50		
0.133	295.7	14:54		
0.200	295.7	14:58		
0.267	295.7	15: 2		
0.333	295.7	15: 6		
0.400	295.7	15:10		
0.467	295.7	15:14		
0.533	295.7	15:18		END OF INITIAL BUILD-UP PERIOD

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DST 1, RUN 1, GAUGE 0190, SENSING DEPTH 4285.66 M. (SECOND FLOW PERIOD)

DELTA TIME	TEMPERATURE	TIME	DATE	
0.000	295.7	15:18	17- 4-82	WELL OPENED TO FLOW
0.067	295.7	15:22		ON 08/64" ADJ. CHOKE
0.133	295.7	15:26		
0.200	296.4	15:30		
0.267	296.4	15:34		
0.333	296.4	15:38		
0.400	296.4	15:42		
0.467	296.4	15:46		
0.533	296.4	15:50		
0.600	296.4	15:54		
0.667	296.4	15:58		
0.733	296.4	16: 2		
0.800	296.4	16: 6		
0.867	296.4	16:10		
0.933	296.4	16:14		
1.000	296.4	16:18		
1.067	297.2	16:22		
1.133	297.2	16:26		
1.200	297.2	16:30		
1.267	297.2	16:34		
1.333	297.9	16:38		
1.400	297.9	16:42		
1.467	297.9	16:46		
1.533	297.9	16:50		
1.600	298.6	16:54		
1.667	298.6	16:58		
1.733	298.6	17: 2		
1.800	298.6	17: 6		
1.867	299.3	17:10		
1.933	298.6	17:14		
2.000	298.6	17:18		
2.067	298.6	17:22		
2.133	298.6	17:26		
2.200	298.6	17:30		
2.267	299.3	17:34		
2.333	299.3	17:38		
2.400	299.3	17:42		
2.467	299.3	17:46		
2.533	299.3	17:50		WORKING CHOKE TO CLEAR PLUG
2.600	299.3	17:54		
2.667	299.3	17:58		
2.733	299.3	18: 2		
2.800	300.0	18: 6		
2.867	300.0	18:10		
2.933	300.0	18:14		
3.000	300.0	18:18		

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DST 1, RUN 1, GAUGE 0190, SENSING DEPTH 4295.66 M. (SECOND FLOW PERIOD)

DELTA TIME	TEMPERATURE	TIME	DATE
3.067	300.0	18:22	17- 4-82
3.133	300.0	18:26	
3.200	300.0	18:30	
3.267	300.0	18:34	
3.333	300.0	18:38	
3.400	300.7	18:42	
3.467	300.7	18:46	
3.533	300.7	18:50	
3.600	300.7	18:54	
3.667	300.7	18:58	
3.733	300.7	19: 2	
3.800	300.7	19: 6	
3.867	300.7	19:10	
3.933	300.7	19:14	
4.000	300.7	19:18	
4.067	300.7	19:22	
4.133	300.7	19:26	
4.200	300.7	19:30	
4.267	300.7	19:34	
4.333	300.7	19:38	
4.400	300.7	19:42	
4.467	300.7	19:46	
4.533	300.7	19:50	
4.600	300.7	19:54	
4.667	300.7	19:58	
4.733	300.7	20: 2	
4.800	300.7	20: 6	
4.867	301.4	20:10	
4.933	301.4	20:14	
5.000	300.7	20:18	
5.067	301.4	20:22	
5.133	300.7	20:26	
5.200	300.7	20:30	
5.267	301.4	20:34	
5.333	301.4	20:38	
5.400	301.4	20:42	
5.467	301.4	20:46	
5.533	301.4	20:50	
5.600	301.4	20:54	
5.667	301.4	20:58	
5.733	301.4	21: 2	
5.800	301.4	21: 6	
5.867	301.4	21:10	
5.933	301.4	21:14	
6.000	301.4	21:18	
6.067	302.1	21:22	
6.133	302.1	21:26	

WORKING CHOKE TO CLEAR PLUG  
(MAX. CHOKE SIZE 12/64")

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DST 1, RUN 1. GAUGE 0190, SENSING DEPTH 4285.66 M. (SECOND FLOW PERIOD)

DELTA TIME	TEMPERATURE	TIME	DATE
6.200	301.4	21:30	17- 4-82
6.267	301.4	21:34	
6.333	300.7	21:38	
6.400	300.7	21:42	
6.467	300.7	21:46	
6.533	300.7	21:50	
6.600	300.7	21:54	
6.667	300.7	21:58	
6.733	300.7	22: 2	
6.800	300.7	22: 6	
6.867	300.7	22:10	
6.933	301.4	22:14	
7.000	301.4	22:18	
7.067	301.4	22:22	
7.133	301.4	22:26	
7.200	301.4	22:30	
7.267	301.4	22:34	
7.333	302.1	22:38	
7.400	302.1	22:42	
7.467	302.1	22:46	
7.533	302.1	22:50	
7.600	302.1	22:54	
7.667	302.1	22:58	
7.733	302.1	23: 2	
7.800	302.1	23: 6	
7.867	302.1	23:10	
7.933	302.1	23:14	
8.000	302.1	23:18	
8.067	302.1	23:22	
8.133	302.1	23:26	
8.200	302.8	23:30	
8.267	302.8	23:34	
8.333	302.8	23:38	
8.400	302.8	23:42	
8.467	302.8	23:46	
8.533	302.8	23:50	
8.600	302.8	23:54	
8.667	302.8	23:58	
8.733	302.8	0: 2	18- 4-82
8.800	302.8	0: 6	
8.867	302.8	0:10	
8.933	302.8	0:14	
9.000	302.8	0:18	
9.067	302.8	0:22	
9.133	302.8	0:26	
9.200	302.8	0:30	
9.267	303.5	0:34	

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DST 1; RUN 1. GAUGE 0190; SENSING DEPTH 4285.66 M. (SECOND FLOW PERIOD)

DELTA TIME	TEMPERATURE	TIME	DATE
9.333	303.5	0:38	18- 4-82
9.400	303.5	0:42	
9.467	303.5	0:46	
9.533	303.5	0:50	
9.600	303.5	0:54	
9.667	303.5	0:58	
9.733	303.5	1: 2	
9.800	303.5	1: 6	
9.867	303.5	1:10	
9.933	303.5	1:14	
10.000	303.5	1:18	
10.067	303.5	1:22	
10.133	303.5	1:26	
10.200	303.5	1:30	
10.267	303.5	1:34	
10.333	303.5	1:38	
10.400	303.5	1:42	
10.467	303.5	1:46	
10.533	303.5	1:50	
10.600	303.5	1:54	
10.667	303.5	1:58	
10.733	303.5	2: 2	END OF FLOW PERIOD

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DST 1; RUN 1. GAUGE 0190; SENSING DEPTH 4285.66 M. (SECOND BUILD-UP PERIOD)

DELTA TIME	TEMPERATURE	TIME	DATE	
0.000	303.5	2: 2	18- 4-62	CLOSE APR-N VALVE
0.067	304.2	2: 6		WELL SHUT-IN AT CHOKE
0.133	304.2	2:10		
0.200	304.2	2:14		
0.267	304.2	2:18		
0.333	303.5	2:22		
0.400	303.5	2:26		
0.467	303.5	2:30		
0.533	302.8	2:34		
0.600	302.8	2:38		
0.667	302.8	2:42		
0.733	302.8	2:46		
0.800	302.1	2:50		
0.867	302.1	2:54		
0.933	302.1	2:58		
1.000	302.1	3: 2		
1.067	301.4	3: 6		
1.133	301.4	3:10		
1.200	301.4	3:14		
1.267	301.4	3:18		
1.333	301.4	3:22		
1.400	301.4	3:26		
1.467	301.4	3:30		
1.533	301.4	3:34		
1.600	301.4	3:38		
1.667	301.4	3:42		
1.733	301.4	3:46		
1.800	301.4	3:50		
1.867	301.4	3:54		
1.933	301.4	3:58		
2.000	301.4	4: 2		
2.067	300.7	4: 6		
2.133	300.7	4:10		
2.200	300.7	4:14		
2.267	300.7	4:18		
2.333	300.7	4:22		
2.400	300.7	4:26		
2.467	300.7	4:30		
2.533	300.7	4:34		
2.600	300.7	4:38		
2.667	300.7	4:42		
2.733	300.7	4:46		
2.800	300.7	4:50		
2.867	300.7	4:54		
2.933	300.7	4:58		
3.000	300.7	5: 2		

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WILDCAT  
29/6-1

OFFSHORE NORWAY  
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MRPG-1202-NOR

DST 1, RUN 1. GAUGE 0190, SENSING DEPTH 4285.66 M, (SECOND BUILD-UP PERIOD)

DELTA TIME	TEMPERATURE	TIME	DATE
3.067	300.7	5: 6	18- 4-82
3.133	300.7	5:10	
3.200	300.7	5:14	
3.267	300.7	5:18	
3.333	300.7	5:22	
3.400	300.7	5:26	
3.467	300.7	5:30	
3.533	300.7	5:34	
3.600	300.7	5:38	
3.667	300.7	5:42	
3.733	300.0	5:46	
3.800	300.0	5:50	
3.867	300.0	5:54	
3.933	300.0	5:58	
4.000	300.0	6: 2	
4.067	300.0	6: 6	
4.133	300.0	6:10	
4.200	300.0	6:14	
4.267	300.0	6:18	
4.333	300.0	6:22	
4.400	300.0	6:26	
4.467	300.0	6:30	
4.533	300.0	6:34	
4.600	300.0	6:38	
4.667	300.0	6:42	
4.733	300.0	6:46	
4.800	300.0	6:50	
4.867	300.0	6:54	
4.933	300.0	6:58	
5.000	300.0	7: 2	
5.067	300.0	7: 6	
5.133	300.0	7:10	
5.200	300.0	7:14	
5.267	300.0	7:18	
5.333	300.0	7:22	
5.400	300.0	7:26	
5.467	300.0	7:30	
5.533	300.0	7:34	
5.600	300.0	7:38	
5.667	300.0	7:42	
5.733	300.0	7:46	
5.800	300.0	7:50	
5.867	300.0	7:54	
5.933	300.0	7:58	
6.000	300.0	8: 2	
6.067	300.0	8: 6	
6.133	300.0	8:10	

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DST 1, RUN 1, GAUGE 0190, SENSING DEPTH 4285.66 M. (SECOND BUILD-UP PERIOD)

DELTA TIME	TEMPERATURE	TIME	DATE
6.200	300.0	8:14	18- 4-82
6.267	300.0	8:18	
6.333	300.0	8:22	
6.400	300.0	8:26	
6.467	300.0	8:30	
6.533	300.0	8:34	
6.600	300.0	8:38	
6.667	300.0	8:42	
6.733	300.0	8:46	
6.800	300.0	8:50	
6.867	300.0	8:54	
6.933	300.0	8:58	
7.000	300.0	9: 2	
7.067	300.0	9: 6	
7.133	300.0	9:10	
7.200	300.0	9:14	
7.267	300.0	9:18	
7.333	300.0	9:22	
7.400	300.0	9:26	
7.467	300.0	9:30	
7.533	300.0	9:34	
7.600	300.0	9:38	
7.667	300.0	9:42	
7.733	300.0	9:46	
7.800	300.0	9:50	
7.867	300.0	9:54	
7.933	300.0	9:58	
8.000	300.0	10: 2	
8.067	300.0	10: 6	
8.133	300.0	10:10	
8.200	300.0	10:14	
8.267	300.0	10:18	
8.333	300.0	10:22	
8.400	300.0	10:26	
8.467	300.0	10:30	
8.533	300.0	10:34	
8.600	300.0	10:38	
8.667	300.0	10:42	
8.733	300.0	10:46	
8.800	300.0	10:50	
8.867	300.0	10:54	
8.933	300.0	10:58	
9.000	300.0	11: 2	
9.067	300.0	11: 6	
9.133	300.0	11:10	
9.200	300.0	11:14	
9.267	300.0	11:18	

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DST 1, RUN 1, GAUGE 0190, SENSING DEPTH 4285.66 M. (SECOND BUILD-UP PERIOD)

DELTA TIME	TEMPERATURE	TIME	DATE
9.333	300.0	11:22	18- 4-82
9.400	300.0	11:26	
9.467	300.0	11:30	
9.533	300.0	11:34	
9.600	300.0	11:38	
9.667	300.0	11:42	
9.733	299.3	11:46	
9.800	299.3	11:50	
9.867	299.3	11:54	
9.933	300.0	11:58	
10.000	299.3	12: 2	
10.067	299.3	12: 6	
10.133	299.3	12:10	
10.200	299.3	12:14	
10.267	299.3	12:18	
10.333	299.3	12:22	
10.400	300.0	12:26	
10.467	299.3	12:30	
10.533	299.3	12:34	
10.600	299.3	12:38	
10.667	299.3	12:42	
10.733	299.3	12:46	
10.800	299.3	12:50	
10.867	299.3	12:54	
10.933	299.3	12:58	
11.000	299.3	13: 2	
11.067	299.3	13: 6	
11.133	299.3	13:10	
11.200	299.3	13:14	
11.267	299.3	13:18	
11.333	299.3	13:22	
11.400	300.0	13:26	
11.467	299.3	13:30	
11.533	299.3	13:34	
11.600	299.3	13:38	
11.667	299.3	13:42	
11.733	299.3	13:46	
11.800	299.3	13:50	
11.867	299.3	13:54	
11.933	299.3	13:58	
12.000	299.3	14: 2	
12.067	299.3	14: 6	
12.133	299.3	14:10	
12.200	299.3	14:14	
12.267	299.3	14:18	
12.333	299.3	14:22	
12.400	299.3	14:26	

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DST 1, RUN 1. GAUGE 0190; SENSING DEPTH 4285.66 M. (SECOND BUILD-UP PERIOD)

DELTA TIME	TEMPERATURE	TIME	DATE
12.467	299.3	14:30	18- 4-82
12.533	299.3	14:34	
12.600	299.3	14:38	
12.667	299.3	14:42	
12.733	299.3	14:46	
12.800	299.3	14:50	
12.867	299.3	14:54	
12.933	299.3	14:58	
13.000	299.3	15: 2	
13.067	299.3	15: 6	
13.133	299.3	15:10	
13.200	299.3	15:14	
13.267	299.3	15:18	
13.333	299.3	15:22	

END OF BUILD-UP PERIOD

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15 APRIL 1982  
MRPG-1202-NDR

DST 1, RUN 1. GAUGE 0190, SENSING DEPTH 4285.66 M. (POST-TEST PERIOD)

DELTA TIME	TEMPERATURE	TIME	DATE	
0.000	299.3	15:22	18- 4-82	ATTEMPT TO OPEN APR-M VALVE
0.067	299.3	15:26		
0.133	299.3	15:30		
0.200	299.3	15:34		
0.267	298.6	15:38		
0.333	298.6	15:42		
0.400	298.6	15:46		
0.467	297.9	15:50		
0.533	298.6	15:54		
0.600	299.3	15:58		
0.667	299.3	16: 2		
0.733	300.0	16: 6		ATTEMPT TO OPEN RTTS VALVE
0.800	300.0	16:10		
0.867	300.0	16:14		
0.933	300.0	16:18		
1.000	300.0	16:22		
1.067	300.0	16:26		ATTEMPT TO OPEN APR-M VALVE
1.133	300.0	16:30		
1.200	300.0	16:34		
1.267	300.0	16:38		
1.333	300.0	16:42		
1.400	300.0	16:46		
1.467	300.0	16:50		
1.533	299.3	16:54		
1.600	299.3	16:58		
1.667	299.3	17: 2		
1.733	299.3	17: 6		
1.800	299.3	17:10		
1.867	299.3	17:14		
1.933	299.3	17:18		
2.000	299.3	17:22		
2.067	299.3	17:26		
2.133	299.3	17:30		
2.200	299.3	17:34		
2.267	299.3	17:38		
2.333	300.0	17:42		REVERSE-OUT ON 16/64" CHOKE
2.400	300.0	17:46		
2.467	300.0	17:50		
2.533	300.0	17:54		
2.600	300.0	17:58		
2.667	300.0	18: 2		
2.733	300.0	18: 6		
2.800	300.0	18:10		
2.867	300.0	18:14		
2.933	300.0	18:18		
3.000	300.0	18:22		

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DST 1, RUN 1. GAUGE 0190; SENSING DEPTH 4285.66 M. (POST-TEST PERIOD)

DELTA TIME	TEMPERATURE	TIME	DATE
3.067	300.0	18:26	18- 4-82
3.133	300.0	18:30	
3.200	300.0	18:34	
3.267	300.0	18:38	
3.333	300.0	18:42	
3.400	299.3	18:46	
3.467	299.3	18:50	
3.533	299.3	18:54	
3.600	299.3	18:58	
3.667	299.3	19: 2	
3.733	299.3	19: 6	
3.800	299.3	19:10	
3.867	299.3	19:14	
3.933	299.3	19:18	
4.000	299.3	19:22	
4.067	299.3	19:26	
4.133	299.3	19:30	
4.200	299.3	19:34	
4.267	299.3	19:38	
4.333	299.3	19:42	
4.400	299.3	19:46	
4.467	299.3	19:50	
4.533	299.3	19:54	
4.600	299.3	19:58	
4.667	299.3	20: 2	
4.733	299.3	20: 6	
4.800	299.3	20:10	
4.867	299.3	20:14	
4.933	299.3	20:18	
5.000	299.3	20:22	
5.067	298.6	20:26	
5.133	299.3	20:30	
5.200	299.3	20:34	
5.267	299.3	20:38	
5.333	298.6	20:42	
5.400	298.6	20:46	
5.467	298.6	20:50	
5.533	298.6	20:54	
5.600	297.9	20:58	
5.667	297.9	21: 2	
5.733	297.9	21: 6	
5.800	297.9	21:10	
5.867	297.2	21:14	
5.933	297.2	21:18	
6.000	297.2	21:22	
6.067	297.2	21:26	
6.133	297.2	21:30	

PULL PACKER  
(FINAL HYDROSTATIC?)

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DST 1, RUN 1. GAUGE 0190, SENSING DEPTH 4285.66 M. (POST-TEST PERIOD)

DELTA TIME	TEMPERATURE	TIME	DATE	
6.200	297.2	21:34	18- 4-82	
6.267	297.2	21:38		
6.333	297.2	21:42		
6.400	297.2	21:46		
6.467	297.2	21:50		
6.533	297.2	21:54		
6.600	297.2	21:58		
6.667	297.2	22: 2		
6.733	297.2	22: 6		
6.800	297.2	22:10		
6.867	297.2	22:14		
6.933	297.2	22:18		
7.000	297.2	22:22		
7.067	296.4	22:26		
7.133	296.4	22:30		
7.200	296.4	22:34		
7.267	296.4	22:38		
7.333	296.4	22:42		
7.400	296.4	22:46		
7.467	296.4	22:50		
7.533	296.4	22:54		
7.600	296.4	22:58		
7.667	296.4	23: 2		
7.733	296.4	23: 6		
7.800	296.4	23:10		
7.867	296.4	23:14		
7.933	296.4	23:18		
8.000	295.7	23:22		
8.067	295.7	23:26		
8.133	295.7	23:30		
8.200	295.7	23:34		
8.267	295.7	23:38		
8.333	295.7	23:42		
8.400	295.7	23:46		
8.467	295.7	23:50		
8.533	295.0	23:54		
8.600	295.0	23:58		
8.667	295.7	0: 2	19- 4-82	
8.733	295.7	0: 6		
8.800	295.7	0:10		
8.867	295.7	0:14		
8.933	295.7	0:18		
9.000	295.7	0:22		
9.067	295.7	0:26		
9.133	295.7	0:30		

RESET PACKER

COMMENCE POOH

CONTENTS - DST-2

1. SUMMARY AND DISCUSSION OF RESULTS
  
2. FIELD DATA
  - Diary of Events
  - DST Tool String
  - Gauge Data Sheet
  - Flowtest Summary Sheet
  - Graphical Diary of Events
  - Graphical Production History
  - Rigsite Gas Analysis by Detector Tubes
  - Rigsite Water Analysis
  - Sample Data Sheets
  
3. FLOPETROL FIELD DATA
  - Well Testing Data Sheets
  - Bottom Hole Pressure Calculations
  
4. SPERRY SUN GAUGE READINGS

## DST-2 Summary of Results

### 1. Tested Interval

The following interval in the Jurassic (Brent) formation was perforated for DST-2 (ref field FDC/CNL run 8C)

4256 - 4260 mBRT

### 2. Sequence of Events

The timing of the test is summarised as follows;

Main flow period	1065 minutes
Main shut-in	973 minutes

### 3. Flow and Shut-in Periods

As with DST-1, difficulty was encountered opening the APR-N tester valve.

The main flow period lasted for a total period of 1065 minutes. It was necessary to limit drawdown to avoid the risk of breaking the cement bond either above or below the interval tested. Choke sizes throughout the test were varied between 2/64" and 12/64" to achieve measureable flowrates, but without putting excessive drawdown on the formation.

Formation water was produced at surface as indicated by the change in the chlorides content after 1001 minutes of continuous flow. On completion of the flow period, an unsuccessful attempt was made to reverse out the string contents by pressuring up the annulus to a maximum value of 3500 psi to activate the APR-M reversing valve. As this was not possible the well was closed in downhole and at surface to monitor the main pressure build-up (duration 973 minutes).

#### 4. Fluid Production

The flowrate of water cushion returns was initially measured by flowing the well to two 1 bbl oil drums. After 62 minutes continuous flow, the well was diverted to the Flopetrol gauge tank, where the flowrates were measured by tank dipping. Associated dissolved gas was present in insignificant quantities.

At the end of the main flow period the well was flowing formation water on a 4/64" adjustable choke at a rate of 279 BWPD with a WHFP of 3800 psig and a WHFT of 58<sup>o</sup>F. The average flowrate for the entire flow period is estimated to be 184 BWPD. There was no evidence of free hydrocarbons having been produced on reversing out, or on top of the test tools when retrieved at surface.

The total volume of formation water estimated to have been produced (including the string volume on reversing out) is 137 STB.

#### 5. Fluid Sampling

A total of 43 atmospheric samples of water were collected throughout the duration of the test.

Rigsite analysis of the water chlorides showed a distinct change from seawater cushion (typically 20,000 ppm Cl<sup>-</sup>) to formation water (maximum value 41,500 ppm).

Dissolved gas was tested using Draeger tubes only; these showed that there was no H<sub>2</sub>S present, with CO<sub>2</sub> detectable in trace amounts (0.2%) only towards the end of the flow period.

#### 6. Pressure Build Up Analysis

A pressure build-up was not obtained due to a leak in the packer by-pass when attempts were made to reverse out the contents of the tubing (ie. on completion of the main flow period). The downhole pressure gauges were thus subject to mud hydrostatic pressure plus

an annulus pressure of 3500 psi maximum, rather than the formation pressure response. However flowrates obtained were in agreement with those calculated using the well inflow equation and core-derived permeabilities through the interval tested; the test objectives to determine the nature of the mobile fluid in this interval were therefore achieved.

2. FIELD DATA

Diary of Events

DST Tool String

Gauge Data Sheet

Graphical Diary of Events

Graphical Production History

Rigsite Analysis by Detector Tubes

Rigsite Water Analysis

Sample Data Sheets

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>2</u> ZONE TESTED: <u>Jurassic - Brent</u> PERFS. : <u>4256 - 4260 mBRT</u> (FDC-CNL Run 8C)
DATE	TIME	OPERATIONS
20/04/82	0745	Rig up Schlumberger to run cement retainer.
	0813	RIH
	0930	Passed into top of liner ok.
	1045	Could not pass 4174m - obstruction in casing.
	1055	At T.D.
	1100	Stuck just above perforations at 4282m. Set cement retainer.
	1140	POH
		Closed blind-shear rams and pressure tested on top of cement retainer to 3000 psi ok.
	1340	Rig up to run perforating guns.
	1330	Run in hole to perforate for DST-2 - run no 14C.
	1430	Generator failure.
	1550	Perforate interval 4256 - 4260 mBRT (FDC-CNL 8C)
	1600	POH
	1645	Guns at surface - all shots fired.
	2358	Sting into cement retainer. Circulation between perforations (4287 - 4301 and 4256 - 4260) established.
21/04/82	0300	Squeezed 10 bbl of cement beneath cement retainer.
	1030	Conduct BOP test.
	1730	Make up bit and casing scraper. Trip in hole.
22/04/82	1000	Rig up Schlumberger to run CBL, perforation gun (4256 - 4260 mBRT) and junk basket. Pull wear bushing.
	2145	Start running Halliburton tools for DST-2.
	2215	Pump viscous gel into 3 1/2" drill pipe (no. 1). Insert 3 Sperry Sun gauges. All on 17 hrs delay. One gauge set to 2 min sampling mode and two set to 4 min sampling mode.
COMMENTS :		
P.E. : _____		

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>2</u>
		ZONE TESTED: <u>Jurassic - Brent PERFS.</u> : <u>4256 - 4260 mBRT</u> (FDC-CNL Run 8C)
DATE	TIME	OPERATIONS
	2228	Pump viscous gel into 3 1/2" drill pipe (no. 2). Insert 4 Flopetrol gauges. One temperature gauge and three RPG-3 gauges.
	2243	R.I.H. with packer, safety joint, Big John jars and hydraulic bypass.
	2248	Make up APR-N valve and bleed off valve.
	2305	Pump viscous gel into 4 3/4 single drill collar (no. 10). Make up APR-M valve.
	2320	Make up two slip joints and fill with viscous gel.
	2348	Pump viscous gel into first stand of 4 3/4 drill collar (collar no. 8).
23/04/82	0056	Pressure test above first stand of drill collars to 5000 psi for 15 min - good test.
	0113	Insert RTTS reverse circulating valve.
	0125	R.I.H. with seven stands of 4 3/4 drill collars.
	0225	R.I.H. with three slip joints and one joint of 12.7 lb/ft 3 1/2" VAM tubing.
	0326	Pressure test above 3 1/2" VAM tubing. Pressure fall-off recorded due to air in viscous gel and water cushion. Pressure taken up to 5000 psi and held for 15 min - good test.
	0420	Commence running stands of 12.7 lb/ft N-80 3 1/2" VAM tubing.
	1155	Pressure test above stand no. 67 to 6000 psi. Two surface leaks detected. Test down string for 15 min - good test. Continue running stands of N-80 tubing.
	1515	Commence R.I.H. with 3 1/2" VAM (L-80) joints.
	2320	Test down string to 9500 psi for 15 min below SSTT - good test.
	2340	Pick up SSTT. Safety meeting for night shift.
24/04/82	0125	Pressure test above SSTT with ball valve open. 9500 psi for 20 min - good test. Safety meeting for day crew.
COMMENTS :		
RE. : _____		

DIARY OF EVENTS	WELL No : <u>29/6-1</u>	DST No : <u>2</u>
	ZONE TESTED: <u>Jurassic - Brent</u>	PERFS. : <u>4256 - 4260 mBRT</u> (FDC-CNL Run 8C)

DATE	TIME	OPERATIONS
	0300	Commence running landing string.
	0410	All L-80 joints run. Prepare to pick up flowhead.
	0510	Landed string in wellhead 3.6m into flowhead joint.
	0610	Pressure test surface lines to 10,500 psi for 10 min against kill valve - good test.
	0621	Pressure test against flowline valve, down the string to 10,500 psi for 20 min.
	0650	Grease nipple tightened before commence pressure testing.
	0700	Pressure test against flowline and master valve to 10,500 psi for 10 min - good test.
	0710	Connect up choke manifold.
	0914	Flush lines through production equipment.
	0930	Pressure test downstream valves on choke manifold. Leaking chiksan.
	0945	Tide changed. Flowhead joint 4.2m into R.T.
	0950	Pressure test downstream valves on choke manifold to 9000 psi for 10 min - good test.
	1005	Pressure test upstream valves on choke manifold to 10,500 psi for 15 min - good test.
	1023	Internally pressure test kill line valve on flowhead to 10,000 psi - good test.
	1044	Pressure test against heater inlet valve and by-pass valve to 10,000 psi for 15 min - good test.
	1110	Packer set under the direction of the Halliburton operator.
	1115	Short safety meeting on rig floor.
	1123	Rechecked the entire system status prior to opening the well.
	1144	Close 5" and 3 1/2" rams on slick joint.
	1146	Pressure up tubing to 4500 psi.

COMMENTS :

PE. : \_\_\_\_\_

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>2</u>
		ZONE TESTED: <u>Jurassic - Brent PERFS.</u> : <u>4256 - 4260 mBRT</u> (FDC-CNL Run 8C)
DATE	TIME	OPERATIONS
	1154	First attempt to open APR-N valve by pressuring up annulus to 2000 psi.
		Record 200 psi pressure increase due to compression of tubing.
	1204	Bleed off tubing on 8/64" choke to 3550 psi.
	1213	Bleed off annulus pressure.
	1220	Pressure up string to 5590 psi - close kill valve.
	1227	Pressure up annulus - increase in trip tank. Surface valves rechecked.
	1232	Pressure up annulus to 2000 psi.
	1239	Bleed off pressure from choke manifold to 3800 psi.
	1245	Increase annulus pressure to 2300 psi.
	1301	Pressure up string to 5800 psi.
	1304	Bleed off tubing pressure (on choke manifold) to 3800 psi.
	1317	Pressure up tubing to 5850 psi. Bleed off annulus pressure.
	1320	Pressure up annulus to 2300 psi.
	1326	Bleed off pressure on 32/64" choke to 3785 psi.
	1334	Pressure up tubing to 5850 psi.
	1340	Bleed off annulus pressure. Increase annulus pressure to 2300 psi.
	1348	Bleed off tubing pressure to 3850 psi.
	1353	Bleed off annulus pressure. Pressure up annulus to 2300 psi.
	1355	Bleed off tubing pressure to 3990 psi.
	1428	Pressure up tubing to 5850 psi. Bleed off annulus pressure.
	1433	Pressure up annulus to 2200 psi.
	1436	Bleed off tubing pressure to 3850 psi on 32/64" choke.
	1455	Bleed off tubing pressure to 3315 psi.
	1519	Bleed off tubing pressure to 2825 psi.
	1545	Changed dead weight tester on choke manifold.
	1549	Bleed off tubing pressure to 2308 psi.
	1610	Bleed off tubing pressure to 1794 psi.
COMMENTS :		
RE. : _____		

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>2</u> ZONE TESTED: <u>Jurassic - Brent PERFS. : 4256 - 4260 mBRT</u> (FDC-CNL Run 8C)
DATE	TIME	OPERATIONS
	1653	Bleed off tubing pressure to 1297 psi.
	1708	Bleed off tubing pressure to atmospheric.
	1735	Bleed off annulus pressure.
	1752	Unset packer. Obvious packer was set originally.
	1801	Set packer.
	1806	Close rams on slick joint.
	1816	Pressure up tubing to 6110 psi.
	1817	Pressure up annulus to 2300 psi.
	1831	Bleed off tubing pressure to 3760 psi.
	1838	Pump glycol to SSTT. Pressure increase on choke manifold. Obvious SSTT open.
	1840	Bleed off tubing pressure to 3367 psi.
	1848	Bleed off tubing pressure to 2640 psi.
	1859	Bleed off tubing pressure to 2175 psi.
	1904	Bleed off tubing pressure to 1908 psi.
	1911	Bleed off tubing pressure to 696 psi.
	1915	Bleed off tubing pressure to atmospheric pressure.
	1920	Hook up chiksan for injection test.
	1939	Close master valve. Pressure test surface lines to 10,500 psi - good test.
	1946	Open master valve.
	1950	Pressure up tubing to 6600 psi. Annulus pressure 2300 psi.
	1958	Increase tubing pressure to 7600 psi.
	2003	Increase tubing pressure to 8780 psi.
	2010	Increase tubing pressure to 9500 psi.
	2022	Bleed off tubing pressure to atmospheric.
	2104	Pressure up tubing to 5000 psi.
COMMENTS :		
P.E. : _____		

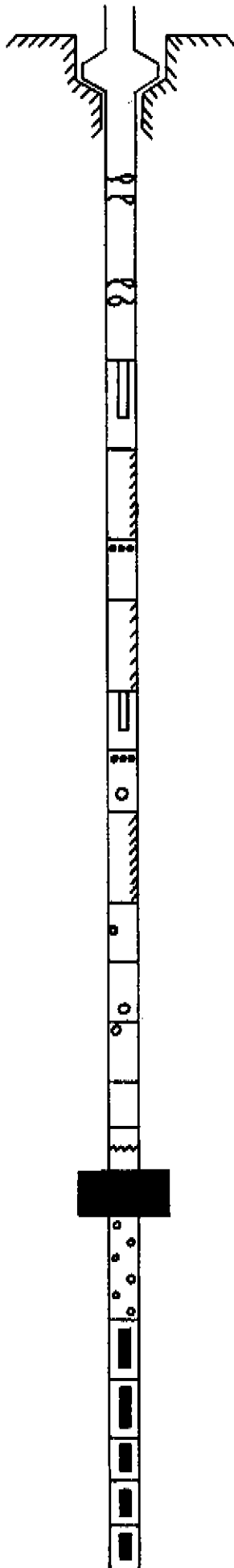
DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>2</u> ZONE TESTED: <u>Jurassic - Brent PERFS.</u> : <u>4256 - 4260 mBRT</u> (FDC-CNL Run 8C)
DATE	TIME	OPERATIONS
	2112	Pressure up annulus to 2400 psi.
	2117	Bleed off tubing pressure to 3000 psi.
	2121	Bleed off tubing pressure to 1500 psi.
	2129	Pressure up tubing to 5000 psi.
	2135	Bleed off annulus pressure.
	2135	Pressure up annulus to 2400 psi.
	2139	Bleed off tubing pressure to 3000 psi.
	2144	Bleed off tubing pressure to 1500 psi.
	2153	Pressure up tubing to 5000 psi.
	2153	Open APR-N valve by pressuring up annulus from 2400 to 2600 psi.
	2158	Bleed off tubing to 3345 psi. WHCIP increase 58 psi/min.
	2208	WHCIP increase to 3650 psi.
	2215	WHCIP increase to 3900 psi.
	2307	WHCIP 4630 psi. Bleed back annulus pressure to 2250 psi to avoid any possible shearing of the APR-M valve.
	2309	Bleed back WHCIP (on 8/64" choke) to 3000 psi to observe if APR-N valve still open.
	2316	WHCIP = 3520 psi.
	2318	Open well on 8/64" adjustable choke. Flow directed to 1 bbl drums for accurate flow measurements.
	2319	Change choke to 3/64" adjustable choke.
	2320	Close well in at choke.
	2320	Open well on 3/64" choke, change to 2/64" choke.
	2324	Change to 3/64" adjustable choke.
	2329	Change to 2/64" adjustable choke.
	2332	Change to 3/64" adjustable choke.
	2340	Change to 2/64" adjustable choke.
COMMENTS :		
RE. : _____		

DIARY OF EVENTS		WELL No : 29/6-1	DST No : 2
		ZONE TESTED: Jurassic - Brent PERFS. : 4256 - 4260 mBRT (FDC-CNL Run 8C)	
DATE	TIME	OPERATIONS	
	2342	Change to 3/64" adjustable choke.	
25/04/82	0004	Change to 4/64" adjustable choke.	
	0020	Change to 6/64" adjustable choke.	
	0023	Change to 5/64" adjustable choke.	
	0031	Change to 4/64" adjustable choke.	
	0032	Change to 3/64" adjustable choke.	
	0122	Change to 4/64" adjustable choke.	
	0500	Well flowing stable with average data: WHFP = 3800 psi, Q = 170 BWPD.	
	1334	Change choke to 5/64" adjustable choke.	
	1336	Change choke to 6/64" adjustable choke.	
	1345	Change choke to 8/64" adjustable choke.	
	1349	Change choke to 10/64" adjustable choke.	
	1353	Change choke to 12/64" adjustable choke.	
	1354	Change choke to 8/64" adjustable choke.	
	1356	Change choke to 6/64" adjustable choke.	
	1428	Change choke to 4/64" adjustable choke.	
	1437	Change choke between 5/64" and 6/64" adjustable choke.	
	1447	Change choke to 6/64" adjustable choke.	
	1456	Change choke to 8/64" adjustable choke.	
	1457	Change choke to 10/64" adjustable choke.	
	1459	Change choke to 8/64" adjustable choke.	
	1500	Change choke to 6/64" adjustable choke.	
	1501	Change choke to 4/64" adjustable choke.	
		Formation water to surface. Chlorides (Cl-) changed from 20,000 ppm to 27,000 ppm.	
	1515	Chlorides increased to 36,000 ppm.	
	1638	Pressure up annulus to 3500 psi to shear APR-M valve.	
COMMENTS :			
P.E. : _____			

DIARY OF EVENTS		WELL No : 29/6-1	DST No : 2
		ZONE TESTED: <u>Jurassic - Brent</u>	PERFS. : <u>4256 - 4260 mBRT</u> (FDC-CNL Run 8C)
DATE	TIME	OPERATIONS	
	1643	Annulus pressure leaking off to 3000 psi.	
	1644	Increase annulus pressure from 3000 - 3500 psi.	
	1647	Annulus pressure leaking off to 2450 psi.	
	1651	Increase annulus pressure to 3500 psi. Pumped 8 bbl into annulus.	
		Suspect pressure loss problem to be a surface leak.	
	1705	Close well-in on choke manifold by bleeding off annulus pressure.	
		Observe main p.b.u.	
26/04/82	0900	WHCIP decreased since well closed-in. Indicate that the APR-N valve is not leaking.	
	0905	Close 5" rams on slick joint.	
	0908	Increase annulus pressure. Open APR-N valve at 2000 psi. Observe increase in tubing pressure (approx. 1000 psi).	
	0912	Increase annulus pressure to 3500 psi to shear the APR-M valve.	
		Choke manifold pressure 6000 psi.	
	0914	Annulus pressure leaking off.	
	0928	Bleed off annulus pressure.	
	0930	Pressure up annulus to 3500 psi. Pressure leaking off.	
	0950	Bleed off annulus pressure. Total pumped 10 1/2 bbl down annulus.	
		Return 8 bbl. Lost 1 1/2 bbl.	
	1005	Pressure up against fail-safe 350 psi. Holding pressure.	
	1010	Bleed off pressure. Open rams.	
	1015	Lift up string to open RTTS reverse circulating valve.	
	1018	Rotate R.T. 1 1/2 times to right.	
	1021	Free flowline valve control hose.	
	1030	Try to open RTTS reverse circulating valve.	
	1041	Try to open RTTS reverse circulating valve. No pressure increase at	
		choke manifold.	
COMMENTS :			
PE. : _____			

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>2</u>
		ZONE TESTED: <u>Jurassic - Brent</u> PERFS. : <u>4256 - 4260 mBRT (FDC-CNL Run 8C)</u>
DATE	TIME	OPERATIONS
	1048	Land string in wellhead.
	1051	Open RTTS reverse circulating valve. Bleed-off choke manifold pressure.
	1115	Reverse circulating stopped. Problem seems to be:
		1) Plugging of RTTS reverse circulating valve.
		2) RTTS reverse circulating valve closed.
	1130	Lift up string to open RTTS reverse circulating valve, Close rams. Pressure up annulus to 350 psi.
	1150	Close choke manifold.
	1156	Bleed off annulus pressure.
	1200	Land string in wellhead.
	1211	Pick up string and rotate 5 turns to right.
	1216	Pick up string.
	1226	Close rams. Pressure up annulus to 700 psi. Increase pressure to 1200 psi.
	1239	Open rams. Rotate tubing to open RTTS reverse circulating valve.
	1252	Pressure up annulus to 1300 psi.
	1320	Bleed off annulus pressure. Open rams.
	1322	Open kill-line valve on flowhead, Fill up tubing with water. Attempt to pressure up tubing to establish circulation. Gain fluid in trip tank.
	1348	Pressure up annulus to 500 psi. No circulation.
	1430	Re-check entire kill-line system.
	1454	Pressure up tubing to 4200 psi. Circulation established.
	1501	Reverse circulate. Circulation pressure 2500 psi on choke manifold.
		Inject glycol to clear line to SSTT. Bottoms up on reverse circulation
		- 26.5% gas.
COMMENTS :		
RE. : _____		

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>2</u> ZONE TESTED: <u>Jurassic - Brent</u> PERFS. : <u>4256 - 4260 mBRT</u> <u>(FDC-CNL Run 8C)</u>
DATE	TIME	OPERATIONS
	2100	Bottoms up on normal circulation - 3.9% gas.
	22.20	Start P.O.H. Break out flowhead.
	2242	Pull packer at 35.000 lb overpull.
	2330	Break out SSTT.
27/04/82	0630	Halliburton tools at surface.
		Difficulty in collapsing slip joints during this time RTTS circu-
		lating valve in rotary table. Locked open. Collected thick hard mud
		deposits from shoulder of this tool as before.
	0830	Two lower slip joints at surface.
	0845	APR-M tool in rotary - not activated.
	0922	APR-N tool in rotary. Checked N <sub>2</sub> chamber, pressure 5200 psi - no
		leaks.
		Packer assembly in rotary table. Packer rubbers - normal damage.
		Hydraulic by-pass appears to have been washed out.
	1020	Gauge carriers in rotary, Metal fragments in top of carriers.
	1055	All tools out of hole.
		Hydraulic by-pass inner mandrel appeared to be washed out (from the
		outside in). This has possibly been partly responsible for the
		difficulties we have encountered cycling the annulus pressure
		operated tools. Also, when the annulus was pressured up to open the
		APR-M tool on completion of the flowperiod, leaking underneath the
		packer occurred which eliminated the pressure build up data - no
		analysis could be made for the test.
		The APR-N tool showed no sign of washout. There were no traces of
		sand on the tool.
		Backloaded the APR-M tool to town for 'experiments'.
		RIH to set plug following DST-2.
COMMENTS :		
END DST-2.		
PE. : _____		



WELL 29/6-1 - DST-2

TEST STRING CONFIGURATION	LENGTH	DEPTH MBRT
DATUM TOP 13 5/8 W.H.B		<u>146.50</u>
HANG-OFF POINT	<u>0.45</u>	<u>146.95</u>
3 1/2" VAM TUBING 118 STANDS + SINGLE 12.7 LB/FT N-80 45 SINGLES 15.8 LB/FT L-80		
	<u>3816.50</u>	<u>3963.45</u>
3 SLIP JOINTS 2 OPEN, 1 CLOSED	<u>14.87</u>	<u>3978.32</u>
7 STANDS 4 3/4" D.C.	<u>197.39</u>	<u>4175.71</u>
RTTS CIRCULATING VALVE	<u>1.03</u>	<u>4176.74</u>
1 STAND 4 3/4" D.C.	<u>28.89</u>	<u>4205.63</u>
2 SLIP JOINTS BOTH CLOSED	<u>7.88</u>	<u>4213.51</u>
APR-M REVERSING VALVE	<u>2.23</u>	<u>4215.74</u>
1 SINGLE 4 3/4" D.C.	<u>9.55</u>	<u>4225.29</u>
BLEED OFF VALVE	<u>0.74</u>	<u>4226.03</u>
APR-N VALVE	<u>3.93</u>	<u>4229.96</u>
HYDRAULIC BY-PASS	<u>2.11</u>	<u>4232.07</u>
BIG JOHN JARS	<u>1.57</u>	<u>4233.64</u>
SAFETY JOINT	<u>0.84</u>	<u>4234.48</u>
PACKER	<u>0.56</u>	<u>4235.04</u>
4 SECTIONS	<u>0.82</u>	<u>4235.86</u>
1000 HOLE		
ANCHOR PIPE	<u>6.54</u>	<u>4242.40</u>
3 1/2" DRILL PIPE AMERADAS	<u>9.82</u>	<u>4252.22</u>
3 1/2" DRILL PIPE SPERRY SUN GAUGES	<u>10.01</u>	<u>4262.23</u>
BOBT CASE	<u>1.23</u>	<u>4263.46</u>
BOBT CASE	<u>1.23</u>	<u>4264.69</u>
BOBT CASE	<u>1.55</u>	<u>4266.24</u>

WELL 29/6-1

GAUGES RUN - TEST NO. 2

RTE 24.23

Owner	Gauge Type	Position in String	Distance from top Hanger	Gauge Depth mBRT	Gauge Depth mSS	Date Clock Set	Time Clock Set	Clock No.	Clock hrs.	Gauge No.	Range PSI	Calib. Temp. °F	Remarks
Flopetrol	RPG-3	3 1/4 Drill Pipe	2.05	4244.81	4220.58	22.04.82	2206	E-9184	72	41128	0-20M	300	Good data obtained
Flopetrol	RPG-3	"	3.86	4246.62	4222.39	"	2203	11923	120	41126	0-20M	300	Good data obtained
Flopetrol	RPG-3	"	5.95	4248.71	4224.48	"	2200	11924	120	36439	0-20M	300	Lead screw sticking Poor data
Flopetrol	RT-7	"	7.70	4250.46	4226.23	"	2157	DMA 577	120		-	200-400	Clock stopped at beginning of flow period
Sperry Sun	MRPG-3	3 1/4 Drill Pipe	2.76	4254.98	4230.75	"	2142			0039	0-15M		Delay 120 min Sample mode 4 min Good data obtained
Sperry Sun	"	"	5.77	4257.99	4233.76	"	2144			0009	0-15M		Delay 1020 min Sample mode 4 min Gauge failed during main flow period
Sperry Sun	"	"	8.75	4260.97	4236.74	"	2146			0190	0-15M		Delay 1020 min Sample mode 2 min Clock stopped during P.R.T.
Hallib.	BT Press	Blacked off case below packer		4263.46	4239.23	"	2144	14228	120	6140	0-20M		Failed
Hallib.	BT Press	"		4264.69	4240.46	"	2145	14008	120	6139	0-20M		Failed
Hallib.	BT Temp.	"		4266.24	4242.01	"	2146	TE 28	72	8566	100 - 400 °F		Failed

## FLOW TEST SUMMARY SHEET

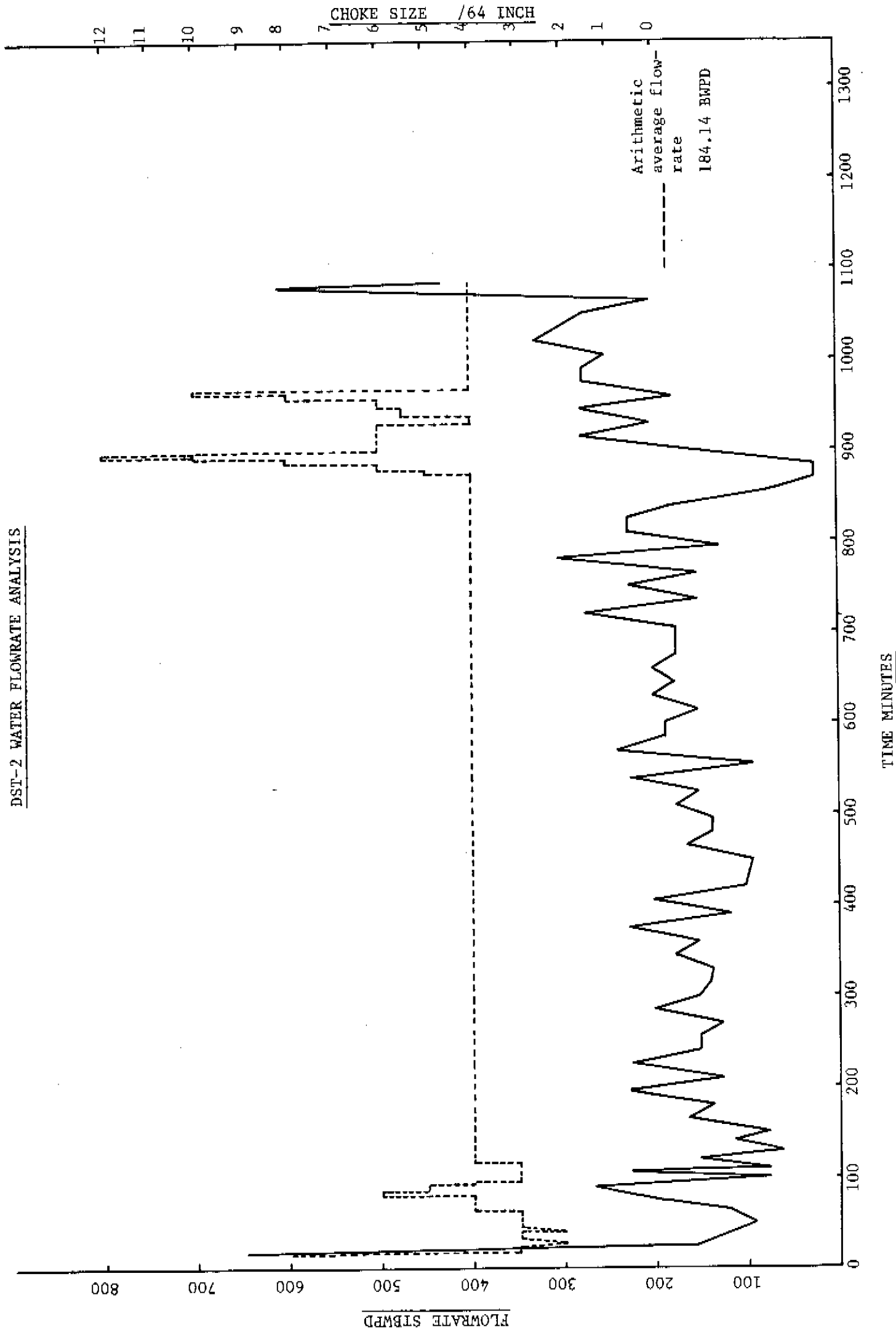
WELL No. 29/6-1		DST No. 2		DATE: 24-25.4.82			
FORMATION: Jurassic			PERF INT. 4256-4260 mBRT				
TEST STRING: Halliburton APR-N			WATER CUSHION: Full				
TIME H.M	EVENT	RATES - STBPD		SEP GOR	PRESSURE - PSIG		TEMP F°
		OIL	WATER	SCF/STB	WELL HEAD	SEPARATOR	SEPARATOR
	<u>24.4.82</u>						
21.53	Open APR-N tester valve						
23.18	Open well for main flow period 8/64						
23.42	Change choke to 3/64" adjustable		76				
	<u>25.4.82</u>						
00.04	Increase choke to 4/64" adjustable		159				
00.32	Decrease choke to 3/64" adjustable		114				
01.22	Change choke to 4/64" adjustable		169				
13.56	Increase choke to 6/64" adjustable		215				
15.01	Reduce choke to 4/64" adjustable		332				
16.38	Attempt made to activate APR-M valve to reverse out string contents						
	<u>26.4.82</u>						
10.51	Open RTTS rev. circ. valve. Reverse circulate string contents						
11.15	Circulation stopped. Plugging						
15.01	Cont. reverse circulation						

FLUID SAMPLING	OIL	WATER	GAS
ATMOSPHERIC		29xl liter plastic 11x60 liter plastic 3xl liter plastic (cushion)	
SEPARATOR			
WELL HEAD			
DOWNHOLE			
GRAVITIES	°API	Gm/cc	(AIR=1)
<u>COMMENTS:</u>			

GRAPHICAL DIARY OF EVENTS DST-2

EVENT	Time hrs	DOWNHOLE	PRESSURE PSIG	RECORD			
		10000	10000	10000			
R.O.H. major string to Alpehah A-Z tree							
Complete picking up SST. Complete pressure and function testing	25						
Land string. Pressure test all surface equipment.							
Set packer	35						
Initial attempts to open APR-N tester valve							
Attempt to reset packer	45						
	55						
Opened well for main flow period.							
	65						
Attempt to reverse out string contents immediately on completion of main flow period by pressuring up annulus to activate APR-M reversing valve.							
Main p.b.v. complete.	75						
	85						
Attempts to activate APR-M valve on completion of main p.b.v. - unsuccessful.							
Reverse circulate string contents by activating APRs circulating valve.	95						
P.O.H. with test string							

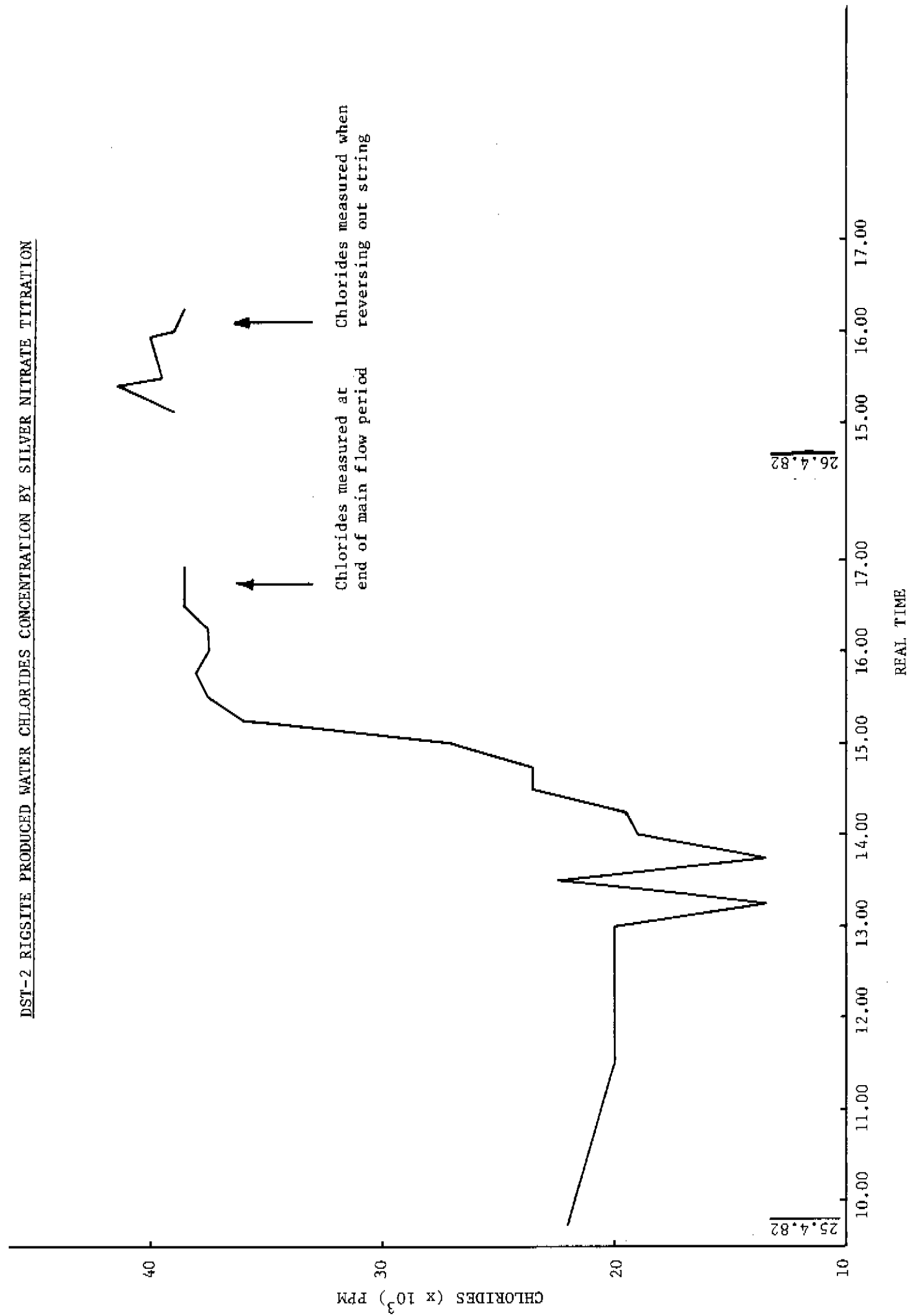
DST-2 WATER FLOWRATE ANALYSIS



DST-2 GAS COMPOSITION MEASUREMENTS BY DETECTOR TUBES

H <sub>2</sub> S			CO <sub>2</sub>		
Time	Pump Stroke (n)	Reading (ppm)	Time	Pump Stroke (n)	Reading (%)
100	4	0	"	4	0
115	4	0	"	4	0
130	4	0	"	4	0
145	4	0	"	4	0
200	4	0	"	4	0
215	4	0	"	4	0
230	4	0	"	4	0
245	4	0	"	4	0
300	4	0	"	4	0
315	4	0	"	4	0
330	4	0	"	4	0
345	4	0	"	4	0
400	4	0	"	4	0
415	4	0	"	4	0
630	4	0	"	4	0
700	4	0	"	4	0
730	4	0	"	4	0
800	4	0	"	4	0
830	4	0	"	4	0
900	4	0	"	4	0
930	4	0	"	4	0
1000	4	0	"	4	0
1030	4	0	"	4	0
1100	4	0	"	4	0
1130	4	0	"	4	0
1200	4	0	"	4	0
1230	4	0	"	4	0
1300	4	0	"	4	0
1330	4	0	"	4	0
1400	4	0	"	4	0
1430	4	0	"	4	0
1500	4	0	"	4	0.2
1530	4	0	"	4	0.2
1600	4	0	"	4	0.2
1630	4	0	"	4	0.2
1645	4	0	"	4	0.2

DST-2 RIGSITE PRODUCED WATER CHLORIDES CONCENTRATION BY SILVER NITRATE TITRATION



## DST-2

## PRODUCED WATER CHLORIDES MEASUREMENTS

Well 29/6-1

Date	Time (hrs)	Sample No.	Chloride ppm	NaCl from chloride	Temp. °C	Resistivity $\Omega$ -m at 60°F	NaCl from resistivity	
25.4.82	0945	4	22 000	36 300	10,5	0.209	38 000	
	1130	5	20 000	33 000	12	0.226	35 000	
	1145	6	20 000	33 000	13	0.230	35 000	
	1230	7	20 000	33 000	12,5	0.227	35 000	
	1300	8	20 000	33 000	12	0.226	35 000	
	1315	9	13 500	22 750	13	0.265	29 000	
	1330	10	22 500	37 150	12	0.220	36 000	
	1345	11	13 500	22 750	12,5	0.279	27 000	
	1400	12	19 000	31 350	13	0.271	28 000	
	1415	13	19 500	32 175	13	0.227	35 000	
	1430	14	23 500	38 775	13	0.214	39 000	
	1445	15	23 500	38 775	13	0.196	41 000	
	1500	16	27 000	44 550	13	0.147	57 000	
	1515	17	36 000	59 400	13	0.141	60 000	
	1530	18	37 500	61 875	13	0.137	61 000	
	1545	19	38 000	62 700	13,5	0.146	57 000	
	1604	20	37 500	61 875	13,5	0.143	60 000	
	1615	21	37 500	61 875	13	0.141	60 000	
			22	60 l sample				
		1630	23	38 500	63 825	13	0.151	55 000
		1650	24	38 500	63 825	13	0.151	55 000
			25	60 l sample				
	26.4.82	0930	26	36 000	59 400	12	0.173	46 000
		0920	27	60 l sample				
		1106	28	60 l sample				
1103		29	39 500	65 175	12	0.165	49 000	
1105		30	60 l sample					
1110		31	40 500	66 825	12	0.157	52 000	
1115		32	60 l sample					
1505		33	60 l sample					
1508		34	39 000	64 350	12	0.173	46 000	
1520		35	41 500	68 475	12	0.184	42 000	
1530		36	60 l sample					
1530		37	39 500	55 175	12	0.176	44 000	
1540		38			12	0.175	44 000	
1555		39	40 000	60 000	12	0.178	43 000	
1550		40	60 l sample					
1600		41	39 000	64 350	12	0.158	50 000	
1605		42			12	0.137	59 000	
1615		43	38 500	63 825	12	0.140	59 500	

BP PETROLEUM DEVELOPMENT OF NORWAY A/S

SAMPLING DATA SHEET WELL No. 29/6-1

TEST No.: DST 2 FORMATION: Brent Sand

SAMPLE No.	DATE	TIME	SAMPLE TYPE	SAMPLE POINT	SAMPLING POINT		CONTAINER VOL & TYPE	REMARKS
					P - PSIG	T - °F		
1	22.4.82	22.30	Viscous Gel	Drill Floor			1 litre Plastic	
2	23.4.82	1.50	Water Cushion	"			"	
3	24.4.82	3.40	Water Cushion	"			"	
4	25.4.82	9.45	Water	Separator Bypass			"	Flowing well
5	"	11.30	"	Heater Bypass			"	
6	"	11.45	"	"			"	
7	"	12.30	"	"			"	
8	"	13.00	"	"			"	
9	"	13.15	"	"			"	
10	"	13.30	"	"			"	
11	"	13.45	"	"			"	
12	"	14.00	"	"			"	
13	"	14.15	"	"			"	
14	"	14.30	"	"			"	
15	"	14.45	"	"			"	
16	"	15.00	"	"			"	
17	"	15.15	"	"			"	
18	"	15.30	"	"			"	
19	"	15.45	"	"			"	
20	"	16.04	"	"			"	
21	"	16.15	"	"			"	
22	"	16.20	"	Oil Manifold			60 litre	
23	"	16.30	"	"			"	
24	"	16.50	"	"			"	
25	"	17.00	"	"			60 litre	
26	26.4.82	9.30	"	Separator Bypass			1 litre	Reversing out
27	"	9.20	"	"			60 litre	"
28	"	11.06	"	"			"	"
29	"	11.03	"	"			"	"
30	"	11.05	"	"			1 litre	"
31	"	11.10	"	Oil Manifold			60 litre	"
32	"	11.15	"	"			1 litre	"
33	"	15.05	"	"			60 litre	"
34	"	15.08	"	"			60 litre	"
35	"	15.20	"	"			1 litre	"
36	"	15.30	"	"			1 litre	"

BP PETROLEUM DEVELOPMENT OF NORWAY A/S

SAMPLING DATA SHEET WELL No. 29/6-1

TEST No. 1 DST 2 FORMATION: Brent Sand

SAMPLE No.	DATE	TIME	SAMPLE TYPE	SAMPLE POINT	SAMPLING POINT		CONTAINER VOL & TYPE	REMARKS
					P - PSIG	T - °F		
37	26.4.82	15.30	Water	Oil Manifold			1 litre	Reversing out
38	"	15.40	"	"			60 litre	"
39	"	15.55	"	"			1 litre	"
40	"	15.50	"	"			60 litre	"
41	"	16.00	"	"			1 litre	"
42	"	16.05	"	"			1 litre	"
43	"	16.15	"	"			1 litre	"

Flopetrol Well Testing Data Sheets

DST 2

# FLOPETROL

Client: B.P. PET DEV  
 Field: WILD CAT  
 Well: 29/6-1

## - WELL TESTING DATA SHEET -

Section: **7**  
 Page Report N°: \_\_\_\_\_

Base: STANVANUER

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS			WELL HEAD			SEPARATOR			PROD. RATES AND FLUID PROPERTIES			GOR	
	Temp. °F	Pressure PSIG	Bottom Hole Pressure PSIG	Tg. Temp. °F	Tg. Press. PSIG	Cg. Press. PSIG	Temp.	Press.	Oil or Condensate Rate	Gravity	BSW	Rate		Gravity
4/4/82														
2152														
2154	0	11872			3000									
2155	1/0	9177												
2156	1	9402			3100									
2158	3	9538			3270									
2200	5	9727			3345									
2202	7	9889			3480									
2204	9	10129			3550									
2206	11	9878			3640									
2208	13	9993			3730									
2210	15	10082			3820									
2212	17	10140			3890									
2214	19	10281			3940									
2216	21	10291			3990									

LIQUID FLOW RATE MEASURING CONDITIONS:

TESTED INTERVAL  
 DEPTH REFERENCE  
 DEPTH OF B.H. MEASUREMENTS:

: 4256 - 4266 M  
 : R.X.B. (SEDEC 707)  
 : 4246.62 M



# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

Page Report N°:

Section : 7

DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS			SEPARATOR			PROD. RATES AND FLUID PROPERTIES				GOR	
Zg-6PZ	Cumul	BOTTOM HOLE	WELL HEAD	Temp.	Temp.	Press.	OIL OR CONDENSATE	GAS	DPL	VOLUME	VOLUME	COMPL	
Time	HR./MIN	Pressure	Ig. temp.	Ig. press.	Cg. press.	Temp.	Rate	Rate	Level	BOSS	DPL/Day	Units	
HR./MIN		PSIG	°F	PSIG	PSIG		Gravity	Gravity	CM				
							Air=1	Air=1					
2300													
2305	70	10950		4630									
2307	72	10962		4630		ANNULUS PRESSURE DIED DOWN TO 2300 PSI			0				
2309	74/0					WELL OPENED ON 9/64 ADJUSTABLE CHOKE FLOWING							
2310				3170		WELL CLOSED IN.							
2312				3270									
2314		9126		3410									
2316				3520									
2318	0	8758				WELL OPENED ON 9/64 ADJUSTABLE CHOKE FLOW DIRECTED TO 1 BBL DUMPS			28	145	648	45	
2319	1	8838				CHANGED CHOKE TO 3/16 ADJUSTABLE CHOKE							
2320	2	9978		2400		WELL CLOSED IN ON CHOKE							
2321	3	9124		2500		WELL OPENED ON 3/16 ADJ. AND CHANGED TO 2/64							
2323	5	9113		2560									
2324	6	9075		2640		CHANGED TO 3/64 ADJ CHOKE			52	138	137	83	
2325	7	9044		2590					59	111	158	95	
2326	8	9012		2520					63.5	107	101	102	
2327	9	8994		2450					69.5	110	146	112	
2328	10	8976		2400					78.0	114	202	125	

# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

Page Report N°:

Section : 7

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS			SEPARATOR			PROD. RATES AND FLUID PROPERTIES			GOR			
	BOTTOM HOLE Temp. °F	Pressure PSIG	WELL HEAD Tg. temp. °F	Cg. press. PSIG	Temp. °F	Press. PSIG	OIL OR CONDENSATE Rate	Gravity	BSW	GAS Rate	Gravity Air=1	GOR LBS/L	GOR CFD
2328													
2329		8975		2350			CHANGED TO 2" ADJ CHOKE					87	
2330		8979		2450							2		
2331		9103		2580									
2332		9107		2720			CHANGED TO 3/4" ADJ CHOKE						
2333		9116		2680									
2334		9116		2650									
2335		9114										18	
2336		9100		2590									
2338		9074		2560									
2340		9043		2530			CHANGED TO 3/16" ADJ CHOKE						
2342		9030		2740			CHANGED TO 3/16" ADJ CHOKE						
2344		9026		2700									
2345													
2346		9028		2670									
2348		9036		2640									
2350		9046		2620			CHANGED TO OTHER DRUM						
2352		9066		2600									

VOLUME  
DOLS

ADJ/DAY  
202

GOR  
78

GOR  
87

GOR  
2

GOR  
18

GOR  
38

GOR  
51

GOR  
71

GOR  
71

VOLUME  
DOLS

ADJ/DAY  
202

GOR  
87

GOR  
2

GOR  
18

GOR  
38

GOR  
51

GOR  
71

GOR  
71

GOR  
71

VOLUME  
DOLS

ADJ/DAY  
43

GOR  
2

GOR  
2

GOR  
18

GOR  
38

GOR  
51

GOR  
71

GOR  
71

GOR  
71

VOLUME  
DOLS

ADJ/DAY  
92

GOR  
38

GOR  
2

GOR  
18

GOR  
38

GOR  
51

GOR  
71

GOR  
71

GOR  
71

VOLUME  
DOLS

ADJ/DAY  
60

GOR  
51

GOR  
2

GOR  
18

GOR  
38

GOR  
51

GOR  
71

GOR  
71

GOR  
71

VOLUME  
DOLS

ADJ/DAY  
92

GOR  
38

GOR  
2

GOR  
18

GOR  
38

GOR  
51

GOR  
71

GOR  
71

GOR  
71

VOLUME  
DOLS

ADJ/DAY  
92

GOR  
38

GOR  
2

GOR  
18

GOR  
38

GOR  
51

GOR  
71

GOR  
71

GOR  
71

VOLUME  
DOLS

ADJ/DAY  
92

GOR  
38

GOR  
2

GOR  
18

GOR  
38

GOR  
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GOR  
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GOR  
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GOR  
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VOLUME  
DOLS

ADJ/DAY  
92

GOR  
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GOR  
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GOR  
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GOR  
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GOR  
71

VOLUME  
DOLS

ADJ/DAY  
92

GOR  
38

GOR  
2

GOR  
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GOR  
38

GOR  
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GOR  
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GOR  
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GOR  
71

VOLUME  
DOLS

ADJ/DAY  
92

GOR  
38

GOR  
2

GOR  
18

GOR  
38

GOR  
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GOR  
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GOR  
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GOR  
71

VOLUME  
DOLS

ADJ/DAY  
92

GOR  
38

GOR  
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GOR  
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GOR  
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GOR  
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GOR  
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GOR  
71

GOR  
71

VOLUME  
DOLS

ADJ/DAY  
92

GOR  
38

GOR  
2

GOR  
18

GOR  
38

GOR  
51

GOR  
71

GOR  
71

GOR  
71



# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

Page Report N°: \_\_\_\_\_

Section : **7**

DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS			WELL HEAD			SEPARATOR			PROD. RATES AND FLUID PROPERTIES				TANK		VOLUME		PRODUCT	
Time	Cumul	Temp	Pressure	Tg. temp	Ig. press.	Cg. press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	Air=1	Level	CM	BOIS	BOIS/PO	Units	
HR. MIN	MIN	°F	PSIG	°F	PSIG	PSIG														
0019																				
0020	62			55	2690		CHANGED TO 6/6 ADI								48	81	1.77	222		5.94
0022	64			55	2400															
0023	65						CHANGED TO 5/6 ADI													
0024	66			55	2720															
0026	68			55	2790															
0028	70			55	2880															
0030	72			55	2500										88		1.85	266		7.79
0031	73		8520				CHANGED TO 4/6 ADI													
0032	74		8508				CHANGED TO 3/6 ADI													
0033	75			55	1980															
0034	76		8508	55	1990															
0035	77			55	2040															
0036	78		8752	55	2350															
0037	79			55	2550															
0038	80		9253	55	3000															
0039	81			55	3420															
0040	82		9480	55	3650										90		1.53	76		8.32

# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

Page Report N°: \_\_\_\_\_

Section : **7**

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS			WELL HEAD			SEPARATOR			PROD. RATES AND FLUID PROPERTIES			GOR					
	25/10/82	Bottom Hole Pressure (psi)	Temp. (°F)	Ig. temp. (°F)	Ig. press. (psi)	Cg. press. (psi)	Temp. (°F)	Press. (psi)	Rate	Gravity	BSW	Rate	Gravity	Air=1	TANK Level	VOLUME	VOLUME	GOR
HR. MIN.	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F
0040																		
0041	83		55	3750														
0042	84	9738	55	3850														
0043	85		55	3900														
0044	86	10163	55	3950														
0045	87													93	0.79	228	9.11	
0046	88	10309	55	3970														
0048	90	10418	55	3990														
0050	92	10449	55	3970										94	0.26	76	9.37	
0052	94	10491	55	3970														
0054	96	10502	55	3960														
0056	98	10506	55	3960														
0058	100	10509	55	3950														
0100	102	10511	55	3840										98	1.06	153	10.43	
0102	104		55	3750														
0104	106		55	3770														
0108	110		55	3840														
0110	112	10330	55	3930										99	0.26	38	10.69	







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No.: DOP 110

# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

Page Report N°:

Section : 7

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS		WELL HEAD		SEPARATOR		PROD. RATES AND FLUID PROPERTIES		GOR		VOLUME		CUTTING						
	Time	Cumul	Temp.	Pressure	Tg temp	Ig. press.	Temp.	Press.	Rate	Gravity	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	
HR:MIN	HR:MIN	HR:MIN	°F	PSIG	°F	PSIG				Air=1		PPGL	PPGL/Day	PPGL	PPGL/Day	PPGL	PPGL/Day	Units	
0725																			
0730	252		55	10303	55	3650						1.32	127	1.32	127	25.74		25.74	
0745	267		55	10080	55	3480						2.11	203	2.11	203	27.85		27.85	
0800	282		55	10045	55	3465						1.58	152	1.58	152	29.43		29.43	
0815	297		55	10160	55	3600						1.98	190	1.98	190	31.41		31.41	
0830	312		55	10183	55	3600						1.45	139	1.45	139	32.86		32.86	
0845	327		55	9679	55	3500						1.85	178	1.85	178	34.71		34.71	
0900	342		55	10294	55	3700						1.58	152	1.58	152	36.29		36.29	
0915	357		55	10264	55	3685						2.38	228	2.38	228	38.67		38.67	
0930	372		55	10218	55	3625						1.85	117	1.85	117	40.52		40.52	
0945	387		55	10279	55	3650						2.11	203	2.11	203	42.63		42.63	
1000	402		55	10601	55	4260						1.06	101	1.06	101	43.69		43.69	
1000	402																		
1015	417		55	10795	55	4210													
1020	432		55	10448	55	3920													
1045	447		55	10527	55	3825													
1070	462		55	10376	55	3810													
1075	477		55	10415	55	3804													

COMPARTMENT OF GAUGE TANK

FLOW TO OTHER

SWITCHED

# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

Page Report N°: \_\_\_\_\_

Section : **7**

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS			SEPARATOR				PROD. RATES AND FLUID PROPERTIES				GOR							
	BOTTOM HOLE	WELL HEAD	WELL	Temp.	Temp.	Temp.	Rate	Gravity	BSW	Rate	Gravty	Temp.	Temp.	Temp.	VOLUME	VOLUME	VOLUME	PRODUCED	
Time	Pressure	Tg. press.	Tg. press.	Cg. press.	Press.	Press.	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate
HR. MIN.	PSIG	PSIG	PSIG	PSIG	PSIG	PSIG	CL-PPM	AIR=1	CL-PPM	AIR=1	PPLF	PPLF	PPLF	PPLF	PPLF	PPLF	PPLF	PPLF	PPLF
0715															1.45	139	50.29		
0730	492	10311	55	3727											1.85	177	52.14		
0745	507	10279	55	3710											1.58	152	53.72		
0800	522	10332	55	3710											2.38	228	56.1		
0815	537	10339	55	3760											0.42	89	57.0		
0830	552	10367	55	3720											2.5	240	59.5		
0845	567	10279	55	3675											2.0	190	61.5		
0900	582	10286	55	3650											2.0	190	63.5		
0915	597	10086	55	3550											1.58	152	65.1		
0930	612	10493	55	3880											2.11	203	67.2		
0945	627	10273	55	3715											1.85	177	69.1		
1000	642	10364	55	3745											2.11	203	71.2		
1000	642																		
1015	657	10165	55	3560											1.85	177	73.0		
1030	672	10397	55	3770											1.85	177	74.9		
1045	687	10452	55	3815											1.85	177	76.7		
1100	702	10439	55	3800											2.9	279	79.6		
1115	717	10451	55	3810											1.58	152	81.2		

OTHER COMPARTMENT OF GAUGE TANK

FLOWMETER

CL- 22000 PPM

# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

Page Report N°:

Section :

7

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS			SEPARATOR				PROD. RATES AND FLUID PROPERTIES				CORR		
	Bottom Hole Pressure	Well Head Tg. Press.	Cg. Press.	Temp.	Press.	Oil or Condensate Rate	Gravity	BSW	Water Gas State	Gravity	Tank Level	Volume	Volume	Change
Time	Temp.	OF	OF	OF	OF	OF	OF	OF	OF	OF	OF	OF	OF	OF
1115														
1130	732	10483	55	3830					20 000		105	2.38	228	83.6
1145	747	10436	56	3790					20 000		111	1.58	152	85.2
1200	762	10460	56	3775							123	3.17	304	88.3
1215	777	10380	56	3710							128	1.32	127	90.0
1230	792	10483	56	3800					20 000		137	2.38	228	92.0
1245	807	10401	56	3720							146	2.38	228	94.4
1254	816										43			
1256	818													
1259	821													
1300	822	10799									50	1.85	177	96.25
1301	823													
1303	825													
1305	827													
1307	829													
1310	832													
1312	834													

EMPTIED TANK TO FURNACE, SWITCHED FLOW TO OTHER COMPARTMENT  
PLUGGING AT CHARGE MANIFOLD

MUD TO SURFACE



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No. DOP 110

# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

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7

DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS			SEPARATOR			PROD. RATES AND FLUID PROPERTIES			GORR				
ZS-124 Time	Cumul MNS MHV PINS	BOTTOM HOLE		WELL HEAD		Temp.	Press.	Rate	OIL OR CONDENSATE		WATER GAS Rate	TRANK LEVEL	VOLUME PRES	VOLUME PRES/DAY	CAPITAL PROPERTIES Units
		Temp.	Pressure	Tg temp	Tg press.				Gravty	BSW					
1340		57	PSIG												
1341	863	57	4620												
1342	864	57	4610												
1345	867	57	4635	CHANGED CHOKER TO				8/64 ADJ		13500		55	0.264	25	97.6
1346	868	57	4590												
1347	869	57	4598												
1348	870	57	4613												
1349	871	57	4625	CHANGED CHOKER TO				19/64 ADJ							
1350	872	57	4530												
1351	873	57	4515												
1352	874	57	4560												
1353	875	57		CHANGED CHOKER TO				12/64 ADJ							
1354	876	57	3750	CHANGED CHOKER TO				8/64 ADJ							
1356	878	57		CHANGED CHOKER TO				6/64 ADJ							
1357	879	57	3550												
1358	880	57	3700												
1359	881	57	3870												
1400	882	57	3880							19000		61	1.58	152	99.2

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No : DOP 110

# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

Page Report N°: \_\_\_\_\_

Section : **7**

DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS			SEPARATOR			PROD. RATES AND FLUID PROPERTIES			GOR		
25-Yr Time	Cumul Time (hr:min)	BOTTOM HOLE		WELL HEAD		Temp.	Press.	Rate	OIL OR CONDENSATE		LEVEE	VOLUME	
		Temp. °F	Pressure PSIG	Ig. temp. °F	Ig. press. PSIG				Gravity	BSW			Rate
1400											CM	1.58	152
1401	883			57	3870								
1402	884			57	3870								
1405	887			57	3650								
1407	889			57	3600								
1408	890			57	3550								
1410	892			57	3600								
1413	895			57	3800								
1415	897		10485	57	3700				19500		72	2.9	278
1420	902			57	4200								
1425	907			57	3600								
1428	910			57	N/A		CHANGED TO 4/16"						
1429	911			58	3650								
1430	912		10102	58	3950				23500		80	2.11	203
1431	913			58	4070								
1432	914			58	4140								
1433	915			58	4100								
1434	916			58	3850								

GRAB  
PROD  
BITS

PPM  
AIR=1

CM

CL

19500

BDT CHOME

CHANGED TO 4/16"

N/A

10102

10485

10412

# FLOPETROL WELL TESTING DATA SHEET (Continuation)

Page Report N°: \_\_\_\_\_ Section : **7**

DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS			PROD. RATES AND FLUID PROPERTIES			GOR	
25-4/82	Cumul Time	BOTTOM HOLE Pressure	WELL HEAD Ig. temp. °F	SEPARATOR Temp. °F	OIL OR CONDENSATE Rate	WATER GAS Rate	Grav. Air=1	TANK LEVEL	VOLUME
MIN.	MIN.	PSIG	PSIG		OPM	OPM		OPM	OPM
	1434								
	1435		58	3500					
	1436		58	3370					
	1437		58	3200					
	1438		58	3190					
	1439		58	3310					
	1440		58	3370					
	1442		58	3510					
	1443		58	3670					
	1444		58	3820					
	1445	10636	58	4230				91	2.9
	1447								28000
	1448		58	4290					
	1449		58	4200					
	1451		58	4550					
	1454		58	4850					
	1455		58	4820					
	1456		58	4750					

TO  
CHANGED CHOKE BETWEEN 5" AND 6 1/4" ADJ

CHANGED CHOKE TO 6 1/4" ADJ

CHANGED CHOKE TO 8 1/4" ADJ

91 2.9 278 107.1



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# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

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DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS			SEPARATOR			PROD. RATES AND FLUID PROPERTIES			GAS			
	BOTTOM HOLE Pressure	WELL HEAD Ig. temp	WELL HEAD Cg. press.	Temp.	Press.	OIL OR CONDENSATE Rate	Grav. BSW	WATER/GAS Rate	Grav. Air=1	TANK LEVEL	VOLUME	VOLUME	CUMUL. PRODUCED
Time	Temp	Pressure	Temp	Press.	Temp.	Rate	Grav.	Rate	Grav.	LEVEL	VOLUME	VOLUME	CUMUL.
UNIT	°F	PSIG	°F	PSIG	°F	PSIG	PSIG	PSIG	PSIG	CM	PPH	PPH	MMBBL
1521		1516											
1523	964		58	3750									
1525	967		58	3710									
1530	972	10177	58	3680		2.75% CO <sub>2</sub>		37500		120	2.9	279	114.8
1535	977		58	3640									
1540	982		59	3600									
1545	987	9817	59	3570		2.0% CO <sub>2</sub>		38000		130	2.64	253	117.6
1550	992		59	3580									
1555	997		60	3610									
1600	1002	10145	60	3645		2.5% CO <sub>2</sub>				143	3.43	329	120.9
1605	1007		60	3670				38000					
1610	1012		60	3710									
1615	1017	10116	60	3725		2.3% CO <sub>2</sub>		37500		155	3.17	304	124.0
1615	1017		SWITCHED FROM TO OTHER COMPARTMENT							90			
1620	1022		59	3720									
1625	1027		59	3710									
1630	1032	10199	58	3690		4.0% CO <sub>2</sub>		38500		101	2.9	279	126.9
1635	1036	10170								MPR-M			

# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

Page Report N°:

Section : **7**

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS			SEPARATOR			OIL OR CONDENSATE			GAS			GOR
	Bottom Hole Temp. °F	Bottom Hole Pressure (psig)	Well Head Ig. press. °F	Cg. press. PSIG	Temp. °F	Press. PSIG	Rate	Gravity	BSW	Rate	Gravity	Air=1	
1626													
1635	1		58	3710									
1638	4	11552	PRESSURED UP				3500 PSI	NO INDICATION					
1640	6		58	4500									
1642	8		ANNULUS PRESSURE DROPPED				TO 3000 PSI						
1643	9	11236	PRESSURED ANNULUS TO 3000 PSI				STILL NO INDICATION OF						
1645	11		58	4950									ACTUATED
1648	14		58	5100									2.11
1650	16		58	5090			ANNULUS TO 3000 PSI						109
1653	19	12514	58	5440									
1655	21		58	5500									
1657	23		58	5600									
1700	26		58	5200									
1702	28		58	5700									
1704	30						ANNULUS ON						
1705	31						PRESSURE ON ANNULUS 1600 PSI						
1705	32			3750			ANNULUS TO 3000 PSI						
1707	33			3600			ANNULUS TO 3000 PSI						



# FLOPETROL

## \_WELL TESTING DATA SHEET\_(Continuation)

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7

DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS			PROD. RATES AND FLUID PROPERTIES				GOR	
HR	MIN	BOTTOM HOLE	WELL HEAD	SEPARATOR	OIL OR CONDENSATE		GAS			
Time	Cumul	Temp.	Iq. temp.	Temp.	Rate	Gravity	Rate	Gravity		Units
HR	MIN	PSIG	°F	PSIG		Air=1				
2400										
		26TH	APRIL	1982						
0030	475		2330							
0100	566	11256	2320							
0130	556		2310							
0200	566	11256	2300							
0230	596		2280							
0300	626	11256	2270							
0330	656		2260							
0400	626	11256	2250							
0430	716		2250							
0500	746	11256	2250							
0530	776		2240							
0600	806	11256	2230							
0630	836		2220							
0700	866	11256	2210							
0730	896		2205							
0800	926	11256	2200							



Flopetrol Gauge Nos 41126, 41128  
Bottom Hole Pressure Calculations



# FLOPETROL

Section: ANNEX 1.2

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- B. H. PRESSURE CALCULATIONS (Continuation) -

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				LOWER GAUGE			UPPER GAUGE			
DATE - TIME		Choke size	W.H pressure	Depth	Y	C*	P	Y	C*	P
Time	Cumul	INCH	PSIG	INCH	INCH		PSIG	INCH		PSIG
			24 TH APRIL '82							
22:06	9	CLOSED	3550	4246.62	.9845		10129	.9774		9999
22:06	11	"	3640		.9598		9878	.9652		9874
22:08	13	"	3730		.9711		9993	.9741		9965
22:10	15	"	3820		.9798		10082	.9798		10023
22:12	17	"	3880		.9855		10140	.9872		10099
22:14	19	"	3940		.9935		10221	.9929		10157
22:16	21	"	3990		1.0004		10291	.9971		10200
22:18	23	"	4070		1.0026		10314	1.0018		10248
22:20	25	"	4120		1.0072		10361	1.0068		10299
22:22	27	"	4150		1.0115		10405	1.0115		10347
22:24	29	"	4200		1.0168		10459	1.0154		10387
22:26	31	"	4240		1.0205		10496	1.0198		10432
22:28	33	"	4280		1.0248		10540	1.0236		10471
22:30	35	"	4295		1.0290		10583	1.0271		10506
22:32	37	"	4350		1.0321		10615	1.0301		10537
22:34	39	"	4385		1.0349		10643	1.0327		10564
22:36	41	"	4410		1.0381		10676	1.0354		10591
22:38	43	"	4430		1.0402		10697	1.0378		10616
22:40	45	"	4460		1.0431		10727	1.0402		10640
22:42	47	"	4475		1.0460		10756	1.0427		10666
22:44	49	"	4500		1.0479		10776	1.0450		10689
22:50	55	"	4550		1.0542		10840	1.0510		10750
22:55	60	"	4600		1.0583		10881	1.0551		10798
23:00	65	"	4620		1.0621		10920	1.0588		10830
23:05	70	"	4630		1.0650		10950	1.0623		10866
23:07	72	"	4630		1.0662		10962	1.0632		10875
23:07			ANNULUS PRESSURE BLEED DOWN FROM 2600 PSI TO 2300 PSI							
23:09	74	CLOSED			1.0658		10958	1.0632		10875

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# FLOPETROL

Section: ANNEX 1.2

\_ B.H. PRESSURE CALCULATIONS (Continuation) \_

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Report N°: \_\_\_\_\_

DATE - TIME		Choke size	W.H. pressure	LOWER GAUGE			UPPER GAUGE		
Time	Cumul			Depth	Y	C*	P	Y	C*
HR:MIN	MIN	INCH	PSIG	METRES	INCH	PSIG	INCH	PSIG	
2309	74		WELL	OPENED ON 8/64" ADJUSTABLE CHOKE					
2309	0	8/64		2246.62	.8469	8727	.9082	9292	
2310	1		3170	WELL	CLOSED IN				
2314	5	CLOSED	3410		.8860	9126	.9413	9630	
2318			WELL	OPENED ON 5/64" ADJ. CHOKE			.9616	9837	
2318	9	8/64			.8499	8758	.8494	8691	
2319	10	8/64			.8578	8838	.8608	8808	
2319				CHANGED	CHOKE TO 3/64" ADJUSTABLE.				
2320	11	3/64	2400		.8715	8978	.8688	8890	
2320				WELL	CLOSED IN AT CHOKE MANIFOLD				
2321	12	CLOSED	2500		.8858	9124	.8776	8979	
2321				WELL	OPENED ON 3/64" CHANGED TO 2/64" CHOKE.				
2322	13	2/64			.8860	9126	.8742	8945	
2323	14	2/64	2560		.8848	9113	.8690	8892	
2324	15	2/64	2640		.8816	9075	.8613	8813	
2324				CHOKE	CHANGED TO 3/64" ADS				
2325	16	3/64	2590		.8780	9044	.8558	8757	
2326	17	3/64	2520		.8748	9012	.8523	8721	
2327	18	3/64	2450		.8732	8994	.8569	8768	
2328	19	3/64	2400		.8713	8976	.8652	8853	
2329	20	3/64	2350		.8712	8975	.8745	8948	
2329				CHOKE	CHANGED TO 2/64" ADJUSTABLE.				
2330	21	2/64	2450		.8716	8979	.8815	9019	
2331	22	2/64	2580		.8838	9103	.8800	9004	
2332	23	2/64	2720		.8842	9107	.8780	8984	
2332				CHOKE	CHANGED TO 3/64" ADJUSTABLE				
2333	24	3/64	2680		.8850	9116	.8775	8978	
2334	25	3/64	2650		.8850	9116	.8753	8956	
2335	26	3/64			.8849	9114	.8740	8943	

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## - B.H. PRESSURE CALCULATIONS (Continuation) -

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				LOWER GAUGE			UPPER GAUGE			
DATE - TIME		Choke size	W.H. pressure	Depth	Y	C*	P	Y	C*	P
Time	Cumul									
N.M.P.N	M.M	INCH	PSIG	METRES	INCH		PSIG	INCH		PSIG
2335	26									
2336	27	3/64	2590	4246.62	.8835		9100	.8728		8930
2338	29	3/64	2560		.8809		9074	.8725		8927
2340	31	3/64	2530		.8779		9043	.8858		9063
2340			CHANGED CHOKE TO			2/64	ADJUSTABLE			
2342	33	2/64	2740		.8766		9030	.8837		9042
2342			CHANGED CHOKE TO			3/64	ADJUSTABLE			
2344	35	3/64	2700		.8762		9026	.8820		9024
2346	37	3/64	2670		.8764		9028	.8800		9004
2348	39	3/64	2640		.8772		9036	.8780		8984
2350	41	3/64	2620		.8782		9046	.8760		8963
2352	43	3/64	2600		.8801		9066	.8759		8962
2354	45	3/64	2588		.8830		9095	.8762		8965
2356	47	3/64	2610		.8785		9049	.8770		8973
2358	49	3/64	2620		.8809		9074	.8773		8976
25 TH APRIL 1982										
0000	51	3/64	2630		.8812		9077	UNREADABLE		
0002	53	3/64	2630		.8812		9077	"		
0004	55	3/64			.8811		9076	"		
0004			CHANGED CHOKE TO			4/64	ADJUSTABLE.			
FROM 0004 TO 0031 IMPOSSIBLE TO READ DUE TO EXCESSIVE VIBRATION										
0020	71		CHANGED CHOKE TO			6/64	ADJUSTABLE.			
0023	74		CHANGED CHOKE TO			5/64	ADJUSTABLE.			
0031	82		CHANGED CHOKE TO			4/64	ADJUSTABLE.			
0031	82	4/64			.8266		8520	.8274		8467
0032		CHANGED TO			3/64	ADJ CHOKE				
0032	83	3/64			.8254		8508	.8274		8467
0034	85	3/64	1990		.8254		8508	.8470		8667
0036	87	3/64	2350		.8493		8752	.8830		9035
0038	89	3/64	3000		.8985		9253	.9160		9372

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## B.H. PRESSURE CALCULATIONS (Continuation)

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DATE - TIME		Choke size	W.H. pressure	Depth	LOWER GAUGE			UPPER GAUGE		
Time	Cumul				Y	C*	P	Y	C*	P
HR/Min	M/N	INCH	PSIG.	METERS	INCH		PSIG.	INCH	PSIG.	
00.38	89									
00.40	91	3/64	3650	4246.62	.9209		9480	.9599	9820	
00.42	93	3/64	3850		.9461		9738	.9773	9998	
00.44	95	3/64	3950		.9878		10163	.9969	10198	
00.46	97	3/64	3970		1.0021		10309	1.0067	10298	
00.48	99	3/64	3990		1.0128		10418	1.0109	10341	
00.50	101	3/64	3970		1.0159		10449	1.0135	10367	
00.52	103	3/64	3970		1.0200		10491	1.0147	10380	
00.54	105	3/64	3960		1.0211		10502	1.0152	10385	
00.56	107	3/64	3960		1.0215		10506	1.0157	10390	
00.58	109	3/64	3950		1.0217		10509	1.0158	10391	
01.00	111	3/64	3840		1.0219		10511	1.0159	10392	
01.02	121	3/64	3930		1.0042		10330	1.0039	10269	
01.20	131	3/64	3960		1.0219		10511	1.0169	10402	
01.22	133	CHANGED TO			4/64	NO.5 CHOKE				
01.30	141	4/64	3615		—		—	.9660	9882	
01.40	151	4/64	3740		1.0028		10316	.9962	10191	
01.50	161	4/64	3630		1.0000		10287	.9932	10160	
02.00	171	4/64	3600		0.9936		10222	.9884	10111	
02.10	181	4/64	3720		0.9912		10198	.9915	10143	
02.20	191	4/64	3730		1.0034		10322	.9985	10214	
02.30	201	4/64	3760		1.0020		10308	1.0004	10234	
02.40	211	4/64	3710		1.0052		10340	1.0000	10230	
02.50	221	4/64	3695		0.9980		10267	.9954	10183	
03.00	231	4/64	3690		0.9942		10228	.9938	10166	
03.15	246	4/64	3825		1.0077		10366	1.0040	10270	
03.30	261	4/64	3650		1.0015		10303	.9958	10187	
03.45	276	4/64	3480		0.9796		10080	.9778	10003	
04.00	291	4/64	3465		0.9762		10045	.9741	9965	

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- B. H. PRESSURE CALCULATIONS (Continuation) -

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				LOWER GAUGE			UPPER GAUGE			
DATE - TIME		Choke size	W. H. pressure	Depth	Y	C*	P	Y	C*	P
HR:MIN	Cumul MIN	INCH	PSIG	METRES	INCH		PSIG	INCH		PSIG
04:00	291									
04:15	306	4/64	3600	424.62	0.9875		10160	.9843		10069
04:30	321	4/64	3600		0.9898		10183	.9868		10095
06:45	336	4/64	3500		0.9403		9679	.9308		9523
05:00	351	4/64	3700		1.0006		10294	.9939		10167
05:15	366	4/64	3685		0.9977		10264	.9931		10159
05:30	381	4/64	3625		0.9932		10218	.9900		10127
05:45	396	4/64	3650		0.9992		10279	.9942		10170
06:00	411	4/64	4240		1.0308		10601	1.0279		10515
06:15	426	4/64	4210		1.0498		10795	1.0441		10680
06:30	441	4/64	3920		1.0158		10448	1.0179		10412
06:45	456	4/64	3925		1.0235		10527	1.0168		10401
07:00	471	4/64	3810		1.0087		10376	1.0091		10323
07:15	486	4/64	3804		1.0125		10415	1.0088		10319
07:30	501	4/64	3727		1.0023		10311	1.0000		10230
07:45	516	4/64	3710		0.9992		10279	.9988		10217
08:00	531	4/64	3710		1.0044		10332	.9996		10226
08:15	546	4/64	3760		1.0051		10339	1.0021		10251
08:30	561	4/64	3720		1.0078		10367	1.0050		10281
08:45	576	4/64	3675		0.9992		10279	.9973		10202
09:00	591	4/64	3650		0.9999		10286	.9615		9836
09:15	606	4/64	3550		0.9802		10086	.9829		10055
09:30	621	4/64	3880		1.0202		10493	1.0013		10243
09:45	636	4/64	3715		0.9986		10273	CLOCK RUN OUT -		
10:00	651	4/64	3745		1.0075		10364			
10:15	666	4/64	3560		0.9880		10165			
10:30	681	4/64	3770		1.0108		10397			
10:45	696	4/64	3815		1.0162		10452			
11:00	711	4/64	3800		1.0149		10439			

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# FLOPETROL

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- B.H. PRESSURE CALCULATIONS (Continuation) -

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DATE - TIME		Choke size	W. H. pressure	Depth	LOWER GAUGE			UPPER GAUGE		
Time	Cumul				Y	C*	P	Y	C*	P
HR. MIN	MIN	INCH	PSIG	METRES	INCH		PSIG			
11:00	711									
11:15	726	4/64	3810	6246.62	1.0161		10451			
11:30	741	4/64	3830		1.0198		10489			
11:45	756	4/64	3790		1.0146		10436			
12:00	771	4/64	3775		1.0169		10460			
12:15	786	4/64	3710		1.0091		10380			
12:30	801	4/64	3800		1.0195		10489			
12:45	816	4/64	3720		1.0111		10401			
13:00	831	4/64			1.0502		10799			
13:15	846	4/64	4380		1.0718		11019			
13:30	861	4/64			1.0792		11094			
13:34	865				CHANGED TO 5/64" ADS. CHOKE					
13:36	867				CHANGED TO 6/64" ADS. CHOKE					
13:45	876	6/64	4635		1.0957		11263			
13:45	876				CHANGED TO 8/64" ADS. CHOKE					
13:49	880				CHANGED TO 10/64" ADS. CHOKE					
13:53	884				CHANGED TO 12/64" ADS. CHOKE					
13:54	885				CHANGED TO 8/64" ADS. CHOKE					
13:56	887				CHANGED TO 6/64" ADS. CHOKE					
14:00	891	6/64	3880		1.0256		10548			
14:15	906	6/64	3700		1.0194		10485			
14:28	919				CHANGED TO 4/64" ADS. CHOKE					
14:30	921	4/64	3950		1.0309		10602			
14:37	928				CHANGED TO BETWEEN 5/64" AND 6/64" ADS. CHOKE					
14:45	936	5-6/64	4230		1.0342		10636			
14:47	938				CHANGED TO 6/64" ADS. CHOKE					
14:56	947				CHANGED TO 8/64" ADS. CHOKE					
14:57	948				CHANGED TO 10/64" ADS. CHOKE					
14:59	950				CHANGED TO 8/64" ADS. CHOKE					

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- B.H. PRESSURE CALCULATIONS (Continuation) -

DATE - TIME		Choke size	W.H. pressure	Depth	LOWER GAUGE			UPPER GAUGE		
Time	Cumul				Y	C*	P	Y	C*	P
hr/min	min	INCH	PSIG	INCH	INCH		PSIG			
14.59	950									
15.00	951	8/64	3000	4246.62	0.9784		10067			
15.00	951			CHANGED TO 6/64 AOS CHOKE						
15.01	952			CHANGED TO 4/64 AOS CHOKE						
15.15	966	4/64	3800		0.9961		10248			
15.30	981	4/64	3680		0.9794		10077			
15.45	996	4/64	3570		0.9538		9817			
16.00	1011	4/64	3645		0.9860		10145			
16.15	1026	4/64	3725		0.9861		10146			
16.30	1041	4/64	3690		0.9913		10199			
16.34	1045	4/64			0.9885		10170			
16.34	1045			PRESSURISED ANNULUS TO CLOSE APR-N AND SIMAR APR-M						
16.34	0	4/64			1.0800		11103			
16.38	4			PRESSURISED ANNULUS TO 3500 PSI						
16.38	4	4/64			1.1241		11552			
16.43	9			PRESSURISED ANNULUS TO 3500 PSI						
16.43	9	4/64			1.1520		11836			
16.45	11	4/64	4950							
16.50	16			PRESSURISED ANNULUS TO 3500 PSI						
16.53	19	4/64	5490		1.2185		12514			
17.00	26		5200							
17.04	30			BLED OFF ANNULUS PRESSURE TO CLOSE APR-N						
17.05	31			CLOSED CHOKE MANIFOLD						
17.15	41									
17.20	46	CLOSED			1.0946		11251			
17.30	56	"	3050		1.0946		11251			
18.00	86	"	2850		1.0948		11253			
18.30	116	"	2720		1.0948		11253			
19.00	146	"	2625		1.0948		11253			

No. DOP 116 Litografen 8175

# FLOPETROL

9

Section: ANNEX 1.2

## - B.H. PRESSURE CALCULATIONS (Continuation) -

Page: \_\_\_\_\_  
Report N°: \_\_\_\_\_

DATE - TIME		Choke size	W.H. pressure	Depth	LOWER GAUGE			UPPER GAUGE		
Time	Cumul				Y	C*	P	Y	C*	P
HR:MIN	MIN	INCH	PSIG	METRES	INCH		PSIG.			
19:00	146									
19:30	176	(CLOSED)	2560	4246.62	1.0948		11253			
20:00	206	"	2520		1.0948		11253			
20:30	236	"	2475		1.0948		11253			
21:00	266	"	2445		1.0948		11253			
21:30	296	"	2434		1.0948		11253			
22:00	326	"	2415		1.0948		11253			
22:30	356	"	2390		1.0949		11254			
23:00	386	"	2370		1.0949		11254			
23:30	416	"	2350		1.0949		11254			
24:00	446	"	2340		1.0949		11254			
26TH APRIL '82										
01:00	506	(CLOSED)	2320		1.0951		11256			
02:00	566	"	2300		1.0951		11256			
03:00	626	"	2270		1.0951		11256			
04:00	686	"	2250		1.0951		11256			
05:00	746	"	2250		1.0951		11256			
06:00	806	"	2230		1.0951		11256			
07:00	866	"	2210		1.0951		11256			
08:00	926	"	2200		1.0954		11260			
09:00	986	"	2195		1.0954		11260			
09:07	993	"			1.0954		11260			
09:07	-									
PRESSURISED ANNULUS TO SHEAR APR-11										

No. DOP 116 Litografon 0175

Sperry Sun Gauge 0039  
Bottom Hole Pressure Readings



**PRESSURE TEST DATA SUMMARY**

COMPANY: BRITISH PETROLEUM CO. DATE: 22 APRIL 1982  
 FIELD: WILDCAT WELL NO: 29/6-1 JOB NO: MRPG-1202(B)-NOR  
 TEST TYPE: D.S.T. TEST NO: 2 RUN NO: 1 MAX B.H.T. 304 OF  
 PERFORATION INTERVAL: 4256 - 4260 M. ZONE: BRENT

	TOP	MIDDLE	BOTTOM
GAUGE TYPE/NO.	MRPG 0039	MRPG 0009	MRPG 0190
PRESSURE SENSING DEPTH	4254.98 M	4257.99 M	4260.97 M
ELEMENT SIZE	15000 PSI	15000 PSI	15000 PSI
TIME MODE	4 MINS. (DELAY 17 HRS.)	4 MINS. (DELAY 17 HRS.)	2 MINS. (DELAY 17 HRS.)
BATTERY TYPE	SILVER OXIDE	SILVER OXIDE	SILVER OXIDE

EVENT	SURFACE TIMES & DATES			TEMP. °F		
				0039	0009	0190
START GAUGE 0039	21:42	22.4.82	--	--	--	--
" " 0009	21:44	"	--	--	--	--
" " 0190	21:46	"	--	--	--	--
GAUGES IN STRING	22:20	"	--	--	--	--
SET PACKER	11:08	24.4.82	288.9	287.8	290.1	
OPEN MASTER VALVE	11:12	"	288.9	288.5	290.1	
PRESSURE UP ANNULUS. OPEN APR-N	11:58	"	289.6	289.9	289.4	
OPEN ON ADJ. CHOKE	12:02	"	290.3	289.9	289.4	
CLOSE IN AT CHOKE MANIFOLD	12:04	"	290.3	289.9	290.1	
BLEED OFF ANNULUS. CLOSE APR-N	12:12	"	290.3	289.9	290.1	
PRESSURE UP ANNULUS. OPEN APR-N	12:27	"	289.6	288.5	288.7	
OPEN ON 8/64" ADJ. CHOKE	12:37	"	290.3	289.2	289.4	
CLOSE IN AT CHOKE MANIFOLD	12:38	"	290.3	289.2	289.4	
PRESSURE UP ANNULUS TO 2700 PSI	12:46	"	290.3	289.9	289.4	
OPEN ON 8/64" ADJ. CHOKE	13:01	"	290.3	289.9	290.1	
CLOSE IN AT CHOKE. (NO INDICATION OF APR-N VALVE OPEN)	13:02	"	290.3	289.9	290.1	
BLEED OFF ANNULUS PRESSURE	13:18	"	290.3	289.2	290.1	
PRESSURE UP ANNULUS	13:19	"	290.3	289.2	289.4	
ANNULUS PRESSURE AT 2300 PSI	13:23	"	290.3	289.2	290.1	
OPEN ON 32/64" ADJ. CHOKE	13:25	"	290.3	289.9	290.1	
CLOSE IN AT CHOKE MANIFOLD	13:26	"	290.3	289.9	290.1	
BLEED OFF ANNULUS PRESSURE	13:38	"	290.3	289.9	290.1	
PRESSURE UP ANNULUS	13:42	"	290.3	289.9	290.1	
OPEN ON 32/64" ADJ. CHOKE	13:47	"	290.3	289.9	290.1	
BLEED OFF ANNULUS	13:51	"	289.6	289.9	290.1	

(Cont'd)

M.R.P.G. PRESSURES ARE RELATIVE TO GAUGE CLOCK TIMES.

S.P.G. PRESSURES ARE RELATIVE TO TIME GRADIENT CALCULATED FROM SURFACE TIMES.



PRESSURE TEST DATA SUMMARY  
CONTINUATION SHEET

COMPANY: BRITISH PETROLEUM CO. JOB NO: MRPG-1202 (B) - NOR

EVENT	SURFACE TIMES & DATES		TEMP. °F		
			0039	0009	0190
PRESSURE UP ANNULUS TO 2300 PSI	13:52	24.4.82	289.6	289.2	290.1
BLEED OFF ANNULUS TO 2250 PSI	14:30	"	289.6	289.2	290.1
" " " TO 1700 PSI	16:47	"	289.6	289.9	290.1
PRESSURE UP ANNULUS TO 2000 PSI	17:27	"	289.6	289.9	290.1
BLEED OFF ANNULUS	17:33	"	289.6	289.2	290.1
CLOSE IN AT CHOKE MANIFOLD	17:46	"	289.6	289.2	289.4
PICK UP 6 METRES TO UNSEAT PACKER	17:52	"	289.6	289.2	289.4
PACKER STILL SET	17:56	"	289.6	289.2	289.4
PICK UP TO UNSEAT PACKER	17:58	"	289.6	289.2	289.4
PACKER STILL SET	18:01	"	289.6	289.2	288.7
PRESSURE UP ANNULUS TO 2300 PSI	18:15	"	289.6	289.9	288.7
OPEN ON 32/64" ADJ. CHOKE	18:20	"	289.6	289.9	288.7
CLOSE IN AT CHOKE MANIFOLD	18:22	"	289.6	289.9	288.7
START PUMPING GLYCOL	18:36	"	289.6	289.9	289.4
OPEN AT CHOKE MANIFOLD	19:30	"	289.6	289.9	289.4
FLUSH LINES	19:33	"	289.6	290.6	289.4
PRESSURE TEST TO 10500 PSI	19:36	"	289.6	290.6	289.4
BLEED OFF	19:44	"	289.6	290.6	289.4
ANNULUS PRESSURE AT 2400 PSI	21:14	"	290.3	290.6	290.1
CLOSE KILL VALVE, INCREASE ANNULUS PRESSURE TO 2600PSI. (OPENED APR-N)	21:52	"	290.3	290.6	289.4
CLOSE CHOKE MANIFOLD. (PRESSURE STARTED TO BUILD-UP)	21:54	"	290.3	290.6	289.4
BLEED DOWN ANNULUS PRESSURE TO 2300 PSI	23:07	"	291.0	290.6	290.1
OPEN ON 8/64" ADJ. CHOKE (FLOWING CUSHION STRING)	23:09	"	291.0	289.9	290.1
CLOSE IN AT CHOKE MANIFOLD	23:10	"	291.0	289.9	290.1
OPEN ON 8/64" ADJ. CHOKE	23:18	"	290.3	289.9	288.7
CHANGE TO 3/64" ADJ. CHOKE	23:19	"	290.3	289.9	288.7
CLOSE IN AT CHOKE MANIFOLD	23:20	"	290.3	289.9	288.7
OPEN ON 3/64" ADJ. CHOKE AND CHANGE TO 2/64"	23:21	"	290.3	289.9	288.7
CHANGE TO 3/64" ADJ. CHOKE	23:24	"	290.3	289.9	288.7
CHANGE TO 2/64" ADJ. CHOKE	23:29	"	290.3	289.9	288.7
CHANGE TO 3/64" ADJ. CHOKE	23:32	"	290.3	289.9	288.7
CHANGE TO 2/64" ADJ. CHOKE	23:40	"	290.3	289.9	288.7
CHANGE TO 3/64" ADJ. CHOKE	23:42	"	291.0	289.9	288.7
CHANGE TO 4/64" ADJ. CHOKE	00:04	25.4.82	291.0	290.6	289.4
CHANGE TO 8/64" ADJ. CHOKE (DIRECT FLOW TO GAUGE TANK)	00:20	"	293.2	293.4	292.3

(Cont'd)

M.R.P.G. PRESSURES ARE RELATIVE TO GAUGE CLOCK TIMES.

S.P.G. PRESSURES ARE RELATIVE TO TIME GRADIENT CALCULATED FROM SURFACE TIMES.

PRESSURE TEST DATA SUMMARY  
CONTINUATION SHEET

COMPANY: BRITISH PETROLEUM CO. JOB NO: MRPG-1202 (B) -NOR

EVENT	SURFACE TIMES & DATES		TEMP. °F		
			<u>0039</u>	<u>0009</u>	<u>0190</u>
CHANGE TO 5/64" ADJ. CHOKE	00:23	25.4.82	293.9	293.4	292.3
" " 4/64" " "	00:31	"	295.3	295.5	293.7
" " 3/64" " "	00:32	"	295.3	295.5	294.4
" " 4/64" " "	01:22	"	298.1	298.4	298.6
PLUGGING UP CHOKE	12:54	"	301.6	301.9	*
MUD TO SURFACE	13:01	"	301.6	**	
CHANGE TO 5/64" ADJ. CHOKE	13:34	"	300.9		
" " 6/64" " "	13:36	"	300.9		
" " 8/64" " "	13:45	"	300.9		
" " 10/64" " "	13:49	"	300.9		
" " 12/64" " "	13:53	"	300.2		
" " 8/64" " "	13:54	"	300.2		
" " 6/64" " "	13:56	"	299.5		
" " 4/64" " "	14:28	"	300.9		
" " 5/64" " "	14:37	"	300.9		
" " 6/64" " "	14:47	"	302.3		
" " 8/64" " "	14:56	"	302.3		
" " 10/64" " "	14:57	"	302.3		
" " 8/64" " "	14:59	"	302.3		
" " 6/64" " "	15:00	"	302.3		
" " 4/64" " "	15:01	"	302.3		
PRESSURE UP ANNULUS (ATTEMPT TO SHEAR APR-M)	16:34	"	302.3		
PRESSURE UP ANNULUS TO 3500 PSI (NO INDICATION)	16:38	"	303.0		
ANNULUS PRESSURE DORPPED TO 500 PSI	16:42	"	303.0		
PRESSURE BACK UP TO 3500 PSI, STILL NO INDICATION (PRESSURE DROPPING)	16:43	"	303.0		
PRESSURE BACK UP TO 3500 PSI (STILL DROPPING OFF)	16:50	"	303.8		
CLOSE IN AT CHOKE MANIFOLD	17:05	"	303.0		
PRESSURE UP ANNULUS TO SHEAR APR-M (NO INDICATION OF APR-M SHEARING)	09:07	26.4.82	296.0		
PRESSURE BACK UP TO 3500 PSI	09:16	"	296.7		
OPEN ON 4/64" ADJ. CHOKE	09:20	"	296.0		
CLOSE CHOKE MAINFOLD. BLEED OFF ANNULUS	09:28	"	295.3		
PRESSURE UP ANNULUS	09:33	"	295.3		
INCREASE ANNULUS PRESSURE	09:38	"	296.0		

M.R.P.G. PRESSURES ARE RELATIVE TO GAUGE CLOCK TIMES.  
S.P.G. PRESSURES ARE RELATIVE TO TIME GRADIENT CALCULATED FROM SURFACE TIMES.

(Cont'd)



## PRESSURE TEST DATA SUMMARY CONTINUATION SHEET

 COMPANY: BRITISH PETROLEUM CO. JOB NO: MRPG-1202 (B) -NOR

EVENT	SURFACE TIMES & DATES		TEMP. °F		
			0039	0009	0190
PICK UP STRING TO OPEN RTTS					
CIRCULATING VALVE	10:13	26.4.82	294.6		
RUN BACK IN	10:28	"	295.3		
PICK UP STRING AGAIN	10:32	"	295.3		
ATTEMPT TO OPEN RTTS CIRC.VALVE	10:45	"	295.3		
" " " " " "	10:48	"	295.3		
OPEN ON 32/64" ADJ. CHOKE	10:57	"	295.3		
CLOSE IN AT CHOKE MANIFOLD	11:00	"	295.3		
OPEN ON 12/64" ADJ. CHOKE.					
TRY TO REVERSE CIRCULATE	11:02	"	295.3		
TRY TO RE-OPEN CIRCULATING VALVE	12:15	"	295.3		
CLOSE CHOKE MANIFOLD	12:38	"	295.3		
OPEN ON 12/64" ADJ. CHOKE					
(COMMENCE REVERSE CIRCULATING)	14:58	"	295.3		
STOP CIRCULATING. CLOSE CHOKE					
MANIFOLD	16:42	"	288.9		
UNSEAT PACKER	22:42	"	293.2		
GAUGES OUT OF STRING	10:30	27.4.82	--	--	--

NOTE: GAUGE 0039 READ 10°F TOO HIGH THROUGHOUT TEST. THIS WAS CORRECTED FOR ON FINAL REPORTS.

\*\* GAUGE 0009 FAILED AFTER 64 HOURS IN HOLE.

\* GAUGE 0190 TEMPERATURE SENSOR FAILED AFTER 60 HOURS IN HOLE.

M.R.P.G. PRESSURES ARE RELATIVE TO GAUGE CLOCK TIMES.

S.P.G. PRESSURES ARE RELATIVE TO TIME GRADIENT CALCULATED FROM SURFACE TIMES.

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SPERRY-SUN INTERNATIONAL INC.  
MAGNETIC RECORDING PRESSURE GAUGE REPORT

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BRITISH PETROLEUM  
WILDCAT  
2976-1

OFFSHORE NORWAY  
22 APRIL 1982  
MRPG-1202(D)-NOR

DST 2; RUN 1. GAUGE 0039; SENSING DEPTH 4254.98 M. (PRE TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	11612.006	7: 4	24- 4-82	INITIAL HYDROSTATIC
0.067	11609.862	7: 8		
0.133	11609.147	7:12		
0.267	11608.432	7:20		
0.333	11606.289	7:24		
0.400	11605.574	7:28		
0.467	11605.574	7:32		
0.533	11604.859	7:36		
0.600	11604.145	7:40		
0.667	11604.145	7:44		
0.733	11602.715	7:48		
0.800	11603.430	7:52		
0.867	11601.286	7:56		
0.933	11601.286	8: 0		
1.000	11600.572	8: 4		
1.067	11599.857	8: 8		
1.133	11598.428	8:12		
1.200	11596.998	8:16		
1.267	11595.569	8:20		
1.333	11596.284	8:24		
1.467	11592.711	8:32		
1.533	11591.996	8:36		
1.600	11590.567	8:40		
1.667	11588.423	8:44		
1.733	11587.708	8:48		
1.800	11586.994	8:52		
1.867	11586.994	8:56		
1.933	11586.279	9: 0		
2.000	11586.279	9: 4		
2.067	11584.135	9: 8		
2.133	11583.420	9:12		
2.200	11586.994	9:16		
2.267	11583.420	9:20		
2.333	11581.277	9:24		
2.400	11581.991	9:28		
2.467	11581.277	9:32		
2.533	11579.133	9:36		
2.600	11576.989	9:40		
2.667	11576.274	9:44		
2.733	11574.845	9:48		
2.800	11596.998	9:52		
2.867	11593.425	9:56		
2.933	11591.996	10: 0		
3.000	11589.137	10: 4		
3.067	11586.994	10: 8		
3.133	11584.135	10:12		

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SPERRY-SUN INTERNATIONAL INC.  
MAGNETIC RECORDING PRESSURE GAUGE REPORT

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BRITISH PETROLEUM  
WILDCAT  
2976-1

OFFSHORE NORWAY  
22 APRIL 1982  
MRPG-1202(B)-NOR

DST 2; RUN 1. GAUGE 0039; SENSING DEPTH 4254.98 M. (PRE TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
3.200	11581.991	10:16	24- 4-82
3.267	11579.847	10:20	
3.333	11577.703	10:24	
3.400	11575.560	10:28	
3.467	11573.416	10:32	
3.533	11571.272	10:36	
3.600	11569.128	10:40	
3.667	11566.984	10:44	
3.733	11564.840	10:48	
3.800	11562.696	10:52	
3.867	11560.552	10:56	
3.933	11558.408	11: 0	
4.000	11660.600	11: 4	
4.067	12002.906	11: 8	
4.133	11975.750	11:12	
4.200	11955.026	11:16	
4.267	11938.590	11:20	
4.333	11923.582	11:24	
4.400	11912.148	11:28	
4.467	11902.858	11:32	
4.533	11894.283	11:36	
4.600	11886.422	11:40	
4.667	11877.132	11:44	
4.733	12073.654	11:48	
4.800	12064.364	11:52	
4.867	13539.352	11:56	
4.933	13539.352	12: 0	
5.000	13519.342	12: 4	
5.067	13496.474	12: 8	
5.133	13233.492	12:12	
5.200	12152.977	12:16	
5.267	12129.395	12:20	
5.333	12120.819	12:24	
5.400	12107.241	12:28	
5.467	13294.235	12:32	
5.533	13525.059	12:36	
5.600	13510.767	12:40	
5.667	13495.045	12:44	
5.733	13780.181	12:48	
5.800	13788.042	12:52	
5.867	13848.785	12:56	
5.933	13838.066	13: 0	
6.000	13798.046	13: 4	
6.067	13784.469	13: 8	
6.133	13777.322	13:12	
6.200	13805.193	13:16	
6.267	13622.963	13:20	

SET PACKER AT 11:08

OPEN APR-N VALVE AT 11:58  
OPEN ON ADJ CHOKE AT 12:02  
SHUT IN CHOKE AT 12:04  
CLOSE APR-N AT 12:12

OPEN APR-N VALVE AT 12:27

PRESSURE ANNULUS TO 2700 PSI

OPEN ON 8/64" A.C. AT 13:01  
SHUT IN, 13:02 (NO INDICATION  
OF APR-N VALVE OPENING)

BLEED OFF ANNULUS AT 13:18

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SHELFRY-SUN INTERNATIONAL INC.  
MAGNETIC RECORDING PRESSURE GAUGE REPORT

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BRITISH PETROLEUM  
WILDCAT  
29/6-1OFFSHORE NORWAY  
22 APRIL 1982  
MRPG-1202(B)-NOR

DST 2; RUN 1. GAUGE 0039; SENSING DEPTH 4254.98 M. (PRE TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
6.333	13803.049	13:24	24- 4-82	PRESSURE UP ANNULUS AT 13:19
6.400	13760.886	13:28		OPEN ON 32/64" A.C. AT 13:25
6.467	13750.881	13:32		SHUT IN CHOKE AT 13:26
6.533	13800.190	13:36		
6.600	12227.299	13:40		BLEED OFF ANNULUS AT 13:38
6.667	13779.466	13:44		PRESSURE UP ANNULUS AT 13:42
6.733	13770.176	13:48		OPEN AND CLOSE ON 32/64" A.C.
6.800	12723.249	13:52		BLEED OFF ANNULUS AT 13:51
6.867	13816.627	13:56		PRESSURE UP ANNULUS AT 13:52
6.933	13822.344	14: 0		
7.000	13812.339	14: 4		
7.067	13815.197	14: 8		
7.133	13801.620	14:12		
7.200	13791.615	14:16		
7.267	13794.473	14:20		
7.333	13781.610	14:24		
7.400	13838.780	14:28		
7.467	13876.560	14:32		BLEED OFF ANNULUS TO 2250 PSI
7.533	13655.121	14:36		AT 14:30
7.600	13625.822	14:40		
7.667	13615.817	14:44		
7.733	13615.102	14:48		
7.800	13600.810	14:52		
7.867	13595.093	14:56		
7.933	13583.659	15: 0		
8.000	13583.659	15: 4		
8.067	13567.937	15: 8		
8.133	13567.222	15:12		
8.200	13547.213	15:16		
8.267	13555.074	15:20		
8.333	13532.206	15:24		
8.400	13561.505	15:28		
8.467	13567.222	15:32		
8.533	13550.786	15:36		
8.600	13563.649	15:40		
8.667	13549.357	15:44		
8.733	13537.208	15:48		
8.800	13545.069	15:52		
8.867	13520.772	15:56		
8.933	13496.474	16: 0		
9.000	13501.477	16: 4		
9.067	13532.920	16: 8		
9.133	13510.767	16:12		
9.200	13509.338	16:16		
9.267	13530.062	16:20		
9.333	13515.055	16:24		
9.400	13504.335	16:28		

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SPERRY-SUN INTERNATIONAL INC.  
MAGNETIC RECORDING PRESSURE GAUGE REPORT

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BRITISH PETROLEUM  
WILDCAT  
29/6-1

OFFSHORE NORWAY  
22 APRIL 1982  
MRPG-1202(B)-NOR

DST 2; RUN 1. GAUGE 0039; SENSING DEPTH 4254.98 M. (PRE TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
9.467	13504.335	16:32	24- 4-82	
9.533	13489.328	16:36		
9.600	13477.333	16:40		
9.667	13487.899	16:44		
9.733	13461.458	16:48		
9.800	13424.297	16:52		BLEED OFF ANNULUS TO 1700 PSI AT 16:47
9.867	13396.427	16:56		
9.933	13372.844	17: 0		
10.000	13357.837	17: 4		
10.067	13339.971	17: 8		
10.133	13318.537	17:12		
10.200	13306.384	17:16		
10.267	13303.525	17:20		
10.333	13270.652	17:24		
10.400	13445.021	17:28		PRESSURE UP ANNULUS TO 2000 PS AT 17:27
10.467	13432.873	17:32		BLEED OFF ANNULUS AT 17:33
10.533	12238.018	17:36		
10.600	12185.850	17:40		
10.667	12185.136	17:44		
10.733	12182.277	17:48		SHUT IN CHOKE AT 17:46
10.800	11618.437	17:52		PICK UP 6 METRES TO UNSEAT PAC PACKER STILL SET
10.867	12126.536	17:56		PICK UP TO UNSEAT PACKER PACKER STILL SET AT 18:01
10.933	11687.041	18: 0		
11.000	12079.371	18: 4		
11.067	12078.656	18: 8		
11.133	12077.942	18:12		
11.200	12125.822	18:16		
11.267	12146.546	18:20		OPEN ON 32/64" A.C. AT 18:20 SHUT IN CHOKE AT 18:22
11.333	12139.400	18:24		
11.400	12132.968	18:28		
11.467	12124.392	18:32		
11.533	12115.817	18:36		START PUMPING GLYCOL
11.600	12107.241	18:40		
11.667	12098.666	18:44		
11.733	12090.805	18:48		
11.800	12083.659	18:52		
11.867	12078.656	18:56		
11.933	12071.510	19: 0		
12.000	12063.649	19: 4		
12.067	12055.788	19: 8		
12.133	12047.213	19:12		
12.200	12039.352	19:16		
12.267	12031.491	19:20		
12.333	12022.915	19:24		
12.400	12017.198	19:28		
12.467	12010.052	19:32		OPEN CHOKE AT 19:30 FLUSH OUT LINES AT 19:33
12.533	12001.477	19:36		

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DST 2, RUN 1, GAUGE 0039, SENSING DEPTH 4254.98 M. (PRE TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
12.600	11996.474	19:40	24- 4-82
12.733	11982.896	19:48	
12.800	11980.038	19:52	
12.867	11980.753	19:56	
12.933	11977.179	20: 0	
13.000	11972.177	20: 4	
13.067	11967.889	20: 8	
13.133	11960.028	20:12	
13.200	11952.882	20:16	
13.267	11947.165	20:20	
13.333	11932.158	20:24	
13.400	11925.726	20:28	
13.467	11920.724	20:32	
13.533	11917.151	20:36	
13.600	11910.005	20:40	
13.667	11902.858	20:44	
13.733	11897.141	20:48	
13.800	11892.139	20:52	
13.867	11884.278	20:56	
13.933	11881.420	21: 0	
14.000	11872.844	21: 4	
14.067	11869.986	21: 8	
14.133	11865.698	21:12	
14.200	11859.266	21:16	
14.267	11852.834	21:20	
14.333	11848.547	21:24	
14.400	11843.544	21:28	
14.467	11839.257	21:32	
14.533	11829.966	21:36	
14.600	11825.679	21:40	
14.667	11819.962	21:44	
14.733	11816.389	21:48	
14.800	11812.815	21:52	
14.867	9586.600	21:56	

OPEN APR-N VALVE AT 21:52  
BLEED OFF TUBING TO 3000 PSI

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DST 2, RUN 1. GAUGE 0039, SENSING DEPTH 4254.98 M. (BUILD UP PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	9586.600	21:56	24- 4-82	CLOSE CHOKE MANIFOLD
0.067	10040.253	22: 0		AT 21:54
0.133	9974.822	22: 4		
0.200	10109.658	22: 8		
0.267	10248.424	22:12		
0.333	10340.935	22:16		
0.400	10432.712	22:20		
0.467	10512.007	22:24		
0.533	10583.226	22:28		
0.600	10642.697	22:32		
0.667	10694.826	22:36		
0.733	10741.816	22:40		
0.800	10782.198	22:44		
0.867	10818.909	22:48		
0.933	10849.746	22:52		
1.000	10877.646	22:56		
1.067	10902.609	23: 0		
1.133	10924.635	23: 4		END OF BUILD UP PERIOD

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DST 2, RUN 1. GAUGE 0039, SENSING DEPTH 4254.98 M. (FLOW PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	10924.635	23: 4	24- 4-82	OPEN ON 8/64" A.C. AT 23:09
0.067	10266.045	23: 8		SHUT IN AT 23:10
0.133	9680.384	23:12		
0.200	9905.029	23:16		OPEN ON 8/64" A.C. AT 23:18
0.267	8865.408	23:20		SHUT IN CHOKER AT 23:20
0.333	8937.382	23:24		OPEN ON 2/64" A.C. AT 23:21
0.400	8748.360	23:28		CHANGE TO 3/64" A.C. AT 23:24
0.467	9060.246	23:32		CHANGE TO 2/64" A.C. AT 23:29
0.533	8973.732	23:36		CHANGE TO 3/64" A.C. AT 23:32
0.600	9063.881	23:40		CHANGE TO 2/64" A.C. AT 23:40
0.667	9076.240	23:44		CHANGE TO 3/64" A.C. AT 23:42
0.733	9035.528	23:48		
0.800	9007.174	23:52		
0.867	9020.988	23:56		
0.933	9034.074	0: 0	25- 4-82	
1.000	9034.074	0: 4		CHANGE TO 4/64" A.C. AT 00:04
1.067	9231.093	0: 8		
1.133	9279.802	0:12		
1.200	9391.035	0:16		
1.267	9437.563	0:20		CHANGE TO 8/64" A.C. AT 00:20
1.333	9217.280	0:24		CHANGE TO 5/64" A.C. AT 00:23
1.400	9335.055	0:28		
1.467	8499.723	0:32		CHANGE TO 4/64" A.C. AT 00:31
1.533	9369.951	0:36		CHANGE TO 3/64" A.C. AT 00:32
1.600	10288.072	0:40		
1.667	10450.333	0:44		
1.733	10467.220	0:48		
1.800	10475.296	0:52		
1.867	10473.094	0:56		
1.933	10342.404	1: 0		
2.000	10304.225	1: 4		
2.067	10401.141	1: 8		
2.133	10481.904	1:12		
2.200	10473.094	1:16		
2.267	10451.802	1:20		
2.333	9886.457	1:24		CHANGE TO 4/64" A.C. AT 01:22
2.400	10105.987	1:28		
2.467	10268.982	1:32		
2.533	10278.527	1:36		
2.600	10277.059	1:40		
2.667	10257.235	1:44		
2.733	10194.827	1:48		
2.800	10150.774	1:52		
2.867	10175.737	1:56		
2.933	10162.521	2: 0		
3.000	10175.003	2: 4		

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DST 2, RUN 1. GAUGE 0039, SENSING DEPTH 4254.98 M. (FLOW PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
3.047	10245.487	2: 8	25- 4-82
3.133	10285.135	2:12	
3.200	10271.185	2:16	
3.267	10266.780	2:20	
3.333	10277.059	2:24	
3.400	10295.414	2:28	
3.467	10304.225	2:32	
3.533	10279.995	2:36	
3.600	10249.893	2:40	
3.667	10238.879	2:44	
3.733	10241.082	2:48	
3.800	10230.803	2:52	
3.867	10226.398	2:56	
3.933	10249.158	3: 0	
4.000	10251.361	3: 4	
4.067	10307.161	3: 8	
4.133	10349.012	3:12	
4.200	10317.440	3:16	
4.267	10283.667	3:20	
4.333	10274.122	3:24	
4.400	10201.435	3:28	
4.467	10172.800	3:32	
4.533	10121.405	3:36	
4.600	10062.668	3:40	
4.667	10034.034	3:44	
4.733	10023.021	3:48	
4.800	10029.629	3:52	
4.867	10028.894	3:56	
4.933	10023.755	4: 0	
5.000	10075.150	4: 4	
5.067	10109.658	4: 8	
5.133	10139.761	4:12	
5.200	10146.369	4:16	
5.267	10136.824	4:20	
5.333	10144.900	4:24	
5.400	10144.166	4:28	
5.467	10108.189	4:32	
5.533	9992.270	4:36	
5.600	9271.805	4:40	
5.667	10020.818	4:44	
5.733	10205.106	4:48	
5.800	10246.956	4:52	
5.867	10252.830	4:56	
5.933	10292.477	5: 0	
6.000	10305.693	5: 4	
6.067	10248.424	5: 8	
6.133	10227.132	5:12	

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DST 2; RUN 1; GAUGE 0039; SENSING DEPTH 4254.98 M. (FLOW PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
6.200	10267.514	5:16	25- 4-82
6.267	10226.398	5:20	
6.333	10197.764	5:24	
6.400	10198.498	5:28	
6.467	10233.740	5:32	
6.533	10246.956	5:36	
6.600	10248.424	5:40	
6.667	10228.601	5:44	
6.733	10206.574	5:48	
6.800	10496.589	5:52	
6.867	10653.710	5:56	
6.933	10746.956	6: 0	
7.000	10765.311	6: 4	
7.067	10760.171	6: 8	
7.133	10755.032	6:12	
7.200	10670.597	6:16	
7.267	10435.649	6:20	
7.333	10442.257	6:24	
7.400	10472.360	6:28	
7.467	10466.486	6:32	
7.533	10495.854	6:36	
7.600	10482.639	6:40	
7.667	10385.722	6:44	
7.733	10347.543	6:48	
7.800	10347.543	6:52	
7.867	10364.430	6:56	
7.933	10373.975	7: 0	
8.000	10393.064	7: 4	
8.067	10396.001	7: 8	
8.133	10368.101	7:12	
8.200	10339.467	7:16	
8.267	10310.832	7:20	
8.333	10291.743	7:24	
8.400	10281.464	7:28	
8.467	10252.830	7:32	
8.533	10240.348	7:36	
8.600	10188.219	7:40	
8.667	10296.148	7:44	
8.733	10351.214	7:48	
8.800	10318.175	7:52	
8.867	10299.819	7:56	
8.933	10261.640	8: 0	
9.000	10257.969	8: 4	
9.067	10252.830	8: 8	
9.133	10307.896	8:12	
9.200	10322.580	8:16	
9.267	10347.543	8:20	

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DST 2, RUN 1, GAUGE 0039, SENSING DEPTH 4254.98 M. (FLOW PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
9.333	10337.264	8:24	25- 4-82
9.400	10324.048	8:28	
9.467	10304.225	8:32	
9.533	10285.311	8:36	
9.600	10256.501	8:40	
9.667	10241.816	8:44	
9.733	10234.474	8:48	
9.800	10243.285	8:52	
9.867	10165.458	8:56	
9.933	9919.496	9: 0	
10.000	10050.921	9: 4	
10.067	10267.514	9: 8	
10.133	10169.863	9:12	
10.200	10050.921	9:16	
10.267	10288.072	9:20	
10.333	10417.294	9:24	
10.400	10458.409	9:28	
10.467	10391.596	9:32	
10.533	10429.775	9:36	
10.600	10335.796	9:40	
10.667	10238.879	9:44	
10.733	10294.680	9:48	
10.800	10329.922	9:52	
10.867	10338.733	9:56	
10.933	10318.175	10: 0	
11.000	10302.756	10: 4	
11.067	10252.830	10: 8	
11.133	10206.574	10:12	
11.200	10086.897	10:16	
11.267	10104.518	10:20	
11.333	10072.947	10:24	
11.400	10344.606	10:28	
11.467	10404.078	10:32	
11.533	10416.559	10:36	
11.600	10422.433	10:40	
11.667	10418.762	10:44	
11.733	10409.217	10:48	
11.800	10437.117	10:52	
11.867	10414.357	10:56	
11.933	10396.001	11: 0	
12.000	10412.154	11: 4	
12.067	10405.546	11: 8	
12.133	10429.041	11:12	
12.200	10420.230	11:16	
12.267	10385.722	11:20	
12.333	10422.433	11:24	
12.400	10443.725	11:28	

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DST 2, RUN 1, GAUGE 0039, SENSING DEPTH 4254.98 M. (FLOW PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
12.467	10460.612	11:32	25- 4-82
12.533	10426.838	11:36	
12.600	10398.938	11:40	
12.667	10411.420	11:44	
12.733	10398.938	11:48	
12.800	10401.141	11:52	
12.867	10401.141	11:56	
12.933	10431.978	12: 0	
13.000	10412.888	12: 4	
13.067	10393.799	12: 8	
13.133	10360.759	12:12	
13.200	10338.733	12:16	
13.267	10407.015	12:20	
13.333	10469.423	12:24	
13.400	10445.928	12:28	
13.467	10438.586	12:32	
13.533	10434.180	12:36	
13.600	10431.978	12:40	
13.667	10358.556	12:44	
13.733	10398.938	12:48	
13.800	10417.734	12:52	
13.867	10487.484	12:56	
13.933	11010.538	13: 0	
14.000	10907.748	13: 4	
14.067	10915.091	13: 8	
14.133	10955.472	13:12	
14.200	11046.515	13:16	
14.267	11067.073	13:20	
14.333	11055.325	13:24	
14.400	11079.555	13:28	
14.467	11103.049	13:32	
14.533	11123.607	13:36	
14.600	11218.321	13:40	
14.667	11196.295	13:44	
14.733	11192.623	13:48	
14.800	10310.098	13:52	
14.867	10368.101	13:56	
14.933	10501.728	14: 0	
15.000	10267.514	14: 4	
15.067	10175.003	14: 8	
15.133	10342.404	14:12	
15.200	10559.731	14:16	
15.267	10537.705	14:20	
15.333	10109.658	14:24	
15.400	10411.420	14:28	
15.467	10409.217	14:32	
15.533	9786.604	14:36	

PLUGGING UP AT CHOKE

MUD TO SURFACE AT 13:01

CHANGE TO 6/64" A.C. AT 13:34  
CHANGE TO 5/64" A.C. AT 13:36  
CHANGE TO 8/64" A.C. AT 13:45  
CHANGE TO 10/64" A.C. AT 13:49  
CHANGE TO 12/64" A.C. AT 13:53  
CHANGE TO 8/64" A.C. AT 13:54  
CHANGE TO 6/64" A.C. AT 13:56

CHANGE TO 4/64" A.C. AT 14:28

CHANGE TO 5/64" A.C. AT 14:37

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DST 2, RUN 1. GAUGE 0039, SENSING DEPTH 4254.98 M. (FLOW PERIOD)

DELTA TIME	GALGE PRESSURE	TIME	DATE	
15.733	10854.151	14:48	25- 4-82	CHANGE TO 6/64" A.C. AT 14:47
15.800	11185.281	14:52		
16.000	10227.866	15: 4		CHANGE TO 4/64" A.C. AT 15:01
16.067	10291.743	15: 8		
16.133	10266.780	15:12		
16.267	10190.421	15:20		
16.333	10119.203	15:24		
16.400	10086.163	15:28		
16.533	10036.236	15:36		
16.600	10012.007	15:40		
16.667	10012.007	15:44		
16.800	10039.173	15:52		
16.867	10067.808	15:56		
16.933	10099.379	16: 0		
17.000	10124.342	16: 4		
17.067	10122.139	16: 8		
17.133	10112.595	16:12		
17.200	10122.139	16:16		
17.267	10108.924	16:20		
17.333	10091.302	16:24		
17.400	10103.784	16:28		
17.467	10114.797	16:32		
17.533	10150.774	16:36		ATTEMPT TO SHEAR APR-M
17.600	11111.053	16:40		(NO INDICATION OF SHEARING)
17.667	11552.692	16:44		ATTEMPT TO SHEAR APR-M
17.733	11801.381	16:48		(ANNULUS PRESSURE DROPPED OFF)
17.800	12240.162	16:52		RE-PRESSURE ANNULUS TO 3500
17.867	12366.651	16:56		PSI (PRESSURE DROPPED OFF)
17.933	11728.490	17: 0		
18.000	11834.969	17: 4		END OF FLOW PERIOD

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DST 2, RUN 1. GAUGE 0039, SENSING DEPTH 4254.98 M. (SHUT IN PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	11834.969	17: 4	25- 4-82	WELL SHUT IN AT CHDKE
0.067	11346.165	17: 8		MANIFOLD AT 17:05
0.133	11233.254	17:12		
0.200	11237.541	17:16		
0.267	11246.117	17:20		
0.333	11245.402	17:24		
0.400	11244.688	17:28		
0.467	11243.973	17:32		
0.533	11242.544	17:36		
0.600	11241.829	17:40		
0.667	11241.829	17:44		
0.733	11243.973	17:48		
0.800	11242.544	17:52		
0.867	11240.400	17:56		
0.933	11240.400	18: 0		
1.000	11240.400	18: 4		
1.067	11239.685	18: 8		
1.133	11238.971	18:12		
1.200	11238.256	18:16		
1.267	11236.827	18:20		
1.333	11238.256	18:24		
1.400	11238.971	18:28		
1.467	11238.256	18:32		
1.533	11237.541	18:36		
1.600	11238.256	18:40		
1.667	11238.256	18:44		
1.733	11237.541	18:48		
1.800	11236.827	18:52		
1.867	11236.112	18:56		
1.933	11236.112	19: 0		
2.000	11236.827	19: 4		
2.067	11236.112	19: 8		
2.133	11236.827	19:12		
2.200	11238.971	19:16		
2.267	11237.541	19:20		
2.333	11236.827	19:24		
2.400	11235.398	19:28		
2.467	11235.398	19:32		
2.533	11236.112	19:36		
2.600	11236.827	19:40		
2.667	11236.112	19:44		
2.733	11236.112	19:48		
2.800	11236.112	19:52		
2.867	11236.112	19:56		
2.933	11236.112	20: 0		
3.000	11236.112	20: 4		

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DST 2, RUN 1, GAUGE 0039, SENSING DEPTH 4254.98 M. (SHUT IN PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
3.067	11236.827	20: 8	25- 4-82
3.133	11235.398	20:12	
3.200	11236.827	20:16	
3.267	11236.112	20:20	
3.333	11236.112	20:24	
3.400	11234.683	20:28	
3.467	11234.683	20:32	
3.533	11236.112	20:36	
3.600	11236.112	20:40	
3.667	11234.683	20:44	
3.733	11234.683	20:48	
3.800	11235.398	20:52	
3.867	11235.398	20:56	
3.933	11235.398	21: 0	
4.000	11235.398	21: 4	
4.067	11235.398	21: 8	
4.133	11236.112	21:12	
4.200	11236.112	21:16	
4.267	11235.398	21:20	
4.333	11235.398	21:24	
4.400	11234.683	21:28	
4.467	11234.683	21:32	
4.533	11236.827	21:36	
4.600	11236.112	21:40	
4.667	11235.398	21:44	
4.733	11237.541	21:48	
4.800	11236.112	21:52	
4.867	11234.683	21:56	
4.933	11235.398	22: 0	
5.000	11235.398	22: 4	
5.067	11237.541	22: 8	
5.133	11235.398	22:12	
5.200	11235.398	22:16	
5.267	11236.112	22:20	
5.333	11236.827	22:24	
5.400	11235.398	22:28	
5.467	11234.683	22:32	
5.533	11235.398	22:36	
5.600	11235.398	22:40	
5.667	11236.827	22:44	
5.733	11236.827	22:48	
5.800	11236.827	22:52	
5.867	11236.112	22:56	
5.933	11234.683	23: 0	
6.000	11236.112	23: 4	
6.067	11236.112	23: 8	
6.133	11235.398	23:12	

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2976-1OFFSHORE NORWAY  
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DST 2: RUN 1. GAUGE 0039, SENSING DEPTH 4254.98 M. (SHUT IN PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
6.200	11236.112	23:16	25- 4-82
6.267	11236.112	23:20	
6.333	11236.112	23:24	
6.400	11236.827	23:28	
6.467	11235.398	23:32	
6.533	11236.112	23:36	
6.600	11235.398	23:40	
6.667	11236.112	23:44	
6.733	11236.827	23:48	
6.800	11236.827	23:52	
6.867	11236.112	23:56	
6.933	11236.112	0: 0	26- 4-82
7.000	11236.112	0: 4	
7.067	11236.112	0: 8	
7.133	11236.112	0:12	
7.200	11235.398	0:16	
7.267	11236.112	0:20	
7.333	11235.398	0:24	
7.400	11235.398	0:28	
7.467	11235.398	0:32	
7.533	11234.683	0:36	
7.600	11235.398	0:40	
7.667	11234.683	0:44	
7.733	11235.398	0:48	
7.800	11233.968	0:52	
7.867	11235.398	0:56	
7.933	11235.398	1: 0	
8.000	11234.683	1: 4	
8.067	11233.968	1: 8	
8.133	11234.683	1:12	
8.200	11234.683	1:16	
8.267	11233.968	1:20	
8.333	11233.968	1:24	
8.400	11233.254	1:28	
8.467	11234.683	1:32	
8.533	11234.683	1:36	
8.600	11233.254	1:40	
8.667	11233.968	1:44	
8.733	11233.968	1:48	
8.800	11233.968	1:52	
8.867	11233.968	1:56	
8.933	11233.968	2: 0	
9.000	11234.683	2: 4	
9.067	11234.683	2: 8	
9.133	11234.683	2:12	
9.200	11234.683	2:16	
9.267	11233.968	2:20	

BRITISH PETROLEUM  
WILDCAT  
2976-1OFFSHORE NORWAY  
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DST 2, RUN 1. GAUGE 0039, SENSING DEPTH 4254.98 M. (SHUT IN PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
9.333	11234.683	2:24	26- 4-82
9.400	11233.968	2:28	
9.467	11233.968	2:32	
9.533	11235.398	2:36	
9.600	11233.968	2:40	
9.667	11234.683	2:44	
9.733	11234.683	2:48	
9.800	11233.968	2:52	
9.867	11234.683	2:56	
9.933	11235.398	3: 0	
10.000	11234.683	3: 4	
10.067	11235.398	3: 8	
10.133	11234.683	3:12	
10.200	11235.398	3:16	
10.267	11235.398	3:20	
10.333	11234.683	3:24	
10.400	11235.398	3:28	
10.467	11234.683	3:32	
10.533	11234.683	3:36	
10.600	11234.683	3:40	
10.667	11235.398	3:44	
10.733	11234.683	3:48	
10.800	11234.683	3:52	
10.867	11234.683	3:56	
10.933	11235.398	4: 0	
11.000	11235.398	4: 4	
11.067	11235.398	4: 8	
11.133	11235.398	4:12	
11.200	11234.683	4:16	
11.267	11234.683	4:20	
11.333	11235.398	4:24	
11.400	11235.398	4:28	
11.467	11236.112	4:32	
11.533	11234.683	4:36	
11.600	11234.683	4:40	
11.667	11234.683	4:44	
11.733	11234.683	4:48	
11.800	11236.827	4:52	
11.867	11235.398	4:56	
11.933	11235.398	5: 0	
12.000	11235.398	5: 4	
12.067	11235.398	5: 8	
12.133	11235.398	5:12	
12.200	11235.398	5:16	
12.267	11236.112	5:20	
12.333	11235.398	5:24	
12.400	11235.398	5:28	

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DST 2, RUN 1, GAUGE 0039, SENSING DEPTH 4254.98 M. (SHUT IN PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
12.467	11235.398	5:32	26- 4-82
12.533	11236.112	5:36	
12.600	11236.112	5:40	
12.667	11236.112	5:44	
12.733	11235.398	5:48	
12.800	11235.398	5:52	
12.867	11236.112	5:56	
12.933	11236.827	6: 0	
13.000	11236.827	6: 4	
13.067	11236.112	6: 8	
13.133	11236.112	6:12	
13.200	11235.398	6:16	
13.267	11235.398	6:20	
13.333	11237.541	6:24	
13.400	11236.112	6:28	
13.467	11235.398	6:32	
13.533	11235.398	6:36	
13.600	11236.112	6:40	
13.667	11235.398	6:44	
13.733	11236.112	6:48	
13.800	11235.398	6:52	
13.867	11234.683	6:56	
13.933	11235.398	7: 0	
14.000	11234.683	7: 4	
14.067	11234.683	7: 8	
14.133	11234.683	7:12	
14.200	11234.683	7:16	
14.267	11233.968	7:20	
14.333	11233.968	7:24	
14.400	11233.968	7:28	
14.467	11234.683	7:32	
14.533	11233.968	7:36	
14.600	11233.968	7:40	
14.667	11233.968	7:44	
14.733	11233.968	7:48	
14.800	11233.968	7:52	
14.867	11232.539	7:56	
14.933	11233.254	8: 0	
15.000	11233.968	8: 4	
15.067	11233.968	8: 8	
15.133	11233.254	8:12	
15.200	11233.968	8:16	
15.267	11233.968	8:20	
15.333	11233.968	8:24	
15.400	11233.254	8:28	
15.467	11232.539	8:32	
15.533	11233.968	8:36	

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DST 2, RUN 1. GAUGE 0039, SENSING DEPTH 4254.98 M. (SHUT IN PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
15.600	11227.537	8:40	26- 4-82
15.667	11233.254	8:44	
15.733	11234.683	8:48	
15.800	11233.968	8:52	
15.867	11233.968	8:56	
15.933	11233.968	9: 0	
16.000	11233.968	9: 4	
16.067	12769.700	9: 8	ATTEMPT TO SHEAR APR-M
16.133	13093.425	9:12	
16.200	13179.180	9:16	END OF SHUT IN PERIOD

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DST 2; RUN 1. GAUGE 0039; SENSING DEPTH 4254.98 M. (POST TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE	
0.000	13179.180	9:16	26- 4-82	OPEN ON 4/64" ADJ
0.067	13026.250	9:20		CHOKE AT 09:20
0.133	13026.250	9:24		
0.200	12555.312	9:28		SHUT IN CHOKE AT 09:28
0.267	13001.238	9:32		
0.333	13348.547	9:36		PRESSURE UP ANNULUS
0.400	13182.753	9:40		
0.467	13204.907	9:44		
0.533	12900.476	9:48		
0.600	12443.830	9:52		
0.667	11932.873	9:56		
0.733	11794.950	10: 0		
0.800	11836.398	10: 4		
0.867	11717.770	10: 8		
0.933	11677.751	10:12		
1.000	11704.192	10:16		ATTEMPT TO OPEN RTTS
1.067	11698.475	10:20		CIRCULATING VALVE AT 10:13
1.133	11697.761	10:24		
1.200	11717.056	10:28		
1.267	11660.600	10:32		ATTEMPT TO OPEN RTTS
1.333	11674.893	10:36		CIRCULATING VALVE AT 10:32
1.400	11664.888	10:40		
1.467	11686.327	10:44		
1.533	11708.480	10:48		ATTEMPT TO OPEN RTTS
1.600	11759.933	10:52		CIRCULATING VALVE AT 10:48
1.667	11778.513	10:56		OPEN ON 32/64" A.C. AT 10:57
1.733	11677.751	11: 0		SHUT IN CHOKE AT 11:00
1.800	11767.794	11: 4		OPEN ON 12/64" A.C. AND TRY
1.867	11775.655	11: 8		TO REVERSE CIRCULATE AT 11:02
1.933	11760.648	11:12		
2.000	11784.945	11:16		
2.067	12313.768	11:20		
2.133	12375.941	11:24		
2.200	11922.868	11:28		
2.267	11792.091	11:32		
2.333	11855.693	11:36		
2.400	12006.479	11:40		
2.467	11885.707	11:44		
2.533	11808.528	11:48		
2.600	12064.364	11:52		
2.667	11917.865	11:56		
2.733	11901.429	12: 0		
2.800	11878.561	12: 4		
2.867	11861.410	12: 8		
2.933	11802.096	12:12		
3.000	11758.504	12:16		ATTEMPT TO OPEN

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DST 2; RUN 1. GAUGE 0039; SENSING DEPTH 4254.98 M. (POST TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
3.067	11756.360	12:20	26- 4-82 CIRCULATING VALVE AT 12:15
3.133	12429.538	12:24	
3.200	12703.954	12:28	
3.267	12800.429	12:32	
3.333	11967.175	12:36	
3.400	11914.292	12:40	SHUT IN CHOKE AT 12:38
3.467	11895.712	12:44	
3.533	12712.530	12:48	
3.600	12791.853	12:52	
3.667	12864.030	12:56	
3.733	12798.285	13: 0	
3.800	12760.409	13: 4	
3.867	12732.539	13: 8	
3.933	12714.673	13:12	
4.000	12703.954	13:16	
4.067	11930.729	13:20	
4.133	11918.580	13:24	
4.200	11911.434	13:28	
4.267	11872.844	13:32	
4.333	11895.712	13:36	
4.400	11904.288	13:40	
4.467	11798.523	13:44	
4.533	12028.632	13:48	
4.600	12018.628	13:52	
4.667	11909.290	13:56	
4.733	11960.743	14: 0	
4.800	11953.597	14: 4	
4.867	11952.167	14: 8	
4.933	12000.047	14:12	
5.000	12253.740	14:16	
5.067	12229.442	14:20	
5.133	12207.289	14:24	
5.200	11934.302	14:28	
5.267	11933.587	14:32	
5.333	11915.722	14:36	
5.400	11993.616	14:40	
5.467	11939.304	14:44	
5.533	11895.712	14:48	
5.600	11867.127	14:52	
5.667	11668.461	14:56	
5.733	11717.770	15: 0	OPEN ON 12/64" ADJ CHOKE
5.800	11746.355	15: 4	AND COMMENCE REVERSE
5.867	11758.504	15: 8	CIRCULATING
5.933	11762.792	15:12	
6.000	11757.789	15:16	
6.067	11776.369	15:20	
6.133	11776.369	15:24	

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OFFSHORE NORWAY  
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DST 2; RUN 1. GAUGE 0039; SENSING DEPTH 4254.98 M. (POST TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
6.200	11773.511	15:28	26- 4-82
6.267	11777.799	15:32	
6.333	11775.655	15:36	
6.400	11814.959	15:40	
6.467	12288.756	15:44	
6.533	12819.009	15:48	
6.600	12949.785	15:52	
6.667	13083.420	15:56	
6.733	13119.866	16: 0	
6.800	13142.734	16: 4	
6.867	13167.746	16: 8	
6.933	13226.346	16:12	
7.000	13195.617	16:16	
7.067	13039.828	16:20	
7.133	12970.510	16:24	
7.200	12474.559	16:28	
7.267	12929.776	16:32	
7.333	13047.689	16:36	
7.400	12792.568	16:40	
7.467	11901.429	16:44	
7.533	11823.535	16:48	
7.600	12543.163	16:52	
7.667	13046.260	16:56	
7.733	13103.430	17: 0	
7.800	13112.005	17: 4	
7.867	11909.290	17: 8	
7.933	11812.815	17:12	
8.000	11799.952	17:16	
8.067	11792.091	17:20	
8.133	11799.952	17:24	
8.200	11762.792	17:28	
8.267	11774.226	17:32	
8.333	11786.374	17:36	
8.400	11797.094	17:40	
8.467	11795.664	17:44	
8.533	11789.233	17:48	
8.600	11802.811	17:52	
8.667	11802.096	17:56	
8.733	11814.245	18: 0	
8.800	11806.384	18: 4	
8.867	11807.098	18: 8	
8.933	11794.950	18:12	
9.000	11800.667	18:16	
9.067	11804.240	18:20	
9.133	11795.660	18:24	
9.200	11814.959	18:28	
9.267	11838.542	18:32	

CLOSE CHDKE MANIFOLD AND  
STOP REVERSE CIRCULATING

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DST 2: RUN 1. GAUGE 0039; SENSING DEPTH 4254.98 M. (POST TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
9.333	11832.110	18:36	26- 4-82
9.400	11837.827	18:40	
9.467	11842.839	18:44	
9.533	11841.410	18:48	
9.600	11840.695	18:52	
9.667	11857.837	18:56	
9.733	11858.551	19: 0	
9.800	11862.839	19: 4	
9.867	11869.986	19: 8	
9.933	11866.412	19:12	
10.000	11877.846	19:16	
10.067	11871.415	19:20	
10.133	11903.573	19:24	
10.200	11895.712	19:28	
10.267	11888.566	19:32	
10.333	11891.424	19:36	
10.400	11894.997	19:40	
10.467	11899.285	19:44	
10.533	11912.863	19:48	
10.600	11905.717	19:52	
10.667	11913.578	19:56	
10.733	11918.580	20: 0	
10.800	11920.724	20: 4	
10.867	11927.870	20: 8	
10.933	11940.733	20:12	
11.000	11929.299	20:16	
11.067	11942.163	20:20	
11.133	11936.446	20:24	
11.200	11941.448	20:28	
11.267	11945.021	20:32	
11.333	11958.599	20:36	
11.400	11955.741	20:40	
11.467	11952.882	20:44	
11.533	11962.172	20:48	
11.600	11962.887	20:52	
11.667	11962.172	20:56	
11.733	11960.028	21: 0	
11.800	11970.748	21: 4	
11.867	11969.319	21: 8	
11.933	11958.599	21:12	
12.000	11972.177	21:16	
12.067	11957.885	21:20	
12.133	11963.602	21:24	
12.200	11955.741	21:28	
12.267	11942.163	21:32	
12.333	11963.602	21:36	
12.400	11951.453	21:40	

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DST 2: RUN 1. GAUGE 0039, SENSING DEPTH 4254.98 M. (POST TEST PERIOD)

DELTA TIME	GAUGE PRESSURE	TIME	DATE
12.467	11977.894	21:44	26- 4-82
12.533	11943.592	21:48	
12.600	11912.863	21:52	
12.667	11947.880	21:56	
12.733	11925.726	22: 0	
12.800	11869.271	22: 4	
12.867	11872.844	22: 8	
12.933	11872.844	22:12	
13.000	11872.129	22:16	
13.067	11876.417	22:20	
13.133	11877.132	22:24	
13.200	11878.561	22:28	
13.267	11878.561	22:32	
13.333	11878.561	22:36	
13.400	11859.266	22:40	
13.467	11832.110	22:44	
13.533	11892.854	22:48	
13.600	11835.683	22:52	
13.667	11817.818	22:56	

UNSEAT PACKER AT 22:42

END OF TEST

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DST 2, RUN 1. GAUGE 0039, SENSING DEPTH 4254.98 M. (TEMPERATURE SURVEY)

DELTA TIME	TEMPERATURE	TIME	DATE	
0.000	288.9	11: 8	24- 4-82	SET PACKER AT 11:08
0.067	288.9	11:12		
0.133	288.9	11:16		
0.200	288.9	11:20		
0.267	288.9	11:24		
0.333	288.9	11:28		
0.400	288.9	11:32		
0.467	288.9	11:36		
0.533	288.9	11:40		
0.600	288.9	11:44		
0.667	288.9	11:48		
0.733	289.6	11:52		
0.800	289.6	11:56		
0.867	290.3	12: 0		OPEN APR-N VALVE AT 11:58
0.933	290.3	12: 4		OPEN ON ADJ CHOKE AT 12:02
1.000	290.3	12: 8		SHUT IN CHOKE AT 12:04
1.067	290.3	12:12		CLOSE APR-N AT 12:12
1.133	289.6	12:16		
1.200	289.6	12:20		
1.267	289.6	12:24		
1.333	289.6	12:28		OPEN APR-N AT 12:27
1.400	289.6	12:32		
1.467	290.3	12:36		
1.533	290.3	12:40		
1.600	290.3	12:44		
1.667	290.3	12:48		
1.733	290.3	12:52		
1.800	290.3	12:56		
1.867	290.3	13: 0		OPEN ON 8/64" A.C. AT 13:01
1.933	290.3	13: 4		SHUT IN, 13:02 (NO INDICATION OF APR-N VALVE OPENING)
2.000	290.3	13: 8		
2.067	290.3	13:12		
2.133	290.3	13:16		
2.200	289.6	13:20		
2.267	290.3	13:24		
2.333	290.3	13:28		OPEN ON 32/64" A.C. AT 13:25
2.400	290.3	13:32		SHUT IN AT 13:26
2.467	290.3	13:36		
2.533	289.6	13:40		
2.600	290.3	13:44		
2.667	290.3	13:48		OPEN AND CLOSE ON 32/64" A.C.
2.733	289.6	13:52		
2.800	290.3	13:56		
2.867	290.3	14: 0		
2.933	290.3	14: 4		
3.000	290.3	14: 8		

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DST 2, RUN 1, GAUGE 0039, SENSING DEPTH 4254.98 M. (TEMPERATURE SURVEY)

DELTA TIME	TEMPERATURE	TIME	DATE
3.067	290.3	14:12	24- 4-82
3.133	290.3	14:16	
3.200	290.3	14:20	
3.267	290.3	14:24	
3.333	290.3	14:28	
3.400	289.6	14:32	
3.467	289.6	14:36	
3.533	289.6	14:40	
3.600	289.6	14:44	
3.667	290.3	14:48	
3.733	289.6	14:52	
3.800	289.6	14:56	
3.867	289.6	15: 0	
4.000	289.6	15: 8	
4.067	289.6	15:12	
4.133	289.6	15:16	
4.200	289.6	15:20	
4.267	289.6	15:24	
4.333	289.6	15:28	
4.400	289.6	15:32	
4.467	289.6	15:36	
4.533	289.6	15:40	
4.600	289.6	15:44	
4.667	289.6	15:48	
4.733	289.6	15:52	
4.800	289.6	15:56	
4.867	289.6	16: 0	
4.933	289.6	16: 4	
5.000	289.6	16: 8	
5.067	289.6	16:12	
5.133	289.6	16:16	
5.200	289.6	16:20	
5.267	289.6	16:24	
5.333	289.6	16:28	
5.400	289.6	16:32	
5.467	289.6	16:36	
5.533	289.6	16:40	
5.600	289.6	16:44	
5.667	289.6	16:48	
5.733	289.6	16:52	
5.800	289.6	16:56	
5.867	289.6	17: 0	
5.933	289.6	17: 4	
6.000	289.6	17: 8	
6.067	289.6	17:12	
6.133	289.6	17:16	
6.200	289.6	17:20	

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DST 2; RUN 1. GAUGE 0039; SENSING DEPTH 4254.98 M. (TEMPERATURE SURVEY)

DELTA TIME	TEMPERATURE	TIME	DATE
6.267	289.6	17:24	24- 4-82
6.333	289.6	17:28	
6.400	289.6	17:32	
6.467	289.6	17:36	
6.533	289.6	17:40	
6.600	289.6	17:44	
6.667	289.6	17:48	SHUT IN CHOKE AT 17:46
6.733	289.6	17:52	
6.800	289.6	17:56	
6.867	289.6	18: 0	
6.933	289.6	18: 4	
7.000	289.6	18: 8	
7.067	289.6	18:12	
7.133	289.6	18:16	
7.200	289.6	18:20	OPEN ON 32/64" A.C. AT 18:20
7.267	289.6	18:24	SHUT IN AT 18:22
7.333	289.6	18:28	
7.400	289.6	18:32	
7.467	289.6	18:36	
7.533	289.6	18:40	
7.600	289.6	18:44	
7.667	289.6	18:48	
7.733	289.6	18:52	
7.800	289.6	18:56	
7.867	289.6	19: 0	
7.933	289.6	19: 4	
8.000	289.6	19: 8	
8.067	289.6	19:12	
8.133	289.6	19:16	
8.200	289.6	19:20	
8.267	289.6	19:24	
8.333	289.6	19:28	
8.400	289.6	19:32	
8.467	289.6	19:36	
8.533	289.6	19:40	
8.600	289.6	19:44	
8.667	289.6	19:48	
8.733	289.6	19:52	
8.800	289.6	19:56	
8.933	290.3	20: 4	
9.000	290.3	20: 8	
9.067	290.3	20:12	
9.133	289.6	20:16	
9.200	289.6	20:20	
9.267	290.3	20:24	
9.333	290.3	20:28	
9.400	289.6	20:32	

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DST 2; RUN 1, GAUGE 0039, SENSING DEPTH 4254.98 M. (TEMPERATURE SURVEY)

DELTA TIME	TEMPERATURE	TIME	DATE
9.467	290.3	20:36	24- 4-82
9.533	290.3	20:40	
9.600	290.3	20:44	
9.667	290.3	20:48	
9.733	289.6	20:52	
9.800	289.6	20:56	
9.867	289.6	21: 0	
9.933	289.6	21: 4	
10.000	290.3	21: 8	
10.067	290.3	21:12	
10.133	290.3	21:16	
10.200	290.3	21:20	
10.267	290.3	21:24	
10.333	290.3	21:28	
10.400	290.3	21:32	
10.467	290.3	21:36	
10.533	290.3	21:40	
10.600	290.3	21:44	
10.667	290.3	21:48	
10.733	290.3	21:52	
10.800	289.9	21:56	
10.867	289.6	22: 0	
10.933	289.6	22: 4	
11.000	289.6	22: 8	
11.067	290.3	22:12	
11.133	290.3	22:16	
11.200	290.3	22:20	
11.267	290.3	22:24	
11.333	290.3	22:28	
11.400	290.3	22:32	
11.467	290.3	22:36	
11.533	291.0	22:40	
11.600	291.0	22:44	
11.667	291.0	22:48	
11.733	291.0	22:52	
11.800	291.0	22:56	
11.867	291.0	23: 0	
11.933	291.0	23: 4	
12.000	291.0	23: 8	
12.067	290.3	23:12	
12.133	290.3	23:16	
12.200	290.3	23:20	
12.267	290.3	23:24	
12.333	290.3	23:28	
12.400	290.3	23:32	
12.467	290.3	23:36	
12.533	290.3	23:40	

OPEN APR-N VALVE AT 21:52  
CLOSE CHOKE MANIFOLD  
AT 21:54

OPEN ON 8/64" A.C. AT 23:09  
SHUT IN AT 23:10  
OPEN ON 8/64" A.C. AT 23:18  
SHUT IN AT 23:20  
OPEN ON 2/64" A.C. AT 23:21  
CHANGE TO 3/64" A.C. AT 23:24  
CHANGE TO 2/64" A.C. AT 23:29  
CHANGE TO 3/64" A.C. AT 23:32  
CHANGE TO 2/64" A.C. AT 23:40

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DELTA TIME	TEMPERATURE	TIME	DATE	
12.600	291.0	23:44	24- 4-82	CHANGE TO 3/64" A.C. AT 23:42
12.667	291.0	23:48		
12.733	291.0	23:52		
12.800	291.0	23:56		
12.867	291.0	0: 0	25- 4-82	
12.933	291.0	0: 4		CHANGE TO 4/64" A.C. AT 00:04
13.000	291.7	0: 8		
13.067	291.7	0:12		
13.133	292.4	0:16		
13.200	293.1	0:20		CHANGE TO 8/64" A.C. AT 00:20
13.267	293.8	0:24		CHANGE TO 5/64" A.C. AT 00:23
13.333	295.2	0:28		
13.400	295.2	0:32		CHANGE TO 4/64" A.C. AT 00:31
13.467	294.5	0:36		CHANGE TO 3/64" A.C. AT 00:32
13.533	295.9	0:40		
13.600	297.3	0:44		
13.667	298.0	0:48		
13.733	298.0	0:52		
13.800	298.0	0:56		
13.867	298.0	1: 0		
13.933	298.0	1: 4		
14.000	298.0	1: 8		
14.067	298.0	1:12		
14.133	298.0	1:16		
14.200	298.0	1:20		
14.267	298.0	1:24		CHANGE TO 4/64" A.C. AT 01:22
14.333	298.0	1:28		
14.400	298.0	1:32		
14.467	298.8	1:36		
14.533	298.8	1:40		
14.600	298.8	1:44		
14.667	298.8	1:48		
14.733	298.0	1:52		
14.800	298.8	1:56		
14.867	298.8	2: 0		
14.933	298.8	2: 4		
15.000	298.8	2: 8		
15.067	298.8	2:12		
15.133	299.5	2:16		
15.200	299.5	2:20		
15.267	298.8	2:24		
15.333	299.5	2:28		
15.400	299.5	2:32		
15.467	299.5	2:36		
15.533	299.5	2:40		
15.600	299.5	2:44		
15.667	299.5	2:48		

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DELTA TIME	TEMPERATURE	TIME	DATE
15.733	299.5	2:52	25- 4-82
15.800	299.5	2:56	
15.867	299.5	3: 0	
15.933	299.5	3: 4	
16.000	299.5	3: 8	
16.067	299.5	3:12	
16.133	299.5	3:16	
16.200	299.5	3:20	
16.267	299.5	3:24	
16.333	299.5	3:28	
16.400	299.5	3:32	
16.467	299.5	3:36	
16.533	299.5	3:40	
16.600	299.5	3:44	
16.667	299.5	3:48	
16.733	299.5	3:52	
16.800	300.2	3:56	
16.867	300.2	4: 0	
16.933	300.2	4: 4	
17.000	300.2	4: 8	
17.067	300.2	4:12	
17.133	300.2	4:16	
17.200	300.2	4:20	
17.267	300.2	4:24	
17.333	300.2	4:28	
17.400	300.2	4:32	
17.467	300.2	4:36	
17.533	300.2	4:40	
17.600	300.2	4:44	
17.667	300.2	4:48	
17.733	300.9	4:52	
17.800	300.9	4:56	
17.867	300.9	5: 0	
17.933	300.9	5: 4	
18.000	300.9	5: 8	
18.067	300.2	5:12	
18.133	300.2	5:16	
18.200	300.2	5:20	
18.267	300.2	5:24	
18.333	300.2	5:28	
18.400	300.2	5:32	
18.467	300.9	5:36	
18.533	300.9	5:40	
18.600	300.9	5:44	
18.667	300.9	5:48	
18.733	300.9	5:52	
18.800	300.9	5:56	

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DST 2; RUN 1. GAUGE 0039, SENSING DEPTH 4254.98 M. (TEMPERATURE SURVEY)

DELTA TIME	TEMPERATURE	TIME	DATE
18.867	300.9	6: 0	25- 4-82
18.933	300.9	6: 4	
19.000	300.9	6: 8	
19.067	300.9	6:12	
19.133	300.2	6:16	
19.200	300.2	6:20	
19.267	300.2	6:24	
19.333	300.2	6:28	
19.400	300.2	6:32	
19.467	300.2	6:36	
19.533	300.2	6:40	
19.600	300.2	6:44	
19.667	300.2	6:48	
19.733	300.2	6:52	
19.800	300.2	6:56	
19.867	300.2	7: 0	
19.933	300.2	7: 4	
20.000	300.2	7: 8	
20.067	300.2	7:12	
20.133	300.2	7:16	
20.200	300.2	7:20	
20.267	300.2	7:24	
20.333	300.2	7:28	
20.400	300.2	7:32	
20.467	300.2	7:36	
20.533	300.2	7:40	
20.600	300.2	7:44	
20.667	300.9	7:48	
20.733	300.9	7:52	
20.800	300.9	7:56	
20.867	300.2	8: 0	
20.933	300.2	8: 4	
21.000	300.2	8: 8	
21.067	300.9	8:12	
21.133	300.9	8:16	
21.200	300.9	8:20	
21.267	300.9	8:24	
21.333	300.9	8:28	
21.400	300.9	8:32	
21.467	300.9	8:36	
21.533	300.9	8:40	
21.600	300.9	8:44	
21.667	300.9	8:48	
21.733	300.9	8:52	
21.800	300.9	8:56	
21.867	300.9	9: 0	
21.933	300.2	9: 4	

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DELTA TIME	TEMPERATURE	TIME	DATE
22.000	300.9	9: 8	25- 4-82
22.067	300.9	9:12	
22.133	300.9	9:16	
22.200	300.9	9:20	
22.267	300.9	9:24	
22.333	301.6	9:28	
22.400	301.6	9:32	
22.467	301.6	9:36	
22.533	300.9	9:40	
22.600	300.9	9:44	
22.667	300.9	9:48	
22.733	300.9	9:52	
22.800	300.9	9:56	
22.867	300.9	10: 0	
22.933	300.9	10: 4	
23.000	300.9	10: 8	
23.067	300.9	10:12	
23.133	300.9	10:16	
23.200	300.9	10:20	
23.267	300.9	10:24	
23.333	301.6	10:28	
23.400	301.6	10:32	
23.467	301.6	10:36	
23.533	301.6	10:40	
23.600	301.6	10:44	
23.667	301.6	10:48	
23.733	301.6	10:52	
23.800	301.6	10:56	
23.867	301.6	11: 0	
23.933	300.9	11: 4	
24.000	300.9	11: 8	
24.067	300.9	11:12	
24.133	301.6	11:16	
24.200	301.6	11:20	
24.267	300.9	11:24	
24.333	300.9	11:28	
24.400	300.9	11:32	
24.467	301.6	11:36	
24.533	300.9	11:40	
24.600	300.9	11:44	
24.667	300.9	11:48	
24.733	300.9	11:52	
24.800	301.6	11:56	
24.867	301.6	12: 0	
24.933	301.6	12: 4	
25.000	301.6	12: 8	
25.067	301.6	12:12	

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DST 2, RUN 1. GAUGE 0039, SENSING DEPTH 4254.98 M. (TEMPERATURE SURVEY)

DELTA TIME	TEMPERATURE	TIME	DATE
25.133	301.6	12:16	25- 4-82
25.200	301.6	12:20	
25.267	301.6	12:24	
25.333	301.6	12:28	
25.400	301.6	12:32	
25.467	301.6	12:36	
25.533	301.6	12:40	
25.600	301.6	12:44	
25.667	301.6	12:48	
25.733	301.6	12:52	
25.800	301.6	12:56	
25.867	301.6	13: 0	
25.933	301.6	13: 4	MUD TO SURFACE AT 13:01
26.000	301.6	13: 8	
26.067	301.6	13:12	
26.133	301.6	13:16	
26.200	300.9	13:20	
26.267	300.9	13:24	
26.333	300.9	13:28	
26.400	300.9	13:32	
26.467	300.9	13:36	CHANGE TO 6/64" A.C. AT 13:34
26.533	300.9	13:40	CHANGE TO 5/64" A.C. AT 13:36
26.600	300.9	13:44	CHANGE TO 8/64" A.C. AT 13:45
26.667	300.9	13:48	CHANGE TO 10/64" A.C. AT 13:49
26.733	300.9	13:52	CHANGE TO 12/64" A.C. AT 13:53
26.800	299.5	13:56	CHANGE TO 8/64" A.C. AT 13:54
26.867	300.2	14: 0	CHANGE TO 6/64" A.C. AT 13:56
26.933	300.2	14: 4	
27.000	300.2	14: 8	
27.067	300.2	14:12	
27.133	300.2	14:16	
27.200	300.9	14:20	
27.267	300.2	14:24	
27.333	300.9	14:28	CHANGE TO 4/64 A.C. AT 14:28
27.400	300.9	14:32	
27.467	300.9	14:36	
27.533	300.9	14:40	CHANGE TO 5/64" A.C. AT 14:37
27.600	301.6	14:44	
27.667	302.3	14:48	CHANGE TO 6/64" A.C. AT 14:47
27.733	302.3	14:52	
27.800	302.3	14:56	
27.933	301.6	15: 4	CHANGE TO 4/64" A.C. AT 15:01
28.000	301.6	15: 8	
28.067	303.0	15:12	
28.133	302.3	15:16	
28.200	302.3	15:20	
28.267	302.3	15:24	

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DST 2; RUN 1, GAUGE 0039; SENSING DEPTH 4254.98 M. (TEMPERATURE SURVEY)

DELTA TIME	TEMPERATURE	TIME	DATE
28.333	302.3	15:28	25- 4-82
28.400	302.3	15:32	
28.467	302.3	15:36	
28.533	302.3	15:40	
28.600	302.3	15:44	
28.667	302.3	15:48	
28.733	302.3	15:52	
28.800	302.3	15:56	
28.867	302.3	16: 0	
28.933	302.3	16: 4	
29.000	302.3	16: 8	
29.067	302.3	16:12	
29.133	302.3	16:16	
29.200	302.3	16:20	
29.267	302.3	16:24	
29.333	302.3	16:28	
29.400	302.3	16:32	
29.467	302.3	16:36	
29.533	303.0	16:40	
29.600	303.7	16:44	
29.667	303.7	16:48	
29.733	303.7	16:52	
29.800	303.7	16:56	
29.867	303.0	17: 0	
29.933	303.0	17: 4	
30.000	302.3	17: 8	
30.067	302.3	17:12	
30.133	302.3	17:16	
30.200	301.6	17:20	
30.267	301.6	17:24	
30.333	301.6	17:28	
30.400	301.6	17:32	
30.467	301.6	17:36	
30.533	301.6	17:40	
30.600	300.9	17:44	
30.667	300.9	17:48	
30.733	300.9	17:52	
30.800	300.9	17:56	
30.867	300.9	18: 0	
30.933	300.9	18: 4	
31.000	300.9	18: 8	
31.067	300.9	18:12	
31.133	300.2	18:16	
31.200	300.2	18:20	
31.267	300.2	18:24	
31.333	300.2	18:28	
31.400	300.2	18:32	

ATTEMPT TO SHEAR APR-M

ATTEMPT TO SHEAR APR-M

WELL SHUT IN AT CHOKE  
MANIFOLD AT 17:05

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DET 2, RUN 1, GAUGE 0039, SENSING DEPTH 4254.98 M. (TEMPERATURE SURVEY)

DELTA TIME	TEMPERATURE	TIME	DATE
31.467	300.2	18:36	25- 4-82
31.533	300.2	18:40	
31.600	300.2	18:44	
31.667	299.5	18:48	
31.733	299.5	18:52	
31.800	299.5	18:56	
31.867	299.5	19: 0	
31.933	299.5	19: 4	
32.000	299.5	19: 8	
32.067	299.5	19:12	
32.133	299.5	19:16	
32.200	299.5	19:20	
32.267	298.8	19:24	
32.333	298.8	19:28	
32.400	298.8	19:32	
32.467	298.8	19:36	
32.533	298.8	19:40	
32.600	298.8	19:44	
32.667	298.8	19:48	
32.733	298.8	19:52	
32.800	298.8	19:56	
32.867	298.8	20: 0	
32.933	298.8	20: 4	
33.000	298.8	20: 8	
33.067	298.0	20:12	
33.133	298.0	20:16	
33.200	298.0	20:20	
33.267	298.0	20:24	
33.333	298.0	20:28	
33.400	298.0	20:32	
33.467	298.0	20:36	
33.533	298.0	20:40	
33.600	298.0	20:44	
33.667	298.0	20:48	
33.733	298.0	20:52	
33.800	298.0	20:56	
33.867	298.0	21: 0	
33.933	298.0	21: 4	
34.000	298.0	21: 8	
34.067	297.3	21:12	
34.133	297.3	21:16	
34.200	297.3	21:20	
34.267	297.3	21:24	
34.333	297.3	21:28	
34.400	297.3	21:32	
34.467	297.3	21:36	
34.533	297.3	21:40	

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DST 2, RUN 1. GAUGE 0039, SENSING DEPTH 4254.98 M. (TEMPERATURE SURVEY)

DELTA TIME	TEMPERATURE	TIME	DATE
34.600	297.3	21:44	25- 4-82
34.667	297.3	21:48	
34.733	297.3	21:52	
34.800	297.3	21:56	
34.867	297.3	22: 0	
34.933	297.3	22: 4	
35.000	297.3	22: 8	
35.067	297.3	22:12	
35.133	297.3	22:16	
35.200	297.3	22:20	
35.267	297.3	22:24	
35.333	297.3	22:28	
35.400	296.6	22:32	
35.467	296.6	22:36	
35.533	296.6	22:40	
35.600	296.6	22:44	
35.667	296.6	22:48	
35.733	296.6	22:52	
35.800	296.6	22:56	
35.867	296.6	23: 0	
35.933	296.6	23: 4	
36.000	296.6	23: 8	
36.067	296.6	23:12	
36.133	296.6	23:16	
36.200	296.6	23:20	
36.267	296.6	23:24	
36.333	296.6	23:28	
36.400	296.6	23:32	
36.467	296.6	23:36	
36.533	296.6	23:40	
36.600	296.6	23:44	
36.667	296.6	23:48	
36.733	296.6	23:52	
36.800	296.6	23:56	
36.867	296.6	0: 0	26- 4-82
36.933	296.6	0: 4	
37.000	296.6	0: 8	
37.067	296.6	0:12	
37.133	296.6	0:16	
37.200	296.6	0:20	
37.267	296.6	0:24	
37.333	296.6	0:28	
37.400	296.6	0:32	
37.467	296.6	0:36	
37.533	296.6	0:40	
37.600	296.6	0:44	
37.667	296.6	0:48	

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DST 2, RUN 1, GAUGE 0039, SENSING DEPTH 4254.98 M. (TEMPERATURE SURVEY)

DELTA TIME	TEMPERATURE	TIME	DATE
37.733	295.9	0:52	26- 4-82
37.800	295.9	0:56	
37.867	295.9	1: 0	
37.933	295.9	1: 4	
38.000	295.9	1: 8	
38.067	295.9	1:12	
38.133	295.9	1:16	
38.200	295.9	1:20	
38.267	295.9	1:24	
38.333	295.9	1:28	
38.400	295.9	1:32	
38.467	295.9	1:36	
38.533	295.9	1:40	
38.600	295.9	1:44	
38.667	295.9	1:48	
38.733	295.9	1:52	
38.800	295.9	1:56	
38.867	295.9	2: 0	
38.933	295.9	2: 4	
39.000	295.9	2: 8	
39.067	295.9	2:12	
39.133	295.9	2:16	
39.200	295.9	2:20	
39.267	295.9	2:24	
39.333	295.9	2:28	
39.400	295.9	2:32	
39.467	295.9	2:36	
39.533	295.9	2:40	
39.600	295.9	2:44	
39.667	295.9	2:48	
39.733	295.9	2:52	
39.800	295.9	2:56	
39.867	295.9	3: 0	
39.933	295.9	3: 4	
40.000	295.9	3: 8	
40.067	295.9	3:12	
40.133	295.9	3:16	
40.200	295.9	3:20	
40.267	295.9	3:24	
40.333	295.9	3:28	
40.400	295.9	3:32	
40.467	295.9	3:36	
40.533	295.9	3:40	
40.600	295.9	3:44	
40.667	295.9	3:48	
40.733	295.9	3:52	
40.800	295.9	3:56	

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DELTA TIME	TEMPERATURE	TIME	DATE
40.867	295.9	4: 0	26- 4-82
40.933	295.9	4: 4	
41.000	295.9	4: 8	
41.067	295.9	4:12	
41.133	295.9	4:16	
41.200	295.9	4:20	
41.267	295.9	4:24	
41.333	295.9	4:28	
41.400	295.9	4:32	
41.467	295.9	4:36	
41.533	295.9	4:40	
41.600	295.9	4:44	
41.667	295.9	4:48	
41.733	295.9	4:52	
41.800	295.9	4:56	
41.867	295.9	5: 0	
41.933	295.9	5: 4	
42.000	295.9	5: 8	
42.067	295.9	5:12	
42.133	295.9	5:16	
42.200	295.9	5:20	
42.267	295.9	5:24	
42.333	295.9	5:28	
42.400	295.9	5:32	
42.467	295.9	5:36	
42.533	295.9	5:40	
42.600	295.9	5:44	
42.667	295.9	5:48	
42.733	295.9	5:52	
42.800	295.9	5:56	
42.867	295.9	6: 0	
42.933	295.9	6: 4	
43.000	295.9	6: 8	
43.067	295.9	6:12	
43.133	295.9	6:16	
43.200	295.9	6:20	
43.267	295.9	6:24	
43.333	295.9	6:28	
43.400	295.9	6:32	
43.467	295.9	6:36	
43.533	295.9	6:40	
43.600	295.9	6:44	
43.667	295.9	6:48	
43.733	295.9	6:52	
43.800	295.9	6:56	
43.867	295.9	7: 0	
43.933	295.9	7: 4	

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DST 2, RUN 1. GAUGE 0039, SENSING DEPTH 4254.98 M. (TEMPERATURE SURVEY)

DELTA TIME	TEMPERATURE	TIME	DATE
44.000	295.9	7: 8	26- 4-82
44.067	295.9	7:12	
44.133	295.9	7:16	
44.200	295.9	7:20	
44.267	295.9	7:24	
44.333	295.9	7:28	
44.400	295.9	7:32	
44.467	295.9	7:36	
44.533	295.9	7:40	
44.600	295.9	7:44	
44.667	295.9	7:48	
44.733	295.9	7:52	
44.800	295.9	7:56	
44.867	295.9	8: 0	
44.933	295.9	8: 4	
45.000	295.9	8: 8	
45.067	295.9	8:12	
45.133	295.9	8:16	
45.200	295.9	8:20	
45.267	295.9	8:24	
45.333	295.9	8:28	
45.400	295.9	8:32	
45.467	295.9	8:36	
45.533	295.9	8:40	
45.600	295.9	8:44	
45.667	295.9	8:48	
45.733	295.9	8:52	
45.800	295.9	8:56	
45.867	295.9	9: 0	
45.933	295.9	9: 4	
46.000	295.9	9: 8	ATTEMPT TO SHEAR APR-M
46.067	296.6	9:12	
46.133	296.6	9:16	
46.200	295.9	9:20	OPEN ON 4/64" ADJ
46.267	295.9	9:24	CHOKE AT 09:20
46.333	295.2	9:28	SHUT IN CHOKE AT 09:28
46.400	295.2	9:32	
46.467	295.9	9:36	
46.533	295.9	9:40	
46.600	295.2	9:44	
46.667	294.5	9:48	
46.733	294.5	9:52	
46.800	294.5	9:56	
46.867	294.5	10: 0	
46.933	294.5	10: 4	
47.000	294.5	10: 8	
47.067	294.5	10:12	

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DST 2, RUN 1. GAUGE 0039, SENSING DEPTH 4254.98 M. (TEMPERATURE SURVEY)

DELTA TIME	TEMPERATURE	TIME	DATE	
47.133	294.5	10:16	26- 4-82	ATTEMPT TO OPEN RTTS
47.200	294.5	10:20		CIRCULATING VALVE AT 10:13
47.267	294.5	10:24		
47.333	295.2	10:28		
47.400	295.2	10:32		ATTEMPT TO OPEN RTTS
47.467	295.2	10:36		CIRCULATING VALVE AT 10:32
47.533	295.2	10:40		
47.600	295.2	10:44		
47.667	295.2	10:48		ATTEMPT TO OPEN RTTS
47.733	295.2	10:52		CIRCULATING VALVE AT 10:48
47.800	295.2	10:56		OPEN DN 32/64" A.C. AT 10:57
47.867	295.2	11: 0		SHUT IN CHOKE AT 11:00
47.933	295.2	11: 4		OPEN DN 12/64" A.C. AND TRY
48.000	295.2	11: 8		TO REVERSE CIRCULATE AT 11:02
48.067	295.2	11:12		
48.133	295.2	11:16		
48.200	295.9	11:20		
48.267	295.9	11:24		
48.333	295.2	11:28		
48.400	295.2	11:32		
48.467	295.2	11:36		
48.533	295.2	11:40		
48.600	295.2	11:44		
48.667	295.2	11:48		
48.733	295.2	11:52		
48.800	295.2	11:56		
48.867	295.2	12: 0		
48.933	295.2	12: 4		
49.000	295.2	12: 8		
49.067	295.2	12:12		
49.133	295.2	12:16		ATTEMPT TO OPEN RTTS
49.200	295.2	12:20		CIRCULATING VALVE AT 12:15
49.267	295.2	12:24		
49.333	295.9	12:28		
49.400	295.9	12:32		
49.467	295.2	12:36		
49.533	295.2	12:40		SHUT IN CHOKE AT 12:38
49.600	295.2	12:44		
49.667	295.9	12:48		
49.733	295.9	12:52		
49.800	295.9	12:56		
49.867	295.9	13: 0		
49.933	295.2	13: 4		
50.000	295.2	13: 8		
50.067	295.2	13:12		
50.133	295.2	13:16		
50.200	295.2	13:20		

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DST 2; RUN 1. GAUGE 0039; SENSING DEPTH 4254.98 M. (TEMPERATURE SURVEY)

DELTA TIME	TEMPERATURE	TIME	DATE
50.267	295.2	13:24	26- 4-82
50.333	295.2	13:28	
50.400	295.2	13:32	
50.467	295.2	13:36	
50.533	295.2	13:40	
50.600	295.2	13:44	
50.667	295.2	13:48	
50.733	295.2	13:52	
50.800	295.2	13:56	
50.867	295.2	14: 0	
50.933	295.2	14: 4	
51.000	295.2	14: 8	
51.067	295.2	14:12	
51.133	295.2	14:16	
51.200	295.2	14:20	
51.267	295.2	14:24	
51.333	295.2	14:28	
51.400	295.2	14:32	
51.467	295.2	14:36	
51.533	295.2	14:40	
51.600	295.2	14:44	
51.667	295.2	14:48	
51.733	295.2	14:52	
51.800	295.2	14:56	
51.867	294.5	15: 0	
51.933	294.5	15: 4	
52.000	294.5	15: 8	
52.067	295.2	15:12	
52.133	295.2	15:16	
52.200	295.2	15:20	
52.267	295.2	15:24	
52.333	295.2	15:28	
52.400	295.2	15:32	
52.467	295.2	15:36	
52.533	295.2	15:40	
52.600	295.2	15:44	
52.667	295.2	15:48	
52.733	295.2	15:52	
52.800	295.2	15:56	
52.867	294.5	16: 0	
52.933	293.8	16: 4	
53.000	291.7	16: 8	
53.067	290.3	16:12	
53.133	288.9	16:16	
53.200	287.4	16:20	
53.267	287.4	16:24	
53.333	286.7	16:28	

OPEN ON 12/64" ADJ CHOKE  
AND COMMENCE REVERSE  
CIRCULATING

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DELTA TIME	TEMPERATURE	TIME	DATE
53.400	288.9	16:32	26- 4-82
53.467	289.6	16:36	
53.533	288.9	16:40	
53.600	288.9	16:44	
53.667	291.0	16:48	CLOSE CHOKE MANIFOLD AND STOP REVERSE CIRCULATING
53.733	293.1	16:52	
53.800	293.1	16:56	
53.867	291.0	17: 0	
53.933	288.9	17: 4	
54.000	287.4	17: 8	
54.067	289.6	17:12	
54.133	291.0	17:16	
54.200	291.0	17:20	
54.267	291.0	17:24	
54.333	291.0	17:28	
54.400	291.0	17:32	
54.467	291.0	17:36	
54.533	291.0	17:40	
54.600	291.0	17:44	
54.667	291.0	17:48	
54.733	291.0	17:52	
54.800	291.0	17:56	
54.867	291.7	18: 0	
54.933	291.7	18: 4	
55.000	291.7	18: 8	
55.067	291.7	18:12	
55.133	291.7	18:16	
55.200	291.7	18:20	
55.267	291.7	18:24	
55.333	291.7	18:28	
55.400	291.7	18:32	
55.467	291.7	18:36	
55.533	291.7	18:40	
55.600	291.7	18:44	
55.667	291.7	18:48	
55.733	291.7	18:52	
55.800	291.7	18:56	
55.867	291.7	19: 0	
55.933	292.4	19: 4	
56.000	292.4	19: 8	
56.067	292.4	19:12	
56.133	292.4	19:16	
56.200	292.4	19:20	
56.267	292.4	19:24	
56.333	292.4	19:28	
56.400	292.4	19:32	
56.467	292.4	19:36	

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DST 2; RUN 1. GAUGE 0039; SENSING DEPTH 4254.98 M. (TEMPERATURE SURVEY)

DELTA TIME	TEMPERATURE	TIME	DATE
56.533	292.4	19:40	26- 4-82
56.600	292.4	19:44	
56.667	292.4	19:48	
56.733	292.4	19:52	
56.800	292.4	19:56	
56.867	292.4	20: 0	
56.933	292.4	20: 4	
57.000	292.4	20: 8	
57.067	292.4	20:12	
57.133	292.4	20:16	
57.200	292.4	20:20	
57.267	292.4	20:24	
57.333	292.4	20:28	
57.400	293.1	20:32	
57.467	292.4	20:36	
57.533	293.1	20:40	
57.600	293.1	20:44	
57.667	293.1	20:48	
57.733	293.1	20:52	
57.800	293.1	20:56	
57.867	293.1	21: 0	
57.933	293.1	21: 4	
58.000	293.1	21: 8	
58.067	293.1	21:12	
58.133	293.1	21:16	
58.200	293.1	21:20	
58.267	293.1	21:24	
58.333	293.1	21:28	
58.400	293.1	21:32	
58.467	293.1	21:36	
58.533	293.1	21:40	
58.600	293.1	21:44	
58.667	293.1	21:48	
58.733	293.1	21:52	
58.800	293.1	21:56	
58.867	293.1	22: 0	
58.933	293.1	22: 4	
59.000	293.1	22: 8	
59.067	293.1	22:12	
59.133	293.1	22:16	
59.200	293.1	22:20	
59.267	293.1	22:24	
59.333	293.1	22:28	
59.400	293.1	22:32	
59.467	293.1	22:36	
59.533	293.1	22:40	
59.600	293.1	22:44	

UNSEAT PACKER AT 22:42

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DELTA TIME	TEMPERATURE	TIME	DATE	
59.667	292.4	22:48	26- 4-82	
59.733	291.7	22:52		
59.800	288.2	22:56		END OF TEST

## CONTENTS DST-3

### 1. SUMMARY AND DISCUSSION OF RESULTS

- Initial Pressure Build-Up (Flopetrol Gauge 41126)
- RFT Derived Permeability Values

### 2. FIELD DATA

- Diary of Events
- DST Tool String
- Gauge Data Sheet
- Flowtest Summary Sheet
- Graphical Diary of Events
- Graphical Production History
- Rigiste Gas Analysis by Exlog Chromatograph
- Rigsite Gas Analysis by Detector Tubes
- Rigsite Water Analysis
- Sample Data Sheets

### 3. FLOPETROL FIELD DATA

- Well Testing Data Sheets
- Rate Measurement Sheets (Condensate, Gas, Water)
- Bottom Hole Pressure Calculations
- Sample Data Sheets

## DST-3 Summary of Results

### 1. Tested Interval

The following interval in the Jurassic (Brent) formation was perforated for DST-3 (ref field FDC/CNL run no. 8C)

4208.5 - 4218.3 mBRT

### 2. Sequence of Events

The timing of the test was as follows;

- Initial flow period      5 min
- Initial p.b.u.            63 min
- Main flow period        439 min

### 3. Flow and Shut-in Periods

The flowtest was conventional with a 5 minute initial flow period followed by a 63 minute initial pressure build-up. The well was then opened on a 12/64" adjustable choke for the main flow period. After 43 minutes gas was observed at surface. After 148 minutes, the well was diverted through the steam heat exchanger also on a 12/64" choke. Shortly afterwards the adjustable choke on the choke manifold was opened to 48/64", control of the well was thus transferred to the heater choke. In order to limit the drawdown on the formation, the well was choked back to 10/64" (adjustable) after 188 minutes, and to 8/64" (adjustable) after 211 minutes.

After 268 minutes flowing time the well was considered to be sufficiently stable to allow flow through the separator. During the course of sampling operations, weather conditions deteriorated rapidly which required the well to be shut-in prematurely (total flowing time 439 minutes). The APR-M reverse circulating valve could not be activated; circumstances therefore required the produced fluids to be bullheaded back to the formation. A main pressure build-up was not obtained.

#### 4. Fluid Production

The flowrate of water cushion returns was measured during the initial and main flow period by dipping of the gauge tank until gas cut water and sump mud reached surface; at this point the well was diverted overboard.

Stability of the well was not achieved until approximately 268 minutes flowing time. This was due to transfer of control of the well to the heater choke and the consequent choke size changes. It should be noted that the heater choke, on removal from the unit following the test, was found to have been badly cut by the well fluids. The heater choke sizes quoted are therefore not believed to be authentic.

At the end of the main flow period the well was flowing gas at a rate of 10.88 MMSCFD on an 8/64" adjustable choke at the heater, with condensate at a rate of 1405 STPD, and water at a rate of 78 STBD. Average gas and condensate rates for the whole test are estimated to be 10.2 MMSCFD and 1400 STBD respectively. The final wellhead flowing pressure was 5160 psig, the final wellhead flowing temperature 106°F. The fluid properties measured at surface are summarised as follows;

Gas gravity	0.705 (air = 1)
H <sub>2</sub> S	0 ppm (by detector tubes)
CO <sub>2</sub>	2% (by detector tubes)
Condensate gravity	0.808 S.G. (API 43.6)
Condensate/gas ratio	138 STB/MMSCF
Water chlorides	22500 ppm

The water produced is believed to be water cushion or invasion fluid as the salinity measured at the rigsite did not correspond to values measured during DST Nos. 1 and 2. This is currently under investigation. Using the separator meter readings the estimated total volume of produced gas is 3.1 MMSCF; that for produced condensate 427 STB. Due to the instability of separation of the condensate and water, the separator water flowrates are considered to be unreliable.

5. Fluid Sampling

Comprehensive samples of atmospheric condensate were collected at the separator. Water samples were collected at the separator water outlet line.

One set of representative separator recombination samples were collected with the well flowing on an 8/64" heater choke. A further representative gas sample was also collected. Two sets of condensate samples were taken from the separator after the well was shut in - these are considered to be unrepresentative.

Estimates of the separator gas composition were made using the Exlog chromatograph.

6. Interpretation

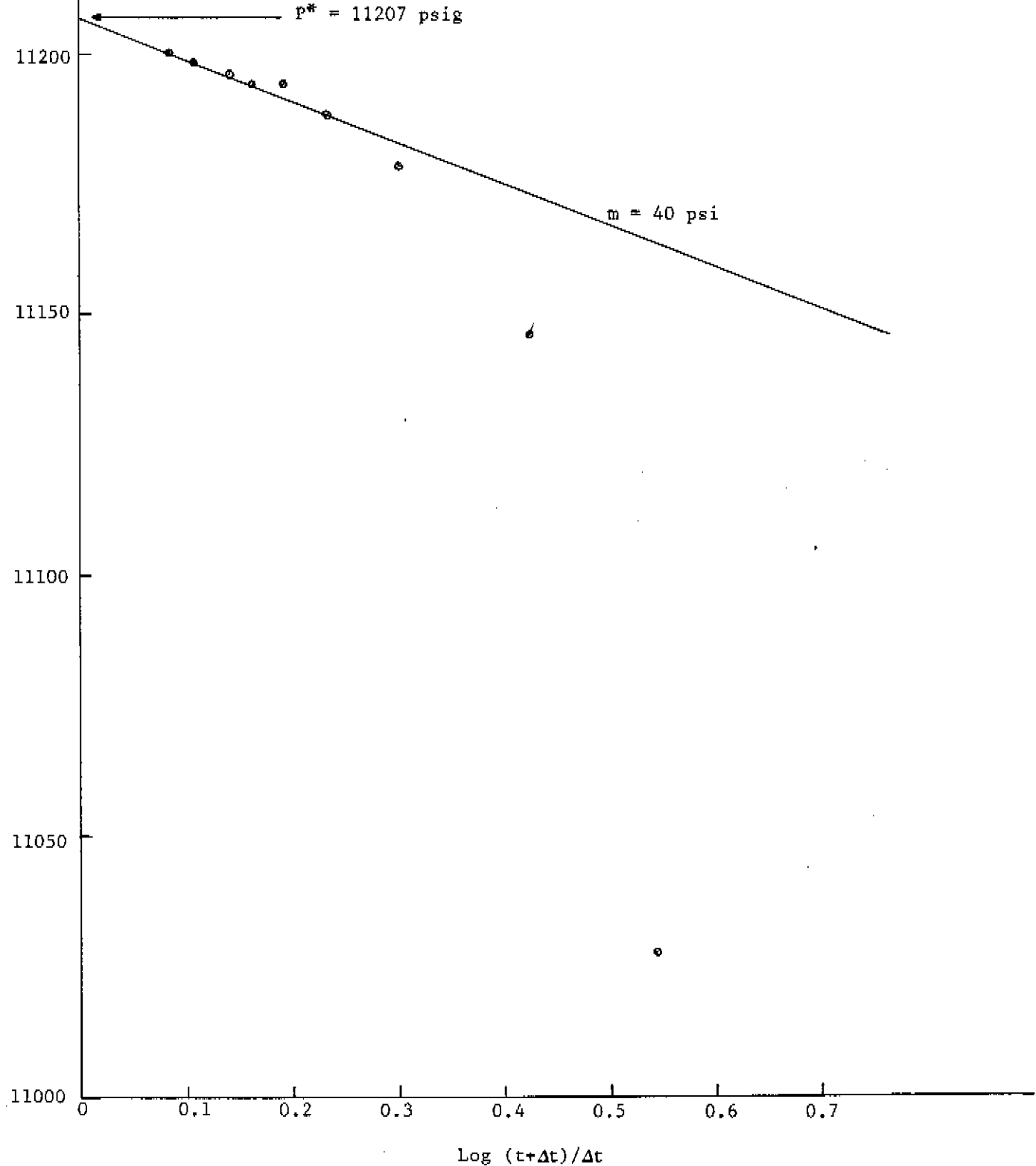
As conditions demanded that the well fluids be bullheaded back to the formation, no final pressure build-up was recorded. However, calculations show that the flowing pressures and flowrates observed during the test confirm the fact that the interval tested has low permeabilities, of magnitude similar to those previously derived from RFT pressure data (approx 2 md).

The value of  $P^*$  obtained from the initial pressure build-up (Flopetrol gauge no 41126 at 4203.14 mBRT) was 11207 psig at the gauge depth.

DST-3 INITIAL PRESSURE BUILD-UP

Flopetrol Gauge 41126

Shut-in  
pressure  
PWS  
psig



Results of RFT Permeability Well 29/6-1

Depth (mBRT)	Hydrostatic Pressure (psi)	Formation Pressure (psi)	2nd Drawdown Permeability (md)	Core Permeability (md)
4207	11682	11108	3.6	Not available
4209.5	11684	11155	1.1	"
4210.2	11687	11111	2.1	"
4213	11700	11165	6.7	"
4213	11695	11162	1.6	"
4213.7	11691	11111	2.2	"
4216.7	11700	11116	1.5	"
4226.7	11755	11473	0.9	0.7
4235.5	11778	11290	2.1	3.0
4256.5	11794	11213	0.8	2.0
4258	11821	11220	1.0	1.5
4289.7	11877	11215	3.7	8.0
4328.5	12040	11424	0.7	6.0
4379	12156	11382	0.8	Not available

2. FIELD DATA

- Diary of Events
- DST Tool String
- Gauge Data Sheet
- Graphical Diary of Events
- Graphical Production History
- Rigsite Gas Analysis by Exlog Chromatograph
- Rigsite Gas Analysis by Detector Tubes
- Rigsite Water Analysis
- Sample Data Sheets

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>3</u> ZONE TESTED: <u>Jurassic - Brent</u> PERFS. : <u>4208.5 - 4218.3 mBRT</u> (ref FDC/CNL Run 8C)
DATE	TIME	OPERATIONS
28/04/82	0250	Rig up Schlumberger,
	0315	Run in hole junk basket,
	0455	Tagged cement top at 4238 mBRT.
	0540	Junk basket at surface. Found to contain approx 2 lb. metal.
	0555	RIH with junk basket for second run.
	0705	At T.D.
	0752	Junk basket at surface - empty.
	0806	RIH bridge plug run no. 16D.
	0930	Bridge plug set at 4232 mBRT.
	1015	Rig down Schlumberger to test the bridge plug/liner overlap to 3000 psi. Test BOP.
	1553	Rig up Schlumberger to perforate for DST-3. RIH Gun no. 1 perforating run 16E.
	1725	At T.D. Tagged bridge plug 4229.5 mBRT. Tension 3400 lb.
	1750	On station with CCL at 4210.2 mBRT (FDC-CNL 8C). Perforated interval 4210.8 - 4220 mBRT. Definite indications at surface - tension bounced around considerably POH Gun no. 1.
	1900	On reaching surface perforating gun blown off CCL. Lowermost thread on CCL pushed up; also part of thread of gun still on tool. Either due to metal fatigue or to slow burning charges which blew the gun off and did not cause jets to leave gun correctly. Will leave the gun in the hole assuming it to be on top of the bridge plug, but we have no alternative but to re-perforate the zones attempted previously. CCL also failed. Shorted out by blasting force when gun fired.
	2105	CCL repaired wires loosened and an o-ring damaged.
COMMENTS :		
P.E. : _____		

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>3</u>
		ZONE TESTED: <u>Jurassic (Brent)</u> PERFS. : <u>4208.5 - 4218.3 mBRT</u> (ref FDC/CNL Run 8C)
DATE	TIME	OPERATIONS
	2215	RIH perforating gun no. 2. Depth match with perforating gun no. 2 run 16E. Depth CCL 4211.1 mBRT.
	2237	Perforate interval 4211.7 - 4218.3 mBRT. No surface indications. CCL not working following firing. P.O.H. with gun.
	2330	Tool at surface - gun not fired. Recheck CCL - similar problem as before - loose wires.
29/04/82	0105	RIH with perforating gun no. 2 having repaired CCL and rebuilt cable head.
	0145	On depth - hanging weight of guns 3400 lb.
	0215	On station - CCL at 4211.1 mBRT.
	0220	Perforate 4211.7 - 4218.3 mBRT. Indications at surface. CCL working ok.
	0320	Gun at surface. All guns fired ok.
	0725	RIH gun no. 3 having reloaded the guns used previously.
	0750	Depth matching.
	0815	On depth - CCL at 4204.4 mBRT. Hanging weight 3300 lb.
	0816	Perforate 4205 - 4211.6 mBRT. Surface indications good, but CCL again unserviceable following shooting. P.O.H.
	0900	On pulling out, found bottom gun shot, but only upper shot of upper gun fired. Charges in this gun had gone off but the jets had not left the gun.
		The incidents with these guns imply that we have some faulty charges
		1) Swollen guns from perforating on a previous test.
COMMENTS :		
RE. : _____		

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>3</u> ZONE TESTED: <u>Jurassic (Brent)</u> PERFS. : <u>4208.5 - 4218.3 mBRT</u> (ref FDC/CNL Run 8C)
DATE	TIME	OPERATIONS
		2) Blowing off of gun.
		3) Failure of upper gun in final run.
		Will not run junk basket/CCL combination as CCL cannot be repaired again.
	0930	Rig down Schlumberger. Pull wear bushing prior to running testing tools. W.O.W.
	1645	Pick up 3 1/2" drillpipe singles - commence running tools for DST-3.
	1650	Install BOBT gauges in carriers.
	1700	BOBT cases through rotary.
	1720	Fill gauge carriers with viscous gel. Install Sperry Sun gauges and 1 x Flopetrol RPG-3. Install 4 x Flopetrol gauges in top single drillpipe gauge carriers. A string of 4 gauges bends around somewhat in the wind.
	1750	Pick up packer/tailpipe assembly. Make up tailpipe - install a 5th joint of anchor pipe with extra holes cut in it.
	1815	Tailpipe through rotary.
	1825	Function packer J-slot mechanism ok.
	1830	Install RTTS by-pass in place of original hydraulic by-pass. Lock open same.
		Vetco tubing inspector has been checking the originally rejected joints of L-80 tubing and found 5 which are serviceable. Also inspected a row of N-80 - all found to have extremely bad corrosion damage and are therefore unserviceable.
COMMENTS :		
P.E. : _____		

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>3</u> ZONE TESTED: <u>Jurassic (Brent)</u> PERFS. : <u>4208.5 - 4218.3 mBRT</u> (ref FDC/CNL Run 8C)
DATE	TIME	OPERATIONS
	1845	Pick up APR-N tool and make up to string. Check nitrogen chamber pressure 5230 psi of calculated value 5223 psi. Air temperature 35° F.
	1905	Ensure port on drain valve closed.
	1909	Pick up single drill collar - make up to string.
	1920	Make up APR-M valve to string. This tool contains 29 shear pins, trip pressure 3190 psi on annulus. This is Halliburton's recommendation.
	1930	Pick up 2 lower slip joints - make up to string.
	1940	Run 2 lower slip joints.
	1947	Fill up string with gel on top of APR-N tool. Rig up to pressure test on top of tools.
	2000	Flush lines with water.
	2010	Pressure up against lo-torc valve to 5000 psi - test lines for 7 minutes ok.
	2020	Pressure test down string to 5000 psi for 15 minutes ok.
	2105	Make up RTTS circulating valve to string. Lock closed. Fill next 3 stands 4 3/4" drill collars with viscous gel.
	2200	Ran 7 stands 4 3/4" drill collars.
	2220	Pick up and run 3 slip joints. Rig up to run tubing. Connection broken on Salvesens tubing tong - this protects motor against overspeeding. Will have to wait some time before connection is repaired.
	2325	Install drillpipe rubbers. Make up first stand of tubing using 3 1/2 ft tongs. Also make up crossover. Run 1st stand N-80 tubing.
COMMENTS :		
RE. : _____		

DIARY OF EVENTS		WELL No : 29/6-1	DST No : 3
		ZONE TESTED: Jurassic (Brent) PERFS. : 4208.5 - 4218.3 mBRT (ref FDC/CNL Run 8C)	
DATE	TIME	OPERATIONS	
		Rig up to pressure test on top of stand. Made up circulating head and 3 1/2 VAM pin x 3 1/2 IF box connection. Possibility that this x-over overtorqued.	
	2351	Flush through lines and pressure test down string to 5000 psi for 15 min ok.	
30/04/82		Continue running 3 1/2" N-80 tubing stands.	
	0750	Ran 68 stands. Pressure test down string to 6000 psi for 15 minutes ok.	
	1120	Ran 112 stands of N-80. Weather bad enough to warrant stopping running-in of test string at this point before tailpipe goes into top of liner (even if hang-off tool was run). W.O.W.	
	1230	Wind now changed - sea calm.	
	1257	Continue running stands N-80 tubing.	
	1337	Ran 118 stands N-80 tubing. Rig up to run singles.	
	1357	Into top of liner with tailpipe. Ran first single of L-80 tubing. Increased torque values on Salvesens CATT unit. String weight ca. 180,000 lb (incl. blocks).	
	1408	Passed into liner top. No indication of pipe hanging up. Spare connection for Salvesens tubing tong arrived on Bergen helicopter.	
	1707	Ran 41 joints L-80 tubing. Rig up to pressure test down the string. Pull bushing for running E-Z tree.	
	1800	Flush through lines	
	1810	Pressure up against lo-torc on Halliburton swivel assembly valve to 9500 psi. Kelly cock open - close same. Pressure up lines to 9500 psi for 7 minutes - drop of 50 psi.	
COMMENTS :			
RE. : _____			

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>3</u> ZONE TESTED: <u>Jurassic (Brent)</u> PERFS. : <u>4208.5 - 4218.3 mBRT</u> (ref FDC/CNL Run 8C)
DATE	TIME	OPERATIONS
	1830	Open S-15 valve on swivel assembly and pressure up down string to 9500 psi.
	1832	Bleed off valve on pump leaking.
	1834	Re-pump up string to 9500 psi.
	1840	Pressure drop 4000 psi in 4 minutes.
	1845	Close lo-torc valve on swivel - re-test lines.
	1850	Change over rig-up to Dowell chiksans.
	1900	Rigged up to Dowell 10M pump.
	1912	Flush through lines. Pressure test lines to 9500 psi - surface leak.
	1915	Retest lines to 9500 psi - leak; although not visible. Possibility that stand-pipe manifold valve could be leaking. Close lo-torc valve on stand-pipe manifold.
	1925	Pressure up against stand pipe manifold valve to 9500 psi. Pressure dropped and levelled out.
	1940	Close S-15 valve on swivel assembly - fill handling sub above kelly cock. Pump up against this valve and S-15 valve - leaking. This implies S-15 valve leaking. Bled off pressure. (Rig floor opened lo-torc valve - got pressure back on 10M pump. Conclusion we must have been pressuring up the string past the S-15 valve).
	1950	Pressure down string to 9500 psi with 10M pump. Stop at 7000 psi. Fluctuations on gauge - this probably due to rig heave and air in system. Nonetheless overall trend that leak is present - dropping ca. 2000 psi in 4 min. Re-pump to 7000 psi. Fluctuations still. Took 2 1/4 bbl. Overall trend that we still have a leak. Will re-line chiksans to Halliburton's 15M pump now bleed off valves have been repaired.
COMMENTS :		
RE. : _____		

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>3</u>
		ZONE TESTED: <u>Jurassic (Brent)</u> PERFS. : <u>4208.5 - 4218.3 mBRT</u> (ref FDC/CNL Run 8C)
DATE	TIME	OPERATIONS
	2010	Bleed off pressure from string - got back 2 1/4 bbl.
	2030	Pressure up string to 9700 psi with 15M pump on gauge on Cameron panel. Drop 300 psi in 5m.
	2042	Re-pump to 9700 psi - still leaking. Possibility that we have a leak in the string but we will need to hang-off due to rapidly deteriorating weather.
	2117	Pull up string to ensure packer un-set ok. Pick up hang-off tool and flapper valve, Pick up kelly - fill pipe with mud.
	2207	Land string.
	2214	Unlatch from string. Shut 3 1/2" pipe, lower 5" rams on stinger. Monitor annulus pressure on choke line.
01/05/82	0600	Displace riser to seawater.
	2230	Blocked kill line, cleared same as displaced riser to seawater.
	2325	RIH to retrieve string.
	2359	Open 5" pipe rams. Pick up string- ca 200 psi into string when washing across wellhead with hang-off retrieval tool. String weight 210,000 lb incl. blocks.
02/05/82	0035	Hang off tool at surface.
	0040	Test string at surface.
	0050	Break out Gray valve - no pressure underneath. Pick up Halliburton S-15 valve and lifting sub. Pressure test assembly and lines to 9500 psi using 15M pump. (9800 psi recorded on Cameron panel).
	0130	Make up testing assembly to string.
	0155	Pump up string to 9700 psi on Cameron panel - 2 bbl pumped - for 15 min. ok.
COMMENTS :		
RE. : _____		

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>3</u> ZONE TESTED: <u>Jurassic (Brent)</u> PERFS. : <u>4208.5 - 4218.3 mBRT</u> (ref FDC/CNL Run 8C)
DATE	TIME	OPERATIONS
	0210	Continue RIH with test string.
	0225	Pick up Flopetrol SSTT, make up to string. Check breaks on E-Z tree for correct torque.
	0255	Function test latch mechanism ok.
	0305	Rig up to pressure test down the string.
	0317	Pressure test down string to 9500 psi - 2 1/2 bbl - for 15 min ok.
	0345	Check glycol pumps for injection ability against WHCIP of 9500 psi ok.
	0345	Continue R.I.H. with landing string.
	0400	Fault with CATT unit.
	0523	Landing string (11 singles) run. Drag on string 5 - 10,000 lb possibly due to rig heave. Pick up flowhead and make up to string. String weight 220,000 including blocks (86,000 lb). Total string weight 134,000 lb.
	0555	Landed string 4.8m in on single on flowhead as planned. Rig up surface equipment.
	0725	Complete rigging up. Pressure test kill line against kill line valve to 10,500 psi (10,800 psi on Cameron panel). Change out leaking chiksan swivel.
	0745	Pressure up against kill line valve to 10,500 psi for 15 min ok. Open master valve, close flowline valve, pressure up down string to 10,500 psi (10,600 psi Cameron panel) for 15 minutes ok. String took 3 1/4 bbl. Function test glycol injection against WHCIP.
	0837	Bleed off string. Close master valve - open flowline valve. Pressure up against heater inlet valve to 10,000 psi. Swivel leaked at 15M pump bleed off line.
COMMENTS :		
RE. : _____		

DIARY OF EVENTS	WELL No : <u>29/6-1</u>	DST No : <u>3</u>	
	ZONE TESTED: <u>Jurassic (Brent)</u>	PERFS. : <u>4208.5 - 4218.3 mBRT</u>	<u>(ref FDC/CNL Run 8C)</u>

DATE	TIME	OPERATIONS
	0935	Repaired pump. Leak on heater inlet valve bleed screw.
	0945	Pump to flush lines.
	0947	Pressure up against heater inlet and by-pass valves to 10,000 psi.
	0950	Leaking swivel on flow line - bleed off pressure.
	1019	Purge lines.
	1026	Pressure up against heater inlet and by-pass valves to 10,000 psi for 8 minutes ok.
		Bleed off at heater inlet valve - observe choke manifold downstream valve ok.
		Close inlet valve on choke manifold - bleed off downstream pressure.
	1055	Discover leaking chiksan swivel.
	1125	Held safety meeting with Sedco personnel.
	1145	Pressure up against choke manifold inlet valve to 10,000 psi for 15 minutes ok.
		Close kill valve and bleed off downstream of kill line wing valve.
		Re-pump kill line to 4000 psi and observe kill valve for leaks from outside - in.
	1210	Kill line valve holding. Pump up kill line to 10,000 psi to equalise pressure. Bleed off.
	1220	Held meeting with service company hands.
	1240	Line up hoses to set packer.
		Pick up string ca. 5m. String weight 220,000 lb including blocks.
		Adjust tigger lines holding chiksan flowlines.
	1255	Put in 6 turns to right.
	1257	Packer set. Lost 30,000 lb weight. Land string. Maintain 10,000 lb tension with compensator.
	1300	Close 5" rams 8.2 gall. to close.

COMMENTS :

PE. : \_\_\_\_\_

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>3</u> ZONE TESTED: <u>Jurassic (Brent)</u> PERFS. : <u>4208.5 - 4218.3 mBRT</u> (ref FDC/CNL Run 8C)
DATE	TIME	OPERATIONS
		Close 3 1/2" rams 9.8 gall. to close.
		Check system status prior to opening well. Flowhead open (kill closed), SSTT open, lined up to tank. Slight leak on bleed nipple on master valve on flowhead.
	1315	Pressure up tubing to 3000 psi. Close kill line valve.
	1316	Pressure up annulus to 1900 psi to open APR-N tool. Indications at surface that tool is open with annulus pressure at 1550 psi - 40 strokes. Surface pressure increased to 4770 psi.
	1322	Open well via adjustable choke on 12/64 choke - unloading water cushion to tank. WHFP falling to 3000 psi.
	1327	Close APR-N tool - bleed off annulus pressure. Close well in at choke manifold. 6 bbl returned.
		Observe initial p.b.u. Final WHCIP 3840 psi.
	1430	Pressure up annulus to 1600 psi - 36 strokes. Indications at surface N-tool open.
	1431	Open choke manifold on 12/64 adjustable choke - unload water cushion to gauge tank. Pump glycol to E-Z tree.
	1440	Continue flowing back water cushion. WHFP rising 3614 psi.
	1445	15 bbl water cushion returned. Heater on line at 150°F. WHFP 3880 psi. Annulus pressure requiring fairly frequent bleeding off.
	1452	0.05% CO <sub>2</sub> .
	1500	WHFT 58°F. Pressure d/s choke manifold 0 psi. Approx 29 bbl returned.
COMMENTS :		
P.E. : _____		

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>3</u>
		ZONE TESTED: <u>Jurassic (Brent)</u> PERFS. : <u>4208.5 - 4218.3 mBRT</u> (ref FDC/CNL Run 8C)
DATE	TIME	OPERATIONS
	1513	Divert well to overboard line. Gas cut mud at surface. WHFP increased to 5650 psi. 82 bbl water cushion returned.
	1523	Muddy water still producing. Burner pilots alight. Commence pumping glycol to choke manifold.
	1528	Sump mud going overboard.
	1531	WHFP 6660 psi. Flowrate increasing.
	1540	Gas at surface. Attempt to light burner.
	1543	Rupture disc on steam heater blew. Steam heater shutdown. Intention to continue to flow well pumping glycol constantly.
	1545	Burner alight. WHFP 5950 psi.
	1549	WHFP 5960 psi.
	1550	WHFT 65°F. Well appears to be flowing relatively slowly. Obvious that water still present in the gas - the flame appears clean with steam also apparent.
	1600	Well not stabilising - with occasional surges to the flare. No obvious hydrates. WHFP 5970 psi. Estimate drawdown approx 2000 psi. Condensate which can be seen is green in colour - possibly due to glycol.
	1612	Gastech tubes show 2 ppm H <sub>2</sub> S. WHFP 5970 psi.
	1628	Gastech tubes show 5 ppm H <sub>2</sub> S.
	1640	Gastech tubes show 16 ppm H <sub>2</sub> S. Draeger tubes however do not show any reading. BP Sunbury representative claims Draeger tubes to be more
COMMENTS :		
P.E. : _____		

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>3</u> ZONE TESTED: <u>Jurassic (Brent)</u> PERFS. : <u>4208.5 - 4218.3 mBRT</u> (ref FDC/CNL Run 8C)
DATE	TIME	OPERATIONS
		reliable. Further, mercaptan detector tubes also show some of these
		compounds are present. Conclude that as there is no smell of H <sub>2</sub> S,
		the Gastech tubes are detecting mercaptans as opposed to H <sub>2</sub> S.
		'Sniffing' of gas around separator area showed no presence of H <sub>2</sub> S.
	1700	Repaired rupture disc on heater. Heater on line 12/64 choke.
	1710	Open rig floor choke manifold - controlling well on heater choke.
		Wellhead flowing pressure dropping fast - possibility that indication
		ring is out of calibration. BSW initially on condensate u/s of
		separator showed whitish material, barite, sand, also glycol.
	1725	WHFP 3810 psi. Choke back on heater to 10/64". Condensate appears
		heavy with a distinct light hydrocarbon smell and a sulphur yellow
		colour.
		Require to choke back well sufficiently to maintain a WHFT of
		5000 psi.
	1740	Heater temperature 75°F and slowly increasing.
		Pressure u/s of heater 5200 psi, downstream 230 psi.
	1750	Rate still fluctuating - stopped pumping glycol to E-Z tree. First
		indications are that we have 30% water - samples from line u/s of
		separator.
	1800	Reduce choke size 8/64" at heater.
		At present there is little point in going through the separator with
		the well as we are so unstable. Condensate appears to be present in
		copious quantities and is fairly heavy. The ring on the heater
		adjustable choke seems to be out of calibration - now have no idea
		what size choke we are flowing on. Further, the instability implies
		that this choke has cut out to some degree.
	1810	Pump glycol to E-Z tree.
COMMENTS :		
P.E. : _____		

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>3</u> ZONE TESTED: <u>Jurassic (Brent)</u> PERFS. : <u>4208.5 - 4218.3 mBRT</u> (ref FDC/CNL Run 8C)
DATE	TIME	OPERATIONS
		Wellhead flowing temperature 80°F - increasing.
		WHFP stabilising 5150 psi.
		Priority now in view of approaching bad weather is to get the well through the separator at a stable rate and take samples.
	1824	Cease pumping glycol to E-Z tree.
	1835	Commence building a level in the separator.
		Heater temperature 86°F.
	1837	Separator back-pressure control valve hunting.
	1850	WHFP stabilising. Probability that lines to dead weight tester and Foxboro recorder have been plugging with hydrate. Separator appears reasonable stable - 820 psi although temperature still increasing.
		Prepare to start taking rates.
	1915	First rate measurements indicate that we are flowing ca 10 MMSCFD. Water appears whitish in colour, and very foamy (wax?) Condensate has a distinct sulphur - yellow colour. Possibility that some wax also present - emulsion?
	1940	Separator will not stabilise as temperature still increasing.
	1943	Exlog have 18 units of gas on detectors. We are circulating across the wellhead with the hole fill pump and up the riser. It is difficult to see where this gas has come from.
		Exlog chromatograph is presently unserviceable so cannot sample separator gas as yet.
	2006	WHFP 5110 psi.
		Heater temperature 132°F.
		Separator pressure 820 psi.
		BP taking atmospheric condensate and water samples.
		Exlog now gas sampling.
COMMENTS :		
PE. : _____		

DIARY OF EVENTS		WELL No : 29/6-1	DST No : 3
		ZONE TESTED: Jurassic (Brent) PERFS. : 4208.5 - 4218.3 mBRT (ref FDC/CNL Run 8C)	
DATE	TIME	OPERATIONS	
	2034	Preparing to take samples from separator.	
	2125	Wind now very strong from southeast.	
	2140	Taking samples from separator.	
		Flowrates have been stable for ca. 1 1/2 hours.	
		Will shortly need to shut well down.	
	2143	Leak in flowline just upstream of heater (connection to rig permanent line) - Weco seal appears to be leaking.	
	2147	Closed well in at flowhead and choke manifold.	
		Equalised pressure across flowline wing valve using glycol pump.	
		Open wing valve - WHCIP 8360 psi.	
		Attempt to pump glycol to E-Z tree but this has the effect of just pumping up the string.	
	2205	Re-opened well on 5/64" choke	
		Pump glycol to E-Z tree.	
		WHFP 7800 psi.	
	2207	Pump up annulus to 3200 psi. APR-M tool not activated.	
	2209	Increase choke to 8/64" adjustable.	
	2210	Still no indications that tool has operated.	
	2211	Increased choke to 12/64" adjustable.	
	2212	Increased annulus pressure to 3500 psi. Dropped slightly.	
	2213	Repressured annulus to 3400 psi.	
	2215	Bled off annulus to 1700 psi.	
	2216	Pressured annulus to 3500 psi, dropped to 3250 psi. Re-pressured to 3500 psi.	
	2221	Bled off annulus pressure to 1700 psi.	
	2222	Pressured annulus to 3750 psi, dropped to 3350 psi.	
	2224	Re-pressured annulus to 3750 psi.	
COMMENTS :			
RE. : _____			

DIARY OF EVENTS		WELL No : 29/6-1	DST No : 3
		ZONE TESTED: Jurassic (Brent)	PERFS. : 4208.5 - 4218.3 mBRT (ref FDC/CNL Run 8C)
DATE	TIME	OPERATIONS	
	2227	Bled off annulus pressure to 1650 psi.	
	2230	Bled off annulus to 0 to close N-tool.	
		Closed choke manifold.	
	2233	Increased annulus pressure to 3800 psi - still no indications that APR-M tool has activated.	
		In view of the weather condition, and the high wellhead closed-in pressure it is not possible to try to activate the RTTS circulating valve. Under the circumstances we have no alternative but to kill the well by bullheading the fluids back to the formation. This will render the pressure build-up data completely unusable.	
	2240	Bleed off annulus pressure to 1700 psi. Line up well to bullhead using 15M pump.	
	2249	Closed in well at choke manifold. Pressure up kill line to 8000 psi, open kill valve.	
	2252	Commence bullheading tubing contents to formation. Pump away contents at 8000 psi 1/2 - 1 bbl/min.	
03/05/82	0033	Pumped 100 bbl (approx string contents). Pressure increased after ca. 97 bbl.	
		Stopped bullheading. Flow checked. Well stable. Bled off annulus pressure.	
	0105	Closed E-Z tree valves and unlatched E-Z tree - string hung off in wellhead with landing string ca. 6m out of wellhead. Closed shear rams above string.	
		W.O.W. (wind gusting to 70 knots). This weather was not forecast by the local weather stations.	
		Took heater choke out and found it extremely cut - we have therefore very little idea what choke size we have been flowing on.	
COMMENTS :			
P.E. : _____			

DIARY OF EVENTS		WELL No : 29/6-1	DST No : 3
		ZONE TESTED: Jurassic (Brent)	PERFS. : 4208.5 - 4218.3 mBRT (ref FDC/CNL Run 8C)
DATE	TIME	OPERATIONS	
		Wax in choke bearings - almost like grease.	
	1655	Prepare to relatch.	
		Open shear rams - took 8 gal.	
	1707	Wash down string with 15M pump across latch. Rotate landing string with latch to align head.	
		Pressure up latch.	
	1715	Open 3 1/2" pipe rams.	
		Picked up string to check latched ok.	
		Re-land string in wellhead.	
		Open E-Z tree valves.	
	1725	Pump down string to ensure E-Z tree valves open. String pressure 500 psi with 1/2 bbl pumped.	
	1725	Pumped 1 bbl - string pressure 1400 psi. Confirmed E-Z tree valves are open. If pressure had been under the valves we would have taken only a few strokes to pressure up the string.	
		Open 3 1/2" pipe rams. Pick up string 1.5m. Pressured up string to 500 psi to observe opening of RTTS circulating valve.	
	1735	5 turns to right and picked up.	
		Pressure dropped at pump to 1500 psi.	
		RTTS circulating valve open.	
		Closed 3 1/2" pipe rams. When the rig heaved down the string landed on the rams, weight therefore taken off string. This possibly closed RTTS circulating valve.	
		Attempted to pump down string to 500 psi but got no indications at surface. The RTTS circulating valve has obviously closed.	
	1820	Attempt to circulate down the annulus with 500 psi. Could not circulate.	
COMMENTS :			
PE. : _____			

DIARY OF EVENTS		WELL No : 29/6-1	DST No : 3
		ZONE TESTED: Jurassic (Brent) PERFS. : 4208.5 - 4218.3 mBRT (ref FDC/CNL Run 8C)	
DATE	TIME	OPERATIONS	
	1835	Land string back in wellhead. Need to re-cycle RTTS circulating valve.	
		Pick up 1 1/2 metres and put in 5 turns to right.	
	1839	Pump down tubing - establish circulation.	
		Change lines over to 10M choke manifold.	
	1920	On trying to break out lines found pressure on chiksans. Close flowhead valve. Rig up lines to choke manifold and found 700 psi on tubing.	
	2005	Commence bleeding off tubing in stages - allow reverse circulation of string contents by U-tubing, keeping annulus full at the same time.	
	2210	WHCIP now dropped to 400 psi. Close 3 1/2" pipe rams. Line up to reverse circulate to degasser. Reverse out at 20 s.p.m. with ca. 1000 psi on pump.	
	2253	RTTS circulating valve closed. Annulus pressure increase to 1700 psi (APR-N tool opened?)	
		Re-open circulating valve. Gas peak 120 units on bottoms-up.	
04/05/82	0040	Prepare to unset packer. Land string.	
	0045	Pick up 1.5m. Rotate and pick-up.	
		String weight 245,000 lb (incl. blocks).	
		Overpull currently 35-40,000 lb - packer not free.	
	0105	Attempt to pull with compensator.	
	0108	Packer pulled free with ca. 50,000 lb overpull. Continue to pull up.	
	0110	RIH to land string.	
	0115	Land string in wellhead - no noticeable drag.	
		Line up to reverse circulate. Reverse out at 25 s.p.m.	
	0400	Pull out with string to E-Z tree. Lay down same.	
	0600	Locked open RTTS circulating valve by turning to left.	
	0615	RIH to circulate normally.	
COMMENTS :			
RE. : _____			

DIARY OF EVENTS		WELL No : <u>29/6-1</u> DST No : <u>3</u>
		ZONE TESTED: <u>Jurassic (Brent)</u> PERFS. : <u>4208.5 - 4218.3 mBRT</u> (ref FDC/CNL Run 8C)
DATE	TIME	OPERATIONS
	1110	Flow check, then p.o.h. test string.
05/05/82	0015	Laid down all tubing. Upper slip joints at surface.
	0135	Laid out upper slip joints. Lay down 4 3/4 collars.
	0220	RTTS circulating valve at surface - open.
	0235	Lower slip joints at surface. Laid down same.
	0330	APR-M tool at surface - not activated. Hard packed grease in reversing ports which appears to have dehydrated. Shear pins slightly bitten into - pressure obviously getting to the tool but insufficient to activate the tool.
	0355	APR-N tool at surface. Broke down ball valve - no significant trace of sand.
	0405	Jars at surface - gone off.
	0420	Packer assembly in rotary - shear sleeve broken. Also lost 1 complete packer rubber.
	0450	Gauge carriers in rotary table. Pipe scale on top of hanger.
	0515	BT gauges in rotary.
	0517	All tools out of hole.
		END DST-3.
COMMENTS :		
		P.E. : _____



Owner	Gauge Type	Position in String	Distance from top Hanger	Gauge Depth MBRT	Gauge Depth mSS	Date Clock Set	Time Clock Set	Clock No.	Clock hrs.	Gauge No.	Range PSI	Calib. Temp. °F	Remarks
Flop petrol	RPG-3	3 1/2" Drill Pipe Carriers	2.05	4188.07	4163.84	29.04.82	16.52	E-9184	72	41128	0-20M	300	Clock ran out before initial flow
Flop petrol	RPG-3	"	4.11	4190.13	4165.90	"	16.55	11294	120	36439	"	"	Good data
Flop petrol	RPG-3	"	6.17	4192.19	4167.96	"	17.04	17276	120	36438	"	"	Clock stopped before flow period
Flop petrol	RPG-3	"	8.13	4194.15	4169.92	"	17.00	DMA577	120	37064	"	"	No initial flow period and initial pressure build up
Sperry Sun	MRPG-3	"	2.76	4198.35	4174.12	"	14.43		112	00039	0-15M	"	4 min. sample mode 17 hr start delay clock stopped R.I.H.
Sperry Sun	MRPG-3	"	5.77	4201.36	4177.13	"	17.45		112	00004	"	"	4 min sample mode 17 hr start delay clock did not start until P.O.H.
Flop petrol	RPG-3	"	7.55	4203.14	4178.01	"	16.47	11293	120	41126	"	"	Good data
Hallib.	BOBT	BT Case below packer	-	4206.83	4182.6	"	16.45	16015	120	6139	0-20M		Gauge data OK
Hallib.	BOBT	"	-	4208.06	4183.83	"	16.42	13063	120	6140	0-20M		Stylus jammed
Hallib.	BT Temp	"	-	4209.61	4185.38	"	16.42	TE-28	72	8566	100-400 °F		Stylus came off

## FLOW TEST SUMMARY SHEET

WELL No. 29/6-1	DST. No. 3	DATE: 2.05.82					
FORMATION: Jurassic (Brent)	PERF INT. 4208.5 - 4218.3 mBRT						
TEST STRING: Halliburton APR	WATER CUSHION: Full						
TIME H.M	EVENT	RATES - STBPD		SEP GOR	PRESSURE *PSIG		TEMP F°
		OIL	WATER	SCF/STB	WELLHEAD	SEPARATOR	SEPARATOR
2.5.82							
13.22	Open well for initial flow on 12/64" adjustable choke 6 bbl water cushion returned.						
13.27	Shut-in well for initial p.b.u.						
14.31	Open up well for main flow on 12/64" adjustable choke.						
17.00	Switched flow through heater 12/64" adj.				6220		
17.40	Reduced heater choke to 10/64".				5150		
18.03	Reduced heater choke to 8/64".				4150		
18.35	Switched flow through separator	10.2 (avg)			5160	810	106
21.47	Closed in well downhole and at surface due to leaking flowline. Weather conditions demanded that formation fluids were bullheaded back to the formation. No pressure build-up recorded.  Condensate/gas ratio 137.6 STB/MMSCF.						

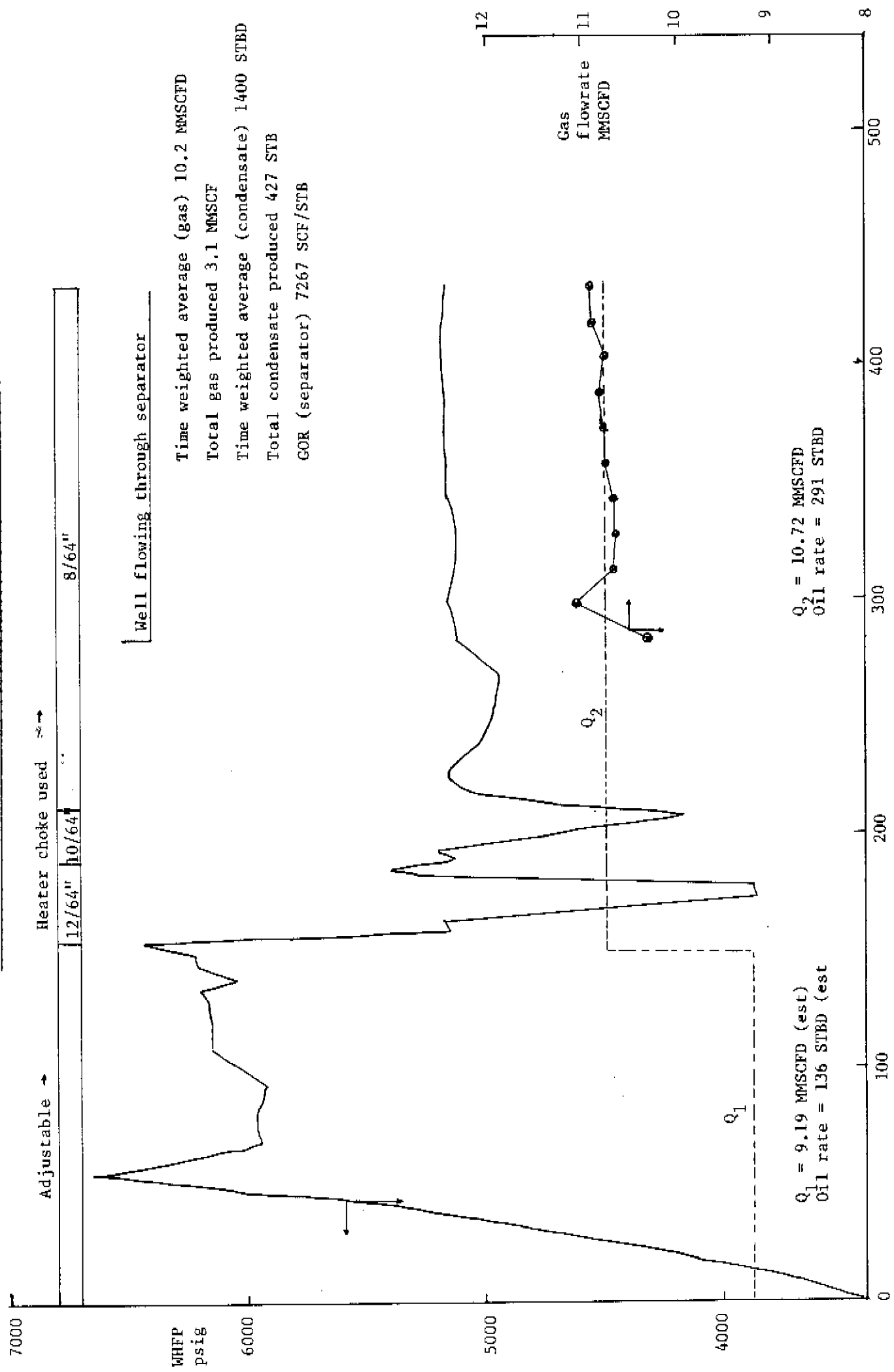
FLUID SAMPLING	OIL	WATER	GAS
ATMOSPHERIC	39 various	30 - including water cushion R.I.H.	
SEPARATOR	3 x 630 m.l. samples		2 x 20 litre Gerzhat bottles
WELL HEAD			
DOWNHOLE			
GRAVITIES	43.6 °API	Gm/cc	0.705 (AIR=1)

**COMMENTS:** 1 set of representative separator recombination samples obtained. 2 of condensate samples taken after well closed-in (not representative) Bottle nos. 8151-73, 22024.

GRAPHICAL DIARY OF EVENTS DST-3

EVENT	HRS	DOWNHOLE PRESSURE RECORD PSIG
R-I-M with test string to subsea test tree. Hang-off string due to weather.	29-12	
W.O.W. Retrieve test string. Continue r.i.h with subsea test tree and landing string.	55-45	
Land string. Rig up surface equipment.	59-12	
Complete pressure testing of string and surface equipment. Set packer.	66-45	
Complete initial flow and pressure build-up.	68-20	
Open well on 12/64" adjustable choke. Switch well through heater 12/64" adjustable choke.	70-32	
Reduce heater choke size to 10/64"	71-37	
Reduce heater choke size to 8/64"	71-75	
Continue flowing well 8/64" at heater.	75-53	
Close in well to repair line upstream of heater.		
Attempt to activate APR-M reverse circulating valve.	76-57	
Bullhead string contents back to formation.	78-25	
W.O.W to pull out of hole with test string.	04-32	
Unset packer. Circulate and condition mud.	59-33	
Pull out of hole with test string following DST-3	127-57	

DST-3 FLOWRATE ANALYSIS AND WELLHEAD FLOWING PRESSURE RECORD



Adjustable → Heater choke used →

12/64" 10/64" 8/64"

Well flowing through separator

Time weighted average (gas) 10.2 MMSCFD  
 Total gas produced 3.1 MMSCF  
 Time weighted average (condensate) 1400 STBD  
 Total condensate produced 427 STB  
 GOR (separator) 7267 SCF/STB

$Q_2 = 10.72$  MMSCFD  
 Oil rate = 291 STBD

$Q_1 = 9.19$  MMSCFD (est)  
 Oil rate = 136 STBD (est)

TIME MINUTES

DST-3 Gas Analysis By Exlog Chromatograph

Composition %	Time Sample taken	20.15 hrs	22.10 hrs	22.20 hrs
C1		82	84	84
C2		12	10	10
C3		6	4	4
IC4		Tr.	0.5	0.5
NC4		Tr.	1.5	0.8

DST GAS COMPOSITION MEASUREMENTS BY DETECTOR TUBES

H <sub>2</sub> S 5-60 ppm			CO <sub>2</sub> 0.25-3.0%		Comment
Time and Date	Pump Stroke (n)	Reading (ppm)	Pump Stroke (n)	Reading (%)	
<u>2.5.82</u>					
1435	10	0	1	0	Siebetec and Dräger type tubes used for both gases. Siebetec tubes believed to be detecting a sulphur compound other than H <sub>2</sub> S - probably methyl mercaptans.
1445	1	0	5	0.05	
1455	1	0	5	0.05	
1505	1	0	10	0.02	
1515	1	0	10	0.02	
1525	1	0	10	0.34	
1535	1	0	5	0.5	
1545	1	0	5	0.5	
1600	1	2	1	2.0	
1615	1	5	1	2.0	
1630	-	-	1	2.0	
1645	1	16	-	-	
1700	1	6	1	2.5	
1745	-	-	1	0.25	
1800	10	0	1	2.0	
1830	10	0	1	2.0	
1900	-	-	10	2.5	
1930	10	0	10	2.0	
2000	10	0	10	1.5	
2030	10	0	1	1	
2100	10	0	1	0.5	

Accompanying Note to Water Chlorides Analysis

Samples 5-9 - water cushion samples taken while running in the hole.

Samples 13-22 - samples taken during the water cushion backflow.

Samples 24-31 - taken from separator water line. In some cases the samples were contaminated with glycol, or contained some gas - analyses could not be reliably performed.

DST-3 WATER CHLORIDES ANALYSIS DATA

Sample No	Date	Time	Chlorides ppm	NaCl equiv from chlorides	Resistivity at 60°F $\mu$ M	NaCl equiv from resistivity
4	29.4.82	21.45	18 500	30 525	0.288	25 000
5	30.4.82	03.23	21 000	34 650	0.276	27 000
6	"	05.33	21 500	35 475	0.276	27 000
7	"	09.20	20 000	33 000	0.277	27 000
8	"	13.25	19 500	32 175	0.277	27 000
9	"	17.03	18 500	30 525	0.277	27 000
13	02.5.82	13.25	18 500	30 525	0.289	25 000
14	"	14.35	22 000	36 300	0.239	34 000
15	"	14.40	20 500	33 825	0.239	34 000
16	"	14.45	21 500	35 475	0.241	34 000
17	"	14.50	22 500	37 125	0.241	34 000
18	"	14.55	21 000	34 650	0.254	30 000
19	"	15.00	22 500	37 125	0.237	34 000
20	"	15.10	22 000	36 300	0.237	34 000
21	"	15.15	22 500	37 125	0.237	34 000
22	"	15.30	22 000	36 300	0.237	34 000
23	"	15.45	19 000	31 350	0.237	34 000
24	"	19.30	20 500	33 825	0.237	34 000
25	"	19.30	21 000	34 650	0.219	37 000
26	"	19.45	22 000	36 300	0.288	25 000
27	"	19.50	22 000	36 300	0.266	28 000
28	"	20.30	Contaminated sample			
29	"	21.30	22 500	27 125	0.219	37 000
30	"	21.20	22 000	36 300	-	-
31	"	21.25	Contaminated sample			
32	"	21.20	22 500	37 125	0.219	37 000
33	"	21.30	22 500	37 125	0.280	26 000

BP PETROLEUM DEVELOPMENT OF NORWAY A/S  
 SAMPLING DATA SHEET WELL No.: 29/6-1  
 TEST No.: DST-3 FORMATION: Jurassic (Brent)

SAMPLE No.	DATE	TIME	SAMPLE TYPE	SAMPLE POINT	SAMPLING POINT		CONTAINER VOL & TYPE	REMARKS
					P - PSIG	T - °F		
1	29.4.82	1732	Viscous gel	Drillfloor			1 litre plastic bottle	Viscous gel above APR-N valve
2	"	1950	"	"			"	
3	"	2125	"	"			"	
4	"	2145	"	"			"	
5	30.4.82	0323	Water	Drillfloor			1 litre plastic bottle	Watercushion
6	"	0533	"	"			"	
7	"	0920	"	"			"	
8	"	1325	"	"			"	
9	"	1703	"	"			"	
10								Not sampled
11								
12								
13	02.5.82	1325	Water					Watercushion backflow
14	"	1435	"					
15	"	1440	"					
16	"	1445	"					
17	"	1450	"					
18	"	1455	"	Separator				
19	"	1500	"	"				
20	"	1510	"	"				
21	"	1515	"	"				
22	"	1530	"	"				
23	"	1545	"	"				
24	"	1930	Water				1 litre	Formation Water
25	"	1930	"				"	
26	"	1945	"				60 litre	
27	"	1950	"				"	
28	"	2030	"	Waterline			1 litre	
29	"	2130	"	"			60 litre	
30	"	2120	"	"			"	
31	"	2125	"	"			1 litre	

BP PETROLEUM DEVELOPMENT OF NORWAY A/S  
 SAMPLING DATA SHEET WELL No.: 29/6-1

TEST No.: DST-3 FORMATION: Jurassic (Brent)

SAMPLE No.	DATE	TIME	SAMPLE TYPE	SAMPLE POINT	SAMPLING POINT		CONTAINER VOL & TYPE	REMARKS
					P - PSIG	T - °F		
32	02.5.82	2120	Water	Waterline			60 litre	Formation
33	"	2130	"	"			"	Water
34			"	"			1 litre	
35			"	Separator outlet following emptying			2 litre	
				<u>CONDENSATE SAMPLES</u>				
1	02.5.82	1935	)	)			1 litre	
2	"	1945	)	)			"	tin bottles = 1 litre
3	"	"	)	)			10 litre	
4	"	1952	)	)			1 litre	tin jerrycans = 10 litres
5	"	2000	)	)			10 litre	
6	"	2005	)	)			1 litre	
7	"	2010	)	)			"	
8	"	2020	)	)			"	
9	"	2025	)	)			"	oil drums = 45 gal
10	"	2030	)	)			"	
11	"	2040	)	)			"	
12	"	2050	)	)	Gaugetank		"	
13	"	2100	)	)			"	
14	"	2110	)	)			10 litre	
15	"	2120	)	)			1 litre	
16	"	2120	)	)			45 gal	
17	"	2130	)	)			1 litre	
18	"	2135	)	)			10 litre	
19	"	2140	)	)			1 litre	
20	"	2150	)	)			"	
21	"	2150	)	)			10 litre	
22	"	2200	)	)			45 gal	
23	"	2235	)	)			45 gal	
24	03.5.82	1500	)	)	Gaugetank		45 gal	Sampled after well was shut in
25	"	1500	)	)			45 gal	

BP PETROLEUM DEVELOPMENT OF NORWAY A/S

SAMPLING DATA SHEET WELL No.: 29/6-1

TEST No.: DST-3 FORMATION: Jurassic (Brent)

SAMPLE No.	DATE	TIME	SAMPLE TYPE	SAMPLE POINT	SAMPLING POINT		CONTAINER VOL & TYPE	REMARKS
					P - PSIG	T - °F		
26	03.5.82	1500	) Condensate	) Gaugetank			45 gal	Sampled after well was shut in A/A
28	"	1500	)	)			45 gal	
29	03.5.82	1700	)	)				) Sampled after well was shut in
30	"	"	)	)				
31	"	"	)	)				
32	"	"	)	)				
33	"	"	)	)				
34	"	"	) Condensate	) Gaugetank			1 litre tin	
35	"	"	)	)				
36	"	"	)	)				
37	"	"	)	)				
38	"	"	)	)				
39	"	"	)	)				
Separator Recombination Samples for PVT Analysis								
1	02.5.82	2110	Gas	Separator Gas Outlet	810	119	20 litre Gerz-hat No. A-4141	20 minutes sampling time
2	"	2123	Condensate	Separator Sight Glass	810	135	630 ml bottle No. 9024-81	"
3	"	2130	Gas	Separator Gas Outlet	810	135	20 litre Gerz-hat No. A-4738	"
4	"	2150	Condensate	Separator Sight Glass	300	80	630 ml bottle No. 8151-73	Not representative. Taken after well shut in
5	"	2240	Condensate	Separator Sight Glass	400	46	630 ml bottle No. 22024	Not representative. Taken after well shut in

Flopetrol Well Test Data Sheets

Rate Measurement Sheets

# FLOPETROL

Client: B.P. PET Dev.  
 Field: WILD CAT  
 Well: 29/6-1

## - WELL TESTING DATA SHEET -

Section: 7  
 Page: \_\_\_\_\_  
 Report N°: \_\_\_\_\_

Base: SIAMANGER

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS				SEPARATOR				PROD. RATES AND FLUID PROPERTIES				GOR
	BOTTOM HOLE	WELL HEAD	SEPARATOR		OIL OR CONDENSATE		GAS		Units				
Time	Pressure	Ig. temp.	Ig. press.	Cg. press.	Temp.	Press.	Rate	Gravity		Rate	Rate	Gravity	Air = 1
HC/RAW	PSI	°F	PSIG	PSIG	°F	PSIG	Rate	Gravity	Rate	Rate	Gravity	Air = 1	
12.59							SET PACKER (						
13.12							PRESSURISED TEST STRING TO 3400 PSI						
13.15							3400						
13.16							CLOSED KICK WING VALVE						
13.19							PRESSURISED ANNULUS TO 1700 PSI TO OPEN A.P.R.-IN						
13.20							4730						
13.21							4440						
13.22	0						OPENED CHECKE REINIFIED ON 1/64 ADJ. CHECKE, FLOWING TO GAGE TANKS, FOR INITIAL FLOW.						
13.23	1						3150						
13.24	2						3240						
13.25	3						3260						
13.26	4						3360						

TESTED INTERVAL : \_\_\_\_\_  
 DEPTH REFERENCE : \_\_\_\_\_  
 DEPTH OF B.H. MEASUREMENTS : \_\_\_\_\_

LIQUID FLOW RATE MEASURING CONDITIONS : \_\_\_\_\_  
14.7 psia @ 60°F

4208.5 - 4218.3 M  
 R.A.B. (SERV. W.V.)

# FLOPETROL

## WELL TESTING DATA SHEET (Continuation)

Page Report No.: \_\_\_\_\_

Section: **7**

Date - Time	Pressure and temperature measurements				Prod. rates and fluid properties				GOR						
	BOTTOM HOLE		WELL HEAD		SEPARATOR		OIL OR CONDENSATE			GAS					
Time	Cumul	Temp.	Pressure	Tg temp	Tg press	Cg press	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	Rate	Gravity
HR:MIN		°F	PSIG	°F	PSIG	PSIG									Units
13.27	5			3350											
13.27	0		CLOSED CHUCKE MANIFOLD												
13.28	1			4340											
13.29	2			4350											
13.30	3			4290											
13.32	5			4230											
13.34	7			4200											
13.36	9			4180											
13.38	11			4160											
13.40	13			4140											
13.45	18			4070											
13.50	23			4010											
13.55	28			3980											
14.00	33			3950											
14.05	38			3940											
14.10	43			3900											
14.15	48			3890											

AND BLEED OFF ANNULUS PRESSURE TO CLOSE APPRIN' (6-18865 RETURNED)

# FLOPETROL

## WELL TESTING DATA SHEET (Continuation)

Page Report No.: \_\_\_\_\_

Section: **7**

Date - Time 2/5/RZ Time HR/MIN	Pressure and temperature measurements				SEPARATOR				Prod. rates and fluid properties				GOR
	BOTTOM HOLE		WELL HEAD		Temp.		Press.		OIL OR CONDENSATE		GAS		
	Temp. °F	Pressure PSIG	Tg.temp. °F	Tg.press. PSIG	Cg.press. PSIG	Temp.	Press.	Rate	Gravity	Rate	Rate	Gravity	Units
14.20	53				3870								
14.25	58				3860								
14.30	63			PRESSURISED	ANNULUS TO	OPEN	APR	'N'	1700	PSI			
14.31					4260								
14.32	0			OPENED	CHOKE MANIFOLD ON	1 1/2"							
14.33	1			46	3500								
14.34	2			46	3460								
14.35	3			46	3499								
14.37	5			46	3570								
14.39	7			46	3614								
14.41	9			48	3674								
14.43	11			50	3720								
14.45	13			51	3880								
14.50	18			54	4110								
14.55	23			56	4340								
15.00	28			58	4610								
15.05	33			60	4850								
									TOTAL OF 29 BBL'S RETURNED				
									TOTAL OF 56.2 BBL'S RETURNED				

# FLOPETROL

## WELL TESTING DATA SHEET (Continuation)

Page : \_\_\_\_\_  
Report No.: \_\_\_\_\_

Section: 7

Date - Time	Pressure and temperature measurements				Prod. rates and fluid properties				GOR		
	BOTTOM HOLE		WELL HEAD		OIL OR CONDENSATE		GAS				
Time	Temp.	Pressure	Tg.press.	Tg.press.	Temp.	Press.	Rate	Gravity	Rate	Gravity	
HR/MIN	°F	PSI.L.	PSI.C.	PSI.C.				Air-1		Units	
2/5/82											CO <sub>2</sub>
15-10	38		63	5170							U.S.
15-15	43		64	5650		FIRST SIGNS OF GAS AT SURFACE					
15-20	48		66	6040		BEGAN INTERMITTENT CLYCGL AT CHOKE H/W/IF/D INLET					TOTAL OF 92.9 BBL'S RETURNED
15-25	53		66	6660							
15-30	58		66	6440							
15-35	63		66	6150							
15-40	68		66	5910							0.5% O
15-45	73		66	5950		FLARE CUT					
15-50	78		65	5970							
15-55	83		64	5460							
16-00	88		64	5935							
16-05	93		64	5935							
16-10	98										
16-15	103		63	6080							
16-20	108		63	6160							
16-25	113		63	6150							
16-30	118		63	6150							

# FLOPETROL

## WELL TESTING DATA SHEET (Continuation)

Page Report No.:

Section: 7

Date - Time	Pressure and temperature measurements				Prod. rates and fluid properties				GOR	
	BOTTOM HOLE		WELL HEAD		SEPARATOR		OIL OR CONDENSATE			GAS
Time	Temp. °F	Pressure P.S.I.G.	Tg.press. °F	Tg.press. P.S.I.G.	Temp. °F	Press. P.S.I.G.	Rate	Gravity	Rate	Gravity
HR./MIN								Air-1		Units
16.35			63	6160						
16.40	123		62	6160						
16.45	128		62	6200						
16.50	133		62	6050						
16.55	138		62	6200						
17.00	143		62	6220						
17.00	148		FLOW SWITCHED	VIA HEATER			12" AOS. CHOKER			
17.05	153		62	6450						
17.07	155		INCREASED	ADJUSTABLE CHOKER			4 3/4" AOS. CHOKER MANIF. LD TO		17" AOS. CHOKER ON HEATER	
17.10	158		61	5150						
17.15	163		61	5170						
17.20	168		62	4470						
17.25	173		65	3850						
17.30	178		68	3870						
17.32	180		69	4666						CHECKING HEATER CHOKER CALIBRATION
17.34	182		70	5250						
17.36	184		71	5400						





# FLOPETROL

## WELL TESTING DATA SHEET (Continuation)

Page : \_\_\_\_\_  
Report No.: \_\_\_\_\_

Section: **7**

Date - Time	Pressure and temperature measurements				Prod. rates and fluid properties				GOR			
	BOTTOM HOLE	WELL HEAD	SEPARATOR		OIL OR CONDENSATE	GAS						
Time	Temp.	Pressure	Igtemp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	Rate	Gravity	Units
HR/MIN	°F	P.S.I.G.							Air-1			
21-53		OPENED	FLOW	WING VALVE				MONITOR	P.B.U. AT	CHOKED MANIFOLD		INJETS
21-55	86		8350									
21-58			8370									
22-00			8410									
22-05			8430									
22-06	46		8430									
22-06		OPENED	WELL ON		5" ADS	CHOKED ON						
22-08		BEGAN	INCREASING	ANNULUS								
22-09	75		8020									
22-09			INCREASED	CHOKED								
22-10			ANNULUS	PRESSURE -	3100	PSI						
22-11	75		7400									
22-12			INCREASED	ANNULUS								
22-13	77		7120									
22-15	80		7400									
22-16			PRESSURED	ANNULUS								
22-17	84		6910									

1

SHEARED

NO INDICATION OF APR-M

CHOKED TO 12/64 ADS

DROPPED TO 3100 PSI

DROPPED TO 1400 PSI

TO 3550 PSI

# FLOPETROL

## WELL TESTING DATA SHEET (Continuation)

Page : \_\_\_\_\_  
Report No.: \_\_\_\_\_

Section : **7**

Date - Time	Pressure and temperature measurements				Prod. rates and fluid properties				GOR		
	BOTTOM HOLE	WELL HEAD	SEPARATOR	GAS	OIL OR CONDENSATE	GAS	Rate	Gravity			
Time	Temp.	Pressure	Tg temp.	Cg press.	Temp.	Press.	Rate	Rate	Rate	Gravity	Units
HR/MIN	°F	PSIG	PSIG	PSIG						Air-1	
22.19			85	6920							
22.21			86	6850							
22.22			BEGAN PRESSURISING ANNULUS								
22.23			87	6870							
22.24			RE-PRESSURISED ANNULUS TO 3450 PSI								
22.25			87	6890							
22.27			BLED ANNULUS PRESSURE DOWN								
22.28			ANNULUS PRESSURE - 1650 PSI								
22.30			88	6890							
22.30			CLOSED CHOKER MANIFOLD								
22.32			88	6990							
22.33			ANNULUS PRESSURE - 3800 PSI								
22.35			84	8340							
22.37			80	8400							
22.39			76	8420							
22.41			BLED OFF ANNULUS PRESSURE TO 1700 PSI								
22.45				8430							





# FLOPETROL

Client: B.P. PET. D.V.  
 Field: WILDCAT  
 Well: 29/6-1

Section: **ANNEX 3**  
 Page Report N: \_\_\_\_\_

Base: STAVANER  
 - GAS PRODUCT. RATE MEASUREMENT -

DATE - TIME	Flowing Temp. °F	Pf absolute psia	hw of water	$\sqrt{h_w \times P_f}$	Orifice diameter inches	Gas gravity (air=1)	Fb	Fg	Y	Fif	Fov	C	Gas production rate: Q MM SCF/DAY	Cumulative Production M.S.S.F
18.35														
19.00														
19.15	96	825	216	422.137	2.000	.704	816.13	1.1918	1.0014	0.9671	1.077	24,356	10.28	107.1
19.30	112	825	260	463.141	"	.704	816.13	1.1918	1.0021	0.9535	1.068	23,822	11.03	
19.45	122	825	248	452.327	"	.704	816.13	1.1918	1.0020	0.9452	1.064	23,524	10.64	
20.00	124	825	248	452.327	"	.704	816.13	1.1918	1.0020	0.9436	1.063	23,462	10.61	
20.15	128	825	252	455.961	"	.704	816.13	1.1918	1.0020	0.9404	1.061	23,338	10.64	
20.30	128	825	256	459.565	"	.705	816.13	1.1918	1.0020	0.9404	1.061	23,338	10.73	
20.45	128	825	256	459.565	"	.705	816.13	1.1918	1.0020	0.9404	1.061	23,338	10.73	
21.00	124	825	256	459.565	"	.705	816.13	1.1918	1.0020	0.9436	1.063	23,462	10.78	
21.15	120	825	250	454.148	"	.705	816.13	1.1918	1.0020	0.9469	1.065	23,588	10.71	
21.30	119	825	256	459.565	"	.705	816.13	1.1918	1.0020	0.9477	1.065	23,608	10.85	
21.45	135	825	268	470.213	"	.705	816.13	1.1918	1.0021	0.9369	1.058	23,139	10.88	

TESTED INTERVAL: \_\_\_\_\_  
 PERFORATIONS: \_\_\_\_\_  
 Recorder ranges: Pf = 0-1500 psia  
 hw = 0-600 w.c. Temp = 0-200° F

Fu = 24



# FLOPETROL

Base : STAVANGER

Client : B.P. PET. Dev.  
 Field Well : WILDECAT  
29/6-1

<sup>WATER</sup>  
~~NET~~ PRODUCTION RATE -  
 - MEASUREMENT WITH METER -

Section: ANNEX **2.2**  
 Page Report N°: \_\_\_\_\_

DATE - TIME	Meter reading	Vs	BSW %	V%	1 - Shr		OIL GRAVITY		K	Net volume of STO: V <sub>0</sub>	Net STO product. rate	Cumulative production
					Factor	Temp.	Gravity	Temp.				
19-00	221.7											0
19-15	223.3	1.6		1.6			0.57	No. 3		1.6	154	1.6
19-30	226.36	3.06		3.06						3.06	294	4.66
19-45	227.68	1.32		1.32						1.32	127	5.98
20-00	231.2	3.52		3.52						3.52	338	9.5
20-15	233.7	2.5		2.5						2.5	240	12.0
20-45	238.03	4.33		4.33						4.33	208	16.33
21-00	239.34	1.31		1.31						1.31	126	17.64
21-15	242.46	3.12		3.12						3.12	300	20.76
21-30	243.84	1.38		1.38						1.38	133	22.14
21-45	244.61	0.77		0.77						0.77	74	22.91
21-67												

Shrinkage factor measured by Shrinkage tester  Tank   
 \*V<sub>0</sub> = V<sub>S</sub> x f (1 - BSW) = Net oil volume at separator conditions. f = 1.001

TESTED INTERVAL : \_\_\_\_\_  
 PERFORMANCES : 4208.5 - 4218.34

Flopetrol Gauge No. 41126

BHP Readings

# FLOPETROL

Client : B.P. PET DEV.

Section: ANNEX **1.2**

Base : STAVANGER

Field : WILOCAT

Page : \_\_\_\_\_

Well : 29/6-1

Report N°: \_\_\_\_\_

## BOTTOM HOLE PRESSURE CALCULATIONS

RIGSITE  
READING

Well producing through easing / tubing / drift pipe  
Bottom hole temperature: 306°F at depth \_\_\_\_\_ with \_\_\_\_\_

INSTRUMENT DATA	LOWER GAUGE	UPPER GAUGE
Instrument type:	A.P.C. -3	
Press. element No. and range:	4126 0-20,000 PSI	
Recording element No.:		
Clock No. and capacity:	11293 120 HRS	
<b>CALIBRATION DATA</b>		
Calibration No. and date:	GR 23/3/82	
Calibration temperature:	300°F	
Calibration range:	6000 - 13,000 PSI	
K:	10190 - 318 PSI/INCH	
a, (calibrated chart):	+97.08 PSI	
PRC, (non calibrated chart):		

DATE-TIME		Choke size	W.H. pressure	Depth	Y	C*	P	Y	C*	P
Time	Cumul									
HR/MIN	MIN	INCH	PSI	METRE	INCH		PSI			
				29 <sup>TH</sup> APRIL '82						D.S.T. No 3
16.44										CLOCK AND SYLUS ENGAGED.
				1 <sup>ST</sup> MAY '82						
							11403			11717
										(WAITING ON WEATHER)
				2 <sup>ND</sup> MAY '82						
							11406			11720
12.59										HYDROSTATIC PRIOR TO SETTING PACKER @ 4176.85M
13.12										SET PACKER @ 4176.85M
13.19										PRESSURISED TEST STRING TO 3600PSI T.H.P.
13.22										PRESSURISED ANNULUS TO 1700PSI TO OPEN APR-2N'
13.22							4203.14	1.0848		11152
13.22	0									OPENED CHOKER MANIFOLD ON 12/6" ADS. CHOKER FOR INITIAL FLOW.
13.27	5	12/64"	3380				0.9649			9930
13.27	0									CLOSED CHOKER MANIFOLD AND BLED OFF ANNULUS PRESSURE TO
										CLOSE APR-2N' FOR INITIATE P.B.V.
13.28	1		4320				1.0592			10880

REMARKS :

\* Only used if its value is significant compared to the accuracy of the gauge.

# FLOPETROL

2

Section: ANNEX 1.2

## - B.H. PRESSURE CALCULATIONS (Continuation) -

Page : \_\_\_\_\_  
Report N°: \_\_\_\_\_

			LOWER GAUGE				UPPER GAUGE			
DATE - TIME		Choke size	W.H. pressure	Depth	Y	C*	P	Y	C*	P
HR/MIN	MIN	INCH	PSI	FEET	INCH		PSI			
2nd MAY '82										
13.29	2	—	4350		1.0726		11027			
13.30	3	—	4290	4203.4	1.0843		11146			
13.32	5	—	4230	-	1.0874		11178			
13.34	7	—	4200	-	1.0884		11188			
13.36	9	—	4180	-	1.0890		11194			
13.38	11	—	4160	-	1.0890		11194			
13.40	13	—	4140	-	1.0892		11196			
13.45	18	—	4070	-	1.0894		11198			
13.50	23	—	4010	-	1.0896		11200			
13.55	28	—	3980	-	1.0896		11200			
14.00	33	—	3950	-	1.0896		11200			
14.05	38	—	3940	-	1.0896		11200			
14.10	43	—	3900	-	1.0896		11200			
14.15	48	—	3890	-	1.0896		11200			
14.20	53	—	3870	-	1.0896		11200			
14.25	58	—	3860	-	1.0896		11200			
14.30	63	—		-	1.0896		11200			
14.30			PRESSURISED ANNULUS TO 1700PSI TO OPEN APR-N'							
14.32		—		-	1.0846		11200			
14.32	0		OPENED CHOKE MANIFOLD ON 1 1/4" ADS. CHOKE.							
14.33	1	1 1/4"	3500	"	0.9598		9878			
14.34	2		3460	"	0.9570		9849			
14.35	3		3499	"	0.9556		9835			
14.37	5		3570	"	0.9531		9809			
14.39	7		3614	"	0.9504		9782			
14.41	9		3674	"	0.9494		9772			
14.43	11		3720	"	0.9478		9755			
14.45	13		3880	"	0.9451		9728			

No. DOP 116 Litographs 8175

# FLOPETROL

Section: ANNEX 1.2

Page : \_\_\_\_\_  
Report N°: \_\_\_\_\_

## \_ B.H. PRESSURE CALCULATIONS (Continuation) \_

DATE - TIME		Choke size	W.H. pressure	LOWER GAUGE			UPPER GAUGE		
Time	Cumul			Depth	Y	C*	P	Y	C*
HR/MIN	MIN	INCH	PSI	METRE	INCH	PSI			
2nd May '82									
14.50	18	12/64	4110	4203.16	0.9402	9678			
14.55	23	"	4340	"	0.9377	9653			
15.00	28	"	4610	"	0.9318	9592			
15.05	33	"	4850	"	0.9278	9552			
15.10	38	"	5170	"	0.9242	9515			
15.15	43	"	5650	"	0.9404	9680			
15.20	48	"	6040	"	0.9660	9941			
15.25	53	"	6660	"	1.0051	10339			
15.30	58	"	6440	"	0.9952	10238			
15.35	63	"	6150	"	0.9494	9772			
15.40	68	"	5960	"	0.9163	9435			
15.45	73	"	5950	"	0.9111	9381			
15.50	78	"	5970	"	0.9123	9394			
15.55	83	"	5960	"	0.9137	9408			
16.00	88	"	5935	"	0.9107	9377			
16.05	93	"	5935	"	0.9102	9372			
16.10	98	"	—	"	0.9090	9360			
16.15	103	"	6080	"	0.9088	9358			
16.20	108	"	6160	"	0.9114	9385			
16.25	113	"	6150	"	0.9118	9389			
16.30	118	"	6150	"	0.9195	9467			
16.35	123	"	6160	"	0.9095	9365			
16.40	128	"	6160	"	0.9078	9348			
16.45	133	"	6200	"	0.9075	9345			
16.50	138	"	6050	"	0.9067	9337			
16.55	143	"	6200	"	0.9076	9346			
17.00	148		6220		0.9129	9400			
17.00	148		SWITCHED FROM VIA HEATER ON			12/64	ADS. CHOKE.		

No. DOP 116 Litografin 8175

# FLOPETROL

Section: ANNEX 1.2

- B.H. PRESSURE CALCULATIONS (Continuation) -

Page : \_\_\_\_\_  
Report N°: \_\_\_\_\_

DATE - TIME		Choke size	W.H. pressure	LOWER GAUGE			UPPER GAUGE			
Time	Cumul			Depth	Y	C*	P	Y	C*	P
HR/MIN	MIN	INCH	PSI	METRE	INCH		PSI			
				2ND	MAY	'82				
17-05	153	1 1/2"	6450	4203.14	0.9550		9829			
17-07	155	1 1/2"	—	-	0.9702		9984			
17-07	155	INCREASED CHOKER SIZE ON CHOKER MANIFOLD TO 6 3/4" ADS.								
17-10	158	1 1/2"	5150	-	0.7899		8146			
17-15	163	"	5170	-	0.7070		7302			
17-20	168	-	4470	-	0.7430		7668			
17-25	173	-	3850	-	0.7994		8243			
17-30	178	-	3870	-	0.8224		8478			
17-34	182	-	5250	-	0.8333		8589			
17-38	186	-	5350	-	0.8171		8424			
17-40	188	-	5150	-	0.8182		8435			
17-40	188	HEATER CHOKER SET AT			1 1/4"	ADS				
17-42	190	1 1/4"	5120	-	0.8012		8262			
17-44	192	"	5200	-	0.7887		8134			
17-46	194	-	5070	-	0.7800		8046			
17-48	196	-	4970	-	0.7752		7997			
17-50	198	-	4750	-	0.7666		7909			
18-00	208	-	4150	-	0.7486		7726			
18-03	211	-	—	-	0.7443		7682			
18-03	211	DECREASED HEATER CHOKER SIZE TO			8 1/4"	ADS.				
18-05	213	8 1/4"	4700	-	0.7996		8245	2		
18-10	218	"	5260	-	0.8178		8431	7		
18-15	223	"	5150	-	0.8143		8395	12		
18-20	228	"	5150	-	0.8148		8400	17		
18-25	233	-	5090	-	0.8090		8341	22		
18-30	238	-	5020	-	0.8063		8314	27		
18-45	253	-	4960	-	0.8040		8290	42		
19-00	268	-	4960	-	0.8056		8306	57		

No. DOP 116 Litografen B175

# FLOPETROL

Section: ANNEX 1.2

## B.H. PRESSURE CALCULATIONS (Continuation)

Page : \_\_\_\_\_  
Report N°: \_\_\_\_\_

DATE - TIME		Choke size	W.H. pressure	LOWER GAUGE			UPPER GAUGE		
Time	Cumul			Depth	Y	C*	P	Y	C*
HR:MIN	M:—	INCH	PSI	METRE	INCH	PSI			
				2ND	MAY '82				
19:15	283	7/64"	5120	4203.14	0.8145	8397	72		
19:30	298	"	5150	"	0.8167	8420	87		
19:45	313	"	5120	"	0.8152	8404	102		
20:00	328	"	5110	"	0.8169	8422	117		
20:15	343	"	5155	"	0.8198	8451	132		
20:30	358	"	5160	"	0.8194	8447	147		
20:45	373	"	5165	"	0.8188	8441	162		
21:00	388	"	5170	"	0.8189	8442	177		
21:15	403	"	5170	"	0.8171	8424	192		
21:30	418	"	5170	"	0.8146	8398	207		
21:45	433	"	5160	"	0.8161	8413	222		
21:47	435	"	—	"	0.8153	8405	224		
21:47	0	CLOSED FLOW WING VALVE							
21:49	2	—	—	"	1.0246	10538			
21:50	3	CLOSED CHOKER MANIFOLD							
21:51	4	—	—	"	1.0449	10745			
21:53	6	—	—	"	1.0594	10893			
21:53		OPENED FLOW WING VALVE TO MONITOR P.B.V. AT CHOKER MANIFOLD INLET							
21:55	8	—	8350	"	1.0698	10999			
21:58	11	—	8370	"	1.0752	11054			
22:00	13	—	8410	"	1.0768	11070			
22:02	15	—	—	"	1.0780	11082			
22:04	17	—	—	"	1.0786	11088			
22:06	19	—	8430	"	1.0797	11100			
22:06		OPENED WELL ON 5/64" ADS CHOKER							
22:08		BEGAN INCREASING ANNULUS PRESSURE TO CHECK APR-M'							
22:09		5/64"	8020	"	1.0517	10814			
22:09		INCREASED CHOKER SIZE TO 8/64" ADS							



Flopetrol Sample Data Sheets

# FLOPETROL

Base : STAVANGER

Client : B.P. PET. DEV.

Field : WILDCAT

Well : 77/6-1

Section : ANNEX

**42**

Page : \_\_\_\_\_

Report N° : \_\_\_\_\_

## SURFACE SAMPLING

Date of sampling : 2/5/82 Service order : \_\_\_\_\_ Sampling No. : 1  
 Sample nature : SEPARATOR GAS Sampling point : SEPARATOR GAS OUTLET

### A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : D.S.T. 3 Perforations : 4205.5 - 4216.3 Sampling interval : SAME

Depth origin : L.K.B. Tubing Dia. : 3 1/2" V.I.P. Casing Dia. : 9 5/8" x 7"  
 Surface elevation : \_\_\_\_\_ Shoe : \_\_\_\_\_

Bottom hole static conditions	Initial pressure : _____ at depth : _____ date : _____
	Latest pressure measured : _____ at depth : _____ date : _____
	Temperature : _____ at depth : _____ date : _____

### B - MEASUREMENT AND SAMPLING CONDITIONS

Time at which sample was taken : 21.10 HRS Time elapsed since stabilisation : \_\_\_\_\_

Bottom hole dynamic conditions	Choke size : <u>2 1/2" AOS</u> since : <u>18.03 HRS</u> Well head pressure : <u>5140 PSI</u> Well head temp. : <u>105°F</u>
	Bottom hole pressure : _____ at depth : _____ date : _____
	Bottom hole temp. : _____ at depth : _____ date : _____

Flow measurement of sampled gas - Gravity (air: 1) : 0.705 Factor  $F_{pv} = \frac{1}{VZ}$  : 1.065  
 Values used for calculations :  $F_L = 816.13$ ;  $F_g = 1.1918$ ;  $Y_2 = 1.0021$ ;  $F_{LH} = 0.9477$ ;  $F_v = 24$

Separator	Pressure : <u>810</u> PSIG	Rates - Gas : <u>10.85</u> MM SCFD	GOR : <u>156</u> (separator cond.)
	Temp. : <u>119</u> °F	Oil (separator cond.) : <u>1694</u> BOPD	

Stock tank	Atmosphere : _____ mmHg. °F	Oil at 60°F : <u>1474</u> BOPD
	Tank temperature : _____ °F	CONDENSATE

BSW : TRACES % WLR : 12 %

Transferring fluid : VACUUM Transfer duration : 20 MINS

Final conditions of the shipping bottle :  
 Pressure : 810 PSIG Temp. : 50 °F

### C - IDENTIFICATION OF THE SAMPLE

Shipping bottle No. : A-4141 sent on : \_\_\_\_\_ by : \_\_\_\_\_ Shipping order No. : \_\_\_\_\_  
 Addressee : \_\_\_\_\_

Coupled with	LIQUID	GAS
	Bottom hole samples No.	_____
Surface samples No.	<u>8151-73</u>	_____
	<u>9024-81</u>	<u>A-4738</u>
	<u>22024</u>	_____

Measurement conditions.

Tank -  Meter -  Dump -  
 Corrected with shrinkage tester -  Corrected with tank -

### D - REMARKS -

CONDENSATE PROD. RATE, C.G.R., AND W.L.R. ARE AVERAGES OF RESULTS FROM 19.00 - 21.45 HRS

\_\_\_\_\_  
 Visa Chief Operator

# FLOPETROL

Client : E. P. PET. DEV.

Section : ANNEX

**42**Base : STAVANGERField : WILDCAT

Page : \_\_\_\_\_

Well : 29/6-1

Report N° : \_\_\_\_\_

## SURFACE SAMPLING

Date of sampling : 2/5/82 Service order : \_\_\_\_\_ Sampling No. : 2  
Sample nature : SEPARATED GAS CONDENSATE Sampling point : SEPARATE SIGHT GLASS

### A - RESERVOIR AND WELL CHARACTERISTICS-

Producing zone : D.S.T. 3 Perforations : 4208.5-4218.3m Sampling interval : SAMEDepth origin : R.V.B. Tubing Dia. : 3 1/2" diam Casing Dia. : 9 5/8" x 7"  
Surface elevation : \_\_\_\_\_ Shoe : \_\_\_\_\_ Shoe : \_\_\_\_\_Bottom hole static conditions  
Initial pressure : \_\_\_\_\_ at depth : \_\_\_\_\_ date : \_\_\_\_\_  
Latest pressure measured : \_\_\_\_\_ at depth : \_\_\_\_\_ date : \_\_\_\_\_  
Temperature : \_\_\_\_\_ at depth : \_\_\_\_\_ date : \_\_\_\_\_

### B - MEASUREMENT AND SAMPLING CONDITIONS

Time at which sample was taken : 21.23 HRS. Time elapsed since stabilisation : \_\_\_\_\_Bottom hole dynamic conditions  
Choke size : 5/64 AD5 since : 18.03 HRS Well head pressure : 5170 PSIG Well head temp. : 105°F  
Bottom hole pressure : \_\_\_\_\_ at depth : \_\_\_\_\_ date : \_\_\_\_\_  
Bottom hole temp. : \_\_\_\_\_ at depth : \_\_\_\_\_ date : \_\_\_\_\_Flow measurement of sampled gas - Gravity (air: 1) : .705 Factor Fpv =  $\frac{1}{1.058}$  : 1.058Values used for calculations :  $F_v = 24$ ,  $F_L = 816.13$ ,  $F_g = 1.1918$ ,  $\gamma_2 = 1.0021$ ,  $F_{af} = 0.9439$ Separator Pressure : 810 PSIG Rates - Gas : 10.55 MM SCFD GOR : 156 BBLG/MMSCFD  
Temp. : 135 °F Oil (separator cond.) : 1694 BOPD  B  E  
 CONDENSATEStock tank Atmosphere : \_\_\_\_\_ mmHg. °F Oil at 60°F : 1476 BOPD  
Tank temperature : \_\_\_\_\_ °F  CONDENSATE  B  E  a BSW : TRACES % WLR : 12 %Transferring fluid : MERCURY Transfer duration : 20 MIN.Final conditions of the shipping bottle :  
Pressure : 550 PSIG Temp. : 50°F

### C - IDENTIFICATION OF THE SAMPLE

Shipping bottle No. : 9024-81 sent on : \_\_\_\_\_ by : \_\_\_\_\_ Shipping order No. : \_\_\_\_\_  
Addressee : \_\_\_\_\_

Coupled with	LIQUID	GAS
Bottom hole samples No.	<u>1</u>	
Surface samples No.	<u>8151-73</u> <u>22026</u>	<u>A-4161</u> <u>A-4738</u>

Measurement conditions.

 Tank -  Meter -  Dump -  
 Corrected with shrinkage tester -  Corrected with tank -

D - REMARKS -  
 CONDENSATE PROD. RATE, C.G.R. AND W.L.R. ARE AVERAGES  
 OF RESULTS FROM 19.00 - 21.45 HRS.  
 28cc MERCURY IN BOTTLE

Visa Chief Operator

DOP 127

# FLOPETROL

Client : B.P. PET. DEV.

Section : ANNEX

**42**Base : STAVANGERField : WILDCAT

Page : \_\_\_\_\_

Well : 29/6-1

Report N° : \_\_\_\_\_

## SURFACE SAMPLING

Date of sampling : 2/5/92 Service order : \_\_\_\_\_ Sampling No. : 3  
Sample nature : SEPARATOR GAS Sampling point : SEPARATOR GAS OUTLET

### A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : D.C.T. 3 Perforations : 4208.5 - 4215.3m Sampling interval : SAMEDepth origin : \_\_\_\_\_ Tubing Dia. : 3 1/2" Casing Dia. : 9 5/8" x 7"  
Surface elevation : \_\_\_\_\_ Shoe : \_\_\_\_\_ Shoe : \_\_\_\_\_Bottom hole static conditions  
Initial pressure : \_\_\_\_\_ at depth : \_\_\_\_\_ date : \_\_\_\_\_  
Latest pressure measured : \_\_\_\_\_ at depth : \_\_\_\_\_ date : \_\_\_\_\_  
Temperature : \_\_\_\_\_ at depth : \_\_\_\_\_ date : \_\_\_\_\_

### B - MEASUREMENT AND SAMPLING CONDITIONS

Time at which sample was taken : 21.30 hrs Time elapsed since stabilisation : \_\_\_\_\_Bottom hole dynamic conditions  
Choke size : 8/6 ADS since : 18.03 hrs Well head pressure : 5170 PSIG Well head temp. : 105 °F  
Bottom hole pressure : \_\_\_\_\_ at depth : \_\_\_\_\_ date : \_\_\_\_\_  
Bottom hole temp. : \_\_\_\_\_ at depth : \_\_\_\_\_ date : \_\_\_\_\_Flow measurement of sampled gas - Gravity (air: 1) : .705 Factor  $F_{pv} = \frac{1}{\sqrt{Z}} = \frac{1}{1.058}$   
Values used for calculations :  $F_v = 2.4$ ,  $F_g = 816.13$ ,  $F_p = 1.1918$ ,  $Z = 1.0021$ ,  $F_A = 0.9439$ Separator Pressure : 810 PSIG Rates - Gas : 10.85 MM SCFD GOR : 156 BALS/MMSCF  
Temp. : 135 °F Oil (separator cond.) : 1674 BOPD (separator cond.)  
 CONDENSATEStock tank Atmosphere : \_\_\_\_\_ mmHg, \_\_\_\_\_ °F Oil at 60°F : 1474 BOPD  
Tank temperature : \_\_\_\_\_ °F  CONDENSATE  A  B  S  a  bBSW : TRACE % WLR : 12 %Transferring fluid : VACUUM Transfer duration : 20 min

Final conditions of the shipping bottle : \_\_\_\_\_

Pressure : 810 PSIG Temp. : 50 °F

### C - IDENTIFICATION OF THE SAMPLE

Shipping bottle No. : A-4438 sent on : \_\_\_\_\_ by : \_\_\_\_\_ Shipping order No. : \_\_\_\_\_  
Addressee : \_\_\_\_\_

Coupled with

Bottom hole samples No.

LIQUID

GAS

Surface samples No.

9024-81230248151-73A-4141

Measurement conditions.

 Tank - Meter - Dump - Corrected with shrinkage tester - Corrected with tank -

### D - REMARKS -

CONDENSATE PROD. RATE, C.G.R. AND W.L.R. ARE AVERAGES OF RESULTS FROM 19.00 - 21.45 HRS.

Visa Chief Operator

DOP 12

Client : B.P. PET. DEV

Section : ANNEX

 Base : STAVANGER

 Field : WILOCAT

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 Well : 29/6-1

Report N° : \_\_\_\_\_

### SURFACE SAMPLING

 Date of sampling : 2/5/82 Service order : \_\_\_\_\_ Sampling No. : 4  
 Sample nature : SEPARATOR GAS CONDENSATE Sampling point : SEPARATOR SIGHT GLASS

#### A - RESERVOIR AND WELL CHARACTERISTICS -

 Producing zone : DIST 3 Perforations : 4208.5 - 4218.30 Sampling interval : SAME

 Depth origin : \_\_\_\_\_ Tubing Dia. : \_\_\_\_\_ Casing Dia. : \_\_\_\_\_  
 Surface elevation : \_\_\_\_\_ Shoe : \_\_\_\_\_ Shoe : \_\_\_\_\_

Bottom hole static conditions	Initial pressure	: _____	at depth : _____	date : _____
	Latest pressure measured	: _____	at depth : _____	date : _____
	Temperature	: _____	at depth : _____	date : _____

#### B - MEASUREMENT AND SAMPLING CONDITIONS

 Time at which sample was taken : 21.50 Time elapsed since stabilisation : \_\_\_\_\_

Bottom hole dynamic conditions	Choke size : <u>CLOSED</u> since : <u>21.47</u>	Well head pressure : _____	Well head temp. : _____
	Bottom hole pressure	: _____ at depth : _____	date : _____
	Bottom hole temp.	: _____ at depth : _____	date : _____

 Flow measurement of sampled gas - Gravity (air: 1) : \_\_\_\_\_ Factor  $F_{pv} = \frac{1}{VZ}$  : \_\_\_\_\_  
 Values used for calculations : \_\_\_\_\_

Separator	Pressure : <u>300</u> PSIG	Rates - Gas : _____ SCFD	GOR : _____	
	Temp. : <u>≈ 50</u> °F	Oil (separator cond.) : _____ BOPD	<table border="1"> <tr><td>B</td><td>C</td></tr> </table> (separator cond.)	B
B	C			

Stock tank	Atmosphere : _____ mmHg. _____ °F	Oil at 60°F : _____ BOPD				
	Tank temperature : _____ °F	<table border="1"> <tr><td>A</td><td>B</td><td>C</td><td>a</td><td>b</td></tr> </table>	A	B	C	a
A	B	C	a	b		

 BSW : TRACES % WLR : \_\_\_\_\_ %

 Transferring fluid : MERCURY Transfer duration : 40 mins

 Final conditions of the shipping bottle :  
 Pressure : 225 PSIG Temp. : 50 °F

#### C - IDENTIFICATION OF THE SAMPLE

 Shipping bottle No. : 8151-73 sent on : \_\_\_\_\_ by : \_\_\_\_\_ Shipping order No. : \_\_\_\_\_  
 Addressee : \_\_\_\_\_

Coupled with	LIQUID	GAS
Bottom hole samples No.	_____	_____
Surface samples No.	<u>9024-81</u> <u>22024</u>	<u>A-4161</u> <u>A-4738</u>

Measurement conditions.

 Tank -  Meter -  Dump -  
 Corrected with shrinkage tester -  Corrected with tank -

#### D - REMARKS -

SAMPLE TAKEN AFTER WELL SHUT IN.  
 ≈ 22 mm MERCURY IN BOTTLE.

Visa Chief Operator: \_\_\_\_\_

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# FLOPETROL

Client: B.P. PET. DEV

Section: ANNEX

**42**Base: STAVANGERField: WILDCAT

Page: \_\_\_\_\_

Well: 28/6-1

Report No: \_\_\_\_\_

## SURFACE SAMPLING

Date of sampling: 2/5/52 Service order: \_\_\_\_\_ Sampling No.: 5  
Sample nature: SEPARATING GAS CONDENSATE Sampling point: SEP. OIL, SIGHT GLASS

### A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone: DST 3 Perforations: 4208.5 - 4218.3 Sampling interval: SAMEDepth origin: RKR Tubing Dia.: \_\_\_\_\_ Casing Dia.: \_\_\_\_\_  
Surface elevation: \_\_\_\_\_ Shoe: \_\_\_\_\_ Shoe: \_\_\_\_\_Bottom hole static conditions  
Initial pressure: \_\_\_\_\_ at depth: \_\_\_\_\_ date: \_\_\_\_\_  
Latest pressure measured: \_\_\_\_\_ at depth: \_\_\_\_\_ date: \_\_\_\_\_  
Temperature: \_\_\_\_\_ at depth: \_\_\_\_\_ date: \_\_\_\_\_

### B - MEASUREMENT AND SAMPLING CONDITIONS

Time at which sample was taken: 22.40 Time elapsed since stabilisation: \_\_\_\_\_Bottom hole dynamic conditions  
Choke size: CLOSED since 2/5 21.47 Well head pressure: \_\_\_\_\_ Well head temp.: \_\_\_\_\_  
Bottom hole pressure: \_\_\_\_\_ at depth: \_\_\_\_\_ date: \_\_\_\_\_  
Bottom hole temp.: \_\_\_\_\_ at depth: \_\_\_\_\_ date: \_\_\_\_\_Flow measurement of sampled gas - Gravity (air: 1): \_\_\_\_\_ Factor  $F_{pv} = \frac{1}{\sqrt{Z}}$ : \_\_\_\_\_  
Values used for calculations:Separator Pressure: 400 PSIG Rates - Gas: \_\_\_\_\_ SCFD GOR: \_\_\_\_\_  
Temp.: 46 °F Oil (separator cond.): \_\_\_\_\_ BOPD 

B
C

 (separator cond.)Stock tank Atmosphere: \_\_\_\_\_ mmHg, \_\_\_\_\_ °F Oil at 60°F: \_\_\_\_\_ BOPD  
Tank temperature: \_\_\_\_\_ °F 

A	B	C	a	b
---	---	---	---	---

BSW: TRACES % WLR: \_\_\_\_\_ %Transferring fluid: MERCURY Transfer duration: 30 minFinal conditions of the shipping bottle:  
Pressure: 225 PSIG Temp.: 50 °F  
SAMPLE VOL 550 cc

### C - IDENTIFICATION OF THE SAMPLE

Shipping bottle No.: 22024 sent on: \_\_\_\_\_ by: \_\_\_\_\_ Shipping order No.: \_\_\_\_\_  
Addressee: \_\_\_\_\_

Coupled with	LIQUID		GAS	
	Bottom hole samples No.			
Surface samples No.	<u>3024-21</u>	<u>8151-73</u>	<u>A-4141</u>	<u>4738</u>

### Measurement conditions.

 Tank -       Meter -       Dump -  
 Corrected with shrinkage tester -       Corrected with tank -

### D - REMARKS -

SAMPLE TAKEN AFTER WELL WAS SHUT IN  
 ≈ 28% MERCURY IN BOTTLE.

Visa Chief Operator

4. MISCELLANEOUS DATA

- Flopetrol Diary of Events (DST's 1 to 3)
- Flopetrol Gauge Calibration Records
- Landing String Configuration
- Surface Equipment Layout
- Tubing Tallies N-80 12.7 lb/ft  
L-80 15.8 lb/ft

Flopetrol Diary Of Events

DST Nos. 1, 2 and 3

**FLOPETROL**Client : B. P. PET. DEV.Section : 6Base : STAVANGERField : WILDCAT

Page : \_\_\_\_\_

Well : 29/6-1

Report N°: \_\_\_\_\_

SEQUENCE OF EVENTS

DATE	TIME	OPERATION
13/3/82		CHECKED EQUIPMENT - POSITION SEPERATOR, HEATER, GAUGE TANK, TRANSFER PUMP AND EZ-TREE CONTAINER
14/3/82		RIG UP PIPEWORK
15/3/82		COMPLETED PIPEWORK RIG UP.
16/3/82		PREPARED BURNERS, CHECK AND PREPARE EZ-TREE
17/3/82		PREPARED BURNERS, CHECK AND PREPARE EZ-TREE
18/3/82		FUNCTION TEST BURNERS, FLUSH LINES AND PREPARE HEATER
19/3/82		PRESSURE TEST RIG TEST LINE AGAINST HEATER INLET TO 10000 PSI AND REPEATED AGAINST HEATER CHOKE BLANK PLUG. PRESSURE TEST LINE BETWEEN HEATER AND SEPARATOR INLET AND BY-PASS VALVES TO 1500 PSI. PRESSURE TEST SEPARATOR AGAINST SEPARATOR OUTLET BLOCK VALVES TO 1300 PSI.
20/3/82		WITH THE HEATER AND SEPARATOR BY-PASSED, PRESSURE TEST CHICKSAN PIPEWORK, OIL MANIFOLD, RIG OIL AND GAS MANIFOLD TO 1500 PSI. PREPARED ALL CHEMICAL INJECTION PUMPS.
21/3/82		PRESSURE TEST CHEMICAL INJECTION PUMPS TO 10500 PSI. PRESSURE TEST DATA HEADER AND CHOKE MANIFOLD TO 10500 PSI. PRESSURE TEST KILL AND FLOW LINE CHIKSANS TO 10,500 PSI. CHECKING ALL FLOW METERS.
22/3/82		FUNCTION AND PRESSURE TEST FLOWHEAD TO 10500 PSI
23/3/82	01:40	RUN IN EZ-TREE FOR DUMMY RUN.
	03:40	EZ-TREE AT SURFACE AGAIN. PRESSURE TEST EZ-TREE TO 10,500 PSI. PRESSURE TEST CONTROL LINE AND CONSOLE TO 5000 PSI. INJECTED GLYCOL WITH EZ-TREE INTERNAL PRESSURE OF 10500 PSI.

# FLOPETROL

Section : **6**

## SEQUENCE OF EVENTS (Continuation)

Page : \_\_\_\_\_  
Report N° : \_\_\_\_\_

DATE	TIME	OPERATION
24/3/82		FUNCTION TESTED PILOTS, CONNECTED UP TO THE ESD CONSOLE AND HYDRAULIC VALVE ON FLOWHEAD. PRESSURISED EACH IN TURN. CALIBRATED OIL FLOCOMETER ( $f = 1.0069$ ) AND OIL ROTRON ( $f = 0.9429$ )
25/3/82		CALIBRATED WATER FLOCOMETER ( $f = 1.0010$ ) CONNECTED 3/8" VAM TUBING TO FLOWHEAD AND E2-TREE
26/3/82		CHECKED CALIBRATION OF PILOTS BY DWT. PRESSURE TEST BODY OF FLOWHEAD AND E2-TREE TO 10500 PSI. CONNECTED EMERGENCY VENT LINE FROM RUPTURE DISC ON SEPARATOR.
27/3/82		FLUSHED WATER NOZZLES ON BURNERS, CHECKED SEPARATOR AND PREPARED TO PRESSURE TEST
28/3/82		PRESSURE TESTED SEPARATOR 1300PSI, AND 3" CHIKSANS <sup>16,000 PSI</sup> PREPARED GLYCOL INJECTION SYSTEM AND ESD SYSTEM
29/3/82		FUNCTION TESTED HEAT EXCHANGER AND CHECKED ADJUSTABLE CHOKES AND SEAT.
30/3/82		PREPARED AMERADAS AND STANDERS TO TEST
11/4/82		RE-PRESSURE TESTED SURFACE EQUIPMENT :- RIG TEST LINE AND HEATER INLET & BYPASS - 10,000 PSI HEATER HIGH-PRESSURE COIL - 10,000 PSI HEATER LOW-PRESSURE COIL AND OUTLET - 3,000 PSI SEPARATOR INLET AND BY-PASS VALVES - 1500 PSI SEPARATOR VESSEL, PIPEWORK AND OUTLET VALVES - 12,500 PSI OIL LINE AND BURNER MANIFOLD - 1300 PSI GAS LINE AND GAS FLARE MANIFOLD - 1300 PSI
12/4/82		RE-PRESSURE TESTED CHOKES MANIFOLD - 10,000 PSI E-2 TREE - 10,000 PSI AND FLOWHEAD - 10,000 PSI

# FLOPETROL

Section : **6**

## SEQUENCE OF EVENTS (Continuation)

Page : \_\_\_\_\_  
Report N° : \_\_\_\_\_

DATE	TIME	OPERATION
13/4/82		PREPARED 4 OIL SAMPLE BOTTLES
14/4/82		SCHLUMBERGER PERFORATED THE INTERVAL 4287m TO 4291.8m R.P.E. (w/ 4 S.P.E. FOR D.S.T. No 1
15/4/82	12.19	ENGAGED CLOCK AND STYLUS ON T.E. 41650 AND MARKED CHART
	13.10	BEGAN PICKING-UP TEST STRING
	13.11	ENGAGED CLOCK AND STYLUS ON P.E. 41125
	13.15	ENGAGED CLOCK AND STYLUS ON P.E. 41126
	13.15	ENGAGED CLOCK AND STYLUS ON P.E. 36439
	14.30	LANDED PRESSURE AND TEMPERATURE RECORDERS IN TAIL PIPE AND CONTINUED R.I.H
16TH April '82		MADK UP E-2 TREE TO TEST STRING <small>FUNCTION PRESSURE TESTED</small>
		LATCH, PRESSURE TESTED TUBING E-2 TREE AND R.I.H
17TH April '82		
	02.13	PICKED UP FLOWHEAD AND MADE UP TO TEST STRING
	02.31	LANDED STRING IN WELLHEAD AND CONNECTED KILL LINE CHIKSANS
	03.30	CLOSED MASTER VALVE AND FLOW LINE VALVE, AND PRESSURE TESTED KILL LINE CHIKSANS AND FLOW LINE TO 10.500 PSI
		PRESSURE TESTED TUBING STRING TO 10.500 PSI
	05.00	RIGGED-UP CHKE MANIFOLD AND FLOWLINE CHIKSANS
	06.00	BEGAN PRESSURE TESTING FLOW AND KILL LINE CHIKSANS, CHKE MANIFOLD AND FLOW LINE TO HEATER INLET TO 10.500 PSI
	08.10	PICKED UP TEST STRING AND SET SLIPS TO CHANGE OUT LEAKING CHIKSANS
	08.46	RE-LANDED TEST STRING IN WELLHEAD AND CONTINUED

# FLOPETROL

Section : **6**

SEQUENCE OF EVENTS (Continuation)

Page : \_\_\_\_\_  
Report N° : \_\_\_\_\_

DATE	TIME	OPERATION
17/4/82		PRESSURE TESTING
	09.14	STOPPED PRESSURE TESTING AND HELD PRE-TEST SAFETY MEETING
	10.30	CONTINUED PRESSURE TESTING
	11.02	FINISHED PRESSURE TESTING AND PICKED UP TEST STRING <del>IN</del> TO SET PACKER
	11.44	SET PACKER @ 4262.71 M AND LANDED TEST STRING IN WEAR BUSHING
	11.55	OPENED MASTER VALVE AND CLOSED CHOKER MANIFOLD
	12.18	HALLIBURTON PRESSURISED TEST STRING TO 3500 PSI TO O.C. APR-N
	12.29	BEGAN PRESSURISING ANNULUS TO 2000 PSI - NO INDICATION OF TORN APR-N CROWN AT SURFACE
	12.45	bled off ANNULUS PRESSURE, AND OPENED KILL WIND VALVE
	12.47	INCREASED TUBULAR PRESSURE TO 4300 PSI
	12.50	CLOSED KILL WIND VALVE
	12.52	BEGAN PRESSURISING ANNULUS TO 2000 PSI TO O.C. APR-N
	12.58	OPENED CHOKER MANIFOLD ON 1 1/16" ADS CHOKER, BLEED OFF TUBING
	13.00	CLOSED CHOKER MANIFOLD
	13.09	bled off ANNULUS PRESSURE
	13.18	OPENED KILL WIND VALVE
	13.21	PRESSURISED TEST STRING TO 4500 PSI
	13.23	CLOSED KILL WIND VALVE
	13.33	OPENED CHOKER MANIFOLD ON 1 1/16" ADS CHOKER AND BLEED OFF W.H.P. TO 2800 PSI
	13.53	bled off ANNULUS PRESSURE
	13.55	OPENED CHOKER MANIFOLD AND BLEED OFF W.H.P.
	13.58	OPENED KILL WIND AND BEGAN PRESSURISING TUBING TO 5400 PSI
	14.05	BEGAN PRESSURISING ANNULUS TO 2000 PSI TO O.C. APR-N

DOP 108

# FLOPETROL

Section : **6**

## SEQUENCE OF EVENTS (Continuation)

Page : \_\_\_\_\_  
Report N° : \_\_\_\_\_

DATE	TIME	OPERATION
17/4/82	14.09	OPENED CHOKER MANIFOLD ON $\frac{32}{64}$ " ADS CHOKER AND BLED OFF W.H.P. TO 1000 PSI
	14.10	BLED OFF ANNULUS PRESSURE
	14.12	BEGAN PREPARED ANNUUS TO 1000 PSI TO OPEN APR-N
	14.19	BEGAN PREPARED TUBING TO 5000 PSI
	14.27	INCREASED TUBING PRESSURE TO 6000 PSI
	14.32	OPENED CHOKER MANIFOLD ON $\frac{30}{64}$ " ADS CHOKER AND BLED OFF W.H.P. TO 3000 PSI
	14.34	BLED OFF ANNULUS PRESSURE
	14.35	PREPARED TUBING TO 5700 PSI
	14.36	PREPARED ANNUUS TO 1000 PSI TO OPEN APR-N
	14.42	OPENED CHOKER MANIFOLD AND BLED OFF W.H.P. TO 3000 PSI
	14.45	OPENED CHOKER MANIFOLD ON $\frac{10}{64}$ " ADS CHOKER
	14.47	CLOSED CHOKER MANIFOLD (FINAL FLOWING PRESSURE $\approx$ 500 PSI)
	15.16	CLOSED KILL WIRE VALVE
	15.21	OPENED CHOKER MANIFOLD ON $\frac{5}{64}$ " ADS CHOKER FLOWING TO GUAGE TANK
	18.25	MUD AT SURFACE
	18.45	SWITCHED FLOW TO SURFACE (BUBBLES OF GAS AT SURFACE)
	19.25	SWITCHED FLOW TO GUAGE TANK
	21.30	SWITCHED FLOW THROUGH SEPARATE DWT PLUGGING
	22.00	BEGAN FLOW RATE MEASUREMENTS ON SEPARATE USING DOMESTIC GAS METER AND 2" FLOCC ( $f = 1.0069$ )
	18TH APRIL 82	
	02.03	BLED OFF ANNULUS PRESSURE TO CLOSE APR-N

# FLOPETROL

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Section : 6

## SEQUENCE OF EVENTS (Continuation)

Page :  
Report N°:

DATE	TIME	OPERATION
12/4/82	02:04	CLOSED CHOKER MANIFOLD TO OBSERVE W.H.P.
	15:17	BEGAN PRESSURISING ANNULUS TO 2800 PSI TO SHORE APR-M - NO INDICATION OF CIRCULATION TEST OPENING.
	15:23	INCREASED ANNULUS PRESSURE TO 3000 PSI
	15:25	INCREASED ANNULUS PRESSURE TO 3200 PSI
	15:29	INCREASED ANNULUS PRESSURE TO 3500 PSI
	15:31	bled off ANNULUS PRESSURE TO ZERO
	15:32	PRESSURISED ANNULUS TO 3200 PSI
	15:35	INCREASED ANNULUS PRESSURE TO 3500 PSI
	15:39	INCREASED ANNULUS PRESSURE TO 3700 PSI
	15:41	bled off ANNULUS PRESSURE
	15:44	PRESSURISED ANNULUS TO 3700 PSI
	15:48	OPENED CHOKER MANIFOLD AND BLED OFF W.H.P. TO 3700 PSI (T.H.P. INCREASED AGAIN TO 4700 PSI)
	15:51	bled off ANNULUS PRESSURE (T.H.P. - 4900 PSI)
	15:53	bled off T.H.P. TO 3500 PSI
	15:56	CLOSED CHOKER MANIFOLD - T.H.P. 3800 PSI (T.H.P. INCREASED AGAIN TO 4400 PSI)
	15:59	OPENED MIDDLE AND LOWER PIPE RAMS
	16:01	PICKED UP TEST STRING OUT OF WELL HEAD
	16:06	ROTATED TEST STRING TO OPEN R.T.T.S. CIRCULATION VALVE - NO INDICATION OF VALVE OPEN
	16:08	PICKED UP TEST STRING
	16:10	ROTATED TEST STRING TO OPEN R.T.T.S. CIRC. VALVE - NO INDICATION.
	16:14	OPENED CHOKER MANIFOLD AND BLED OFF T.H.P. TO 3500 PSI
	16:23	RE-LANDED TEST STRING IN WELL HEAD
	16:26	PRESSURISED ANNULUS TO 3600 PSI - NO INDICATION

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# FLOPETROL

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Section : 6

## SEQUENCE OF EVENTS (Continuation)

Page :  
Report N°:

DATE	TIME	OPERATION
18/4/82	16:31	bled off annulus pressure
	16:33	closed master valve and bled off flowline pressure
	16:35	rigged-up, longer flow and kill line chiksans
	17:00	pressure tested chiksans to 10,500 psi
	17:30	bled off flowline pressure to 5000 psi
	17:31	closed kill wing valve and opened master valve
	17:33	opened choke manifold and bled off thp to 3500 psi (thp increased again to 5000 psi)
	17:35	picked up test string out of wellhead
	17:38	retained test string to open rttc circ valve
	17:40	opened choke manifold and began reverse circulating tubing contents overboard
	19:00	stopped reverse circulation, closed flow wing valve, opened kill wing valve and continued reverse circulation via mud system; rigged down flowline chiksans and choke manifold
	21:30	laid down finished reverse circulation, laid down flowhead, made up Kelly and began circulating.
19th April '82		
	00	finished circulation, began P.O.O.H
	01:20	E-2 tree on surface; un-latched, washed out, re-latched and laid down; ...
	01:40	continued P.O.O.H.
	14:20	retrieved ameradas from tailpipe pressure tested E-2 tree - 10,500 psi, choke manifold - 10,500 psi, flowhead - 10,500 psi in preparation for D.S.T. No. 2
20th April '82		
		pressure test FIG 2202 chiksans - 10,500 psi in preparation for D.S.T. No. 2

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## SEQUENCE OF EVENTS - (Continuation)

DATE	TIME	OPERATION
	21st April '82	
		PRESSURE TESTED E-2 TREE HOSE BUNDLES TO 5000 PSI AND GLYCOL INSULATION HOSE BUNDLE TO 10000 PSI
	22nd April '82	
		SCHLUMBERGER PERFORATED THE INTERVAL 4256m-4260m @ 4 S.P.F. FOR D.S.T. No 2
	21.57	CLOCK AND STYLUS ENGAGED ON TEMP RECORDER T.E. No 48489 - MARKED CHART
	22.00	CLOCK AND STYLUS ENGAGED ON PRESSURE RECORDER, P.E. No 36439
	22.03	CLOCK AND STYLUS ENGAGED ON PRESS RECORDER, P.E. No 41126
	22.06	CLOCK AND STYLUS ENGAGED ON PRESS RECORDER P.E. No 41128
	22.35	RECORDERS HUNG OFF IN TAILPIPE AND BEGAN R.I.H. WITH TEST TOOLS.
	24th April 82	
	0000	E2 TREE PICKED UP.
	0041	E2 TREE MADE UP TO TEST STRING, FUNCTION TESTED LATCH
	0050	E2 TREE THROUGH ROTARY TABLE
	0110	TESTING SUP RIGGED UP COMMENCE PRESSURE TESTING STRING AND E-2 TREE TO 10,500 PSI.
	0217	FINISH PRESSURE TEST CONTINUED RUNNING IN HOLE.
	0424	FLOW HEAD PICKED UP
	0437	FLOW LINE CHICKSAYS RIGGED UP.
	0510	FLOW HEAD MADE UP AND TEST STRING LANDED IN WELLHEAD

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DATE	TIME	OPERATION
24-4-52	0557	FLUSHED LINES, FILLED STRING WITH SEA WATER
	0610	COMMENCED PRESSURE TESTING KILL LINE, FLOW HEAD; AND TEST STRING TO 10,500 PSI
	0715	PRESSURE TESTS COMPLETED
	0716	COMMENCED RIGGING UP CHOKE MANIFOLD, FLOW LINES, GLYCOL INJECTION PUMPS, AND SURFACE RECORDING EQUIPMENT.
	0905	RIGGING UP COMPLETED
	0915	FLUSHED LINES
	0927	COMMENCED PRESSURE TESTING FLOW LINES, CHOKE MANIFOLD, AND KILL VALVE ON FLOW HEAD, TO 10,500 PSI
	1050	PRESSURE TESTS COMPLETED
	1102	PICKED UP TEST STRING TO SET PACKER
	1108	PACKER SET. @ 4235.04m
	1112	OPENED MASTER VALVE
		HELD PRE-TEST SAFETY MEETING.
	1144	CLOSED MIDDLE AND LOWER PIPE RAMS
	1146	PRESSURED UP STRING TO 4850 PSI
	1152	CLOSED KILL VALVE
	1158	PRESSURED UP ANNULUS TO OPEN APR-N'
	1202	OPENED WELL AT ADJ CHOKE.
	1204	CLOSED IN AT CHOKE. NO INDICATION OF APR-N' etc
	1212	bled off ANNULUS PRESSURE
	1217	OPENED KILL VALVE
	1219	PRESSURED UP STRING TO 5000 PSI
	1225	CLOSED KILL VALVE
	1227	PRESSURED UP ANNULUS TO OPEN APR-N
	1237	OPENED WELL ON 1/4" ADJ CHOKE
	1238	CLOSED IN AT CHOKE MANIFOLD
	1246	PRESSURED UP ANNULUS TO 2700 PSI

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DATE	TIME	OPERATION
244	1250	OPENED KILL VALVE
	1252	PRESSURED UP STRING TO 5500 PSI
	1256	CLOSED KILL VALVE
	1301	OPENED WELL ON 2/64" ADJ CHOKE.
	1302	CLOSED IN AT CHOKE. NO INDICATION OF APR 'N' VALVE OPEN.
	1312	OPENED KILL VALVE
	1315	PRESSURED UP STRING TO 5500 PSI
	1316	CLOSED KILL VALVE
	1318	bled off ANNULUS PRESSURE
	1319	PRESSURED UP ANNULUS TO OPEN APR-N
	1323	ANNULUS PRESSURE 2300 PSI
	1325	OPENED WELL ON 32/64" ADJ CHOKE
	1326	CLOSED IN AT CHOKE
	1331	OPENED KILL VALVE
	1332	PRESSURED UP TUBING.
	1336	CLOSED KILL VALVE
	1338	bled off ANNULUS PRESSURE
	1342	PRESSURED UP ANNULUS
	1347	OPENED CHOKE ON 32/64" . CLOSED IN.
	1351	bled off ANNULUS
	1352	PRESSURED UP ANNULUS TO 2300 PSI
	1424	OPENED KILL VALVE. PRESSURED UP TUBING TO 5500 PSI
	1427	CLOSED KILL VALVE
	1430	bled off ANNULUS TO 2250 PSI
	1435	bled off TBC. PRESSURE TO 3800 PSI
	1452	bled off TBC PRESSURE TO 3300 PSI
	1517	bled off TBC PRESSURE TO 2800 PSI
	1547	bled off TBC PRESSURE TO 2500 PSI

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DATE	TIME	OPERATION
24/4-82	16.09	bled off TBG. PRESSURE TO 1800 PSI
	16.47	bled off ANNULUS TO 1700 PSI
	16.52	bled off TBG. PRESSURE TO 1300 PSI
	17.07	bled off TBG. PRESSURE TO 800 PSI
	17.20	bled off THP TO ZERO
	17.27	PRESSURED UP ANNULUS TO 2000 PSI
	17.33	bled off ANNULUS
	17.35	OPENED KILL VALVE
	17.45	FLUSHED LINES TO GAUGE TANK.
	17.46	CLOSED CHOKER MANIFOLD
	17.49	OPENED PIPE RAILS
	17.51	CLOSED KILL VALVE
	17.52	PICKED UP G.M. TO FULL PACKER
	17.56	RAN JACK IN TO WELL HEAD, PACKER STILL SET.
	17.58	PICKED UP AGAIN TO UNSET PACKER <sup>2</sup> .
	18.01	RAN BACK IN TO WELL HEAD
	18.05	CLOSED PIPE RAILS
	18.07	OPENED KILL VALVE
	18.09	PRESSURED UP TBG TO 5890 PSI
	18.14	CLOSED KILL VALVE
	18.15	PRESSURED UP ANNULUS TO 2300 PSI
	18.20	OPENED WELL ON 3 1/4" CHOKER
	18.22	CLOSED IN AT CHOKER
	18.36	STARTED PUMPIN' GLYCOL
	18.40	bled off THP TO 3265 PSI
	18.48	bled off THP TO 2640 PSI
	18.57	bled off THP TO 2185 PSI
	19.03	bled off THP TO 1640 PSI
	19.10	bled off THP TO 696 PSI

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## SEQUENCE OF EVENTS (Continuation)

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DATE	TIME	OPERATION
24-83	19.15	PLED OFF T.H.P. TO 2100 PSI
	19.22	OPENED KILL WING VALVE, CLOSED MASTER VALVE
	19.30	FLUSHED LINES, AND PRESSURE TESTED FLOW AND KILL LINE CHECKING IT CHECK MANIFOLD TO 10,500 PSI
	19.44	FINISHED PRESSURE TEST
	19.45	OPENED MASTER VALVE
	19.51	COMMENCED PUMPING DOWN STRING IN ATTEMPT, IF APRON OPEN, TO ESTABLISH INJECTION <sup>INTO</sup> FORMAT
	20.57	PRESSURED TBG TO 7600 PSI
	20.02	PRESSURED TBG TO 8700 PSI
	20.04	PRESSURED TBG TO 2700 PSI
	20.21	PLED OFF T.H.P. PRESS. (THROUGH KILL LINE)
	20.27	CLOSED KILL VALVE
	21.03	OPENED KILL VALVE
	21.05	COMMENCED TO PRESSURE UP TBG.
	21.11	CLOSED KILL VALVE
	21.14	ANNULUS PRESSURE 2400 PSI
	21.15	PLED DOWN TBG. PRESS TO TANK. 3000 PSI
	21.19	PLED DOWN TBG PRESS TO TANK TO 1500 PSI
	21.26	OPENED KILL VALVE, PRESSURED UP TBG TO 5460 PSI
	21.32	CLOSED KILL VALVE
	21.37	PLED OFF ANNULUS PRESSURE AND RE-PRESSURED ANNULUS TO 2400 PSI
	21.37	PLED DOWN TBG TO TANK. TO 3000 PSI
	21.43	PLED DOWN TBG TO TANK TO 1500 PSI
	21.47	OPENED KILL VALVE
	21.48	COMMENCED TO PRESSURE UP TBG TO 5000 PSI

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DATE	TIME	OPERATION
24/4-82	21-52	CLOSED KILL VALVE; INCREASED ANNULUS PRESSURE TO 2600. (OPENED AFR 'N')
	21-54	PLED DOWN TO 2000 PSI. CLOSED OFF AT CHOKER. PRESSURE STARTED TO BUILD UP
	23-07	ANNULUS PRESSURE PLED DOWN TO 2300 PSI
	23-09	OPENED WELL ON 8/64" ADJ. CHOKER FLOWING SEAWATER CUSHION TO GAUGE TANK
	23-10	CLOSED IN AT CHOKER MANIFOLD
	23-12	WELL OPENED ON 8/64" ADJ. CHOKER, FLOW DIRECTED TO 1 26" DRAIN
	23-13	CHANGED CHOKER TO 3/64" ADJ.
	23-20	CLOSED IN AT CHOKER
	23-21	WELL OPENED ON 3/64" ADJ. CHOKER TO 1 26" ADJ. CHOKER. FLOW TO 1 26" DRAIN
	23-24	CHANGED TO 3/64" ADJ. CHOKER.
	23-29	CHANGED TO 2/64" ADJ. CHOKER
	23-32	CHANGED TO 3/64" ADJ. CHOKER
	23-40	CHANGED TO 2/64" ADJ. CHOKER
	23-42	CHANGED TO 3/64" ADJ. CHOKER
25 <sup>th</sup> APRIL '82		
	00:04	CHANGED TO 4/64" ADJ. CHOKER
	00:20	CHANGED TO 6/64" ADJ. CHOKER. FLOW DIRECTED TO GAUGE TANK.
	00:23	CHANGED TO 5/64" ADJ. CHOKER
	00:31	CHANGED TO 4/64" ADJ. CHOKER
	00:32	CHANGED TO 3/64" ADJ. CHOKER
	01:22	CHANGED TO 4/64" ADJ. CHOKER
	12:54	DOWN AT CHOKER
	13:01	DOWN TO SURFACE
	13:34	CHANGED TO 5/64" ADJ. CHOKER

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DATE	TIME	OPERATION
25/4-82	13.36	CHANGED TO 5/64" ADJ CHOKE
	13.45	CHANGED TO 8/64" ADJ. CHOKE
	13.49	CHANGED TO 10/64" ADJ. CHOKE
	13.53	CHANGED TO 12/64" ADJ. CHOKE
	13.54	CHANGED TO 8/64" ADJ. CHOKE
	13.56	CHANGED TO 6/64" ADJ CHOKE
	14.28	CHANGED TO 4/64" ADJ. CHOKE
	14.37	CHANGED TO 5/64" → 6/64" ADJ. CHOKE
	14.47	CHANGED TO 6/64" ADJ CHOKE
	14.56	CHANGED TO 8/64" ADJ CHOKE
	14.57	CHANGED TO 10/64" ADJ. CHOKE
	14.59	CHANGED TO 8/64" ADJ. CHOKE
	15.00	CHANGED TO 6/64" ADJ. CHOKE
	15.01	CHANGED TO 4/64" ADJ. CHOKE
	15.05	DWT LINES PLUGGED
	15.08	DWT OK.
	16.34	PRESSURED UP ANNULUS TO SHEAR APR-M REVERSE CIRCULATION VALVE
	16.38	PRESSURED UP ANNULUS TO 3500 PSI, NO INDICATION OF APR-M ACTUATED
	16.42	ANNULUS PRESSURE DROPPED BY 500 PSI
	16.43	PRESSURED BACK UP TO 3500 PSI, STILL NO INDICATION. PRESSURE DROPPING.
	16.50	PRESSURED BACK UP TO 3500 PSI, STILL DROPPING.
	17.04	PRESSURE ON ANNULUS 1600 PSI, PRESSURE BLED OFF TO CLOSE APR-N AND RECORD P. B. V
	17.05	CHOKE MANIFOLD CLOSED IN.
	2674	APRIL 1982
	09.07	PRESSURED UP ANNULUS TO SHEAR APR-M. CIRCULATING VALVE

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DATE	TIME	OPERATION
26-4-82	0910	ANNULUS PRESSURE 3500 PSI NO INDICATION OF APP. H. SHEARING, ANNULUS PRESSURE NOT HOLDING
	0916	PRESSURED BACK UP TO 3500 ON ANNULUS
	0926	OPENED CHOKE ON 4/64 ADS
	0928	CLOSED CHOKE, BLEED OFF ANNULUS PRESSURE.
	0933	PRESSURED UP ANNULUS -
	0938	INCREASED ANNULUS PRESSURE.
	1013	PICKED UP STRING TO OPEN RTTS CIRCULATING VALVE.
	1028	RE-LANDED STRING.
	1032	PICKED UP STRING TO OPEN RTTS CIRCULATING VALVE.
	1045	ATTEMPTED TO OPEN CIRCULATING VALVE.
	1657	OPENED CHOKE MANIFOLD ON 3 3/64 ADS
	1100	CLOSED CHOKE MANIFOLD
	1102	OPENED CHOKE MANIFOLD ON 1 1/64 ADS AND ATTEMPT TO REVERSE CIRCULATE
	1215	ATTEMPTED TO RE-OPEN R.T.T.S. CIRCULATING VALVE
	1224	CLOSED MIDDLE RAMS
	1225	PRESSURED UP ANNULUS TO 700 PSI
	1228	PRESSURED UP ANNULUS TO 1200 PSI
	1235	BLEED OFF ANNULUS PRESSURE, OPENED RAMS
	1238	CLOSED CHOKE MANIFOLD
	1240	ATTEMPTED TO RE-OPEN CIRCULATING VALVE, RAN STRING IN 1 1/2 FT., ROTATED TO THE RIGHT.
	1250	CLOSED PIPE RAMS, PRESSURED UP ANNULUS TO 1000 PSI
	1252	PRESSURED ANNULUS TO 1300 PSI PRESSURE DROPPED TO 1100 PSI
	1256	PRESSURED ANNULUS TO 1300 PSI
	1320	PRESSURE BLEED OFF ANNULUS
	1321	OPENED KILL VALVE.
	1330	PUMPED DOWN STRING; 5 BLS

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DATE	TIME	OPERATION
26-4-82	1340	T.H.P. - 100 PSI
	1342	STOPPED PUMPING; 3 APPL RETURNED TO TRIP TANK.
	1348	CLOSED KILL VALVE
	1350	OPENED CHOKE MANIFOLD IN ATTEMPT TO <sup>REVERSE</sup> CIRCULATE
	1404	CLOSED MASTER VALVE, OPENED KILL VALVE
	1410	FLUSHED LINES TO BURNER, TO CHECK VALVE ALIGNMENT
	1415	CLOSED KILL VALVE OPENED MASTER VALVE.
	1420	OPENED KILL VALVE.
	1434	PUMPED DOWN STAINING.
	1437	1800 PSI T.H.P.
	1441	3300 PSI T.H.P.
	1445	4200 PSI T.H.P.
		CIRCULATION OF 2 BALS
	1454	CLOSED KILL VALVE.
	1458	OPENED CHOKE ON <sup>12</sup> / <sub>16</sub> ADS AND COMMENCED REVERSE CIRCULATION
	1630	CLOSED FLOW LINE VALVE AND CONTINUED CIRCULATION VIA KILL LINE AND MUD SYSTEM
	22:15	RIGGED DOWN FLOWHEAD
	22:43	UNSET PACKER & STARTED F.O.O.H.
	23:30	E-2 TREE ON SURFACE, WASHED OUT, AND LAID DOWN
	27 <sup>TH</sup>	APRIL '82
	10:30	RETRIEVED B.A. PRESSURE AND TEMPERATURE RECORDERS
		PRESSURE TESTED: E-2 TREE - 10,500 PSI, CHOKE
		MANIFOLD - 10,500 PSI, FLOWHEAD - 10,500 PSI,
		FLOW AND KILL LINE CHIKSATS - 10,500 PSI
		E-2 TREE HOSE BUNDLE - 5000 PSI, GLYCEL INJECTION
		HOSE REEL 10,000 PSI, PREPARATION FOR DST N.3
	28 <sup>TH</sup>	APRIL '82
		SCHLUMBERGER BEGAN PERFORATING THE INTERVAL
		4205 - 4220m

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DATE	TIME	OPERATION
	29 <sup>th</sup> APRIL '82	
		SCHLUMBERGER PERFORMED THE INTERVAL 4205-4220 FOR D.S.T. 11.3
	16.47	CLOCK AND STYLUS ENGAGED ON P.E. 41126
	16.52	CLOCK AND STYLUS ENGAGED ON P.E. 41128
	16.55	CLOCK AND STYLUS ENGAGED ON P.E. 36439
	17.04	CLOCK AND STYLUS ENGAGED ON P.E. 36438
	17.00	CLOCK AND STYLUS ENGAGED ON P.E. 37064
	17.50	PRESSURE RECORDERS LANDED IN THE PIPE AND REACHED TO PICK UP TEST TUBES AND R.I.H.
	30 <sup>th</sup> APRIL '82	
		R.I.H. WITH HAND-OFFS THEN MADE-UP TO TEST STRING AND LANDED IN WELL-HEAD; WAITING ON WEATHER
	1 <sup>st</sup> MAY '82	
		R.I.H. AND REATCHED ON TO TEST STRING; P.O.D.H. TO SURFACE
	2 <sup>nd</sup> MAY '82	
	03.00	MADE UP E-2 TUBE TO TEST STRING AND FUNCTION TESTED LATCH
	03.40	PRESSURE TESTED E-2 TUBE AND TEST STRING TO 9500 PSI, CONTINUED R.I.H.
	05.55	FLOWHEAD MADE UP TO TEST STRING.
	06.00	LANDED TEST STRING IN WELLHEAD AND RIGGED UP CHOKE MANIFOLD AND KILL AND FLOW LINE CHICKSANS
	07.10	BEGAN PRESSURE TESTING:- KILL LINE CHICKSANS AND KILL WING VALVE - 10,500 PSI FLOWHEAD AND TEST STRING - 10,500 PSI FLOWLINE CHICKSANS, CHOKE MANIFOLD AND FLOW TO HEADS INLET AND BY-PASS - 10,500 PSI DOWNSTREAM CHOKE MANIFOLD VALVES - 10,500 PSI UPSTREAM CHOKE MANIFOLD VALVES - 10,500 PSI

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DATE	TIME	OPERATION
2/5/82		KILL VALVE FROM UPSTREAM SIDE — 10,500 PSI.
	12.46	PICKED UP TEST STRING TO SET PACKER
	12.59	SET PACKER ( ) AND LANDED TEST STRING IN WELLBORE
	13.02	CLOSED MIDDLE AND LOWER PIPE RAME
	13.27	CRANK MASTERS AND KILL WIND VALVES
		PRESSURISED TEST STRING TO 3400 PSI T.H.P. AND
		CLOSED KILL WIND VALVE
		PRESSURISED ANNULUS TO 1700 PSI TO OPEN APP'N'
		T.H.P. INCREASED TO 4700 PSI
	13.22	OPENED CHOKER MANIFOLD ON 12/64" ADS, CHOKER, FLOWING
		TO GAUGE TANK FOR INITIAL FLOW
	13.27	CLOSED CHOKER MANIFOLD AND BLEED OFF ANNULUS
		PRESSURE TO CLOSE APP'N' FOR INITIAL P.S.V.
		(RECOVERED 6.08 BBL)
	14.30	PRESSURED UP ANNULUS TO OPEN APP'N'
	14.32	OPENED CHOKER MANIFOLD ON 12/64" ADJ. CHOKER, FLOWING
		TO GAUGE TANK TO UNLOAD SEPARATOR CUSHION
	15.15	FIRST SIGNS OF GAS AT SURFACE
	15.20	BEGAN INJECTING GLYCOL AT CHOKER MANIFOLD INLET.
	17.00	FLOW SWITCHED VIA HEATER ON 12/64" ADJ. CHOKER
	17.07	INCREASED ADJUSTABLE CHOKER ON CHOKER MANIFOLD
		TO 48/64"; FLOWING ON 12/64" ADJ. CHOKER ON
		HEATER.
	17.40	HEATER CHOKER SET @ 10/64" ADJ.
	18.03	DECREASED HEATER CHOKER SIZE TO 8/64" ADJ.
	18.35	SWITCHED FLOW THROUGH SEPARATOR.
	21.10	BEGAN SAMPLE No. 1, SEPARATOR GAS, IN BOTTLE No A-4141
	21.23	BEGAN SAMPLE No. 2, SEPARATOR GAS CONDENSATE, IN BOTTLE No 9024-K
	21.30	BEGAN SAMPLE No. 3, SEPARATOR GAS, IN BOTTLE No A-4738
	21.47	CLOSED FLOW WIND VALVE AND BY-PASSED SEPARATOR
		DUE TO LIFTING FLOWLINE

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## SEQUENCE OF EVENTS (Continuation)

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DATE	TIME	OPERATION
2/5-82	21.50	CLOSED CHOKE MANIFOLD AND PRESSURISED FLOWLINE TO 8000 PSI
	21.50	BEGAN SAMPLE No 4 SEPARATOR GAS CONDENSATE, IN BOTTLE No 8151-43
	21.53	OPENED FLOW WING VALVE TO MONITOR P.S.U. AT CHUCK UNIT
	22.06	OPENED WELL ON 7/64" ADJ. CHOKE ON CHOKE MANIFOLD
	22.08	BEGAN INCREASING ANNULUS PRESSURE TO SHEAR APR 'M'
	22.09	INCREASED TO 8/64" ADJ. CHOKE
	22.10	ANNULUS PRESSURE 3100 PSI NO INDICATION OF APR 'M' SHEARED
	22.11	INCREASED TO 12/64" ADJ. CHOKE
	22.12	INCREASED ANNULUS PRESSURE TO 3500 PSI; DROPPED TO 3100 PSI
	22.13	PRESSURISED ANNULUS TO 3400 PSI; DROPPED TO 3100 PSI
	22.15	BLED ANNULUS PRESS. DOWN TO 1700 PSI
	22.16	PRESSURISED ANNULUS TO 3500 PSI; DROPPED TO 3250 PSI; REPRESSURED TO 3550 PSI
	22.21	BLED ANNULUS PRESSURE DOWN TO 1700 PSI
	22.22	BEGAN PRESSURISING ANNULUS.
	22.23	ANNULUS PRESSURE 3750 PSI, DROPPED TO 3350 PSI
	22.24	RE-PRESSURISED ANNULUS TO 3750 PSI
	22.27	BLED DOWN ANNULUS PRESSURE
	22.28	ANNULUS PRESSURE 1650 PSI
	22.30	BLED OFF ANNULUS PRESSURE TO CLOSE APR 'N'
	22.30	CLOSED CHOKE MANIFOLD
	22.32	BEGAN PRESSURISING ANNULUS
	22.33	ANNULUS PRESSURE 3800 PSI
	22.40	BEGAN SAMPLE No 5 SEPARATOR GAS CONDENSATE, IN BOTTLE No 22024
	22.41	BLED OFF ANNULUS PRESSURE TO 1700 PSI
	22.48	PRESSURISED KILL LINE TO 8000 PSI
	22.49	OPENED KILL VALVE, CLOSED FLOW WING VALVE.

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DATE	TIME	OPERATION
2/5-82	22.52	COMMENCED BULLHEADING TUBING CONTENTS INTO FORMATION
		3RD MAY 1982.
3/5-82		STOPPED BULLHEADING - 100 BLS OF MUD PUMPED
	01.03	CLOSED E-2 TREE VALVE
	01.10	UNLATCHED E-2 TREE AND PICKED UP LANDING STRING ≈ 6M OUT OF WELLHEAD AND CLOSED SHEAR RAMS; WAITING ON WEATHER
	16.55	OPENED SHEAR RAMS
	17.04	TAGGED E-2 TREE VALVE WITH LATCH ASSEMBLY
	17.09	RELATCHED E-2 TREE
	17.12	OPENED PIPE RAMS
	17.14	PICKED UP STRING WEIGHT TO CHECK LATCH, AND RE-LANDED AGAIN
	17.16	OPENED E-2 TREE VALVE
	17.20	PUMPED 1 BBL DOWN STRING TO CHECK E-2 TREE OPEN AND CHECK WELL DEAD
	17.31	OPENED PIPE RAMS AND PICKED UP STRING TO OPEN R.T.T.S. CIRCULATING VALVE
	17.36	ROTATED STRING TO OPEN R.T.T.S. CIRCULATING VALVE
	17.50	PUMPED DOWN STRING TO CHECK R.T.T.S. OPEN, AND PROCEEDED WITH REVERSE CIRCULATION TO CONDITION MUD
		4TH MAY 1982
	01.08	PICKED UP TEST STRING TO WEAR PACKER FLOWLINE BACKEN OUT AND LAID DOWN, CONTINUED P.C.W.
	06.00	E-2 TREE BROKEN OUT AND LAID DOWN.
		5TH MAY 1982.
	05.00	RETRIEVED PRESSURE RECORDERS - END OF DST 3

Flop petrol Amerada Gauges

Calibration Records

BOTTOM HOLE PRESSURE AND TEMPERATURE MEASUREMENTSA - PRESSURE -a) READING USING CALIBRATED CHART :

Chart is read using as reference line the base line drawn at atmospheric pressure.

$$P = KY + a + C$$

Y is the deflection for pressure P.

K, a and C (non linearity correction) are obtained from calibration by least square calculation.

b) READING USING REFERENCE LINE METHOD :

Chart is read using as reference line a line drawn at pressure  $P_R$ .

$$P = KY + P_{RC} + C$$

Y is the deflection for pressure P read from the reference line.

$P_{RC} = KY_R + a$  : calculated pressure for reference line.

$P_{RC}$ , K and C are obtained from calibration data.

B - TEMPERATURE -

Chart is read from zero at base line.

Bottom hole temperature is read from constructor's calibration tables at the point corresponding to the deflection

Base line is drawn with adjusting knob held against the stop.  
Therefore  $Y_0 = 0$

Base line is drawn at temperature  $T_0 =$  \_\_\_\_\_  
From calibration tables the corresponding deflection  $Y_0 =$  \_\_\_\_\_

C - GENERAL INFORMATION -

Reference depth : R.V.B

Difference level between the two pressure elements : \_\_\_\_\_

# FLOPETROL

Client : E.P. Pet. Dev.

Section : ANNEX **1.1**

Base : ST. JINGER

Field : WILDCAT  
Well : 29/6-1

Page : \_\_\_\_\_  
Report N : \_\_\_\_\_

## - BOTTOM HOLE PRESSURE GAUGE CALIBRATION SHEET -

DATE : 21st MARCH 1982

CALIBRATION No. : 18

### EQUIPMENT DATA

Calibration cell No. : 2147 Manufacturer : FLOPETROL  
Dead weight tester No. : 16619 Manufacturer : CHANDLER Range : 50-15,000 PSIG  
Recording element No. : 47926 Manufacturer : G.R.C.  
Pressure element No. : 36438 Manufacturer : G.R.C. Range : 0-20,000 PSIG

### MISCELLANEOUS INFORMATION

Base line drawing temperature : AMBIENT  
Reference line data - temperature : AMBIENT pressure  $P_R$  : \_\_\_\_\_ reading  $Y_R$  : \_\_\_\_\_  
Calibration data - temperature : 300°F step drawing :  with crank  with clock  
Equivalent pressure  $p$  of level difference between Dwt and bellows  
Level difference : 6 FT  + in case of Dwt above  
Oil specific gravity : .874  $p =$  2.27 PSIG  - in case of Dwt beneath bellows.

### - CALIBRATION READING AND CALCULATIONS

P (Dwt)	Y	$\Delta Y$	$Y^2$	YP	$P_c = KY + a$	$C = P - P_c$
			Units on this line -			
6000	.5885				6006.61	- 6.61
6500	.6372				6504.13	- 4.13
7000	.6852				6994.51	+ 5.49
7500	.7349				7502.26	- 2.26
8000	.7830				7993.66	+ 6.44
8500	.8330				8504.47	- 4.47
9000	.8808				8992.8	+ 7.2
9500	.9320				9518.87	- 18.87
10000	.9772				9977.64	+ 22.36
10500	1.0280				10496.62	+ 3.38
11000	1.0779				11006.41	- 6.41
11500	1.1260				11497.81	+ 2.19
12000	1.1754				12002.49	- 2.49
12500	1.2235				12493.89	+ 6.11
13000	1.2741				13010.85	- 10.85
142500	13.9567	$\Sigma$	13.6566903	139440.40		$\Sigma = 53.12$ $\Sigma = 46.07$

$A = \frac{\Sigma P}{n} =$  \_\_\_\_\_  $B = \frac{\Sigma Y}{n} =$  \_\_\_\_\_  $K = \frac{D - A}{C - B} =$  \_\_\_\_\_

$D = \frac{\Sigma (YP)}{\Sigma Y} =$  \_\_\_\_\_  $C = \frac{\Sigma (Y^2)}{\Sigma Y} =$  \_\_\_\_\_

$a' = A - BK = -5.626 \text{ psi}$   $a' = D - CK =$  \_\_\_\_\_

### - FINAL RESULTS

$K = 10216.196 \text{ psi/inch}$   $PRC = KY_R + a =$  \_\_\_\_\_  
 $a = a' + p = -3.356 \text{ PSIG}$

# FLOPETROL

Client : E.P. PET. Dev.

Section : ANNEX **1.1**

Base : STAVANGER

Field : WILDEAT  
Well : 29/6-1

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Report N : \_\_\_\_\_

## BOTTOM HOLE PRESSURE GAUGE CALIBRATION SHEET

DATE : 21st MARCH 1982

CALIBRATION No. : 2A

### EQUIPMENT DATA

Calibration cell No. : 2147 Manufacturer : FLOPETROL  
Dead weight tester No. : 16619 Manufacturer : CHANDLER Range : 50-15,000 PSIG  
Recording element No. : 27595 Manufacturer : C.R.C.  
Pressure element No. : 36439 Manufacturer : C.R.C. Range : 0-20,000 PSIG

### MISCELLANEOUS INFORMATION

Base line drawing temperature : AMBIENT  
Reference line data - temperature : AMBIENT pressure  $P_R$  : \_\_\_\_\_ reading  $Y_R$  : \_\_\_\_\_  
Calibration data - temperature : 300 F step drawing :  with crank  
 with clock  
Equivalent pressure  $p$  of level difference between Dwt and bellows  
Level difference : 6 FT  + in case of Dwt above  
Oil specific gravity : .874  $p =$  2.27 psig  - in case of Dwt beneath bellows.

### CALIBRATION READING AND CALCULATIONS

P (Dwt)	Y	$\Delta Y$	$Y^2$	YP	$P_c = KY + a$	$C = P - P_c$
PSIG.	INCH		Units on this line ~		PSIG.	PSIG.
1500	.1439				1499.88	+0.12
2000	.1923				2001.68	-1.68
2500	.2405				2501.41	-1.41
3000	.2885				2999.06	+0.94
3500	.3368				3499.83	+0.17
4000	.3848				3997.48	+2.52
4500	.4330				4497.21	+2.79
5000	.4820				5005.23	-5.23
5500	.5290				5482.51	+7.49
6000	.5785				6005.72	-5.72
37500	3.6093	$\Sigma$	14945805	15524.20		$\Sigma + = 13.13$ $\Sigma - = 13.10$

$A = \frac{\Sigma P}{n} =$  \_\_\_\_\_       $B = \frac{\Sigma Y}{n} =$  \_\_\_\_\_       $K = \frac{D - A}{C - B} =$  \_\_\_\_\_  
 $D = \frac{\Sigma (YP)}{\Sigma Y} =$  \_\_\_\_\_       $C = \frac{\Sigma (Y^2)}{\Sigma Y} =$  \_\_\_\_\_  
 $a' = A - BK =$  7.961 PSIG       $a' = D - CK =$  \_\_\_\_\_

### FINAL RESULTS

$K =$  10367.77 PSIG/INCH       $P_{RC} = KY_R + a =$  \_\_\_\_\_  
 $a = a' + p =$  10.23 PSIG

# FLOPETROL

Client : S.P. REE P&W

Section : ANNEX **1.1**

Base : STAYANGLER

Field : WILDCAT

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Well : 29/6-1

Report N : \_\_\_\_\_

## BOTTOM HOLE PRESSURE GAUGE CALIBRATION SHEET

DATE : 21st MARCH 1982

CALIBRATION No. : 28

### EQUIPMENT DATA

Calibration cell No. : 2147 Manufacturer : FLOPETROL  
 Dead weight tester No. : 16619 Manufacturer : CHAUDLER Range : 50-15,000 PSIG  
 Recording element No. : 27595 Manufacturer : G.R.C.  
 Pressure element No. : 26439 Manufacturer : G.R.C. Range : 0-20,000 PSIG

### MISCELLANEOUS INFORMATION

Base line drawing temperature : AMBIENT  
 Reference line data - temperature : AMBIENT pressure  $P_R$  : \_\_\_\_\_ reading  $Y_R$  : \_\_\_\_\_  
 Calibration data - temperature : 300°F step drawing :  with crank  
 with clock  
 Equivalent pressure  $p$  of level difference between Dwt and bellows  
 Level difference : 6 FT  + in case of Dwt above  
 Oil specific gravity : 0.874  $p = 2.27$  PSIG  - in case of Dwt beneath bellows.

### CALIBRATION READING AND CALCULATIONS

P (Dwt)	Y	$\Delta Y$	$Y^2$	YP	$P_c = KY + a$	$C = P - P_c$
PSIG.	INCH		Units on this line -		P.S.I.G.	P.S.I.G.
6500	.6275				6515.38	-15.38
7000	.6750				6997.53	+2.47
7500	.7250				7505.05	-5.05
8000	.7730				7992.27	+7.73
8500	.8221				8490.66	+9.34
9000	.8725				9002.24	-2.24
9500	.9212				9496.56	+3.44
10,000	.9700				9991.91	+8.09
10500	1.0195				10494.35	+5.65
11,000	1.0695				11001.87	-1.87
11500	1.1185				11499.25	+0.75
12,000	1.1680				12001.69	-1.69
12,500	1.2182				12511.24	-11.24
123500	11.98	$\Sigma$	11.4816	118292.5		$\Sigma + = 37.47$ $\Sigma - = 37.47$

$A = \frac{\Sigma P}{n} =$  \_\_\_\_\_  $B = \frac{\Sigma Y}{n} =$  \_\_\_\_\_  $K = \frac{D - A}{C - B} =$  \_\_\_\_\_  
 $D = \frac{\Sigma (YP)}{\Sigma Y} =$  \_\_\_\_\_  $C = \frac{\Sigma (Y^2)}{\Sigma Y} =$  \_\_\_\_\_  
 $a' = A - BK =$  145.951 PSIG  $a' = D - CK =$  \_\_\_\_\_

### FINAL RESULTS

$K =$  10150.438 PSIG/INCH  $PRC = KY_R + a =$  \_\_\_\_\_  
 $a = a' + p =$  148.25 PSIG

No.: DOP 114

# FLOPETROL

Client: U.S. ARMY CORP.

Section: **ANNEX 1.1**

Base: 55 YALGES

Field: WILDCAT

Page:       

Well: 20/3-1

Report N:       

## - BOTTOM HOLE PRESSURE GAUGE CALIBRATION SHEET -

DATE: 22<sup>ND</sup> MARCH 1982

CALIBRATION No.: 38

### EQUIPMENT DATA

Calibration cell No.: 2147 Manufacturer: FLOPETROL  
 Dead weight tester No.: 16619 Manufacturer: CHANDLER Range: 50-15,000 PSI  
 Recording element No.: 10113 Manufacturer: KUSTER  
 Pressure element No.: 41128 Manufacturer: C.R.C. Range: 0-20,000 PSI

### MISCELLANEOUS INFORMATION

Base line drawing temperature: AMBIENT  
 Reference line data temperature: AMBIENT pressure  $P_R$ :        reading  $Y_R$ :         
 Calibration data temperature: 300°F step drawing:  with crank  
 with clock  
 Equivalent pressure  $p$  of level difference between Dwt and bellows  
 Level difference: 6 FT  + in case of Dwt above  
 Oil specific gravity: 0.874  $p = 2.27$  PSIG  - in case of Dwt beneath bellows

### CALIBRATION READING AND CALCULATIONS

P (Dwt)	Y	$\Delta Y$	$Y^2$	YP	$P_c = KY + a$	$C = P - P_c$
PSI	INCH		Units on this line -		PSIG	PSIG
6000	.5865				6004.02	-4.02
6500	.6351				6500.40	-0.40
7000	.6841				7000.85	-0.85
7500	.7332				7502.33	-2.33
8000	.7820				8000.75	-0.75
8500	.8302				8493.04	+6.96
9000	.8795				8996.56	+3.44
9500	.9275				9486.80	+3.20
10,000	.9782				10004.62	-4.62
10,500	1.0275				10508.15	-8.15
11,000	1.0759				11002.48	-2.48
		$\Sigma$			$\Sigma = 23.60$	$\Sigma = 23.60$

$A = \frac{\Sigma P}{n} =$  \_\_\_\_\_  $B = \frac{\Sigma Y}{n} =$  \_\_\_\_\_  $K = \frac{D - A}{C - B} =$  \_\_\_\_\_  
 $D = \frac{\Sigma (YP)}{\Sigma Y} =$  \_\_\_\_\_  $C = \frac{\Sigma (Y^2)}{\Sigma Y} =$  \_\_\_\_\_  
 $a' = A - BK =$  13.85 PSI  $a' = D - CK =$  \_\_\_\_\_

### FINAL RESULTS

$K =$  10213.426 PSI/INCH  $PRC = KY_R + a =$  \_\_\_\_\_  
 $a = a' + p =$  + 16.12 PSI

No.: DOP 114

# FLOPETROL

Client: G. P. F. - DEV.

Section: ANNEX 1.1

Base: STAVANGER

Field: WILDCAT

Page:       

Well: 29/6-1

Report N:       

## - BOTTOM HOLE PRESSURE GAUGE CALIBRATION SHEET -

DATE: 23RD MARCH 1982

CALIBRATION No.: 48

### - EQUIPMENT DATA -

Calibration cell No.: 2147 Manufacturer: FLOPETROL  
 Dead weight tester No.: 16619 Manufacturer: CHANDLER Range: 50 - 15,000 PSIG  
 Recording element No.: 37097 Manufacturer: G.R.C.  
 Pressure element No.: 41126 Manufacturer: G.R.C. Range: 0 - 20,000 PSIG

### - MISCELLANEOUS INFORMATION -

Base line drawing temperature: AMBIENT  
 Reference line data - temperature: AMBIENT pressure  $P_R$ :        reading  $Y_R$ :         
 Calibration data - temperature: 300°F step drawing:  with crank  with clock  
 Equivalent pressure  $p$  of level difference between Dwt and bellows  
 Level difference: 6 FT  + in case of Dwt above  
 Oil specific gravity: .874  $p = 2.27 \text{ PSIG}$   - in case of Dwt beneath bellows.

### - CALIBRATION READING AND CALCULATIONS -

P (Dwt)	Y	$\Delta Y$	$Y^2$	YP	$P_c = KY + a$	$C = P - P_c$
PSIG	INCH		Units on this line -		PSIG	PSIG
6000	.5807				6016.37	-14.37
6500	.6290				6504.52	-4.52
7000	.6773				6996.71	+3.29
7500	.7265				7498.08	+1.92
8000	.7750				7992.31	+7.69
8500	.8249				8500.81	-0.81
9000	.8733				8994.02	+5.98
9500	.9221				9491.30	+8.70
10000	.9718				9997.76	+2.24
10500	1.0210				10499.13	+0.87
11000	1.0700				10998.45	+1.55
11500	1.1185				11492.68	+7.32
12000	1.1690				12007.29	-7.29
12500	1.2185				12511.41	-11.41
13000	1.2665				13000.85	-0.85
142500	13.844	$\Sigma$	13.4517	138390.05		$\Sigma + = 39.56$ $\Sigma - = 39.55$

$A = \frac{\Sigma P}{n} =$  \_\_\_\_\_  $B = \frac{\Sigma Y}{n} =$  \_\_\_\_\_  $K = \frac{D - A}{C - B} =$  \_\_\_\_\_  
 $D = \frac{\Sigma (YP)}{\Sigma Y} =$  \_\_\_\_\_  $C = \frac{\Sigma (Y^2)}{\Sigma Y} =$  \_\_\_\_\_  
 $a' = A - BK =$  94.812 PSIG  $a' = D - CK =$  \_\_\_\_\_

### - FINAL RESULTS -

$K =$  10190.318 PSIG/INCH  $PRC = KY_R + a =$  \_\_\_\_\_  
 $a = a' + p =$  97.08 PSIG

# FLOPETROL

Client: B. E. PET. DEV.

Section: ANNEX 1.1

Base: SEALASAR

Field: WILDCAT  
Well: 29/6-1

Page: \_\_\_\_\_  
Report N: \_\_\_\_\_

## - BOTTOM HOLE PRESSURE GAUGE CALIBRATION SHEET -

DATE: 23/4/82 CALIBRATION No.: 6B

### - EQUIPMENT DATA -

Calibration cell No.: 2147 Manufacturer: FLOPETROL  
Dead weight tester No.: 16619 Manufacturer: CHANDLER Range: 50 - 1500 PSI  
Recording element No.: 52099 Manufacturer: \_\_\_\_\_  
Pressure element No.: 37064 Manufacturer: \_\_\_\_\_ Range: 0 - 15,000 PSI

### - MISCELLANEOUS INFORMATION -

Base line drawing temperature: AMBIENT  
Reference line data - temperature: AMBIENT - pressure PR: \_\_\_\_\_ - reading YR: \_\_\_\_\_  
Calibration data - temperature: 300°F - step drawing:  with crank  
 with clock  
Equivalent pressure p of level difference between Dwt and bellows  
Level difference: 6 Ft  + in case of Dwt above  
Oil specific gravity: 0.874  $\rho = 2.27 \text{ PSIG}$   - in case of Dwt beneath bellows.

### - CALIBRATION READING AND CALCULATIONS -

P (Dwt)	Y	$\Delta Y$	$Y^2$	YP	$P_c = KY + a$	$C = P - P_c$
PSIG.	INCH				PSIG.	INCH
6007.1	.4495				6010.53	-3.43
6507.69	.8648				6512.27	-4.58
7008.28	.9091				7012.25	-4.00
7508.87	.9733				7508.52	+0.35
8009.46	1.0368				7999.34	+10.12
8510.05	1.1059				8533.45	-23.40
9010.65	1.1686				9016.55	-5.90
9511.24	1.2327				9513.56	-2.32
10011.83	1.2913				9966.51	+45.32
10512.42	1.3622				10514.53	-2.11
11013.01	1.4250				10999.95	+13.06
11513.60	1.4892				11496.18	+17.42
12014.19	1.5559				12011.74	+2.45
12514.79	1.6230				12530.39	-15.60
13015.38	1.6889				13039.77	-24.39
142669	18.486	$\Sigma$	23.9564831	184901.81	$\Sigma + = 88.72$	$\Sigma - = 85.73$

$$A = \frac{\Sigma P}{n} = \underline{\hspace{2cm}} \quad B = \frac{\Sigma Y}{n} = \underline{\hspace{2cm}} \quad K = \frac{D - A}{C - B} = \underline{\hspace{2cm}}$$

$$D = \frac{\Sigma (YP)}{\Sigma Y} = \underline{\hspace{2cm}} \quad C = \frac{\Sigma (Y^2)}{\Sigma Y} = \underline{\hspace{2cm}}$$

$$a' = A - BK = \underline{-14.639 \text{ PSIG.}} \quad a = D - CK = \underline{\hspace{2cm}}$$

### - FINAL RESULTS -

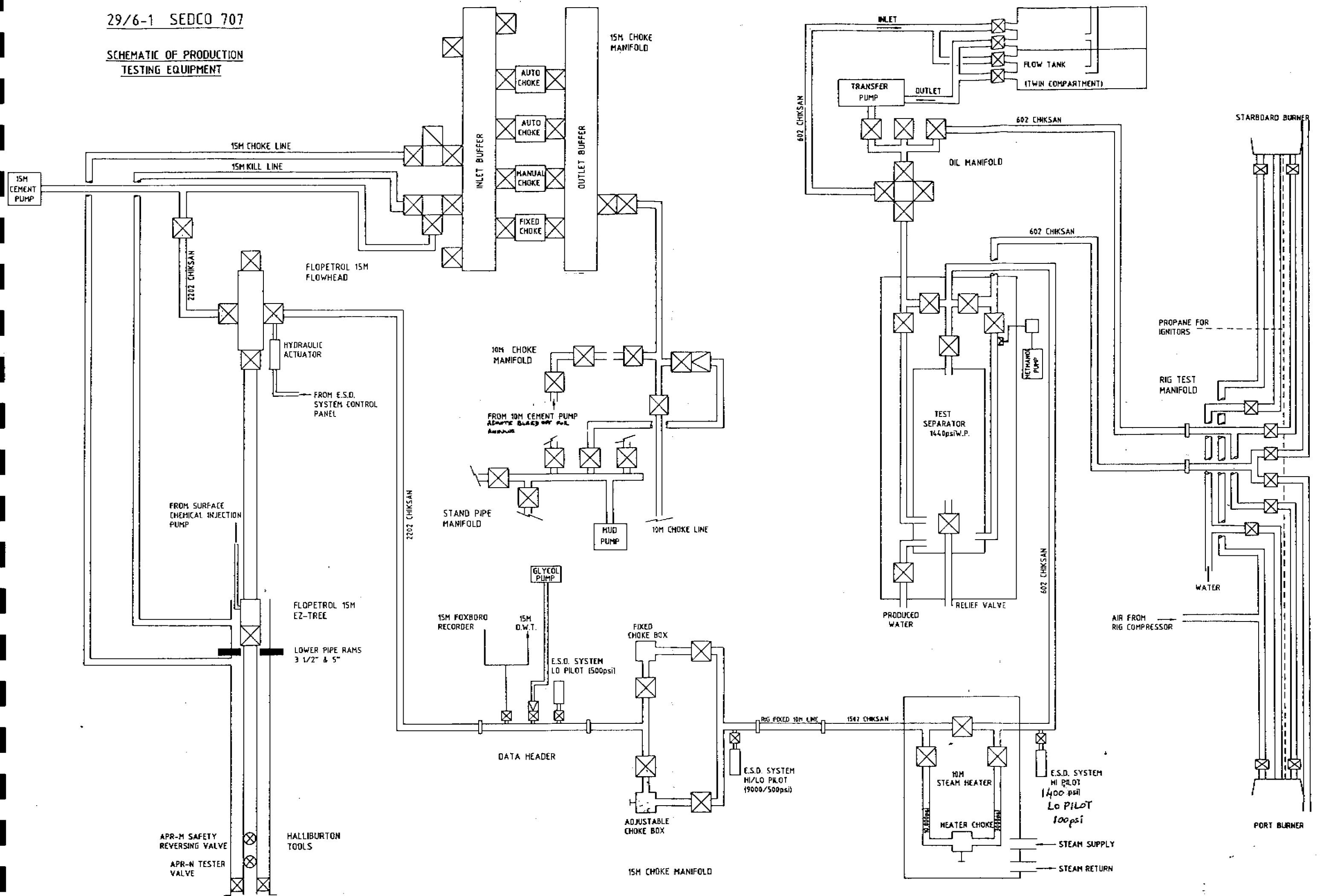
$$K = \underline{7729.533 \text{ PSIG/INCH}} \quad \text{PRC} = KYR + a = \underline{\hspace{2cm}}$$

$$a = a' + p = \underline{-12.368 \text{ PSIG.}}$$

Landing String And  
Surface Equipment Layout



**SCHEMATIC OF PRODUCTION TESTING EQUIPMENT**



Tubing Tallies

WELL N° — 29/6-1

**CASING LOG**

PAGE 1 OF 9

CASING SIZE — 3 1/2"

GRADE — N-80

WEIGHT — 12.7 lb/ft

TYPE — VAM

STAND N°:

A	
1	9.50
2	9.34
3	8.56
4	9.35
5	8.63
6	9.20
7	8.88
8	9.00
9	9.33
10	8.45
TOTAL	90.24

C	
21	9.56
22	8.88
23	8.80
24	9.24
25	8.86
26	8.78
27	9.32
28	8.28
29	8.63
30	9.02
TOTAL	89.37

B	
11	9.30
12	8.97
13	9.40
14	8.58
15	8.95
16	9.10
17	8.53
18	8.97
19	8.81
20	8.48
TOTAL	89.09

D	
31	9.24
32	9.43
33	8.89
34	8.92
35	8.54
36	9.07
37	9.15
38	8.35
39	9.57
40	9.07
TOTAL	90.23

LENGTH OF FLOAT SHOE —	M
LENGTH OF FLOAT COLLAR —	M
LENGTH OF D.V. —	M
SHOE DEPTH —	M
TOP OF FLOAT CLR. AT —	M
BAFFLE DEPTH —	M
TOP OF D.V. CLR. AT —	M

A	90.24
B	89.09
C	89.37
D	90.23
TOTAL	358.93
ACC TOTAL	358.93

FLOAT SHOE INCLUDED IN JOINT N° \_\_\_\_\_ :

FLOAT COLLAR INCLUDED IN JOINT N° \_\_\_\_\_ :

D.V. COLLAR INCLUDED IN JOINT N° \_\_\_\_\_ :

BAFFLE INSERTED ABOVE JOINT N° \_\_\_\_\_ :

WELL N° — 29/6-1

# CASING LOG

PAGE 2 OF 9

CASING SIZE — 3 1/2"

GRADE — N-80

WEIGHT — 12.7 lb/ft

TYPE — V4M

A	
41	8,95
42	9,31
43	9,29
44	8,71
45	9,45
46	8,65
47	8,96
48	9,44
49	8,60
50	8,72
TOTAL	90,08

C	
61	9,00
62	9,39
63	9,36
64	9,43
65	9,29
66	9,28
67	9,45
68	9,56
69	9,04
70	9,07
TOTAL	92,87

B	
51	8,92
52	9,28
53	9,05
54	8,52
55	9,17
56	9,20
57	9,24
58	8,56
59	9,01
60	8,72
TOTAL	89,67

D	
71	9,45
72	9,14
73	9,02
74	9,56
75	9,27
76	9,16
77	8,86
78	9,31
79	9,42
80	9,30
TOTAL	92,49

LENGTH OF FLOAT SHOE —	M
LENGTH OF FLOAT COLLAR —	M
LENGTH OF D.V. —	M
SHOE DEPTH —	M
TOP OF FLOAT CLR. AT —	M
BAFFLE DEPTH —	M
TOP OF D.V. CLR. AT —	M

A	90,08
B	89,67
C	92,87
D	92,49
TOTAL	365,11
ACC TOTAL	724,04

FLOAT SHOE INCLUDED IN JOINT N° :  
 FLOAT COLLAR INCLUDED IN JOINT N° :  
 D.V. COLLAR INCLUDED IN JOINT N° :  
 BAFFLE INSERTED ABOVE JOINT N° :

WELL N° — 29/6-1

CASING LOG

PAGE 3 OF 9

CASING SIZE — 3 1/2"

GRADE — N-80

WEIGHT — 12.7 lb/ft

TYPE — VAM

A	
81	9.31
82	9.33
83	9.36
84	9.46
85	9.39
86	9.52
87	9.26
88	9.56
89	8.80
90	9.17
TOTAL	93.16

C	
101	9.46
102	8.91
103	9.29
104	8.74
105	9.46
106	9.52
107	9.36
108	8.74
109	9.56
110	9.30
TOTAL	92.34

B	
91	9.27
92	8.78
93	8.75
94	9.31
95	9.24
96	9.33
97	9.76
98	8.57
99	9.44
100	9.28
TOTAL	91.73

D	
111	9.57
112	8.60
113	8.88
114	9.23
115	9.50
116	9.25
117	9.06
118	9.17
119	9.46
120	9.29
TOTAL	92.01

LENGTH OF FLOAT SHOE —	M
LENGTH OF FLOAT COLLAR —	M
LENGTH OF D.V. —	M
SHOE DEPTH —	M
TOP OF FLOAT CLR. AT —	M
BAFFLE DEPTH —	M
TOP OF D.V. CLR. AT —	M

A	93.16
B	91.73
C	92.34
D	92.01
TOTAL	369.24
ACC TOTAL	1093.28

FLOAT SHOE INCLUDED IN JOINT N° :  
 FLOAT COLLAR INCLUDED IN JOINT N° :  
 D.V. COLLAR INCLUDED IN JOINT N° :  
 BAFFLE INSERTED ABOVE JOINT N° :

WELL N° — 29/6-1

CASING LOG

PAGE 4 OF 9

CASING SIZE — 3 1/2"

GRADE — N-80

WEIGHT — 12.7 lb/ft

TYPE — VAM

A	
121	9.31
122	9.25
123	8.59
124	9.31
125	9.34
126	9.14
127	8.85
128	9.35
129	9.28
130	9.06
TOTAL	91.48

C	
141	9.02
142	9.26
143	9.30
144	9.28
145	9.43
146	9.39
147	8.84
148	9.18
149	9.27
150	9.39
TOTAL	92.36

B	
131	9.36
132	9.45
133	9.45
134	9.17
135	9.29
136	9.35
137	9.29
138	9.37
139	8.98
140	9.25
TOTAL	92.96

D	
151	9.42
152	9.25
153	8.57
154	9.18
155	8.90
156	9.18
157	9.32
158	9.38
159	9.14
160	9.27
TOTAL	91.61

LENGTH OF FLOAT SHOE —	M
LENGTH OF FLOAT COLLAR —	M
LENGTH OF D.V. —	M
SHOE DEPTH —	M
TOP OF FLOAT CLR. AT —	M
BAFFLE DEPTH —	M
TOP OF D.V. CLR. AT —	M

A	91.48
B	92.96
C	92.36
D	91.61
TOTAL	368.41
ACC TOTAL	1461.69

FLOAT SHOE INCLUDED IN JOINT N° :  
 FLOAT COLLAR INCLUDED IN JOINT N° :  
 D.V. COLLAR INCLUDED IN JOINT N° :  
 BAFFLE INSERTED ABOVE JOINT N° :

WELL N° — 29/6-1

CASING LOG

PAGE 5 OF 9

CASING SIZE — 3 1/2"

GRADE — N-80

WEIGHT — 12.7 lb/ft

TYPE — VAM

A	
161	9.25
162	9.11
163	9.17
164	9.30
165	9.38
166	9.38
167	9.38
168	9.37
169	9.61
170	9.52
TOTAL	93.47

C	
181	8.93
182	9.57
183	9.09
184	9.57
185	9.54
186	8.95
187	9.09
188	9.56
189	9.36
190	9.34
TOTAL	93.00

B	
171	9.22
172	9.47
173	9.51
174	9.44
175	9.57
176	9.45
177	9.52
178	9.10
179	9.34
180	9.41
TOTAL	94.03

D	
191	9.56
192	9.33
193	9.24
194	9.16
195	9.28
196	9.32
197	9.12
198	9.03
199	9.53
200	9.57
TOTAL	93.14

LENGTH OF FLOAT SHOE —	M
LENGTH OF FLOAT COLLAR —	M
LENGTH OF D.V. —	M
SHOE DEPTH —	M
TOP OF FLOAT CLR. AT —	M
BAFFLE DEPTH —	M
TOP OF D.V. CLR. AT —	M

A	93.47
B	94.03
C	93.00
D	93.14
TOTAL	373.64
ACC TOTAL	1835.33

FLOAT SHOE INCLUDED IN JOINT N° :  
 FLOAT COLLAR INCLUDED IN JOINT N° :  
 D.V. COLLAR INCLUDED IN JOINT N° :  
 BAFFLE INSERTED ABOVE JOINT N° :

WELL N° — 29/6-1

CASING LOG

PAGE 6 OF 9

CASING SIZE — 3 1/2"

GRADE — N-80

WEIGHT — 12.7 lb/ft

TYPE — VAM

A	
201	9.27
202	9.01
203	9.37
204	9.26
205	9.32
206	9.57
207	9.28
208	8.99
209	9.20
210	9.25
TOTAL	92.52

C	
221	9.39
222	9.23
223	8.89
224	8.95
225	9.16
226	9.23
227	9.34
228	9.57
229	9.56
230	9.22
TOTAL	92.54

B	
211	9.37
212	9.46
213	9.02
214	9.22
215	8.98
216	9.36
217	9.05
218	9.11
219	9.56
220	9.54
TOTAL	92.67

D	
231	9.36
232	9.38
233	9.01
234	9.43
235	9.22
236	8.96
237	9.56
238	9.25
239	9.29
240	9.56
TOTAL	93.02

LENGTH OF FLOAT SHOE —	M
LENGTH OF FLOAT COLLAR —	M
LENGTH OF D.V. —	M
SHOE DEPTH —	M
TOP OF FLOAT CLR. AT —	M
BAFFLE DEPTH —	M
TOP OF D.V. CLR. AT —	M

A	92.52
B	92.67
C	92.54
D	93.02
TOTAL	370.75
ACC TOTAL	2206.08

FLOAT SHOE INCLUDED IN JOINT N° \_\_\_\_\_ :

FLOAT COLLAR INCLUDED IN JOINT N° \_\_\_\_\_ :

D.V. COLLAR INCLUDED IN JOINT N° \_\_\_\_\_ :

BAFFLE INSERTED ABOVE JOINT N° \_\_\_\_\_ :

WELL N° — 29/6-1

CASING LOG

PAGE 7 OF 9

CASING SIZE — 3 1/2"

GRADE — N-80

WEIGHT — 12.7 lb/ft

TYPE — VAM

A	
241	9.41
242	9.31
243	9.24
244	9.35
245	9.32
246	9.17
247	8.67
248	9.28
249	8.47
250	9.50
TOTAL	91.72

C	
261	9.18
262	9.28
263	9.32
264	9.17
265	9.85
266	8.87
267	9.12
268	9.29
269	9.26
270	9.14
TOTAL	92.48

B	
251	9.37
252	9.56
253	9.21
254	9.39
255	8.94
256	8.69
257	9.38
258	9.32
259	9.28
260	9.26
TOTAL	92.40

D	
271	9.14
272	8.74
273	9.27
274	9.09
275	9.02
276	9.31
277	9.41
278	9.20
279	9.29
280	8.76
TOTAL	91.23

LENGTH OF FLOAT SHOE —	M
LENGTH OF FLOAT COLLAR —	M
LENGTH OF D.V. —	M
SHOE DEPTH —	M
TOP OF FLOAT CLR. AT —	M
BAFFLE DEPTH —	M
TOP OF D.V. CLR. AT —	M

A	91.72
B	92.40
C	92.48
D	91.23
TOTAL	367.83
ACC TOTAL	2573.91

FLOAT SHOE INCLUDED IN JOINT N° :  
 FLOAT COLLAR INCLUDED IN JOINT N° :  
 D.V. COLLAR INCLUDED IN JOINT N° :  
 BAFFLE INSERTED ABOVE JOINT N° :

WELL N° — 29/6-1

# CASING LOG

PAGE 8 OF 9

CASING SIZE — 3 1/2"

GRADE — N-80

WEIGHT — 12.7 lb/ft

TYPE — VAM

A	
281	9.24
282	9.56
283	9.15
284	9.40
285	8.96
286	9.40
287	9.34
288	9.42
289	9.31
290	9.43
TOTAL	93.21

C	
301	9.21
302	8.73
303	9.41
304	9.50
305	9.56
306	9.07
307	9.21
308	9.25
309	9.36
310	9.12
TOTAL	92.42

B	
291	9.31
292	9.41
293	9.03
294	9.46
295	9.56
296	9.27
297	9.57
298	9.35
299	9.17
300	9.32
TOTAL	93.45

D	
311	9.43
312	9.07
313	9.26
314	9.14
315	8.79
316	9.35
317	9.04
318	9.43
319	9.27
320	9.21
TOTAL	91.99

LENGTH OF FLOAT SHOE —	M
LENGTH OF FLOAT COLLAR —	M
LENGTH OF D.V. —	M
SHOE DEPTH —	M
TOP OF FLOAT CLR. AT —	M
BAFFLE DEPTH —	M
TOP OF D.V. CLR. AT —	M

A	93.21
B	93.45
C	92.42
D	91.99
TOTAL	371.07
ACC TOTAL	2944.98

FLOAT SHOE INCLUDED IN JOINT N° \_\_\_\_\_ :

FLOAT COLLAR INCLUDED IN JOINT N° \_\_\_\_\_ :

D.V. COLLAR INCLUDED IN JOINT N° \_\_\_\_\_ :

BAFFLE INSERTED ABOVE JOINT N° \_\_\_\_\_ :

WELL N° - 29/6-1

**CASING LOG**

PAGE 9 OF 9

CASING SIZE - 3 1/2"

GRADE - N-80

WEIGHT - 12.7 lb/ft

TYPE - V4M

A		C	
321	9.17	341	8.91
322	9.02	342	9.24
323	9.15	343	9.36
324	9.32	344	9.25
325	9.54	345	8.97
326	9.02	346	9.03
327	9.25	347	9.57
328	9.46	348	9.39
329	9.17	349	8.56
330	9.21	350	9.20
TOTAL	92.31	TOTAL	91.48

B		D	
331	9.22	351	9.37
332	9.28	352	9.39
333	8.89	353	9.41
334	8.82	354	9.31
335	9.57	355	9.43
336	9.22	356	9.22
337	9.16	357	9.02
338	9.43	358	9.23
339	9.35	B	
340	9.33	O	
TOTAL	92.27	TOTAL	74.38

LENGTH OF FLOAT SHOE —	M
LENGTH OF FLOAT COLLAR —	M
LENGTH OF D.V. —	M
SHOE DEPTH —	M
TOP OF FLOAT CLR. AT —	M
BAFFLE DEPTH —	M
TOP OF D.V. CLR. AT —	M

A	92.31
B	92.27
C	91.48
D	74.38
TOTAL	350.44
ACC TOTAL	3295.42

FLOAT SHOE INCLUDED IN JOINT N° : \_\_\_\_\_

FLOAT COLLAR INCLUDED IN JOINT N° : \_\_\_\_\_

D.V. COLLAR INCLUDED IN JOINT N° : \_\_\_\_\_

BAFFLE INSERTED ABOVE JOINT N° : \_\_\_\_\_

WELL N° - 29/6-1

## CASING LOG

PAGE 1 OF

CASING SIZE - 3 1/2"

GRADE - L80

WEIGHT - 15.816/ft

TYPE - VAM

A

1	—
2	—
3	12.10
4	—
5	12.21
6	12.08
7	12.11
8	12.47
9	—
10	12.22
TOTAL	73.19

C

21	10.69
22	—
23	12.15
24	12.35
25	11.85
26	12.22
27	—
28	12.37
29	—
30	12.30
TOTAL	83.93

SERVICEABLE JOINTS ONLY

B

11	12.34
12	12.57
13	11.71
14	12.73
15	12.22
16	12.14
17	11.80
18	—
19	—
20	12.11
TOTAL	97.62

D

31	12.27
32	11.85
33	11.74
34	12.21
35	—
36	12.14
37	—
38	12.05
39	11.83
40	12.08
TOTAL	96.17

LENGTH OF FLOAT SHOE — M

LENGTH OF FLOAT COLLAR — M

LENGTH OF D.V. — M

SHOE DEPTH — M

TOP OF FLOAT CLR. AT — M

BAFFLE DEPTH — M

TOP OF D.V. CLR. AT — M

A	73.19
B	97.62
C	83.93
D	96.17
TOTAL	350.91
ACC TOTAL	

FLOAT SHOE INCLUDED IN JOINT N° :

FLOAT COLLAR INCLUDED IN JOINT N° :

D.V. COLLAR INCLUDED IN JOINT N° :

BAFFLE INSERTED ABOVE JOINT N° :

WELL N° - 29/6-1

CASING LOG

PAGE 2 OF

CASING SIZE - 3 1/2"

GRADE - L80

WEIGHT - 15.8 lb/ft

TYPE - UAM

A

41	12.23
42	12.13
43	—
44	11.78
45	11.79
46	12.03
47	12.18
48	11.86
49	—
50	11.88
TOTAL	95.88

C

61	12.39
62	12.14
63	12.16
64	12.14
65	12.53
66	11.84
67	12.17
68	12.25
69	12.53
70	10.45
TOTAL	

B

51	12.57
52	12.22
53	12.42
54	—
55	11.70
56	12.63
57	12.82
58	12.25
59	12.49
60	12.72
TOTAL	111.82

D

71	
72	
73	
74	
75	
76	
77	
78	
79	
80	
TOTAL	

LENGTH OF FLOAT SHOE — M

LENGTH OF FLOAT COLLAR — M

LENGTH OF D.V. — M

SHOE DEPTH — M

TOP OF FLOAT CLR. AT — M

BAFFLE DEPTH — M

TOP OF D.V. CLR. AT — M

89

A	95.88
B	111.82
C	
D	
TOTAL	
ACC TOTAL	

FLOAT SHOE INCLUDED IN JOINT N° : \_\_\_\_\_

FLOAT COLLAR INCLUDED IN JOINT N° : \_\_\_\_\_

D.V. COLLAR INCLUDED IN JOINT N° : \_\_\_\_\_

BAFFLE INSERTED ABOVE JOINT N° : \_\_\_\_\_