FLOPETROL

166835

DIVISION : EMR/NSD/NOB

BASE : STAVANGER

REPORT N° : 82/2301/11

Well Testing Report

Client : B.P. Pet. Dev. Ltd. Norway

Field : EXPLORATION Well : 29/6-1

Zone : Jurassic Brent

Date : 15/4-19/4/82 - D.S.T. No. 1
22/4-27/4/82 - D.S.T. No. 2
29/4-05/5/82 - D.S.T. No. 3

N° : DOP 100

INDEX

Flopetrol chief operator
Name : Brian Scott

Client representative
Name : Graham Scotton

- TEST PROCEDURE -

Three D.S.T.s were carried out on well 29/6-1, in accordance with B.P. PET. DEV. Test Programme, as follows:

DS.T. No. 1 was carried out on the perforated interval 4287m - 4301.8mbrt with the following flow periods:

Initial Flow - 5 mins duration
Initial P.B.U.- 35 mins duration
Main Flow - 642 mins duration
Final P.B.U.- 795 mins duration

During main flow period well produced formation water at surface and flow rate was measured via separator meter at an average of 1015 BBLS/DAY.
Frequent fluid samples were collected by wellsite P.E.

D.S.T. No. 2 was carried out on the perforated interval 4256 - 4260m with the following flow periods:

Initial flow - < 1 min duration

Main flow - 1065 mins duration
Final P.B.U. - 973 mins duration

Towards the end of main flow period, well produced formation water at surface; average flow rate of this period was 175bbls/day.
Frequent fluid samples were collected by wellsite P.E

D.S.T. No. 3 was carried out on the perforated interval 4208.5--4218.3m with the following flow periods:

Initial flow - 5 mins duration
Initial P.B.U. - 62 mins duration
Main flow - 439 mins duration

During main flow period, well produced gas to surface at an average rate of 10.72 mmscf/day accompanied with an average of 1474 bbls/day of gas condensate and an average of 200 bbls/day of water. Towards the end of this flow period 01 condensate, and 2 gas, recombination samples were taken from test separator; well was shut in at this point due to leaking flowline, and tubing contents bullheaded into formation in view of deteriorating weather conditions.

— MAIN RESULTS —

Tested interval : D.S.T. No. 1 Perforations : 4287 - 4301.8 m

Operation	Duration	Bottom hole pressure	Well head pressure	Water Oil prod. rate	Gas prod. rate	G.O.R.
Units	mins	P.S.I.G.	P.S.I.G.	BBLS/DAY	m^3/hr	
Initial flow	5	9676	≃ 500			
Initial P.B.U.	35	11292	4890			
Main flow	642	9673	3250	1015	24.65	
Final P.B.U.	795	11291	4880			

Depth of bottom hole measurements : 4272.37 m Reference : R.K.B.

Temperature : 307.6°F at : 4278 m depth

Separator gas gravity (air : 1) at choke size : .685 at 8/64" adj. choke

~~XXX~~ gravity at choke size formation water: 1.046 at 8/64" adj. choke

BSW : 1% mud solids Water cut : 99%

REMARKS AND OTHER OPERATIONS

All results are final results of each operation except flow rates which are average of last 90 mins of flow period; final P.B.U. B.H.P. which is 12.30 hrs measurement 18/4/82.

— MAIN RESULTS —

Tested interval : D.S.T. No. 2 Perforations : 4256 - 4260 m

Operation	Duration	Bottom hole pressure	Well head pressure	Water ~~Oil~~ prod. rate	Gas prod. rate	G.O.R.
Units	Mins.	P.S.I.G.	P.S.I.G.	BBLS/DAY		
Initial flow	1	9177	-			
Initial P.B.U.	74	10962	4630			
Main flow	1065	10199	3690	175		
Final P.B.U.	973	11260	2195			

Depth of bottom hole measurements : 4246.62 m Reference : R.K.B.

Temperature : 305.7°F at : 4250.46 m depth

Separator gas gravity (air : 1) at choke size :

STO gravity at choke size : _____

BSW : Water cut :

REMARKS AND OTHER OPERATIONS

All results are final results of each operation except water flow rate, which is an average rate.
Insufficient formation fluid produced at surface to determine fluid gravity, B.S.W. etc.

— MAIN RESULTS —

Tested interval : D.S.T. No. 3 Perforations : 4208.5 - 4218.3 m

Operation	Duration	Bottom hole pressure	Well head pressure	Oil prod. rate	Gas prod. rate	G.O.R.
Units	Min	P.S.I.G.	P.S.I.G.	Bbls/day	mmscf/day	bbls/mmscf
Initial flow	5	9973	3380			
Initial P.B.U.	62	11201	3860	(APR-N closed)		
Main flow	439	8414	5160	1474	10.72	138

Depth of bottom hole measurements : 4203.14 m Reference : R.K.B. (Sedco 707)

Temperature : 306°F at : 4194.32 m depth

Separator gas gravity (air : 1) at choke size : .705 at 8/64" adj. choke

STO gravity at choke size : .808 at 8/64" adj. choke

BSW : Traces Water cut : 12% of separator liquid

REMARKS AND OTHER OPERATIONS

Pressure data are final results of each operation.
Flow rates are averages of data from 1900 - 2145 hrs on 2/5/82.
Rigsite analysis showed produced water to be seawater cushion 1 mud filtrate

- OPERATING AND MEASURING CONDITIONS - D.S.T. No. 1

A - TYPE OF GAUGE -

BOTTOM HOLE :
Pressure : R.P.G.-3, 0-20,000 psig
Temperature : R.T.-7 200-400°F

WELL HEAD :
Pressure : D.W.T. 50-15,000 psig, Foxboro, 0-15,000 psig
Temperature : Foxboro, 30-180°F

SEPARATOR :
Pressure : Barton 0-1500 psig
Temperature : Barton 0-200°F

B - PRODUCTION RATE CONDITIONS AND SOURCES -

OIL PRODUCTION RATE
- ☐ Tank
- ☐ Meter
- ☐ Dump
- ☐ Floco
- ☐ Rotron
- ☐ _____

Reference conditions -
- ☐ Separator
- ☒ Atmospheric pressure 60°F

Shrinkage measurement -
- ☐ With tank
- ☐ With shrinkage tester

GAS PRODUCTION RATE
- ☐ Orifice meter
- ☒ ~~Domestic gas~~ meter

Standard conditions -

Atmospheric Pressure
Ambient temperature

WATER PRODUCTION RATE
- ☒ Tank
- ☒ Meter (f = 1.0069)
- ☐ _____

C - WELL DATA -

WELL STATE DURING SURVEY :

Well producing through : tubing / ~~xxxxxxx~~ / ~~xxxxx~~ casing
Main casing size 9 5/8"x7" set at - Total well depth 4308 m
Tubing size 3½" VAM set at - Packer 7"R.T.T.S set at 4262.71 m
Perforations :
- Zone D.S.T.No.1 From 4287 to 4301 m From _____ to _____
- Zone _____ From _____ to _____ From _____ to _____
-

WELL STATE BEFORE TEST : Exploration well

- ☐ Well closed since _____
- ☐ Well flowing since _____ Producing zone _____
  Choke size _____

- OPERATING AND MEASURING CONDITIONS - D.S.T. No. 2

A - TYPE OF GAUGE -

BOTTOM HOLE :
Pressure : R.P.G.-3 0-20.000 psig
Temperature : R.T.-7 200°-400°F

WELL HEAD :
Pressure : D.W.T. 50 - 15 000 PSIG
Temperature : Foxboro, 30-180°F

SEPARATOR :
Pressure : _____
Temperature : _____

B - PRODUCTION RATE CONDITIONS AND SOURCES -

OIL PRODUCTION RATE
☐ Tank ☐ Floco
☐ Meter
☐ Dump ☐ Rotron
☐ _____

Reference conditions -
☐ Separator
☐ Atmospheric pressure 60°F

Shrinkage measurement -
☐ With tank
☐ With shrinkage tester

GAS PRODUCTION RATE
☐ Orifice meter
☐ _____

Standard conditions -
Atmospheric Pressure
Ambient temperature

WATER PRODUCTION RATE
☒ Tank
☐ Meter
☐ _____

C - WELL DATA -

WELL STATE DURING SURVEY :

Well producing through : tubing / ~~drill pipe~~ / ~~casing~~
Main casing size 9 5/8"x7" set at - Total well depth 4282 m
Tubing size 3½" VAM set at - Packer 7" R.T.T.S set at 4235.04 m
Perforations :
- Zone D.S.T.2 From 4256 to 4260 m From _____ to _____
- Zone _____ From _____ to _____ From _____ to _____
-

WELL STATE BEFORE TEST : Exploration well

☐ Well closed since _____
☐ Well flowing since _____ Producing zone _____
Choke size _____

- OPERATING AND MEASURING CONDITIONS -

A - TYPE OF GAUGE - D.S.T. No. 3

BOTTOM HOLE :
Pressure : R.P.G. -3; 0-20.000 psig
Temperature : Maximum thermometer

WELL HEAD :
Pressure : D.W.T. 50-15,000 psi
Temperature : Fowboro recorder 30-180°F

SEPARATOR :
Pressure : Barton recorder 0-1500 psig
Temperature : Barton recorder 0-200°F

B - PRODUCTION RATE CONDITIONS AND SOURCES -

OIL PRODUCTION RATE
- ☐ Tank
- ☒ Meter
- ☐ Dump
- ☐ _____
- ☒ Floco
- ☐ Rotron

Reference conditions :
- ☐ Separator
- ☒ Atmospheric pressure 60°F

Shrinkage measurement :
- ☐ With tank
- ☐ With shrinkage tester

GAS PRODUCTION RATE
- ☒ Orifice meter
- ☐ _____

Standard conditions :
14.7 psia at 60°F

WATER PRODUCTION RATE
- ☐ Tank
- ☒ Meter
- ☐ _____

C - WELL DATA -

WELL STATE DURING SURVEY :

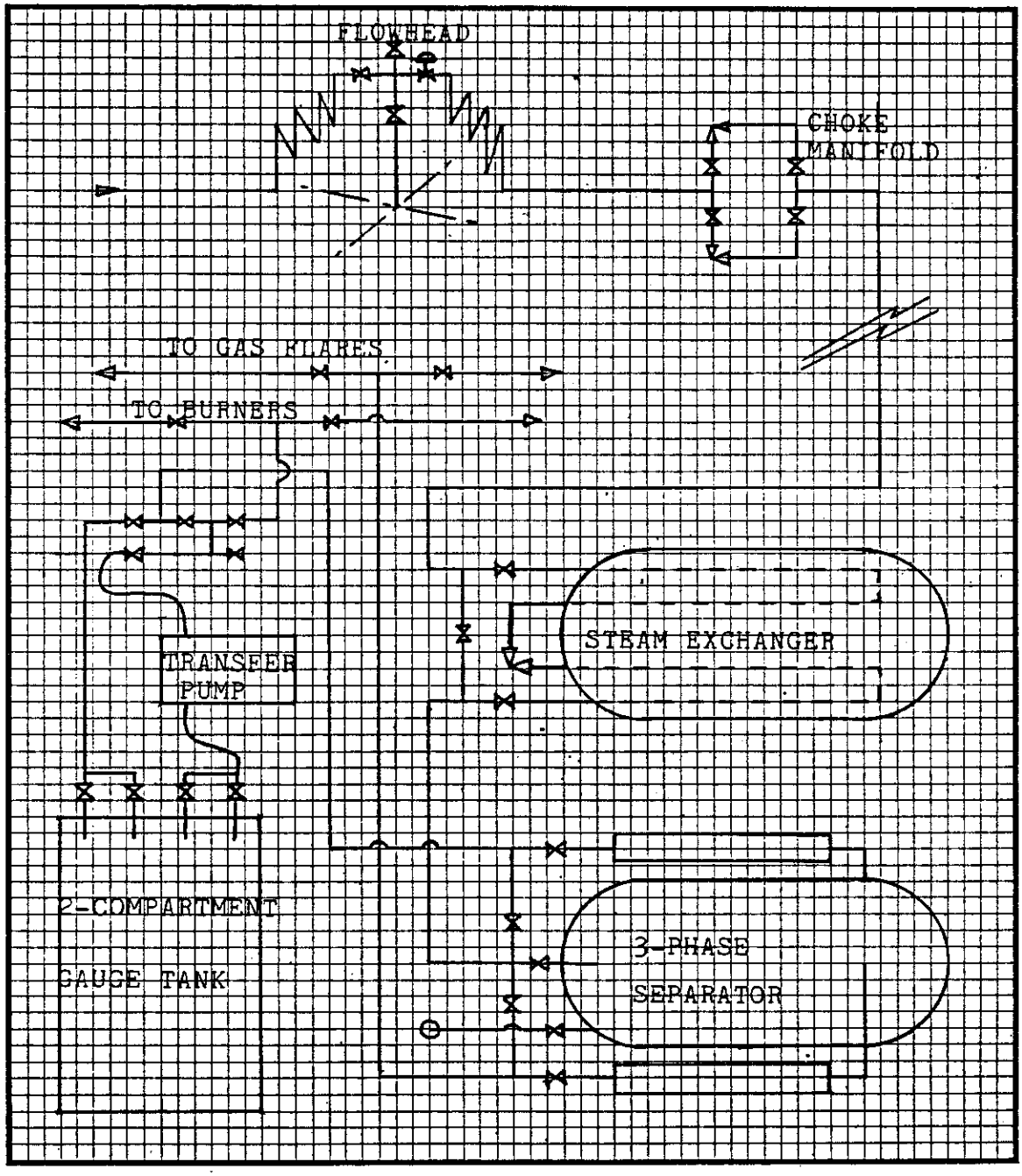
Well producing through : tubing / ~~drill pipe~~ / ~~casing~~
Main casing size 9 5/8"x7" set at - Total well depth 4232 m
Tubing size 3½"vam set at - Packer 7"R.T.T.S set at 4176.85 m
Perforations :
- Zone DST No.3 From 4208.5 m to 4218.3 m From _____ to _____
- Zone _____ From _____ to _____ From _____ to _____
-

WELL STATE BEFORE TEST :

Exploration well

- ☐ Well closed since _____
- ☐ Well flowing since _____ Producing zone _____
  Choke size _____

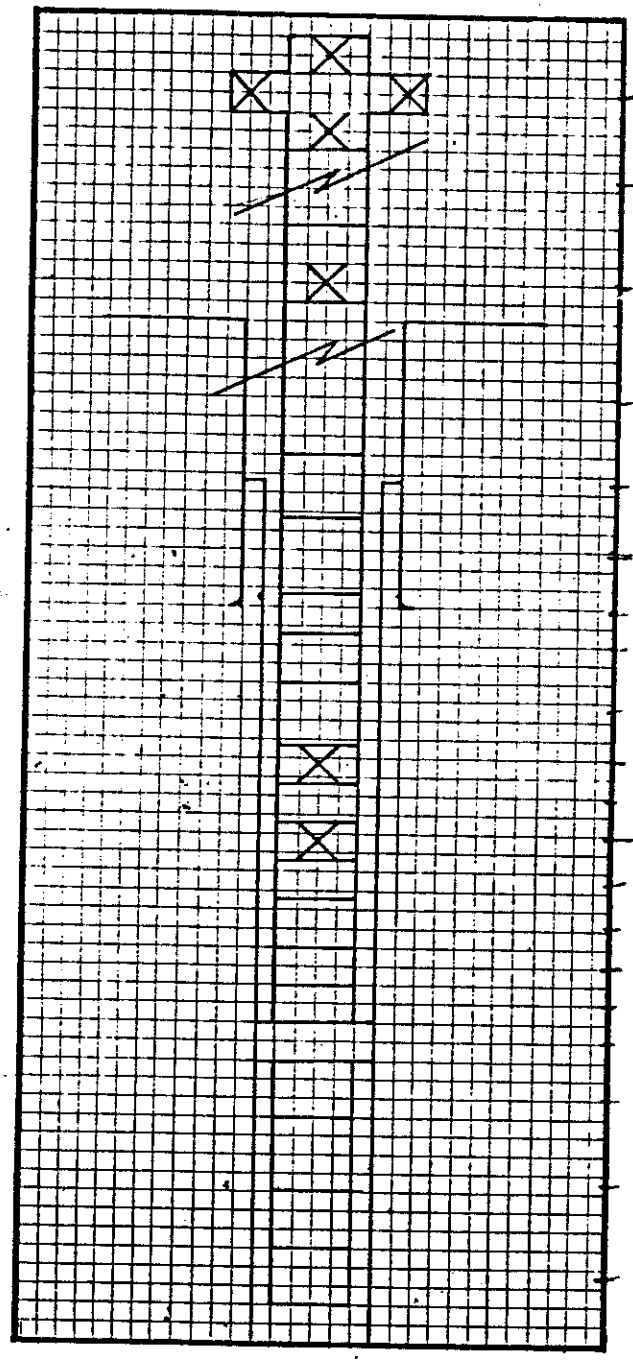
- SURFACE EQUIPMENT LAYOUT -



REMARKS :

W.H. pressure and temperature measurements taken from choke manifold inlet.

- WELL COMPLETION DATA - D.S.T. No 1



15,000psi W.P. flowhead 2 9/16" I.D.

3 1/2" L.80 vam tubing 15.816/ft

15,000psi W.P. E-Z tree 2 9/16" I.D.
(fluted hanger at 146.95m)

3 1/2" L-80 vam tubing 15.81b/ft

3 x slip joints

7 x stands drill collars

R.T.T.S circulation valve
1 x stand drill collars

2 x slip joints (closed)

apr-m safety/reserve circulation valve

single drill collar - (drain valve DST2
apr-n tester valve and 3

2 x APBT gauges (DST 1 only)

big-john jars

hydraulic by-pass
safety joint
7" R.T.T.S. packer at 4262.71m

perf anchor

2 x joints tail pipe containing
pressure/temperature recorders

3 x B.O.B.T. gauge

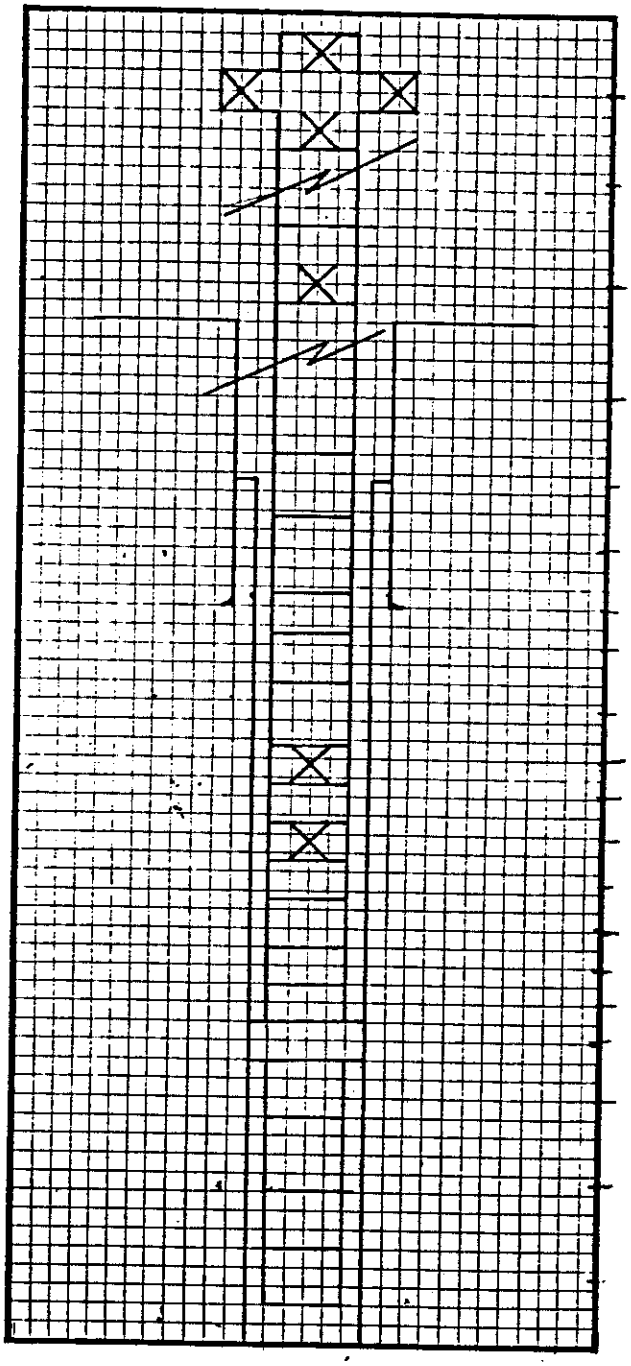
- Bridge plug at 4308m

REMARKS : Depth reference - R.K.B. (SEDCO 707)

Perforations: - 4287 - 4301 mbrt

R.P.G - 3 P.E. 41128 at 4272.37mbrt
R.P.G.- 3 P.E 41126 at 4274.13m
R.P.G - 3 P.E. 36439 at 4276.27m
R.T.-7 T.E. 48489 at 427.03m

- WELL COMPLETION DATA - D.S.T. No 2



15,000 psi W.P. flowhead 2 9/16" I.D.

3 1/2" L.80 vam tubing 15. lb/ft

15,000psi W.P. F-Z tree 2 9/16" I.D.
(fluted hanger at 146.95m)

3 1/2" L-80 vam tubing 15.8 lb/ft

3 x slip joints

7 x stands drill collars

R.T.T.S. circulation valve

1 x stand drill collars

2 x slip joints (closed)

apr-m safety/reserve circulation valve

single drill collar - (drain valve DST 2 and 3)

apr-n tester valve

2 x APBT gauges (DST 1 only)

Big-John jars

hydraulic by-pass

safety joint

7" R.T.T.S. packer at 4235.04m

perf anchor

2 x joints tail pipe containing pressure/temperature recorders

3 x B.O.B.T. gauge

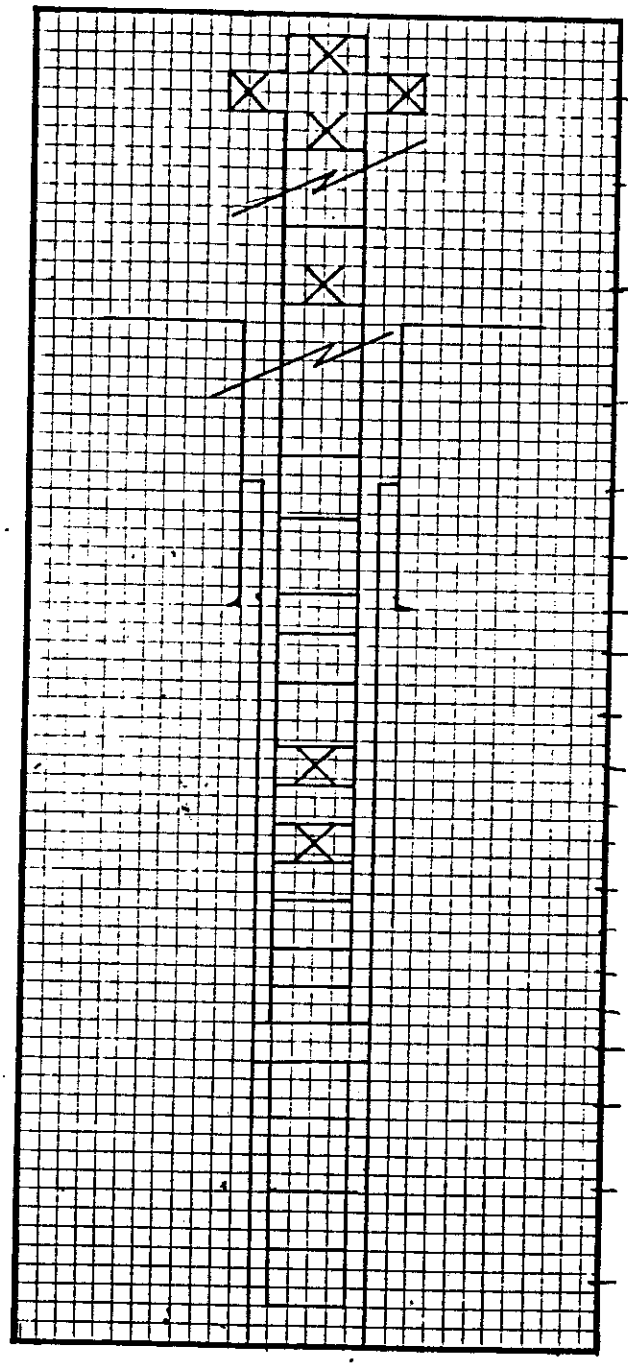
Cement Retainer at 4282m

REMARKS : Depth reference - R.K.B. (Sedco 707)

Perforations: 4256 - 4260mbrt

R.P.G.-3 P.E. 41128 at 4244.81m
R.P.G.-3 P1E 41126 at 4246.62m
R.P.G.-3 P.E. 36439 at 4248.71m
R.T.-7 T.E. 48489 at 4250.46m

WELL COMPLETION DATA - D.S.T. No 3



15,000psi W.P. flowhead 2 9/16" I.D.

3 1/2" 1.80 vam tubing 15.8lb/ft

15,000psi W.P. E-Z tree 2 9/16" I.D.
(fluted hanger at 146.95m)

3 1/2" L-80 vam tubing 15.8 lb/ft

3 x slip joints

7 x stands drill collars

R.T.T.S. circulation valve

1 x stand drill collars

2 x slip joints (closed)

apr.m safety/reserve circulation valve

single drill collar- (drain valve DST 2
apr-n tester valve and 3)

2 x APBT gauges (DST 1 only)

Big-John jars

Hydraulic by-pass
safety joint

7" R.T.T.S. packer at 4176.85m

perf anchor

2 x joints tail pipe containing
pressure/temerature recorders

3 x B.O.B.T. gauge
Bridge Plug at 4232m

REMARKS : Depth Reference - R.K.B. (SEDCO 707)

Perforations:- 4208.5m - 42183 mbrt

R:P.G. -3 P.E. 41128 at 4188.07m
R.P.G. -3 P.E. 36439 at 4190.13m
R.P.G. -3 P.E. 36438 at 4192.19m
R.P.G. -3 P.E. 37064 at 4194.15m
R.P.G. -3 P.E. 41126 at 4203.14m

- SEQUENCE OF EVENTS -

DATE	TIME	OPERATION
13/3/82		Checked equipment;position separator, 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		Pressuretest rig test line against heater inlet to
		10 000 psig and repeated against heater choke blank plug.
		Pressuretest line between heater and separator inlet and
		by-pass valves to 1500 psi. Pressuretest separator against
		separator outlet block valves to 1300 psi.
20/3/82		With the heater and separator by-passed, pressure test
		chiksan 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 10 500 psi.
		Pressuretest dataheader and choke manifold to 10 500 psi.
		Pressuretest kill and flow line chiksan to 10 500 psi;Checking
		all flow meters.
22/3/82		Function and pressure test flowhead to 10 500 psi.
23/3/82	0140	Run in EZ-tree for dummy run.
	0340	EZ-tree at surface again. Pressure test EZ-tree to 10 500 psi
		Pressure test control line and console to 5 000 psi. Injected
		glycol with EZ-tree internal pressure of 10 500 psi.
24/3/82		Function tested pilots, connected up to the ESD console and
		hydraulic valve on flowhead. Pressurized each in turn.
		Calibrated oil floco meter (=1.0069) and oil rotron
		(f=0.9429).

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
25/3/82		Calibrated water flocometer (f=1.0010). Connected 3½" vam tubing to flowhead and EZ-tree.
26/3/82		Checked calibration of pilots by D.W.T. Pressure test body of flowhead and EZ-tree to 10 500 psi. Connected emergency vent line from rupture disc on separator.
27/3/82		Flushed water nozzled on burners, checked separator and prepared to pressure test.
28/3/82		Pressure tested separator 1300 psi, and 3" chiksans 10,000 psi prepared glycol injection system and E.S.P. system.
29/3/82		Function tested heat exchanger and checked adjustable choke and seat.
30/3/82		Prepared Ameradas and standby 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 value - 1 500 psi
		Separator vessel, pipework and outlet valves - 1 250 psi
		Oil line and burner manifold - 1 300 psi
		Gas line and gas flare manifold - 1 300 psi
12/4/82		Re-pressure tested; choke manifold - 10 000 psi
		EZ-tree - 10 000 psi and flowhead - 10 000 psi
13/4/82		Prepared 4 oil sample bottles.
14/4/82		Schlumberger perforated the interval 4287 m to 4301 m R.T.
		at 4 S.P.F. for D.S.T. No. 1.
15/4/82	1219	Engaged clock and stylus on T.E. 48489 and marked chart.
	1310	Began picking up test string.
	1311	Engaged clock and stylus on P.E. 41128
	1315	Engaged clock and stylus on P.E. 41126.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
15/4/82	1318	Engaged clock and stylus on P.E. 36439.
	1430	Landed pressure and temperature recorders in tailpipe and continued R.I.H.
16/4/82	2145	Made up EZ-tree to test string, function tested latch, pressure tested tubing and EZ-tree and R.I.H.
17/4/82	0213	Picked up flowhead and made up to test string.
	0231	Landed string in wellhead and connected kill line chiksan.
	0330	Closed master valve and flow wing valve, and pressure tested kill line chiksans and flow line to 10 500 psi. Pressure tested tubing string to 10 500 psi.
	0500	Rigged-up choke manifold and flowline chiksans.
	0600	Began pressure testing flow and kill line chiksans, choke manifold and flow line to heater inlet to 10 500 psi.
	0810	Picked up test string and set slips to change out leaking chiksan.
	0846	Re-landed test string in wellhead and continued pressure testing.
	0914	Stopped pressure testing and held pre-test safety meeting.
	1030	Continued pressure testing:
	1102	Finished pressure testing and picked up test string to set packer.
	1144	Set packer at 4262.71 m and landed test string in wear bushing.
	1155	Opened master valve and closed choke manifold.
	1218	Halliburton pressurized test string to 3500 psi.
	1229	Began pressurizing annulus to 2000 psi to open APR-N - no indication of APR-N open at surface.
	1245	Bled off annulus pressure, and opened kill wing valve.
	1247	Increased tubing pressure to 4300 psi.
	1250	Closed kill wing valve.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
17/4/82	1252	Began pressurizing annulus to 2000 psi to open APR-N
	1258	Opened choke manifold on 14/64" adj. choke, bled off tubing.
	1300	Closed choke manifold.
	1309	Bled off annulus pressure.
	1318	Opened kill wing valve
	1321	Pressurized test string to 4500 psi.
	1323	Closed kill wing valve.
	1333	Opened choke manifold on 16/64" adj. choke and bled off W.H.P.
		to 2800 psi.
	1353	Bled off annulus pressure.
	1355	Opened choke manifold and bled off W.H.P.
	1358	Opened kill wing and began pressurizing tubing to 5400 psi.
	1405	Began pressurizing annulus to 2000 psi to open APR-N.
	1409	Opened choke manifold on 32/64" adj. choke and bled off W.H.P.
		to 1000 psi.
	1410	Bled off annulus pressure.
	1412	Began pressurizing annulus to 2000 psi to open APR-N.
	1419	Began pressurizing tubing to 5000 psi.
	1422	Increased tubing pressure to 6000 psi.
	1432	Opened choke manifold on 32/64" adj. choke and bled off W.H.P.
		to 3000 psi.
	1434	Bled off annulus pressure.
	1435	Pressurized tubing to 5760 psi.
	1436	Pressurized annulus to 2300 psi to open APR-N.
	1442	Opened choke manifold and bled off W.H.P. to 3000 psi.
	1445	Opened choke manifold on 16/64" adj. choke.
	1447	Closed choke manifold (final flowing pressure = 500 psi).
	1516	Closed kill wing valve.
	1521	Opened choke manifold on 8/64" adj. choke flowing to gauge
		tank.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
17/4/82	1825	Mud at surface.
	1845	Switched flow to burner (bubbles of gas at surface).
	1925	Switched flow to gauge tank.
	2130	Switched flow through separator, DWT plugging.
	2200	Began flow rate measurements on separator using domestic gas meter and 2" Floco (f= 1.0069).
18/4/82	0203	Bled off annulus pressure to close APR-N.
	0204	Closed choke manifold to observe W.H.P.
	1519	Began pressurizing annulus to 2800 psi to shear APR-N - no indication of circulation ports opening.
	1523	Increased annulus pressure to 3000 psi.
	1525	Increased annulus pressure to 3200 psi.
	1529	Increased annulus pressure to 3500 psi.
	1531	Bled off annulus pressure to zero.
	1532	Pressurized annulus to 3200 psi.
	1535	Increased annulus pressure to 3500 psi.
	1539	Increased annulus pressure to 3700 psi.
	1541	Bled off annulus pressure.
	1544	Pressurized annulus to 3700 psi.
	1548	Opened choke manifold and bled off W.H.P- to 3700 psi (T.H.P. increased again to 4700 psi.
	1551	Bled off annulus pressure (T.H.P. - 4900 psi).
	1553	Bled off T.H.P. to 3500 psi.
	1556	Closed choke manifold - T.H.P. 3800 psi (T.H.P. increased again to 4400 psi).
	1559	Opened middle and lower pipe rams.
	1601	Picked up test string out of well head.
	1606	Rotated test string to open R.T.T.S. circ. valve - no indication of valve open.
	1608	Picked up test string.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
18/4/82	1610	Rotated test string to open R.T.T.S. circ. valve - no indication.
	1614	Opened choke manifold and bled off T.H.P. to 3500 psi.
	1623	Re-landed test string in wellhead.
	1626	Pressurized annulus to 3600 psi - no indication.
	1631	Bled off annulus pressure.
	1633	Closed master valve and bled off flowline pressure.
	1635	Rigged-up longer flow and kill line chiksans.
	1700	Pressure tested chiksans to 10 500 psi.
	1730	Bled off flowline pressure to 5500 psi.
	1731	Closed kill wing valve and opened master valve.
	1733	Opened choke manifold and bled off T.H.P. to 3500 psi (T.H.P. increased again to 5000 psi).
	1735	Picked up test string out of wellhead.
	1738	Rotated test string to open RTTS circ. valve.
	1740	Opened choke manifold and began reverse circulating tubing contents overboard.
	1900	Stopped reverse circulation, closed flow wing valve, opened kill wing valve and continued reverse circulating via mud system; rigged down flowline chiksans and choke manifold.
	2130	Finished reverse circulation, laid down flowhead, made up kelly and began circulating.
19/4/82	0000	Finished circulation began P.O.O.H.
	0120	EZ-tree on surface; un-latched, washed out, re-latched and laid down.
	0140	Continued P.O.O.H.
	1420	RetrievedAmeradas from tailpipe. Pressure tested EZ-tree - 10 500 psi, choke manifold 10 500 psi, flowhead - 10 500 psi in preparation for D.S.T. No. 2.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
20/4/82		Pressure test fig 2202 chiksans to 10 500 psi. Preparation for D.S.T. No. 2.
21/4/82		Pressure tested EZ-tree hose bundles to 5 000 psi and glycol injection hose bundle to 10 000 psi.
22/4/82		Schlumberger perforated the interval 4256 m - 4260 m at 4 S.P.F. for D.S.T. No. 2.
22/4/82	2157	Clock and stylus engaged on temp. recorder TE No. 48489 - marked chart.
	2200	Clock and stylus engaged on pressure recorder, PE No. 36439.
	2203	Clock and stylus engaged on pressure recorder, PE No. 41126.
	2206	Clock and stylus engaged on pressure recorder, PE No. 41128.
	2235	Recorders hung off in tailpipe and began R.I.H. with test tools.
24/4/82	0000	EZ-tree picked up
	0041	EZ-tree made up to test string, function tested latch.
	0050	EZ-tree through rotary table.
	0110	Testing sub rigged up, commence pressure testing tubing string and EZ-tree to 10 500 psi.
	0217	Finish pressure test. Continued running in hole.
	0424	Flow head picked up.
	0437	Flow line chiksans rigged up.
	0510	Flowhead made up and test string landed in wellhead.
	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, flowlines, glycol injection pumps and surface recording equipment.
	0905	Rigging up completed.
	0915	Flushed lines.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
24/4/82	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 at 4235.04 m.
	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 open
	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 8/64" adj. choke.
	1238	Closed in at choke manifold.
	1246	Pressured up annulus to 2700 psi.
	1250	Opened kill valve.
	1252	Pressured up string to 5500 psi.
	1256	Closed kill valve.
	1301	Opened well on 8/64" 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.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
24/4/82	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 TBG pressure to 3800 psi.
	1452	Bled off TBG pressure to 3300 psi.
	1517	Bled off TBG pressure to 2800 psi.
	1547	Bled off TBG pressure to 2300 psi.
	1609	Bled off TBG pressure to 1800 psi.
	1647	Bled off annulus to 1700 psi.
	1652	Bled off TBG pressure to 1300 psi.
	1707	Bled off TBG pressure to 800 psi.
	1720	Bled off THP to zero.
	1727	Pressured up annulus to 2000 psi.
	1733	Bled off annulus.
	1735	Opened kill valve.
	1745	Flushed lines to gauge tank.
	1746	Closed choke manifold.
	1749	Opened pipe rams.
	1751	Closed kill valve.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
24/4/82	1752	Picked up 6 m to pull packer.
	1756	Run back in to well head, packer still set.
	1758	Picked up again to unset packer.
	1801	Ran back in to well head.
	1805	Closed pipe rams.
	1807	Opened kill valve.
	1809	Pressured up TBG to 5890 Psi.
	1814	Closed kill valve.
	1815	Pressured up annulus to 2300 psi.
	1820	Opened well on 32/64" choke.
	1822	Closed in at choke.
	1836	Started pumping glycol.
	1840	Bled off T.H.P. to 3365 psi.
	1848	Bled off T.H.P. to 2640 psi.
	1857	Bled off T.H.P. to 2185 psi.
	1903	Bled of T.H.P. to 1640 psi.
	1910	Bled off T.H.P. to 696 psi.
	1915	Bled off T.H.P. to <100 psi.
	1928	Opened kill wing valve, closed master valve.
	1930	Flushed lines, and pressure tested flow and kill line chiksans
		to choke manifold to 10 500 psi.
	1944	Finished pressure test.
	1945	Opened master valve.
	1951	Commenced pumping down string in attempt if APR-N open, to
		establish injection into formation.
	1957	Pressured TBG to 7600 psi.
	2002	Pressured TBG to 8780 psi.
	2004	Pressured TBG to 8790 psi.
	2021	Bled off TBG pressure (through kill line).
	2027	Closed kill valve.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
24/4/82	2103	Opened kill valve.
	2105	Commenced to pressure up TBG.
	2111	Closed kill valve.
	2114	Annulus pressure 2400 psi.
	2115	Bled down TBG. Press to tank.3000 psi.
	2119	Bled down TBG. press to tank to 1500 psi.
	2126	Opened kill valve, pressured up TBG to 5460 psi.
	2132	Closed kill valve.
	2133	Bled off annulus pressure and re-pressured annulus to 2400
		psi.
	2137	Bled down TBG to tank to 3000 psi.
	2143	Bled down TBG to tank to 1500 psi.
	2147	Opened kill valve.
	2148	Commenced to pressure up TBG to 5000 psi.
	2152	Closed kill valve, increased annulus pressure to 2600 PSI
		(Opened APR-N)
	2154	Bled down TBG to 3000 psi. Closed off at choke. Pressure
		started to build up.
	2307	Annulus pressure bled down to 2300 psi.
	2309	Opened well on 8/64" adj. choke flowing seawater cushion to
		gauge tank.
	2310	Closed in at choke manifold.
	2318	Well opened on 8/64" adj. choke, flow directed to 1 bbl drums.
	2319	Changed choke to 3/64" adj.
	2320	Closed in at choke.
	2321	Well opened on 3/64" adj. changed to 2/64" adj. choke. Flow to
		1 bbl drums.
	2324	Changed to 3/64" adj. choke.
	2329	Changed to 2/64" adj. choke.
	2332	Changed to 3/64" adj. choke.

DATE	TIME	OPERATION
24/4/82	2340	Changed to 2/64" adj. choke.
	2342	Changed to 3/64" adj. choke.
25/4/82	0004	Changed to 4/64" adj. choke.
	0020	Changed to 6/64" adj. choke : Flow directed to gauge tank.
	0023	Changed to 5/64" adj. choke.
	0031	Changed to 4/64" adj. choke.
	0032	Changed to 3/64" adj. choke.
	0122	Changed to 4/64" adj. choke.
	1254	Plugging at choke.
	1301	Mud to surface.
	1334	Changed to 5/64" adj. choke.
	1336	Changed to 6/64" adj. choke.
	1345	Changed to 8/64" adj. choke.
	1349	Changed to 10/64" adj. choke.
	1353	Changed to 12/64" adj. choke.
	1354	Changed to 8/64" adj. choke.
	1356	Changed to 6/64" adj. choke.
	1428	Changed to 4/64" adj. choke.
	1437	Changed to 5/64"-> 6/64" adj. choke.
	1447	Changed to 6/64"adj. choke.
	1456	Changed to 8/64" adj. choke.
	1457	Changed to 10/64" adj. choke
	1459	Changed to 8/64" adj. choke.
	1500	Changed to 6/64" adj. choke.
	1501	Changed to 4/64" adj. choke.
	1505	DWT lines plugged.
	1508	DWT ok.
	1634	Pressured up annulus to shear APR-M reverse circulation valve.
	1638	Pressurd up annulus to 3500 psi, no indication of APR-M
		actuated.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
25/4/82	1642	Annulus pressure dropped by 500 psi.
	1643	Pressured back up to 3500 psi, still no indication. Pressure dropping.
	1650	Pressured back up to 3 500 PSI, still dropping
	1704	Pressure on annulus 1600 psi. Pressure bled off to close
		APR-N and record P.B.U.
	1705	Choke manifold closed in.
26/4/82	0907	Pressured up annulus to shear APR-M circulating valve.
	0910	Annulus pressure 3500 psi no indication of APR-M shearing,
		annulus pressure not holding.
	0916	Opened choke on 4/64" adj.
	0920	Opened choke on 4/64" adj.
	0928	Closed choke, bled 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.
	1057	Opened choke manifold on 32/64" adj.
	1100	Closed choke manifold.
	1102	Opened choke manifold on 12/64" adj. and attempt to reverse
		circulate.
	1215	Attempted to re-open RTTS circulating valve.
	1224	Closed middle rams:
	1225	Pressured up annulus to 700 psi.
	1228	Pressured up annulus to 1200 psi.
	1235	Bled off annulus pressure. Opened rams.
	1238	Closed choke manifold.
	1240	Attempted to re-open circulating valve, ran string in 1½ m,
		rotated to the right.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
26/4/82	1250	Closed pipe rams, pressured up annulus to 1 000 psi.
	1252	Pressured annulus to 1300 psi pressure dropped to 1100 psi.
	1256	Pressured annulus to 1300 psi.
	1320	Pressure bled off annulus.
	1321	Opened kill valve.
	1330	Pumped down string, 5 bbls:
	1340	T.H.P. - 100 psi.
	1342	Stopped pumping, 3 bbls returned to trip tank.
	1348	Closed kill valve.
	1350	Opened choke manifold, in attempt to reverse circulate.
	1404	Closed master valve opened kill valve.
	1410	Flushed lines to burner, to check valve alignment.
	1415	Closed kill valve. Opened master valve.
	1430	Opened kill valve.
	1434	Pumped down string.
	1437	1800 psi T.H.P.
	1441	3300 psi T.H.P.
	1445	4200 psi T.H.P. Circulation of 2 bbls.
	1454	Closed kill valve.
	1458	Opened choke on 12/64" ajd. and commenced reverse circulation
		via kill line and mud system.
	2215	Rigged down flowhead.
	2243	Unset packer & started P.O.O.H.
	2330	EZ-tree on surface, washed out, and laid down.
27/4/82	1030	Retrieved B.H. pressure and temperature
		recorders. Pressure tested; EZ-tree - 10 500 psi, choke
		manifold - 10 500 psi, flowhead - 10 500 psi. flow and kill
		line chiksans - 10 500 psi, EZ-tree hose bundle - 5 000 psi,
		glycol injection hose reel 10 000 psi, preparation for D.S.T.
		No. 3.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
28/4/82		Schlumberger began perforating the interval 4208.5 - 4218.3 m.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
29.04.82		
		Schlumberger perforated the interval 4208.5-4218.3 m at 4
		S.P.F. for D.S.T. No. 3.
	1647	Clock and stylus engaged on P.E. 41126.
	1652	Clock and stylus engaged on P.E. 41128.
	1655	Clock and stylus engaged on P.E. 36439.
	1704	Clock and stylus engaged on P.E. 36438.
	1700	Clock and stylus engaged on P.E. 37064.
	1750	Pressure recorders landed in tailpipe and proceeded to pick up
		test tools and R.I.H.
30.04.82		
		R.I.H. with hang-off tool made-up to test string and landed in
		well-head; waiting on weather.
01.05.82		
		R.I.H. and relatched on to test string; P.O.O.H. to surface.
02.05.82	0300	Made up EZ Tree to test string and function tested latch.
	0340	Pressure tested EZ Tree and test string to 9500 psi, continued
		R.I.H.
	0555	Flowhead made up to test string.
	0600	Landed test string in wellhead and rigged up choke manifold
		and kill and flow line chiksans.
	0710	Began pressure testing:- Kill line chiksans and kill wing
		valve - 10,500 psi. Flowhead and test string - 10,500 psi.
		Flowline chiksans, choke manifold and flowline to heater inlet
		and by-pass - 10,500 psi. Downstream choke manifold valves -
		10.500 psi. Upstream choke manifold valves - 10.500 psi. Kill
		valve from upstream side - 10.500 psi.
	1246	Picked up test string to set packer.
	1259	Set packer at 4176.85 m and landed test string in wellhead.
	1302	Closed middle and lower pipe rams.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
02.05.82	1307	Opened master and kill wing valves.
	1312	Pressurized test string to 3400 psi T.H.P. and
	1316	Closed kill wing valve.
	1319	Pressurized annulus to 1700 psi to open APR-N. T.H.P.
		increased to 4770 psi.
	1322	Opened choke manifold on 12/64" adj. choke, flowing to gauge
		tank for initial flow.
	1327	Closed choke manifold and bled off annulus pressure to close
		APR-N for initial P.B.U. (recovered 6.6 bbls).
	1430	Pressured up annulus to open APR-N.
	1432	Opened choke manifold on 12/64" adj. choke, flowing to gauge
		tank to unload seawater cushion.
	1515	First signs of gas at surface.
	1520	Began injecting glycol at choke manifold inlet.
	1545	Flare lit.
	1700	Flow switched via heater on 12/64" adj. choke.
	1707	Increased adjustable choke on choke manifold to 48/64";
		flowing on 12/64" adj. choke on heater.
	1740	Heater choke set at 10/64" adj.
	1803	Decreased heater choke size to 8/64" adj.
	1835	Switched flow through separator.
	2110	Began sample No. 1, separator gas, in bottle No. A-4141.
	2123	Began sample No. 2, separator gas condensate, in bottle No.
		9024-81.
	2130	Began sample No. 3, separator gas, in bottle No. A-4738.
	2147	Closed flow wing valve and by-passed separator due to leaking
		flowline.
	2150	Closed choke manifold and pressurized flowline to 8000 psi.
	2150	Began sample No. 4, separator Gas Condensate in bottle No.
		8151-73.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
02.05.82	2153	Opened flow wing valve to monitor P.B.U. at choke manifold inlet.
	2206	Opened well on 5/64" adj. choke on choke manifold.
	2208	Began increasing annulus pressure to shear APR-M.
	2209	Increased choke size to 8/64" adj.
	2210	Annulus pressure 3100 psi no indication of APR-M sheared.
	2211	Increased to 12/64" adj. choke.
	2212	Increased annulus pressure to 3500 psi,dropped to 3100 psi.
	2213	Pressurized annulus to 3400 psi, dropped to 3100 psi.
	2215	Bled annulus press. down to 1700 psi.
	2216	Pressurized annulus to 3500 psi, dropped to 3250 psi, repressurized to 3550 psi.
	2221	Bled annulus pressure down to 1700 psi.
	2222	Began pressurizing annulus.
	2223	Annulus pressure 3750 psi, dropped to 3350 psi.
	2224	Re-pressurized annulus to 3750 psi.
	2227	Bled down annulus pressure.
	2228	Annulus pressure 1650 psi.
	2230	Bled off annulus pressure to close APR-N.
	2230	Closed choke manifold.
	2232	Began pressurizing annulus.
	2233	Annulus pressure 3800 psi.
	2240	Began sample No. 5, separator gas condensate, in bottle No. 22024.
	2241	Bled off annulus pressure to 1700 psi.
	2248	Pressurized kill line to 8000 psi.
	2249	Opened kill valve, closed flow wing valve.
	2252	Commenced bullheading tubing contents into formation.
03.05.82	0033	Stopped bullheading - 100 bbls of mud pumped

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
03.05.82	0109	Closed and unlatched EZ-tree and picked up landing string ±6m
		out of wellhead and closed shear rams; waiting on weather.
	1655	Opened shear rams.
	1704	Tagged EZ tree valve with latch assembly.
	1709	Relatched EZ tree.
	1712	Opened pipe rams.
	1714	Picked up string weight to check latch, and re-landed again.
	1716	Opened EZ tree valve.
	1720	Pumped 1 bbl down string to check EZ Tree open and check well
		dead.
	1731	Opened pipe rams and picked up string to open R.T.T.S.
		circulating valve.
	1736	Rotated string to open R.T.T.S. circulating valve.
	1750	Pumped down string to check R.T.T.S. open, and proceeded with
		reverse circulation to condition mud.
04.05.82	0108	Picked up test string to unseat packer
	0120	Flowhead broken out and laid down
	0600	EZ Tree broken out and laid down continued POOH
05.05.82	0500	Retrieved pressure recorders - End of D.S.T. No. 3.

No.: DOP 109

FLOPETROL

Base : STAVANGER

Client : B.P. Pet. Dev.
Field : Exploration
Well : 29/6-1

- WELL TESTING DATA SHEET -

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DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS							PROD. RATES AND FLUID PROPERTIES					GOR			
17.04.82		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				
HrMin	Min		Psig	°F	Psig								Air = 1				Units
					17th April 1982 D.S.T. No.1												
11.44			Set packer at 4262.71 m and landed test string in wellhead.														
1218			Pressurized test string to 3500 psi														
1222				56	3500												
1227				65	3500												
1229			Began pressurizing annulus to 2000 psi to open APR-N - No indication of tool open.														
1230				66	3550												
1235				57	3640												
1240				57	3680												
1245				57	3670	Bled off annulus pressure.											
1247			Increased tubing pressure to 4300 psi.														
1250				57	4360												
1252			Began pressurizing annulus to 2000 psi to open APR-N - No indication of tool open.														

LIQUID FLOW RATE MEASURING CONDITIONS :

Atmospheric Pressure

TESTED INTERVAL : 4287-4301 mBRT
DEPTH REFERENCE : R.K.B. Sedco 707
DEPTH OF B.H.MEASUREMENTS : 4272.37 m

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FLOPETROL — WELL TESTING DATA SHEET (Continuation)

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Date - Time		Pressure and temperature measurements							Prod. rates and fluid properties					GOR			
17.04.82		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				
HrMin	Min		Psig	°F	Psig								Air = 1				Units
1252																	
1255				57	4540												
1258			Opened choke manifold on 14/64" adj. choke														
1300				55	2650	Closed choke manifold											
1305				55	2630												
1309			Bled off annulus pressure														
1310				55	2420												
1315				55	2410												
1318			Opened kill wing valve and pressurized test string to 4500 psi.														
1320				57	4550												
1323			Closed kill wing valve														
1325				57	4650												
1330				57	4720												
1333			Opened choke manifold on 16/64" adj. choke nad bled off W.H.P. to 2800 psi.														
1335				57	2820												
1340				57	2810												
1345				56	2810												
1350				56	2800												

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FLOPETROL _WELL TESTING DATA SHEET_(Continuation)

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DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS							PROD. RATES AND FLUID PROPERTIES					GOR
17.04.82		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	
HrMin	Min		Psig	°F	Psig								Air=1	Units
1353			Bled off annulus pressure											
1355			Opened choke manifold and bled off W.H.P. to o.											
1358			Opened kill wing valve and began pressurizing tubing to 5400 psi.											
1403				57	5400									
1405				57	5570	Began pressurizing annulus to 2000 psi.								
1409			Opened choke manifold on 32/64" adj. choke and bled off to 1000 psi.											
1410			Bled off annulus pressure.											
1410				57	1100									
1412			Began pressurising annulus to 2000 psi to open APR-N.											
1415				57	1320									
1419			Began pressurizing tubing to 5000 psi.											
1422			Increased tubing pressure to 6000 psi.											
1425				56	6050									
1430				66	6050									
1432			Opened choke manifold on 32/64" adj. choke and bled off W.H.P. to 3000 psi.											
1434			Bled off annulus pressure.											
1435			Pressurized tubing to 5760 psi.											

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FLOPETROL _WELL TESTING DATA SHEET_(Continuation)

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DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS							PROD. RATES AND FLUID PROPERTIES								
17.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		Cum.	Cl-	CO2/	
Time	Cumul	Temp.	Pressure	Tg. temp	Tg. press.	Cg. press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	Water	PPM	H2S	
HrMin	Min		Psig	°F	Psig								Air=1	Prod.			Units
1435														BBLS			
1436			Pressurized annulus to 2300 psi to open APR-N														
1440				57	6000												
1442			Opened choke manifold and bled off W.H.P. to 3000 psi.														
1445	0		Opened choke manifold on 16/64" adj. choke.														
1447	2/0		Closed choke manifold (Final flowing pressure - 500 psi)														
1450	3		10427	57	4950												
1455	8		11229	56	4900												
1500	13		11264	55	4890												
1505	18		11279	55	4890												
1510	23		11290	55	4890												
1515	28		11291	55	4890												
1516			Closed kill wing valve														
1521	0		Opened choke manifold on 8/64" adj. choke; flowing to gauge tank.														
1525	4			55	3820									2.06			
1530	9	298.4	10752	55	4400									4.30			
1535	14			57	4520									6.42			
1540	19			57	4480									7.87			

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FLOPETROL _WELL TESTING DATA SHEET_(Continuation)

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DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS							PROD. RATES AND FLUID PROPERTIES							
17.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		Cum.	Cl-	CO2/
Time	Cumul	Temp.	Pressure	Tg.temp	Tg. press	Cg. press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	Water	PPM	H2S
HrMin	Min	°F	Psig	°F	Psig								Air=1	Prod.		Units
1540														BBLS		
1545	24		10915	58	4550		Cumulative BBLS of water returned:-							9.06		
1550	29			58	4550									11.04		
1555	34			58	4590									11.70		
1600	39	299.6	10983	59	4600									12.76		
1605	44			59	4450									14.21		
1610	49			59	4300									15.53		
1615	54		10645	59	4150									17.64		
1620	59			59	4050									19.09		
1625	64			59	4090									21.07		
1630	69	300.0	10393	59	4060									23.05		
1635	74			60	4000									25.82		
1640	79			61	3790									27.93		
1645	84		10167	61	3810									30.84		
1650	89			63	3740									33.75		
1655	94			64	3700									35.07		
1700	99	300.7	9974	64	3570									38.50		
1705	104			65	3940									41.93		

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DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS							PROD. RATES AND FLUID PROPERTIES							
17.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR					GAS		Cum.	Cl-	CO2/	
Time	Cumul	Temp.	Pressure	Tg. temp	Tg. press.	Cg. press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	Water	PPM	H2S	
HrMin	Min		Psig	°F	Psig								Air=1	Prod.			Units
1705														BBLS			
1710	109			66	4110									44.57			
1715	114		10252	66	3870									47.21	22.000		
1720	119			66	3800									49.85			
1725	124			66	3590									52.49			
1730	129	301.1	9913	64	3580									55.66			
1735	134			64	3550									58.83			
1740	139			65	3800		(Choke plugging)							62.00			
1745	144		9864	64	3470									65.17	22,000		
1750	149			65	3480									68.34			
1755	154			66	3480									71.51			
1800	159	302.2	9886	67	3475									74.68			
1805	164			68	3475									78.11			
1810	169			68	3480									82.60			
1815	174		9828	68	3430									86.03	22,000		
1820	179			69	3420									89.02			
1825	184			Mud at surface													
1825	184			70	3400									92.72			

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17.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		LIQUID			GAS				
Time	Cumul	Temp.	Pressure	Tg. temp	Tg. press.	Cg. press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	Cum. Water	Cl-	CO2/
HrMin	Min	°F	Psig	°F	Psig								Air=1	Prod.	PPM	H2S
1825														BBLS		Units
1830	189	302.8	9770	70	3440											
1835	194			71	3350											
1840	199			72	3330											
1845	204	Switched flow to Burners (Bubbles of gas at surface)														
1845	204		9743	72	3400											
1850	209			72	3400											
1855	214			73	3440											
1900	219	303.8	9934	74	3430											0.13%/0
1905	224			75	3400											
1910	229			76	3420											
1915	234		9978	76	3430										35,000	
1925	244	Switched flow to gauge tank (estimated average flow rate														
1930	249	304.0	9972	78	3480	between 1825 hrs and 2015 hrs									37,000	3%/0
1945	264		9962	80	3350	= 0.66 BBLS/min)									38,000	
2000	279	304.0	9915	81	3490	(estimated cumulative production: -								155.57	38,500	8.5%/0
2015	294		10104	77	3600				583					161.65	40,000	
2030	309	304.1	9943	77	3480				938					171.42	39,000	8%/0

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17.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		LIQUID			GAS		Cum	Cl-	CO2/	
Time	Cumul	Temp.	Pressure	Tg.temp	Tg. press.	Cg. press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	Water	PPM	H2S	Units
HrMin	Min	°F	Psig	°F	Psig		°F	Psig	BBLS/DAY	S.G.	%	M^3/hr	Air=1	Prod. BBLS			
2030																	
2045	324		10032	78	3570				862					180.40			
2100	339	304.4	9977	78	3550				938		1			190.17	42,000	11%/0	
2115	354		10005	77	3450				862		1			199.15	40,000		
2130	369	Switched flow through separator, D.W.T. plugging.															
2130	369	304.5	10728	77	2370				533					204.7	41,000		
2145	384		10432	77	2430												
2200	399	Began flow rate measurements on separator using domestic gas meter and 2" Floco (f= 1.0069)															
2200	399	305.2	11044	77	3550												
2215	414		9953	80	3530				1062			6.12		218.04	42,000		
2230	429	305.2	9791	82	3330				815			17.24	.685	226.53		8%/0	
2245	444		9870	83	3320				774	1.046		22.64		234.59	42,000		
2300	459	305.2	9788	82	3445				1499			30.32	.685	250.20	43,000	8%/0	
2315	474		9884	82	3445				644			14.80		256.91	43,000		
2330	489	305.3	9876	82	3400				921			21.32		266.50	43,000		
2345	504		9808	83	3400				978			21.12		276.69	43,000		
2400	519	305.4	9831	87	3400		52	180	1049	1.045	1	22.96		287.62		9.5%/0	
18th April 1982																	

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18.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		LIQUID			GAS		Cum	Cl-	CO2/	
Time	Cumul	Temp.	Pressure	Tg.temp	Tg. press.	Cg press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	Water	PPM	H2S	
HrMin	Min	°F	Psig	°F	Psig		°F	Psig	BBLS/DAY	S.G.	%	M^3/hr	Air=1	Prod.			Units
0000														BBLS			
0015	534		9815	87	3440				924			22.56		297.25	42,000		
0030	549	305.8	9798	88	3340		52	185	1002			23.24		307.69	43.000		
0045	564		9819	88	3440				1021		1	23.76		318.33	43.000		
0100	579	305.9	9822	89	3390				1174	1.046	1	24.68		330.56	43,500	11%/0	
0115	594		9817	89	3350		52	190	851		1	25.24		339.42	43,500		
0130	609	306.0	9790	91	3350				925		1	24.04		349.04	43,500		
0145	624		9718	92	3270				916		1	25.60		358.58	43.500		
0200	639	306.2	9706	93	3250		52	205	1146			26.00		370.52	43,500	11%/0	
0203	642	306.3	9673	Bled off annulus pressure to close APR-N													
0204	1			Closed choke manifold.													
0205	2		10196		4100	(D.W.T. plugged)											
0210	7		11045														
0215	12		11192														
0220	17		11213														
0225	22		11224														
0230	27	307.6	11234		5010												
0235	32		11233		5010												

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18.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		Cum	Cl-	CO2/	
Time	Cumul	Temp.	Pressure	Tg.temp	Tg. press.	Cg. press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	Water	PPM	H2S	
HrMin	Min	°F	Psig	°F	Psig		°F	Psig	BBLS/DAY	S.G.	%	M^3/hr	Air=1	Prod.			Units
0235														BBLS			
0240	37		11247		4990												
0245	42		11257		4950												
0250	47		11262		4870												
0255	52		11267		4780												
0300	57	306.6	11268		4730												
0315	72		11269		4590												
0330	87	306.1	11271		4470												
0345	102		11273		4380												
0400	117	305.1	11275		4320												
0415	132		11277		4165												
0430	147	304.9	11277		4135												
0445	162		11276		4095												
05 00	177	304.3	11278		4060												
0515	192		11278		4050												
0530	207	304.0	11278		4035												
0545	222		11281		4035												
0600	237	303.7	11283		4035												

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18.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		Cum	Cl-	CO2/	
Time	Cumul	Temp.	Pressure	Tg.temp	Tg. press.	Cg. press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	Water	PPM	H2S	
HrMin	Min	°F	Psig	°F	Psig		°F	Psig	BBLS/DAY	S.G.	%	M^3/hr	Air=1	Prod.			Units
0600														BBLS			
0630	267	303.6	11285		4035												
0700	297	303.3	11285		4045												
0730	327	303.1	11285		4090												
0800	357	302.8	11287		4128												
0830	387	302.8	11288	55	4171												
0900	417	302.7	11288		4215												
0930	447	302.6	11290		4275												
1000	477	302.5	11290		4325												
1030	507	302.5	11290		4400												
1100	537	302.4	11291		4460												
1130	567	302.0	11291		4525												
1200	597	301.9	11291	57	4600												
1230	627	301.8	11291	58	4670												
1300	657	301.6			4730												
1330	687	301.6			4770												
1400	717	301.6			4810												
1430	747	301.1			4860												

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		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		Cum Water Prod. BBLS	Cl- PPM	CO2/ H2S	
Time HrMin	Cumul. Min	Temp. °F	Pressure Psig	Tg Temp °F	Tg press. Psig	Cg. press.	Temp. °F	Press. Psig	Rate BBLS/DAY	Gravity S.G.	BSW %	Rate M³/hr	Gravity Air=1				Units
1430																	
1500	777	301.2			4880												
1519	794	Began pressurizing annulus to open reverse circulation valve - end of D.S.T. No. 1.															

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FLOPETROL

Base : STAVANGER

Client : B.P. Pet. Dev.
Field : Exploration
Well : 29/6-1

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		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				
HrMin	Min		Psig		Psig								Air = 1				Units
		24th April 1982 - D.S.T. No. 2.															
2152					5430	Pressurized annulus to 2600 psi to open APR-N valve											
2154	0		11872		3000	Bled T.H.P. pressure down to 3000 psi through adj. choke - initial flow.											
2155	1/0		9177		-	Closed choke to record initial P.B.U.											
2156	1		9402		3100												
2158	3		9538		3230												
2200	5		9727		3345												
2202	7		9859		3480												
2204	9		10129		3550												
2206	11		9878		3640												
2208	13		9993		3730												
2210	15		10082		3820												
2212	17		10140		3890												
2214	19		10221		3940												
2216	21		10291		3990												

LIQUID FLOW RATE MEASURING CONDITIONS :

TESTED INTERVAL : 4256-4260 m
DEPTH REFERENCE : R.K.B. (Sedco 707)
DEPTH OF B.H. MEASUREMENTS : 4246.62 m

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24.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS					
Time HrMin	Cumul Min	Temp. °F	Pressure Psig	Tg.temp. °F	Tg.press. Psig	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity Air = 1				Units
2216																	
2218	23		10314		4070												
2220	25		10361		4120												
2222	27		10405		4150												
2224	29		10459		4200												
2226	31		10496		4240												
2228	33		10540		4280												
2230	35		10583		4295												
2232	37		10615		4350												
2234	39		10643		4385												
2236	41		10676		4410												
2238	43		10697		4430												
2240	45		10727		4460												
2242	47		10756		4475												
2244	49		10776		4500												
2250	55		10840		4550												
2255	60		10881		4600												
2300	65		10920		4620												

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24.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		BBL	Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	level			Prod.
HrMin	Min	°F	Psig	°F	Psig								Air=1	CM	BBLS	BBLS/Day	Units
2300																	
2305	70		10950		4630												
2307	72		10962		4630	Annulus pressure bled down to 2300 psi								0			
2309	74/0					Well opened on 8/64" adjustable choke flowing cushion to gauge tank.											
2310					3170	Well closed in.											
2312					3270												
2314			9126		3410												
2316					3520												
2318	0		8758	Well	opened	on 8/64" adj. choke flow directed to 1 bbl drums								28	.45	648	.45
2319	1		8838			Changed choke to 3/64" adjustable choke.											
2320	2		8978		2400	Well closed in at choke.											
2321	3		9124		2500	Well opened on 3/64" adj. and changed to 2/64" adj. choke.											
2323	5		9113		2560												
2324	6		9075		2640	Changed to 3/64" adj. choke								52	.38	137	.83
2325	7		9044		2590									59	.11	158	.95
2326	8		9012		2520									63.5	.07	101	1.02
2327	9		8994		2450									69.5	.10	144	1.12
2338	10		8976		2400									78.0	.14	202	1.25

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Date - Time		Pressure and temperature measurements							Prod. rates and fluid properties						LIQUID PRODUCTION		
24.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		BBL	Volume	Volume	Cumul.
Time HrMin 2328	Cumul Min	Temp. °F	Pressure Psig	Tg.temp. °F	Tg.press. Psig	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity Air = 1	level CM		BBLS/Day	Prod. Units
2329	11		8975		2350	Changed to 2/64" adj. choke.				Changed to		other drum.		87	.14	202	1.40
2330	12		8979		2450									2	.03	43	1.43
2331	13		9103		2580												
2332	14		9107		2720	Changed to 3/64" adj. choke.											
2333	15		9116		2680												
2334	16		9116		2650												
2335	17		9114											18	.26	75	1.69
2336	18		9100		2590												
2338	20		9074		2560												
2340	22		9043		2530	Changed to 2/64" adj. choke								38	.32	92	2.01
2342	24		9030		2740	Changed to 3/64" adj. choke											
2344	26		9026		2700												
2345	27													51	.21	60	2.22
2346	28		9028		2670												
2348	30		9036		2640												
2350	32		9046		2620	Changed to other drum								71/0	.32	92	2.54
2352	34		9066		2600												

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24.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		BBL	Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	level			Prod.
HrMin	Min	F	Psig	F	Psig								Air=1	CM	BBLS	BBLS/Day	Units
2352																	
2354	36		9095	56	2588												
2355	37			56													
2356	38		9049	56	2610												
2358	40		9074	56	2620												
25th April 1982																	
0000	42		9077	55	2630												
0002	44		9077	55	2630												
0004	46		9076	55		Changed to 4/64" adj. choke.											
0005	47			55		Changed to other drum								79/0	1.27	122	3.81
0006	48			55	2550												
0008	50			55	2650												
0010	52			55	2790												
0012	54			55	2630												
0014	56			55	2620												
0015	57					Changed to other drum.								85/0	1.36	196	5.17
0016	57			55	2620												
0018	60			55	2660												

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25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		tank	Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	level			Prod.
HrMin	Min	°F	Psig	°F	Psig								Air=1	CM	BBLS	BBLS/Day	Units
0018																	
0020	62			55	2690	Changed to 6/64" adj. choke;				flow directed to gauge			tank	48/81	.77	222	5.94
0022	64			55	2400												
0023	65					Changed to 5/64" adj. choke.											
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 4/64" adj. choke											
0032	74		8508			Changed to 3/64" adj. choke											
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	.53	76	8.32

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25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		tank	Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	level			Prod.
HrMin	Min	°F	Psig	°F	Psig								Air=1	CM	BBLS	BBLS/Day	Units
0040																	
0041	83			55	3750												
0042	84		9738	55	3850												
0043	85			55	3900												
0044	86		10163	55	3950												
0045	87													93	.79	228	9.11
0046	88		10309	55	3970												
0048	90		10418	55	3990												
0050	92		10449	55	3970									94	.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	.26	38	10.69

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Date - Time		Pressure and temperature measurements							Prod. rates and fluid properties						Liquid production		
25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		tank	Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	level			Prod.
HrMin	Min	°F	Psig	°F	Psig								Air=1	CM	BBLS	BBLS/Day	Units
0110														99	.26	38	10.69
0112	114			55	3950												
0114	116			55	3960												
0115	117																
0116	118			55	3960												
0118	120			55	3960												
0120	122		10511	55	3960									102	.79	114	11.49
0122	124					Changed to 4/64" adj. choke.											
0124	126			55	3540												
0126	128			55	3280												
0128	130			55	3290												
0130	132			55	3615									104	.53	76	12.01
0132	134			55	3700												
0134	136			55	3720												
0136	138			55	3740												
0138	140			55	3740												
0140	142		10316	55	3740												
0142	144			55	3730												

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25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		Tank level	Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity				Prod.
HrMin	Min	°F	Psig	°F	Psig								Air = 1	CM	BBLS	BBLS/Day	Units
0142																	
0144	146			55	3730												
0145	147			55										110.5	1.72	165	13.73
0146	148			55	3710												
0148	150			55	3660												
0150	152		10287	55	3630												
0152	154			55	3590												
0154	156			55	3590												
0156	158			55	3640												
0158	160			55	3620												
0200	162		10222	55	3600									116.0	1.45	139	15.18
0202	164			55	3610												
0204	166			55	3620												
0206	168			55	3620												
0208	170			55	3640												
0210	172		10198	55	3720												
0212	174			55	3750												
0214	176			55	3750												

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25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		tank	Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	level			Prod.
HrMin	Min	°F	Psig	°F	Psig								Air = 1	CM	BBLS	BBLS/Day	Units
0214																	
0215	177													125.0	2.38	228	17.56
0216	178			55	3750												
0218	180			55	3750												
0220	182		10322	55	3730												
0225	187			55	3725												
0230	192		10308	55	3760	Switched to other compartment of gauge tank								130/44	1.32	127	18.88
0235	197			55	3765												
0240	202		10340	55	3710												
0245	207			55	3700									53	2.38	228	21.25
0250	212		10267	55	3695												
0255	217			55	3660												
0300	222		10228	55	3690									59	1.58	152	22.84
0305	227			55	3710												
0310	232			55	3730												
0315	237		10366	55	3825									65	1.58	152	24.42
0320	242			55	3750												
0325	247			55	3730												

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25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		tank	Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	level			Prod.
HrMin	Min	°F	Psig	°F	Psig								Air = 1	CM	BBLS	BBLS/Day	Units
0325																	
0330	252		10303	55	3650									70	1.32	127	25.74
0345	267		10080	55	3480									78	2.11	203	27.85
0400	282		10045	55	3465									84	1.58	152	29.43
0415	297		10160	55	3600									91.5	1.98	190	31.41
0430	312		10183	55	3600									97.0	1.45	139	32.86
0445	327		9679	55	3500									104	1.85	178	34.71
0500	342		10294	55	3700									110	1.58	152	36.29
0515	357		10264	55	3685									119	2.38	228	38.67
0530	372		10218	55	3625									126	1.85	117	40.52
0545	387		10279	55	3650									134	2.11	203	42.63
0600	402		10601	55	4240									138	1.06	101	43.69
0600	402			Switched flow to othercompartment of gauge tank.										46			
0615	417		10795	55	4210												
0630	432		10448	55	3920									53.5	1.98	95	45.67
0645	447		10527	55	3825									60	1.72	165	47.39
0700	462		10376	55	3810									65.5	1.45	139	48.84
0715	477		10415	55	3804									71	1.45	139	50.29

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25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			WATER		tank	Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW		Gravity	level			Prod.
HrMin	Min	°F	Psig	°F	Psig							cl-ppm	Air=1	CM	BBLS	BBLS/Day	Units
0715																	
0730	492		10311	55	3727									78	1.85	177	52.14
0745	507		10279	55	3710									84	1.58	152	53.72
0800	522		10332	55	3710									93	2.38	228	56.1
0815	537		10339	55	3760									96.5	0.92	89	57.0
0830	552		10367	55	3720									106	2.5	240	59.5
0845	567		10279	55	3675									113.5	2.0	190	61.5
0900	582		10286	55	3650									121	2.0	190	63.5
0915	597		10086	55	3550									127	1.58	152	65.1
0930	612		10493	55	3880									135	2.11	203	67.2
0945	627		10273	55	3715				Cl^- 22,000 ppm					142	1.85	177	69.1
1000	642		10364	55	3745									150	2.11	203	71.2
1000	642				Switched flow to other compartment of gauge tank									58			
1015	657		10165	55	3560									65	1.85	177	73.0
1030	672		10397	55	3770									72	1.85	177	74.9
1045	687		10452	55	3815									79	1.85	177	76.7
1100	702		10439	55	3800									90	2.9	279	79.6
1115	717		10451	55	3810									96	1.58	152	81.2

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25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			Water		tank	Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tgtemp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW		Gravity	level			Prod.
HrMin	Min	°F	Psig	°F	Psig							cl-ppm	Air=1	CM	BBLS	BBLS/Day	Units
1115																	
1130	732		10489	55	3830							20000		105	2.38	228	83.6
1145	747		10436	56	3790							20000		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		10489	56	3800							20000		137	2.38	228	92.0
1245	807		10401	56	3720									146	2.38	228	94.4
1245	807			Emptied tank to burner, switched flow to other compartment.										43			
1254	816			Plugging at choke manifold.													
1256	818			56	4150												
1259	821			56	4150												
1300	822		10799		-							20000		50	1.85	177	96.25
1301	823			56	4400	Mud to surface.											
1303	825			56	4300												
1305	827			56	4300												
1307	829			56	4300												
1310	832			56	4330												
1312	834			56	4345												

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25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			Water		tank	Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tgtemp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW		Gravity	level			Prod.
HrMin	Min	°F	Psig	°F	Psig							cl-ppm	Air=1	CM	BBLS	BBLS/Day	Units
1312																	
1315	837		11019	56	4380							13000		53	0.79	76	97.0
1317	839			56	4400												
1319	841			56	4470												
1321	843			56	4480												
1323	845			56	4450												
1325	847			57	4420												
1327	849			57	4420												
1329	851			57	4470												
1330	852		11094	57								22500		54	0.264	25	97.3
1331	853			57	4510												
1333	855			57	4500												
1334	856						Changed choke to 5/64" adj.										
1335	857			57	4470												
1336	858			57	4490		Changed choke to 6/64" adj				choke						
1338	860			57	4502												
1339	861			57	4540												
1340	862			57	4580												

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25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			Water		tank	Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tgtemp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW		Gravity	level			Prod.
HrMin	Min	°F	Psig	°F	Psig							cl-ppm	Air = 1	CM	BBLS	BBLS/Day	Units
1340																	
1341	863			57	4620												
1342	864			57	4610												
1345	867		11263	57	4635	Changed choke to 8/64" adj.				choke		13500		55	0.264	25	97.6
1346	868			57	4590												
1347	869			57	4598												
1348	870			57	4613												
1349	871			57	4625	Changed choke to 10/64" adj.				choke							
1350	872			57	4530												
1351	873			57	4515												
1352	874			57	4560												
1353	875			57		Changed choke to 12/64" adj.				choke							
1354	876			57	3750	Changed choke to 8/64" adj.				choke							
1356	878			57		Changed choke to 6/64" adj,				choke							
1357	879			57	3550												
1358	880			57	3700												
1359	881			57	3870												
1400	882		10548	57	3880							19000		61	1.58	152	99.2

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25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			Water		tank		Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tg temp.	Tg. press.	Cg. press.	Temp.	Press.	Rate	Gravity	BSW		Gravity	level				Prod.
HrMin	Min	°F	Psig	°F	Psig							cl-ppm	Air = 1	CM		BBLS	BBLS/Day	Units
1400																		
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	102.1
1420	902			57	4200													
1425	907			57	3600													
1428	910			57	N/A	Changed to 4/64" adj. choke												
1429	911			58	3650													
1430	912		10602	58	3950							23500		80		2.11	203	104.2
1431	913			58	4070													
1432	914			58	4140													
1433	915			58	4100													
1434	916			58	3850													

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25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			Water		tank	Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW		Gravity	level			Prod.
HrMin	Min	°F	Psig	°F	Psig							cl-ppm	Air=1	CM	BBLS	BBLS/Day	Units
1434																	
1435	917			58	3500												
1436	918			58	3370												
1437	919			58	3200	Changed choke to between 5/64" and 6/64" adj.											
1438	920			58	3190												
1439	921			58	3310												
1440	922			58	3370												
1442	924			58	3510												
1443	925			58	3670												
1444	926			58	3820												
1445	927		10636	58	4230							28000		91	2.9	278	107.1
1447	929					Changed choke to 6/64" adj.											
1448	930			58	4290												
1449	931			58	4200												
1451	933			58	4550												
1454	936			58	4850												
1455	937			58	4820												
1456	938			58	4750	Changed choke to 8/64" adj.											

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25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			Water			Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW		Gravity	level			Prod.
HrMin	Min	°F	Psig	°F	Psig							cl-ppm	Air=1	CM	BBLS	BBLS/Day	Units
1456																	
1457	939			58	4700	Changed choke to 10/64" adj.											
1458	940			58	3650												
1459	941			58	3150	Changed choke to 8/64" adj.						27000					
1500	942		10067	58	3000	Changed choke to 6/64" adj.						27000		98	1.85	177	109
1501	943			58	2850	Changed choke to 4/64" adj.											
1502	944			58	2900												
1503	945			58	3150												
1504	946			58	3450												
1505	947			58	3750	Readings from gauge, DWT plugged.											
1506	948			58	3800												
1507	949			58	3820												
1508	950			58	3870	DWT cleared.											
1509	951			58	3830												
1511	953			58	3800												
1515	957		10248	58	3800				Trace Co2 H2S-0			38000		109	2.90	279	111.9
1517	959			58	3800												
1519	961			58	3790												

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25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			Water		tank		Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW		Gravity	level				Prod.
HrMin	Min	°F	Psig	°F	Psig							cl-ppm	Air = 1	CM		BBLS	BBLS/Day	Units
1521																		
1523	694			58	3750													
1525	967			58	3710													
1530	972		10077	58	3680				.75%CO2	OH2S		37500		120		2.9	279	114.8
1535	977			58	3640													
1540	982			59	3600													
1545	987		9817	59	3570				2% CO2	OH2S		38000		130		2.64	253	117.4
1550	992			59	3580													
1555	997			60	3610													
1600	1002		10145	60	3645				2.5% CO2	OH2S				143		3.43	329	120.9
1605	1007			60	3670							38000						
1610	1012			60	3710													
1615	1017		10146	60	3725				2.3%CO2	OH2S		37500		155		3.17	304	124.0
1615	1017			Switched flow to other compartment of gauge tank										90				
1620	1022			59	3720													
1625	1027			59	3710													
1630	1032		10199	58	3690				4% CO2	OH2S		38500		101		2.9	279	126.9
1634	1036		10170			Pressured up annulus in attempt to shear						APR-M.						

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25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			Water		tank	Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW		Gravity	level			Prod.
HrMin	Min	°F	Psig	°F	Psig							cl-ppm	Air=1	CM	BBLS	BBLS/Day	Units
1634																	
1635	1			58	3710												
1638	4		11552	Pressured up annulus to 3500 psi no indication.													
1640	6			58	4500												
1642	8			Annulus pressure dropped to 3000 psi.													
1643	9		11836	Pressurized annulus to 3500 psi, still no indication of APR-M actuated.													
1645	11			58	4950									109	2.11	204	129
1648	14			58	5100												
1650	16			58	5090	Re-pressured annulus to 3500 psi.											
1653	19		12514	58	5440							38500					
1655	21			58	5500												
1657	23			58	5600												
1700	26			58	5200									133	6.34	608	135.3
1702	28			58	4730												
1704	30					Pressure on annulus - 1600 psi, pressure bled off to close APR-N valve.											
1705	31					Choke manifold closed								139	1.58	456	136.9
1706	32				3450												
1707	33				3400												

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25.04.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		BBL	Volume	Volume	Cumul.
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	level			Prod.
HrMin	Min	F	Psig	F	Psig								Air = 1	CM	BBLS	BBLS/Day	Units
1707																	
1730	56		11251		3050												
1745	71				2914												
1800	86		11253		2850												
1815	101				2760												
1830	116		11253		2720												
1845	131				2660												
1900	146		11253		2625												
1930	176		11253		2560												
2000	206		11253		2520												
2030	236		11253		2475												
2100	266		11253		2445												
2130	296		11253		2434												
2200	326		11253		2415												
2230	356		11254		2390												
2300	386		11254		2370												
2330	416		11254		2350												
2400	446		11254		2340												

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26.04.82		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				
HrMin	Min	°F	Psig	°F	Psig								Air = 1				Units
2400																	
26th April 1982																	
0030	476				2330												
0100	506		11256		2320												
0130	536				2310												
0200	566		11256		2300												
0230	596				2280												
0300	626		11256		2270												
0330	656				2260												
0400	686		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		11260		2200												

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Date - Time		Pressure and temperature measurements							Prod. rates and fluid properties					GOR
26.04.82		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	
HrMin	Min	°F	Psig	°F	Psig								Air = 1	
0800														
0830	956				2200									
0900	986		11260		2195									
0907	993					Pressured up annulus to shear APR-M circulating valve								

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FLOPETROL

Base : STAVANGER

Client : B.P. Pet. Dev.
Field : Exploration
Well : 29/6-1

- WELL TESTING DATA SHEET -

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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				
HR:MIN	MIN	°F	PSIG	°F	PSIG								Air = 1				Units
				2nd May 1982			D.S.T. No. 3										
1259			Set packer at 4176.85 m and landed test string in wellhead														
1312			Pressurized test string to 3400 psi														
1315			11744		3400												
1316			Closed kill wing valve														
1319			Pressurized annulus to 1700 psi to open APR-N														
1320			9976		4730												
1321			-		4770												
1322	0		Open choke manifold on 12/64" adj. choke, flowing to gauge tank, for initial flow.														
1323	1		-		3150												
1324	2		9963		3240												
1325	3		-		3240												
1326	4		9973		3340												

LIQUID FLOW RATE MEASURING CONDITIONS :
14.7 psia at 60° F

TESTED INTERVAL : 4208.5 - 4218.3 m
DEPTH REFERENCE : R.K.B. (Sedco 707)
DEPTH OF B.H. MEASUREMENTS : 4203.14 m

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Date - Time		Pressure and temperature measurements							Prod. rates and fluid properties					GOR			
2.5.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS					
Time HR:MIN	Cumul MIN	Temp. F	Pressure PSI	Tg.temp. F	Tg.press. PSI	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity Air = 1				Units
1327	5				3380												
1327	0		Closed choke manifold and bled off annulus pressure to close APR-N (6-1 bbls returned)														
1328	1		11151		4340												
1329	2		-		4350												
1330	3		11178		4290												
1332	5		11187		4230												
1334	7		11190		4200												
1336	9		11200		4180												
1338	11		11201		4160												
1340	13		11200		4140												
1345	18		-		4070												
1350	23		11201		4010												
1355	28		-		3980												
1400	33		11201		3950												
1405	38		-		3940												
1410	43		11201		3900												
1415	48		-		3890												

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Date - Time		Pressure and temperature measurements							Prod. rates and fluid properties					GOR			
2.5.82		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				
HR:MIN	MIN	°F	PSI	°F	PSI								Air = 1				Units
1420	53		11201		3870												
1425	58		-		3860												
1430	63		Pressurized annulus to open APR-N - 1700 psi														
1431			-		4240												
1432	0		Opened choke manifold on 12/64" adj. choke, flowing to gauge tank to unload seawater cushion.														
1433	1		-	46	3500												
1434	2		9889	46	3460												
1435	3		-	46	3499												
1437	5		-	46	3570												
1439	7		-	46	3614												
1441	9		-	48	3674												
1443	11		-	50	3720												
1445	13		-	51	3880	Total of 29 bbls returned.											
1450	18		9711	54	4110												
1455	23		-	56	4340												
1500	28		9629	58	4610	Total of 56.2 bbls returned.											
1505	33		-	60	4850												

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Date - Time		Pressure and temperature measurements							Prod. rates and fluid properties					GOR			
2.5.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS				CO_2 / H_2S	
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity				
HR:MIN	MIN	°F	PSI	°F	PSI								Air = 1				Units
1510	38		9533	63	5170												
1515	43		-	64	5650	First	signs	of gas	at surface - total of			82.9 bbls	returned				
1520	48		9879	66	6040	Began	injecting	glycol	at choke manifold			inlet; flowing	to gas flare.				
1525	53		-	66	6660	Flare	- mud	to surface.									
1530	58		10154	66	6440												
1535	63		-	66	6150												
1540	68		9473	66	5960											0.5%/0	
1545	73		-	66	5950	Flare	lit										
1550	78		9387	65	5970												
1555	83		-	64	5960												
1600	88		9389	64	5935												
1605	93		-	64	5935												
1610	98		9373														
1615	103		-	63	6080												
1620	108		9368	63	6160												
1625	113		-	63	6150												
1630	118		9384	63	6150												

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Date - Time		Pressure and temperature measurements							Prod. rates and fluid properties					GOR			
2.5.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS				CO_2 / H_2S	
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity				
HR:MIN	MIN	°F	PSI	°F	PSI								Air = 1				Units
1635	123		-	63	6160												
1640	128		9362	62	6160												
1645	133		-	62	6200												
1650	138		9283	62	6050												
1655	143		-	62	6200												
1700	148		9414	62	6220												
1700	148		Flow switched via heater on 12/64" adj. choke.														
1705	153		-	62	6450												
1707	155		Increased adjustable choke on choke manifold to 48/64"; flowing on 12/64" adj. choke on heater.														
1710	158		9839	61	5150												
1715	163		-	61	5170												
1720	168		7712	62	4470												
1725	173		-	65	3850)												
1730	178		7688	68	3870)												
1732	180		8213	69	4646)	Checking heater choke calibration											
1734	182		8503	70	5250)												
1736	184		8580	71	5400)												

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Date - Time		Pressure and temperature measurements							Prod. rates and fluid properties					GOR			
2.5.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS				CO_2/	
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity			H_2S	
HR:MIN	MIN	°F	PSI	°F	PSI								Air = 1				Units
1738	186		8547	71	5350												
1740	188		8433	71	5150												
1740	188		-	Heater choke		set at	10/64"	adj.									
1742	190		8384	72	5120												
1744	192		8376	72	5200												
1746	194		8313	72	5070											2%/0	
1748	196		8248	73	4970												
1750	198		8136	74	4750												
1752	200		8044	74	4700												
1754	202		8013	75	4600												
1800	208		7749	77	4150												
1803	211		-	Decreased heater choke size to 8/64" adj.													
1805	213		-	78	4700												
1810	218		8390	79	5260												
1815	223		-	80	5150												
1820	228		8386	80	5150												
1825	233		-	82	5090												

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Date - Time		Pressure and temperature measurements							Prod. rates and fluid properties					C.G.R.			
2.5.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS		BBLS/	Water	CO_2/	
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity	MMSCF	prod.	H_2S	
HR:MIN	MIN	°F	PSI	°F	PSI								Air = 1		BBLS/DAY		Units
							°F	PSIG	BBLS/DAY	S.G.	%	MMSCF/D					
1830	238		8325	82	5020												
1835	243		Switched flow through separator														
1845	253		-	86	4960												
1900	268		8303	89	4940	Began flow rate measurements											
1915	283		-	92	5120		96	810	1673	.808	4	10.28	.704	163	154		
1930	298		8415	93	5150		112	810	1390	.808	Trace	11.03	.704	126	294	Nr 24 20500 Nr 25 21000	
1945	313		-	95	5120		122	810	1516	.808	Trace	10.64	.704	142	127		Nr 26 22000
2000	328		8421	97	5110		124	810	1404	.808	Trace	10.61	.704	132	338		1950 nr27 22000
2015	343		-	99	5155		128	810	1446	.808	Trace	10.64	.704	136	240		
2030	358		8437	100	5160		128	810	1457	.808	Trace	10.72	.705	136	-		
2045	373		-	102	5165		128	810	1479	.808	Trace	10.73	.705	138	208		
2100	388		8442	102	5170		124	810	1478	.808	Trace	10.78	.705	137	126		
2115	403		-	104	5170		120	810	1425	.808	Trace	10.71	.705	133	300		2120 Nr30 22000
2130	418		8404	105	5170		114	810	1537	.808	Trace	10.85	.705	142	133	2%/0	Nr 29 22500
2145	433		-	106	5160		135	810	1405	.808	Trace	10.88	.705	129	78		
2147	435		-	Closed flow wing valve and by-passed separator due to leaking flowline.													
2150			10059	Closed choke manifold and pressurized flowline to ± 8000 psi.													

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Date - Time		Pressure and temperature measurements							Prod. rates and fluid properties					GOR			
2.5.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS				CO_2 / H_2S	
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity				
HR:MIN	MIN	°F	PSI	°F	PSI								Air=1				Units
2153			Opened flow wing valve to monitor P.B.U. at choke manifold inlet.														
2155			-	86	8350												
2158			11061		8370												
2200			11069		8410												
2205			-		8430												
2206			11115	76	8430												
2206			Opened well on 5/64" adj. choke on choke manifold														
2208			11054		Began increasing annulus pressure to shear APR-'M'												
2209				75	8020												
2209			Increased choke size to 8/64" adj.														
2210			10898	Annulus pressure 3100 psi; no indication of APR-M sheared.													
2211			-	75	7700	Increased choke size to 12/64" adj.											
2212			10815			Increased annulus pressure to 3500 psi; dropped to 3100 psi.											
2213			-	77	7120	Pressurized annulus to 3400 psi; dropped to 3100 psi											
2215			-	80	7000	Bled annulus pressure down to 1700 psi.											
2216			9912			Pressurized annulus to 3500 psi; dropped to 3250 psi; repressurized to 3550 psi.											
2217			-	84	6910												

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Date - Time		Pressure and temperature measurements							Prod. rates and fluid properties					GOR			
2.5.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS				CO_2 / H_2S	
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity				Units
HR:MIN	MIN	°F	PSI	°F	PSI								Air = 1				
2219			-	85	6920												
2221			-	86	6850	Bled annulus pressure down to 1700 psi.											
2222			9818			Began pressurizing annulus.											
2223			-	87	6870	Annulus pressure - 3750 psi; dropped to 3350 psi.											
2224			9809			Re-pressurized annulus to 3750 psi.											
2225			-	87	6890												
2227						Bled annulus pressure down.											
2228			9791			Annulus pressure - 1650 psi.											
2230			9815	88	6890	Bled off annulus pressure to close APR-N											
2230			9815			Closed choke manifold.											
2232			10958	88	6990	Began pressurizing annulus											
2233			-			Annulus pressure - 3800 psi.											
2235			-	84	8340												
2237			-	80	8400												
2239			-	76	8420												
2241						Bled off annulus pressure to 1700 psi.											
2245			-		8430												

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Date - Time		Pressure and temperature measurements							Prod. rates and fluid properties					GOR			
2.5.82		BOTTOM HOLE		WELL HEAD			SEPARATOR		OIL OR CONDENSATE			GAS				CO_2 / H_2S	
Time	Cumul	Temp.	Pressure	Tg.temp.	Tg.press.	Cg.press.	Temp.	Press.	Rate	Gravity	BSW	Rate	Gravity				
HR:MIN	MIN	°F	PSI	°F	PSI								Air = 1				Units
2248			Pressurized kill line to 8000 psi.														
2249			Opened kill wing valve, closed flow wing valve.														
2252			Commenced bullheading tubing contents into formation.														
			3rd May 1982														
0033			Stopped bullheading - 100 bbls of mud pumped.														
0109			Closed EZ Tree valve														
0110			Unlatched EZ Tree and picked up landing string ± 6 m out of wellhead and closed shear rams.														
			Waiting on weather to P.O.O.H.														
	N.B.	Full bottom hole pressure measurements are recorded in Annex Section 6.															
		On removal from the steam heater following the test, the adjustable choke bean was															
		found to have been extremely badly cut out by the well fluids. The actual choke															
		sizes quoted in this report are therfore uncertain															

FLOPETROL

DIVISION : EMR/NSD/NOB

BASE : STAVANGER

REPORT N°: 82/2301/ 11

Well Testing Report
Annexes —

Client : B.P. Pet. Dev. Ltd. Norway

Field : Exploration Well : 29/6-1

Zone : Jurassic (Brent) Date : 15/4-19/4/82 DST No. 1
22/4-27/4/82 DST No. 2
29/4-5/5/82 DST No. 3

N°: DOP 111

INDEX of ANNEXES

BOTTOM HOLE PRESSURE AND TEMPERATURE MEASUREMENTS

A - 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.K.B.
Difference level between the two pressure elements : _____

BOTTOM HOLE PRESSURE GAUGE CALIBRATION SHEET

DATE : 21st March 1982 CALIBRATION No. : 1 B

EQUIPMENT DATA

Calibration cell No. : 2147 Manufacturer : Flopetrol
Dead weight tester No. : 16619 Manufacturer : Chandler Range : 50-15000 psig
Recording element No. : 47926 Manufacturer : G.R.C.
Pressure element No. : 36438 Manufacturer : G.R.C. Range : 0-20000 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 : [X] with crank [ ] with clock

Equivalent pressure p of level difference between Dwt and bellows
Level difference : 6 ft [X] + 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	ΔY	Y^2	Y P	Pc = KY + a	C = P - Pc
			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				13010.83	-10.83
142500	13.9567	Σ	13.6566403	13.9440.40	Σ + : 53.17	
					Σ - : 56.84	

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

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

$a' = A - BK =$ -5.626 psi $a' = D - CK =$ _____

FINAL RESULTS

$K =$ ~~10216.196 psi/inch~~ _____ $P_{RC} = K Y_R + a =$ _____
$a = a' + p =$ ~~-3.356 psig~~ _____

- BOTTOM HOLE PRESSURE GAUGE CALIBRATION SHEET -

DATE : 21st March 1982 CALIBRATION No. : 2B

- EQUIPMENT DATA -

Calibration cell No. : 2147 Manufacturer : Flopetrol
Dead weight tester No. : 16619 Manufacturer : Chandler Range : 50-15000 psig
Recording element No. : 27595 Manufacturer : G.R.C.
Pressure element No. : 36439 Manufacturer : G.R.C. Range : 0-20000 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	ΔY	Y^2	YP	Pc = KY + a	C = P - Pc
			Units on this line -			
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
10000	.9700				9991.91	+ 8.09
10500	1.0195				10494.35	+ 5.65
11000	1.0695				11001.87	- 1.87
11500	1.1185				11499.25	+ 0.75
~~12000~~	~~1.1680~~				12001.69	- 1.69
12500	1.2182				12511.24	-11.24
123500	11.98	Σ	11.4816	118292.5	Σ+ : 37.47	
					Σ- : 37.47	

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

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

$a' = A - BK =$ 145.981 psi $a' = D - CK =$ _____

- FINAL RESULTS -

$K =$ 10150.438 psi/inch $P_{RC} = K Y_R + a =$ _____

$a = a' + p =$ 148.25 psig

- BOTTOM HOLE PRESSURE GAUGE CALIBRATION SHEET -

DATE : 22nd March 1982 CALIBRATION No. : 3B

. EQUIPMENT DATA .

Calibration cell No. : 2147 Manufacturer : Flopetrol
Dead weight tester No. : 16619 Manufacturer : Chandler Range : 50-15000 psig
Recording element No. : 10113 Manufacturer : Kuster
Pressure element No. : 41128 Manufacturer : G.R.C. Range : 0-20000 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	ΔY	Y^2	Y P	Pc = KY + a	C = P - Pc
			Units on this line -			
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	+13.20
10000	.9782				10004.62	- 4.62
10500	1.0275				10508.15	- 8.15
11000	1.0759				11002.48	- 2.48
		Σ			Σ+ : 23.60	
					Σ- : 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 $P_{RC} = K Y_R + a$ = _____

$a = a' + p$ = + 16.12 psig

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 : 50-15000 psig
Recording element No. : 37097 Manufacturer : G.R.C.
Pressure element No. : 41126 Manufacturer : G.R.C. Range : 0-20000 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 : [X] with crank [ ] with clock

Equivalent pressure p of level difference between Dwt and bellows
Level difference : 6 ft [X] + 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	ΔY	Y^2	Y P	Pc = KY + a	C = P - Pc
			Units on this line			
6000	.5809				6014.37	-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				12511.71	-11.71
13000	1.2665				13000.85	- 0.85
142500	13.844	Σ	13.4517	13.8390.05	Σ+ = 39.56 Σ- = 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 psi $a' = D - CK =$ _____

FINAL RESULTS

$K =$ 10190.318 psi/inch $P_{RC} = K Y_R + a =$ _____

$a = a' + p =$ 97.08 psig

No.: DOP 114

- BOTTOM HOLE PRESSURE GAUGE CALIBRATION SHEET -

DATE : 23rd March 1982 CALIBRATION No. : 4c'

. EQUIPMENT DATA .

Calibration cell No. : 2147 Manufacturer : Flopetrol
Dead weight tester No. : 16619 Manufacturer : Chandler Range : 50-15000PSIG
Recording element No. : 37097 Manufacturer : G.R.G.
Pressure element No. : 41126 Manufacturer : G.R.C Range : 0 - 20,000PSI

. 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 : ☐ + in case of Dwt above
Oil specific gravity : p = 2 . 36 PSI ☐ - in case of Dwt beneath bellows.

. CALIBRATION READING AND CALCULATIONS .

P (Dwt) P.S.I.G	Y Inch.	ΔY	Y^2 Units on this line -	Y P	Pc = KY+a P.S.I.G	C=P-Pc P.S.I.G
7008.28	0.6761				7014.65	-6.37
7508.87	0.7277				7511.09	-2.22
8009.49	0.7759				8002.71	+6.75
8510.05	0.8260				8514.43	-4.38
9010.65	0.8741				9006.05	+4.60
9511.24	0.9236				9510.93	+0.30
10011.83	0.9724				10009.39	+2.44
10512.42	1.0217				10512.66	-0.24
11013.01	1.0704				11009.51	+3.51
11513.60	1.1189				11505.15	+8.46
12014.19	1.1695				12022.09	-7.89
12514.79	1.2181				12518.53	13.74
13015.38	1.2669				13016.58	-1.20
130154	12.6448	Σ	12.7359	131059.71	Σ+ : 26.06 Σ- : 26.06	

$A = \frac{\Sigma P}{n} =$ _____ $B = \frac{\Sigma Y}{n} =$ _____

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

$K = \frac{D - A}{C - B} =$ _____

$a' = A - BK =$ 80.9383 PSI. $a' = D - CK =$ _____

. FINAL RESULTS .

$K =$ 10210.234 PSI/INCH $P_{RC} = K Y_R + a =$ _____

$a = a' + p =$ 83.2983 PSI

- 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 : 50-15000 psig
Recording element No. : 52099 Manufacturer :
Pressure element No. : 37064 Manufacturer : Range : 0-15000 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 : [X] with crank [ ] with clock

Equivalent pressure p of level difference between Dwt and bellows
Level difference : 6 ft [X] + 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	ΔY	Y^2	Y P	Pc = KY + a	C = P - Pc
			Units on this line -			
6007.1	.7795				6010.53	-3.43
6507.69	.8448				6512.27	-4.58
7008.28	.9091				7012.28	-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	1.1684				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	Σ	23.956483	184901.81		Σ+ : 88.72 Σ- : 85.73

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

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

$a' = A - BK =$ -14.639 psi $a' = D - CK =$

. FINAL RESULTS .

K = 7729.533 psi/inch $P_{RC} = K Y_R + a =$
$a = a' + p =$ -12.368 psig

FLOPETROL

Base : STAVANGER

Client : B.P. Pet. Dev.

Field : Exploration

Well : 29/6-1

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BOTTOM HOLE PRESSURE CALCULATIONS

Well producing through ~~casing~~ / tubing / ~~drill-pipe~~

Bottom hole temperature : 307.6°F at depth 4276 mbrt with R.T.7 T.E.# 48489 48489

INSTRUMENT DATA	LOWER GAUGE	UPPER GAUGE
Instrument type :	R.P.G.-3	
Press. element. No. and range:	41128; 0-20,000 psi	
Recording element. No.:	T0113	
Clock. No. and capacity:	E-9184 72 hrs	
CALIBRATION DATA		
Calibration. No. and date :	3B 22/3/82	
Calibration temperature :	300°F	
Calibration range :	6000-11000 psi	
K :	k0213.426 psi/inch	
a, (calibrated chart) :	+ 16.12 psi	
P_{RC}, (non calibrated chart) :		

DATE-TIME Time HrsMin	DATE-TIME Cumul Mins	Choke size Inch	W.H. pressure Psig	Depth Meters	Y Inch	C *	P Psi	Y	C *	P
		D.S.T. No. 1								
	15th	April 1982								
1311		Engaged clock and stylus								
1430		Recorders landed in tailpipe and began R.I.H.								
		17th April 1982								
1144		Set packer at 4262.71 m B.R.T.								
		Initial hydrostatic pressure								
1445				4272.37	1.0958		11208			
1445		Open well on 16/64" adj. choke								
1447	2	16/64			0.9458		9676			
1447	0	Closed choke manifold.								
1449	2	-			1.0046		10277			
1450	3	-	4950		1.0193		10427			
1452	5	-			1.0692		10936			
1454	7	-			1.0962		10936			

REMARKS :

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

No. : DOP 115 Litografen 6175

FLOPETROL

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B.H. PRESSURE CALCULATIONS (Continuation)

DATE - TIME		Choke	W.H.	LOWER GAUGE				UPPER GAUGE		
Time	Cumul	size	pressure	Depth	Y	C*	P	Y	C*	P
Hrs Min	Mins	Inch	Psig	Meters	Inch		Psig	Inch		Psig
17th April 1982										
1455	8		4900	4272.37	1.0979		11229			
1456	9				1.0991		11242			
1458	11				1.1005		11256			
1500	13		4890		1.1013		11264			
1505	18		4890		1.1028		11279			
1510	23		4890		1.1038		11290			
1515	28		4890		1.1039		11291			
1520	33				1.1040		11292			
1521	34				1.1040		11292			
1521	0	Opened well on 8/64" adj. choke								
1530	9	8/64"	4400	4272.37	1.0512		10752			
1545	24		4550		1.0671		10915			
1600	39		4600		1.0738		10983			
1615	54		4150		1.0407		10645			
1630	69		4060		1.0160		10393			
1645	84		3810		0.9939		10167			
1700	99		3570		0.9750		9974			
1715	114		3870		1.0022		10252			
1730	129		3580		0.9690		9913			
1745	144		3470		0.9642		9864			
1800	159		3475		0.9664		9886			
1815	174		3430		0.9607		9828			
1830	189		3440		0.9550		9770			
1845	204		3400		0.9524		9743			
1900	219		3430		0.9711		9934			
1915	234		3430		0.9754		9978			
1930	249		3480		0.9748		9972			
1945	264		3350		0.9738		9962			

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B.H. PRESSURE CALCULATIONS (Continuation)

DATE - TIME		Choke	W.H.	LOWER GAUGE				UPPER GAUGE		
Time	Cumul	size	pressure	Depth	Y	C*	P	Y	C*	P
Hrs Min	Mins	Inch	Psig	Meters	Inch		Psig	Inch		Psig
17th April 1982										
2000	279	8/64"	3490	4272.37	0.9692		9915			
2015	294		3600		0.9877		10104			
2030	309		3480		0.9719		9943			
2045	324		3570		0.9807		10032			
2100	339		3550		0.9753		9977			
2115	354		3450		0.9780		10005			
2130	369		2370		1.0488		10728			
2145	384		2430		1.0198		10432			
2200	399		3550		1.0797		11044			
2215	414		3530		0.9729		9953			
2230	429		3330		0.9571		9791			
2245	444		3320		0.9648		9870			
2300	459		3445		0.9568		9788			
2315	474		3445		0.9662		9884			
2330	489		3400		0.9654		9876			
2345	504		3400		0.9587		9808			
2400	519		3400		0.9610		9831			
18th April 1982										
0015	534	8/64"	3440	4272.37	0.9594		9815			
0030	549		3340		0.9577		9798			
0045	564		3440		0.9598		9819			
0100	579		3390		0.9601		9822			
0115	594		3350		0.9596		9817			
0130	609		3350		0.9570		9790			
0145	624		3270		0.9499		9718			
0200	639		3250		0.9487		9706			
0203	642				0.9455		9673			
0203		Bled off annulus pressure to close APR-N.								

B.H. PRESSURE CALCULATIONS (Continuation)

DATE - TIME		Choke	W.H.	LOWER GAUGE				UPPER GAUGE			
Time	Cumul	size	pressure	Depth	Y	C *	P	Y	C *	P	
Hrs Min	Mins	Inch	Psig	Meters	Inch		Psig				
18th April 1982											
0204		Closed choke manifold									
0205	2		4100	4272.37	0.9967		10196				
0207	4				1.0357		10594				
0209	6				1.0616		10859				
0210	7				1.0798		11045				
0212	9				1.0916		11165				
0214	11				1.0938		11188				
0215	12				1.0942		11192				
0216	13				1.0948		11198				
0218	15				1.0956		11206				
0220	17				1.0963		11213				
0225	22				1.0974		11224				
0230	27		5010		1.0983		11234				
0231	28				1.0987		11238				
0232	29				1.0957		11207				
0233	30				1.0969		11219				
0234	31				1.0977		11227				
0235	32		5010		1.0982		11233				
0240	37		4990		1.0996		11247				
0245	42		4950		1.1006		11257				
0250	47		4870		1.1011		11262				
0255	52		4780		1.1016		11267				
0300	57		4730		1.1017		11268				
0315	72		4590		1.1018		11269				
0330	87		4470		1.1020		11271				
0345	102		4380		1.1022		11273				
0400	117		4320		1.1024		11275				
0415	132		4165		1.1026		11277				

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B.H. PRESSURE CALCULATIONS (Continuation)

DATE - TIME		Choke	W.H.	LOWER GAUGE				UPPER GAUGE		
Time	Cumul	size	pressure	Depth	Y	C*	P	Y	C*	P
HrsMin	Mins	Inch	Psig	Meters	Inch					Psig
18th April 1982										
0430	147		4135	4272.37	1.1026		11277			
0445	162		4095		1.1025		11276			
0500	177		4060		1.1027		11278			
0515	192		4050		1.1027		11278			
0530	207		4035		1.1027		11278			
0545	222		4035		1.1029		11281			
0600	237		4035		1.1031		11283			
06.30	267		4035		1.1033		11285			
0700	297		4045		1.1033		11285			
0730	327		4090		1.1033		11285			
0800	357		4128		1.1035		11287			
0830	387		4171		1.1036		11288			
0900	417		4215		1.1036		11288			
0930	447		4275		1.1038		11290			
1000	477		4325		1.1038		11290			
1030	507		4400		1.1038		11290			
1100	537		4460		1.1039		11291			
1130	567		4525		1.1039		11291			
1200	597		4600		1.1039		11291			
1230	627		4670		1.1039		11291			
Clock ran out.										

BOTTOM HOLE PRESSURE CALCULATIONS

Well producing through . / tubing /
Bottom hole temperature : 305.7°F at depth 4250.46m with T.F. 48489

	LOWER GAUGE	UPPER GAUGE
INSTRUMENT DATA		
Instrument type :	R.P.G. 3	RPG 3
Press. element. No. and range :	41126 0-20,000 psi	41128 0-20,000 psi
Recording element. No. :	34007	10113
Clock. No. and capacity :	F-11923 120 hours	E-9184 72 hours
CALIBRATION DATA		
Calibration. No. and date :	4B 23/3/82	3B 22/3/82
Calibration temperature :	300°F	300°F
Calibration range :	6000-13000 psig	6000-11000 psi
K :	10190.318 psig/inch	10213.426 psig/inch
a, (calibrated chart) :	+97.08 psig	+16.12 psig
P_{RC}, (non calibrated chart) :		

DATE-TIME Time Hrs Min	Cumul Mins	Choke size Inch	W.H. pressure Psig	Depth Meters	Y Inch	C *	P Psig	Y Inch	C *	P Psig
22nd April 1982 D.S.T. No.2										
2203		Clock and stylus engaged on P.E.No. 41126								
2235		Recorders landed in tail pipe and began R.I.H.								
24th April 1982										
1108		Set packer at 4235.04 M								
		Initial hydrostatic 4246.62								
2152		Increased annulus pressure to 2600 psi to open APR-N								
2154			3000		1.1555		11872	1.1528		11790
2154	0	Opened choke manifold on adj. choke and bled down T.H.P to								
		3000 psi and closed choke.								
2155	1/0	Closed			0.8910		9177	0.8934		9141
2156	1	"	3100		0.9131		9402	0.9061		9271
2158	3	"	3230		0.9265		9538	0.9138		9349
2200	5	"	3345		0.9450		9727	0.9359		9575
2202	7	"	3480		0.9580		9859	0.9564		9784

REMARKS :

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

B.H. PRESSURE CALCULATIONS (Continuation)

DATE - TIME		Choke	W.H.	LOWER GAUGE				UPPER GAUGE		
Time	Cumul	size	pressure	Depth	Y	C *	P	Y	C *	P
Hrs Min	Mins	Inch	Psig	Meters	Inch		Psig	Inch		Psig
24th April 1982										
2204	9	Closed	3550	4246.62	0.9845		10129	0.9774		9999
2206	11	"	3640		0.9598		9878	0.9652		9874
2208	13	"	3730		0.9711		9993	0.9741		9965
2210	15	"	3820		0.9798		10082	0.9798		10023
2212	17	"	3890		0.9855		10140	0.9872		10099
2214	19	"	3940		0.9935		10221	0.9929		10157
2216	21	"	3990		1.0004		10291	0.9971		10200
2218	23	"	4070		1.0026		10314	1.0018		10248
2220	25	"	4120		1.0072		10361	1.0068		10299
2222	27	"	4150		1.0115		10405	1.0115		10347
2224	29	"	4200		1.0168		10459	1.0154		10387
2226	31	"	4240		1.0205		10496	1.0198		10432
2228	33	"	4280		1.0248		10540	1.0236		10471
2230	35	"	4295		1.0290		10583	1.0271		10506
2232	37	"	4350		1.0321		10615	1.0301		10537
2234	39	"	4385		1.0349		10643	1.0327		10564
2236	41	"	4410		1.0381		10676	1.0354		10591
2238	43	"	4430		1.0402		10697	1.0378		10616
2240	45	"	4460		1.0431		10727	1.0402		10640
2242	47	"	4475		1.0460		10756	1.0427		10666
2244	49	"	4500		1.0479		10776	1.0450		10689
2250	55	"	4550		1.0542		10840	1.0510		10750
2255	60	"	4600		1.0583		10881	1.0551		10798
2300	65	"	4620		1.0621		10920	1.0588		10830
2305	70	"	4630		1.0650		10950	1.0623		10866
2307	72	"	4630		1.0662		10962	1.0632		10875
2307		Annulus pressure bled down from 2600 psi to 2300 psi.								
2309	74	Closed			1.0658		10958	1.0632		10875

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B.H. PRESSURE CALCULATIONS (Continuation)

DATE - TIME		Choke	W.H.	LOWER GAUGE				UPPER GAUGE		
Time	Cumul	size	pressure	Depth	Y	C*	P	Y	C*	P
Hrs Min	Mins	Inch	Psig	Meters	Inch		Psig	Inch		Psig
2309	74		Well opened on 8/64" adjustable choke.							
2309	0	8/64		4246.62	.8469		8727	0.9082		9292
2310	1		3170	Well closed in.						
2314	5	Closed	3410		.8860		9126	0.9413		9630
2318			Well opened on 8/64" adj. choke					0.9616		9837
2318	9	8/64			.8499		8758	0.8494		8691
2319	10	8/64			.8578		8838	0.8608		8808
2319			Changed choke to 3/64" adjustable							
2320	11	3/64	2400		.8715		8978	0.8688		8890
2320			Well closed in at choke manifold							
2321	12	Closed	2500		.8858		9124	0.8776		8979
2321			Well opened on 3/64" changed to 2/64" choke							
2322	13	2/64			.8860		9126	0.8742		8945
2323	14	2/64	2560		.8848		9113	0.8690		8892
2324	15	2/64	2640		.8810		9075	0.8613		8813
2324			Choke changed to 3/64" adj.							
2325	16	3/64	2590		.8780		9044	0.8558		8757
2326	17	3/64	2520		.8748		9012	0.8523		8721
2327	18	3/64	2450		.8732		8994	0.8569		8768
2328	19	3/64	2400		.8713		8976	0.8652		8853
2329	20	3/64	2350		.8712		8975	0.8745		8948
2329			Choke changed to 2/64" adjustable							
2330	21	2/64	2450		.8716		8979	0.8815		9019
2331	22	2/64	2580		.8838		9103	0.8800		9004
2332	23	2/64	2720		.8842		9107	0.8780		8984
2332			Choke changed to 3/64" adjustable							
2333	24	3/64	2680		.8850		9116	0.8775		8978
2334	25	3/64	2650		.8850		9116	0.8753		8956
2335	26	3/64			.8849		9114	0.8740		8943

B.H. PRESSURE CALCULATIONS (Continuation)

DATE - TIME		Choke	W.H.	LOWER GAUGE				UPPER GAUGE		
Time	Cumul	size	pressure	Depth	Y	C*	P	Y	C*	P
HrsMin	Mins	Inch	Psig	Meters	Inch		Psig	Inch		Psig
2335	26									
2336	27	3/64	2590	4246,62	.8835		9100	0.8728		8930
2338	29	3/64	2560		.8809		9074	0.8725		8927
2340	31	3/64	2530		.8779		9043	0.8858		9063
2340			Changed choke to 2/64" adjustable							
2342	33	2/64	2740		.8766		9030	0.8837		9042
2342			Changed choke to 3/64" adjustable							
2344	35	3/64	2700		.8762		9026	0.8820		9024
2346	37	3/64	2670		.8764		9028	0.8800		9004
2348	39	3/64	2640		.8772		9036	0.8780		8984
2350	41	3/64	2620		.8782		9046	0.8760		8963
2352	43	3/64	2600		.8801		9066	0.8759		8962
2354	45	3/64	2588		.8830		9095	0.8762		8965
2356	47	3/64	2610		.8785		9049	0.8770		8973
2358	49	3/64	2620		.8809		9074	0.8773		8976
25th	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 7/64" adjustable							
0023	74		Changed choke to 5/64" adjustable							
0031	82		Changed choke to 4/64" adjustable							
0031	82	4/64			.8266		8520	0.8274		8467
0032			Changed choke to 3/64" adj. choke							
0032	83	3/64			.8254		8508	0.8274		8467
0034	85	3/64	1990		.8254		8508	0.8470		8667
0036	87	3/64	2350		.8493		8752	0.8830		9035

No. DOP 116 Litografen 8175

B.H. PRESSURE CALCULATIONS (Continuation)

DATE - TIME		Choke	W.H.	LOWER GAUGE				UPPER GAUGE		
Time	Cumul	size	pressure	Depth	Y	C*	P	Y	C*	P
HrsMin	Mins	Inch	Psig	Meters	Inch		Psig	Inch		Psig
0036	87									
0038	89	3/64	3000		.8985		9253	0.9160		9372
0040	91	3/64	3650	4246.62	.9208		9480	0.9599		9820
0042	93	3/64	3850		.9461		9738	0.9773		9998
0044	95	3/64	3950		.9878		10163	0.9969		10198
0046	97	3/64	3970		1.0021		10309	1.0067		10298
0048	99	3/64	3990		1.0128		10418	1.0109		10341
0050	101	3/64	3970		1.0159		10449	1.0135		10367
0052	103	3/64	3970		1.0200		10491	1.0147		10380
0054	105	3/64	3960		1.0211		10502	1.0152		10385
0056	107	3/64	3960		1.0215		10506	1.0157		10390
0058	109	3/64	3950		1.0217		10509	1.0158		10391
0100	111	3/64	3840		1.0219		10511	1.0159		10392
0110	121	3/64	3930		1.0042		10330	1.0039		10269
0120	131	3/64	3960		1.0219		10511	1.0169		10402
0122	133	Changed to 4/64" adj. choke.								
0130	141	4/64	3615					0.9660		9882
0140	151	4/64	3740		1.0028		10316	0.9962		10191
0150	161	4/64	3630		1.0000		10287	0.9932		10160
0200	171	4/64	3600		0.9936		10222	0.9884		10111
0210	181	4/64	3720		0.9912		10198	0.9915		10143
0220	191	4/64	3730		1.0034		10322	0.9985		10214
0230	201	4/64	3760		1.0020		10308	1.0004		10234
0240	211	4/64	3710		1.0052		10340	1.0000		10230
0250	221	4/64	3695		0.9980		10267	0.9954		10183
0300	231	4/64	3690		0.9942		10228	0.9938		10166
0315	246	4/64	3825		1.0077		10366	1.0040		10270
0330	261	4/64	3650		1.0015		10303	0.9958		10187
0345	276	4/64	3480		0.9796		10080	0.9778		10003

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B.H. PRESSURE CALCULATIONS (Continuation)

DATE - TIME		Choke	W.H.	LOWER GAUGE				UPPER GAUGE		
Time	Cumul	size	pressure	Depth	Y	C*	P	Y	C*	P
HrsMin	Mins	Inch	Psig	Meters	Inch		Psig	Inch		Psig
0345	276									
0400	291	4/64	3465		0.9762		10045	0.9741		9965
0415	306	4/64	3600	4246.62	0.9875		10160	0.9843		10069
0430	321	4/64	3600		0.9898		10183	0.9868		10095
0445	336	4/64	3500		0.9403		9679	0.9308		9523
0500	351	4/64	3700		1.0006		10294	0.9939		10167
0515	366	4/64	3685		0.9977		10264	0.9931		10159
0530	381	4/64	3625		0.9932		10218	0.9900		10127
0545	396	4/64	3650		0.9992		10279	0.9942		10170
0600	411	4/64	4240		1.0308		10601	1.0279		10515
0615	426	4/64	4210		1.0498		10795	1.0441		10680
0630	441	4/64	3920		1.0158		10448	1.0179		10412
0645	456	4/64	3825		1.0235		10527	1.0168		10401
0700	471	4/64	3810		1.0087		10376	1.0091		10323
0715	486	4/64	3804		1.0125		10415	1.0088		10319
0730	501	4/64	3727		1.0023		10311	1.0000		10230
0745	516	4/64	3710		0.9992		10279	0.9988		10217
0800	531	4/64	3710		1.0044		10332	0.9996		10226
0815	546	4/64	3760		1.0051		10339	1.0021		10251
0830	561	4/64	3720		1.0078		10367	1.0050		10281
0845	576	4/64	3675		0.9992		10279	0.9973		10202
0900	591	4/64	3650		0.9999		10286	0.9615		9836
0915	606	4/64	3550		0.9802		10086	0.9829		10055
0930	621	4/64	3880		1.0202		10493	1.0013		10243
0945	636	4/64	3715		0.9986		10273	Clock ran out -		
1000	651	4/64	3745		1.0075		10364			
1015	666	4/64	3560		0.9880		10165			
1030	681	4/64	3770		1.0108		10397			
1045	696	4/64	3815		1.0162		10452			

B.H. PRESSURE CALCULATIONS (Continuation)

DATE - TIME		Choke	W.H.	LOWER GAUGE				UPPER GAUGE		
Time	Cumul	size	pressure	Depth	Y	C*	P	Y	C*	P
HrsMin	Mins	Inch	Psig	Meters	Inch		Psig			
1045	696									
1100	711	4/64	3800		1.0149		10439			
1115	726	4/64	3810	4246.62	1.0161		10451			
1130	741	4/64	3830		1.0198		10489			
1145	756	4/64	3790		1.0146		10436			
1200	771	4/64	3775		1.0169		10460			
1215	786	4/64	3710		1.0091		10380			
1230	801	4/64	3800		1.0198		10489			
1245	816	4/64	3720		1.0111		10401			
1300	831	4/64			1.0502		10799			
1315	846	4/64	4380		1.0718		11019			
1330	861	4/64			1.0792		11094			
1334	865		Changed to 5/64" adj.			choke				
1336	867		Changed to 6/64" adj.			choke				
1345	876	6/64	4635		1.0957		11263			
1345	876		Changed to 8/64" adj.			choke				
1349	880		Changed to 10/64" adj.			choke				
1353	884		Changed to 12/64" adj.			choke				
1354	885		Changed to 8/64" adj.			choke				
1356	887		Changed to 6/64" adj.			choke				
1400	891	6/64	3880		1.0256		10548			
1415	906	6/64	3700		1.0194		10485			
1428	919		Changed to 4/64" adj.			choke				
1430	921	4/64	3950		1.0309		10602			
1437	928		Changed to between 5/64" and 6/64" adj.			choke				
1445	936	5-6/	4230		1.0342		10636			
1447	938		Changed to 6/64" adj.			choke				
1456	947		Changed to 8/64" adj.			choke				
1457	948		Changed to 10/64" adj.			choke				

B.H. PRESSURE CALCULATIONS (Continuation)

DATE - TIME		Choke	W.H	LOWER GAUGE				UPPER GAUGE		
Time	Cumul	size	pressure	Depth	Y	C*	P	Y	C*	P
Hrs Min	Mins	Inch	Psig	Meters	Inch		Psig			
1457	948									
1459	950		Changed to 8/64" adj. choke							
1500	951	8/64	3000	4246.62	0.9784		10067			
1500	951		Changed to 6/64" adj. choke							
1501	952		Changed to 4/64" adj. choke							
1515	966	4/64	3800		0.9961		10248			
1530	981	4/64	3680		0.9794		10077			
1545	996	4/64	3570		0.9538		9817			
1600	1011	4/64	3645		0.9860		10145			
1615	1026	4/64	3725		0.9861		10146			
1630	1041	4/64	3690		0.9913		10199			
1634	1045	4/64			0.9885		10170			
1634	1045		Pressurized annulus to close APR-N and shear APR-M							
1634	0	4/64			1.0800		11103			
1638	4		Pressurized annulus to 3500 psi.							
1638	4	4/64			1.1241		11552			
1643	9		Pressurized annulus to 3500 psi							
1643	9	4/64			1.1520		11836			
1645	11	4/64	4950							
1650	16		Pressurized annulus to 3500 psi							
1653	19	4/64	5440		1.2185		12514			
1700	26		5200							
1704	30		Bled off annulus pressure to close APR-N							
1705	31		Closed choke manifold							
1715	41									
1720	46	Closed			1.0946		11251			
1730	56	"	3050		1.0946		11251			
1800	86	"	2850		1.0948		11253			
1830	116	"	2720		1.0948		11253			

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B.H. PRESSURE CALCULATIONS (Continuation)

DATE - TIME		Choke	W.H.	LOWER GAUGE				UPPER GAUGE		
Time	Cumul	size	pressure	Depth	Y	C*	P	Y	C*	P
HrsMin	Mins	Inch	Psig	Meters	Inch		Psig			
1830	116									
1900	146	Closed	2625		1.0948		11253			
1930	176	"	2560	4246.62	1.0948		11253			
2000	206	"	2520		1.0948		11253			
2030	236	"	2475		1.0948		11253			
2100	266	"	2445		1.0948		11253			
2130	296	"	2434		1.0948		11253			
2200	326	"	2415		1.0948		11253			
2230	356	"	2390		1.0949		11254			
2300	386	"	2370		1.0949		11254			
2330	416	"	2350		1.0949		11254			
2400	446	"	2340		1.0949		11254			
26th April 1982										
0100	506	Closed	2320		1.0951		11256			
0200	566	"	2300		1.0951		11256			
0300	626	"	2270		1.0951		11256			
0400	686	"	2250		1.0951		11256			
0500	746	"	2250		1.0951		11256			
0600	806	"	2230		1.0951		11256			
0700	866	"	2210		1.0951		11256			
0800	926	"	2200		1.0954		11260			
0900	986	"	2195		1.0954		11260			
0907	993	"			1.0954		11260			
0907	-	Pressurized annulus to shear APR-M								

- BOTTOM HOLE TEMPERATURE CALCULATIONS -

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

DATE – TIME Time Hrs/min	Cumul Min	Choke size Inch	Depth Metre	W.H. temp. °F	Y Inch	Y + Yo	T °F	Remarks Units
15th April 1982					DST - 1			
1219	Clock & Stylus "on"							
17th April 1982								
1521	0	Opened well on 8/64 adj. choke						
1530	9	8/64	4278	55	.629		298.4	
1600	39			59	.638		299.5	
1630	69			59	.643		300.0	
1700	99			64	.649		300.7	
1730	129			64	.653		301.1	
1800	159			67	.663		302.2	
1830	189			70	.669		302.8	
1900	219			74	.674		303.3	
1930	249			78	.681		304.0	
2000	279			81	.681		304.0	
2030	309			77	.682		304.1	
2100	339			78	.685		304.4	
2130	369			77	.686		304.5	
2200	399			77	.692		305.2	
2230	429			82	.692		305.2	
2300	459			82	.692		305.2	
2330	489			82	.693		305.3	
2400	519			87	.694		305.4	

B.H. TEMPERATURE CALCULATIONS (Continuation)

DATE - TIME		Choke size	Depth	W.H. temp.	Y	Y + Yo	T	Remarks
Time	Cumul							
~~Hrs/min~~	~~Min~~	~~Inch~~	~~Metre~~	°F	~~Inch~~		°F	Units
18th April 1982								
0030	549	8/64	4278	88	.698		305.8	
0100	579			89	.699		305.9	
0130	609			91	.700		306.0	
0200	639			93	.702		306.2	
0203	642				.703		306.3	
0203	0	Bled off annulus pressure to close APR-N						
0230	27				.716		307.6	
0300	57				.706		306.6	
0330	87				.701		306.1	
0400	117				.691		305.1	
0430	147				.689		304.9	
0500	177				.684		304.3	
0530	207				.681		304.0	
0600	237				.678		303.7	
0630	267				.677		303.6	
0700	297				.674		303.3	
0730	327				.672		303.1	
0800	357				.669		302.8	
0830	387				.669		302.8	
0900	417				.668		302.7	
0930	447				.667		302.6	
1000	477				.666		302.5	
1030	507				.666		302.5	
1100	537				.665		302.4	
1130	567				.662		302.0	
1200	597				.661		301.9	
1230	627				.660		301.8	

FLOPETROL

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B.H. TEMPERATURE CALCULATIONS (Continuation)

DATE - TIME		Choke size	Depth	W.H. temp.	Y	Y + Yo	T	Remarks
Time	Cumul							Units
~~Hrs/min~~	~~Min~~	~~Inch~~	~~Metre~~	~~°F~~	~~Inch~~		°F	
18th April 1982								
1300	657				.658		301.6	
1330	687		4278		.658		301.6	
1400	717				.658		301.6	
1430	747				.653		301.1	
1500	777				.654		301.2	
1519	Pressurized annulus to open reverse circulation valve.							

- LIQUID PRODUCTION RATE MEASUREMENT -

2.1 - MEASUREMENT WITH TANK -

$$V_o = V \times K \times (1 - BSW)$$

V_o : Net oil volume at 60°F and atmospheric pressure.
V : Gross oil volume measured by tank gauging.
K : Volume correction factor to be applied between the tank temperature during gauging and 60°F.
BSW: Basic sediments and water.

2.2 - MEASUREMENT WITH METER -

a) Shrinkage factor is measured by shrinkage tester.

$$V_o = V_S \times f \times (1 - Shr) \times K \times (1 - BSW)$$

V_o : Net oil volume at 60°F and atmospheric pressure.
V_S : Gross oil volume measured by meter under separator conditions.
f : Meter correction factor = $\frac{\text{Volume measured in tank}}{\text{Volume measured by meter}}$
Shr: Percentage of oil volume reduction between separator and tank conditions, reported to oil volume at separator conditions.
K : Volume correction factor to be applied between the final temperature during shrinkage measurement and 60°F.
BSW: Basic sediments and water.

b) Shrinkage factor is measured with tank.

$$V_o = V_S \times (1 - Shr') \times K \times (1 - BSW)$$

V_o, V_S, K and BSW : Same meaning as in a).
$(1 - Shr')$: Shrinkage factor including meter correction factor.

o.: DOP 120

FLOPETROL

Base : STAVANGER

Client : B.P. Pet. Dev.

Field : Exploration

Well : 29/6-1

WATER ~~XXX~~ PRODUCTION RATE -

- MEASUREMENT WITH TANK -

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DATE - TIME		Gauge	TANK VOLUME		STO GRAVITY			K	BSW	Net volume of STO V_o	Net STO product. rate	Cumulative production	
Time	Interval	graduation	Volume V	Temp.	Gravity	Temp.	Grav. 60°F						
HR/MIN	MIN	CM	BBLS						%	BBLS	BBLS/day	BBLS	Units
			17th April 1982		D.S.T.	No. 1							
1521		Opened choke manifold on 8/64", flowing seawater cushion to gauge tank.											
1522		53.2	Initial reading										
1525	4 5	61.0	2.06							2.06	742	2.06	
1530	5 10	69.5	2.25							2.25	648	4.30	
1535	5 15	77.5	2.11							2.11	608	6.42	
1540	5 20	83.0	1.45							1.45	418	7.87	
1545	5 25	87.5	1.19							1.19	344	9.06	
1550	5 30	95.0	1.98							1.98	570	11.04	
1555	5 35	97.5	0.66							0.66	191	11.70	
1600	5 40	101.5	1.06							1.06	305	12.76	
1605	5 45	107.0	1.45							1.45	418	14.21	
1610	5 50	112.0	1.32							1.32	380	15.53	
1615	5 55	120.0	2.11							2.11	607	17.64	

TESTED INTERVAL : D.S.T. No. 1

PERFORATIONS : 4287-4301 m

No DOP 121

FLOPETROL

MEASUREMENT WITH TANK - (Continuation)

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Date - Time		Gauge	Tank volume		Sto Gravity			K	BSW	Net volume of STO Vo	Net STO product. rate	Cumulative production	
Time	Interval	graduation	Volume V	Temp.	Gravity	Temp.	Grav 60 F						
hr/min	min.	cm	Bbl	°F	°API	°F	°API		%	Bbl	Bbl/day	Bbl	Units
1620	5	125.5	1.45							1.45	418	19.09	
1625	5	133.0	1.98							1.98	570	21.07	
1630	5	140.5	1.98							1.98	570	23.05	
1635	5	151.0	2.77							2.77	798	25.82	
1640	5	159.0	2.11							2.11	608	27.93	
1645	5	170.0	2.91							2.91	838	30.84	
1650	5	181.0/30.0	2.91							2.91	838	33.75	
1655	5	35	1.32							1.32	380	35.07	
1700	5	48	3.43							3.43	988	38.50	
1705	5	61	3.43							3.43	988	41.93	
1710	5	71	2.64							2.64	760	44.57	
1715	5	81	2.64							2.64	760	47.21	
1720	5	91	2.64							2.64	760	49.85	
1725	5	101	2.64							2.64	760	52.49	
1730	5	113	3.17							3.17	913	55.66	
1735	5	125	3.17							3.17	913	58.83	
1740	5	137	3.17							3.17	913	62.00	

FLOPETROL

MEASUREMENT WITH TANK - (Continuation)

Section : Annex **2.1**

Date - Time		Gauge	Tank volume		Sto Gravity			K	BSW	Net volume of STO Vo	Net STO product. rate	Cumulative production	
Time	Interval	graduation	Volume V	Temp.	Gravity	Temp.	Grav 60 F						
hr/min	min.	cm	Bbl	°F	°API	°F	°API		%	Bbl	Bbl/day	Bbl	Units
17/4/82													
1740	5/45	137	3.17							3.17	913	62.00	
1745	5/50	149	3.17							3.17	913	65.17	
1750	5/55	161	3.17							3.17	913	68.34	
1755	5/60	173/33	3.17							3.17	913	71.51	
1800	5/65	45	3.17							3.17	913	74.68	
1805	5/70	58	3.43							3.43	988	78.11	
1810	5/75	75	4.49							4.49	1293	82.60	
1815	5/80	88	3.43							3.43	988	86.03	
1820	5/85	100	3.17							3.17	913	89.02	
1825	5/90	114	3.70							3.70	1066	92.72	
1845	Switched flow via burner.												
1925	Switched flow to gauge tank (estimated average flow rate between 1825 hrs & 2015 hrs = 0.66 bbl/min)												
2000	285	131			Estimated cumulative production:-							155.57	
2015	1530	154	6.08							6.08	584	161.65	
2020	5305	167/44	3.43							3.43	988	165.08	
2030	10315	68	6.33							6.33	760	171.42	
2045	1533	102	8.98							8.98	862	180.40	

No DOP 121

FLOPETROL

MEASUREMENT WITH TANK - (Continuation)

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Section : Annex **2.1**

Date - Time		Gauge	Tank volume		Sto Gravity			K	BSW	Net volume of STO Vo	Net STO product. rate	Cumulative production	
Time	Interval	graduation	Volume V	Temp.	Gravity	Temp.	Grav 60 F						
hr/min	min.	cm	Bbl	°F	°API	°F	°API		%	Bbl	Bbl/day	Bbl	Units
17/4/82													
2100	15345	139	9.77							9.77	938	190.17	
2115	15360	173/33	8.98							8.98	862	199.15	
2130	15375	54	5.55							5.55	533	204.70	
2215	45420	104.5	13.34							13.34	427	218.04	
2215			Begin recording flowrate measurements via separator meter.										

o.: DOP 120

FLOPETROL

Base : STAVANGER

Client : B.P. Pet. Dev.

Field : Exploration

Well : 29/6-1

WATER - XXXX PRODUCTION RATE -

- MEASUREMENT WITH TANK -

Section : ANNEX 2.1

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DATE - TIME		Gauge	TANK VOLUME		STO GRAVITY			K	BSW	Net volume of STO V_o	Net STO product. rate	Cumulative production	
Time HR/MIN	Interval MIN	graduation CM	Volume V BBLS	Temp.	Gravity	Temp.	Grav. 60°F		%	BBLS	BBLS/day	BBLS	Units
			2nd May.	1982	D.S.T.	No. 3							
1322	-	28		Open well on 12/64" adj. choke for initial flow								0	
1327	5	53	6.6								1902	6.6	
1327	-	Closed choke manifold and APR-N for initial P.B.U.											
1432	-	53	Opened well on 12/64" adj. choke, flowing seawater cushion.										
1445	13	140	22.98								2545	29.6	
1448	3	159/19	5.02	Changed to left tank							2410	34.6	
1500	12	101	21.66								2599	56.26	
1507	7	152/36	13.47	Changed to right tank							2771	69.73	
1515	8	86	13.21								2378	82.94	
1515	-			Switched to gas flare.									

TESTED INTERVAL : D.S.T. No. 3

PERFORATIONS : 4208.5 - 4218.3 m

DOP 122

FLOPETROL

Base : STAVANGER

Client : B.P. Pet. Dev.

Field : Exploration

Well : 29/6-1

WATER PRODUCTION RATE - MEASUREMENT WITH METER -

Section: ANNEX 2.2

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DATE – TIME		Meter reading	V_S	BSW	V_o' *	1 – Shr		OIL GRAVITY			K	Net volume of STO: V_o	Net STO product. rate	Cumulative production	
Time HR/MIN	Interval MIN					Factor	Temp.	Gravity	Temp.	Grav. 60°F					Units
		BBLS	BBLS	%	BBLS							BBLS	BBL/day	BBLS	
					17th April 1982		D.S.T. No. 1								
2130			Switched flow through separator												
2200		1057.00	Began flow rate measurements												
2215	15	1067.99	10.99	Traces	11.07							11.07	1062	218.04	
2230	15	1076.42	8.43	Trace	8.49							8.49	815	226.53	
2245	15	1084.42	8.00	Trace	8.06							8.06	774	234.59	
2300	15	1099.92	15.50	Trace	15.61							15.61	1499	250.20	
2315	15	1106.58	6.66	Trace	6.71							6.71	644	256.91	
2330	15	1116.10	9.52	Trace	9.59							9.59	921	266.50	
23.45	15	1126.22	10.12	Trace	10.19							10.19	978	276.69	
2400	15	1137.08	10.86	Trace	10.93							10.93	1049	287.62	
			18th April 1982												
0015	15	1146.64	9.56	Trace	9.63							9.63	924	297.25	
0030	15	1157.01	10.37	Trace	10.44							10.44	1002	307.69	

Shrinkage factor measured by Shrinkage tester ☐ Tank ☐

$V_o' = V_S \times f \times (1 - BSW)$ = Net oil volume at separator conditions. f = 1.0069

TESTED INTERVAL : D.S.T. No. 1

PERFORATIONS : ~~4287 4291.8 m~~

o.: DOP 123

FLOPETROL | MEASUREMENT WITH METER -(Continuation) | Page : 108 Report N : 82/2301/11 | Section : ANNEX 2.2

DATE - TIME		Meter reading	V_S	BSW	V'_o	1 - Shr		OIL GRAVITY			K	Net volume of STO: V_o	Net STO product. rate	Cumulative production	
Time	Interval					Factor	Temp.	Gravity	Temp.	Grav. 60°F					
HR/MIN	MIN	BBLS	BBLS	%	BBLS							BBLS	BBL/day	BBLS	Units
18/4/82															
0045	15	1167.68	10.67	1	10.64							10.64	1021	318.33	
0100	15	1179.95	12.27	1	12.23							12.23	1174	330.56	
0115	15	1188.84	8.89	1	8.86							8.86	851	339.42	
0130	15	1198.51	9.67	1	9.64							9.64	925	349.04	
0145	15	1208.08	9.57	1	9.54							9.54	916	358.58	
0200	15	1220.06	11.98	1	11.94							11.94	1146	370.52	
0203			Closed APR-N for P.B.U.												

No.: DOP 122

FLOPETROL

Base : STAVANGER

Client : B.P. Pet. Dev.

Field : Wildcat

Well : 29/6-1

- OIL PRODUCTION RATE -
- MEASUREMENT WITH METER -

Section: ANNEX 2.2

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Report N°: 82/2301/11

DATE – TIME		Meter reading	V_S	BSW	V_o' *	1 – Shr		OIL GRAVITY			K	Net volume of STO: V_o	Net STO product. rate	Cumulative production	
Time	Interval					Factor	Temp.	Gravity	Temp.	Grav. 60°F					
HR/MIN	MIN	BBLS	BBLS	%	BBLS							BBLS	BBL/day	BBLS	Units
							°F	S.G.	°F	S.G.					
					2nd May 1982		D.S.T. No. 3								
			Switched flow through separator on 8/64" adj. choke on heater.												
1900		1247.28	Began flow rate measurements												
1915	15	1268.00	20.72	40	20.03	.870	60	.801	79	.808	1.00	17.42	1673		
1930	15	1284.53	16.53	Trace	16.64	.870	60	.801	79	.808	1.00	14.48	1390		
1945	15	1302.56	18.03	Trace	18.15	.870	60	.801	79	.808	1.00	15.79	1516		
2000	15	1319.26	16.70	Trace	16.82	.870	60	.801	79	.808	1.00	14.63	1404		
2015	15	1336.46	17.20	Trace	17.32	.870	60	.801	79	.808	1.00	15.07	1446		
2030	15	1353.78	17.32	Trace	17.44	.870	60	.801	79	.808	1.00	15.17	1457		
2045	15	1371.37	17.59	Trace	17.71	.870	60	.801	79	.808	1.00	15.41	1479		
2100	15	1388.94	17.57	Trace	17.69	.870	60	.801	79	.808	1.00	15.39	1478		
2115	15	1405.88	16.94	Trace	17.06	.870	60	.801	79	.808	1.00	14.84	1425		
2130	15	1424.16	18.28	Trace	18.41	.870	60	.801	79	.808	1.00	16.01	1537		
2145	15	1440.87	16.71	Trace	16.83	.870	60	.801	79	.808	1.00	14.64	1405		

Shrinkage factor measured by Shrinkage tester ☒ Tank ☐ f = 1.0069

* $V_o' = V_S \times f \times (1 - BSW)$ = Net oil volume at separator conditions.

TESTED INTERVAL D.S.T. No. 1 4208.5 – 4218.3 m

PERFORATIONS :

DOP 122

FLOPETROL

Base : Stavanger

Client : B.P. PET.DEV.

Field : Wildcat

Well : 29/6-1

~~OIL~~ WATER PRODUCTION RATE

MEASUREMENT WITH METER

Section: ANNEX 2.2

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DATE – TIME		Meter reading	V_S	BSW	V_o'*	1 – Shr		OIL GRAVITY			K	Net volume of STO: V_o	Net STO product. rate	Cumulative production	Units
Time	Interval					Factor	Temp.	Gravity	Temp.	Grav. 60°F					
H/MIN	MIN	BBLS	BBLS	%	BBLS							BBLS	BBLS /day		
					2nd May	1982		D.S.T. No 3							
	Switched flow through separator on 8/64" ads choke														
19.00	-	221.7	Began	Flow	Rate	Measurements								0	
19.15	15	223.3	1.6		1.6							1.6	154	1.6	
19.30	15	226.36	3.06		3.06							3.06	294	4.66	
19.45	15	227.68	1.32		1.32							1.32	127	5.98	
20.00	15	231.2	3.52		3.52							3.52	338	9.5	
20.15	15	233.7	2.5		2.5							2.5	240	12.0	
20.45	30	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	
21.47			Closed flow wing valve by passed separator												

Shrinkage factor measured by Shrinkage tester ☐ Tank ☐

$V_o' = V_S \times f \times (1 - BSW)$ = Net oil volume at separator conditions. f = 1.001

TESTED INTERVAL : D.S.T. No 3

PERFORATIONS : 4208.5 - 4218.3m

GAS PRODUCTION RATE MEASUREMENT by orifice meter

Reference is made to the rules and coefficients given in AGA gas measurement Comittee Report No.3 for orifice metering.

a) EQUATIONS

$$Q = C \sqrt{h_w \times P_f}$$

Q : Production rate at reference conditions.
C : Orifice flow coefficient.
h_w: Differential pressure in inches of water.
P_f : Flowing pressure in psia.

$$C = F_u \times F_b \times F_g \times Y \times F_{tf} \times F_{pv}$$

F_u : Unit conversion factor in desired reference conditions.
F_b : Basic orifice factor (Q in Cu.ft / hour).
F_g : Specific gravity factor.
Y : Expension factor
F_{tf} : Flowing temperature factor.
F_{pv}: Supercompressibility factor (estimated).

Remarks

F_m: Manometer factor is equal one since only bellows type meters are used.
F_r : Reynolds factor is considered to be one.

TABLE OF F_u FACTOR

UNITS	REFERENCE CONDITIONS			
	60°F 14.73 psia	0°C 760mmHg*	15°C 760mmHg *	15°C 750mmHg *
Cu.ft / hour	1	0.9483	1.0004	1.0137
Cu.ft / day	24	22.760	24.009	24.329
m^3 / hour	0.02832	0.02685	0.02833	0.02870
m^3 / day	0.6796	0.6445	0.6799	0.6889

* Mercury at 32°F

b) METER DATA

Meter type :_____ Flange taps – P_f taken down/up stream
Flow recorder type:_____ ID of meter tube :_____

c) SPECIFIC GRAVITY SOURCE

Sampling point :_____ Gravitometer type :_____

d) SUPERCOMPRESSIBILITY FACTOR F_{pv}

All coefficients are taken from AGA NX 19 manual for natural gas free of air, CO_2 and H_2S . More accurate values could only be determined by laboratory measurement.

No. DOP 125

FLOPETROL

Base : STAVANGER

Client : B.P. Pet. Dev.

Field : Wildcat

Well : 29/6-1

- GAS PRODUCT. RATE MEASUREMENT -

Section : ANNEX 3

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DATE - TIME		Flowing	P_f	h_w	$\sqrt{h_w \times P_f}$	Orifice	Gas	F_b	F_g	Y	F_{tf}	F_{pv}	C	Gas production	Cumulative
Time	Interval	Temp.	absolute			diameter	gravity							rate : Q	Production
HR/MIN	MIN	°F	psia	"of wat.		Inches	(air=1)							MMSCF/DAY	
					2nd May 1982		D.S.T. No. 3								
1835			Switched flow through separator on 8/64" adj. choke on heater.												
1900			Began flow rate measurements.												
1915	15	96	825	216	422.137	2.000	.704	816.13	1.1918	1.0017	0.9671	1.077	24.356	10.28	
1930	15	112	825	260	463.141	"	.704	816.13	1.1918	1.0021	0.9535	1.068	23.822	11.03	
1945	15	122	825	248	452.327	"	.704	816.13	1.1918	1.0020	0.9452	1.064	23.524	10.64	
2000	15	124	825	248	452.327	"	.704	816.13	1.1918	1.0020	0.9436	1.063	23.462	10.61	
2015	15	128	825	252	455.961	"	.704	816.13	1.1918	1.0020	0.9404	1.061	23.338	10.64	
2030	15	128	825	256	459.565	"	.704	816.13	1.1918	1.0020	0.9404	1.061	23.338	10.73	
2045	15	128	825	256	459.565	"	.704	816.13	1.1918	1.0020	0.9404	1.061	23.338	10.73	
2100	15	124	825	256	459.565	"	.704	816.13	1.1918	1.0020	0.9436	1.063	23.462	10.78	
2115	15	120	825	250	454.148	"	.704	816.13	1.1918	1.0020	0.9469	1.065	23.588	10.71	
2130	15	119	825	256	459.565	"	.704	816.13	1.1918	1.0020	0.9477	1.065	23608	10.85	
2145	15	135	825	268	470.213	"	.704	816.13	1.1918	1.0021	0.9349	1.058	23139	10.88	

Fu = 24

Recorder ranges : P_f = 0-1500 psig

h_w = 0-400" W.C. Temp. = 0-200°F

TESTED INTERVAL : D S T No 3 4208-5 - 4218.3 m

PERFORATIONS :

FLOPETROL

Base : STAVANGER

Client : B.P. Pet. Dev.

Field : Wildcat

Well : 29/6-1

Section : ANNEX 42

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Report N°: 82/2301/11

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 : 4208.5-4218.3 m Sampling interval : Same

Depth origin : R.K.B. Tubing Dia. : 3½" vam Casing Dia. : 9 5/8" x 7"

Surface elevation : 24.23 m Shoe : - Shoe : -

Bottom hole static conditions	Intial pressure :	11200 psig	at depth : 4203.14 m	date :	2/5/82
	Latest pressure measured :	11200 psig	at depth : 4203.14 m	date :	2/5/82
	Temperature :	306°F	at depth : 4194.3 m	date :	2/5/82

B - MEASUREMENT AND SAMPLING CONDITIONS

Time at which sample was taken : 21.10 hrs Time elapsed since stabilisation : -

Bottom hole dynamic conditions	Choke size : 8/64"adj	since : 1803hrs	Well head pressure : 5170 psi	Well head temp. :	105°F
	Bottom hole pressure :	8398 psig	at depth : 4203.14 m	date :	2/5/82
	Bottom hole temp. :	-	at depth : -	date :	-

Flow measurement of sampled gas - Gravity (air: 1) : .705 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.065

Values used for calculations : Fb=816.13, Fg=1.1918, Y_2=1.0021, Ftf=0.9477, Fu=24

Separator	Pressure : 810 PSIG	Rates - Gas :	10.85 mm SCFD	C.G.R. :	156 bbls/mmscf
	Temp. : 119 °F	Oil (separator cond.) :	1694 BOPD	B	(separator cond.)
		Condensate		C	
Stock tank	Atmosphere : _____ mmHg.	_____ °F	Oil at 60°F :	1474 BOPD	
	Tank temperature : _____	°F	Condensate	A B C a b	

BSW : Traces % WLR : 12 %

Transfering fluid : Vacum 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 samlpes No.	8151-73 9024-81 22024-110	A-4738

Measurment conditions.

A Tank - B Meter - C Dump -

a Corrcted with shrinkage tester - b Corrected with tank -

D - REMARKS -

Condensate prod. rate, C.G.R., and W.L.R. are averages of results from 1900 - 2145 hrs.

Visa Chief Operator

DOP 127

FLOPETROL

Base : STAVANGER

Client : B.P. Pet. Dev.
Field : Wildcat
Well : 29/6-1

Section : ANNEX 42
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Report N° : 82/2301/11

SURFACE SAMPLING

Date of sampling : 2/5/82 Service order : _____ Sampling No. : 2
Sample nature : Separator Gas Condensate Sampling point : Separator Sight Glass

A - RESERVOIR AND WELL CHARACTERISTICS-

Producing zone : D.S.T. 3 Perforations : 4208.5-4218.3 m Sampling interval : same

Depth origin : R.K.B. Tubing Dia. : 3½" vam Casing Dia. : 9 5/8" x 7"
Surface elevation : 24.23 m Shoe : - Shoe : -

Bottom hole static conditions

Intial pressure :	11200 psig	at depth : 4203.14 m	date : 2/5/82
Latest pressure measured :	11200 psig	at depth : 4203.14 m	date : 2/5/82
Temperature :	306°F	at depth : 4194.3 m	date : 2/5/82

B - MEASUREMENT AND SAMPLING CONDITIONS

Time at which sample was taken : 21.23 hrs Time elapsed since stabilisation : -

Bottom hole dynamic conditions

Choke size : 8/64" since : 1803 hrs Well head pressure : 5170 psig Well head temp. : 105°F
Bottom hole pressure : 8413 psig at depth : 4203.14 m date : 2/5/82
Bottom hole temp. : - at depth : - date : -

Flow measurement of sampled gas - Gravity (air: 1) : .705 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.058
Values used for calculations : Fu=24, Fb=816.13, Fg=1.1918, Y_2=1,0021, Ftf= 0.9439

Separator

Pressure : 810 PSIG Temp. : 135 °F
Rates - Gas : 10.88 mm SCFD
Oil (separator cond.) : 1694 BOPD [B] [C]
Condensate
GOR : 156 bbls/mmscf (separator cond.)

Stock tank

Atmosphere : _____ mmHg. _____ °F
Tank temperature : _____ °F
Oil at 60°F : 1474 BOPD [A] [B] [C] [a] [b]
Condensate

BSW : Traces % WLR : 12 %

Transfering fluid : Mercury Transfer duration : 20 mins

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.		
Surface samlpes No.	8151-73 22024-110	A-4141 A-4738

Measurment conditions.
[A] Tank - [B] Meter - [C] Dump -
[a] Corrcted with shrinkage tester - [b] Corrected with tank -

D - REMARKS -

Condensate prod. rate, C.G.R. and W.L.R. are averages of results from 1900 - 2145 hrs.
28 Mercury in bottle

Visa Chief Operator

FLOPETROL

Base : STAVANGER

Client : B.P. Pet. Dev.

Field : Wildcat

Well : 29/6-1

Section : ANNEX **42**

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Report N°: ~~82/2301/11~~

SURFACE SAMPLING

Date of sampling : 2/5/82 Service order : _____ Sampling No. : 3

Sample nature : Separator Gas Sampling point : Separator Gas outlet

A - RESERVOIR AND WELL CHARACTERISTICS-

Producing zone : D.S.T. 3 Perforations : 4208.5-4218.3 m Sampling interval : same

Depth origin : R.K.B. Tubing Dia. : 3½" Casing Dia. : 9 5/8" x 7"

Surface elevation : 24.23 m Shoe : - Shoe : -

Bottom hole static conditions						
	Intial pressure :	11200 psig	at depth :	4203.14 m	date :	2/5/82
	Latest pressure measured :	11200 psig	at depth :	4203.14 m	date :	2/5/82
	Temperature :	306°F	at depth :	4194.3 m	date :	2/5/82

B - MEASUREMENT AND SAMPLING CONDITIONS

Time at which sample was taken : 21.30 hrs Time elapsed since stabilisation : -

Bottom hole dynamic conditions						
	Choke size : 8/64"adj. since : 1803 hrs	Well head pressure : 5170psig		Well head temp. : 105°F		
	Bottom hole pressure :	8413 psig	at depth :	4203.14 m	date :	2/5/82
	Bottom hole temp. :	-	at depth :	-	date :	-

Flow measurement of sampled gas - Gravity (air: 1) : .705 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.058

Values used for calculations : Fu=24, Fb=816.13, Fg==1.1918, Y_2=1.0021, Ftf=0.9439

Separator	Pressure : 810 PSIG Temp. : 135 °F	Rates - Gas : 10.88 mm SCFD Oil (separator cond.) : 1694 BOPD Condensate	B C	GOR : 156 bbls/mmscf (separator cond.)
Stock tank	Atmosphere : _____ mmHg. _____ °F Tank temperature : _____ °F	Oil at 60°F : 1474 BOPD Condensate		A B C a b

BSW : Traces % WLR : 12 %

Transfering fluid : Vaccum 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-4738 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.		
Surface samlpes No.	9024-81 22024-110 8151-73	A-4141

Measurment conditions.

[A] Tank - [B] Meter - [C] Dump -

[a] Corrcted with shrinkage tester - [b] Corrected with tank -

D - REMARKS -

Condensate prod. rate, C.G.R. and W.L.R. are averages of results from 1900-2145 hrs.

Visa Chief Operator

DGP 127

FLOPETROL

Base : STAVANGER

Client : B.P. Pet. Dev.

Field : Wildcat

Well : 29/6-1

Section : ANNEX 42

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Report N°: 82/2301/11

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 : D.S.T. 3 Perforations : 4208.5 - 4218.3m Sampling interval : Same

Depth origin : R.K.B. Tubing Dia. : 3½" Casing Dia. : 9 5/8" x 7"

Surface elevation : 24.23 m Shoe : - Shoe : -

Bottom hole static conditions

Intial pressure	: 11200 psig	at depth : 4203.14 m	date : 2/5/82
Latest pressure measured	: 11200 psig	at depth : 4203.14 m	date : 2/5/82
Temperature	: 306°F	at depth : 4194.3 m	date : 2/5/82

B - MEASUREMENT AND SAMPLING CONDITIONS

Time at which sample was taken : 21.50 Time elapsed since stabilisation : _____

Bottom hole dynamic conditions

Choke size : Closed since : 2147 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 Fpv = $\frac{1}{\sqrt{Z}}$: -

Values used for calculations :

Separator

Pressure : 300 PSIG Temp. : 80 °F

Rates - Gas : _____ SCFD

Oil (separator cond.) : _____ BOPD [B] [C]

GOR : _____ (separator cond.)

Stock tank

Atmosphere : _____ mmHg. _____ °F

Tank temperature : _____ °F

Oil at 60°F : _____ BOPD [A] [B] [C] [a] [b]

BSW : Traces % WLR : _____ %

Transfering 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 samlpes No.	9024-81 22024-110	A-4141 A-4738

Measurment conditions.

[A] Tank - [B] Meter - [C] Dump -

[a] Corrcted with shrinkage tester - [b] Corrected with tank -

D - REMARKS -

Sample taken after well shut in.
28 cc Mercury in bottle.

Visa Chief Operator

DOP 127

FLOPETROL

Base : STAVANGER

Client : B.P. Pet. Dev.

Field : Wildcat

Well : 29/6-1

Section : ANNEX 42

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Report N° : 82/2301/11

SURFACE SAMPLING

Date of sampling : 2/5/82 Service order : _____ Sampling No. : 5

Sample nature : Separator gas condensate Sampling point : Sep. Oil sight glass

A - RESERVOIR AND WELL CHARACTERISTICS

Producing zone : D.S.T. 3 Perforations : 4208.5 - 4218.3 Sampling interval : same

Depth origin : RKB Tubing Dia. : 3½ Casing Dia. : 9 5/8" x 7"

Surface elevation : 24.23 m Shoe : - Shoe : -

Bottom hole static conditions	Intial pressure	: 11200 psig	at depth : 4203.14 m	date : 2/5/82
	Latest pressure measured	: 11200 psig	at depth : 4203.14 m	date : 2/5/82
	Temperature	: 306°F	at depth : 4194.3 m	date : 2/5/82

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 2147	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 Fpv = $\frac{1}{\sqrt{Z}}$: _____

Values used for calculations :

Separator	Pressure : 400 PSIG Temp. : 46 °F	Rates - Gas : - SCFD Oil (separator cond.) : - BOPD	B C	GOR : - (separator cond.)
Stock tank	Atmosphere : _____ mmHg. _____ °F Tank temperature : _____ °F	Oil at 60°F : - BOPD		A B C a b

BSW : Traces % WLR : _____ %

Transfering fluid : Mercury Transfer duration : 30 min

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

C - IDENTIFICATION OF THE SAMPLE

Shipping bottle No. : 22024-110 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID		GAS	
Bottom hole samples No.				
Surface samlpes No.	9024-81	8151-73	A-4141	4738

Measurment conditions.

[A] Tank - [B] Meter - [C] Dump -

[a] Corrcted with shrinkage tester - [b] Corrected with tank -

D - REMARKS -

Sample taken after well was shut in.
28 cc Mercury in bottle.

Visa Chief Operator

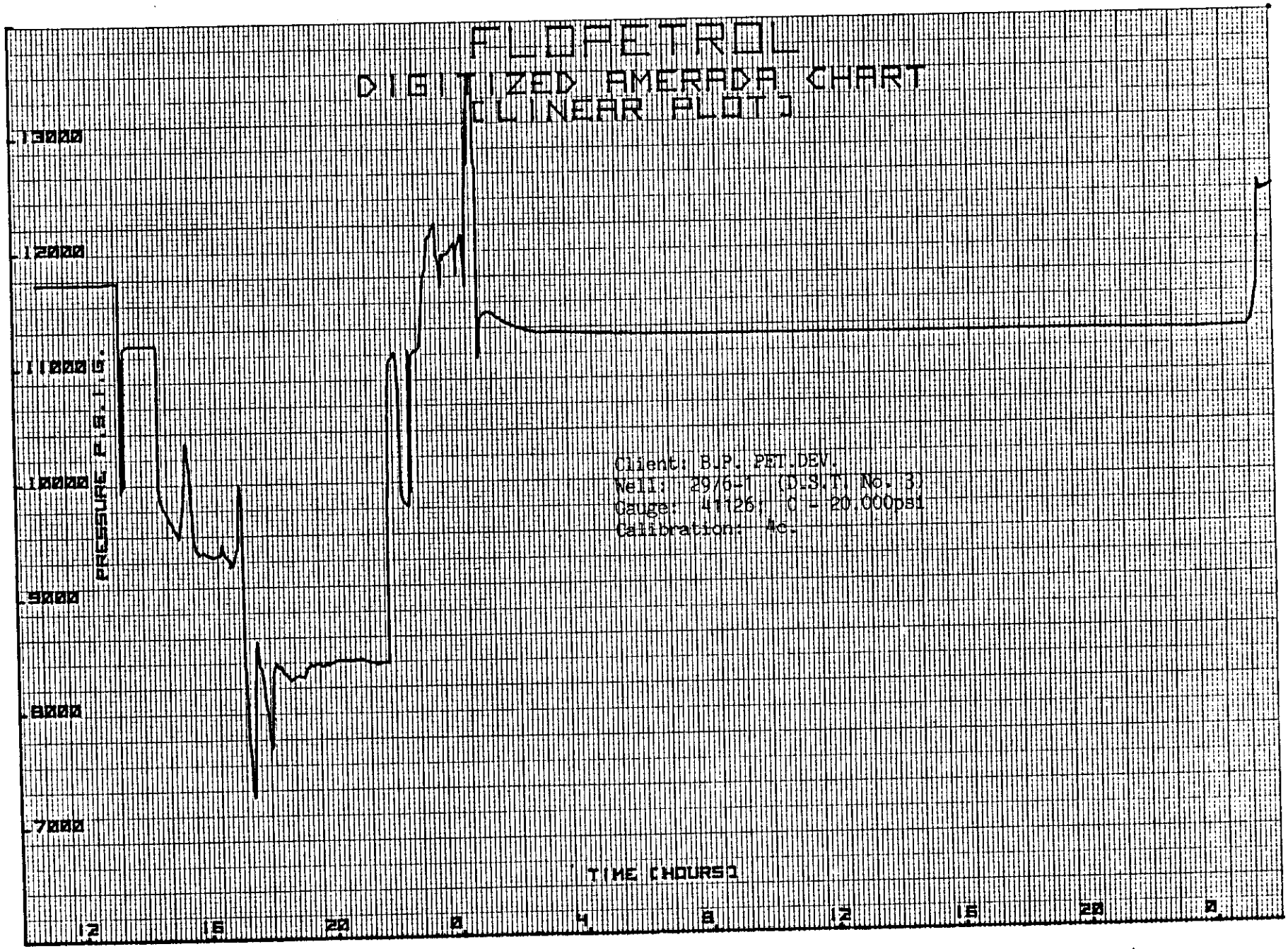
DOR 127

FLOPETROL Schlumberger

SECTION 5.

DICITIZED AMERADA CHART PRINT-OUT

Client:	B.P. PET.DEV.
Field:	Wildcat
Well:	29/6-1
Date:	2/5/82 - 4/5/82
Gauge:	41126; 0-20,000psi
Calibration:	4c (Section Annix 1.1)


FLOPETROL
DIGITIZED AMERADA CHART
(LINEAR PLOT)
13000
12000
11000
10000
9000
8000
7000
PRESSURE P.S.I.G.
Client: B.P. PET.DEV.
Well: 29/6-1 (D.S.T. No. 3)
Gauge: 41126: 0 - 20.000psi
Calibration: Mc.
TIME (HOURS)
12
16
20
0
4
8
12
16
20
0

FLOPETROL
Schlumberger

FLOPETROL
PRESSURE CALCULATIONS

SECTION 5
PAGE 1

TIME HR.MN.SS	PRESS. PSIG	DEL.T (HOURS)	LOG DEL.T	DEL.P PSIG	LOG DEL.P	REMARKS
					2/5/82	19
11. 0. 0	10994					
11. 2. 0	11028					
11. 4. 0	11061					
11. 6. 0	11094					
11. 8. 0	11128					
11.10. 0	11161					
11.12. 0	11194					
11.14. 0	11228					
11.16. 0	11261					
11.18. 0	11294					
11.20. 0	11328					
11.22. 0	11361					
11.24. 0	11394					
11.26. 0	11428					
11.28. 0	11461					
11.30. 0	11494					
11.32. 0	11527					
11.34. 0	11561					
11.36. 0	11594					
11.38. 0	11627					
11.40. 0	11661					
11.42. 0	11694					
11.44. 0	11727					
11.46. 0	11732					
11.48. 0	11732					
11.50. 0	11732					
11.52. 0	11732					
11.54. 0	11732					
11.56. 0	11732					
11.58. 0	11732					
12. 0. 0	11732					
12. 2. 0	11732					
12. 4. 0	11732					
12. 6. 0	11732					
12. 8. 0	11732					
12.10. 0	11732					
12.12. 0	11732					
12.14. 0	11732					
12.16. 0	11732					
12.18. 0	11732					
12.20. 0	11732					
12.22. 0	11732					

FLOPETROL Schlumberger

FLOPETROL
PRESSURE CALCULATIONS

TIME HR.MN.SS	PRESS. PSIG	DEL.T (HOURS)	LOG DEL.T	DEL.P PSIG	LOG DEL.P	REMARKS
12.24. 0	11732					
12.26. 0	11732					
12.28. 0	11732					
12.30. 0	11732					
12.32. 0	11732					
12.34. 0	11732					
12.36. 0	11732					
12.38. 0	11732					
12.40. 0	11732					
12.42. 0	11732					
12.44. 0	11732					
12.46. 0	11732					12.46 picked up test string to set packer
12.48. 0	11732					
12.50. 0	11734					
12.52. 0	11736					
12.54. 0	11736					
12.56. 0	11740					12.59 set packer at 4176.85m
12.58. 0	11742					
13. 0. 0	11744					
13. 2. 0	11744					
13. 4. 0	11744					
13. 6. 0	11744					
13. 8. 0	11744					
13.10. 0	11744					13.12 pressurised test string to 3400psi T.H.P.
13.12. 0	11744					
13.14. 0	11744					
13.16. 0	11744					13.19 pressurised annulus to 1700psi to open APR-'N'
13.18. 0	11744					
13.20. 0	9976					
13.22. 0	10866					13.22 opened choke manifold on 12/64" APJ choke
13.24. 0	9963					
13.26. 0	9973					13.27 closed choke manifold and bled off annulus pressure to close APR-N'
13.28. 0	11151					
13.30. 0	11178					
13.32. 0	11187					
13.34. 0	11190					
13.36. 0	11200					
13.38. 0	11201					
13.40. 0	11200					
13.42. 0	11201					
13.44. 0	11201					
13.46. 0	11201					

FLOPETROL
Schlumberger

FLOPETROL
PRESSURE CALCULATIONS

TIME HR.MN.SS	PRESS. PSIG	DEL.T (HOURS)	LOG DEL.T	DEL.P PSIG	LOG DEL.P	REMARKS
13.46. 0	11201					
13.50. 0	11201					
13.52. 0	11201					
13.54. 0	11201					
13.56. 0	11201					
13.58. 0	11201					
14. 0. 0	11201					
14. 2. 0	11201					
14. 4. 0	11201					
14. 6. 0	11201					
14. 8. 0	11201					
14.10. 0	11201					
14.12. 0	11201					
14.14. 0	11201					
14.16. 0	11201					
14.18. 0	11201					
14.20. 0	11201					
14.22. 0	11201					
14.24. 0	11201					
14.26. 0	11201					
14.28. 0	11201					
14.30. 0	11199					
14.32. 0	10780					
14.34. 0	9889					
14.36. 0	9848					
14.38. 0	9821					
14.40. 0	9795					
14.42. 0	9779					
14.44. 0	9765					
14.46. 0	9745					
14.48. 0	9730					
14.50. 0	9711					
14.52. 0	9687					
14.54. 0	9666					
14.56. 0	9660					
14.58. 0	9647					
15. 0. 0	9629					
15. 2. 0	9607					
15. 4. 0	9582					
15. 6. 0	9569					
15. 8. 0	9557					
15.10. 0	9533					

14.30 pressurized annulus to open ARR-N
14.32 opened choke manifold on 12/64" adj.choke

TIME HR.MN.SS	PRESS. PSIG	DEL.T (HOURS)	LOG DEL.T	DEL.P PSIG	LOG DEL.P	REMARKS
15.12. 0	9582					
15.14. 0	9654					15.15 first gas to surface
15.16. 0	9697					
15.18. 0	9794					
15.20. 0	9879					
15.22. 0	10101					
15.24. 0	10336					
15.26. 0	10338					
15.28. 0	10255					
15.30. 0	10154					
15.32. 0	10003					
15.34. 0	9840					
15.36. 0	9699					
15.38. 0	9549					
15.40. 0	9473					
15.42. 0	9436					
15.44. 0	9414					
15.46. 0	9401					
15.48. 0	9391					
15.50. 0	9387					
15.52. 0	9389					
15.54. 0	9392					
15.56. 0	9395					
15.58. 0	9392					
16. 0. 0	9389					
16. 2. 0	9385					
16. 4. 0	9381					
16. 6. 0	9379					
16. 8. 0	9372					
16.10. 0	9373					
16.12. 0	9361					
16.14. 0	9361					
16.16. 0	9361					
16.18. 0	9363					
16.20. 0	9366					
16.22. 0	9372					
16.24. 0	9377					
16.26. 0	9371					
16.28. 0	9370					
16.30. 0	9384					
16.32. 0	9454					
16.34. 0	9422					

FLOPETROL
Schlumberger FLOPETROL

PRESSURE CALCULATIONS

TIME HR.MN.SS	PRESS. PSIG	DEL.T (HOURS)	LOG DEL.T	DEL.P PSIG	LOG DEL.P	REMARKS
16.36. 0	9388					
16.38. 0	9373					
16.40. 0	9362					
16.42. 0	9354					
16.44. 0	9347					
16.46. 0	9336					
16.48. 0	9275					
16.50. 0	9283					
16.52. 0	9285					
16.54. 0	9298					
16.56. 0	9326					
16.58. 0	9363					
17. 0. 0	9414					17.00 flow switched via heater on 12/64" adj.choke
17. 2. 0	9442					
17. 4. 0	9781					
17. 6. 0	9919					
17. 8. 0	9928					17.07 increased adjustable choke on choke manifold to 48/64" ; flowing on 12/64" adj. choke on heater
17.10. 0	9839					
17.12. 0	8716					
17.14. 0	8371					
17.16. 0	8194					
17.18. 0	7803					
17.20. 0	7712					
17.22. 0	7625					
17.24. 0	7350					
17.26. 0	7300					
17.28. 0	7285					
17.30. 0	7688					
17.32. 0	8213					
17.34. 0	8503					
17.36. 0	8580					
17.38. 0	8547					
17.40. 0	8433					17.40 heater choke set at 10/04" adj
17.42. 0	8384					
17.44. 0	8376					
17.46. 0	8313					
17.48. 0	8248					
17.50. 0	8136					
17.52. 0	8044					
17.54. 0	8013					
17.56. 0	7953					
17.58. 0	7809					

TIME HR.MN.SS	PRESS. PSIG	DEL.T (HOURS)	LOG DEL.T	DEL.P PSIG	LOG DEL.P	REMARKS
18. 0. 0	7749					
18. 2. 0	7693					
18. 4. 0	7896					18:03 decreased heater choke size to 8/64" adj.
18. 6. 0	8197					
18. 8. 0	8351					
18.10. 0	8390					
18.12. 0	8413					
18.14. 0	8410					
18.16. 0	8396					
18.18. 0	8383					
18.20. 0	8386					
18.22. 0	8387					
18.24. 0	8359					
18.26. 0	8345					
18.28. 0	8331					
18.30. 0	8325					
18.32. 0	8319					
18.34. 0	8308					
18.36. 0	8293					18:35 switched flow through separator
18.38. 0	8280					
18.40. 0	8274					
18.42. 0	8272					
18.44. 0	8279					
18.46. 0	8283					
18.48. 0	8289					
18.50. 0	8299					
18.52. 0	8302					
18.54. 0	8304					
18.56. 0	8310					
18.58. 0	8308					
19. 0. 0	8303					
19. 2. 0	8298					
19. 4. 0	8297					
19. 6. 0	8295					
19. 8. 0	8313					
19.10. 0	8333					
19.12. 0	8361					
19.14. 0	8377					
19.16. 0	8388					
19.18. 0	8401					
19.20. 0	8399					
19.22. 0	8397					

FLOPETROL
Schlumberger FLOPETROL

PRESSURE CALCULATIONS

TIME HR.MN.SS	PRESS. PSIG	DEL.T (HOURS)	LOG DEL.T	DEL.P PSIG	LOG DEL.P	REMARKS
19.24. 0	8399					
19.26. 0	8404					
19.28. 0	8409					
19.30. 0	8415					
19.32. 0	8414					
19.34. 0	8413					
19.36. 0	8411					
19.38. 0	8407					
19.40. 0	8396					
19.42. 0	8394					
19.44. 0	8399					
19.46. 0	8403					
19.48. 0	8406					
19.50. 0	8407					
19.52. 0	8403					
19.54. 0	8398					
19.56. 0	8406					
19.58. 0	8418					
20. 0. 0	8421					
20. 2. 0	8424					
20. 4. 0	8430					
20. 6. 0	8439					
20. 8. 0	8440					
20.10. 0	8439					
20.12. 0	8439					
20.14. 0	8439					
20.16. 0	8439					
20.18. 0	8440					
20.20. 0	8440					
20.22. 0	8439					
20.24. 0	8439					
20.26. 0	8438					
20.28. 0	8438					
20.30. 0	8437					
20.32. 0	8437					
20.34. 0	8436					
20.36. 0	8436					
20.38. 0	8439					
20.40. 0	8442					
20.42. 0	8444					
20.44. 0	8445					
20.46. 0	8445					

G 826 458 - Imp. PEUCHET PARIS 19e V

TIME HR.MN.SS	PRESS. PSIG	DEL.T (HOURS)	LOG DEL.T	DEL.P PSIG	LOG DEL.P	REMARKS
20.48. 0	8446					
20.50. 0	8447					
20.52. 0	8447					
20.54. 0	8447					
20.56. 0	8446					
20.58. 0	8444					
21. 0. 0	8442					
21. 2. 0	8439					
21. 4. 0	8436					
21. 6. 0	8433					
21. 8. 0	8427					
21.10. 0	8422					
21.12. 0	8419					
21.14. 0	8419					
21.16. 0	8418					
21.18. 0	8417					
21.20. 0	8416					
21.22. 0	8412					
21.24. 0	8407					
21.26. 0	8403					
21.28. 0	8405					
21.30. 0	8407					
21.32. 0	8410					
21.34. 0	8413					
21.36. 0	8416					
21.38. 0	8417					
21.40. 0	8418					
21.42. 0	8418					
21.44. 0	8416					
21.46. 0	8414					
21.48. 0	9520					21.47 closed flow wing valve
21.50. 0	10059					21.50 closed choke manifold
21.52. 0	10766					21.53 opened flow wing valve to monitor W.H.P.
21.54. 0	10974					
21.56. 0	11044					
21.58. 0	11061					
22. 0. 0	11069					
22. 2. 0	11085					
22. 4. 0	11098					22.06 opened well on 5/64" adj choke
22. 6. 0	11115					22.08 began increasing annulus pressure to shear APR-"M"
22. 8. 0	11054					22.09 increased choke to 8/64" adj.
22.10. 0	10898					22.10 annulus pressure - 3100PSI

FLOPETROL
Schlumberger FLOPETROL

PRESSURE CALCULATIONS

TIME HR.MN.SS	PRESS. PSIG	DEL.T (HOURS)	LOG DEL.T	DEL.P PSIG	LOG DEL.P	REMARKS
22.12. 0	10815					22.14 increased choke to 12/64" adj.
22.14. 0	10356					22.12 annulus pressure - 3500PSI
22.16. 0	9912					22.15 annulus pressure 1700PSI
22.18. 0	9863					22.16 pressurized annulus to 3500PSI
22.20. 0	9837					
22.22. 0	9818					22.21 annulus pressure - 1700PSI
22.24. 0	9809					22.23 annulus pressure - 3750PSI
22.26. 0	9798					22.24 annulus pressure - 3750PSI
22.28. 0	9791					22.27 bled off annulus pressure to 1650PSI
22.30. 0	9815					22.30 bled off annulus pressure to close APR-"N" and closed choke manifold
22.32. 0	10958					
22.34. 0	10055					22.33 annulus pressure 3800PSI
22.36. 0	10864					
22.38. 0	11059					
22.40. 0	11097					22.41 annulus pressure 1700PSI
22.42. 0	11119					
22.44. 0	11125					
22.46. 0	11127					
22.48. 0	11129					22.49 opened kill wing valve
22.50. 0	11134					
22.52. 0	11146					22.52 commenced bullheading
22.54. 0	11161					
22.56. 0	11248					
22.58. 0	11418					
23. 0. 0	11612					
23. 2. 0	11710					
23. 4. 0	11781					
23. 6. 0	11811					
23. 8. 0	11852					
23.10. 0	11972					
23.12. 0	12067					
23.14. 0	12108					
23.16. 0	12113					
23.18. 0	12114					
23.20. 0	12165					
23.22. 0	12182					
23.24. 0	12199					
23.26. 0	12218					
23.28. 0	12109					
23.30. 0	11946					
23.32. 0	11912					
23.34. 0	11884					

TIME HR.MN.SS	PRESS. PSIG	DEL.T (HOURS)	LOG DEL.T	DEL.P PSIG	LOG DEL.P	REMARKS
23.36. 0	11795					
23.38. 0	11816					
23.40. 0	11946					
23.42. 0	11958					
23.44. 0	11944					
23.46. 0	11952					
23.48. 0	11958					
23.50. 0	11958					
23.52. 0	11966					
23.54. 0	11976					
23.56. 0	11993					
23.58. 0	12009					
24. 0. 0	12026					3rd May 1982
24. 0. 0	12026					
0. 2. 0	12054					
0. 4. 0	12052					
0. 6. 0	11925					
0. 8. 0	11986					
0.10. 0	12030					
0.12. 0	12048					
0.14. 0	12074					
0.16. 0	12111					
0.18. 0	12123					
0.20. 0	11937					
0.22. 0	11853					
0.24. 0	12064					
0.26. 0	12520					
0.28. 0	12870					
0.30. 0	12759					00.33 stopped bullheading
0.32. 0	13150					
0.34. 0	13513					
0.36. 0	13523					
0.38. 0	13522					
0.40. 0	13522					
0.42. 0	13522					
0.44. 0	12730					
0.46. 0	12703					
0.48. 0	11086					
0.50. 0	11187					
0.52. 0	11369					
0.54. 0	11410					
0.56. 0	11424					

TIME HR.MN.SS	PRESS. PSIG	DEL.T (HOURS)	LOG DEL.T	DEL.P PSIG	LOG DEL.P	REMARKS
0.58. 0	11433					
1. 0. 0	11444					
1. 2. 0	11448					
1. 4. 0	11452					
1. 6. 0	11456					
1. 8. 0	11457					01.09 closed and unlatched E-2 tree waiting on weather
1.10. 0	11451					
1.12. 0	11446					
1.14. 0	11444					
1.16. 0	11441					
1.18. 0	11437					
1.20. 0	11430					
1.22. 0	11424					
1.24. 0	11417					
1.26. 0	11410					
1.28. 0	11404					
1.30. 0	11399					
1.32. 0	11393					
1.34. 0	11387					
1.36. 0	11380					
1.38. 0	11373					
1.40. 0	11367					
1.42. 0	11363					
1.44. 0	11359					
1.46. 0	11355					
1.48. 0	11352					
1.50. 0	11347					
1.52. 0	11343					
1.54. 0	11338					
1.56. 0	11334					
1.58. 0	11330					
2. 0. 0	11326					
2. 2. 0	11322					
2. 4. 0	11320					
2. 6. 0	11318					
2. 8. 0	11316					
2.10. 0	11313					
2.12. 0	11311					
2.14. 0	11308					
2.16. 0	11304					
2.18. 0	11301					
2.20. 0	11298					

FLOPETROL
PRESSURE CALCULATIONS

TIME HR.MN.SS	PRESS. PSIG	DEL.T (HOURS)	LOG DEL.T	DEL.P PSIG	LOG DEL.P	REMARKS
2.22. 0	11295					
2.24. 0	11293					
2.26. 0	11290					
2.28. 0	11288					
2.30. 0	11288					
2.32. 0	11289					
2.34. 0	11290					
2.36. 0	11281					
2.38. 0	11280					
2.40. 0	11278					
2.42. 0	11276					
2.44. 0	11275					
2.46. 0	11274					
2.48. 0	11274					
2.50. 0	11274					
2.52. 0	11275					
2.54. 0	11275					
2.56. 0	11276					
2.58. 0	11276					
3. 0. 0	11276					
3. 2. 0	11277					
3. 4. 0	11277					
3.30. 0	11273					
4. 0. 0	11268					
4.30. 0	11262					
5. 0. 0	11258					
5.30. 0	11255					
6. 0. 0	11251					
6.30. 0	11250					
7. 0. 0	11248					
7.30. 0	11246					
8. 0. 0	11245					
8.30. 0	11244					
9. 0. 0	11243					
9.30. 0	11243					
10. 0. 0	11243					
10.30. 0	11242					
11. 0. 0	11242					
11.30. 0	11241					
12. 0. 0	11241					
12.30. 0	11241					
13. 0. 0	11241					

G 828 458 - Imp. PEUCHET PARIS 75010

FLOPETROL
Schlumberger

FLOPETROL
PRESSURE CALCULATIONS

TIME HR.MN.SS	PRESS. PSIG	DEL.T (HOURS)	LOG DEL.T	DEL.P PSIG	LOG DEL.P	REMARKS
13.30. 0	11241					
14. 0. 0	11241					
14.30. 0	11241					
15. 0. 0	11241					
15.30. 0	11241					
16. 0. 0	11241					
16.30. 0	11241					
17. 0. 0	11241					17.09 relatched E-2 tree
17.30. 0	11241					
18. 0. 0	11242					
18.30. 0	11242					
19. 0. 0	11242					
19.30. 0	11241					
20. 0. 0	11240					
20.30. 0	11238					
21. 0. 0	11237					
21.30. 0	11236					
22. 0. 0	11235					
22.30. 0	11233					
23. 0. 0	11232					
23.30. 0	11233					
24. 0. 0	11235					4th May 1982
0.30. 0	11241					
1. 0. 0	11241					01-08 picked up test string to unset packer
1.30. 0	12060					
2. 0. 0	11326					27
2.30. 0	11288					
3. 0. 0	11276					
3.30. 0	11273					
4. 0. 0	11268					
4.30. 0	11262					
5. 0. 0	11258					
5.30. 0	11255					
6. 0. 0	11251					
6.30. 0	11250					
7. 0. 0	11248					
7.30. 0	11246					
8. 0. 0	11245					
8.30. 0	11244					
9. 0. 0	11243					
9.30. 0	11243					
10. 0. 0	11243					

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

AMERADA CHART

Customer: B.P. PET. DEV.
Field: WILDCAT
Well: 29/6-1
Date: 23.04.82

Remarks:
Calibration from 500 - 13000 PSI
by steps fo 500 PSI at 300°F

Pressure element No. 37064 Range 15000PSI
Clock No. Range

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

AMERADA CHART

Customer: B.P. PET. DEV.
Field: WILDCAT
Well: 29/6-1
Date: 24/3/82

Remarks:
Calibration from 500-13000psi
by steps of 500psi at 300°F

Pressure element No. 41126 Range 20,000psi
Clock No. Range

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

AMERADA CHART

Customer: B.P. PET. DEV.
Field: WILDCAT
Well: 29/6-1
Date: 21/3/82

Remarks:
Calibration from 500-13,000psi
by steps of 500psi at 300°F

Pressure element No. 36438 Range 20,000psi
Clock No. Range

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

AMERADA CHART

Customer: B.P. PET. DEV.
Field: WILDCAT
Well: 29/6-1
Date:

Remarks:
Calibration from 500-13.000psi by steps of 500psi at 300°F

Pressure element No. 37260 Range 0-15m
Clock No. Range

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

AMERADA CHART

Customer: B.P. PET. DEV.
Field: WILDCAT
Well: 29/6-1
Date: 21/3/82

Remarks:
Calibration from 500 - 13.000psi by steps of 500 psi at 300°F

Pressure element No. 36439 Range 20.000psi
Clock No. Range

AMERADA CHART

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

Customer: B.P. PET. DEV.
Field: WILDCAT
Well: 29/6-1
Date: 15-19/4 -82

Remarks:
DST No. 1
Leadscrew sticking

Pressure element No. 36439 Range 0-20m PSI
Clock No. F-877 Range 120 HR

AMERADA CHART

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre:
Service order:

Customer: B.P. PET. DEV.
Field: WILDCAT
Well: 29/6-1
Date: 15-19/4 -82

Remarks:
D.S.T. No. 1 Clocked stopped
during flow period.

Pressure element No. 41126 Range 0-20m psi
Clock No. 17276 Range 120 HRS

AMERADA CHART

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

Customer: B.P. PET. DEV.
Field: Wildcat
Well: 29/6-1
Date: 15-19/4 -82

Remarks:
D.S.T. No. 1 Clock ran out
during build-up.

Pressure element No. 41128 Range 0-20m psi
Clock No. E-9184 Range 72 HRS

AMERADA CHART

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

Customer: B.P. PET. DEV.
Field: Wildcat
Well: 29/6-1
Date: 15-19/4-82

Remarks:
D.S.T. No.1

Pressure element No. T.E.48489 Range 200-400°F
Clock No. DMA 577 Range 120HR

AMERADA CHART

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

Customer: B.P. PET. DEV.
Field: WILDCAT
Well: 29/6-1
Date: 27.04.82

Remarks:
D.S.T.2 Lower gauge
Stylus om 20.00HR 22.06.82
Leadscren sticking

Pressure element No. 36439 Range 0 20000psi
Clock No. 11924 Range 120HRS S.P.

AMERADA CHART

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

Customer: B.P. PET. DEV.
Field: WILDCAT
Well: 29/6-1
Date: 27.04.82

Remarks:
D.S.T.2 Middle gauge
Stylus on 22.03 hr 22.06.82

Pressure element No. 41126 Range 0-20000psi
Clock No. 11923 Range 120hr (S.P.)

AMERADA CHART

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

Customer: B.P. PET.DEV.
Field: WILDCAT
Well: 29/6-1
Date: 27.04.82

Remarks:
DST 2 Upper gauge
stylus om 22.06 HRS 22-04-82
clock stopped during test

Pressure element No. 41128 Range 0.20000psi
Clock No E-9184 Range 72 HR (S.P.)

AMERADA CHART

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

Customer: B.P. PET.DEV.
Field: WILDCAT
Well: 29/6-1
Date: 27.04.82

Remarks:
DST 2 RT7
Stycus om 21 57 HRS 22.06.82
Clock stopped

Pressure element No. 48489 Range 200-400 °F
Clock No. DMA 577 Range 120 HR (S.P)

AMERADA CHART

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

Customer: B.P. PET.DEV.
Field: WILDCAT
Well: 29/6-1
Date: 29/4/82 - 4/5/82

Remarks:
D.S.T. No. 3
clock stopped

Pressure element No. 36438 Range 0-20,000psi
Clock No. 17276 Range 120 HRS

AMERADA CHART

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

Customer: B.P. PET. DEV.
Field: WILDCAT
Well: 29/6-1
Date: 29/4/82 - 4/5/82

Remarks:
DST-3
Clock stopped before start of test

Pressure element No. 41128 Range 0-20,000psi
Clock No E-9184 Range 72 HRS

AMERADA CHART

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

Customer: B.P. PET. DEV.
Field: WILDCAT
Well: 29/6-1
Date: 29/4 -82 - 4/5 -82

Remarks:
DST 3
CHART DRIVE STICKING

Pressure element No. 37064 Range 0-15,000psi
Clock No. DMA 577 Range 120 HRS

AMERADA CHART

Division: EMR/NSD/NOB

FLOPETROL
Schlumberger

Centre: STAVANGER
Service order:

Customer: B.P. PET. DEV.
Field: WILDCAT
Well: 29/6-1
Date: 29/4/82 - 4/5/82

Remarks:
DST-3

Pressure element No. 41126 Range 0-20,000psi
Clock No. 11293 Range 120HRS

AMERADA CHART

Division: EMR/NSD/NQB

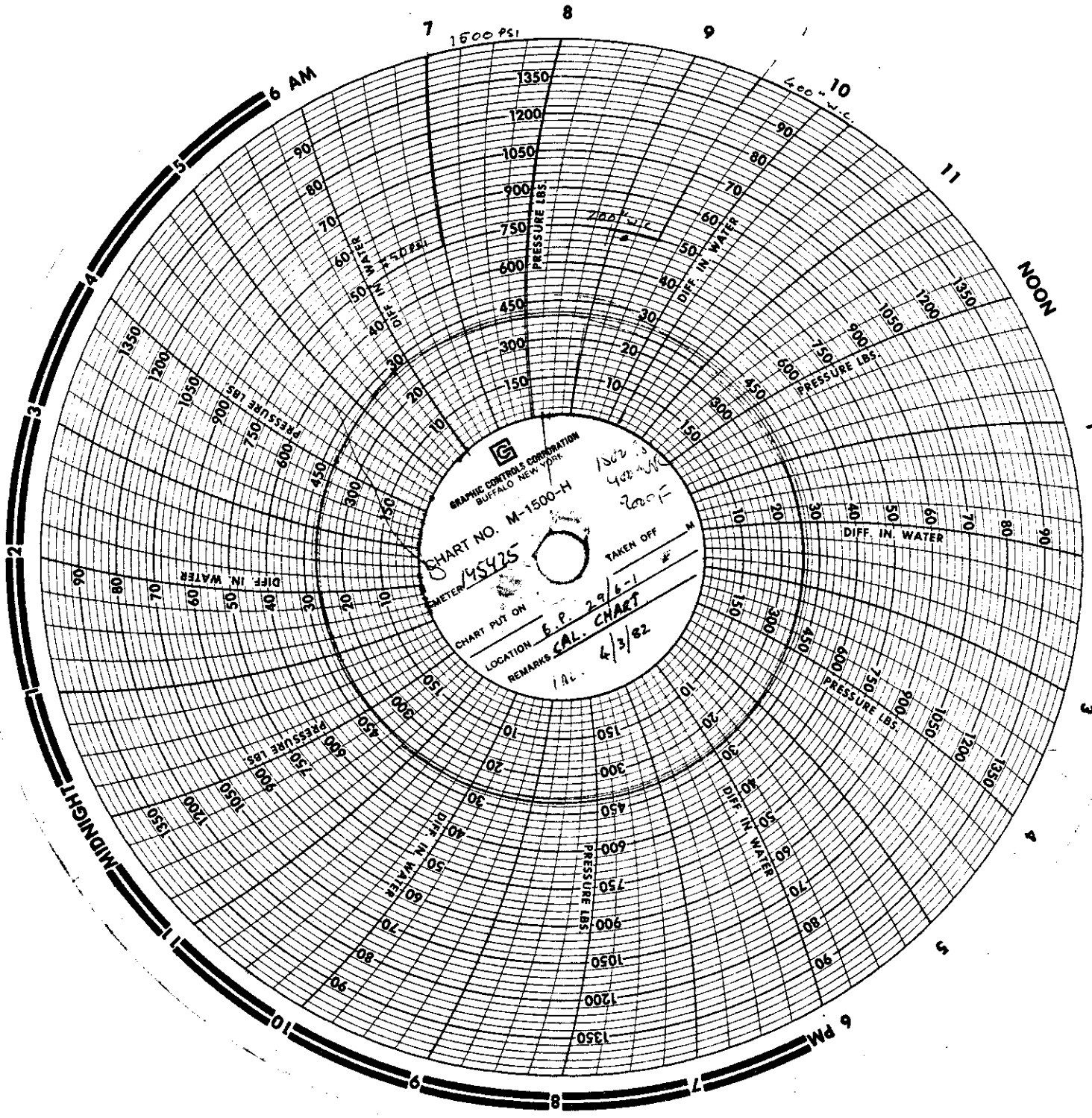
Customer: B.P. PET. DEV.
Field: WILDCAT
Well: 29/6-1
Date: 29/4/82 - 4/5/82

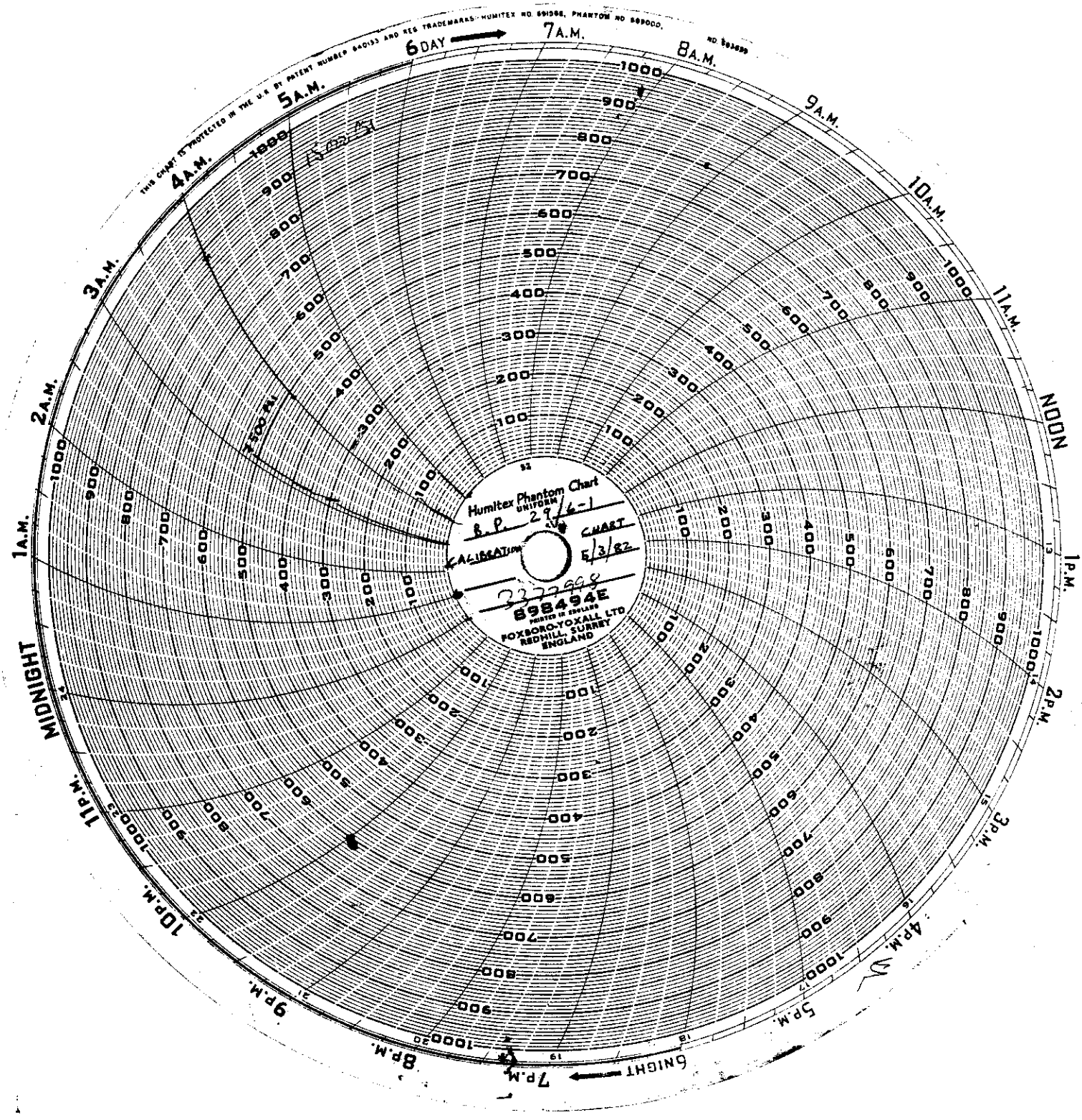
FLOPETROL
Schlumberger

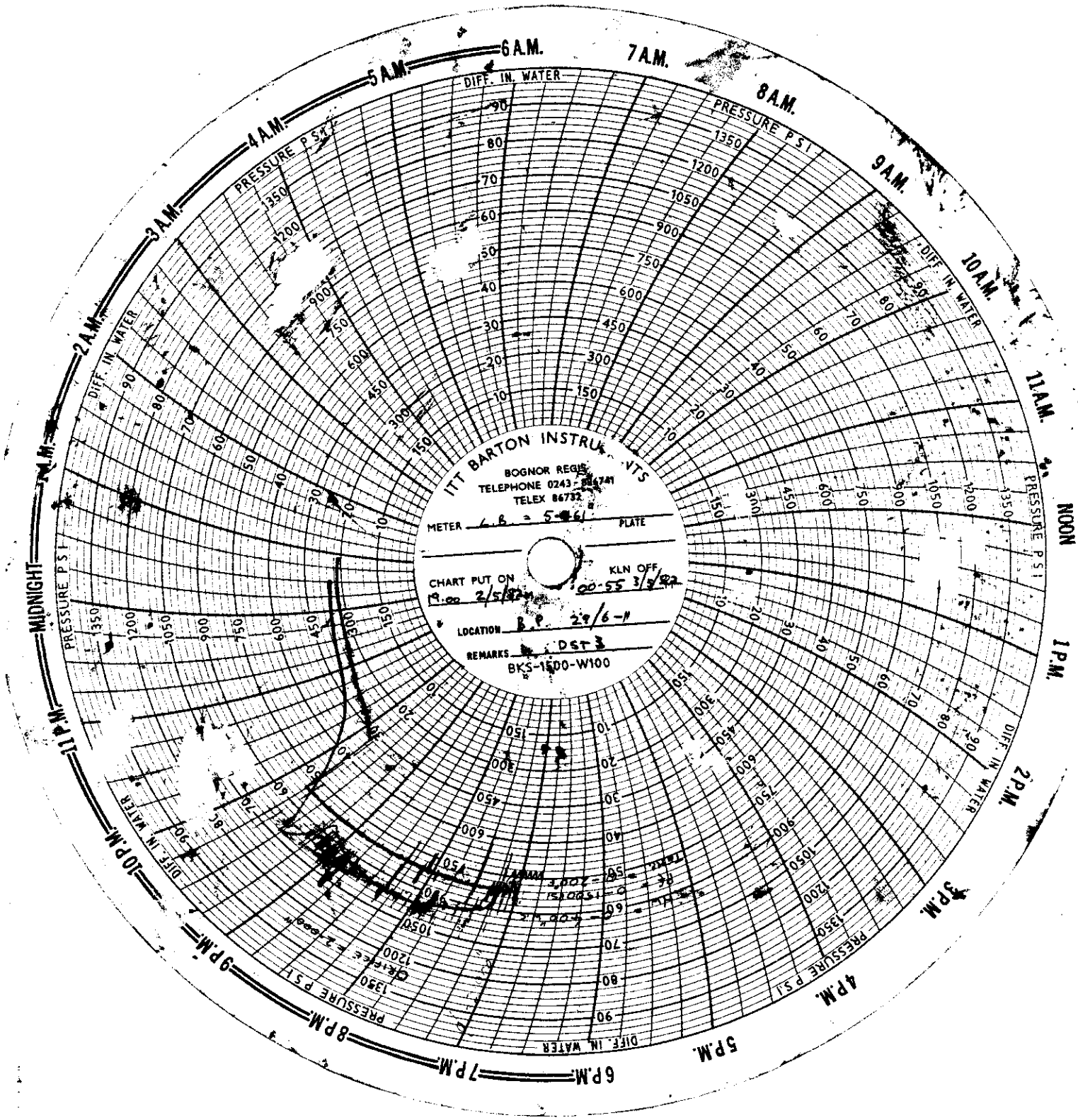
Remarks:
DST-3
Chart drive sticking

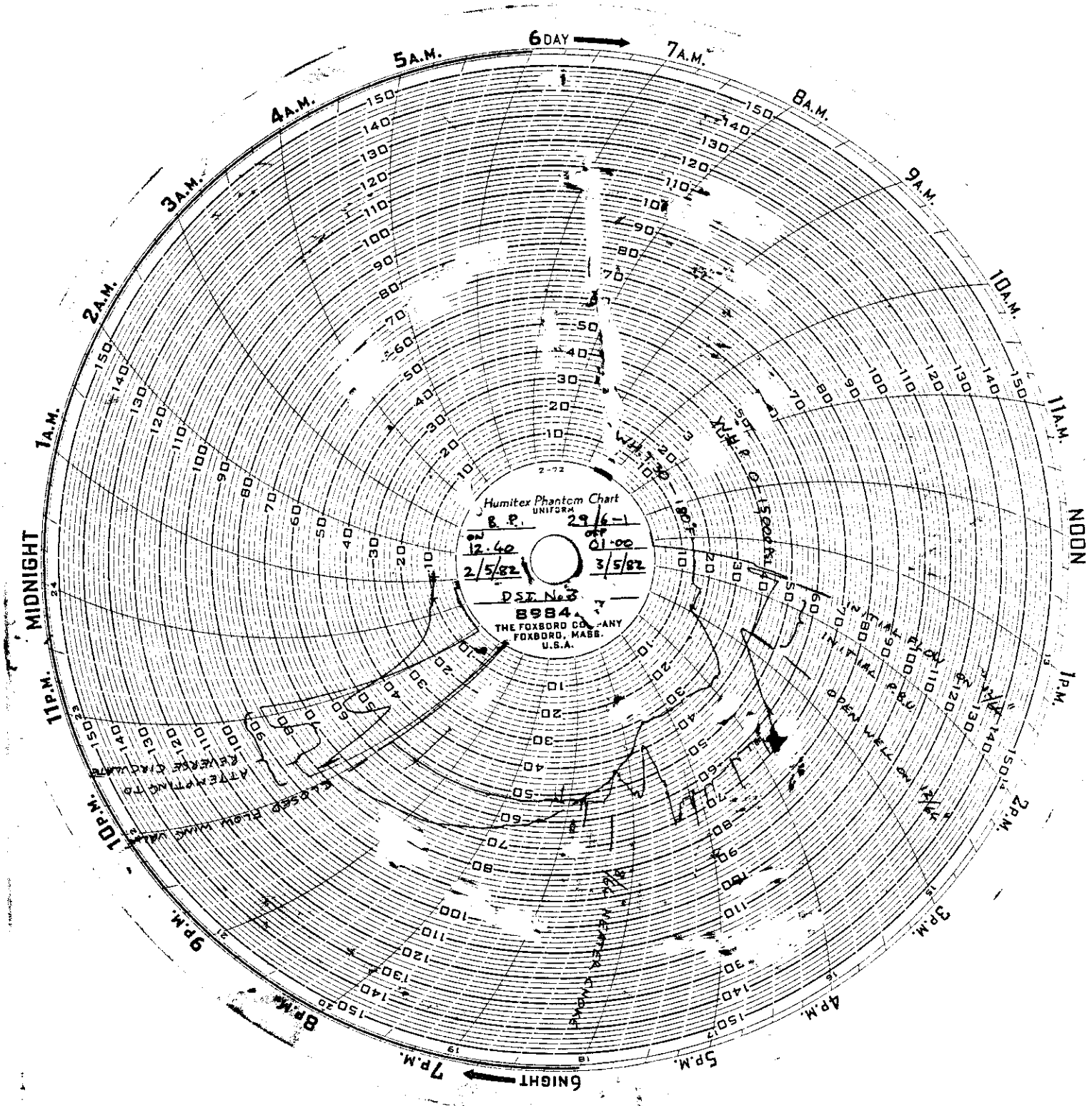
Centre: STAVANGER
Service order:

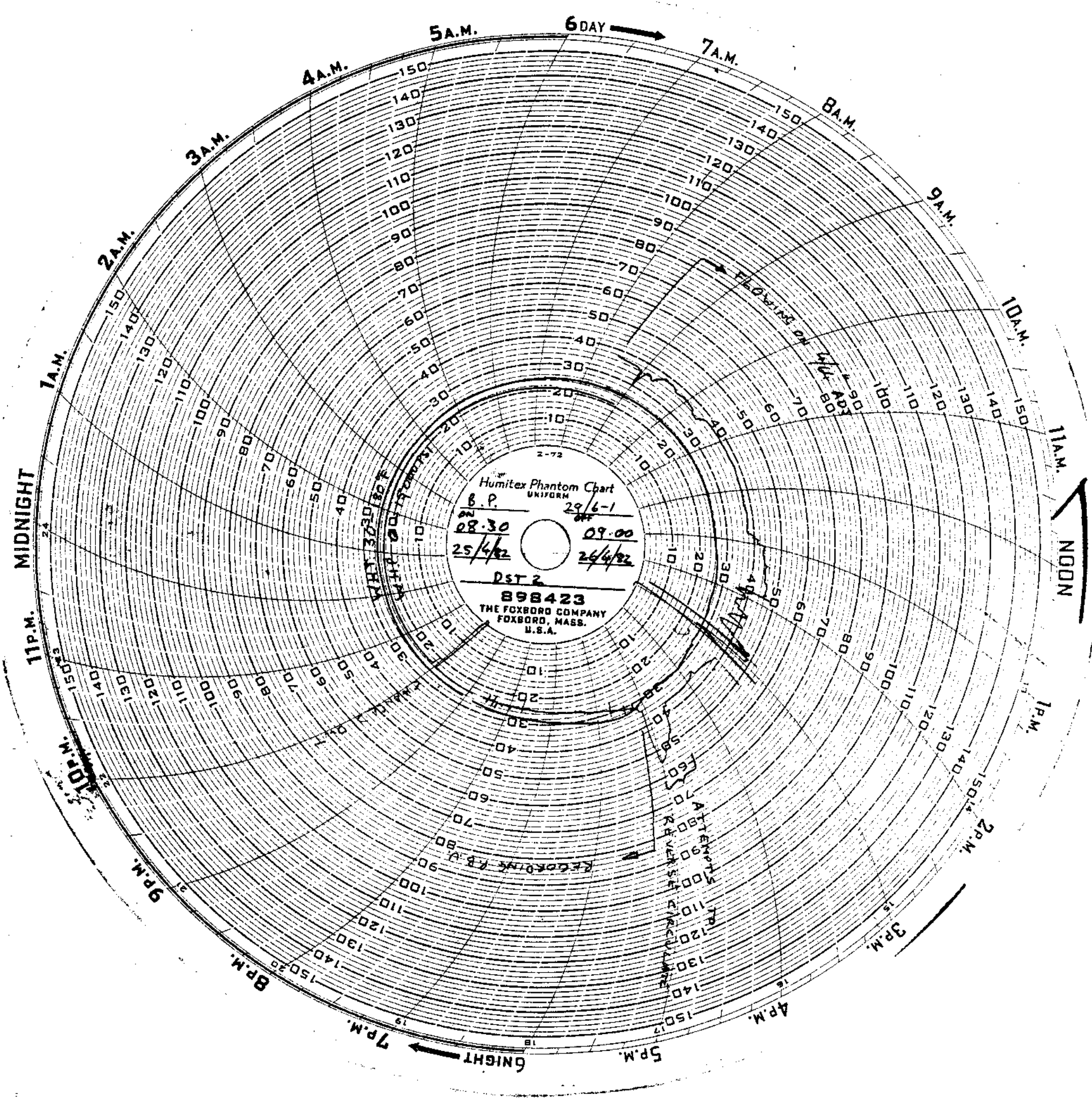
Pressure element No. 36439 Range 0-20,000psi
Clock No. 11294 Range 120 HRS

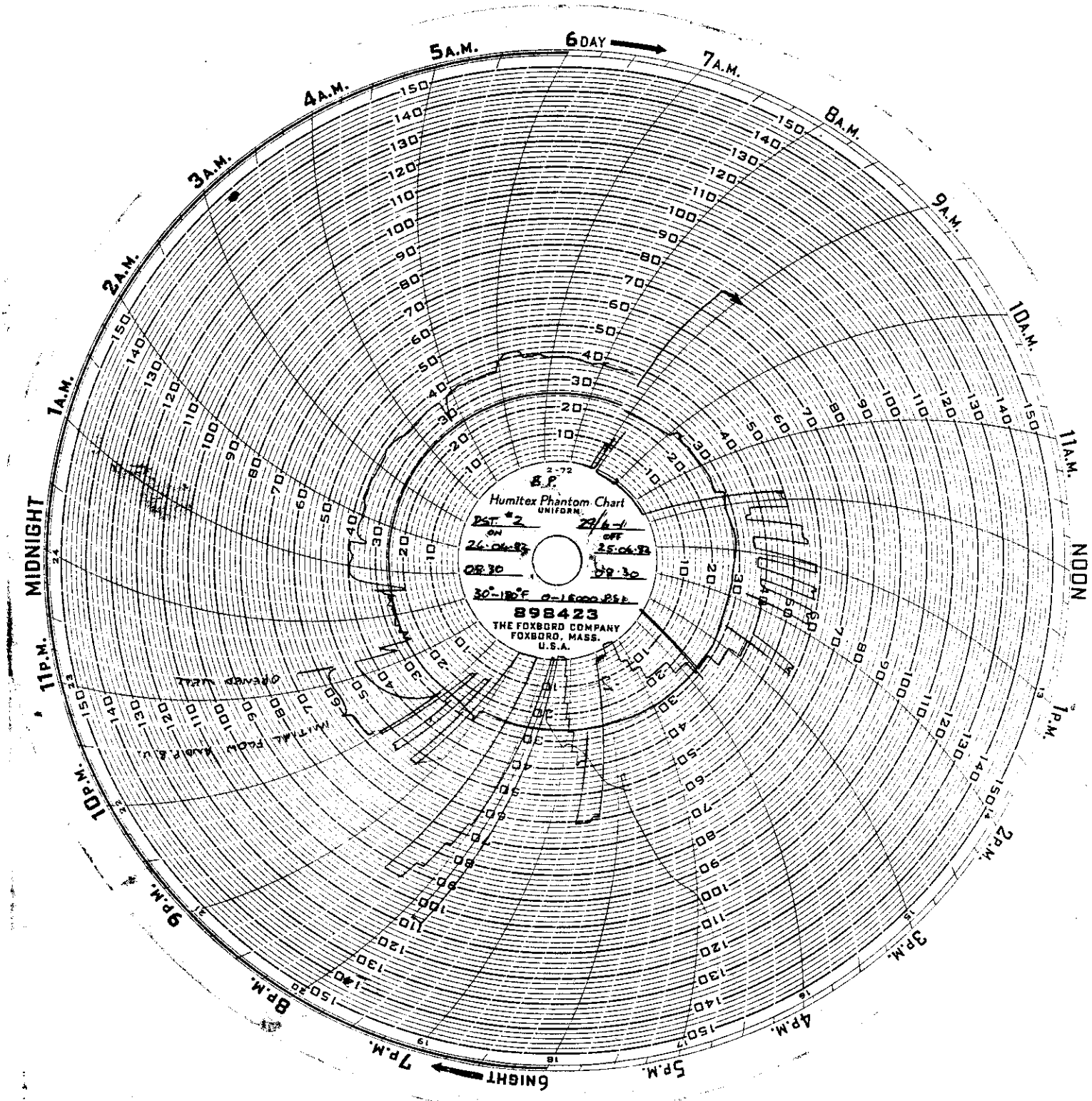

GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
CHART NO. M-1500-H
METER 45425
CHART PUT ON
TAKEN OFF
LOCATION B.P. 29 6-1
REMARKS CAL. CHART
4/3/82
1500 PSI
400" W.C.
200" W.C.
PRESSURE LBS.
DIFF. IN WATER
6 AM
NOON
6 PM
MIDNIGHT

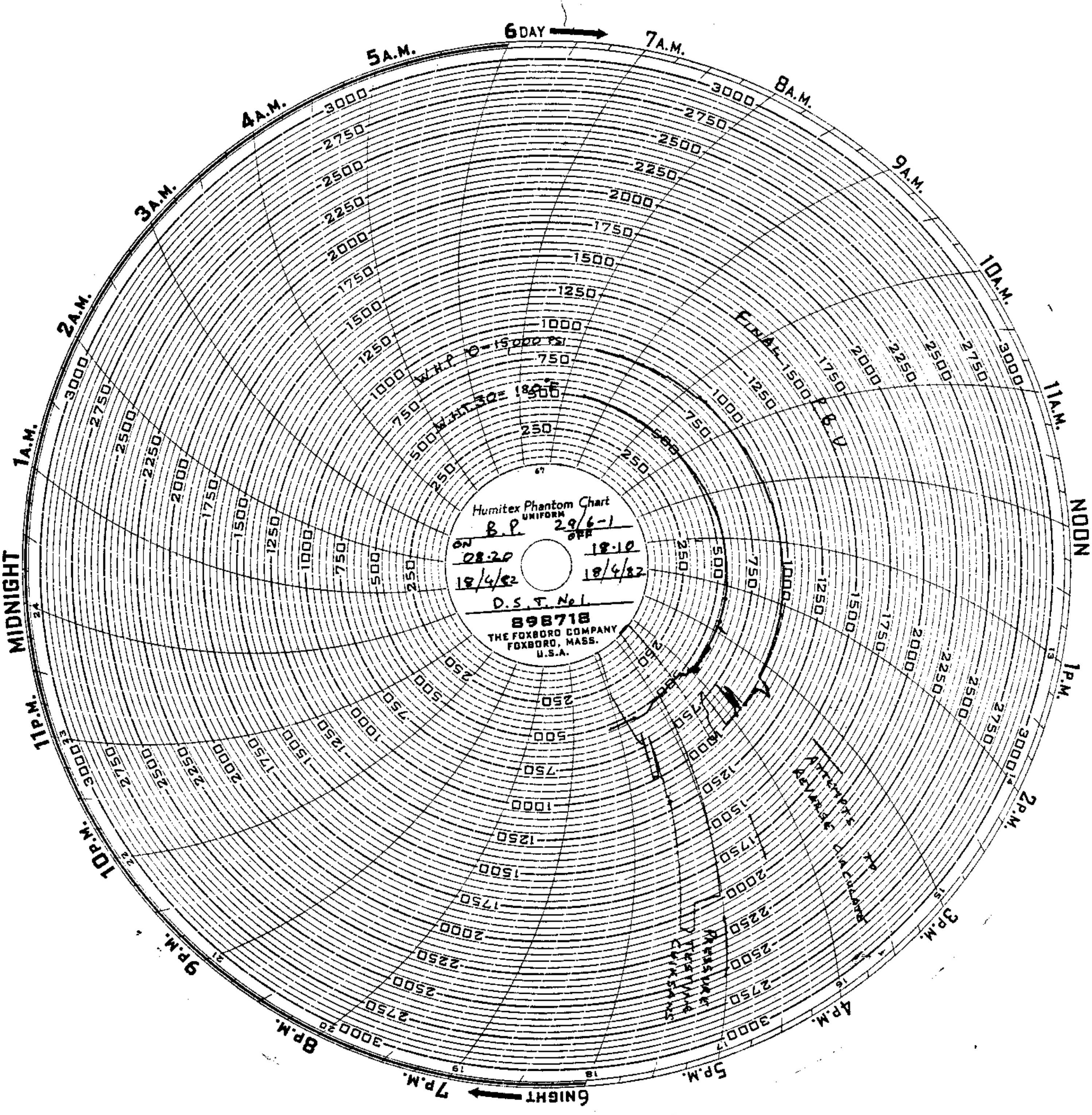

THIS CHART IS PROTECTED IN THE U.K. BY PATENT NUMBER 840133 AND REG TRADEMARKS HUMITEX NO. 591586, PHANTOM NO 589000.
NO 593659
6 DAY
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.
NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 NIGHT
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.
MIDNIGHT
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
Humitex Phantom Chart
UNIFORM
CHART
5/3/82
598494E
PRINTED IN ENGLAND
FOXBORO-YOXALL LTD
REDHILL, SURREY
ENGLAND

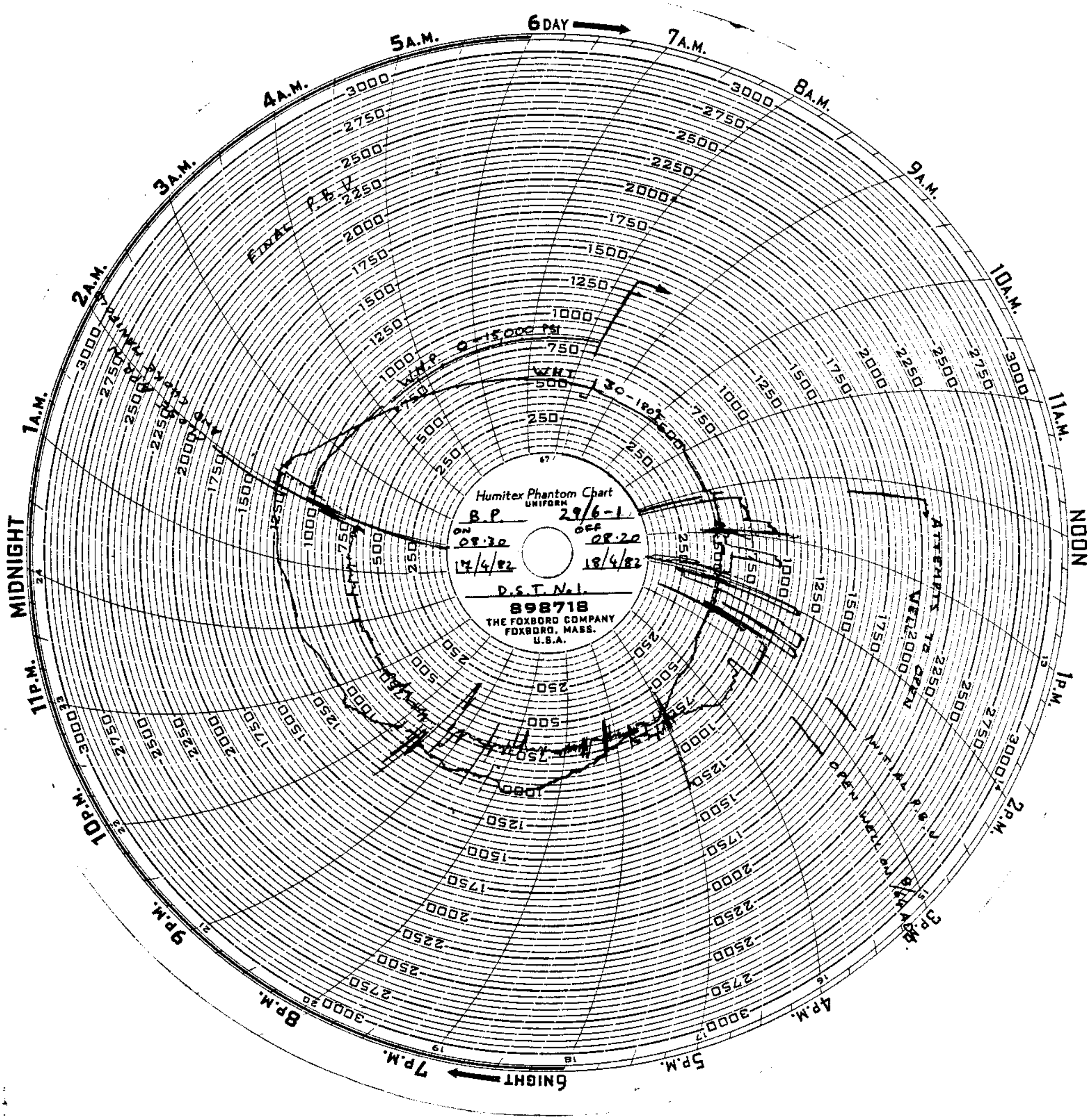

6 A.M.
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.
NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 P.M.
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.
MIDNIGHT
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
DIFF. IN. WATER
PRESSURE P.S.I.
ITT BARTON INSTRUMENTS
BOGNOR REGIS
TELEPHONE 0243-864741
TELEX 86732
METER
PLATE
CHART PUT ON
KLN OFF
LOCATION
REMARKS
BKS-1500-W100


Humitex Phantom Chart
UNIFORM
B. P.
29 6-1
12.40
2/5/82
01-00
3/5/82
DST No 3
8984
THE FOXBORO COMPANY
FOXBORO, MASS.
U.S.A.
6 DAY
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.
NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 NIGHT
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.
MIDNIGHT
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.


Humitex Phantom Chart
UNIFORM
2-72
B.P.
ON 08.30
25/4/82
29/6-1
OFF 09.00
26/4/82
DST 2
898423
THE FOXBORO COMPANY
FOXBORO, MASS.
U.S.A.
6 DAY
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.
NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 NIGHT
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.
MIDNIGHT
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
ATTEMPTS TO REVERSE CIRCULATE


6 DAY
7A.M.
8A.M.
9A.M.
10A.M.
11A.M.
NOON
1P.M.
2P.M.
3P.M.
4P.M.
5P.M.
6NIGHT
7P.M.
8P.M.
9P.M.
10P.M.
11P.M.
MIDNIGHT
1A.M.
2A.M.
3A.M.
4A.M.
5A.M.
B.P.
Humitex Phantom Chart
UNIFORM
898423
THE FOXBORO COMPANY
FOXBORO, MASS.
U.S.A.


6 DAY
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.
NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 NIGHT
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.
MIDNIGHT
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
Humitex Phantom Chart
UNIFORM
B.P.
29/6-1
ON
08.20
18/4/82
OFF
18.10
18/4/82
D.S.T. No 1
898718
THE FOXBORO COMPANY
FOXBORO, MASS.
U.S.A.
W.H.P. 0-15,000 PSI
W.H.T. 30-180°F
FINAL P.B.U
ATTEMPTS TO REVERSE CIRCULATE
PRESSURE TESTING CEMENTERS



Humitex Phantom Chart
UNIFORM
B.P.
29/6-1
ON
08.30
17/4/82
OFF
08.20
18/4/82
D.S.T. No.1
898718
THE FOXBORO COMPANY
FOXBORO, MASS.
U.S.A.
6 DAY
6 NIGHT
MIDNIGHT
NOON
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.
FINAL P.B.V
W.H.P. 0-15,000 PSI
WHT
ATTEMPTS TO OPEN WELL