E-2.3

FLOPETROL

ell Testing Report

: STATOIL RIG: DYVI DELTA

: TYRIHANS Well: 6407/1-3

: Middle JURASSIC Date: 13.12.83 TO 05.01.84

FLOPETROL JOHNSTON
Schlumberger

FLOPETROL

DIVISION : NSD

BASE : NWB

REPORT N° : 84/2301/1

Well Testing Report

Client : STATOIL RIG: DYVI DELTA

Field : TYRIHANS Well : 6407/1-3

Zone : Middle JURASSIC Date : 13.12.83 TO 05.01.84

DST No. 1 and DST No. 2

N°: DOP 100

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Flopetrol chief operator
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Client representative
Name : J. HANSTVEIT

Test Procedure

- TEST PROCEDURE -

TEST INTERVAL: 3697 - 3702 M RKB

TEST SEQUENCE: WITH THE CHOKE MANIFOLD AND FLOW LINES OPEN TO THE STOCK TANK; THE INITIAL FLOW BEGAN IMMEDIATELY FOLLOWING THE UNDERBALANCED PERFORATION. THE WELL WAS THEN SHUT IN FOR AN INITIAL BUILD-UP AND FOLLOWED BY A SECOND FLOW PERIOD WHICH CONSISTED OF A CLEAN UP AND A STABLE FLOW THROUGH THE SEPARATOR, DURING WHICH TIME TWO SETS OF SURFACE SAMPLES, OIL AND GAS, WERE TAKEN AT THE SEPARATOR. THE WELL WAS THEN SHUT IN FOR BUILD-UP, AFTER WHICH IT WAS OPENED AGAIN PRIOR TO BOTTOM HOLE SAMPLING. THE WELL WAS CLOSED DURING THE RIG UP OF WIRE LINE AND OPENED DURING B.H.S. OPERATIONS AND SHUT IN BEFORE B.H.S. FIRED.

AFTER THE B.H.S. WERE PULLED OUT AND THE WIRE LINE RIGGED DOWN, THE WELL WAS OPENED FOR A THIRD MAIN FLOW PERIOD WHICH CONSISTED OF 2 DIFFERENT, STABILIZED RATES; OBTAINING ONE SET OF SURFACE SAMPLES AT EACH RATE.

THE WELL WAS THEN SHUT IN BEFORE BULLHEADING OPERATIONS TOOK PLACE.

- TEST PROCEDURE -

SECOND FLOW PERIOD:

SAMPLE SET NO. 1 : OIL BOTTLE NO. 8208313
GAS BOTTLE NO. A13985

SAMPLE SET NO. 2 : OIL BOTTLE NO. 83021416
GAS BOTTLE NO. A14749

BOTTOM HOLE SAMPLES :

BOTTLES NO. 9214143 AND
NO. 14068/64

THIRD FLOW PERIOD :

SAMPLE SET NO. 1 : OIL BOTTLE NO. 8308174
GAS BOTTLE NO. A14774

SAMPLE SET NO. 2 : OIL BOTTLE NO. 83081204
GAS BOTTLE NO. A13993

- TEST PROCEDURE -

DST NO. 2

TEST INTERVAL: 3665 - 3670 M RKB

TEST SEQUENCE: INITIAL FLOW OF APPROXIMATE 1 M^3.RESERVOIR FLUID INTO THE WELLBORE. FLOW DIRECTED TO THE SURGE TANK.

SHUT-IN FOR INITIAL BUILD-UP.

CLEAN-UP AND FLOW THROUGH SEPARATOR THROUGH 48/64" FIXED CHOKE, WHERE TWO SET OF SURFACE SAMPLE WERE TAKEN, 4 GAS BOTTLE NO. A14788-A14969 / A14767-A14768 CONDENSATE BOTTLE NO. 83081213 / 83081603.

SHUT IN.

THIRD FLOW AT TWO DIFFERENT RATES, 28/64" AND 64/64" WHERE ONE SET OF SURFACE SAMPLE WAS TAKEN ON EACH RATE.

ON 28/64" 2 GAS BOTTLE NO. A 14048 - A 14770
1 CONDENSATE BOTTLE NO. 83081313.

ON 64/64" 2 GAS BOTTLE NO. A 14766 - A 14756
1 CONDENSATA BOTTLE NO. 83081604

FINAL BUILD-UP.

Main results

— MAIN RESULTS — DST NO. 1

Tested interval : MIDDLE JURASSIC Perforations : 3697 - 3702 M RKB

Operation	Duration	Bottom hole pressure	Well head pressure	Oil prod. rate	Gas prod. rate	G.O.R.
Units	MIN.	BAR	BAR	SM^3/D	10^3 SM^3/D	$S M^3/SM^3$
INITIAL FLOW	2	368.01	11.3			
INITIAL B.U.	63	376.45				
2ND FLOW PERIOD.						
48/64" FIX.	8	364.20	18.0			
32/64" ADJ.	9	362.76	60.6			
24/64" FIX.	563	374.65	130.8	396.1	58.54	148
B.U.	485	381.08	116.0			
PRIOR TO B.H.S.						
12/64" FIX.	45	379.88	129.2	62(Approx.)		
B.U.	94	381.09	*			
B.H.S. FLOW PERIOD	144	380.04	134.4	60(Approx.)		
12/64" FIX. B.U.	215	381.12	*			

Depth of bottom hole measurements : 3718.99 M Reference : RKB

Temperature : 123°C at : 3718.99 M depth

	24/64"	12/64"	36/64"	48/64"
Separator gas gravity (air : 1) at choke size :	.665	.704	.670	.675
STO gravity at choke size :	.8718	.8750	.8726	.8737

BSW : 0 Water cut : 0

REMARKS AND OTHER OPERATIONS

ALL RESULTS ARE THOSE LAST RECORDED.

* NO REPRESENTATIVE W.H.P.'s DUE TO WELL SHUT IN AT P.C.T. ON LUBRICATOR / EZ TREE.

— MAIN RESULTS — DST NO. 1

Tested interval : MIDDLE JURASSIC Perforations : 3697 - 3702 / RKB

Operation	Duration	Bottom hole pressure	Well head pressure	Oil prod. rate	Gas prod. rate	G.O.R.
Units	MIN.	BAR	BAR	SM^3/D	$10^3\ SM^3/D$	SM^3/SM^3
3RD FLOW PERIOD						
36/64" FIX.	269	369.31	105.0	664.8	103.4	156
48/64" ADJ.	14	374.64	108.6			
48/64" FIX.	364	365.96	83.9	867.3	137.1	158
FINAL B.U.	291	381.16	*			

Depth of bottom hole measurements : 3718.99 M Reference : R.K.B.

Temperature : 123°C at : 3718.99 M depth

	24/64"	12/64"	36/64"	48/64"
Separator gas gravity (air : 1) at choke size :	.665	.704	.670	.675
STO gravity at choke size :	.8718	.8750	.8726	.8737

BSW : Water cut :

REMARKS AND OTHER OPERATIONS

ALL RESULTS ARE THOSE LAST RECORDED.

* NO REPRESENTATIVE W.H.P.'s DUE TO WELL SHUT IN AT P.C.T. OR LUBRICATOR / EZ TREE.

- MAIN RESULTS -

DST NO. 2

Tested interval: MIDDLE JURASSIC Perforations: 3665-3670 M

OPERATION	DURATION	BOTTOM HOLE PRESSURE	WELL HEAD PRESSURE	OIL PROD. RATE	GAS PROD. RATE	G.O.R
Units	MIN	BARA	BARA	SM^3/D	$10^3 SM^3/D$	SM^3/SM^3
INITIAL HYDROSTTIC PRESSURE	-	444.97				
INITIAL FLOW 48/64"	2	376.14				
INITIAL BUILD-UP	60	377.97				
FLOW 48/64"	544	371.08	174.31	198.3	725.4	3658
BUILD-UP	756	378.18	(192.10)*			
FLOW 28/64"	410	374.81	241.33	131.8	477.7	3624
FLOW 64/64"	336	369.87	107.22	252.0	870.5	3454
FINAL BUILD-UP	430	378.17	(167.80)*			

Depth of bottom hole measurements : 3658.88m Reference : RKB

Temperature : 132.47°C at : 3658.88m depth

Separator gas gravity (air : 1) at choke size : 64/64", -0.656
48/64", -0.657, 28/64",-0.656,

STO gravity at choke size Sg/60°F : 48/64": ~~-.7800, 28/64":-.7815, 64/64":-.7767~~

BSW : 48/64": 1%, 28/64": trace, 64/64": 1% Water cut : 48/64", 15.79 SM^3/D
64/64", 14.80SM^3/D

REMARKS AND OTHER OPERATIONS

ALL RESULTS ARE THOSE LAST RECORDED

* NO REPRESENTATIVE WELL HEAD PRESSURE, DUE TO WELL SHUT IN AT P.C.T. VALVE.

Operation/measuring Condition

FLOPETROL	Client : STATOIL	Section : 3
Base : NWB	Field : TYRIHANS Well : 6407/1-3	Page : 8 Report N° : 84/2301/1

- OPERATING AND MEASURING CONDITIONS -

A - TYPE OF GAUGE -

BOTTOM HOLE :
Pressure : TWO SSDP
Temperature : TWO SSDP

WELL HEAD :
Pressure : FOXBORO 0-5000 DWT 50-10000 psig
Temperature : FOXBORO

SEPARATOR :
Pressure : BARTON 0-1500 psig'
Temperature : BARTON 0-200°F
Differential: BARTON 0-200 Hw

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 :

1 ATM AT 15°C

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

C - WELL DATA -

WELL STATE DURING SURVEY :

Well producing through : tubing ~~/drillpipe/casing~~
Main casing size 9 5/8" set at 3595m Total well depth _____
Tubing size 3½" PHG DST 1 set at 3445m Packer 7" set at 3690.10m
Perforations : 3½ PHG DST 2 3403.49m 7" 3637.64m
- Zone DST no.1 From 3697m to 3702m From _____ to _____
- Zone DST no.2 From 3665m to 3670m From _____ to _____
-

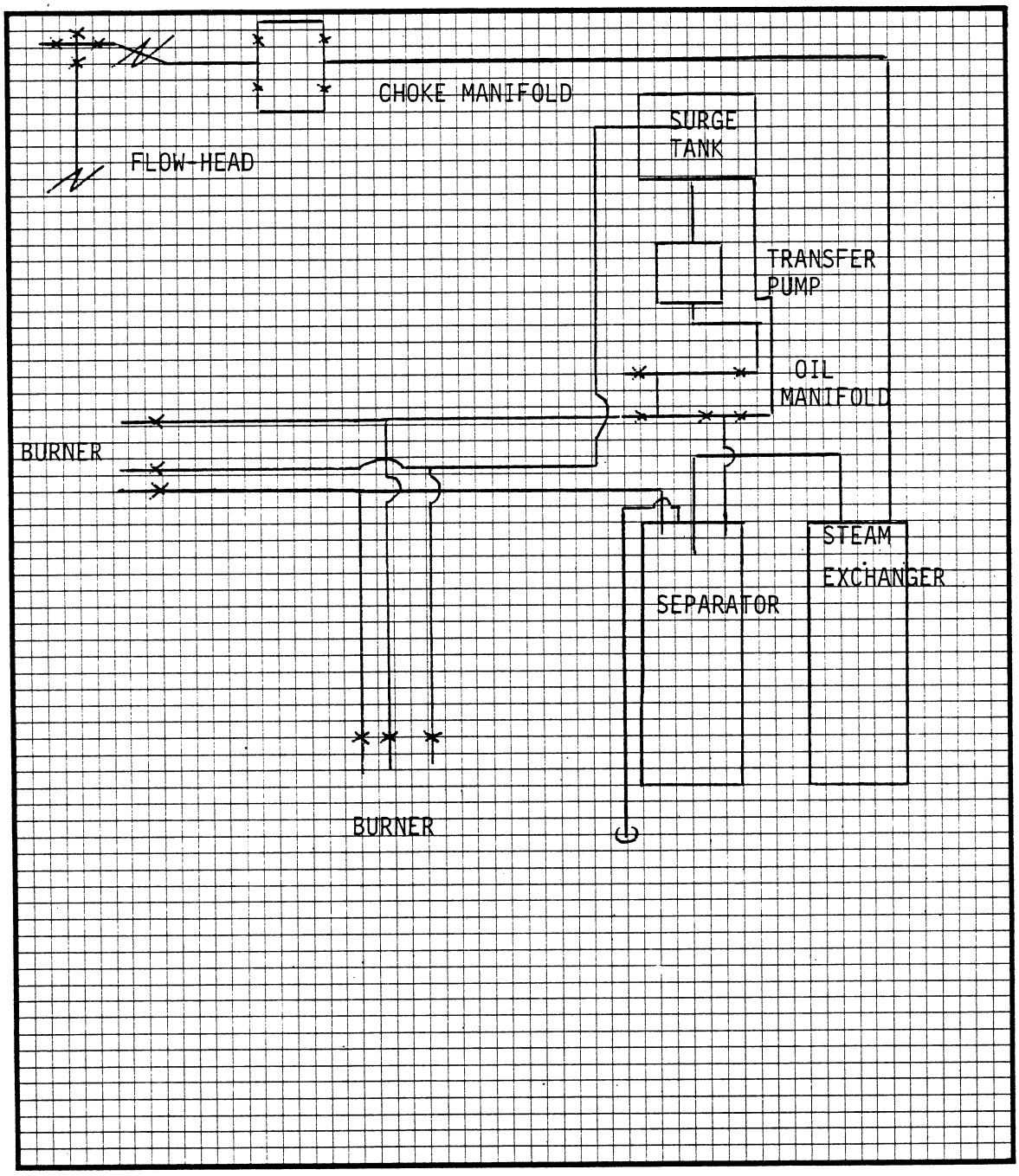
WELL STATE BEFORE TEST : NEW WELL

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

N° : DOP 104

Surface Equipment Lay - out

- SURFACE EQUIPMENT LAYOUT -

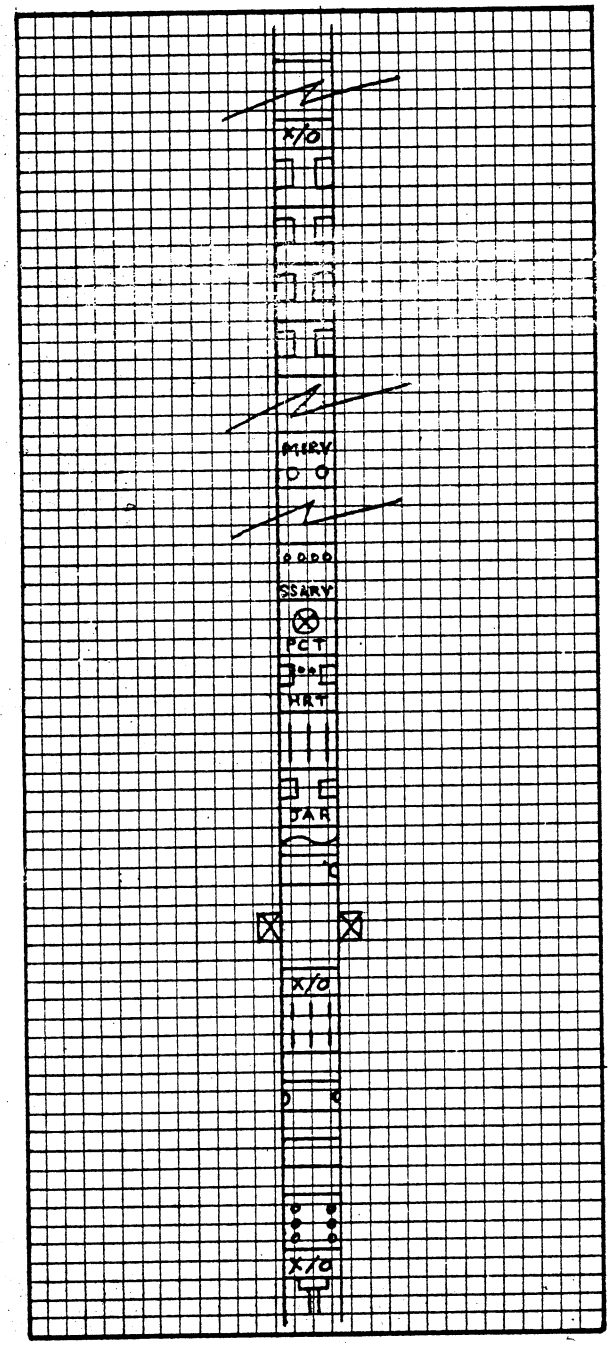


REMARKS :

NOT TO SCALE

Well completion

-WELL COMPLETION DATA-



DST no. 1

3 ½" PH6 Tubing - 3445.0 m

3½" PH6 Box x 3½" IF PIN
SLIP JOINT

SLIP JOINT

SLIP JOINT

SLIP JOINT

6 STDS. D.C.

TUBING PRESSURE CYCLED MULTI OPENING VALVE

1 STD. D.C.
ANNULUS PRESSURE CYCLED
SINGLE OPENING REVERSE VALVE
ANNULUS PRESSURE CYCLED TESTER VALVE

HYDROSTATIC REFERENCE TOOL WITH INTEGRAL
BY-PASS
SPERRY SUN BUNDLE CARRIER
HYDRAULIC JAR OPERATED WITH OVERPULL

SAFETY JOINT
PRESSURE TRANSFER SUB

7" POSITRIEVE ABOVE 3690.10 m

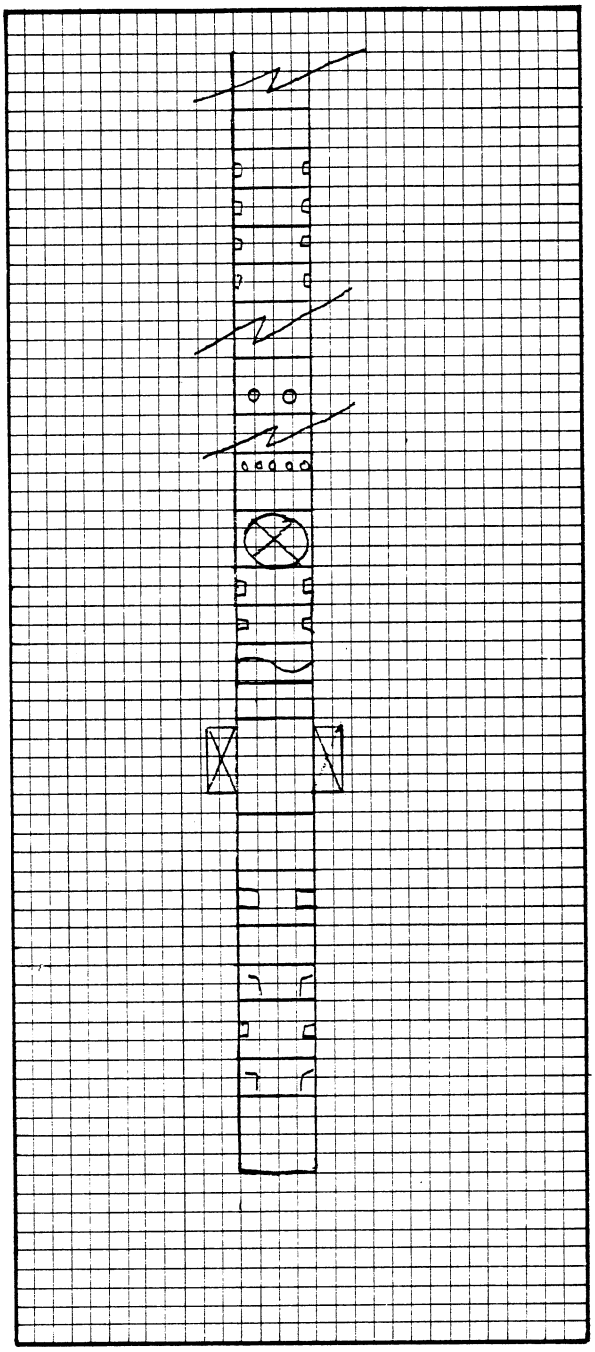
7" POSITRIEVE BELOW 3690.88m
2 7/8" EUE BOX/PIN
EUE COLLAR, SLOTTED TAILPIPE, 1 JOINT.
ADAPTOR SUB
FLOPETROL FIRING HEAD
SPACER SUB. SCHLUMBERGER FIRING HEAD ADAPTC
SPACER BARREL
CONNECTOR SUB
PERFORATING GUNS
BOTTOM NOSE 2 7/8" EUE
PRESSURE GAUGES

REMARKS

NOT TO SCALE.

-WELL COMPLETION DATA-

DST no. 2



3 ½" PH6 TUBING. 3403.49m

3 ½" PH6 BOX X 3½" IF PIN
SLIP JOINT
SLIP JOINT
SLIP JOINT

SLIP JOINT
6 STD D.C.

MIRV

1 ST D.C.
SSARV

P.C.T.

H.R.T.
HYDRAULIC JAR
SAFETY JOINT
2 7/8" EUE PIN x 3½" IF BOX
7" POSITRIEVE PACKER ABOVE 3637.64m
7" POSITRIEVE PACKER BELOW 3638.42m

PUP JOINT PERFORATED.

2 7/8" EUE COLLARS

2 7/8" EUE PIN X 2 3/8" EUE PIN

F Nipple
2 3/8" EUE COLLAR

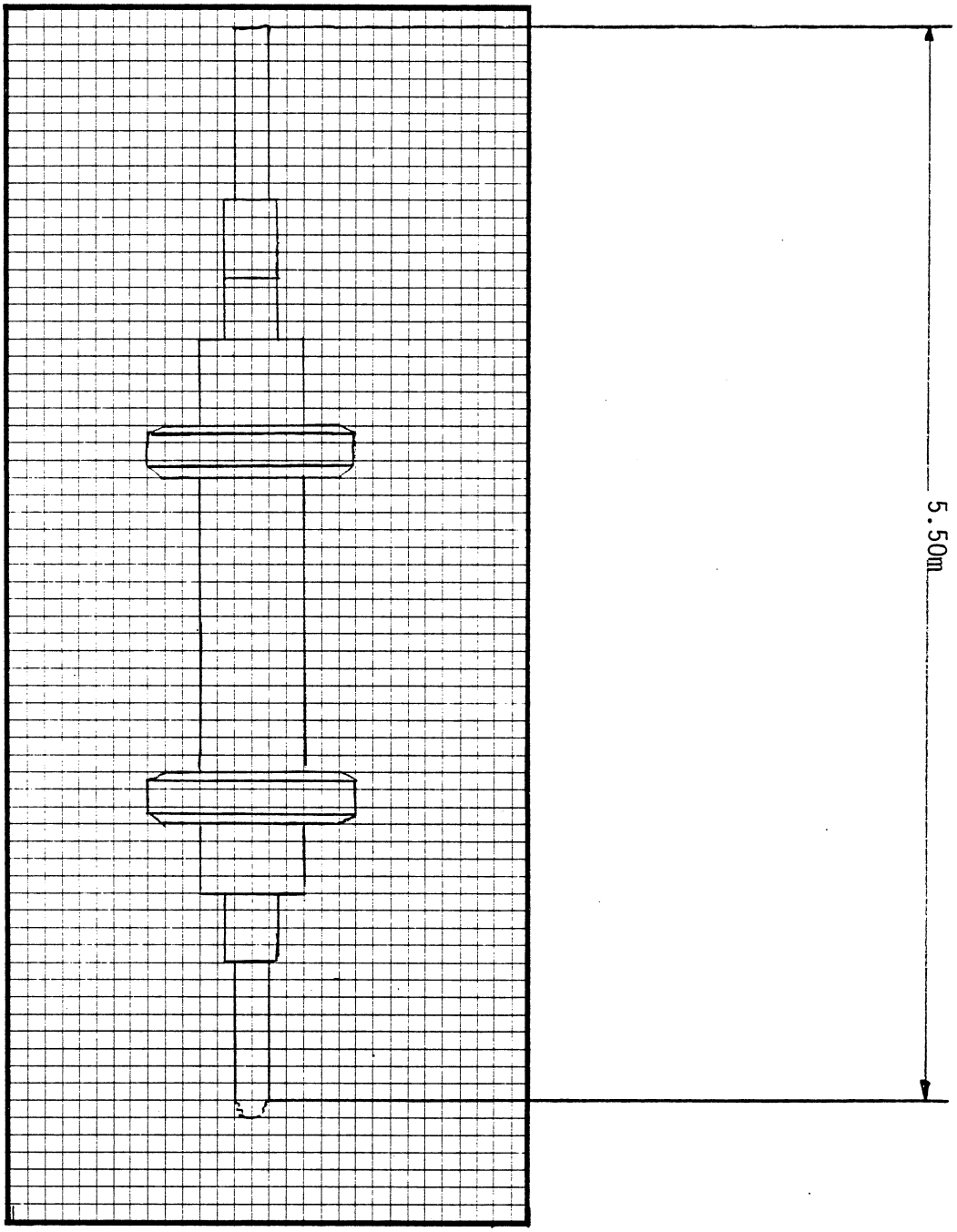
D.S.T. HANGER

BULL PLUG

REMARKS

NOT TO SCALE

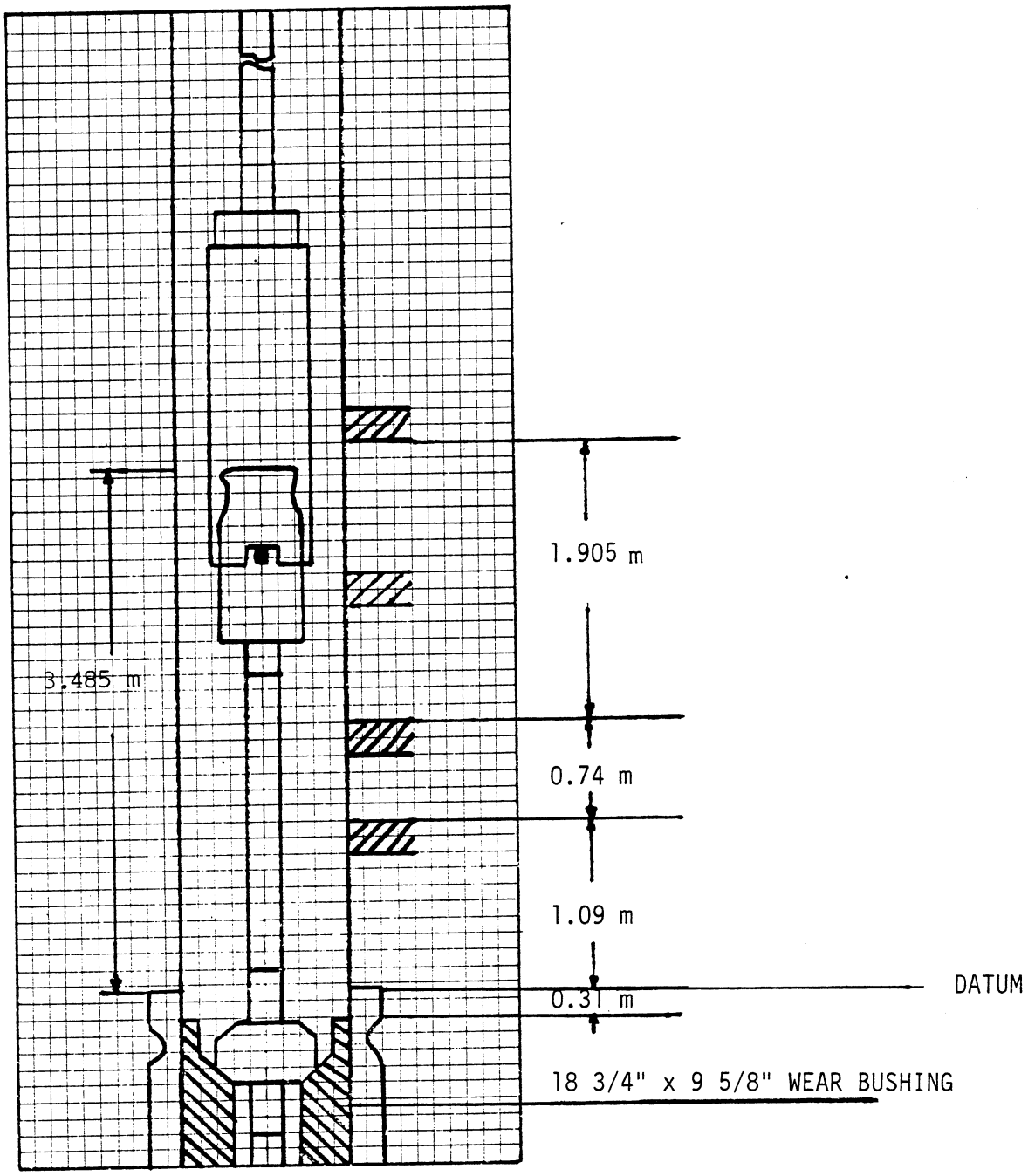
- WELL COMPLETION DATA -



REMARKS :

NOT TO SCALE
LUBRICATOR 22.86 cm O.D.
CENTRILIZERS 33.02 cm OD
MINIMUM I.D. 7.62 cm

-WELL COMPLETION DATA-



REMARKS

NOT TO SCALE
HANGER 38.10cm O.D.
EZ-TREE 25.40 cm O.D.
CLEARANCE BETWEEN BOTTOM OF SHEAR RAMS AND TOP OF VALVE ASSEMBLY 25 cm
SLICK JOINT 2.21 m
MINIMUM I.D. 6.03 cm

Sequence of events

- SEQUENCE OF EVENTS -

DST # 1

DATE	TIME	OPERATION
		13TH DECEMBER, 1983
13.12.83	15:00	ARRIVE RIG. CHECK OVER EQUIPMENT ON BOARD.
14.12.83		PRESSURE TEST HEATER, BURNERS, GAS VALVES AND OIL VALVES
		AT BOOMS, OIL MANIFOLD, SEPARATOR INLET AND BY-PASS
		VALVES. LEAK ON ONE BURNER WAIT ON SPARES ARRIVE. CAN
		NOT PRESSURE TEST SEPARATOR UNTILL RELIEF VALVE ARRIVES.
15.12.83		STRIP AND CHECK METERS ON SEPARATOR.
	11:00	HALF CREW ARRIVE RIG. REPAIR BURNER HEADS. CHECK
		EQUIPMENT.
	15:00	START TO UNLOAD BOAT OF TEST EQUIPMENT.
	18:00	EQUIPMENT IN PLACE, CHECK EQUIPMENT. RELIEF VALVE ON
		SEPARATOR AND HEATER.
16.12.83		PRESSURE TEST FLOW LINE TO 345 BARS AGAINST HEATER INLET
		AND BY-PASS, PRESSURE TEST SEPARATOR TO 90 BARS, PRESSURE
		TEST BURNER LEAK ON WECO ON OIL LINE. REST OF CREW
		ARRIVE. PRESSURE TEST LUBRICATOR, EZ-TREE, FLOWHEAD WITH
		WIRE-LINE LUBRICATOR AND BOP TO 345 BAR PRESSURE TEST
		CHOKE MANIFOLD 345, 276, 138, 70 BARS ALL TEST GOOD.
17.12.83		WORKING ON BURNER. START METER FACTORS ON SEPARATOR,
		HALLIBURTON PUMP AT 1000 BBLS/DAY ON 2" FLOCO OIL METER.
		29.97 BBLS THROUGH METER 30.448 INTO SURGE TANK METER
		FACTOR - 1.016 1800 BBLS/DAY ON 2" FLOCO OIL METER 30.59
		BBLS THROUGH METER 30.448 INTO SURGE TANK. METER FACTOR
		- .9954.
		2800 BBLS/DAY ON 3" ROTRON OIL METER 30.5 BBLS THROUGH
		METER. 31.5 BBLS INTO SURGE TANK. METER FACTOR -
		1.0329.
		700 BBLS/DAY ON 2" FLOCO WATER METER 21.885 BBLS THROUGH

DATE	TIME	OPERATION
17.12.83		METER 23.3 BBLS MEASURED FROM HALLIBURTON TANK AT THE
		SAME TIME METER FACTOR 1.066 CALIBRATE TWO BARTONS AND
		FOXBORO. PRESSURE TEST DWT PRESSURE TEST BURNER TO 70
		BARS. TEST GOOD.
18.12.83		RIG UP DEGASSING SKID FOR HEATER. CHECK OVER EQUIPMENT.
		MAKE UP EZ-TREE WITH SLICK JOINT AND HANGER 15" AND
		PRESSURE TEST TO 345 BARS. SSDP GAUGES READY.
19.12.83		TWO OIL BOTTLES FILLED WITH MERCURY. EVACUATE VACCUM GAS
		BOTTLES.
	11:30	MAKE UP EZ-TREE FOR DUMMY RUN.
	12:00	EZ-TREE THROUGH ROTARY. LAND EZ-TREE CLOSE MIDDLE
		PIPE RAMS. OPEN RAMS PULL OUT OF HOLE. EZ-TREE OUT OF
		HOLE. CHECK SPACE OUT. EZ-TREE STOOD BACK IN DERRICK.
		PRESSURE TEST 1502 CHICKSANS TO 345 BARS.
20.12.83	07:08:30	POWER ON SDP NO. 82005 DT = 25 HRS S.R. = 10s
	07:10:30	POWER ON SDP NO. 83068 DT = 30 HRS S.R. = 30s
	07:15	SDP'S IN TAIL PIPE.
	08:08	R.I.H. WITH FIRING HEAD.
21.12.83	01:30	PICK UP EZ-TREE
	01:45	EZ-TREE ON TUBING
	02:00	PRESSURE TEST CONTROL LINES
	02:05	UNLATCH
	02:45	R.I.H. WITH EZ-TREE
	05:05	TORQUE UP FLOWHEAD
	05:15	PICK UP LUBRICATOR VALVE
	05:50	LUBRICATOR VALVE TORQUED UP R.I.H.
	06:30	FLOWHEAD MADE UP TO TUBING
	06:40	LAND IN WEAR BUSHING
	07:00	RIG UP SCHLUMBERGER
	07:15	SCHLUMBERGER RUN IN HOLE WITH CORRELATION LOG

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
21.12.83	10:26	SET PACKER
	10:35	SCHLUMBERGER RUN CORRELATION LOG
	11:30	UNSEAT PACKER
	11:33	RESEAT PACKER
	11:45	SCHLUMBERGER RUN CORRELATION LOG
	13:10	RIG DOWN SCHLUMBERGER
	14:00	SURFACE EQUIPMENT RIGGED UP
	16:30	FINISH PRESSURE TESTING ACCORDING TO STATOILS PROCEDURE
	16:42	PUMPED DIESEL TO SURGE TANK. OPEN MASTER VALVE.
		CLOSE KILL VALVE.
	16:51	PERFORATE AND OPEN P.C.T. VALVE, WELL FLOW THROUGH
		48/64" FIXED CHOKE TO SURGE TANK FOR INITIAL FLOW.
	16:53	SHUT IN WELL AT P.C.T. VALVE AND CHOKE MANIFOLD.
	17:55	OPEN P.C.T. VALVE
	17:58	OPEN WELL ON 48/64" FIXED CHOKE
	18:03	CHANGE TO 32/64" ADJUSTABLE CHOKE
	18:11	GAS AND MUD TO SURFACE
	18:12	CHANGE TO 24/64" FIXED CHOKE
	18:40	DIRECT FLOW THROUGH SEPARATOR
	22:12	START 1ST SET P.V.T. SAMPLES OIL BOTTLE NO. 8208313
		GAS BOTTLE NO. A-13985
	22:47	FINISH 1ST SET PVT SAMPLES.
22.12.83	02:13	START 2ND SET P.V.T. SAMPLES OIL BOTTLE NO. 83021416
		GAS BOTTLE NO. A-14749
	03:00	FINISH 2ND SET P.V.T. SAMPLES
	03:45	BYPASS SEPARATOR
	03:50	SHUT IN WELL AT P.C.T. VALVE AND CHOKE MANIFOLD
		2 x 1 L, 2 x 2 L, 1 x 50 L DURING FLOW 2 x JERRY CANS
		20 L, 1 x 200 L DRUM AFTER SHUT IN
	12:11	OPEN P.C.T. VALVE

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
22.12.83	12:30	OPEN WELL ON 20/64" ADJUSTABLE CHOKE
	12:31	ADJUST TO 16/64" CHOKE
	12:32	FLOW CONTROLLED ON 12/64" FIXED HEATER CHOKE
	12:34	DIRECT FLOW THROUGH SEPARATOR TO TANK.
	13:15	CLOSE CHOKE MANIFOLD.
	13:18	CLOSE LUBRICATOR VALVE
	13:20	OPEN CHOKE MANIFOLD
	13:22	CLOSE CHOKE MANIFOLD TO OBSERVE LUBRICATOR VALVE HOLDS
		PRESSURE START CLOCK ON BHS NO. PSMC 982864.
	13:24	BLEED OFF THROUGH CHOKE MANIFOLD. START CLOCK ON BHS
		NO. PSMC 383884.
	13:30	START TO RIG UP WIRELINE
	14:20	WIRELINE RIGGED UP. OPEN KILL VALVE.
	14:28	EQUALIZE ACROSS LUBRICATOR VALVE
	14:35	CLOSE KILL VALVE, OPEN LUBRICATOR VALVE
	14:36	RUN IN HOLE WITH BHS NO. PSMC 982864, PSMC 383884 SDP NO.83060.
	14:49	OPEN CHOKE MANIFOLD. FLOW CONTROLLED ON 12/64" FIXED
		HEATER CHOKE.
	14:56	FLOW DIRECTED VIA SEPARATOR TO TANK.
	16:08	B.H.S. AND S.D.P. ON SAMPLING DEPTH.
	17:11	SHUT IN WELL AT CHOKE MANIFOLD.
	17:22	SAMPLER NO. PSMC 982864 OPEN
	17:24	SAMPLER NO. PSMC 383884 OPEN
	17:45	START TO P.O.O.H.
	18:00	PROBLEMS WITH STUFFING BOX.
	18:12	RESUME
	19:18	SAMPLERS IN LUBRICATOR
	19:38	CLOSE EZ-TREE VALVE
	19:39	BLEED OFF PRESSURE VIA BURNERS TO 500 PSI.
	19:41	CLOSE CHOKE MANIFOLD

SEQUENCE OF EVENTS (Continuation)

DATE	TIME	OPERATION
22.12.83	19:43	BLEED OFF PRESSURE TO ZERO VIA CHOKE.
	20:19	CLOSE LUB. VALVE. RIG DOWN WIRELINE
	20:40	CLOSE SWAB VALVE
	20:48	OPEN LUB. VALVE
	21:00	EQUALIZE PRESSURE ABOVE EZ-TREE
	21:15	OPEN EZ-TREE
	21:17	OPEN WELL ON 36/64" FIXED CHOKE
	21:23	DIRECT FLOW THROUGH SEPARATOR VIA HEATER
	23:05	FLOW TO TANK FOR METER CORRECTION FACTOR
	23:15	BY-PASS TANK METER CORRECTION FACTOR = .9327 AT 90°F
23.12.83	00:54	START 3RD SET P.V.T. SAMPLES GAS BOTTLE NO. A-14774
		OIL BOTTLE NO. 83081714
	01:44	FINISH 3RD SET P.V.T. SAMPLES
	01:46	CHANGE TO 48/64" ADJUSTABLE CHOKE
	02:00	CHANGE TO 48/64" FIXED CHOKE
	04:00	INCREASE HEATER TEMPERATURE DUE TO CARRY OVER.
	04:10	INJECT DEFOAMING AGENT UPSTREAM SEPARATOR.
	06:08	START 4TH SET P.V.T. SAMPLES GAS BOTTLE NO. A-13993
		OIL BOTTLE NO. 83081204
	06:45	FINISH 4TH SET P.V.T. SAMPLES. TAKE 2 JERRY CANS +
		50 L OIL SAMPLES.
	08:00	BY-PASS SEPARATOR
	08:04	SHUT IN WELL AT CHOKE MANIFOLD AND AT P.C.T. VALVE.
	08:06	EMPTY SURGE TANK.
	12:05	BLEED PRESSURE DOWN TO 670 PSI.
	12:11	CLOSE CHOKE MANIFOLD. OBSERVE FOR PRESSURE INCREASE
	12:17	CLOSE MASTER VALVE
	12:19	BLEED OFF PRESSURE
	12:22	OPEN KILL VALVE
	12:25	START TO FLUSH SURFACE LINES WITH WATER

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
23.12.83	12:38	STOP FLUSHING. CLOSE FAILSAFE VALVE ON FLOWHEAD.
	12:40	EQUALIZE PRESSURE ACROSS MASTER VALVE
	12:43	OPEN MASTER VALVE
	13:01	START BULLHEADING.
		END OF DST NO. 1
	13:50	REVERCE CIRCULATE
	14:45	CIRCULATE
	18:26	UNSEAT PACKER
	18:45	BREAK FLOWHEAD OFF TUBING.
	19:30	LAY DOWN FLOWHEAD
	20:30	CIRCULATE
		PRESSURE TEST FLOWHEAD AND CHOKE MANIFOLD.
	23:50	STOP CIRCULATING P.O.O.H.
24.12.83	00:40	LAY DOWN LUBRICATOR VALVE
	02:16	LAY DOWN EZ-TREE
		PUT CENTRALIZER ON EZ-TREE
		PRESSURE TEST EZ-TREE, LUBRICATOR VALVE, WIRELINE
		LUBRICATOR, B.O.P. AND STUFFING BOX.
		T.C.P. FIRING HEAD OFF.
		S.D.P'S OUT OF TAIL PIPE.
25.12.83		PRESSURE TEST PERMANENT INSTALLATION ACCORDING TO
		STATOIL PRESSURE TEST PROCEDURE.

- SEQUENCE OF EVENTS -

DATE	TIME	OPERATION
		DST # 2
30.12.83		SCHLUMBERGER FIRE PERFORATION 3665-3670 M
	14:55	BATTERIES CONNECTED ON SDP NO. 83068
		DELAY TIME 20 HRS - SCANNING RATE 30s
	15:05	SDP NO. 83068 PLUS ONE SPERRY SUN MRK III CONNECT ON
		D.S.T. HANGER - START R.I.H. WITH D.S.T. STRING.
	15:10	BATTERIES CONNECTED ON SDP NO. 82005. DELAY TIME
		20 HRS - SCANNING RATE 10s.
	15:37	SDP NO. 82005 PLUS ONE SPERRY SUN MRK III CONNECT ON
		BOMB-HANGER IN "F" NIPPLE - R.I.H. WITH DST STRING.
		STOP RUNNING IN HOLE DUE TO WEATHER CONDITIONS.
		ST BY ON WEATHER
31.12.83		ST BY ON WEATHER
01.01.84		ST BY ON WEATHER
	11:30	START TO PULL OUT DST STRING IN ORDER TO RESET GAUGES.
	18:10	SDP NO. 82005 ON SURFACE
	18:15	SDP NO. 83068 ON SURFACE. READ GAUGES.
02.01.84	11:53	BATTERIES CONNECTED ON SDP NO: 83068
		DELAY TIME 20 HRS - SCANNING RATE 30 S
	11:56	BATTERIES CONNECTED ON SDP NO. 82005
		DELAY TIME 20 HRS - SCANNING RATE 10 S.
	12:05	SDP NO. 83068 CONNECT ON DST HANGER WITH ONE MRK III.
	12:14	SDP NO. 82005 CONNECT ON "F" NIPPLE WITH ON MRK III.
		CONTINUE TO RIH WITH STRING.
		STOP RIH WITH STRING STAND BY ON WEATHER.
03.01.84		CONTINUE RIH WITH DST STRING
	10:00	EZ-TREE ON RIG FLOOR - FUNCTION TEST - OK
	10:40	START TO RIH WITH EZ-TREE

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
03.01.84	12:50	LUBRICATOR VALVE ON RIG FLOOR - FUNCTION TEST - OK
	13:10	START TO RIH WITH LUBRICATOR VALVE.
	14:08	FLOWHEAD ON RIG FLOOR - RIGGED UP FLOWLINE AND
		KILL LINE.
	15:01	CHOKE MANIFOLD CONNECTED TO FLOWLINE. START RIG-UP
		OF PRESSURE CONTROL EQUIPMENT.
	16:10	START FLUSH WATER THROUGH GAS LINE UP TO FLARE.
	16:24	START PRESSURE TEST AGAINST KILL VALVE, 500 PSI, OK.
	16:42	START PRESSURE TEST STRING, 500 PSI, 10 MN, OK.
	17:08	START PRESSURE TEST AGAINST EZ-TREE, 500 PSI, 10 MN, OK
	17:45	START PRESSURE TEST AGAINST LUBRICATOR VALVE, 5000 PSI
		10 MN, OK.
	18:02	START PRESSURE TEST AGAINST MASTER VALVE, 5000 PSI,
		10 MN, OK.
	18:26	START PRESSURE TEST AGAINST INLET STEAM EXCHANGER,
		5000 PSI, 10 MN, OK.
	18:40	START PRESSURE TEST AGAINST DOWNSTREAM VALVES CHOKE
		MANIFOLD 5000 PSI, 10 MN, OK.
	18:50	START PRESSURE TEST AGAINST INLET VALVES, CHOKE
		MANIFOLD 5000 PSI, 10 MN, OK.
	19:02	START OPERATION TO SET PACKER.
	19:30	PACKER SET.
	20:13	OPEN PCT VALVE
	20:15	OPEN WELL THROUGH CHOKE MANIFOLD TO SURGE TANK FOR
		INITIAL FLOW.
	20:17	CLOSE WELL AT CHOKE MANIFOLD AND PCT VALVE FOR INITIAL
		BUILD-UP.
	21:12	BLEED-OFF PRESSURE ABOVE PCT VALVE TO 1000 PSI.
	21:17	OPEN PCT VALVE.
	21:18	OPEN WELL THROUGH CHOKE MANIFOLD TO BURNER.

_ SEQUENCE OF EVENTS _(Continuation)

DATE	TIME	OPERATION
03.01.84	21:19	OPEN ON 48/64" FIXED CHOKE THROUGH STEAM EXCHANGER.
	21:28	GAS TO SURFACE.
	23:45	SWITCH FLOW THROUGH SEPARATOR.
	24:00	START TO TAKE READINGS ON SEPARATOR
04.01.84	02:30	FIND TANK FACTOR (METER + SHRINKAGE) F = 0.81
	02:40	START FIRST SET OF TWO GAS SAMPLES
		BTL NR. A-14788 AND A-14969.
	02:46	START FIRST SET OF CONDENSATE SAMPLE BLT. NR. 8308 1213
	03:18	FINISH FIRST CONDENSATE SAMPLE.
	03:30	DUMP 6 BBL OF WATER FROM SEPARATOR.
	03:40	FINISH FIRST SET GAS SAMPLES.
	04:30	DUMP 1 BBL OF WATER FROM SEPARATOR
	05:15	START SECOND SET OF TWO GAS SAMPLES BL. NR. A-14767 AND
		A-14768
	05:30	START SECOND SET OF CONDENSATE SAMPLE BLT. NR. 83081603
	06:01	FINISH CONDENSATE SAMPLE.
	06:02	FINISH GAS SAMPLES.
	06:17	BYPASS SEPARATOR.
	06:22	SHUT IN WELL ON CHOKE MANIFOLD AND CLOSE PCT.
	08:39	OPEN CHOKE TO BLEED DOWN TBG. PRESSURE TO 2600 PSI.
	18:58	OPEN P.C.T.
	19:00	OPEN WELL ON CHOKE MANIFOLD ON 28/64" FIXED.
	19:04	START GLYCOL INJECTION ON EZ-TREE.
	20:00	STOP GLYCOL INJECTION.
	20:15	START GLYCOL INJECTION.
	20:30	SWITCH FLOW THROUGH SEPARATOR + HEATER
	20:45	START TAKING READINGS - CONDENSATE TO TANK.
	21:15	STOP GLYCOL INJECTION
	21:45	BYPASS TANK
	22:25	OPEN HEATER BYPASS

SEQUENCE OF EVENTS (Continuation)

DATE	TIME	OPERATION
04.01.84	22:57	CLOSE HATER BYPASS
	23:50	TANK EMPTY
05.01.84	00:08	START TO TAKE 3RD SET OF PVT GAS SAMPLES BTL. NO. 14048
		AND 14770.
	00:20	START TO TAKE 3RD SET OF PVT CONDENSATE SAMPLE BOTTLE NO.
		83081313
	01:03	FINISH CONDENSATE SAMPLE
	01:05	FINISH GAS SAMPLES
	01:41	BYPASS HEATER - LIFT ORIFICE PLATE IN SEPARATOR.
	01:50	INCREASE CHOKE TO 56/64" ADJ.
	02:20	CHANGE CHOKE TO 58/64" FX.
	02:21	CHANGE BACK TO 56/64" ADJ.
	02:28	CHANGE BACK TO 1" FIXED.
	02:45	START TO TAKE READINGS ON SEPARATOR.
	03:20	PASS CONDENSATE FLOW TO TANK TO FIND METER/SHRINKAGE
		FACTOR.
	06:23	START 4TH SET OF PVT GAS SAMPLES
		BOTLLE NO. A-14766 AND A-14756.
	06:37	START 4TH SET OF PVT CONDENSATE SAMPLE.
		BOTTLE NO. 83081604
	07:06	FINISH CONDENSATE SAMPLE.
	07:12	FINISH GAS SAMPLES.
	08:01	BY-PASS SEPARATOR.
	08:04	CLOSE PCT
	08:04	CLOSE MANIFOLD
		CLOSE MASTER VALVE
		OPEN CHOKE MANIFOLD TO FLARE LINE.
		OPEN KILL VALVE START FLUSHING LINES
		CLOSE FAILSAFE/FLOW VALVE.
		PUMP UP TO 2000 PSI ON KILL SIDE.

_ SEQUENCE OF EVENTS _ (Continuation)

DATE	TIME	OPERATION
05.01.84		OPEN MASTER VALVE.
	15:14	OPEN PCT.
		START BULLHEADING
		OPEN SSARV.
		START REVERSE CIRCULATING
		RELEASE PACKER
		START CIRCULATE LONG WAY
		START P.O.O.H.
		END OF TEST.

Well testing DATA.

No.: DOP 109

FLOPETROL

Base : NWB

Client : STATOIL
Field : TYRIHANS
Well : 6407/1-3

- 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	°C	BAR	°C	BAR		°C	BAR	SM^3/D		%	$10^3SM^3/D$	Air = 1	SM^3/SM^3			Units
	21ST	DECEMBER - 1983			DST NO. 1												
16:51	0	120.8	408.13	3.9	11.3	PERFORATE PCT	OPEN FLOW TO SURGE TANK FOR		INITIAL FLOW								
16:52	1	120.7	368.60	3.9	11.3												
16:53	2/0	120.7	368.01 369.99	5.6	76.8	CLOSE WELL AT	CHOKE MANIFOLD AND PCT										
16:54	1	120.6	380.57	5.6	70.0												
16:55	2	120.5	380.80	6.7	66.5												
17:00	7	120.4	381.14	5.6	58.6												
17:05	12	120.3	381.18	5.6	53.4												
17:10	17	120.3	381.18	4.4	50.0												
17:15	23	120.3	381.18	4.4	49.3												
17:30	38	120.3	381.18	3.9	45.8												
17:45	53	120.5	381.21	3.3	43.4												
17:55	63	120.6	381.21		41.0												
17:55	0	120.6	376.45			OPEN PCT VALVE											

LIQUID FLOW RATE MEASURING CONDITIONS : 15°C 1 atm

TESTED INTERVAL : 3697 - 3702 M
DEPTH REFERENCE : R.K.B.
DEPTH OF B.H.MEASUREMENTS : (DST Hanger)

2718.00

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21.12.83		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	°C	BAR	°C	BAR								Air=1				Units
17:56	1	120.6	381.09	3.3	75.1												
17:57	2	120.6	381.12		75.5												
17:58	3	120.6	373.32		75.7	OPEN AT CHOKE MANIFOLD ON 48/64" FIXED CHOKE											
17:59	4	120.7	366.10		14.8												
18:00	5	120.7	365.59	5.6	15.6												
18:01	6	120.6	365.26	7.2	16.7												
18:02	7	120.7	364.87	8.9	17.1												
18:03	8/0	120.6	364.20	10.6	18.0	CHANGE TO 32/64" ADJ CHOKE ON CHOKE MANIFOLD											
18:04	1	120.6	363.97	12.2	20.0												
18:05	2	120.6	363.77	13.9	21.3												
18:06	3	120.6	363.34	14.4	23.1												
18:07	4	120.6	363.14	15.6	25.8												
18:08	5	120.6	362.79	17.2	29.3												
18:09	6	120.6	362.55	18.3	34.1												
18:10	7	120.6	362.46	19.4	40.6												
18:11	8	120.6	362.54	20.0	56.2	GAS OIL TO SURFACE											
18:12	9/0	120.6	362.76	21.1	60.6	SWITCH TO 24/64" FIXED											

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21.12.83		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	°C	BAR	°C	BAR		°C	BAR	SM^3/D	SG	%	$10^3 SM^3/D$	Air=1	Units
18:13	1	120.6	364.12	22.8	101.0									
18:14	2	120.6	369.46	23.9	112.0									
18:15	3	120.6	371.73	24.4	116.8									
18:16	4	120.7	372.60	24.4	120.3									
18:17	5	120.7	373.04	20.8	120.3									
18:18	6	120.6	373.28	18.9	121.0									
18:19	7	120.7	373.36	18.3	121.2									
18:20	8	120.7	373.43	17.2	121.3									
18:25	13	120.8	373.54	15.6	121.5									
18:30	18	120.7	373.58	15.6	121.7									
18:35	23	120.8	373.60	15.0	122.0									
18:40	28	120.8	373.60	15.0	122.4	DIRECT	FLOW THROUGH		SEPARATOR					
18:45	33	120.8	373.64	15.6	123.0									
18:50	38	120.8	374.54	16.1	124.4									
18:55	43	120.8	373.66	17.2	123.7									
19:00	48	120.8	373.67	17.2	123.7									
19:15	63	120.8	373.75	17.2	123.9		12.2	33.4	387.4	.8655	0	FLOW TO TANK FOR METER FACTOR + SHRINKAGE		

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21.12.83		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		CO_2	H_2S	
HR/MIN	MIN	°C	BAR	°C	BAR		°C	BAR	SM^3/D	SG	%	$10^3 SM^3/D$	Air=1	SCM/M^3	%	ppm	Units
19:15																	
19:30	78	120.9	373.80	18.9	124.6				372.6	.8655					1.7	0	
19:45	93	120.9	373.86	20.0	124.9		15.0	28.6	419.4	.8655	0	53.79	.636	128			
20:00	108	121.1	373.93	20.6	125.3		14.4	28.6	410.1	.8712	0	56.37	.636	137			
20:15	123	121.1	373.99	21.7	125.5		32.2	30.6	395.2	.8712		55.37	.672	140			
20:30	138	121.1	373.99	22.2	125.8		42.2	31.0	395.2	.8712		56.38	.672	143	1.2	0	
20:45	153	121.1	374.04	22.8	126.3		38.9	31.3	387.2	.8712		56.99	.672	147			
21:00	168	121.2	374.07	22.8	126.4		37.8	31.3	398.0	.8712	0	56.80	.672	143			
21:15	183	121.2	374.07	22.8	126.5		37.8	31.3	398.3	.8712		57.04	.663	143	1.6	0	
21:30	198	121.2	374.11	23.9	127.2		38.9	31.3	401.1	.8712		57.26	.663	143			
21:45	213	121.2	374.13	23.9	127.5		41.1	31.3	398.7	.8723		57.26	.663	144			
22:00	228	121.3	374.17	23.9	127.7		40.6	31.3	402.4	.8723	0	57.53	.663	143			
22:12	240	121.3	374.14	START 1ST SET PVT SAMPLES			OIL BOTTLE NO. 8208313				GAS BOTTLE NO. A-13985						
22:15	243	121.4	374.16	25.0	127.7		42.2	31.3	400.4	.8723	0	57.47	.663	144			
22:30	258	121.4	374.17	25.6	128.2		42.2	31.3	399.9	.8723	0	57.49	.663	144			
22:45	273	121.5	374.21	25.6	128.6		42.8	31.3	401.4	.8723	0	57.76	.663	144			
22:47	275	121.4	374.18	FINISH 1ST SET PVT SAMPLES													
23:00	288	121.5	374.22	25.6	128.6		43.3	31.3	402.9	.8723	0	57.88	.665	144	1.7	0	

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21.12.83		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		CO_2	H_2S	
HR/MIN	MIN	°C	BAR	°C	BAR		°C	BAR	SM^3/D	SG	%	$10^3 SM^3/D$	Air=1	SCM/M^3	%	ppm	Units
23:00																	
23:15	303	121.5	374.23	25.6	128.7		43.3	31.3	400.4	.8723	0	57.88	.665	145			
23:30	318	121.5	374.26	26.7	128.8		43.3	31.3	401.4	.8723	0	57.88	.665	144			
23:45	333	121.5	374.31	27.2	129.0		43.9	31.3	401.3	.8723	0	57.82	.665	144			
24:00	348	121.6	374.31	28.3	129.2		43.9	31.3	399.6	.8766	0	58.37	.658	146	1.7	0	
			22ND DECEMBER, 1983														
00:15	363	121.6	374.36	28.3	129.5		43.3	31.3	400.5	.8766	0	58.43	.658	146			
00:30	378	121.6	374.37	28.9	129.6		43.3	32.0	399.9	.8766	0	58.00	.658	145			
00:45	393	121.6	374.40	29.4	129.7		43.3	30.0	399.3	.8766	0	59.04	.658	148			
01:00	408	121.7	374.43	30.0	129.7		43.3	27.2	395.9	.8740	0	58.13	.665	147			
01:15	423	121.6	374.46	30.5	130.1		43.9	27.2	397.7	.8740	0	58.07	.665	146			
01:30	438	121.8	374.48	30.5	130.0		43.9	26.9	396.5	.8740	0	57.51	.665	145			
01:45	453	121.8	374.49	31.1	130.1		44.4	27.2	399.9	.8740	0	58.19	.665	146			
02:00	468	121.8	374.51	31.1	130.2		45.0	27.2	392.9	.8740	0	58.19	.665	148	1.7	0	
02:13	481	121.8	374.53	START 2ND SET PVT SAMPLES			OIL BOTTLE NO. 83021416					GAS BOTTLE NO. A-14749					
02:15	483	121.8	374.53	31.1	130.4		45.6	27.2	397.0	.8718	0	58.43	.665	147	1.4	0	
02:30	498	121.9	374.55	33.3	130.5		45.6	27.2	395.5	.8718	0	58.37	.665	148			
02:45	513	121.9	374.57	32.8	130.6		45.0	27.2	396.7	.8718	0	58.37	.665	147			

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22.12.83		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		CO_2	H_2S	
HR/MIN	MIN	°C	BAR	°C	BAR		°C	BAR	SM^3/D	SG	%	$10^3 SM^3/D$	Air=1	SCM/M^3	%	ppm	Units
02:45																	
03:00	528	121.9	374.57	FINISHED 2ND SET PVT SAMPLES													
03:00				32.2	130.6		45.0	27.2	395.0	.8718	0	58.37	.665	148	1.4	0	
03:15	543	121.9	374.59	32.8	130.7		45.6	27.2	397.0	.8718	0	58.31	.665	147			
03:30		121.9	374.64	32.8	130.8		45.6	27.2	397.0	.8718	0	58.54	.665	147			
03:45		121.9	374.65	33.3	130.8		45.6	27.2	396.1	.8718	0	58.54	.665	148	BY-PASS SEPARATOR		
03:50	563/0	121.9	379.54	SHUT IN WELL AT PCT VALVE AND CHOKE MANIFOLD													
03:51	1	121.9	380.34	31.7	138.4												
03:55	5	122.0	380.83	28.3	134.8												
04:00	10	122.1	380.99	24.4	130.6												
04:15	25	122.1	381.05	20	127.2												
04:30	40	122.1	381.05	15.6	124.4												
05:00	55	122.1	381.05	11.1	121.7												
05:30	85	122.1	381.05	8.9	119.6												
06:00	115	122.2	381.04	8.9	118.2												
06:30	145	122.2	381.04	7.2	117.1												
07:00	175	122.2	381.04	6.1	116.3												
07:30	205	122.2	381.04	5.0	116.2												

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DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS							PROD. RATES AND FLUID PROPERTIES					GOR			
22.12.83		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		CO_2	H_2S	
HR/MIN	MIN	°C	BAR	°C	BAR		°C	BAR	SM^3/D	SG	%	10^3 SM^3/D	Air=1	SCM/M^3	%	ppm	Units
07:30																	
08:00	235	122.3	381.04	3.9	115.9												
08:30	265	122.3	381.04	3.9	115.7												
09:00	295	122.4	381.05	3.9	115.5												
09:30	325	122.4	381.05	2.8	115.5												
10:00	355	122.6	381.07	2.8	115.5												
11:00	415	122.6	381.07	3.9	115.7												
12:00	475	122.6	381.08	3.9	116.0												
12:10	485/0	122.6	381.08 378.59			OPEN PCT VALVE											
12:27	17	122.6	381.05	3.9	141.0												
12:30	20/0	122.6	381.05			OPEN ON 20/64" ADJUSTABLE CHOKE											
12:30	0		378.58	3.9	87.2												
12:31	1	122.6	370.40	6.1	76.8	ADJUST TO 16/64" CHOKE											
12:32	2	122.6	368.60	7.2	74.8	FLOW THROUGH 12/64" FIXED CHOKE ON HEATER											
12:33	3	122.6	368.58	8.9	107.9												
12:34	4	122.6	374.03	12.2	125.1	DIRECT FLOW THROUGH SEPARATOR											
12:35	5	122.6	377.99	12.8	131.3												
12:36	6	122.6	379.27	13.9	133.4												

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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			
22.12.83		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		CO_2	H_2S	
HR/MIN	MIN	°C	BAR	°C	BAR		°C	BAR	SM^3/D	SG	%	$10^3 SM^3/D$	Air=1	SCM/M^3	%	ppm	Units
12:36																	
12:37	7	122.6	379.52	13.9	132.4												
12:38	8	122.6	379.59	13.9	132.4												
12:39	9	122.6	379.73	13.9	132.4												
12:40	10	122.6	379.81	13.9	132.4												
12:45	15	122.6	379.88	13.3	131.7		43.3	14.8				14.15	.665				
12:50	20	122.6	379.89	12.2	131.0		43.3	14.8				13.64	.665				
12:55	25	122.6	379.94	12.2	130.6		43.3	15.1	36	.8718		13.53	.700	376			
13:00	30	122.7	380.02	11.7	130.6		43.3	14.4	51.9	.8718	0	12.93	.700	249	1	0	
13:05	35	122.6	379.97	11.7	130.3		48.9	14.1	59.9	.8718		12.61	.700	210			
13:10	40	122.6	379.94	11.1	129.9		48.9	14.1	63.9	.8712		12.45	.700	195			
13:15	45/0	122.7	379.88 380.04	11.1	129.2		48.9	14.1	62.3	.8718		12.84	.700	206	CLOSE CHOKE MANIFOLD		
13:18	3	122.7	380.92	10.6	131.3	CLOSE LUBRICATOR VALVE											
13:20	5	122.7	380.99	10.6	131.3	OPEN CHOKE MANIFOLD											
13:22	7	122.7	380.99		24.4	CLOSE CHOKE MANIFOLD											
13:23	8	122.7	380.99		24.4												
13:24	9	122.7	381.03			OPEN CHOKE MANIFOLD AND BLEED OF PRESSURE											
13:30	15	122.7	381.03			START RIG UP WIRELINE											

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DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS							PROD. RATES AND FLUID PROPERTIES					GOR			
22.12.83		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		CO_2	H_2S	
HR/MIN	MIN	°C	BAR	°C	BAR		°C	BAR	SM^3/D	SG	%	$10^3 SM^3/D$	Air=1	SCM/M^3	%	ppm	Units
13:30																	
14:20	65		WIRELINE RIGGED UP. OPEN KILL VALVE														
14:28	73		EQUALIZE ACROSS LUBRICATOR VALVE														
14:35	80	122.8	381.08	3.9	130.6	CLOSE KILL VALVE.			OPEN LUBRICATOR VALVE								
14:36	81		RUN IN HOLE WITH 2 SAMPLES 1 SDP GAUGE. BHS NO. PSMC 982864, BHS NO. PSMC 383884														
14:40	85			3.3	129.9												
14:49	94/0	122.8	381.09 379.09		OPEN ON CHOKE MANIFOLD FLOW THROUGH 12/64" FIXED CHOKE ON HEATER												
14:50	1	122.9	379.82	4.4	125.8												
14:51	2	122.8	380.04	7.2	127.2												
14:52	3	122.8	380.13	7.2	127.2												
14:53	4	122.9	380.18	7.2	127.4												
14:54	5	122.8	380.12	7.2	127.5												
14:55	6	122.9	380.14	7.2	127.5												
14:56	7	122.8	380.11			FLOW VIA SEPARATOR TO TANK											
15:00	11	122.9	380.14	7.8	127.3												
15:15	26	122.8	380.17	8.9	129.2		48.9	12.0	46.6	.8718	0	9.243	.701	198			
15:30	41	122.8	380.07	8.9	131.7		48.9	12.0	70.6	.8718	0	11.50	.701	163	1.7	0	
15:45	56	122.9	380.10	8.9	134.1		48.9	12.4	66.6	.8718	0	10.74	.701	161			

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DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS							PROD. RATES AND FLUID PROPERTIES					GOR			
22.12.83		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		CO_2	H_2S	
HR/MIN	MIN	°C	BAR	°C	BAR		°C	BAR	SM^3/D	SG	%	$10^3 SM^3/D$	Air=1	SCM/M^3	%	ppm	Units
15:45																	
16:00	71	122.9	380.05	8.9	135.8		51.1	13.4	71.9	.875		12.11	.701	16.8			
16:08	79	122.9	380.06	BHS ON SAMPLING DEPTH													
16:15	86	122.9	380.04	8.9	135.8		52.2	14.8	71.9	.875		13.77	.701	195			
16:30	101	122.9	380.09	8.9	135.5		52.2	15.5	54.6	.875		14.08	.701	203			
16:45	116	122.9	380.04	8.9	134.4		53.3	15.5	60.7	.8750		14.55	.701	240	1.7	0	
17:00	131	122.9	380.06	8.9	134.4		53.3	12.7	EMPTY TANK	.8750	0	13.52	.701		BY-PASS	SEPARATOR	
17:11	144	122.9	380.04			SHUT IN WELL AT CHOKE MANIFOLD											
17:11	0	122.9	380.45	8.9	136.5												
17:12	1	123.0	380.79	8.9	137.5												
17:13	2	122.9	380.91	8.9	137.9												
17:14	3	122.9	380.97	8.9	137.7												
17:15	4	123.0	381.02	8.9	137.8												
17:20	9	122.9	381.06	8.9	137.7												
17:22	11	122.9	381.06	8.9		SAMPLER NO. 14068/64 OPEN											
17:24	13	122.9	381.06	8.9		SAMPLER NO. 9214/142 OPEN											
17:25	14	122.9	381.06	8.9	137.5												
17:30	19	123.1	381.09	6.7	137.0												

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DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS							PROD. RATES AND FLUID PROPERTIES					GOR			
22.12.83		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		CO_2	H_2S	
HR/MIN	MIN	°C	BAR	°C	BAR		°C	BAR	SM^3/D	SG	%	$10^3 SM^3/D$	Air=1	SCM/M^3	%	ppm	Units
17:30																	
17:35	24	123.1	381.09	5.6	137.2												
17:40	29	123.0	381.09	4.4	137.5												
17:45	34	123.0	381.09	4.4	137.5	P.O.O.H. WITH WIRELINE											
18:00	49	123.0	381.10	4.4	137.2												
19:00	109	123.1	381.09	3.9	136.8												
19:15	124	123.1	381.09	3.9	136.8												
19:18	127	123.1	381.09			BHS + SDP IN LUBRICATOR											
19:30	139			3.9	136.8												
19:38	147					CLOSE EZ-TREE											
19:39	148					BLEED OFF PRESSURE TO SEE IF VALVE IS HOLDING											
19:41	150					CLOSE CHOKE MANIFOLD											
19:42	151				55.5												
19:43	152					BLEED OFF TO ZERO											
20:19	186					SAMPLERS AND GAUGE IN LUBRICATOR. CLOSE LUBRICATOR VALVE											
20:25	192					DISCONNECT LUBRICATOR											
20:40	207					CLOSE SWAB VALVE											
20:48	215					OPEN LUBRICATOR VALVE											

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DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS							PROD. RATES AND FLUID PROPERTIES					GOR			
22.12.83		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		CO_2	H_2S	
HR/MIN	MIN	°C	BAR	°C	BAR		°C	BAR	SM^3/D	SG	%	$10^3 SM^3/D$	Air=1	SCM/M^3	%	ppm	Units
20:48																	
21:15		123.3	381.12			PRESSURE EQUALIZED			ACROSS EZ-TREE OPEN EZ-TREE								
			381.09														
21:17	0	123.1	379.74			OPEN WELL ON	36/64"		FIXED CHOKE								
21:18	1	123.2	373.50	10	94.1												
21:19	2	123.2	371.74	10.6	97.2												
21:20	3	123.2	371.38	11.7	96.5												
21:21	4	123.2	370.84	13.3	96.2												
21:22	5	123.3	370.69	13.9	95.8												
21:23	6	123.3	370.55	13.9	95.8	DIRECT FLOW THROUGH			SEPARATOR								
21:24	7	123.2	370.40	13.9	95.8												
21:25	8	123.1	370.26	13.9	95.8												
21:30	13	123.2	370.09	17.2	95.9		50.0	26.9			0	100.3	.670		1.6	0	
21:35	18	123.2	369.96	20.6	99.6												
21:40	23	123.2	369.81	23.3	100.3												
21:45	28	123.2	369.65	23.9	101.0		54.4	28.9	682.9	.8626		104.1	.670	152			
22:00	43	123.1	369.50	27.2	102.4		54.4	28.9	664.7	.8626		104.0	.670	157			
22:15	58	123.2	369.40	30.6	103.4		54.4	28.9	668.9	.8626		103.7	.670	155			
22:30	73	123.3	369.36	32.2	103.8		54.4	28.9	684.5	.8706	0	103.6	.670	151	1.6	0	

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22.12.83		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		CO_2	H_2S	
HR/MIN	MIN	°C	BAR	°C	BAR		°C	BAR	SM^3/D	SG	%	$10^3 SM^3/D$	Air=1	SCM/M^3	%	ppm	Units
22:30																	
22:45	88	123.2	369.27	33.3	103.8		55.0	28.9	673.3	.8706	0	103.4	.670	154			
23:00	103	123.2	369.27	34.4	104.4		55.0	28.9	678.9	.8706	0	103.8	.673	153	1.7	0	
23:05	08	123.2	369.28		FLOW TO TANK FOR METER FACTOR + SHRINKAGE												
23:15	118	123.2	369.25	35.6	104.9		55.0	28.9	659.2	.8706	0	103.8	.673	158			
23:15	118				BY-PASS TANK METER FACTOR + SHRINKAGE = .9327												
23:30	133	123.3	369.26	35.6	104.9		55.0	28.9	666.3	.8739	0	103.2	.673	155			
23:45	148	123.3	369.27	37.8	105.5		54.4	28.9	666.3	.8739	0	103.2	.673	155			
24:00	163	123.4	369.28	38.9	105.5		54.4	28.9	667.7	.8739	0	103.2	.673	155			
00:15	178	123.4	369.24	38.9	105.1		54.4	29.1	664.9	.8739	0	103.3	.673	155			
00:30	193	123.3	369.26	41.1	105.1		55.6	29.1	663.5	.8739	0	103.3	.673	156			
00:45	208	123.4	369.23	41.7	105.1		55.6	29.1	660.6	.8726	0	103.3	.673	156			
00:54	217	123.4	369.21		START 3RD SET OF PVT SAMPLES OIL BOTTLE NO. 83081714 GAS BOTTLE NO. A-14774												
01:00	223	123.4	369.24	41.1	105.1		56.7	29.1	663.4	.8726	0	103.4	.670	156	1.7	0	
01:15	238	123.4	369.23	42.2	104.8		55.6	29.1	663.4	.8726	0	103.4	.670	156			
01:30	253	123.4	369.26	42.8	104.4		57.2	29.1	664.8	.8726	0	103.4	.670	156			
01:44	267	123.4	369.25		FINISH 3RD SET OF PVT SAMPLES												
01:45	268	123.5	369.29	43.3	105.0		55.6	29.1	664.8	.8726	0	103.4	.670	156			

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23.12.83		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		CO_2	H_2S	
HR/MIN	MIN	°C	BAR	°C	BAR		°C	BAR	SM^3/D	SG	%	$10^3 SM^3/D$	Air=1	SCM/M^3	%	ppm	Units
01:45																	
01:46	269/0	123.4	369.31 369.06			CHANGE	TO 48/64" ADJUSTABLE CHOKE										
01:50	4	123.5	373.91	43.9	106.5												
01:55	9	123.5	374.31	38.9	107.9												
02:00	14	123.4	374.64	38.3	108.6		54.4	42.4	399.2	.8726	0						
02:00	0	123.4	373.58			CHANGE	TO 48/64" FIXED CHOKE										
02:05	5	123.5	365.95	45.6	108.2												
02:10	10	123.5	365.58	47.8	105.1												
02:15	15	123.5	365.60	49.4	96.8		54.4	50.6	8678.3	.8726	0	147.6	.670	170			
02:20	20	123.5	365.73	51.1	83.9												
02:25	25	123.4	365.77	50.6	84.8												
02:30	30	123.4	365.60	50.6	84.4		53.3	38.6	881.3	.8726	0	148.9	.670	169			
02:45	45	123.4	365.49	52.2	82.9		54.4	38.6	846.2	.8726	0	152.4	.660	180			
03:00	60	123.4	365.55	53.9	83.1		54.4	39.3	799.8	.8718	0	153.4	.660	192	1.7	0	
03:15	75	123.5	365.59	53.9	83.5		54.4	38.9	827.9	.8718	0	153.7	.660	186			
03:30	90	123.4	365.56	55.6	83.4		54.4	38.9	879.9	.8718	0	152.8	.660	174			
03:45	105	123.5	365.58	57.2	83.6		55.6	38.6	826.5	.8718	0	151.3	.660	183			
04:00	120	123.5	365.58	58.3	83.7		60.0	38.2	826.5	.8718	0	150.4	.660	182			

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23.12.83		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		CO_2	H_2S	
HR/MIN	MIN	°C	BAR	°C	BAR		°C	BAR	SM^3/D	SG	%	$10^3 SM^3/D$	Air=1	SCM/M^3	%	ppm	Units
04:00																	
04:15	135	123.5	365.51	57.8	83.7		60.0	38.9	832.1	.8718	0	151.3	.660	182			
04:30	150	123.5	365.50	59.4	83.8		60.0	CARRY	OVER OIL	IN BARTON	MANIFOLD						
04:45	165	123.7	365.51	58.9	83.8		60.0		827.9	.8718	0						
05:00	180	123.7	365.54	60.0	83.8		61.1		867.3	.8718	0				1.9	0	
05:15	195	123.7	365.48	60.6	83.9		61.1	37.9	875.7	.8718	0	142.1	.660	162			
05:30	210	123.7	365.50	60.0	83.9		65.6	37.9	809.6	.8718	0	139.6	.660	172			
05:45	225	123.6	365.53	61.7	84.0		82.2	37.9	863.0	.8718	0	139.1	.660	161			
06:00	240	123.7	365.49	61.1	84.0		82.2	37.9	867.3	.8718	0	138.7	.660	160			
06:08	248	123.7	365.51	START	4TH SET	PVT	SAMPLES	OIL	BOTTLE NO.	83081204	GAS	BOTTLE NO.	A13993				
06:15	255	123.7	365.50	58.9	84.0		82.2	37.9	867.3	.8718	0	138.7	.660	160			
06:30	270	123.6	365.51	61.7	84.2		82.2	37.9	864.5	.8718	0	138.7	.660	160			
06:45	285	123.7	365.50	61.7	83.7		82.2	37.9	872.9	.8718	0	138.8	.660	159			
06:45	285	123.7	365.50	FINISH	4TH SET	PVT	SAMPLES										
07:00	300	123.7	365.52	63.9	83.7		82.2	37.9	864.5	.8718	0	138.7	.660	160			
07:15	315	123.7	365.51	62.2	84.1		82.2	37.9	867.3	.8737	0	137.3	.675	158			
07:30	330	123.7	365.54	63.3	84.4		83.3	37.9	868.7	.8737	0	137.3	.675	158			
07:45	345	123.7	365:52	61.7	83.7		83.3	37.9	864.5	.8737	0	137.2	.675	159	3.0	0	

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DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS							PROD. RATES AND FLUID PROPERTIES					GOR			
23.12.83		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		CO_2	H_2S	
HR/MIN	MIN	°C	BAR	°C	BAR		°C	BAR	SM^3/D	SG	%	$10^3 SM^3/D$	Air=1	SCM/M^3	%	ppm	Units
07:45																	
08:00	360	123.7	365.54	61.7	83.9		83.3	37.9	867.3	.8737	0	137.1	.675	158			
08:00	360	123.7	365.54	BYPASS SEPARATOR													
08:04	364/0	123.65		365.96 365.97		SHUT IN WELL AT CHOKE AND AT PCT VALVE											
08:05	1	123.8	379.28	61.7	116.8												
08:06	2	123.8	379.90	61.7	115.5												
08:06				EMPTY	SURGE TANK												
08:07	3	123.8	380.16	62.2	114.8												
08:08	4	123.9	380.48	62.2	113.4												
08:09	5	123.8	380.58	62.2	112.4												
08:10	6	123.7	380.73	57.2	112.0												
08:15	11	123.8	380.90	48.9	107.9												
08:30	26	123.9	381.05	40.6	104.6												
08:45	41	123.9	381.10	32.2	102.2												
13:01	305/0					START BULLHEADING											
						END DST NO. 1											

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FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

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03.01.84		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				
HRS/MIN	MIN	°C	BARA	°C	BARA		°C	BARA	SM^3/H	SG/60°F	%	$10^3 SM^3$	Air = 1	SM^3/SM^3			Units
		3RD JANUARY 1984				DST NO.	2										
19:29		125.1	444.97					INITIAL HYDROSTATIC PRESSURE									
19:30								SET PACKER									
20:13	0	125.27	378.84		17.58		OPEN WELL ON PCT TESTER VALVE										
20:14	1	125.19	378.07		71.36												
20:15	2	125.19	369.00		-												
20:15	0	125.19	369.00		-		OPEN WELL THROUGH CHOKE MANIFOLD ON 48/64" FIXED CHOKE										
20:16	1	125.19	368.13		11.03												
20:17	2	125.03	376.14		11.38												
20:17	0	125.03	376.14				CLOSE THE WELL AT CHOKE MANIFOLD AND PCT VALVE										
20:18	1	125.03	378.02		95.50												
20:19	2	124.95	378.05		96.90												
20:20	3	124.95	378.05		97.60												
20:25	8	125.03	377.99		97.20												

LIQUID FLOW RATE MEASURING CONDITIONS : 1 ATM AT 15°C

TESTED INTERVAL : 3665 - 3670 m

DEPTH REFERENCE : RKB

DEPTH OF B.H.MEASUREMENTS : 3658.88m

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03.01.84		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	
HRS/MIN	MIN	°C	BARA	°C	BARA								Air=1	
20:25														
20:30	13	125.03	378.01		97.91									
20:35	18	125.03	378.01		98.26									
20:40	23	125.03	378.01	5.5	98.26									
20:45	28	125.27	378.00	5.5	98.26									
20:50	33	125.27	377.98	4.4	98.26									
21:00	43	125.35	377.93	3.8	98.39									
21:10	53	125.35	377.93	3.8	98.60									
21:12	55	125.43	377.93		98.26									
21:13	56	125.27	377.87		84.81									
21:14	57	125.35	377.87		87.22									
21:15	58	123.35	377.87		90.67									
21:16	59	125.35	377.84		94.81									
21:17	60	125.35	377.97		99.63									
21:17	0	125.35	377.97			OPEN WELL ON PCT VALVE TESTER								
21:18	1	125.35	370.53		98.95									
21:18	0	123.35	370.53		26.55	OPEN WELL THROUGH CHOKE MANIFOLD, 48/64" FIXED THROUGH STEAM EXCHANGER								

		Units

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03.01.84		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				
HRS/MIN	MIN	°C	BARA	°C	BARA								Air=1				Units
21:18																	
21:20	2	125.27	369.59		36.89												
21:21	3	125.35	369.22		42.41												
21:22	4	125.27	368.70	9.4	49.30												
21:23	5	125.27	368.08	10.5	59.64												
21:24	6	125.19	367.78	12.7	71.36												
21:25	7	125.27	367.21	14.4	80.33												
21:26	8	125.35	366.60	18.2	98.26												
21:27	9	125.19	366.38	18.3	116.87												
21:28	10	125.27	365.81	20.0	148.93		GAS ARRIVE AT SURFACE										
21:29	11	125.35	366.18	23.3	183.76												
21:30	12	125.35	365.11	23.3	180.31												
21:31	13	125.35	364.06	20.5	166.52												
21:32	14	125.35	364.08	18.3	163.07												
21:33	15	125.35	364.07	20.0	163.07												
21:34	16	125.35	364.24	20.0	162.73												
21:35	17	125.27	365.53	19.4	162.73												
21:40	22	125.51	365.14	21.1	166.86												

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03.01.84		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		CO_2	H_2S	
HRS/MIN	N MIN	°C	BARA	°C	BARA		°C	BARA	SM^3/	SG/60°	%	10^3SM^3/	Air=1	SM^3/SM^3	%	ppm	Units
21:40																	
21:45	27	125.83	365.19	21.6	168.93										2	0	
21:50	32	126.16	365.48	23.3	169.92												
21:55	37	126.40	365.57	25.0	170.65												
22:00	42	126.80	365.91	25.5	169.96										1	0	
22:15	57	127.36	366.60	30.0	-												
22:30	72	127.76	366.93	31.1	168.24												
22:45	87	128.24	367.35	32.2	169.28										1	0	
23:00	102	128.48	367.52	33.3	169.96												
23:15	117	128.72	367.81	36.1	171.0										1		
23:30	132	128.96	367.97	36.6	171.69												
23:48	150	129.28	368.14	38.3	172.38		SWITCH FLOW THROUGH SEPARATOR								1	0	
24:00	162	129.36	368.22	37.7	172.38		START READINGS FACTOR SHRINKAGE + METER = 0.81										
24:00	162	129.36	368.22	37.7	172.38		35.5	63.1	-	-	TRACE	680.1	.656	-	1	0	
04TH JANUARY, 1984																	
00:15	177	129.60	368.43	38.8	172.38		37.2	64.1	-	-	TRACE	683.5	.656	-	1	0	
00:30	192	129.68	368.53	40.0	171.90		38.8	64.5	-	-	TRACE	711.9	.656	-	1	0	
00:45	207	129.84	368.64	38.4	171.34		39.4	64.5	164.4	.783	TRACE	714.4	.656	4345	1	0	

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04.01.84		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		CO_2	H_2S	
HRS/MIN	N MIN	°C	BARA	°C	BARA		°C	BARA	SM^3/	SG/60°	%	10^3SM^3/	Air=1	SM^3/SM^3	%	ppm	Units
00:45																	
01:00	222	129.92	368.75	39.4	171.69		39.4	64.5	191.4	.783	TRACE	718.4	.655	3753	1	0	
01:15	237	130.08	368.88	39.4	173.07		39.4	64.5	193.1		TRACE	721.9		3738	0.7	0	
01:30	252	130.08	368.97	39.4	172.72		39.4	64.5	192.2		TRACE	721.9		3756	1	0	
01:45	267	130.16	369.36	39.4	173.07		40.5	63.4	1923		TRACE	720.3		3745	1	0	
02:00	282	130.40	369.45	38.8	173.21		38.9	63.1	191.6	.7805	TRACE	717.6	.655	3745	1	0	
02:15	297	130.40	360.78	38.8	173.41		39.4	64.5	192.3			721.9		3754	1	0	
02:30	312	130.32	369.82		USE OF	FACTOR	FOR METER FACTOR AND SHRINKAGE F = 0.81										
02:30	-	130.32	369.82	38.3	173.55		39.4	64.5	194.0	.7805	TRACE	725.4	.655	3739			
02:40	322	130.56	369.86			START	FIRST SET OF TWO GAS SAMPLE - BOTTLES A14788 - A14969										
02:45	327	130.56	370.14	38.9	173.55		38.9	64.5	193.6	.7805	TRACE	726.4	.655	3752			
02:46	328	130.48	370.15			START	FIRST SET OF CONDENSATE SAMPLE - BOTTLE NO. 83081213										
03:00	342	130.64	370.20	38.9	173.41		40.0	64.5	190.8	.7995	3	723.2	.658	3790	1	0	
03:15	357	130.64	370.44	38.9	173.55		40.0	64.5	179.3	.7795	7	723.2	.658	4034			
03:18	350	130.64	370.45			FINISH	FIRST CONDENSATE SAMPLE										
03:30	372	130.64	370.52			DUMP 6	ARRELS OF WATER THROUGH WATER LINE										
03:30	-	130.64	370.52	38.9	173.55		40.5	64.1	105.6	.7795	4	720.0	.658	6816	1	0	
03:40	382	130.72	370.55			FINISH	FIRST SET OF 2 GAS SAMPLE.										

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04.01.84		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		CO_2	H_2S	
HRS/MIN	N MIN	°C	BARA	°C	BARA		°C	BARA	SM^3/	SG/60°	%	10^3SM^3/	Air=1	SM^3/SM^3	%	ppm	Units
03:40																	
03:45	387	130.80	370.57	38.9	173.55		40.0	67.9	190.7	.7795	3	723.0	.658	3791			
04:00	402	130.80	370.63	38.3	174.10		39.4	67.9	191.9	.780	3	724.8	.656	3777	1	0	
04:15	417	130.96	370.79	38.9	174.24		40.0	67.9	189.5	.780	3	723.8	.656	3820			
04:30	432	130.88	370.85				DUMP 1 BARREL OF WATER THROUGH WATER LINE										
04:30	-	130.88	370.85	38.9	174.10		39.4	67.9	173.9	.780	3	721.1	.656	4147			
04:45	447	130.96	370.88	38.9	174.17		39.4	67.9	188.3	.780	3	7211	.656	3830			
05:00	462	131.04	370.92	38.9	174.10		39.4	67.9	194.3	.795	3	720.7	.657	3709	1	0	
05:15	477	131.12	370.91				START SECOND SET OF TWO GAS SAMPLE - BOTTLES A-14767 - A 14768										
05:15	-	131.12	370.91	38.9	174.10		38.9	67.9	190.7	.795	3	721.7	.657	3784			
05:30	492	131.20	370.95				START SECOND SET OF CONDENSATE SAMPLE BOTTLE 83081603										
05:30	-	131.20	370.95	38.9	174.24		38.9	67.9	154.2	.7957	3	725.4	.657	4704	NEW f FACTOR 0.82		
05:45	507	131.12	370.98	38.9	174.24		38.9	67.9	193.0	.7957	3	725.4	.657	3759			
06:00	522	131.28	370.99	39.4	174.24		38.9	67.9	198.3	.780	1	725.4	.657	3658	1	0	
06:01	523	131.20	371.02				FINISH SECOND SET OF CONDENSATE SAMPLE										
06:02	524	131.20	371.00				FINISH SECOND SET OF TWO GAS SAMPLES										
06:15	537	131.36	371.04	39.4	174.31		38.9	67.9	198.3	.780	1	725.4	.657	3658			
06:17	539	TOTAL WATER DUMPED = 1.81 SM^3 BYPASS SEPARATOR WATER RATE 15.79 SM^3/D															

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04.01.84		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		CO_2	H_2S	
HRS/MIN	N MIN	°C	BARA	°C	BARA		°C	BARA	$SM^3/$	SG/60°	%	$10^3SM^3/$	Air=1	SM^3/SM^3	%	ppm	Units
06:17	539																
06:22	544	131.20	371.08			SHUT IN ON CHOKE MANIFOLD AND SHUT IN ON PCT SIMULATNEOUSLY											
06:22	0	131.20	371.08														
06:23	1	131.28	377.91		269.94												
06:25	3	131.20	378.05		267.19												
06:26	4	131.20	378.05		263.05												
06:27	5	131.20	378.05		263.74												
06:28	6	131.43	378.09		263.74												
06:29	7	131.43	378.09		263.05												
06:30	8	131.43	378.09		262.36												
06:35	13	131.43	378.09		260.29												
06:40	18	131.43	378.09		258.22												
06:45	23	131.43	378.09		256.15												
07:00	38	131.59	378.13		254.77												
07:15	53	131.59	378.13		254.77												
07:30	68	131.59	378.13		254.09												
07:45	83	131.59	378.13		254.09												
08:00	98	131.59	378.13		254.09												

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04.01.84		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		CO_2	H_2S	
HRS/MIN	N MIN	°C	BARA	°C	BARA		°C	BARA	SM^3/	SG/60°	%	10^3SM^3/	Air=1	SM^3/SM^3	%	ppm	Units
08:00																	
08:15	113	131.59	378.13		254.09												
08:30	128	131.59	378.13		254.09												
08:39	137	131.59	378.13				BLEED OFF TUBING PRESSURE TO 179 BARS										
09:00	158	131.59	378.13		180.31												
10:00	218	131.43	378.17		181.34												
11:00	278	131.20	378.18		182.86												
12:00	338	131.20	378.18		184.93												
13:00	398	131.20	378.18		185.82												
14:00	458	130.96	378.17		186.51												
15:00	518	130.96	378.17		188.37												
16:00	578	130.96	378.17		188.93												
17:00	638	130.96	378.17		190.10												
18:00	698	130.56	378.18		191.27												
18:57	755	130.56	378.18		192.10												
18:58	756	130.56	378.18		-		OPEN PCT TESTER VALVE										
18:58	0	130.40	377.39		249.26												
18:59	1	130.48	378.13		273.39												

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04.01.84		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		CO_2	H_2S	
HRS/MIN	N MIN	°C	BARA	°C	BARA		°C	BARA	SM^3/	SG/60°	%	10^3SM^3/	Air=1	SM^3/SM^3	%	ppm	Units
18:59																	
19:00	2				274.77												
19:00	0	130.56	375.85				OPEN WELL THROUGH CHOKE MANIFOLD ON 28/64" FIXED CHOKE										
19:01	1	130.64	374.72		225.13												
19:02	2	130.72	374.41		221.68												
19:03	3	130.72	374.36		218.23												
19:04	4	130.72	374.36		220.30		START GLYCOL INJECTION ON EZ-TREE										
19:05	4	130.80	374.59		221.68												
19:06	6	130.80	374.70		223.75												
19:07	7	130.88	374.74	10.0	225.13												
19:08	8	130.96	375.04	10.6	225.13												
19:09	9	130.88	375.25	11.7	232.02												
19:10	10	130.96	374.84	12.2	235.47												
19:11	11	131.04	374.68	12.2	234.09												
19:12	12	131.04	374.62	12.2	233.40												
19:13	13	131.04	374.62	12.8	233.06												
19:14	14	131.04	374.60	12.8	233.06												
19:15	15	131.04	374.60	12.8	232.71												

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04.01.84		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		CO_2	H_2S	
HRS/MIN	MIN	°C	BARA	°C	BARA		°C	BARA	$SM^3/$	SG/60°	%	$10^3SM^3/$	Air=1	SM^3/SM^3	%	ppm	Units
19:15																	
19:20	20	131.12	374.50	15.6	232.02										1	0	
19:25	25	131.12	374.48	15.6	232.37												
19:30	30	131.12	374.49	15.6	232.71												
19:35	35	131.12	374.45	16.1	232.71												
19:40	40	131.12	374.49	17.2	233.06												
19:45	45	131.20	374.49	17.8	233.06												
20:00	60	131.28	374.97	18.9	242.36		STOP GLYCOL INJECTION								1	0	
20:15	75	131.36	374.96	18.9	242.71		START GLYCOL INJECTION										
20:30	90	131.36	374.88	20.0	241.67		SWITCH FLOW THROUGH SEPARATOR VIA STEAM EXCHANGER										
20:45	105	131.36	374.81				START READINGS - CONDENSATE FLOW TO SURGE TANK										
20:45	105	131.36	374.81	22.8	241.67		33.3	69.30	-			483.1	0.659	-			
21:00	120	131.43	374.75	23.3	241.67		36.7	67.82	127.8	0.7893	TRACE	465.5	0.659	3780			
21:15	135	131.43	374.75				STOP GLYCOL INJECTION										
21:15	135	131.43	374.75	24.4	241.33		35.6	68.26	128.8	0.7893	TRACE	472.2	0.659	3666			
21:30	150	131.51	374.75	25.0	240.64		35.6	68.61	129.7	0.7893	TRACE	477.6	0.659	3682			
21:45	165	131.59	374.78				BY-PASS SURGE TANK										
21:45	165	131.59	374.78	25.6	240.30		35.6	68.96	129.5	0.7893	TRACE	476.0	0.656	3676			

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04.01.84		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		CO_2	H_2S	
HRS/MIN	MIN	°C	BARA	°C	BARA		°C	BARA	SM^3/	SG/60°	%	10^3SM^3/	Air=1	SM^3/SM^3	%	ppm	Units
21:45																	
22:00	180	131.51	374.80	27.2	239.95		35.6	68.61	128.8	0.7954	TRACE	476.6	0.655	3700	1	0	
22:15	195	131.59	374.80	27.2	239.26		37.8	68.26	129.9	0.7954	TRACE	466.5	0.655	3591			
22:25	210	131.51	374.83		OPEN BYPASS ON STEAM EXCHANGER												
22:30	210	131.59	374.84	27.8	237.26		26.7	68.26	132.1	0.7954	TRACE	455.1	0.655	3445			
22:45	225	131.59	374.75	28.9	237.33		20.0	73.43	144.7	0.7954	TRACE	457.6	0.647	3162			
22:57	237	131.59	374.76		CLOSE BYPASS ON STEAM EXCHANGER												
23:00	240	131.67	374.77		DUMP 2 BBLS OF WATER THROUGH WATER LINE												
23:00	240	131.67	374.77	29.4	237.88		35.6	69.30	135.4	0.7975	TRACE	503.3	0.647	3717	1	0	
23:15	255	131.59	374.75	29.4	237.88		35.6	68.26	104.8	0.7975	TRACE	479.4	0.647	4574			
23:30	270	131.67	374.79	29.4	237.88		36.7	69.30	129.4	0.7975	TRACE	482.2	0.647	3726			
23:45	285	131.67	374.76	30.0	237.88		35.6	69.30	130.5	0.7975	TRACE	486.5	0.651	3728			
23:50	290	131.67	374.76		EMPTY SURGE TANK												
24:00	300	131.59	374.79	30.6	237.54		35.6	68.95	129.4	0.8007	TRACE	481.1	0.651	3718	1	0	
			05TH JANUARY 1984														
00:08	308	131.67	374.78		START THIRD SET OF TWO GAS SAMPLE NO. 14048 - 14770												
00:15	315	131.75	374.78	32.2	237.19		36.1	68.61	103.0	0.8007	TRACE	479.0	0.651	4650			
00:20	320	131.75	374.77	374.77		START THIRD SET OF			ONE CONDENSATE SAMPLE NO. 83081313								

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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			
05.01.84		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		CO_2	H_2S	
HRS/MIN	MIN	°C	BARA	°C	BARA		°C	BARA	$SM^3/$	SG/60°	%	$10^3SM^3/$	Air=1	SM^3/SM^3	%	ppm	Units
00:20																	
00:30	330	131.75	374.78	32.2	236.30		36.7	68.61	130.4	0.8007	TRACE	478.3	0.651	3668			
00:45	345	131.75	374.78	31.7	234.78		36.1	68.61	130.6	0.8007	TRACE	479.0	0.651	3668			
01:00	360	131.75	374.79	32.2	231.33		35.6	68.95	130.5	0.7815	TRACE	477.7	0.656	3661	1	0	
01:03	363	131.75	374.79				FINISHED THIRD SET OF CONDENSATE SAMPLE										
01:05	365	131.75	374.79		239.95		FINISHED THIRD SET OF GAS SAMPLE										
01:15	375	131.75	374.79	32.2	240.30		35.6	68.95	126.7	0.7815	TRACE	479.7	0.656	3786			
01:30	390	131.83	374.79	32.2	240.98		36.1	68.61	131.8	0.7815	TRACE	477.7	0.656	3624			
01:41	401	131.83	374.79				BYPASS STEAM EXCHANGER - LIFT UP ORIFIZE PLATE										
01:45	405	131.75	374.81	32.2	241.33												
01:50	410	131.75	372.90		241.33												
01:50	0	131.75	372.90		-		INCREASE CHOKE TO 56/64" ADJUSTABLE CHOKE										
01:51	1	131.75	371.24		183.76												
01:52	2	131.75	369.98		149.28												
01:53	3	131.75	369.38		111.36												
01:54	4	131.75	369.26		94.81												
01:55	5	131.67	369.12		92.74												
01:56	6	131.67	369.08		90.67												

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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			
05.01.84		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		CO_2	H_2S	
HRS/MIN	MIN	°C	BARA	°C	BARA		°C	BARA	$SM^3/$	SG/60°	%	$10^3SM^3/$	Air=1	SM^3/SM^3	%	ppm	Units
01:56																	
01:57	7	131.59	368.97	37.2	80.33												
01:58	8	131.67	368.93	36.7	78.26												
01:59	9	131.51	368.90	36.1	78.26												
02:00	10	131.51	368.90		78.26										1	0	
02:05	15	131.51	368.90		78.26												
02:10	20	131.43	368.81		78.26												
02:15	25	131.43	368.77	37.2	78.88												
02:20	30	131.51	368.97		107.91												
02:20	0	131.51	368.97				CHANGE CHOKE TO 58/64" FIXED										
02:21	1	131.43	369.07		79.57												
02:21	0	131.43	369.07				CHANGE BACK TO 56/64" ADJUSTABLE										
02:22	1	131.51	368.10		79.98												
02:23	2	131.51	368.75	38.9	79.98												
02:24	3	131.51	368.75		79.29												
02:25	4	131.59	368.73		79.29												
02:28	7	131.51	368.72		79.29												
02:28	0	131.51	368.72				CHANGE BACK TO 1" FIXED CHOKE										

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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			
05.01.84		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		CO_2	H_2S	
HRS/MIN	MIN	°C	BARA	°C	BARA		°C	BARA	SM^3/	SG/60°	%	10^3SM^3/	Air=1	SM^3/SM^3	%	ppm	Units
02:28																	
02:29	1	131.51	368.91		95.50												
02:30	2	131.43	369.11	38.9	101.70												
02:31	3	131.59	369.20		102.39												
02:32	4	131.59	369.23		103.08												
02:33	5	131.59	369.27		104.46												
02:34	6	131.51	369.28		104.81												
02:35	7	131.51	369.25	40.6	104.81												
02:40	12	131.59	369.26	41.1	105.50												
02:45	17	131.59	369.27						START READING ON SEPARATOR								
02:45	17	131.59	369.27	41.1	105.15		23.9	42.41	221.1	0.7772	Trace	874.5	0.656	3955			
03:00	32	131.67	369.29	42.2	105.84		22.8	42.41	201.2	0.7772	1	873.0	0.656	4339	1	0	
03:00	32	131.67	369.29						DUMP 4 BBLS OF WATER								
03:15	47	131.75	369.32	43.3	105.84		23.3	42.41	252.0	0.7772	1	875.6	0.656	3475			
03:20	52	131.59	369.33						FLOW TO TANK TO FIND METER AND SHRINKAGE FACTOR								
03:30	62	131.67	369.34	42.8	105.84		23.9	42.41	245.4	0.7739	3	870.7	0.656	3548			
03:45	77	131.67	369.34	43.9	106.32		23.9	42.41	232.8	0.7739	4	870.7	0.656	3740			

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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			
05.01.84		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		CO_2	H_2S	
HRS/MIN	MIN	°C	BARA	°C	BARA		°C	BARA	$SM^3/$	SG/60°	%	$10^3SM^3/$	Air=1	SM^3/SM^3	%	ppm	Units
03:45																	
03:50	82	131.67	369.34						BYPASS SURGE TANK								
04:00	92	131.83	369.37	43.9	106.32		25.0	42.41	234.9	0.7739	2	874.4	0.652	3722	1	0	
04:00	92								DUMP 2 BBLS OF WATER								
04:15	107	131.83	369.39	44.4	106.18		24.4	42.41	254.2	0.7739	2	868.1	0.652	3415			
04:30	122	131.83	369.51						DUMP 1.9 BBLS OF WATER								
04:30	122	131.83	369.51	45.6	106.32		25.6	42.41	252.0	0.7752	3	877.0	0.652	3480			
04:45	137	131.99	369.50	45.6	106.53		25.6	42.41	230.0	0.7752	3	877.0	0.652	3813			
05:00	152	131.99	369.50						DUMP 2 BBLS OF WATER								
05:00	152	131.99	369.50	45.6	106.74		26.1	42.41	253.0	0.7752	3	874.7	0.654	3457	1	0	
05:15	167	131.99	369.50	45.6	106.60		25.6	42.41	226.8	0.7752	3	875.9	0.654	3862			
05:30	182	131.99	369.50						DUMP 2.2 BBLS OF WATER								
05:30	182	131.99	369.50	45.6	106.87		26.1	42.41	249.6	0.7763	4	874.7	0.654	3504			
05:45	197	131.99	369.63	46.1	106.74		26.7	42.41	239.9	0.7763	4	873.6	0.654	3642			
06:00	212	131.99	369.67						DUMP 1.6 BBLS OF WATER								
06:00	212	131.99	369.67	46.7	107.01		27.2	42.41	229.6	0.7763	4	873.1	0.653	3803	1	0	
06:15	227	131.99	369.70	47.2	107.01		26.7	42.06	234.0	0.7763	2	870.2	0.653	3719			
06:23	235	131.99	369.70						START FOURTH SET OF 2 GAS SAMPL			A14766 - A14756					

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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			
05.01.84		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		CO_2	H_2S	
HRS/MIN	MIN	°C	BARA	°C	BARA		°C	BARA	SM^3/	SG/60°	%	10^3SM^3/	Air=1	SM^3/SM^3	%	ppm	Units
06:23																	
06:30	242	131.99	369.70	47.2	107.01		26.7	42.41	256.1	0.7757	1	870.5	0.653	3399			
06:37	249	131.99	369.79					START	FOURTH SET CONDENSATE SAMPLE BOTTLE NO: 8308160								
06:45	257	132.07	369.75	46.7	107.01		26.1	42.75	242.5	0.7757	1	871.8	0.653	3595			
07:00	272	132.07	369.84	47.2	107.01		26.7	42.75	255.4	0.7757	1	870.7	0.653	3409	1	0	
07:06	278	132.07	369.82						FINISH FOURTH SET CONDENSATE SAMPLE								
07:12	284	132.07	369.82						FINISH FOURTH SET OF 2 GAS SAMPLE								
07:15	287	132.07	369.82						DUMP 2.3 BBLS OF WATER								
07:15	287	132.07	369.82	48.3	107.22		26.7	42.75	254.1	0.7767	1	872.7	0.656	3434			
07:30	302	132.07	369.82	47.2	107.22		26.7	42.75	225.7	0.7767	1	872.7	0.656	3867			
07:45	317	132.07	369.87	48.9	107.22		27.8	42.75	254.8	0.7767	1	870.5	0.656	3416			
08:00	332	132.07	369.87						DUMP 4.3 BBLS OF WATER								
08:00	332	132.07	369.87	48.3	107.22		27.8	42.75	252.0	0.7767	1	870.5	0.656	3454			
08:01	333	132.15	369.87						BY-PASS SEPARATOR								
08:04	336/0	132.15	378.06						CLOSE P.C.T. TESTER VALVE AND CHOKE MANIFOLD								
08:05	1	132.15	378.06		202.37												
08:06	2	132.23	378.10		203.06												
08:07	3	132.23	378.10		201.68												

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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			
05.01.84		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		CO_2	H_2S	
HRS/MIN	MIN	°C	BARA	°C	BARA		°C	BARA	SM^3/	SG/60°	%	10^3SM^3/	Air=1	SM^3/SM^3	%	ppm	Units
08:07																	
08:08	4	132.23	378.10		198.92												
08:09	5	132.23	378.10		198.92												
08:10	6	132.23	378.10		198.92												
08:15	11	132.47	378.14		195.13												
08:30	26	132.47	378.14		190.31												
09:00	56	131.09	378.17		183.76												
10:00	116	131.75	378.15		178.03												
11:00	176	131.75	378.15		174.24												
12:00	236	131.20	378.18		171.27												
13:00	296	131.20	378.18		168.59												
14:00	356	130.96	378.18		168.24												
15:00	416	130.88	378.17		167.95												
15:14	430	130.80	377.89		167.80			OPEN PCT TESTER VALVE									
								START BULLHEADING									
								END OF TEST DST # 2									

FLOPETROL

DIVISION : N.S.D.

BASE : N.W.B.

REPORT N° : 84/2301/1

Well Testing Report
Annexes —

Client : STATOIL

Field : TYRIHANS Well : 6407/1-3

Zone : Middle Jurassic Date : 13.12.83 - 05.01.84

DST No. 1 and DST No. 2

N°: DOP 111

INDEX of ANNEXES

☐ 1 - BOTTOM HOLE PRESSURE AND TEMPERATURE MEASUREMENT -

- ☐ 1.1 - B.H. gauge calibration -
- ☐ 1.2 - B.H. pressure calculation -
- ☐ 1.3 - B.H. temperature calculation -

☒ 2 - LIQUID PRODUCTION RATE MEASUREMENT -

- ☒ 2.1 - Measurements with tank -
- ☒ 2.2 - Measurements with meter -

☒ 3 - GAS PRODUCTION RATE MEASUREMENT -

☒ 4 - SAMPLING SHEETS -

- ☒ 4.1 - Bottom hole sampling -
- ☒ 4.2 - Surface sampling -

☒ 5 - CHARTS AND MISCELLANEOUS -

Liquid rate tank/meter

- 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.

No DOP 120

FLOPETROL

Base : NWB

Client : STATOIL
Field : TYRIHANS
Well : 6407/1-3

- OIL PRODUCTION RATE -
- MEASUREMENT WITH TANK -

Section : Annex **2.1**
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Date - Time		Gauge graduation	Tank volume		STO Gravity			K	BSW	Net volume of STO V_o	Net STO product. rate	Cumulative production	
Time	Interval		Volume V	Temp.	Gravity	Temp.	Grav. 60°F						
Hrs min	mn	cm	m^3	°F	Sg/1°	°F	Sg/60°F		%	m^3	Sm^3 /day	m^3	Units
22.12.83			FLOW TO TANK ON 12/64" FIXED CHOKE VIA SEPARATOR									D.S.T. # 1	
12:50		38.5											
12:55	5	43.0	0.13	80	.867	75	.8718	0.9915	0	0.1	36.0	146.0	
13:00	5	49.5	0.18	80	.867	75	.8718	0.9915	0	0.2	51.9	146.2	
13:05	5	57	0.21	80	.867	75	.8718	0.9915	0	0.2	59.9	146.4	
13:10	5	65	0.22	80	.867	75	.8718	0.9915	0	0.2	63.9	146.6	
13:15		72.8	0.22	80	.867	75	.8718	0.9915	0	0.2	62.3	146.9	
13:15			SHUT IN AT CHOKE MANIFOLD										
14:56			FLOW VIA SEPARATOR TO TANK										
15:00		80											
15:15	15	97.5	0.49	80	.867	75	.8718	0.9915	0	0.5	46.6	147.8	
15:30	15	124	0.74	80	.867	75	.8718	0.9915	0	0.7	70.6	148.5	
15:45	15	149	0.70	80	.867	75	.8718	0.9915	0	0.7	66.6	149.2	
16:00	15	176	0.76	80	.867	75	.8718	0.9915	0	0.7	71.9	150.0	
16:15	15	203	0.76	80	.866	88	.8750	0.9916	0	0.7	71.9	150.1	

Tested interval : 3697 - 3702 m/RKB
Perforations :

No DOP 121

FLOPETROL | MEASUREMENT WITH TANK - (Continuation) | Page : 61 | Report N°: 84/2301/1 | Section : Annex **2.1**

Date - Time		Gauge	Tank volume		Sto Gravity			K	BSW	Net volume	Net STO	Cumulative	
Time	Interval	graduation	Volume V	Temp.	Gravity	Temp.	Grav 60 F			of STO Vo	product. rate	production	
hr/min	min.	cm	m^3	°F	Sg/T°F	°F	Sg/60°F		%	M^3	SM^3/DAY	M^3	Units
16:30		229.0											
16:45	15	251.8	0.64	80	.866	88	.8750	0.9916	0	0.6	60.7	152.1	
16:45			EMPTY SURGE	TANK									
17:99												152.8	
17:11	SHUT IN	WELL AT CHOKE MANIFOLD											

No DOP 120

FLOPETROL

Base : NWB

Client : STATOIL
Field : TYRIHANS
Well : 6407/1-3

- OIL PRODUCTION RATE -
- MEASUREMENT WITH TANK -

Section : Annex **2.1**
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Date - Time		Gauge graduation	Tank volume		STO Gravity			K	BSW	Net volume of STO V_o	Net STO product. rate	Cumulative production	
Time	Interval		Volume V	Temp.	Gravity	Temp.	Grav. 60°F						
Hrs min	mn	cm	Sm^3	°F	Sg/T	°F	Sg/60°F		%	Sm^3	SM^3 /DAY		Units
		03rd January -84			D.S.T. #2								
23:48					SWITCH FLOW THROUGH SEPARATOR - $^{48}/_{64}$"								
		04th January -84											
02:00	-				SWITCH CONDENSATE FLOW TO SURGE TANK FOR METER FACTOR AND SHRINKAGE								
02:00	-	90		58					0				
02:15	15	160	1.958	65				.9963	0	1.951	187.36		
02:30	30	237	2.154	67	.7795	60	.7795	.9962	0	2.146	206.07		
03:45					READING AFTER SHRINKAGE								
03:45		234	4.029							4.031			
					METER FACTOR INCLUDING SHRINKAGE								
					MEASUREMENT WITH FLOCO - 31.24 bbs								
					SHRINKAGE + METER FACTOR = 0.81								
04:55					SWITCH CONDENSATE FLOW TO SURGE TANK FOR METER FACTOR AND SHRINKAGE - $^{48}/_{64}$"								
04:55		68											
05:20		192	3.469	64	.795	60	.795	.9980	0	3.463	199.44		

Tested interval : 3665 - 3670 m/RKB
Perforations :

No DOP 121

FLOPETROL | MEASUREMENT WITH TANK - (Continuation) | Page : 63 Report N°: 84/2301/1 | Section : Annex **2.1**

Date - Time		Gauge	Tank volume		Sto Gravity			K	BSW	Net volume	Net STO	Cumulative	
Time	Interval	graduation	Volume V	Temp.	Gravity	Temp.	Grav 60 F			of STO Vo	product. rate	production	
Hrs min	min.	cm	M^3	°F	Sg/T	°F	Sg/60°F		%	M3	SM^3 /DAY		Units
06:20		192			READING AFTER SHRINKAGE								
06:20		192	3.469	60				1 000		3.469			
					MEASUREMENT WITH FLOCO 4397.81 - 4371.29 =					26.52 bbb = 4.216M^3			
			SHRINKAGE + METER FACTOR = 0.82										

No DOP 121

FLOPETROL | MEASUREMENT WITH TANK - (Continuation) | Page : 64 | Report N°: 84/2301/1 | Section : Annex **2.1**

Date - Time		Gauge	Tank volume		Sto Gravity			K	BSW	Net volume	Net STO	Cumulative	
Time	Interval	graduation	Volume V	Temp.	Gravity	Temp.	Grav 60 F			of STO Vo	product. rate	production	
Hrs min	min.	cm	M^3	°F	Sg/T	°F	Sg/60°F		%	M^3	SM^3 /DAY		Units
		4TH JANUARY -84			SWITCH FLOW THROUGH SEPARATOR - WELL OPEN ON $^{28}/_{64}$" FIXED CHOKE								
20:45					SWITCH CONDENSATE FLOW TO SURGE TANK FOR METER AND SHRINKAGE FACTOR								
20:45		22		40	.790	58	.7893		0				
21:00		63	1.146	56				1.0015	0	1.148	110.22		
21:15		115	1.455	60				1.000	0	1.455	139.66		
21:30		167	1.455	61				0.9995	0	1.454	139.60		
21:45		217	1.399	62				0.9990	0	1.397	134.19		
21:45					BY PASS SURGE TANK								
23:00					READING AFTER SHRINKAGE								
23:00		214	5.373	60	.790	58	.7893	1.000	0	5.373			
					MEASUREMENT WITH FLOCO 40.720 Bbb =6.474 M^3								
			SHRINKAGE + METER FACTOR = 0.830										
		5TH JANUARY -84			WELL OPEN ON 1" FIXED CHOKE								
03:20					SWITCH CONDENSATE FLOW TO SURGE TANK FOR METER AND SHRINKAGE FACTOR								
03:20		43		48									
03:50		234		60									
03:50					BY PASS SURGE TANK								

No DOP 121

FLOPETROL | MEASUREMENT WITH TANK - (Continuation) | Page : 65 Report N°: 84/2301/1 | Section : Annex **2.1**

Date - Time		Gauge	Tank volume		Sto Gravity			K	BSW	Net volume	Net STO	Cumulative	
Time	Interval	graduation	Volume V	Temp.	Gravity	Temp.	Grav 60 F			of STO Vo	product. rate	production	
Hrs min	min.	cm	M^3	°F	Sg/T	°F	Sg/60°F		%	M^3	SM^3 day		Units
05:00					READING AFTER SHRINKAGE								
05:00		230	5.118	57			.7739	1.002	0	5.243	251.70		
					MEASUREMENT WITH FLOCO =				38.24 Bbb = 6.080 M^3				
					SHRINKAGE + METER FACTOR =				0.86				

No DOP 122

FLOPETROL

Base : NWB

Client : STATOIL
Field : TYRIHANS
Well : 6407/1-3

- OIL PRODUCTION RATE -
- MEASUREMENT WITH METER -

Section : Annex 2.2
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Date - time		Meter reading	Vs	BSW	V'o*	1 - Shr		Oil Gravity			K	Net volume of STO: Vo	Net STO product. rate	Cumulative production	
Time	Interval					Factor	Temp.	Gravity	Temp.	Grav. 60°F					
Hrs min	mn	BBLS	m^3	%	m^3		°F	Sg/°F	°F	Sg/60°F		m^3	Sm^3 /day	m^3	Units
		21st December 1983				D.S.T.	# 1								
19:00		116.20												STARTS FROM FIRST READING	
19:15	15	142.35	4.16	0	4.0		40	.87	46	.8655	1.0086	4.0	387.4	4.0	
19:30	15	167.5	4.0	0	3.85		40	.87	46	.8655	1.0086	3.9	372.6	7.9	
19:45	15	195.81	4.5	0	4.33		40	.87	46	.8655	1.0086	4.4	419.4	12.3	
20:00	15	223.5	4.4	0	4.24		40	.868	70	.8712	1.0085	4.3	410.1	16.6	
20:15	15	250.20	4.25	0	4.08		40	.868	70	.8712	1.0085	4.1	395.5	20.7	
20:30	15	276.90	4.25	0	4.08		40	.868	70	.8712	1.0085	4.1	395.5	24.8	
20:45	15	303.04	4.16	0	4.00		40	.868	70	.8712	1.0085	4.0	387.2	28.8	
21:00	15	329.91	4.27	0	4.11		40	.868	70	.8712	1.0085	4.1	398.0	33.0	
21:15	15	356.80	4.28	0	4.11		40	.868	70	.8712	1.0085	4.1	398.3	37.1	
21:30	15	383.88	4.31	0	4.14		40	.868	70	.8712	1.0085	4.2	401.1	41.3	
21:45	15	410.80	4.28	0	4.12		40	.871	64	.8723	1.0085	4.2	398.7	45.5	
22:00	15	437.97	4.32	0	4.16		40	.871	64	.8723	1.0085	4.2	402.4	49.6	

Shrinkage factor measured by Shrinkage tester ☐ Tank ☒

* V'o = Vs x f x (1 - BSW) = Net oil volume at separator conditions. f = 0.9622

Tested interval : 3697 - 3702 m /RKB

Perforations :

No.: DOP 123

FLOPETROL | MEASUREMENT WITH METER -(Continuation) | Page : 67 Report N : 84/2301/1 | 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					
Hrs min	mn	BBLS	m^3	%	m^3		°F	Sg/1°	°F	Sg/60°F		Sm^3	Sm^3/day	m^3	Units
22:15		465.00	4.30	0	4.14		40	.871	64	.8723	1.0085	4.2	400.4	53.8	
22:30		492.00	4.29	0	4.13		40	.871	64	.8723	1.0085	4.2	399.9	58.0	
22:45		519.10	4.31	0	4.15		40	.871	64	.8723	1.0085	4.2	401.4	62.2	
23:00		546.30	4.32	0	4.16		40	.871	64	.8723	1.0085	4.2	402.9	66.4	
23:15		573.33	4.30	0	4.14		40	.871	64	.8723	1.0085	4.2	400.4	70.5	
23:30		600.43	4.31	0	4.15		40	.871	64	.8723	1.0085	4.2	401.4	74.7	
23:45		627.52	4.31	0	4.14		40	.871	64	.8723	1.0085	4.2	401.3	78.9	
24:00		654.50	4.29	0	4.13		40	.874	68	.8766	1.0084	4.2	399.6	83.1	
				22nd December 1983											
00:15		681.54	4.30	0	4.14		40	.874	68	.8766	1.0084	4.2	400.5	87.2	
00:30		708.54	4.29	0	4.13		40	.874	68	.8766	1.0084	4.2	399.9	91.4	
00:45		735.50	4.29	0	4.12		40	.874	68	.8766	1.0084	4.2	399.3	95.6	
01:00		762.23	4.25	0	4.09		40	.873	63	.8740	1.0084	4.1	395.9	99.7	
01:15		789.05	4.26	0	4.10		40	.873	63	.8740	1.0084	4.1	397.2	103.8	
01:30		815.82	4.26	0	4.10		40	.873	63	.8740	1.0084	4.1	396.5	107.9	
01:45		842.82	4.29	0	4.13		40	.873	63	.8740	1.0084	4.2	399.9	112.1	
02:00		869.35	4.22	0	4.06		40	.873	63	.8740	1.0084	4.1	392.9	116.2	

No.: DOP 123

FLOPETROL | MEASUREMENT WITH METER -(Continuation) | Page : 68 | Report N : 84/2301/1 | Section : ANNEX 2.2

DATE - TIME		Meter	V_S	BSW	V_o'	1 - Shr		OIL GRAVITY			K	Net volume	Net STO	Cumulative	
Time	Interval	reading				Factor	Temp.	Gravity	Temp.	Grav. 60°F		of STO: V_o	product. rate	production	
Hrs min	mn	BBLS	m^3	%	m^3		°F	Sg/1°	°F	Sg/60°F		Sm^3	Sm^3/day	Sm^3	Units
		869.35													
02:15	15	896.15	4.26	0	4.10		40	.867	75	.8718	1.0085	4.1	397.0	120.3	
02:30	15	922.85	4.25	0	4.08		40	.867	75	.8718	1.0085	4.1	395.5	124.5	
02:45	15	949.63	4.26	0	4.10		40	.867	75	.8718	1.0085	4.1	396.7	128.6	
03:00	15	976.30	4.24	0	4.08		40	.867	75	.8718	1.0085	4.1	395.0	132.7	
03:15	15	1003.10	4.26	0	4.10		40	.867	75	.8718	1.0085	4.1	397.0	136.8	
03:30	15	1029.90	4.26	0	4.10		40	.867	75	.8718	1.0085	4.1	397.0	141.0	
03:45	15	1056.64	4.25	0	4.09		40	.867	75	.8718	1.0085	4.1	396.1	145.1	
03:45					BYPASS SEPARATOR										
21:17					FLOW ON 36/64" CHOKE										
21:23					DIRECT FLOW THROUGH SEPARATOR							METER CORRECTION FACTOR = 0.9327			
21.30		65.9						.860	68						
21.45	15	114.5	7.73	0	7.21		90	.860	68	.8626	.9870	7.1	682.9	167.0	
22:00	15	161.8	7.52	0	7.01		90	.860	68	.8626	.9870	6.9	664.7	173.9	
22:15	15	209.4	7.57	0	7.06		90	.860	68	.8626	.9870	7.0	668.9	180.9	
22:30	15	258.1	7.74	0	7.22		90	.868	68	.8706	.9872	7.1	684.5	188.0	
22:45	15	306.0	7.62	0	7.10		90	.868	68	.8706	.9872	7.0	673.3	195.0	
23:00	15	354.3	7.68	0	7.16		90	.868	68	.8706	.9872	7.1	678.9	202.1	

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FLOPETROL | MEASUREMENT WITH METER -(Continuation) | Page : 69 | Report N : 84/2301/1 | 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					
Hrs min	mn	BBLS	m^3	%	m^3		°F	Sg/1°	°F	Sg/60°F		Sm^3	Sm^3 /day	Sm^3	Units
23:00		354.35													
23:15	15	401.2	7.46	0	6.96		90	.868	68	.8706	.9872	6.9	559.2	209.0	
23:30	15	448.6	7.54	0	7.03		90	.872	66	.8739	.9873	6.9	666.3	215.9	
23:45	15	496.0	7.54	0	7.03		90	.872	66	.8739	.9873	6.9	666.3	222.9	
23RD DECEMBER 1983															
00:00	15	543.5	7.55	0	7.04		90	.872	66	.8739	.9873	7.0	667.7	229.8	
00:15	15	590.8	7.52	0	7.01		90	.872	66	.8739	.9873	6.9	664.9	236.7	
00:30	15	638.0	7.50	0	7.00		90	.872	66	.8739	.9873	6.9	663.5	243.7	
00:45	15	685.0	7.47	0	6.97		90	.870	68	.8726	.9873	6.9	660.6	250.5	
01:00	15	732.2	7.50	0	7.00		90	.870	68	.8726	.9873	6.9	663.4	257.4	
01:15	15	779.4	7.50	0	7.00		90	.870	68	.8726	.9873	6.9	663.4	264.4	
01:30	15	826.7	7.52	0	7.01		90	.870	68	.8726	.9873	6.9	664.8	271.3	
01:45	15	874.0	7.52	0	7.01		90	.870	68	.8726	.9873	6.9	664.8	278.2	
01:46				CHANGE	TO 48/64"	ADJUSTABLE AT		HEATER							
02:00				CHANGE	TO 48/64"	FIXED CHOKE									
02:00		902.4	4.52	0	4.21		90	.870	68	.8726	.9873	4.2	399.2		
02:15		964.1	9.81	0	9.15		90	.870	68	.8726	.9873	9.0	867.2	291.4	
02:30		1026.8	9.97	0	9.30		90	.870	68	.8726	.9873	9.2	881.3	300.6	

No.: DOP 123

FLOPETROL | MEASUREMENT WITH METER -(Continuation) | Page : 70 Report N : 84/2301/1 | 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					
Hrs min	mn	BBLS	m^3	%	m^3		°F	Sg/1°	°F	Sg/60°F		Sm^3	Sm^3/day	Sm^3	Units
02:30		1026.8													
02:45	15	1087.0	9.57	0	8.93		90	.870	68	.8726	.9873	8.8	846.2	309.4	
03:00	15	1143.9	9.05	0	8.44		90	.866	78	.8718	.9873	8.3	799.8	317.8	
03:15	15	1202.8	9.37	0	8.73		90	.866	78	.8718	.9873	8.6	827.9	326.4	
03:30	15	1265.4	9.95	0	9.28		90	.866	78	.8718	.9873	9.2	879.9	335.5	
03:45	15	1324.2	9.35	0	8.72		90	.866	78	.8718	.9873	8.6	826.5	344.2	
04:00	15	1383.0	9.35	0	8.72		90	.866	78	.8718	.9873	8.6	826.5	352.8	
04:15	15	1442.2	9.41	0	8.78		90	.866	78	.8718	.9873	8.7	832.1	361.4	
04:45	30	1560.0	18.73	0	17.47		90	.866	78	.8718	.9873	17.2	827.9	378.7	
05:00	15	1621.7	9.81	0	9.15		90	.866	78	.8718	.9873	9.0	867.3	387.7	
05:15		1684.0	9.91	0	9.24		90	.866	78	.8718	.9873	9.1	875.7	396.8	
05:30		1741.6	9:16	0	8.54		90	.866	78	.8718	.9873	8.4	809.6	405.2	
05:45		1803.0	9.76	0	9.11		90	.866	78	.8718	.9873	9.0	863.0	414.2	
06:00		1864.7	9.81	0	9.15		90	.866	78	.8718	.9873	9.0	867.3	423.2	
06:15		1926.4	9.81	0	9.15		90	.866	78	.8718	.9873	9.0	867.3	432.2	
06:30		1987.9	9.78	0	9.12		90	.866	78	.8718	.9873	9.0	864.5	441.2	
06:45		2050.0	9.87	0	9.21		90	.866	78	.8718	.9873	9.1	872.9	450.3	

No.: DOP 123

FLOPETROL | MEASUREMENT WITH METER -(Continuation) | Page : 71 Report N : 84/2301/T | 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					
Hrs min	mn	BBLS	m^3	%	m^3		°F	Sg/1°	°F	Sg/60°F		Sm^3	Sm^3/day	Sm^3	Units
06:45		2050.0													
07:00		2111.5	9.78	0	9.12		90	.866	78	.8718	0.9873	9.0	864.5	459.3	160
07:15		2173.2	9.81	0	9.15		90	.861	99	.8737	0.9873	9.0	867.3	468.3	158
07:30		2235.0	9.83	0	9.17		90	.861	99	.8737	0.9873	9.0	868.7	477.3	158
07:45		2296.5	9.78	0	9.12		90	.861	99	.8737	0.9873	9.0	864.5	486.3	159
08:00		2358.2	9.81	0	9.15		90	.861	99	.8737	0.9873	9.0	867.3	495.3	158
08:00			BY-PASS SEPARATOR												

No DOP 122

FLOPETROL

Base : nwb

Client : STATOIL
Field : TYRIHANS
Well : 6407/1-3

- OIL PRODUCTION RATE -
- MEASUREMENT WITH METER -

Section : Annex 2.2
Page : 72
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Date - time		Meter reading	Vs	BSW	V'o*	1 - Shr		Oil Gravity			K	Net volume of STO: Vo	Net STO product. rate	Cumulative production	
Time	Interval					Factor	Temp.	Gravity	Temp.	Grav. 60°F					
HRS mnn	mn	Bbls	Bbls	%	Bbls	+meter	°F	sg/T	°F	sg/60°F		Bbls	SM^3 /day	SM^3	Units
03rd JANUARY		1984				DST # 2									
23:48	0				SWITCH FLOW THROUGH SEPARATOR										
04th JANUARY		1984													
00:30	45	4104.20		Trace	START READINGS - USE COEFICIENT f = 0.81										
00:45	15	4117.50	13.30	Trace	10.77	.81		.786	53	0.783	1.0000	10.80	164.4	10.0	
01:00	15	4132.98	15.48	Trace	12.54	.81					1.0000	12.50	191.4	12.0	
01:15	15	4148.60	15.62	Trace	12.65	.81						12.70	193.1	14.0	
01:30	15	4164.15	15.55	Trace	12.60	.81						12.60	192.3	16.0	
01:45	15	4179.7	15.55	Trace	12.60	.81						12.60	192.3	18.0	
02:00	15	4195.2	15.50	-	12.56	.81		.7805	60	0.7805	1.0000	12.60	191.6	20.0	
02:15	15	4210.75	15.55	-	12.60	.81						12.60	192.3	22.0	
02:30	15				USE OF NEW COEFICIENT INCLUDING METER FACTOR AND SHRINKAGE F = 0.810										
02:30	-	4226.44	15.69	-	12.71	0.81	-	.7805	60	0.7805	1.0000	12.7	194.0	24.0	
02:45	15	4242.10	15.66	-	12.68	0.81	-					12.7	193.6	26.0	
03:00	15	4258.01	15.91	3	12.89	0.81	-	.7795	60	0.7795	1.0000	12.9	196.7	28.1	

Shrinkage factor measured by Shrinkage tester ☐ Tank ☒

* V'o = Vs x f x (1 - BSW) = Net oil volume at separator conditions. f = 48/64 0.81 / 48/64 0.82 / 28/64 0.83 / 64/64 0.86

Tested interval : Middle Jurassic
Perforations : 3665 - 3670 m/RKB

No.: DOP 123

FLOPETROL | MEASUREMENT WITH METER -(Continuation) | Page : 73 | Report N : 84/2301/1 | Section: ANNEX 2.2

DATE - TIME		Meter	V_S	BSW	V_o'	1 - Shr		OIL GRAVITY			K	Net volume	Net STO	Cumulative	
Time	Interval	reading				Factor	Temp.	Gravity	Temp.	Grav. 60°F		of STO: V_o	product. rate	production	
HRS mnn	mn	Bbls	Bbls	%	Bbls	+meter	°F	sg/T	°F	sg/60°F		Bbls	SM^3 /day	SM^3	Units
03:15	15	4273.6	15.59	7	11.74	0.81	-	.7795	60	.7795	1	11.7	179.3	30.0	
03:30	15					DUMP 6 BARRELS OF WATER THROUGH WATER LINE									
03:30	-	4282.5	8.90	4	6.92	0.81	-	.7795	60	.7795	1	6.9	105.6	32.3	
03:45	15	4298.4	15.90	3	12.36	0.81	-	.7795	60	.7795	1	12.4	100.7	34.3	
04:00	15	4314.4	16.00	3	12.57	0.81	-	.780	60	.780	1	12.6	191.9	36.3	
04:15	15	4330.2	15.80	3	12.41	0.81	-	.780	60	.780	1	12.4	189.5	38.3	
04:30	15					DUMP 1 BARREL OF WATER THROUGH WATER LINE									
04:30	-	4344.7	14.50	3	11.39	0.81	-	.780	60	.780	1	11.4	173.9	40.1	
04:45	15	4360.4	15.70	3	12.34	0.81	-	.780	60	.780	1	12.3	183.3	42.0	
05:00	15	4376.6	16.20	3	12.73	0.81	-	.795	62	.7957	1	12.7	194.3	44.1	
05:15	15	4392.5	15.90	3	12.49	0.81	-	.795	62	.7957	1	12.5	190.7	46.1	
05:20	15					DUMP 3.2 BARRELS OF WATER THROUGH WATER LINE									
05:30	-	4405.2	12.70	3	10.10	0.81	-	.795	62	.7957	1	10.1	154.2	47.7	
05:45	15	4421.1	15.90	3	12.65	0.81	-	.795	62	.7957	1	12.6	193.0	49.7	
06:00	15	4437.1	16.00	1	12.99	0.81	-	.780	60	.780	1	13.0	198.3	51.7	
06:15	15	4453.1	16.00	1	12.99	0.81	-	.780	60	.780	1	13.0	198.3	53.8	
06:16	1					BY-PASS SEPARATOR									

No.: DOP 123

FLOPETROL | MEASUREMENT WITH METER -(Continuation) | Page : 74 Report N : 84/2301/1 | Section: ANNEX 2.2

DATE - TIME		Meter	V_S	BSW	V_o'	1 - Shr		OIL GRAVITY			K	Net volume	Net STO	Cumulative	
Time	Interval	reading				Factor	Temp.	Gravity	Temp.	Grav. 60°F		of STO: V_o	product. rate	production	
HRS mn	n mn	Bbls	Bbls	%	Bbls	+meter	°F	sg/T	°F	sg/60°F		Bbls	SM^3/day	SM^3	Units
20:30	0					SWITCH FLOW THROUGH SEPARATOR - WELL OPEN ON 28/64' FIXED CHOKE									
20:45	15					START READINGS - METER FACTOR + SHRINKAGE = 0.830									
20:45	-	4460.78		Trace		-	-	.790	58	.7893	1.000				
21:00	15	4470.17	10.09	Trace	8.37	0.83	-				1.000	8.4	127.8	10.7*	
21:15	15	4481.04	10.17	Trace	8.44	0.83					1.000	8.4	128.8	12.1	
21:30	15	4491.28	10.24	Trace	8.50	0.83					1.000	8.5	129.7	13.5	
21:45	15	4501.50	10.22	Trace	8.48	0.83					1.000	8.5	129.5	14.8	
22:00	15	4511.67	10.17	Trace	8.44	0.83		.795	61	.7954	1.000	8.4	128.8	16.1	3699
22:15	15	4521.92	10.25	Trace	8.51	0.83					1.000	8.5	129.9	17.5	3593
22:30	15	4532.35	10.43	Trace	8.66	0.83					1.000	8.7	132.1	18.9	3444
22:45	15	4543.77	11.42	Trace	9.48	0.83					1.000	9.5	144.7	20.4	3163
23:00	15	4554.46	10.69	Trace	8.87	0.83		.805	39	.7975	1.000	8.9	135.4	21.8	3716
23:00	-					DUMP TWO BARRELS OF WATER THROUGH WATER LINE									
23:15	15	4562.73	8.27	Trace	6.86	0.83		.805	39	.7975	1.000	6.9	104.8	22.9	4576
23:30	15	4572.94	10.21	Trace	8.47	0.83					1.000	8.5	129.4	24.2	3728
23:45	15	4583.24	10.30	Trace	8.55	0.83					1.000	8.5	130.5	25.6	3728
24:00	15	4593.45	10.21	Trace	8.47	0.83		.800	62	.8007	1.000	8.5	129.4	26.9	3719

No.: DOP 123

FLOPETROL | MEASUREMENT WITH METER -(Continuation) | Page : 75 | Report N : 84/2301/1 | 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					
HRS mnn	mn	Bbls	Bbls	%	Bbls	+meter	°F	sg/T	°F	sg/60°F		Bbls	SM^3 /day	SM^3	Units
05th JANUARY		1984													
00:00	0					DUMP 2 BBLS OF WATER THROUGH WATER LINE									
00:15	15	4601.58	8.13	Trace	6.75	0.83					1	6.7	103.0	28.0	4651
00:30	15	4611.87	10.29	Trace	8.54	0.83					1	8.5	130.4	29.4	3669
00:45	15	4622.18	10.31	Trace	8.56	0.83					1	8.6	130.6	30.7	3667
01:00	15					DUMP 2 BBLS OF WATER THROUGH WATER LINE									
01:00	-	4632.48	10.30	Trace	8.55	0.83		.7819	59	0.7815	1	8.5	130.5	32.1	3661
01:15	15	4642.48	10.00	Trace	8.30	0.83					1	8.3	126.7	33.4	3787
01:30	15	4652.88	10.40	Trace	8.63	0.83					1	8.6	131.8	34.8	3625
						CHANGE CHOKE TO 1" ADJUSTABLE									
						CHANGE CHOKE TO 1" FIXED CHOKE									
02:45						START READINGS									
02:45	-	4740.15	87.27	Trace	72.43	0.83		.7791	55		1	72.4	221.1	46.3	-
03:00	15					DUMP 4 BBLS OF WATER THROUGH WATER LINE									
03:00	-	4756.19	16.04	1%	13.18	0.83		.7791	55	.7772	1	13.2	201.2	48.4	4340
03:15	15	4776.28	20.09	1%	16.51	0.83					1	16.5	252.0	51.0	3475

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FLOPETROL | MEASUREMENT WITH METER -(Continuation) | Page : 76 | Report N : 84/2301/1 | Section: ANNEX 2.2

DATE - TIME		Meter	V_S	BSW	V_o'	1 - Shr		OIL GRAVITY			K	Net volume	Net STO	Cumulative	
Time	Interval	reading				Factor	Temp.	Gravity	Temp.	Grav. 60°F		of STO: V_o	product. rate	production	
HRS mnn	mn	Bbls	Bbls	%	Bbls	+meter	°F	sg/T	°F	sg/60°F		Bbls	SM^3 /day	SM^3	Units
03:30	15	4796.25	19.97	3	16.08	0.83		.7781	49	.7739	1	16.1	245.4	53.6	3548
03:45	15	4815.19	18.94	4	15.25	0.83					1	15.2	232.8	56.0	3741
04:00	15					DUMP 2 BBLS OF WATER									
04:00	-	4833.64	18.45	2	15.39	.83					1	15.4	234.9	58.4	3722
04:15	15	4853.60	19.96	2	16.65	.83					1	16.7	254.2	61.1	3416
04:30	15					DUMP 1.9 BBLS OF WATER					1				
04:30	-	4873.39	19.79	3%	16.51	.86		.779	50	.7752	1	16.5	252.0	63.7	3480
04:45	15	4891.45	18.06	3%	15.07	.86					1	15.1	230.0	66.1	3814
05:00	15					DUMP 2 BBLS OF WATER									
05:00	-	4911.32	19.87	3%	16.58	.86					1	16.6	253.0	68.8	3457
05:15	15	4929.13	17.81		14.86	.86					1	14.9	226.8	71.1	3862
05:30	15					DUMP 2.2 BBLS OF WATER									
05:30	-	4948.94	19.81	4%	16.36	.86		.7795	53	.7763	1	16.4	249.6	73.7	3504
05:45	15	4967.98	19.04		15.72	.86					1	15.7	239.9	76.2	3641
06:00	15					DUMP 1.6 BBLS OF WATER									
06:00	-	4986.20	18.22	4%	15.04	.86					1	15.0	229.6	78.6	3802
06:15	15	5004.39	18.19	2%	15.33	.86					1	15.3	234.0	81.0	3719

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FLOPETROL | MEASUREMENT WITH METER -(Continuation) | Page : 77 | Report N : 84/2301/1 | Section: ANNEX 2.2

DATE - TIME		Meter	V_S	BSW	V_o'	1 - Shr		OIL GRAVITY			K	Net volume	Net STO	Cumulative	
Time	Interval	reading				Factor	Temp.	Gravity	Temp.	Grav. 60°F		of STO: V_o	product. rate	production	
HRS mn	mn	Bbls	Bbls	%	Bbls	+meter	°F	sg/T	°F	sg/60°F		Bbls	SM^3/day	SM^3	Units
06:30	15					CHANGE BURNER SIDE									
06:30	-					DUMP 1.2 BBLS OF WATER									
06:30	-	5024.10	19.71	1	16.78	0.86		.7780	54	.7757	1	16.8	256.1	83.7	3398
06:45	15	5042.76	18.66		15.89	0.86					1	15.9	242.5	86.2	3395
07:00	15	5062.41	19.65		16.73	0.86					1	16.7	255.4	88.9	3409
07:15	15					DUMP 2.3 BBLS OF WATER									
07:15	-	5081.96	19.55	1	16.64	0.86		.7782	56	.7767	1	16.6	254.1	91.5	3435
07:30	15	5099.33	17.37	1	14.79	0.86					1	14.8	225.7	93.9	3866
07:45	15	5118.94	19.61	1	16.70	0.86					1	16.7	254.8	96.5	3416
08:00	15	5138.33	19.39	1	16.51	0.86					1	16.5	252.0	99.2	3455
08:00	-					DUMP 4.3 BBLS OF WATER									
08:01	1					BY-PASS SEPARATOR									
						END OF TEST									

Gas production rate

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 : DANIEL — Flange taps - P_f taken down/up stream
Flow recorder type: BARTON — ID of meter tube : 5.761

c) SPECIFIC GRAVITY SOURCE

Sampling point : Outlet Gas Line — Gravitometer type : KIMRAY

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 : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

- GAS PRODUCT. RATE MEASUREMENT -

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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 rate : Q	Cumulative Production
Time HR/min	Interval Min	Temp. °F	absolute psia	"of wat.		diameter Inches	gravity (air=1)							10^3 SM³ /DAY	SCM³
21st DECEMBER		1983				DST # 1									
18:40					SWITCH FLOW TO SEPARATOR										
19:30						1.25	0.636							STARTS FROM 19:00 HRS	
19.45	15	52	415	88	191.102	1.25	0.636	314.95	1.2539	1.0014	1.0078	1.0392	281	53.79	1681
20:00	15	62	415	99	202.694	1.25	0.636	314.95	1.2539	1.0016	0.9981	1.0365	278	56.37	2262
20:15	15	86	430	102	209.428	1.25	0.672	314.95	1.2199	1.0016	0.9759	1.0360	264	55.37	2845
20:30	15	92	450	102	214.243	1.25	0.672	314.95	1.2199	1.0015	0.9706	1.0369	263	56.38	3432
20:45	15	92	455	103	216.483	1.25	0.672	314.95	1.2199	1.0015	0.9706	1.0373	263	56.99	4026
21:00	15	95	455	103	216.483	1.25	0.672	314.95	1.2199	1.0015	0.9680	1.0366	262	56.80	4617
21:15	15	96	455	103	216.483	1.25	0.663	314.95	1.2281	1.0015	0.9671	1.0350	264	57.04	5212
21:30	15	97	455	104	217.532	1.25	0.663	314.95	1.2281	1.0015	0.9662	1.0348	263	57.26	5808
21:45	15	97	455	104	217.532	1.25	0.663	314.95	1.2281	1.0015	0.9662	1.0348	263	57.26	5726
22:00	15	97	455	105	218.575	1.25	0.663	314.95	1.2281	1.0015	0.9662	1.0348	263	57.53	6407
22:15	15	98	455	105	218.575	1.25	0.663	314.95	1.2281	1.0015	0.9653	1.0345	263	57.47	7006
22:30	15	102	455	106	219.613	1.25	0.663	314.95	1.2281	1.0015	0.9619	1.0336	262	57.49	7605

F_u = 0.6796

Recorder ranges : P_f = 0-1500 psig

h_w = 0-200"H_2O Temp. = 0-200°F

TESTED INTERVAL : Middle Jurassic

PERFORATIONS : 3697-3702 m

No.: DOP 126

FLOPETROL

GAS PRODUC. RATE MEASUREMENT–(Continuation)

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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)							$10^3 SM^3/DAY$	SCM^3
22:30															
22:45	15	102	455	107	220.647	1.25	0.663	314.95	1.2281	1.0016	.9619	1.0336	262	57.76	8207
23:00	15	103	455	108	221.675	1.25	0.665	314.95	1.2263	1.0016	.9611	1.0335	261	57.88	8810
23:15	15	103	455	108	221.675	1.25	0.665	314.95	1.2263	1.0016	.9611	1.0335	261	57.88	9413
23:30	15	103	455	108	221.675	1.25	0.665	314.95	1.2263	1.0016	.9611	1.0335	261	57.88	10020
23:45	15	104	455	108	221.675	1.25	0.665	314.95	1.2263	1.0016	.9602	1.0333	261	57.82	10620
24:00	15	104	455	109	222.699	1.25	0.658	314.95	1.2328	1.0016	.9602	1.0326	262	58.36	11230
22 DECEMBER 1983															
00:15	15	103	455	109	222.699	1.25	0.658	314.95	1.2328	1.0016	.9611	1.0328	262	58.42	11830
00:30	15	103	465	105	220.964	1.25	0.658	314.95	1.2328	1.0015	.9611	1.0336	262	58.00	12440
00:45	15	104	435	117	225.599	1.25	0.658	314.95	1.2328	1.0018	.9602	1.0311	262	59.04	13050
01:00	15	105	395	127	223.975	1.25	0.665	314.95	1.2263	1.0021	.9594	1.0285	260	58.13	13660
01:15	15	106	395	127	223.975	1.25	0.665	314.95	1.2263	1.0021	.9585	1.0283	259	58.07	14260
01:30	15	105	390	126	221.675	1.25	0.665	314.95	1.2263	1.0022	.9594	1.0281	259	57.51	14860
01:45	15	104	395	127	223.975	1.25	0.665	314.95	1.2263	1.0021	.9602	1.0287	260	58.19	15470
02:00	15	104	395	127	223.975	1.25	0.665	314.95	1.2263	1.0021	.9602	1.0287	260	58.19	16080
02:15	15	104	395	128	224.856	1.25	0.665	314.95	1.2263	1.0022	.9602	1.0289	260	58.43	16680
02:30	15	105	395	128	224.856	1.25	0.665	314.95	1.2263	1.0022	.9594	1.0287	260	58.37	17290

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FLOPETROL — GAS PRODUC. RATE MEASUREMENT–(Continuation)

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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)							$10^3 SM^3/DAY$	SM^3
02:30															
02:45	15	105	395	128	224.856	1.250	.665	314.95	1.2263	1.0022	0.9594	1.0287	260	58.37	17900
03:00	15	105	395	128	224.856	1.250	.665	314.95	1.2263	1.0022	0.9594	1.0287	260	58.37	18510
03:15	15	106	395	128	224.856	1.250	.665	314.95	1.2263	1.0022	0.9585	1.0285	259	58.31	19120
03:30	15	106	395	129	225.732	1.250	.665	314.95	1.2263	1.0022	0.9585	1.0285	259	58.54	19720
03:45	15	106	395	129	225.732	1.250	.665	314.95	1.2263	1.0022	0.9585	1.0285	259	58.54	20330
03:45					BY-PASS SEPARATOR										
12:30					OPEN WELL ON 12/64" CHOKE										
12:34					FLOW DIRECTED THROUGH SEPARATOR										
12:45		52	215	99	145.894	.750	.665	112.75	1.2263	1.0031	1.0078	1.0208	97	14.15	20480
12:50	5	64	215	99	145.894	.750	.700	112.75	1.1952	1.0031	0.9962	1.0212	93	13.63	20520
12:55	5	68	220	96	145.327	.750	.700	112.75	1.1952	1.0029	0.9924	1.0212	93	13.53	20570
13:00	5	73	210	93	139.750	.750	.700	112.75	1.1952	1.0030	0.9877	1.0197	93	12.93	20620
13:05	5	80	205	92	137.332	.750	.700	112.75	1.1952	1.0030	0.9813	1.0183	92	12.61	20660
13:10	5	92	205	92	137.332	.750	.700	112.75	1.1952	1.0030	0.9706	1.0170	91	12.45	20700
13:15	5	98	205	99	142.461	.750	.700	112.75	1.1952	1.0032	0.9653	1.0164	90	12.84	20750
13:15			BY-PASS SEPARATOR												
14:56			FLOW THROUGH SEPARATOR ON 12/64" CHOKE												

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FLOPETROL | GAS PRODUC. RATE MEASUREMENT–(Continuation) | Page : 82 Report N°: 84/2301/1 | Section : ANNEX 3

DATE – TIME Time HR/min	Interval Min	Flowing Temp. °F	P_f absolute psia	h_w "of wat.	$\sqrt{h_w \times P_f}$	Orifice diameter Inches	Gas gravity (air = 1)	F_b	F_g	Y	F_{tf}	F_{pv}	C	Gas production rate : Q 10^3 SM³ /DAY	Cumulative Production SM³
14:56															
15:15	15	76	175	58	100.747	.750	.701	112.75	1.1944	1.0022	.9850	1.0155	92	9.243	20930
15:30	15	89	175	92	126.886	.750	.701	112.75	1.1944	1.0035	.9732	1.0143	91	11.50	21050
15:45	15	89	180	78	118.491	.750	.701	112.75	1.1944	1.0029	.9732	1.0148	91	10.74	21160
16:00	15	93	195	92	133.940	.750	.701	112.75	1.1944	1.0032	.9697	1.0158	90	12.11	21290
16:15	15	96	215	108	152.381	.750	.701	112.75	1.1944	1.0034	.9671	1.0173	90	13.77	21430
16:30	15	97	225	108	155.885	.750	.701	112.75	1.1944	1.0032	.9662	1.0180	90	14.08	21580
16:45	15	100	225	116	161.155	.750	.701	112.75	1.1944	1.0034	.9636	1.0177	90	14.55	21730
17:00	15	98	185	122	150.233	.750	.701	112.75	1.1944	1.0044	.9653	1.0144	90	13.52	21870
21:17				FLOW ON 36/64" CHOKE											
21:23				DIRECT FLOW THROUGH SEPARATOR											
21:30		100	390	98	195.499	1.750	.670	621.79	1.2217	1.0017	.9636	1.0295	513	100.3	22910
21:45		111	420	100	204.939	1.750	.670	621.79	1.2217	1.0016	.9543	1.0298	508	104.1	24000
22:00		112	420	100	204.939	1.750	.670	621.79	1.2217	1.0016	.9535	1.0296	508	104.0	25080
22:15		115	420	100	204.939	1.750	.670	621.79	1.2217	1.0016	.9510	1.0291	506	103.7	26160
22:30		116	420	100	204.939	1.750	.670	621.79	1.2217	1.0016	.9501	1.0289	505	103.6	27240
22:45		118	420	101	204.939	1.750	.670	621.79	1.2217	1.0016	.9485	1.0285	504	103.4	28320

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FLOPETROL | GAS PRODUC. RATE MEASUREMENT–(Continuation) | Page : 83 Report N°: 84/2301/1 | Section : ANNEX 3

DATE – TIME Time	Interval	Flowing Temp.	P_f absolute	h_w	$\sqrt{h_w \times P_f}$	Orifice diameter	Gas gravity	F_b	F_g	Y	F_{tf}	F_{pv}	C	Gas production rate : Q	Cumulative Production
HR/min	Min	°F	psia	"of wat.		Inches	(air = 1)							$10^3 SM^3$ /DAY	SM^3
22:45															
23:00	15	117	420	101	205.961	1.750	.673	621.79	1.219	1.0016	.9493	1.0289	504	103.8	29400
23:15	15	117	420	101	205.961	1.750	.673	621.79	1.219	1.0016	.9403	1.0289	504	103.8	30480
23:30	15	118	420	100	204.939	1.750	.673	621.79	1.219	1.0016	.9485	1.0287	503	103.2	31560
23:45	15	118	420	100	204.939	1.750	.673	621.79	1.219	1.0016	.9485	1.0287	503	103.2	32630
23rd DECEMBER		1983													
00:00	15	118	420	100	204.939	1.750	.673	621.79	1.219	1.0016	.9485	1.0287	503	103.2	33710
00:15	15	119	422	100	205.426	1.750	.673	621.79	1.219	1.0016	.9477	1.0287	503	103.3	34780
00:30	15	119	422	100	205.426	1.750	.673	621.79	1.219	1.0016	.9477	1.0287	503	103.3	35860
00:45	15	119	422	100	205.426	1.750	.673	621.79	1.219	1.0016	.9477	1.0287	503	103.3	36930
01:00	15	120	422	100	205.426	1.750	.670	621.79	1.2217	1.0016	.9469	1.0282	503	103.4	38010
01:15	15	120	422	100	205.426	1.750	.670	621.79	1.2217	1.0016	.9469	1.0282	503	103.4	39090
01:30	15	120	422	100	205.426	1.750	.670	621.79	1.2217	1.0016	.9469	1.0282	503	103.4	40170
01:45	15	120	422	100	205.426	1.750	.670	621.79	1.2217	1.0016	.9469	1.0282	503	103.4	41240
01:46					CHANGE TO 48/64" ADJUSTABLE AT HEATER										
02:00					CHANGE TO 48/64" FIXED AT CHOKE MANIFOLD										42646
02:15	30	118	735	40	171.464	2.250	.670	1039.5	1.2217	1.0004	.9485	1.0511	861	147.6	44180
02:30	15	112	560	54	173.897	2.250	.670	1039.5	1.2217	1.0006	.9535	1.0400	856	148.9	45730

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FLOPETROL | GAS PRODUC. RATE MEASUREMENT–(Continuation) | Page : 84 Report N°: 84/2301/1 | Section : ANNEX 3

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)							$10^3 SM^3$./DAY	SM^3
02:30															
02:45	15	113	560	56	177.088	2.25	.660	1039.5	1.2309	1.0006	.9526	1.0385	861	152.4	47320
03:00	15	116	570	56	178.662	2.25	.660	1039.5	1.2309	1.0006	.9501	1.0385	859	153.4	48920
03:15	15	118	565	57	179.458	2.25	.660	1039.5	1.2309	1.0007	.9485	1.0377	856	153.7	50520
03:30	15	119	560	57	178.662	2.25	.660	1039.5	1.2309	1.0007	.9477	1.0371	855	152.8	52110
03:45	15	120	560	56	177.088	2.25	.660	1039.5	1.2309	1.0006	.9469	1.0368	854	151.3	53690
04:00	15	121	555	56	176.295	2.25	.660	1039.5	1.2309	1.0007	.9460	1.0363	853	150.4	55250
04:15	15	124	565	56	177.876	2.25	.660	1039.5	1.2309	1.0006	.9436	1.0362	851	151.3	56830
04:45	30														
					CARRY OVER IN GAS METER. RISE TEMPERATURE										
05:15		144	550	53	170.734	2.25	.660	1039.5	1.2309	1.0006	.9279	1.0311	832	142.1	62750
05:30	15	152	550	52	169.115	2.25	.660	1039.5	1.2309	1.0006	.9218	1.0296	826	139.6	64204
05:45	15	156	550	52	169.115	2.25	.660	1039.5	1.2309	1.0006	.9188	1.0289	823	139.1	65653
06:00	15	159	550	52	169.115	2.25	.660	1039.5	1.2309	1.0006	.9166	1.0284	820	138.7	67098
06:15	15	159	550	52	169.115	2.25	.660	1039.5	1.2309	1.0006	.9166	1.0284	820	138.7	68543
06:30	15	159	550	52	169.115	2.25	.660	1039.5	1.2309	1.0006	.9166	1.0284	820	138.7	69988
06:45	15	158	550	52	169.115	2.25	.660	1039.5	1.2309	1.0006	.9173	1.0285	821	138.8	71433
07:00	15	159	550	52	169.115	2.25	.660	1039.5	1.2309	1.0006	.9166	1.0284	820	138.7	72878

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FLOPETROL | GAS PRODUC. RATE MEASUREMENT–(Continuation) | Page : 85 Report N°: 84/2301/1 | Section : ANNEX 3

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)							$10^3 SM^3$ /DAY	SM^3
07:00															
07:15	15	159	550	52	169.115	2.250	.675	1039.5	1.2172	1.0006	.9166	1.0297	812	137.3	74308
07:30	15	159	550	52	169.115	2.250	.675	1039.5	1.2172	1.0006	.9166	1.0297	812	137.3	75739
07:45	15	160	550	52	169.115	2.250	.675	1039.5	1.2172	1.0006	.9158	1.0295	811	137.2	77168
08:00	15	161	550	52	169.115	2.250	.675	1039.5	1.2172	1.0006	.9151	1.0294	810	137.1	78596
08:00															

No. DOP 125

FLOPETROL

Base : nwb

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

- GAS PRODUCT. RATE MEASUREMENT -

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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)							10^3 SM^3	10^3SM^3
03rd JANUARY		1984					DST # 2								
23:48							SWITCH FLOW THROUGH SEPARATOR								
04th JANUARY		1984													
00:00							START READINGS								
00:00	15	96	915	92	290.138	3.500	.656	2695.1	1.2347	1.0005	.9671	1.0712	2344	680.1	*70.0
00:15	15	99	930	92	292.506	3.500	.656	2695.1	1.2347	1.0005	.9645	1.0708	2337	683.5	77.1
00:30	15	102	935	100	305.778	3.500	.656	2695.1	1.2347	1.0006	.9619	1.0696	2328	711.9	84.5
00:45	15	103	935	101	307.303	3.500	.656	2695.1	1.2347	1.0006	.9611	1.0691	2325	714.4	91.9
01:00	15	103	935	102	308.820	3.500	.655	2695.1	1.2356	1.0006	.9611	1.0689	2326	718.4	99.4
01:15	15	103	935	103	310.330	3.500	.655	2695.1	1.2356	1.0006	.9611	1.0689	2326	721.9	107.0
01:30	15	103	935	103	310.330	3.500	.655	2695.1	1.2356	1.0006	.9611	1.0689	2326	721.9	114.5
01:45*	15	105	920	105	310.805	3.500	.655	2695.1	1.2356	1.0006	.9594	1.0668	2318	720.3	122.0
02:00*	15	102	915	104	308.480	3.500	.655	2695.1	1.2356	1.0006	.9619	1.0679	2326	717.6	129.5
02:15	15	103	935	103	310.330	3.500	.655	2695.1	1.2356	1.0006	.9611	1.0689	2326	721.9	137.0
02:30	15	103	935	104	311.833	3.500	.655	2695.1	1.2356	1.0006	.9611	1.0689	2326	725.4	144.6

F_u = 0.6796

Recorder ranges : P_f = 0-1500 psig

h_w = 0-200" H_2O Temp. = 0-200°F

TESTED INTERVAL :

PERFORATIONS : 3668 - 3670 m RKB

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FLOPETROL | GAS PRODUC. RATE MEASUREMENT–(Continuation) | Page : 87 Report N°: 84/2301/1 | Section : ANNEX 3

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)							$10^3 SM^3$	$10^3 SM^3$
02:30															
02:45	15	102	935	104	311.833	3.5	.655	2695.1	1.2356	1.0006	.9619	1.0694	2329	726.4	152.1
03:00	15	104	935	104	311.833	3.5	.658	2695.1	1.2328	1.0006	.9602	1.0690	2319	723.2	159.7
03:15	15	104	935	104	311.833	3.5	.658	2695.1	1.2328	1.0006	.9602	1.0690	2319	723.2	167.2
03:30	15	105	930	104	310.998	3.5	.658	2695.1	1.2328	1.0006	.9594	1.0681	2315	720.0	174.7
03:45	15	104	985	98	310.693	3.5	.658	2695.1	1.2328	1.0005	.9602	1.0727	2327	723.0	182.2
04:00	15	103	985	98	310.693	3.5	.656	2695.1	1.2347	1.0005	.9611	1.0728	2333	724.8	189.8
04:15	15	104	985	98	310.693	3.5	.656	2695.1	1.2347	1.0005	.9602	1.0723	2330	723.8	197.3
04:30	15	103	985	97	309.104	3.5	.656	2695.1	1.2347	1.0005	.9611	1.0728	2333	721.1	204.8
04:45	15	103	985	97	309.104	3.5	.656	2695.1	1.2347	1.0005	.9611	1.0728	2333	721.1	212.3
05:00	15	103	985	97	309.104	3.5	.657	2695.1	1.2337	1.0005	.9611	1.0730	2331	720.7	219.8
05:15	15	102	985	97	309.104	3.5	.657	2695.1	1.2337	1.0005	.9619	1.0736	2335	721.7	227.4
05:30	15	102	985	98	310.693	3.5	.657	2695.1	1.2337	1.0005	.9619	1.0736	2335	725.4	234.9
05:45	15	102	985	98	310.693	3.5	.657	2695.1	1.2337	1.0005	.9619	1.0736	2335	725.4	242.5
06:00	15	102	985	98	310.693	3.5	.657	2695.1	1.2337	1.0005	.9619	1.0736	2335	725.4	250.0
06:15	15	102	985	98	310.693	3.5	.657	2695.1	1.2337	1.0005	.9619	1.0736	2335	725.4	257.6
06:16	1					BY-PASS SEPARATOR									

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FLOPETROL | GAS PRODUC. RATE MEASUREMENT–(Continuation) | Page : 88 Report N°: 84/2301/1 | Section : ANNEX 3

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)							10^3 SM^3	10^3SM^3
20:30	–					SWITCH	FLOW THROUGH SEPARATOR	– WELL	OPEN ON	28/64"	FIXED CHOKE				
20:45	15					START	READINGS								
20:45	–	92	1005	120	347.275	2.75	.659	1582.0	1.2318	1.0007	.9706	1.0815	1391	483.1	5.03
21:00	15	98	985	116	338.024	2.75	.659	1582.0	1.2318	1.0007	.9653	1.0763	1377	465.5	9.88
21:15	15	96	990	118	341.789	2.75	.659	1582.0	1.2318	1.0007	.9671	1.0778	1382	472.2	14.80
21:30	15	96	995	120	345.543	2.75	.659	1582.0	1.2318	1.0007	.9671	1.0782	1382	477.6	19.77
21:45	15	96	1000	118	343.511	2.75	.655	1582.0	1.2356	1.0007	.9671	1.0777	1386	476.0	24.73
22:00	15	96	995	119	344.100	2.75	.655	1582.0	1.2356	1.0007	.9671	1.0774	1385	476.6	29.70
22:15	15	100	990	116	338.881	2.75	.655	1582.0	1.2356	1.0007	.9636	1.0747	1377	466.5	34.56
22:30	15														
22:30	–	80	990	104	320.874	2.75	.655	1582.0	1.2356	1.0006	.9813	1.0872	1418	455.1	39.30
22:45	15	68	1065	92	313.088	2.75	.647	1582.0	1.2432	1.0005	.9924	1.1015	1462	457.6	44.06
22:57	12														
23:00	3	96	1005	130	361.455	2.75	.647	1582.0	1.2432	1.0008	.9671	1.0764	1393	503.3	49.31
23:15	15	96	990	120	344.674					1.0007	.9671	1.0752	1391	479.4	54.30
23:30	15	98	1005	120	347.275					1.0007	.9653	1.0752	1388	482.2	59.32
23:45	15	96	1005	122	350.157		.651			1.0007	.9671	1.0773	1389	486.5	64.39

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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)							10^3 SM³	10^3SM³
23:45															
05th JANUARY		1984													
00:00	15	96	1000	120	346.410	2.75	.651	1582.0	1.2394	1.0007	.9671	1.0769	1389	481.1	69.40
00:15	15	97	995	120	345.543	2.75	.651	1582.0	1.2394	1.0007	.9662	1.0759	1386	479.0	74.39
00:30	15	98	995	120	345.543	2.75	.651	1582.0	1.2394	1.0007	.9653	1.0753	1384	478.3	79.38
00:45	15	97	995	120	345.543	2.75	.651	1582.0	1.2394	1.0007	.9662	1.0759	1386	479.0	84.37
01:00	15	96	1000	119	344.964	2.75	.656	1582.0	1.2347	1.0007	.9671	1.0780	1385	477.7	89.34
01:15	15	96	1000	120	346.410	2.75	.656	1582.0	1.2347	1.0007	.9671	1.0780	1385	479.7	94.34
01:30	15	97	995	120	345.543	2.75	.656	1582.0	1.2347	1.0007	.9662	1.0770	1382	477.7	99.31
						CHANGE CHOKE TO 56/64" ADJUSTABLE									
						CHANGE CHOKE TO 1" FIXED CHOKE									
02:45	75					START READINGS									
02:45	-	75	615	118	269.388	4.000	.656	3718.2	1.2347	1.0008	.9859	1.0545	3246	874.5	165.8
03:00	15	73	615	117	268.244	4.000	.656	3718.2	1.2347	1.0008	.9877	1.0553	3255	873.0	174.9
03:15	15	74	615	118	269.388	4.000	.656	3718.2	1.2347	1.0008	.9868	1.0549	3250	875.6	184.0
03:30	15	75	615	117	268.244	4.000	.656	3718.2	1.2347	1.0008	.9859	1.0545	3246	870.7	193.1
03:45	15	75	615	117	268.244	4.000	.656	3718.2	1.2347	1.0008	.9859	1.0545	3246	870.7	202.2

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FLOPETROL | GAS PRODUC. RATE MEASUREMENT–(Continuation) | Page : 90 Report N°: 84/2301/1 | Section : ANNEX 3

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)							10^3 SM^3	10^3SM^3
03:45															
04:00	15	77	615	118	269.388	4.000	.652	3718.2	1.2384	1.0008	.9840	1.0532	3246	874.4	211.3
04:15	15	76	615	116	267.095	4.000	.652	3718.2	1.2384	1.0008	.9850	1.0535	3250	868.1	220.3
04:30	15	78	615	119	270.527	4.000	.652	3718.2	1.2384	1.0009	.9831	1.0528	3242	877.0	229.5
04:45	15	78	615	119	270.527	4.000	.652	3718.2	1.2384	1.0009	.9831	1.0528	3242	877.0	238.6
05:00	15	79	615	119	270.527	4.000	.654	3718.2	1.2365	1.0009	.9822	1.0527	3233	874.7	247.7
05:15	15	78	615	119	270.527	4.000	.654	3718.2	1.2365	1.0009	.9831	1.0530	3238	875.9	256.8
05:30	15	79	615	118	270.527	4.000	.654	3718.2	1.2365	1.0009	.9822	1.0527	3233	874.7	265.9
05:45	15	80	615	118	270.527	4.000	.654	3718.2	1.2365	1.0009	.9813	1.0523	3229	873.6	275.0
06:00	15	81	615	119	270.527	4.000	.653	3718.2	1.2375	1.0009	.9804	1.0518	3227	873.1	284.1
06:15	15	80	610	119	269.425	4.000	.653	3718.2	1.2375	1.0009	.9813	1.0517	3230	870.2	293.2
06:30	15	80	615	118	269.388	4.000	.653	3718.2	1.2375	1.0008	.9813	1.0522	3231	870.5	302.3
06:30	–					CHANGE	BURNER	SIDE							
06:45	15	79	620	117	269.333	4.000	.653	3718.2	1.2375	1.0008	.9822	1.0530	3237	871.8	311.3
07:00	15	80	620	117	269.333	4.000	.653	3718.2	1.2375	1.0008	.9813	1.0526	3233	870.7	320.4
07:15	15	80	620	118	270.481	4.000	.656	3718.2	1.2347	1.0008	.9813	1.0530	3227	872.7	329.5
07:30	15	80	620	118	270.481	4.000	.656	3718.2	1.2347	1.0008	.9813	1.0530	3227	872.7	338.6
07:45	15	82	620	119	270.481	4.000	.656	3718.2	1.2347	1.0008	.9795	1.0523	3218	870.5	347.7

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FLOPETROL | GAS PRODUC. RATE MEASUREMENT-(Continuation) | Page : 91 Report N°: 84/2301/1 | Section : ANNEX 3

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)							10^3 SM^3	10^3SM^3
07:45															
08:00	15	82	620	119	270.481	4.000	.656	3718.2	1.2347	1.0008	.9795	1.0523	3218	870.5	356.7
08:01	1						BY-PASS SEPARATOR								
							END OF TEST								

Surface sampling

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3 DST no.1

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- SURFACE SAMPLING -

DST # 1

Date of sampling : 21.12.1983 Service order : _____ Sampling No : 1

Sample nature : GAS Sampling point : GAS OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : _____ Perforations : 3697m - 3702m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3445 m Shoe : 3595 m

Bottom hole static conditions	Initial pressure	381.21 bars	at depth: 3718.99m	date :	21.12.83
	Latest pressure measured	381.21 bars	at depth: 3718.99m	date :	21.12.83
	Temperature	120.6°C	at depth: 3718.99m	date :	21.12.83

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 22:15 Time elapsed since stabilisation : 1 hr. 15 min

Bottom hole dynamic conditions	Choke size 24/64"	since : 18:12	Well head pressure : 128.6 bar	Well head temp :	25.6°C
	Bottom hole pressure :	374.21 bars	at depth : 3718.99m	date :	21.12.83
	Bottom hole temp. :	121.3°C	at depth : 3718.99m	date :	21.12.83

Flow measurement of sampled gas - Gravity (air 1) : 0.663 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0336

Values used for calculations :

$*F_b = 314.95$, $F_g = 1.2281$, $Y = 1.0016$, $F_{tf} = 0.9619$

Separator	Pressure : 440 PSIG	Rates - Gas : 57.76 10^3SCMD	B	GOR : 139.6 SCM/m^3
	Temp : 102 °F	Oil (separator cond) : 413.76 m^3/Day		(separator cond)
Stock tank	Atmosphere : _____ mmHg. _____ °F	Oil at 60 °F : 401.4 m^3/day	B	b
	Tank temperature : _____ °F			

BSW : 0 % WLR : 0 %

Transfering fluid : VACUUM Transfer duration : 35 MINS

Final conditions of the shipping bottle :

Pressure : 440 psig Temp : 36°F

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No : A13985 sent on : _____ by : _____ Shipping order No : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.	8208313	
Surface samples No.		

Measurement conditions,

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

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

D - REMARKS -

*VALUES USED FROM 22:45 HRS READINGS

Visa Chief Operator

No : DOP 127

- SURFACE SAMPLING -

DST # 1

Date of sampling : 21.12.1983 Service order : _____ Sampling No. : 1
Sample nature : OIL Sampling point : OIL SIGHT GLASS SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : _____ Perforations : 3697m - 3702m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"
Surface elevation : _____ Shoe : 3445 m Shoe : 3595 m

Bottom hole static conditions				
Initial pressure	: 381.21 bars	at depth 3718.99m	date :	21.12.83
Latest pressure measured	: 381.21 bars	at depth : 3718.99m	date :	21.12.83
Temperature	: 120.6°C	at depth : 3718.99m	date :	21.12.83

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 22:12 Time elapsed since stabilisation : 1 hr. 12 min

Bottom hole dynamic conditions					
Choke size 24/64"	since : 18:12	Well head pressure : 128.6 bar		Well head temp :	25.6°C
Bottom hole pressure :	374.14 bar	at depth : 3718.99m		date :	21.12.83
Bottom hole temp. :	121.3°C	at depth : 3718.99m		date :	21.12.83

Flow measurement of sampled gas - Gravity (air 1) : 0.663 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0336
Values used for calculations :
$*F_b$=314.95, F_g=1.2281, Y=1.0016, F_{tf}=0.9619

Separator			
Pressure : 440 PSIG	Rates - Gas : 57.76 10^3SCMD	B	GOR : 139.6 SCM/M³
Temp : 109 °F	Oil (separator cond) : 413.76m³/Day		(separator cond)

Stock tank		
Atmosphere : _____ mmHg - _____ °F	Oil at 60 °F : 401.4 m³/day	B b
Tank temperature : _____ °F		

BSW : 0 % WLR : 0 %

Transfering fluid : MERCURY Transfer duration : 35 MINS

Final conditions of the shipping bottle : 15 cc of Hg
Pressure : 200 psig Temp : 36°F

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No : 8208313 sent on : _____ by : _____ Shipping order No. : _____
Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No	_____ _____ _____	_____ _____ _____
Surface samples No	_____ _____	A-13985 _____

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

D - REMARKS -

50 cc Hg drained for gas cap.
TRANSFERRED AT 440 PSI.

*VALUES USED FROM 22:45 HRS READINGS

Visa Chief Operator

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

Section: ANNEX 42

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- SURFACE SAMPLING -

DST # 1

Date of sampling : 22.12.1983 Service order : _____ Sampling No. : 2

Sample nature : OIL Sampling point : OIL SIGHT GLASS SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : _____ Perforations : 3697m - 3702m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3445 m Shoe : 3595 m

Bottom hole static conditions	Initial pressure	: 381.21 bars	at depth : 3718.99m	date : 21.12.83
	Latest pressure measured	: 381.21 bars	at depth : 3718.99m	date : 21.12.83
	Temperature	: 120.6°C	at depth : 3718.99m	date : 21.12.83

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 02:19 Time elapsed since stabilisation : 5 hr. 15 min

Bottom hole dynamic conditions	Choke size 24/64" since : 18:12	Well head pressure : 130.6 bars	Well head temp : 32.2°C	
	Bottom hole pressure : 374.53 bars	at depth : 3718.99m	date : 22.12.83	
	Bottom hole temp. : 121.8°C	at depth : 3718.99m	date : 22.12.83	

Flow measurement of sampled gas - Gravity (air 1) : 0.665 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0287

Values used for calculations : *F_b=314.95, F_g=1.2263, Y=1.0022, F_{tf}=0.9594

Separator	Pressure : 380 PSIG	Rates - Gas : 58.37 10^3SCMD	B	GOR : 143.4 SCM/m^3
	Temp : 113 °F	Oil (separator cond) : 407.04 m^3/Day		(separator cond)
Stock tank	Atmosphere : _____ mmHg. _____ °F	Tank temperature : _____ °F	Oil at 60 °F : 395.0 m^3/day	B b

BSW : _____ % WLR : _____ %

Transfering fluid : MERCURY Transfer duration : 35 MINS

Final conditions of the shipping bottle : 15 cc of Hg

Pressure : 195 psi Temp : 38°F

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No. : 83021416 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.		
Surface samples No.		A-14749

Measurement conditions,

A - Tank. B - Meter. C - Dump.

a - Corrected with shrinkage tester. b - Corrected with tank.

D - REMARKS -

40 cc Hg drained for gas cap.
TRANSFERRED AT 380 PSI.

*VALUES USED FROM 03:00 HRS READINGS

Visa Chief Operator

No.: DOP 127

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

Section: ANNEX 42

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- SURFACE SAMPLING -

DST # 1

Date of sampling : 22.12.1983 Service order : _____ Sampling No : 2

Sample nature : GAS Sampling point : GAS OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : _____ Perforations : 3697m - 3702m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3445 m Shoe : 3595 m

Bottom hole static conditions

Initial pressure : 381.21 bars at depth : 3718.99m date : 21.12.83

Latest pressure measured : 381.21 bars at depth : 3718.99m date : 21.12.83

Temperature : 120.6°C at depth : 3718.99m date : 21.12.83

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 02:12 Time elapsed since stabilisation : 5 hr. 12 min

Bottom hole dynamic conditions

Choke size 24/64" since : 18:12 Well head pressure : 130.6 bar Well head temp : 32.2°C

Bottom hole pressure : 374.53 bar at depth : 3718.99m date : 22.12.83

Bottom hole temp : 121.8°C at depth : 3718.99m date : 22.12.83

Flow measurement of sampled gas - Gravity (air 1) : 0.670 Factor $Fpv = \frac{1}{\sqrt{Z}}$: 1.0282

Values used for calculations :

$*F_b = 621.79$, $F_g = 1.2217$, $Y = 1.0016$, $F_{tf} = 0.9469$

Separator

Pressure : 380 PSIG

Temp : 105 °F

Rates - Gas : 58.37 10^3SCMD

Oil (separator cond) : 407.04 m^3/Day

GOR : 143.4 SCM/M^3 (separator cond) B

Stock tank

Atmosphere : _____ mmHg. _____ °F

Tank temperature : _____ °F

Oil at 60 °F : 395.0 m^3/day B b

BSW : _____ % WLR : _____ %

Transfering fluid : VACUUM

Transfer duration : 59 MINS

Final conditions of the shipping bottle :

Pressure : 380 psi Temp : 38°F

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No : A14749 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No		
Surface samples No	8302116	

Measurement conditions,

A - Tank . B - Meter . C - Dump .

a - Corrected with shrinkage tester. b - Corrected with tank .

D - REMARKS -

*VALUES USED FROM 03:00 HRS READINGS

Visa Chief Operator

No. : DOP 127

FLOPETROL	Client : STATOIL	Section : ANNEX 42
Base : NWB	Field : TYRIHANS Well : 6407/1-3	Page : 96 Report N° 84/2301/1

- SURFACE SAMPLING -

DST # 1

Date of sampling : 23.12.1983 Service order : _____ Sampling No. : 3
Sample nature : GAS Sampling point : GAS OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3697m - 3702m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"
Surface elevation : _____ Shoe : 3445 m Shoe : 3595 m

Bottom hole static conditions					
Initial pressure	: 381.21 bars	at depth : 3718.99m	date : 21.12.83
Latest pressure measured	: 381.09 bars	at depth : 3718.99m	date : 22.12.83
Temperature	: 123.1°C	at depth : 3718.99m	date : 22.12.83

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 00:54 Time elapsed since stabilisation : 1 hr. 25 min

Bottom hole dynamic conditions					
Choke size 36/64"	since : 21:17	Well head pressure : 104.4 bar	Well head temp : 42.8°C
Bottom hole pressure : 369.21 bar	at depth : 3718.99m	date : 23.12.83	
Bottom hole temp. : 123.4°C	at depth : 3718.99m	date : 23.12.83	

Flow measurement of sampled gas - Gravity (air : 1) : 0.670 Factor $Fpv = \frac{1}{\sqrt{Z}}$: 1.0282
Values used for calculations :
*F_b=621.79, F_g=1.2217, Y=1.0016, F_{tf}=0.9469

Separator			
Pressure : 407 PSIG Temp : 120 °F	Rates - Gas : 103.4 10^3SCMD Oil (separator cond) : 721.92 m^3/Day [B]	GOR : 143.23 (separator cond)

Stock tank		
Atmosphere : _____ mmHg. _____ °F Tank temperature : _____ °F	Oil at 60 °F : 664.9 m^3/day [B] [b]

BSW : 0 % WLR : _____ %

Transfering fluid : VACUUM Transfer duration : 50 MINS

Final conditions of the shipping bottle :
Pressure : 407 psig Temp : Ambient 2.5°C

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No. : A14774 sent on : _____ by : _____ Shipping order No. : _____
Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.		
Surface samples No.	83081714	

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

D - REMARKS -

*VALUES USED FROM 01:30 HRS READINGS

Visa Chief Operator

No : DOP 127

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

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- SURFACE SAMPLING -

DST # 1

Date of sampling : 23.12.1983 Service order : _____ Sampling No : 3

Sample nature : OIL Sampling point : OIL SIGHT GLASS SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3697m - 3702m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3445 m Shoe : 3595 m

Bottom hole static conditions	Initial pressure	: 381.21 bars	at depth : 3718.99m	date :	21.12.83
	Latest pressure measured	: 381.09 bars	at depth : 3718.99m	date :	22.12.83
	Temperature	: 123.1°C	at depth : 3718.99m	date :	22.12.83

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 00:54 Time elapsed since stabilisation : 1 hr. 25 min

Bottom hole dynamic conditions	Choke size 36/64"	since : 21:17	Well head pressure : 104.4 bar	Well head temp :	42.8°C
	Bottom hole pressure :	369.21 bar	at depth : 3718.99m	date :	23.12.83
	Bottom hole temp. :	123.4°C	at depth : 3718.99m	date :	23.12.83

Flow measurement of sampled gas - Gravity (air 1) : 0.670 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0282

Values used for calculations :

*F_b=621.79, F_g=1.2217, Y=1.0016, F_{tf}=0.9469

Separator	Pressure : 407 PSIG Temp : 135 °F	Rates - Gas : 103.4 10^3SCMD Oil (separator cond) : 721.92 m^3/Day [B]	GOR : 143.23 (separator cond)
Stock tank	Atmosphere : _____ mmHg - _____ °F Tank temperature : _____ °F	Oil at 60 °F : 664.9 m^3/day [B] [b]	

BSW : 0 % WLR : _____ %

Transfering fluid : MERCURY Transfer duration : 50 MINS

Final conditions of the shipping bottle : 10cc Hg

Pressure : 170 psi g Temp : Ambient 2.5°C

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No. : 83081714 sent on : _____ by : _____ Shipping order No : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.		
Surface samples No		A-14774

Measurement conditions,

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

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

D - REMARKS -

*VALUES USED FROM 01:30 HRS READINGS
TRANSFER PRESSURE 407 PSIG
Drain 50 cc Hg for gas cap.

Visa Chief Operator

No. : DOP 127

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

Section : ANNEX 42

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- SURFACE SAMPLING -

DST # 1

Date of sampling : 23.12.1983 Service order : _____ Sampling No : 4

Sample nature : GAS Sampling point : GAS OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3697m - 3702m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3445 m Shoe : 3595 m

Bottom hole static conditions	Initial pressure	: 381.21 bars	at depth : 3718.99m	date :	21.12.83
	Latest pressure measured	: 381.09 bars	at depth : 3718.99m	date :	22.12.83
	Temperature	: 123.1°C	at depth : 3718.99m	date :	22.12.83

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 06:08 Time elapsed since stabilisation : 1 hr

Bottom hole dynamic conditions	Choke size 48/64"	since : 02:00	Well head pressure : 84.2 bar	Well head temp :	61.7°C
	Bottom hole pressure :	365.51 bar	at depth : 3718.99m	date :	23.12.83
	Bottom hole temp. :	123.7°C	at depth : 3718.99m	date :	23.12.83

Flow measurement of sampled gas - Gravity (air 1) : 0.660 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0284

Values used for calculations :

$*F_b = 1039.5$, $F_g = 1.2309$, $Y = 1.006$, $F_{tf} = 0.9166$

Separator	Pressure : 535 PSIG Temp : 159 °F	Rates - Gas : 138.7 10^3SCMD Oil (separator cond.) : 938.88 m^3/Day	B	GOR : 147.7 (separator cond.)
Stock tank	Atmosphere : _____ mmHg - _____ °F Tank temperature : _____ °F	Oil at 60 °F : 864.5 m^3/day	B	b

BSW : 0 % WLR : _____ %

Transfering fluid : VACUUM Transfer duration : 37 MINS

Final conditions of the shipping bottle :

Pressure : 535 psi Temp : Ambient 38°F

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No. : A13993 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.		
Surface samples No.	83081204	

Measurement conditions,

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

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

D - REMARKS -

*VALUES USED FROM 06:30 HRS READINGS

Visa Chief Operator

No. : DOP 127

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

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Report N° 84/2301/1

- SURFACE SAMPLING -

DST # 1

Date of sampling : 23.12.1983 Service order : _____ Sampling No. : 4

Sample nature : OIL Sampling point : OIL SIGHT GLASS SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3697m - 3702m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3445 m Shoe : 3595 m

Bottom hole static conditions					
	Initial pressure	: 381.21 bars	at depth : 3718.99m	date :	21.12.83
	Latest pressure measured	: 381.09 bars	at depth : 3718.99m	date :	22.12.83
	Temperature	: 123.1°C	at depth : 3718.99m	date :	22.12.83

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 06:12 Time elapsed since stabilisation : 1 hr

Bottom hole dynamic conditions					
	Choke size 48/64"	since 02:00	Well head pressure : 84.2 bar	Well head temp :	61.7°C
	Bottom hole pressure :	365.51 bar	at depth : 3718.99m	date :	23.12.83
	Bottom hole temp. :	123.7°C	at depth : 3718.99m	date :	23.12.83

Flow measurement of sampled gas - Gravity (air 1) : 0.660 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0284

Values used for calculations :

$*F_b = 1039.5$, $F_g = 1.2309$, $Y = 1.0006$, $F_{tf} = 0.9166$

Separator				
Pressure : 535 PSIG	Rates - Gas : 138.7 10^3SCMD		GOR : 147.7 SCM/M^3	
Temp : 180 °F	Oil (separator cond.) : 938.88 m^3/Day	B	(separator cond.)	

Stock tank		
Atmosphere : _____ mmHg. _____ °F	Oil at 60 °F : 864.5 m^3/day	
Tank temperature : _____ °F	B	b

BSW : _____ % WLR : _____ %

Transfering fluid : MERCURY Transfer duration : 33 MINS

Final conditions of the shipping bottle : 10cc Hg left

Pressure : 245 psi Temp : Ambient 38°F

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No. : 83081204 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.		
Surface samples No.		A-13993

Measurement conditions,

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

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

D - REMARKS -

*VALUES USED FROM 06:30 HRS READINGS

Drain 50 cc Hg for gas cap.

Visa Chief Operator

No. : DOP 127

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FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

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- SURFACE SAMPLING -

DST # 2

Date of sampling : 04.01.84 Service order : _____ Sampling No. : 1

Sample nature : GAS Sampling point : GAS OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3665m - 3670m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3403 m Shoe : 3595 m

Bottom hole static conditions						
	Initial pressure	: 377.97 bars	at depth :	3658.88 m	date :	03.01.84
	Latest pressure measured	: 377.97 bars	at depth :	3658.88 m	date :	03.01.84
	Temperature	: 125.27°C	at depth :	3658.88 m	date :	03.01.84

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 02:40 Time elapsed since stabilisation : _____

Bottom hole dynamic conditions						
	Choke size 48/64" since : 21:19 3/1	Well head pressure : 173.55bars			Well head temp :	38.9°C
	Bottom hole pressure :	369.86 bar	at depth :	3662.42 m	date :	04.01.84
	Bottom hole temp. :	130.56°C	at depth :	3662.42 m	date :	04.01.84

Flow measurement of sampled gas - Gravity (air 1) : 0.658 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0727

Values used for calculations :

Separator				
Pressure : 970 PSIG	Rates - Gas : 723.0 $10^3 SM^3$		GOR : 3070	
Temp : 104 °F	Oil (separator cond) : 235.5 SM^3	B	(separator cond)	

Stock tank		
Atmosphere : _____ mmHg. _____ °F	Oil at 60 °F : 190.8 SM^3	
Tank temperature : _____ °F	A B C a b	

BSW : 3 % WLR : _____ %

Transfering fluid : VACUUM Transfer duration : 1 hr

Final conditions of the shipping bottle :

Pressure : 990 psi Temp : 37°F

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No : A-14969 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No		
Surface samples No	83081213	A14788

Measurement conditions,

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

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

D - REMARKS -

READINGS AT 03:00 A.M.

Visa Chief Operator

No : DOP 127

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

Section : ANNEX 42

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Report N° 84/2301/1

- SURFACE SAMPLING -

DST # 2

Date of sampling : 04.01.84 Service order : _____ Sampling No. : 1

Sample nature : GAS Sampling point : GAS OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3665m - 3670m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3403 m Shoe : 3595 m

Bottom hole static conditions	Initial pressure	: 377.97 bars	at depth : 3658.88 m	date : 03.01.84
	Latest pressure measured	: 377.97 bars	at depth : 3658.88 m	date : 03.01.84
	Temperature	: 125.27°C	at depth : 3658.88 m	date : 03.01.84

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 02:40 Time elapsed since stabilisation : _____

Bottom hole dynamic conditions	Choke size 48/64" since : 21:19	Well head pressure : 173.55 at	Well head temp : 38.9°C	
	Bottom hole pressure : 369.86 bar	at depth : 3662.42 m	date : 04.01.84	
	Bottom hole temp. : 130.56°C	at depth : 3662.42 m	date : 04.01.84	

Flow measurement of sampled gas - Gravity (air : 1) : 0.658 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0727

Values used for calculations :

Separator	Pressure : 970 PSIG Temp. : 102 °F	Rates - Gas : 723.0 $10^3 SM^3$ Oil (separator cond.) : 235.5 SM^3	B C	GOR : 3070 (separator cond.)
Stock tank	Atmosphere : _____ mmHg. _____ °F Tank temperature : _____ °F	Oil at 60 °F : 190.8 SM^3 BOPD	A B C a b	

BSW : 3 % WLR : _____ %

Transfering fluid : VACUUM Transfer duration : 1 hr

Final conditions of the shipping bottle :

Pressure : 970 psi Temp : 37°F

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No. : A-14788 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.		
Surface samples No.	83081213	A14969

Measurement conditions,

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

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

D - REMARKS -

READINGS AT 03:00 A.M.

Visa Chief Operator

No. : DOP 127

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

Section : ANNEX 4.2

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- SURFACE SAMPLING -

DST # 2

Date of sampling : 04.01.84 Service order : _____ Sampling No : 1

Sample nature : CONDENSATE Sampling point : OIL OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3665m - 3670m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3403 m Shoe : 3595 m

Bottom hole static conditions	Initial pressure	: 377.97 bars	at depth :	3658.88 m	date :	03.01.84
	Latest pressure measured	: 377.97 bars	at depth :	3658.88 m	date :	03.01.84
	Temperature	: 125.27°C	at depth :	3658.88 m	date :	03.01.84

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 02:46 Time elapsed since stabilisation : _____

Bottom hole dynamic conditions	Choke size 48/64"	since : 21:19	Well head pressure : 173.55 ar		Well head temp : 38.9°C		
	Bottom hole pressure :	370.15 bar	at depth :	3662.42 m	date :	04.01.84	
	Bottom hole temp. :	130.48°C	at depth :	3662.42 m	date :	04.01.84	

Flow measurement of sampled gas - Gravity (air 1) : 0.658 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0680

Values used for calculations :

Separator	Pressure : 920 PSIG Temp : 104 °F	Rates - Gas : 723.2 $10^3 SM^3$ Oil (separator cond) : 235.5 SM^3	B C	GOR : 3070 (separator cond)
Stock tank	Atmosphere : _____ mmHg - _____ °F Tank temperature : _____ °F	Oil at 60 °F : 190.8 SM^3 BOPD	A B C a b	

BSW : 3 % WLR : _____ %

Transfering fluid : MERCURY

Transfer duration : 32 mins

Final conditions of the shipping bottle :

Pressure : 610 psi / 10cc Hg Temp : 37°F

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No. : 83081213 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.		
Surface samples No.		A14969 A14788

Measurement conditions,

A - Tank . B - Meter . C - Dump .

a - Corrected with shrinkage tester. b - Corrected with tank .

D - REMARKS -

READINGS AT 03:00 A.M.
BLED OFF 50 cc FOR GAS CAP

Visa Chief Operator

No. : DOP 127

LONDIE BROS LTD

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

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- SURFACE SAMPLING -

DST # 2

Date of sampling : 04.01.84 Service order : _____ Sampling No. : 2

Sample nature : GAS Sampling point : GAS OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3665m - 3670m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3403 m Shoe : 3595 m

Bottom hole static conditions	Initial pressure	: 377.97 bars	at depth : 3658.88 m	date :	03.01.84
	Latest pressure measured	: 377.97 bars	at depth : 3658.88 m	date :	03.01.84
	Temperature	: 125.27°C	at depth : 3658.88 m	date :	03.01.84

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 05:15 Time elapsed since stabilisation : _____

Bottom hole dynamic conditions	Choke size 48/64"	since : 21:19	Well head pressure : 174.4bar		Well head temp : 39.4°C		
	Bottom hole pressure : 370.91 bar	at depth : 3662.42 m	date : 04.01.84				
	Bottom hole temp. : 131.12°C	at depth : 3662.42 m	date : 04.01.84				

Flow measurement of sampled gas - Gravity (air : 1) : 0.657 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0736

Values used for calculations :

Separator	Pressure : 970 PSIG Temp : 102 °F	Rates - Gas : 721.7 $10^3 SM^3$ Oil (separator cond) : 190.3 SM^3	B C	GOR : 3784 (separator cond)
Stock tank	Atmosphere : _____ mmHg. _____ °F Tank temperature : _____ °F	Oil at 60 °F : 198.3 SM^3 BOPD	A B C a b	

BSW : 3 % WLR : _____ %

Transfering fluid : VACUUM Transfer duration : 47 mins

Final conditions of the shipping bottle :

Pressure : 970 psi Temp : 37°F

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No. : A-14768 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.		
Surface samples No.	83081603	A14767

Measurement conditions,

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

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

D - REMARKS -

READINGS AT 06:00 A.M.

Visa Chief Operator

No. : DOP 127

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

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Report N° 4/2301/1

- SURFACE SAMPLING -

DST # 2

Date of sampling : 04.01.84 Service order : _____ Sampling No. : 2

Sample nature : GAS Sampling point : GAS OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3665m - 3670m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3403 m Shoe : 3595 m

Bottom hole static conditions	Initial pressure	: 377.97 bars	at depth : 3658.88 m	date :	03.01.84
	Latest pressure measured	: 377.97 bars	at depth : 3658.88 m	date :	03.01.84
	Temperature	: 125.27°C	at depth : 3658.88 m	date :	03.01.84

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 05:15 Time elapsed since stabilisation : _____

Bottom hole dynamic conditions	Choke size 48/64"	since 21:19	Well head pressure : 174.24 bar	Well head temp :	39.4°C
	Bottom hole pressure :	370.91 bar	at depth : 3662.42 m	date :	04.01.84
	Bottom hole temp. :	131.12°C	at depth : 3662.42 m	date :	04.01.84

Flow measurement of sampled gas - Gravity (air 1) : 0.657 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0736

Values used for calculations :

Separator	Pressure : 970 PSIG Temp : 102 °F	Rates - Gas : 725.4 $10^3 SM^3$ Oil (separator cond) : 198.3 SM^3	B C	GOR : 3658 (separator cond)	
Stock tank	Atmosphere : _____ mmHg - _____ °F Tank temperature : _____ °F	Oil at 60 °F : 198.3 SM^3 BOPD	A B C a b		

BSW : 3 % WLR : _____ %

Transfering fluid : VACUUM Transfer duration : 47 mins

Final conditions of the shipping bottle :

Pressure : 970 psi Temp : 37°F

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No. : A-14767 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.		
Surface samples No.	83081603	A 14768

Measurement conditions,

A - Tank. B - Meter. C - Dump.

a - Corrected with shrinkage tester. b - Corrected with tank.

D - REMARKS -

READINGS AT 06:00 A.M.

Visa Chief Operator

No. : DOP 127

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

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- SURFACE SAMPLING -

DST # 2

Date of sampling : 04.01.84 Service order : _____ Sampling No : 2

Sample nature : CONDENSATE Sampling point : OIL OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3665m - 3670m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3403 m Shoe : 3595 m

Bottom hole static conditions	Initial pressure	: 377.97 bars	at depth : 3658.88 m	date : 03.01.84
	Latest pressure measured	: 377.97 bars	at depth : 3658.88 m	date : 03.01.84
	Temperature	: 125.27°C	at depth : 3658.88 m	date : 03.01.84

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 05:30 Time elapsed since stabilisation : _____

Bottom hole dynamic conditions	Choke size 48/64" since : 21:19	Well head pressure : 174.24 bar	Well head temp : 39.4°C	
	Bottom hole pressure : 370.96 bar	at depth : 3662.42 m	date : 04.01.84	
	Bottom hole temp : 131.20°C	at depth : 3662.42 m	date : 04.01.84	

Flow measurement of sampled gas - Gravity (air 1) : 0.657 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0736

Values used for calculations :

Separator	Pressure : 970 PSIG	Rates - Gas : 725.4 $10^3 SM^3$	B	GOR : 4516
	Temp : 102 °F	Oil (separator cond) : 160.6 SM^3		(separator cond)
Stock tank	Atmosphere : _____ mmHg - _____ °F	Oil at 60 °F : 198.3 SM^3 BOPD		
	Tank temperature : _____ °F		B	b

BSW : 1 % WLR : _____ %

Transfering fluid : MERCURY Transfer duration : 31 mins

Final conditions of the shipping bottle :

Pressure : 630 psi Temp : 37°F

35 cc Hg

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No. : 83081603 sent on : _____ by : _____ Shipping order No : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No		
Surface samples No		A 14768 A 14767

Measurement conditions,

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

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

D - REMARKS -

READINGS AT 06:00 A.M.
DISPLACED 600 cc Hg AT 930 psi
BLED OFF 50cc FOR GAS CAP
15cc LEFT IN LINER

Visa Chief Operator

No.: DOP 127

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

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Report N° 84/2301/1

- SURFACE SAMPLING -

DST # 2

Date of sampling : 05.01.84 Service order : _____ Sampling No : 3

Sample nature : GAS Sampling point : GAS OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3665m - 3670m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3403 m Shoe : 3595 m

Bottom hole static conditions					
Initial pressure	: 377.97 bars	at depth :	3658.88 m	date :	03.01.84
Latest pressure measured	: 378.18 bars	at depth :	3658.88 m	date :	04.01.84
Temperature	: 130.48°C	at depth :	3658.88 m	date :	04.01.84

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 00:08 Time elapsed since stabilisation : _____

Bottom hole dynamic conditions					
Choke size 28/64"	since : 18:57	Well head pressure :		Well head temp :	36.1°C
Bottom hole pressure :	374.78 bar	at depth :	3658.88 m	date :	05.01.84
Bottom hole temp. :	131.67°C	at depth :	3658.88 m	date :	05.01.84

Flow measurement of sampled gas - Gravity (air 1) : 0.651 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0759

Values used for calculations : F_b=1582.0, F_g=1.2394, Y=1.0007, F_{tf}=.9662

Separator				
Pressure : 68.61BARA PSIG	Rates - Gas : 479 $10^3 SM^3$		GOR : 3010 SM^3/SM^3	
Temp : 38.1°C °F	Oil (separator cond) : 159.1 SM^3	B	(separator cond)	

Stock tank		
Atmosphere : _____ mmHg. _____ °F	Oil at 60 °F : 103 SM^3 BOPD	
Tank temperature : _____ °F	B	b

BSW : Trace % WLR : _____ %

Transfering fluid : VACUUM Transfer duration : 55 mins

Final conditions of the shipping bottle :

Pressure : 985 psi Temp : 8°C

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No. : A-14770 sent on : _____ by : _____ Shipping order No : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.		
Surface samples No.	83081313	A 14048

Measurement conditions,

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

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

D - REMARKS -

READINGS AT 00:15 A.M.

Visa Chief Operator

No. : DOP 127

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

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- SURFACE SAMPLING -

DST # 2

Date of sampling : 05.01.84 Service order : _____ Sampling No. : 3

Sample nature : GAS Sampling point : GAS OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3665m - 3670m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3403 m Shoe : 3595 m

Bottom hole static conditions	Initial pressure	: 377.97 bars	at depth :	3658.88 m	date :	03.01.84
	Latest pressure measured	: 378.18 bars	at depth :	3658.88 m	date :	04.01.84
	Temperature	: 130.48°C	at depth :	3658.88 m	date :	04.01.84

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 00:08 Time elapsed since stabilisation : _____

Bottom hole dynamic conditions	Choke size 28/64"	since : 18:57	Well head pressure : _____		Well head temp : _____	
	Bottom hole pressure :	374.78 bar	at depth :	3658.88 m	date :	05.01.84
	Bottom hole temp. :	131.67°C	at depth :	3658.88 m	date :	05.01.84

Flow measurement of sampled gas - Gravity (air 1) : 0.651 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0759

Values used for calculations : F_b=1582.0, F_g=1.2394, Y=1.0007, F_{tf}=.9662

Separator	Pressure : 68.61BARA PSIG Temp : 36.1°C °F	Rates - Gas : 479 $10^3 SM^3$ Oil (separator cond) : 159.1 SM^3	B	GOR : 3010 SM^3/SM^3 (separator cond)
Stock tank	Atmosphere : _____ mmHg. _____ °F Tank temperature : _____ °F	Oil at 60 °F : 103 SM^3 BOPD	B	b

BSW : Trace % WLR : _____ %

Transfering fluid : VACUUM Transfer duration : 55 mins

Final conditions of the shipping bottle :

Pressure : 985 psi Temp : 8°C

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No. : A-14048 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No		
Surface samples No	83081313	A 14770

Measurement conditions,

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

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

D - REMARKS -

READINGS AT 00:15 A.M.

Visa Chief Operator

No.: DOP 127

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

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- SURFACE SAMPLING -

DST # 2

Date of sampling : 05.01.84 Service order : _____ Sampling No : 3

Sample nature : CONDENSATE Sampling point : OIL OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3665m - 3670m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PH6 Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3403 m Shoe : 3595 m

Bottom hole static conditions	Initial pressure	: 377.97 bars	at depth : 3658.88 m	date :	03.01.84
	Latest pressure measured	: 378.18 bars	at depth : 3658.88 m	date :	04.01.84
	Temperature	: 130.48°C	at depth : 3658.88 m	date :	04.01.84

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 00:20 Time elapsed since stabilisation : _____

Bottom hole dynamic conditions	Choke size 28/64"	since 18:57	Well head pressure : _____	Well head temp :	
	Bottom hole pressure :	374.77 bar	at depth : 3658.88 m	date :	05.01.84
	Bottom hole temp. :	131.75°C	at depth : 3658.88 m	date :	05.01.84

Flow measurement of sampled gas - Gravity (air 1) : 0.651 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0759

Values used for calculations : F_b=1582.0, F_g=1.2394, Y=1.0007, F_{tf}=.9662

Separator	Pressure : 68.61BARA PSIG	Rates - Gas	: 479 $10^3 SM^3$	SCFD	GOR : 3010 SM^3/SM^3
	Temp : 36.1°C °F	Oil (separator cond) :	159.1 SM^3	BOPD B	(separator cond)
Stock tank	Atmosphere : _____ mmHg - _____ °F			Oil at 60 °F : 103 SM^3	BOPD B b
	Tank temperature : _____ °F				

BSW : Trace % WLR : _____ %

Transfering fluid : MERCURY Transfer duration : 43 mins

Final conditions of the shipping bottle : 35cc Hg

Pressure : 680 psi Temp : 8°C

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No : 83081313 sent on : _____ by : _____ Shipping order No : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.		
Surface samples No.		A 14770 A 14048

Measurement conditions,

A - Tank . B - Meter . C - Dump .

a - Corrected with shrinkage tester. b - Corrected with tank .

D - REMARKS -

READINGS AT 00:15 A.M.
GAS CAP 50 cc
BLED OFF 600 cc
LEFT IN LINER 15 cc
TRANSFERRED AT 940 PSI

Visa Chief Operator

No.: DOP 127

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

Section : ANNEX 42

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- SURFACE SAMPLING -

DST # 2

Date of sampling : 05.01.84 Service order : _____ Sampling No : 4

Sample nature : GAS Sampling point : GAS OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3665m - 3670m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PHG Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3403 m Shoe : 3595 m

Bottom hole static conditions	Initial pressure	: 377.97 bars	at depth : 3658.88 m	date :	03.01.84
	Latest pressure measured	: 378.18 bars	at depth : 3658.88 m	date :	04.01.84
	Temperature	: 130.48°C	at depth : 3658.88 m	date :	04.01.84

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 06:23 Time elapsed since stabilisation : _____

Bottom hole dynamic conditions	Choke size 64/64"	since : _____	Well head pressure : _____	Well head temp :	_____
	Bottom hole pressure :	369.70 bar	at depth : 3658.88 m	date :	05.01.84
	Bottom hole temp :	131.99°C	at depth : 3658.88 m	date :	05.01.84

Flow measurement of sampled gas - Gravity (air 1) : 0.653 Factor $Fpv = \frac{1}{\sqrt{Z}}$: 1.0522

Values used for calculations :

F_b=3718.2, F_g=1.2375, Y=1.0008, F_{tf}=.9813

Separator	Pressure : 42.41 BARA PSIG Temp : 26.7°C °F	Rates - Gas : 870.5 $10^3 SM^3$ SCFD Oil (separator cond.) : 281.9 SM^3 BOPD B	GOR : 3087 SM^3/SM^3 (separator cond.)
Stock tank	Atmosphere : _____ mmHg. _____ °F Tank temperature : _____ °F	Oil at 60 °F : 256.1 SM^3 BOPD B b	

BSW : 1% % WLR : _____ %

Transfering fluid : VACUUM Transfer duration : 49 mins

Final conditions of the shipping bottle :

Pressure : 650 psi Temp : 8°C

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No. : A-14766 sent on : _____ by : _____ Shipping order No : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No		
Surface samples No	83081604	A 14756

Measurement conditions,

A - Tank. B - Meter. C - Dump.

a - Corrected with shrinkage tester. b - Corrected with tank.

D - REMARKS -

READINGS AT 06:30 A.M.

Visa Chief Operator

No : DOP 127

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

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- SURFACE SAMPLING -

DST # 2

Date of sampling : 05.01.84 Service order : _____ Sampling No. : 4

Sample nature : GAS Sampling point : GAS OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3665m - 3670m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PHG Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3403 m Shoe : 3595 m

Bottom hole static conditions					
Initial pressure	377.97 bars	at depth :	3658.88 m	date :	03.01.84
Latest pressure measured	378.18 bars	at depth :	3658.88 m	date :	04.01.84
Temperature	130.48°C	at depth :	3658.88 m	date :	04.01.84

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 06:23 Time elapsed since stabilisation : _____

Bottom hole dynamic conditions					
Choke size 64/64"	since : _____	Well head pressure : _____		Well head temp : _____	
Bottom hole pressure :	369.70 bar	at depth :	3658.88 m	date :	05.01.84
Bottom hole temp. :	131.99°C	at depth :	3658.88 m	date :	05.01.84

Flow measurement of sampled gas - Gravity (air 1) : 0.653 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0522

Values used for calculations : F_b=3718.2, F_g=1.2375, Y=1.0008, F_{tf}=.9813

Separator					
Pressure : 42.41BARA PSIG	Rates - Gas : 870.5 $10^3 SM^3$ SCFD		GOR : 3087 SM^3/SM^3		
Temp : 26.7°C °F	Oil (separator cond.) : 281.9 SM^3 BOPD	B	(separator cond.)		

Stock tank		
Atmosphere : _____ mmHg. _____ °F	Oil at 60 °F : 256.1 SM^3 BOPD	B - b
Tank temperature : _____ °F		

BSW : 1% % WLR : _____ %

Transfering fluid : VACUUM Transfer duration : 49 mins

Final conditions of the shipping bottle :

Pressure : 650 psi Temp : 8°C

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No. : A-14756 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.	_____ _____	_____ _____
	_____ _____	_____ _____
	_____ _____	_____ _____
Surface samples No.	83081604 _____	A 14766 _____
	_____ _____	_____ _____

Measurement conditions,

A - Tank. B - Meter. C - Dump.

a - Corrected with shrinkage tester. b - Corrected with tank.

D - REMARKS -

READINGS AT 06:30 A.M.

Visa Chief Operator

No. DOP 127

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

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Report N° 84/2301/1

- SURFACE SAMPLING -

DST # 2

Date of sampling : 05.01.84 Service order : _____ Sampling No. : 4

Sample nature : CONDENSATE Sampling point : OIL OUTLET OF SEPARATOR

A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : Mid. Jurass. Perforations : 3665m - 3670m Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2" PHG Casing Dia. : 9 5/8"

Surface elevation : _____ Shoe : 3403 m Shoe : 3595 m

Bottom hole static conditions	Initial pressure	: 377.97 bars	at depth : 3658.88 m	date :	03.01.84
	Latest pressure measured	: 378.18 bars	at depth : 3658.88 m	date :	04.01.84
	Temperature	: 130.48°C	at depth : 3658.88 m	date :	04.01.84

B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 06:37 Time elapsed since stabilisation : _____

Bottom hole dynamic conditions	Choke size 64/64"	since : _____	Well head pressure : _____	Well head temp :	_____
	Bottom hole pressure :	369.70 bar	at depth : 3658.88 m	date :	05.01.84
	Bottom hole temp. :	131.99°C	at depth : 3658.88 m	date :	05.01.84

Flow measurement of sampled gas - Gravity (air 1) : 0.653 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.0522

Values used for calculations :

F_b=3718.2, F_g=1.2375, Y=1.0008, F_{tf}=.9813

Separator	Pressure : 42.41BARA PSIG	Rates - Gas : 870.5 $10^3 SM^3$ SCFD	B	GOR : 3087 SM^3/SM^3
	Temp : 26.7°C °F	Oil (separator cond.) : 281.9 SM^3 BOPD	B	(separator cond.)
Stock tank	Atmosphere : _____ mmHg - _____ °F			Oil at 60 °F : 256.1 SM^3 BOPD
	Tank temperature : _____ °F			B [redacted] b

BSW : 1% % WLR : _____ %

Transfering fluid : MERCURY Transfer duration : 29 mins

Final conditions of the shipping bottle : 35cc Hg

Pressure : 410 psi Temp : 8°C

C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No. : 8308160 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No	_____ _____	_____ _____
	_____ _____	_____ _____
	_____ _____	_____ _____
Surface samples No	_____ _____	A 14766 _____
	_____ _____	A 14756 _____

Measurement conditions,

A - Tank. B - Meter. C - Dump.

a - Corrected with shrinkage tester. b - Corrected with tank.

D - REMARKS -

READINGS AT 06:30 A.M.
BLED OFF 600 cc Hg
FOR GAS CAP 50 cc
15cc LEFT IN LINER
TRANSFERRED AT 410 PSI

Visa Chief Operator

No. : DOP 127

Bottom Hole sampling

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

Section : ANNEX 4.1

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Report N° : 84/2301/1

BOTTOM HOLE SAMPLING

DST No. 1

Date of sampling : 22 DEC-83 Service order : N/A Sampling No. : 1st RUN

Sample nature : HYDROCARBONS Sampling depth : 3675 m

A - RESERVOIR AND WELL CHARACTERISTICS

Producing zone : Mid Jurassic Perforations : 3697.5-3702.5m Sampling interval : Same

Depth origin : RKB Tubing Dia. : 3.5" Casing Dia. : 7"

Surface elevation : N/A Shoe : 3725 m Shoe : 3965 m

Bottom hole static conditions

Initial pressure : 381.6 bar at depth : 3722 m date : 21.12.1983

Latest pressure measured : 381.6 bar at depth : 3722 m date : 22.12.1983

Temperature : 122.9°c at depth : 3722 m date : 22.12.83

B - SAMPLING AND TRANSFER CHARACTERISTICS

Sampler : Type and No. : PSMC 982864 Capacity : 600 cc

Time at which sample was taken : 17:22

Test duration : Running start : 14:35 ; Pulling end : 19:38

☒ Well shut in since : 17:11

☐ Well flowing through choke :

Time elapsed since closing well : 11 min

Production duration through this choke :

Production cond during sampling or before closing

Bottom hole 3722 m ft.	pressure : 381.6bar temp. : 122.9°c	Well head	pressure : 134.4bar temp. : 10°C	Separator	pressure : 185psi temp. : 98°F
Flow rates : 14.55 $10^3 m^3$ 60.7 m^3 O/D		W.L.R. : N/A Prod.G.O.R. : 240		Specific gravity	Gas (air:1) : 0.704 Oil : .8750

Opening pressure of the first valve (if necessary) : 2080 psi

*Estimated bubble point pressure at surface conditions
4150 psi at 2°C

Estimated bubble point under bottom hole conditions :
Temp. : N/A Pressure : N/A

Transfer conditions. ☐ By gravity ☒ By pumping

Temp. : 2°C Pressure : 5000 psi

Hg volume : collected at transfering end : 580 cc ; remaining in the shipping bottle : 18 cc

Final conditions of shipping bottle after decompression :
Temp. : 2°C Pressure : 3000 psi

Hg volume withdrawn for bottle decompression :
30 cc

C - IDENTIFICATION OF THE SAMPLE

Shipping bottle No. : 9214/143 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.	14068/64	
Surface samples No.		

D - REMARKS

Visa Chief operator

H. GEHIN

*VALUES USED FOR CALCULATIONS

psi	5000	4730	4500	4310	4130	4020	3880	3660	3500	3260
cc withdrawn	0	2	3.6	5.6	8.5	10	12.4	16.6	20	25.5

No. : DOP 128

FLOPETROL

Base : NWB

Client : STATOIL

Field : TYRIHANS

Well : 6407/1-3

Section : ANNEX 4.1

Page : 113

Report N° : 84/2301/1

BOTTOM HOLE SAMPLING

DST No. 1

Date of sampling : 22 DEC-83 Service order : N/A Sampling No. : 1st RUN

Sample nature : HYDROCARBONS Sampling depth : 3675 m

A - RESERVOIR AND WELL CHARACTERISTICS

Producing zone : Mid Jurassic Perforations : 3697.5-3702.5m Sampling interval : Same

Depth origin : RKB Tubing Dia. : 3.5" Casing Dia. : 7"

Surface elevation : N/A Shoe : 3725 m Shoe : 3965 m

Bottom hole static conditions					
Initial pressure	: 381.6 bar	at depth : 3722 m	date : 21.12.1983
Latest pressure measured	: 381.6 bar	at depth : 3722 m	date : 22.12.1983
Temperature	: 122.9°c	at depth : 3722 m	date : 22.12.83

B - SAMPLING AND TRANSFER CHARACTERISTICS

Sampler : Type and No. . PSMC 383884 Capacity : 600 cc

Time at which sample was taken : 17:24

Test duration : Running start : 14:35 — Pulling end : 19:38

☒ Well shut in since : 17:11

☐ Well flowing through choke :

Time elapsed since closing well : 13 min

Production duration through this choke :

Production cond during sampling or before closing						
Bottom hole 3722 m ft.	pressure : 381.6bar	Well head	pressure : 134.4bar	Separator	pressure : 185psi
	temp. : 122.9°c		temp. : 10°C		temp. : 98°F
Flow rates : 14.55 $10^3 m^3$ 60.7 m^3 O/D		W.L.R. : N/A		Specific gravity	Gas (air:1) : 0.704
		Prod.G.O.R. : 240			Oil : .8750

Opening pressure of the first valve (if necessary) : 2080 psi

*Estimated bubble point pressure at surface conditions
4100 psi at 1°C

Estimated bubble point under bottom hole conditions :
Temp. : N/A Pressure : N/A

Transfer conditions. ☐ By gravity ☒ By pumping
Temp. : 1°C Pressure : 5000 psi

Hg volume : collected at transfering end : 580 cc
remaining in the shipping bottle : 18 cc

Final conditions of shipping bottle after decompression :
Temp. : 2°C Pressure : 3000 psi

Hg volume withdrawn for bottle decompression : 30 cc

C - IDENTIFICATION OF THE SAMPLE

Shipping bottle No. : 14068/64 sent on : _____ by : _____ Shipping order No. : _____

Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.	9214/143	
Surface samples No.		

D - REMARKS

Visa Chief operator

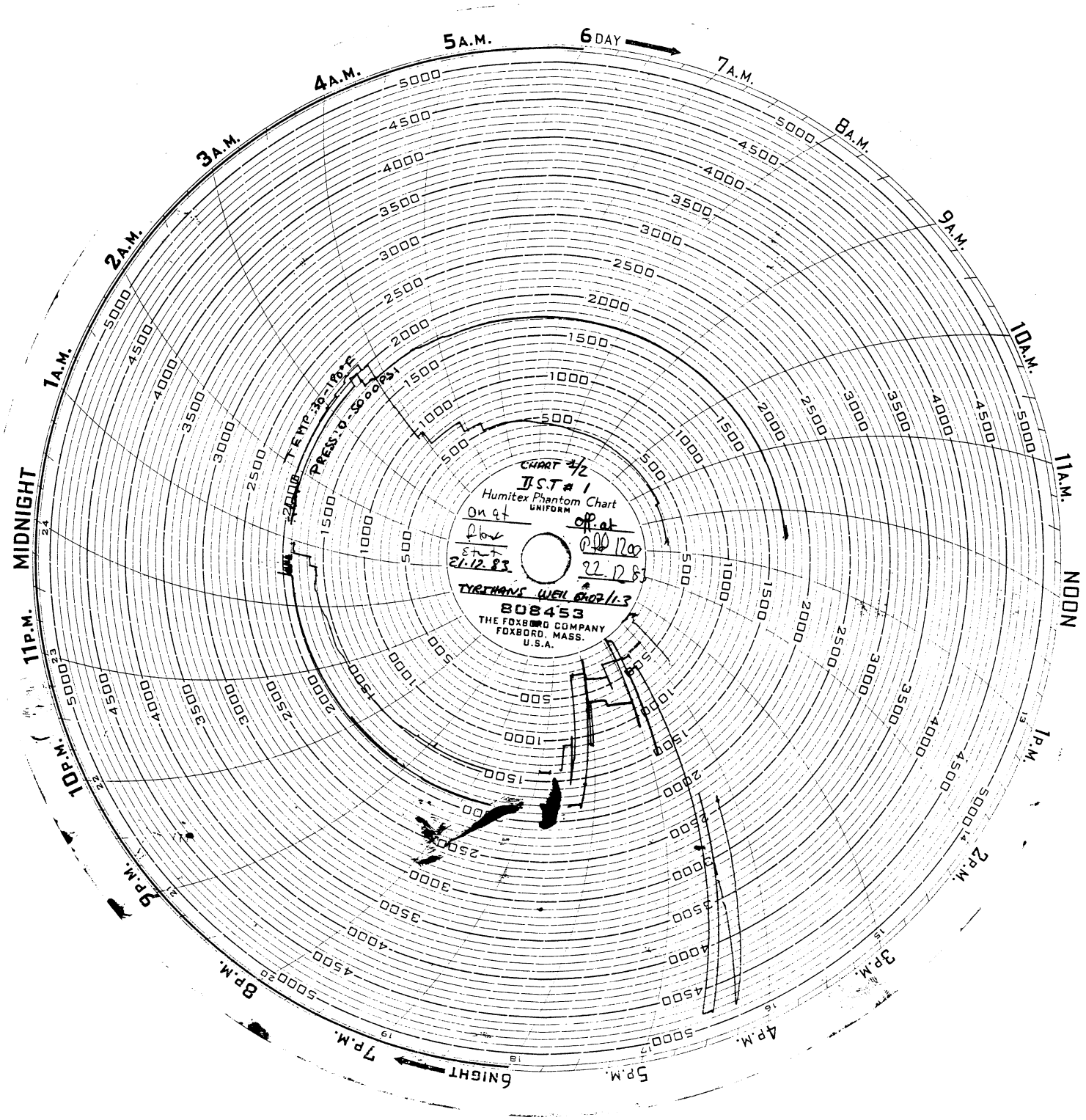
H. GEHIN

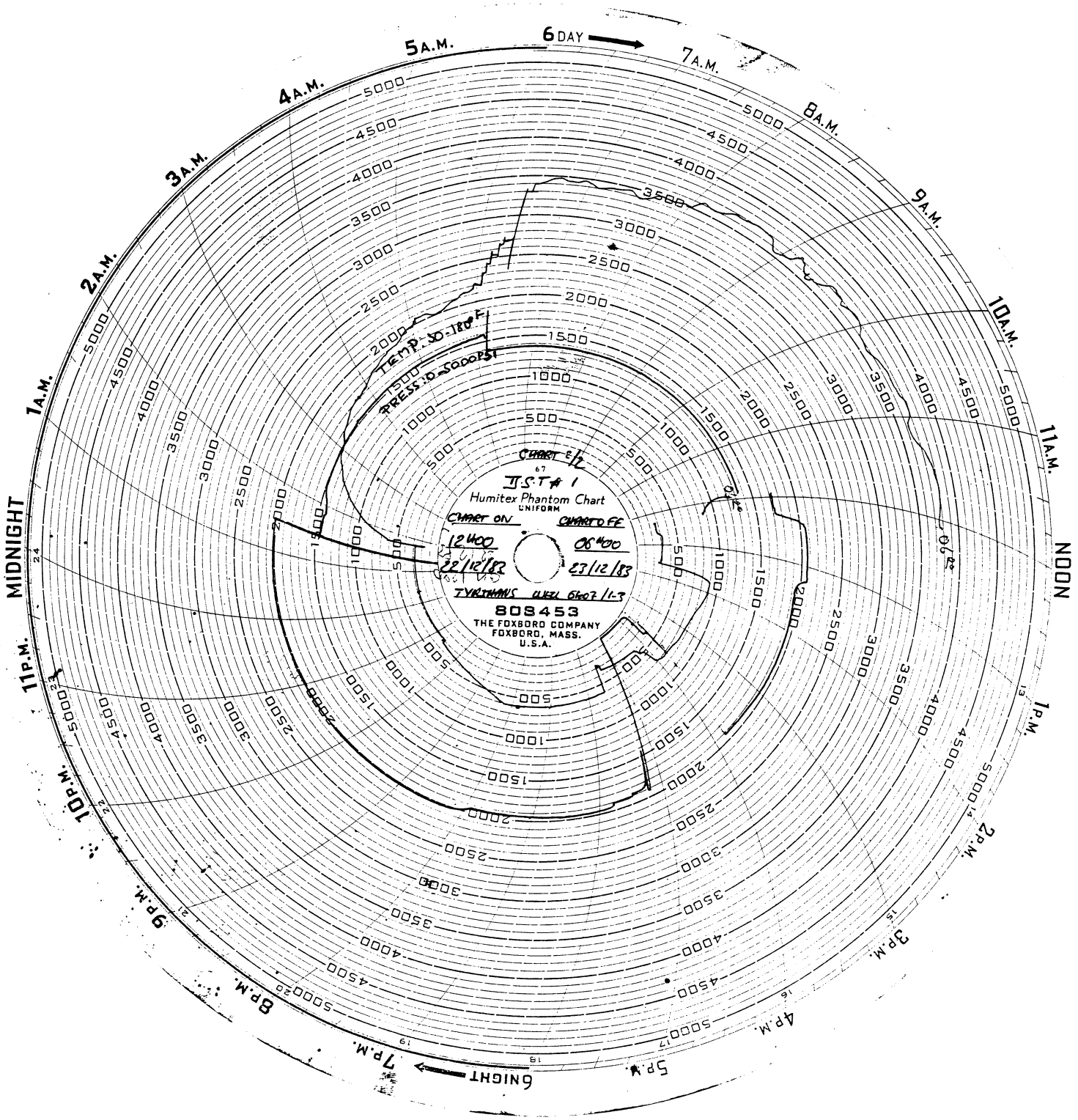
*VALUES FOR CALCULATIONS OF BUBBLE POINT

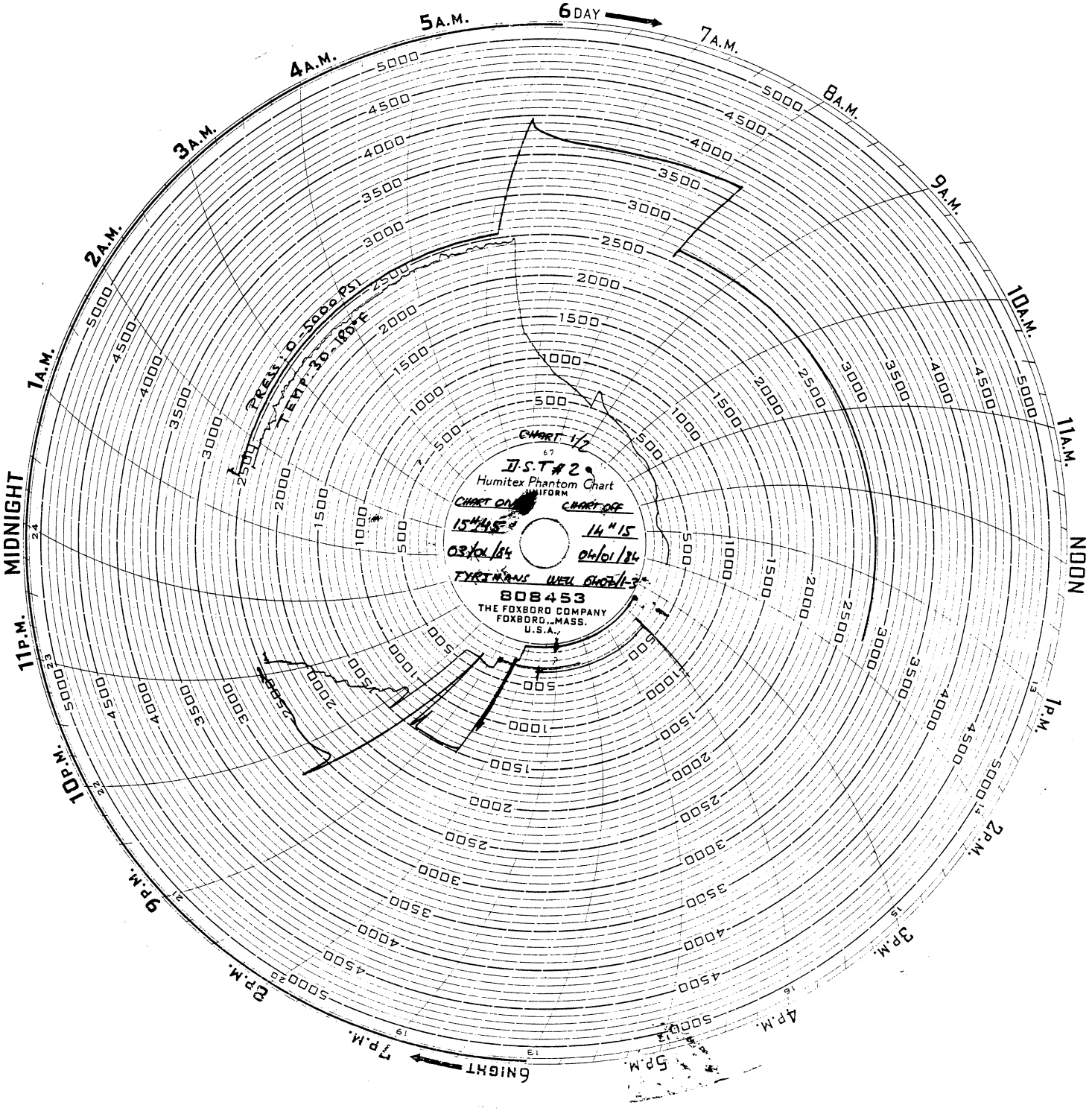
psi	5000	4680	4400	4130	3920	3800	3660	3500
cc withdrawn	0	3.3	5.4	8.5	12	14.4	17	20.2

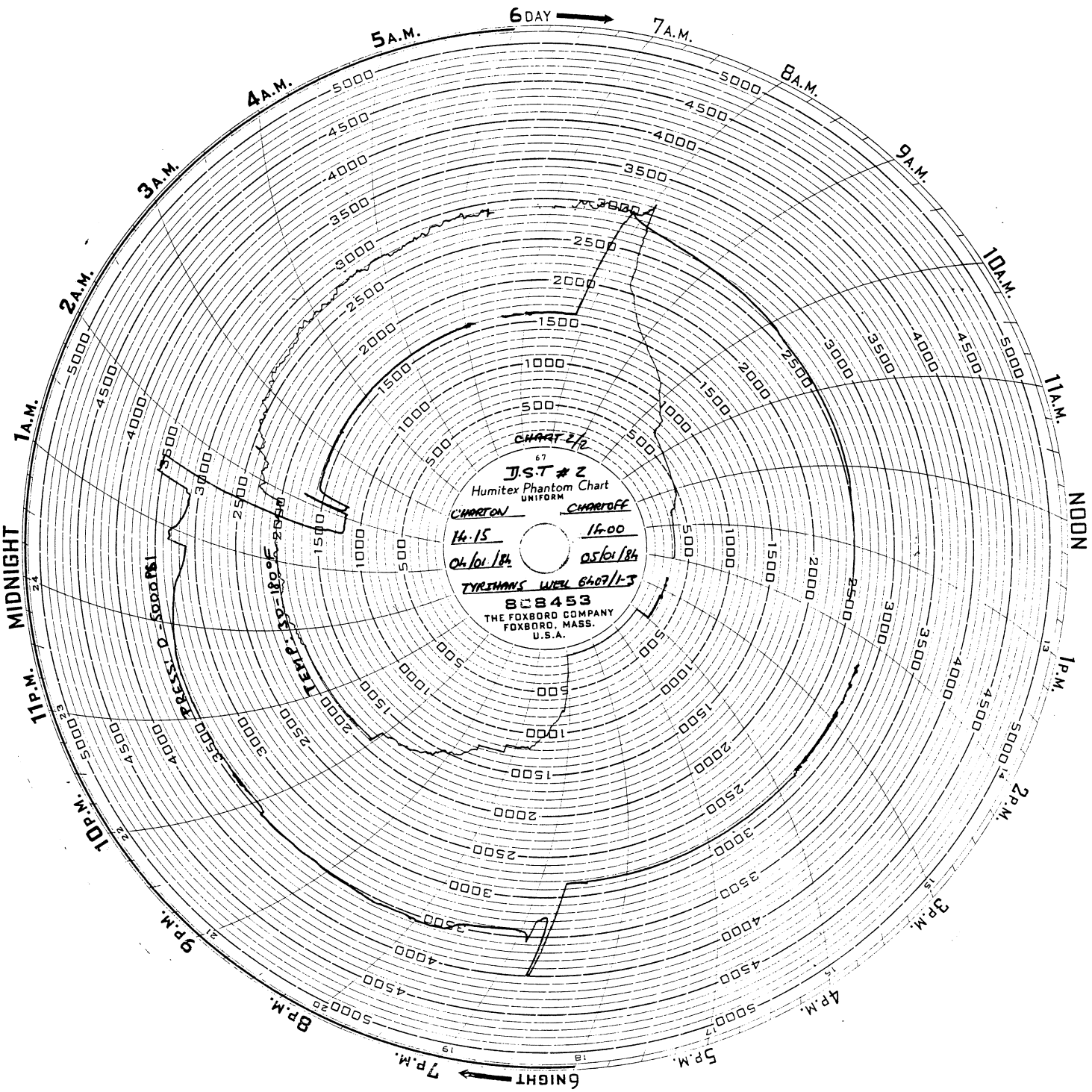
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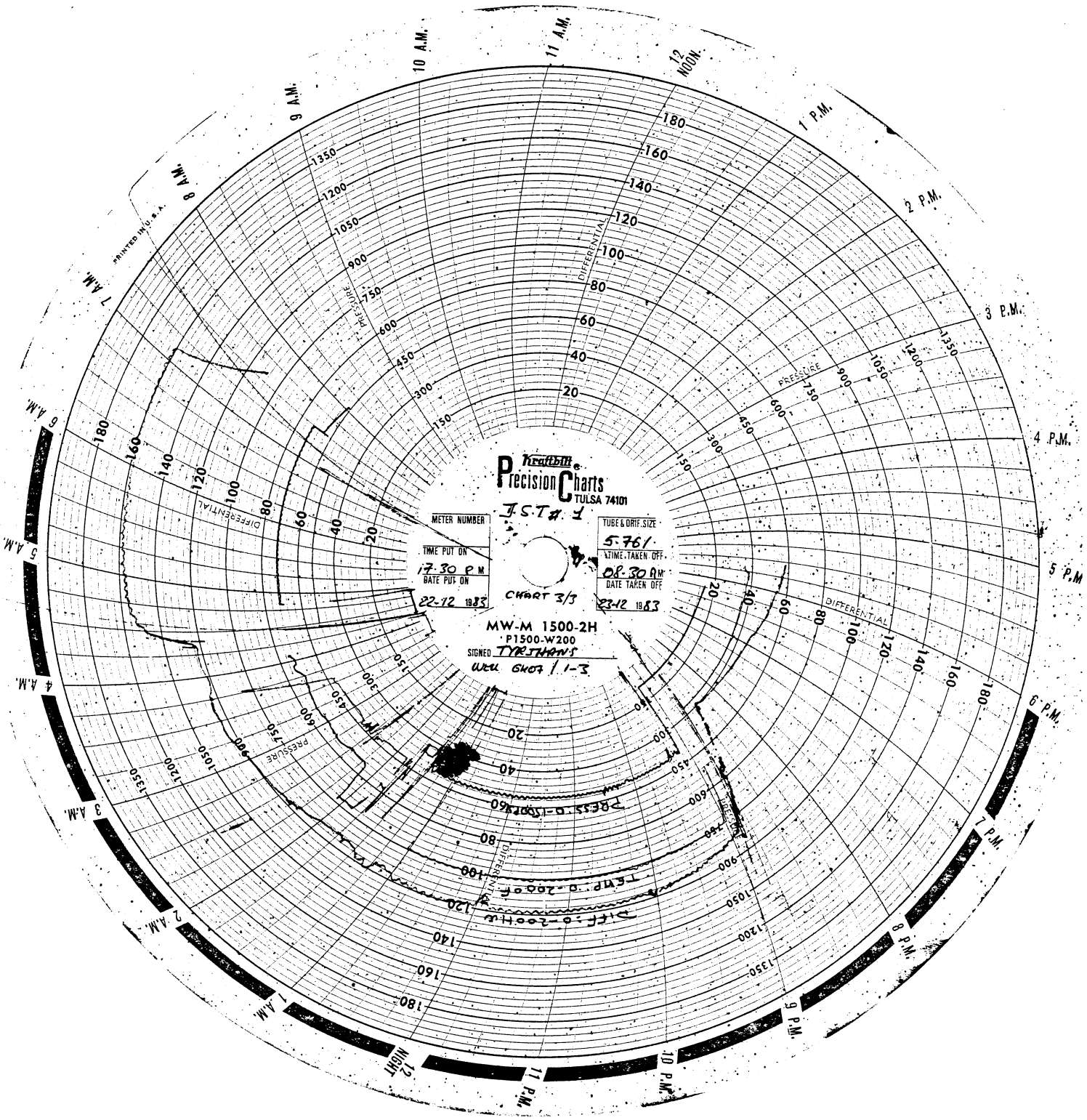
Charts - miscellaneous

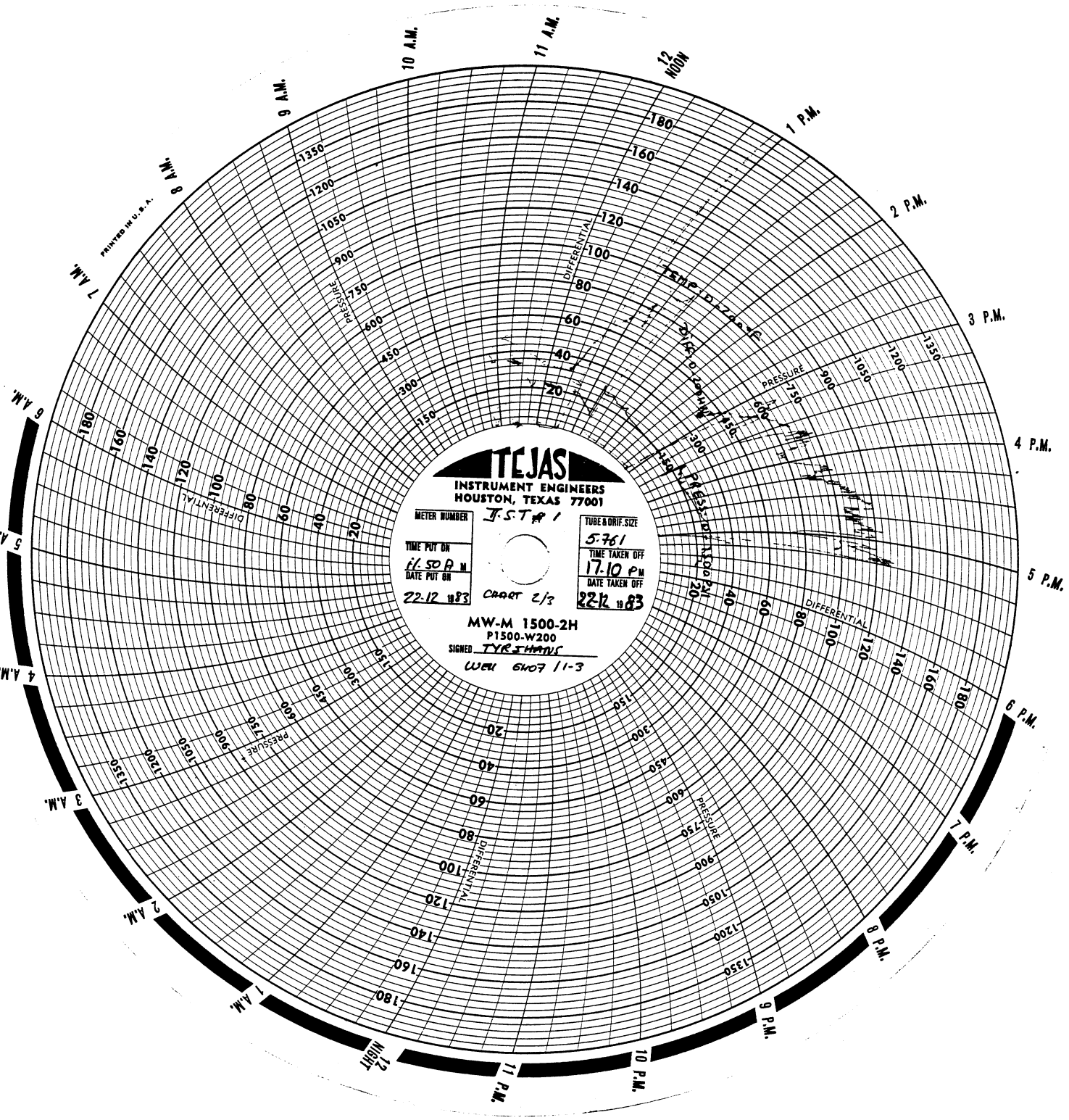

6 DAY
7A.M.
8A.M.
9A.M.
10A.M.
11A.M.
NOON
1P.M.
2P.M.
3P.M.
4P.M.
5P.M.
6 NIGHT
7P.M.
8P.M.
9P.M.
10P.M.
11P.M.
MIDNIGHT
1A.M.
2A.M.
3A.M.
4A.M.
5A.M.
TEMP 30-180°F
PRESS 0-5000PSI
CHART 1/2
IIS.T #1
Humitex Phantom Chart
UNIFORM
On at
Flow
Eht
21.12.83
off at
PM 12m
22.12.83
TYRTHANS WELL 6407/1.3
808453
THE FOXBORO COMPANY
FOXBORO, MASS.
U.S.A.

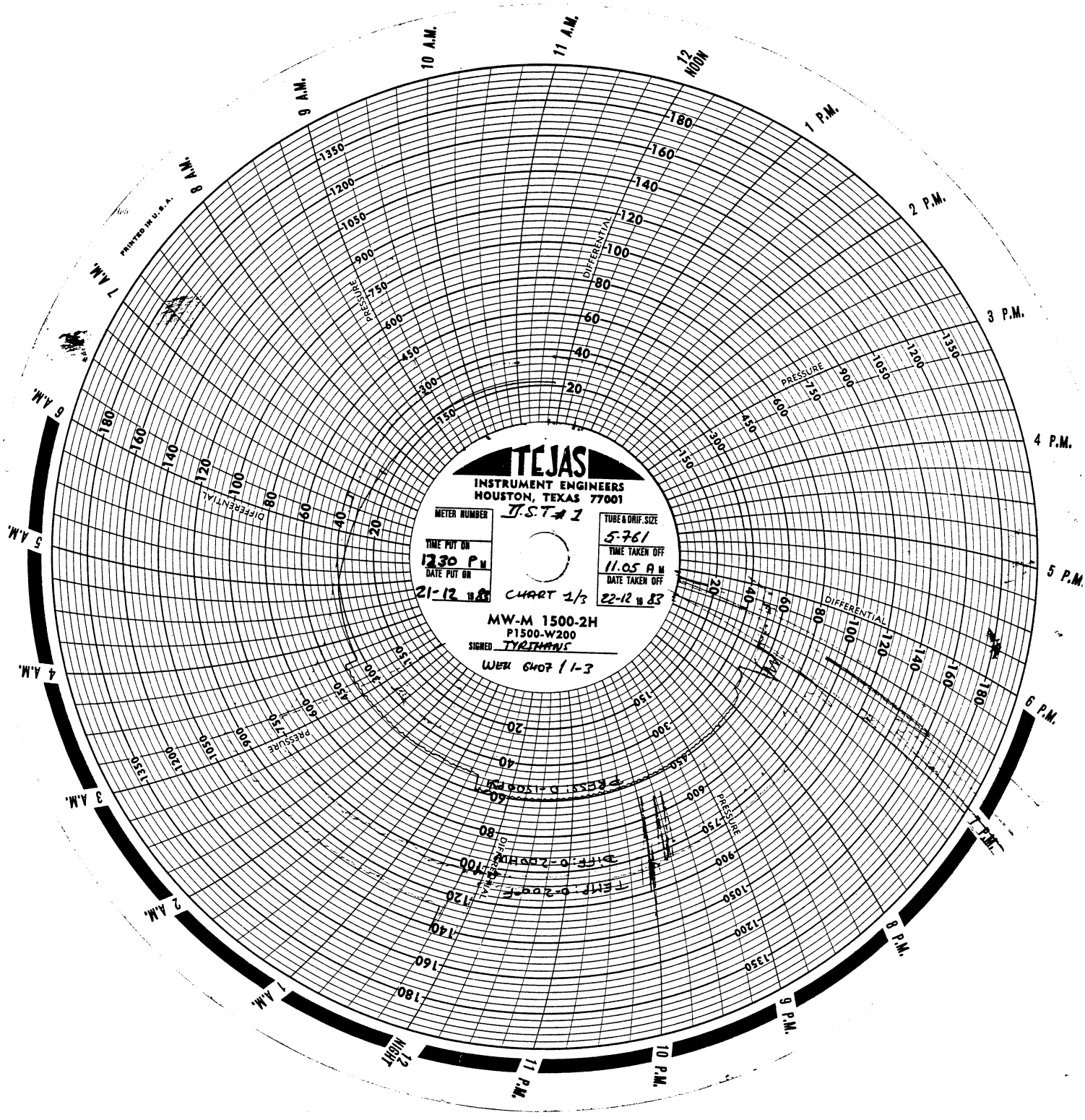

6 DAY
5 A.M.
7 A.M.
4 A.M.
8 A.M.
3 A.M.
9 A.M.
2 A.M.
10 A.M.
1 A.M.
11 A.M.
MIDNIGHT
NOON
11 P.M.
1 P.M.
10 P.M.
2 P.M.
9 P.M.
3 P.M.
8 P.M.
4 P.M.
7 P.M.
5 P.M.
6 NIGHT
TEMP. 50-180°F
PRESS. 0-5000 PSI
CHART 8/12
JST# 1
Humitex Phantom Chart
UNIFORM
CHART ON
12400
22/12/82
CHART OFF
08400
23/12/83
TYRTHANS QUEST 6607/1-3
808453
THE FOXBORO COMPANY
FOXBORO, MASS.
U.S.A.

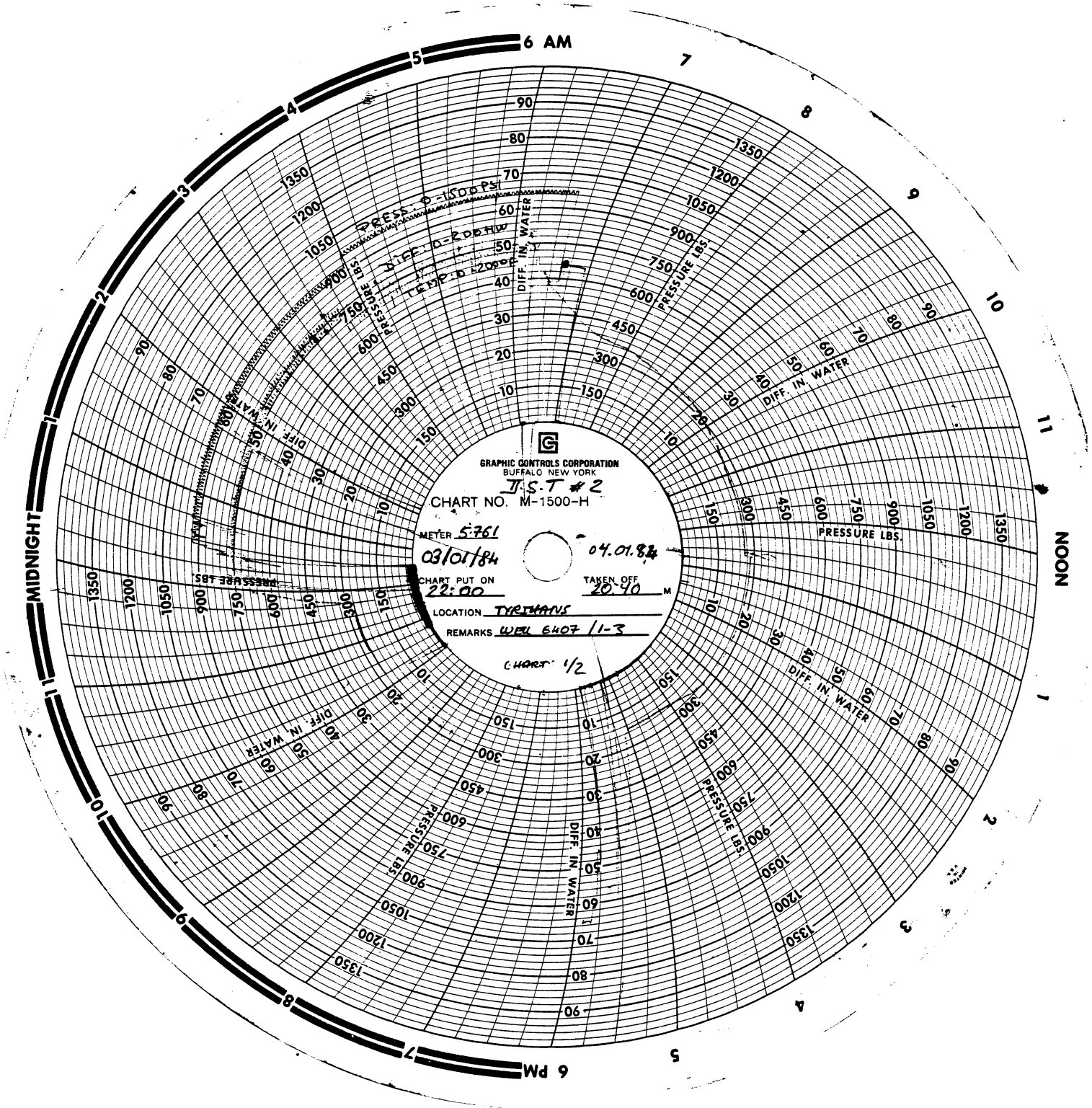

6 DAY
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.
NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 NIGHT
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.
MIDNIGHT
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
PRESS: 0-5000 PSI
TEMP: 30-180°F
CHART 1/2
D.S.T #2
Humitex Phantom Chart
UNIFORM
CHART ON
15 H 45
03/01/84
CHART OFF
14 H 15
04/01/84
TYRRELL'S WELL GHOSH 1-3
808453
THE FOXBORO COMPANY
FOXBORO, MASS.
U.S.A.

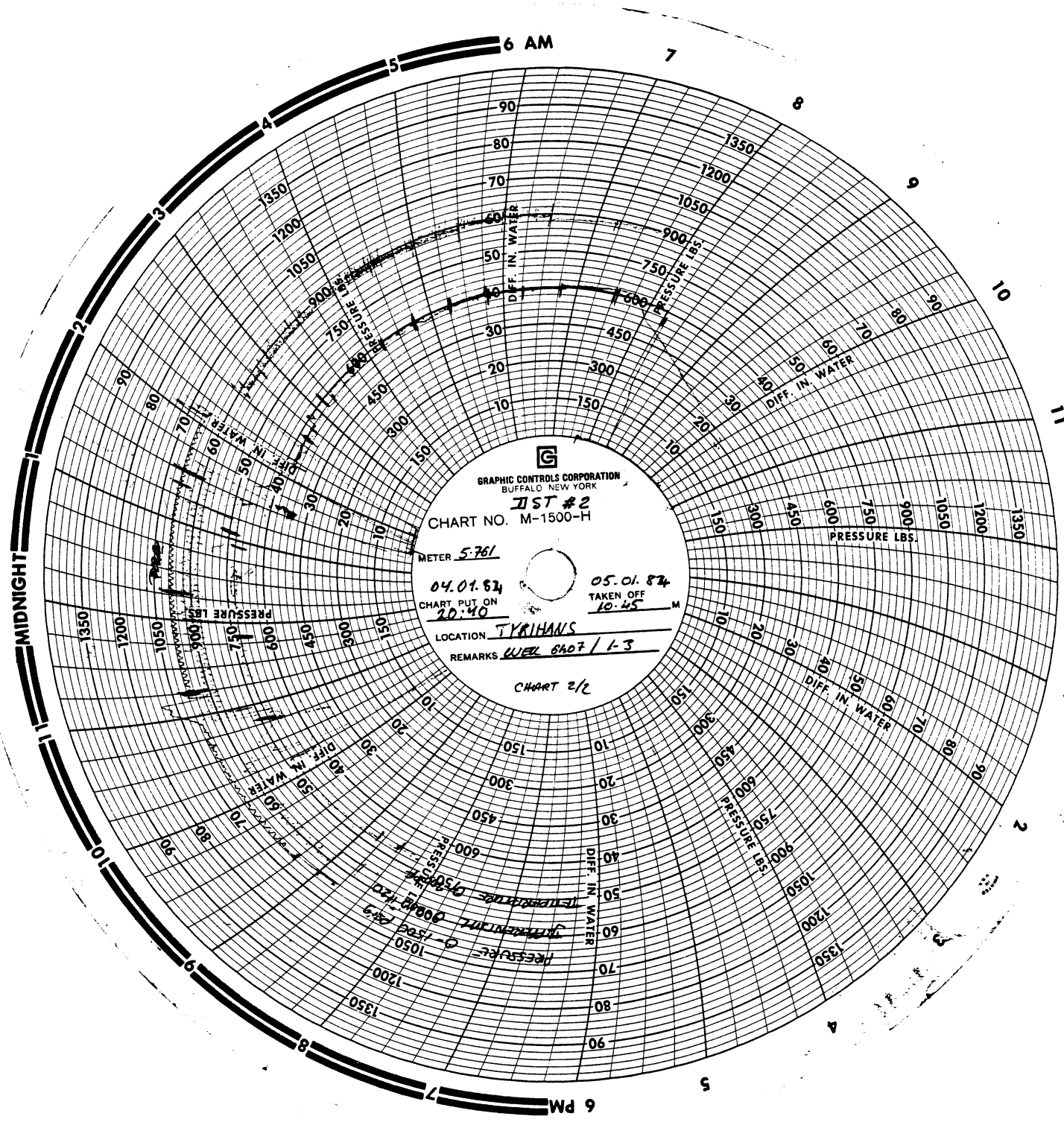

6 DAY
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.
NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 NIGHT
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.
MIDNIGHT
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
CHART 2/12
67
J.S.T # 2
Humitex Phantom Chart
UNIFORM
CHARTON
14.15
04/01/84
CHAROFF
16.00
05/01/84
TYRIHANS WEEK 6407/1-3
8C8453
THE FOXBORO COMPANY
FOXBORO, MASS.
U.S.A.
PRESS. D. 5000 PSI
TEMP. D. 0-180°F


Kraftbilt
Precision Charts
TULSA 74101
F.S.T. # 1
METER NUMBER
TIME PUT ON
17.30 P M
DATE PUT ON
22-12 1983
TUBE & ORIF. SIZE
5.761
TIME TAKEN OFF
08.30 A M
DATE TAKEN OFF
23-12 1983
CHART 3/3
MW-M 1500-2H
P1500-W200
SIGNED TYRJHANS
WELL GHOT 1/1-3
PRINTED IN U.S.A.
DIFFERENTIAL
PRESSURE
12 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.
12 MIDNT
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
6 A.M.
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.


TEJAS
INSTRUMENT ENGINEERS
HOUSTON, TEXAS 77001
METER NUMBER
TIME PUT ON
11.50 A M
DATE PUT ON
22-12 1983
TUBE & ORIF. SIZE
5.761
TIME TAKEN OFF
17.10 PM
DATE TAKEN OFF
22-12 1983
CHART 2/3
MW-M 1500-2H
P1500-W200
SIGNED TYRE HANS
WELL 6407 11-3
PRINTED IN U.S.A.
DIFFERENTIAL
PRESSURE
12 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.
12 MIGHT
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
6 A.M.
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.


TEJAS
INSTRUMENT ENGINEERS
HOUSTON, TEXAS 77001
METER NUMBER
T.S.T #1
TUBE & ORIF. SIZE
5.761
TIME PUT ON
1230 PM
TIME TAKEN OFF
11.05 AM
DATE PUT ON
21-12 1983
CHART 1/3
DATE TAKEN OFF
22-12 1983
MW-M 1500-2H
P1500-W200
SIGNED TYRTHANS
WELL 6407 1/1-3
PRESS: 0-1500PSI
DIFF: 0-200INCHES
TEMP: 0-200°F
PRINTED IN U.S.A.
DIFFERENTIAL
PRESSURE
TEMP
12 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.
6 A.M.
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.


6 AM
NOON
MIDNIGHT
6 PM
PRESS. 0-1500 PSI
DIFF. 0-200 H2O
TEMP. 0-200°F
PRESSURE LBS.
DIFF. IN. WATER
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
J.S.T #2
CHART NO. M-1500-H
METER 5761
03/01/84
04.01.84
CHART PUT ON 22:00
TAKEN OFF 20.40 M
LOCATION TYRIHANS
REMARKS WELL 6407 1-3
CHART 1/2


6 AM
NOON
6 PM
MIDNIGHT
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
DST #2
CHART NO. M-1500-H
METER 5.761
04.01.84
CHART PUT ON 20:40
05.01.84
TAKEN OFF 10:45 M
LOCATION TYRIHANS
REMARKS WELL 6407 / 1-3
CHART 2/2
DIFF. IN. WATER
PRESSURE LBS.