

# FLOPETRO

## Well Testing Report

= STATOIL RIG DYVI DELTA  
= WILDCAT Well = 30/2-1 DST No. 2  
= ETIVE Date = 25.09.82 - 30.09.82

Denne rapport  
tilhører

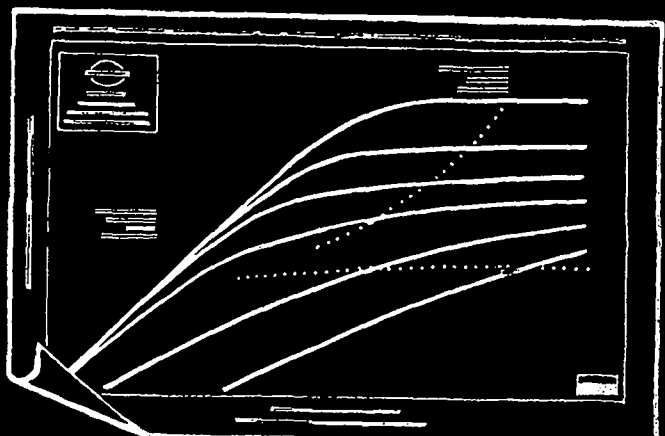
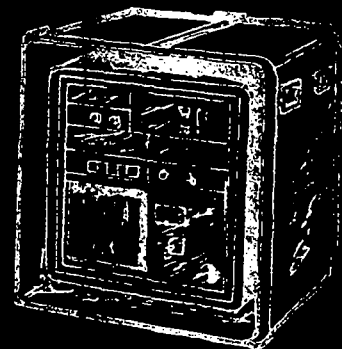
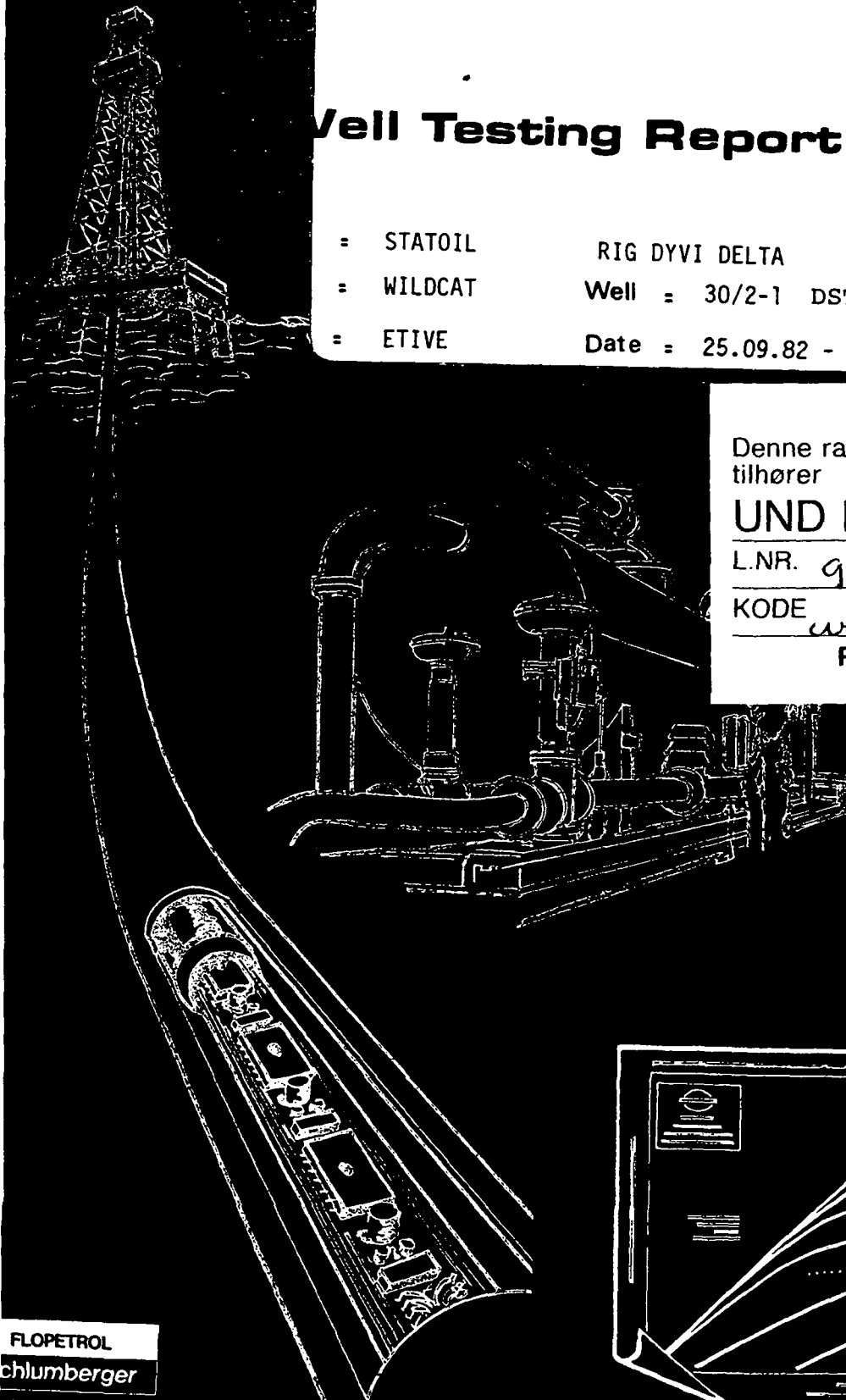


UND DOK.SENTER

L.NR. 92057944

KODE well 30/2-1 nr 11

Returneres etter bruk



# FLOPETROL

DIVISION : NSD

BASE : NWB

REPORT N°: 82/2301/29

## Well Testing Report

Client : STATOIL

RIG DYVI DELTA

Field : WILDCAT

Well : 30/2-1 DST No. 2

Zone : ETIVE

Date : 25.09.82 - 30.09.82

# FLOPETROL

Client : STATOILSection : INDEXBase : NWBField : WILDCATPage : 1Well : 30/2-1Report N° : 82/2301/29

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N° DOP 101

Flopetrol chief operator  
Name : IAN COOPER, BJØRN NILSSENClient representative  
Name : SVEIN LØINING

**- TEST PROCEDURE -****DST # 2, ETIVE, 3761 - 3771 RKB**

- THE OBJECTIVES WITH THE TEST WERE TO EVALUATE RESERVOIR PROPERTIES, OBTAIN FLUID SAMPLES AND RESERVOIR PRESSURE AND TEMPERATURE.
- ONE FLOPETROL SSSR/CRG AND THREE SPERRY SUN MK III DOWN HOLE RECORDERS WERE RUN.
- THE LPR VALVE WAS OPENED WITH 200 BAR IN THE STRING, AND THE WELL OPENED SLOWLY TO 8/64" ON ADJUSTABLE CHOKE FOR 7 MINUTES. THIS WAS INCREASED TO 32/64" FOR 3 MINUTES AND THEN CHANGED TO 32/64" FIXED CHOKE FOR 496 MINUTES. AS SOON AS THE WELL EFFLUENT TEMPERATURES WERE OVER THE FREEZING DANGER, THE FLOW WAS DIVERTED THROUGH THE SEPARATOR AND ACCURATE FLOW MEASUREMENTS MADE. 3 CONDENSATE, 2 BY MERCURY AND 1 BY WATER DISPLACEMENT, AND 4 GAS SAMPLES WERE TAKEN WHEN WELL HAD STABILIZED.
- THE CHOKE WAS THEN CHANGED TO 48/64" ADJUSTABLE FOR 14 MINUTES AND THEN TO 48/64" FIXED FOR 306 MINUTES. THE FLOW WAS DIVERTED THROUGH THE SEPARATOR AS SOON AS ONE COULD BE SURE OF NO SAND PRODUCTION, AND ACCURATE FLOW MEASUREMENTS CARRIED OUT. 2 CONDENSATE SAMPLES, 1 BY MERCURY AND 1 BY WATER DISPLACEMENT AND 2 GAS SAMPLES WERE TAKEN AFTER WELL HAD STABILIZED.
- THE WELL WAS SHUT IN FIRST AT THE CHOKE MANIFOLD, THEN AT THE APR-M FOR A 1598 MINUTES BUILD UP PERIOD.

# FLOPETROL

Client : STATOIL

Section :

**2**

Base : N.W.B.

Field : WILDCAT

Page : 3

Well : 30/2-1

Report No. 82/2301/29

## — MAIN RESULTS — DST No. 2

Tested interval : ETIVE Perforations : 3761 m - 3771 m

Operation	Duration	Bottom hole pressure	Well head pressure	Oil prod. rate	Gas prod. rate	G.O.R.
Units	MIN		PSIG	M <sup>3</sup> /DAY	MM <sup>3</sup> /DAY	M <sup>3</sup> /M <sup>3</sup>
8/64" ADJ. CHOKE	7		2340	-	-	-
32/64" ADJ. CHOKE	3		3400			
32/64" FIXED CHOKE	496		5550	319.6	729.1	2281
48/64" ADJ. CHOKE	14		2420	-	-	-
48/64" FIXED CHOKE	306		3520	417.0	1030	2470
BUILD UP PERIOD	1598		-	-	-	-

Depth of bottom hole measurements : \_\_\_\_\_ Reference : \_\_\_\_\_

Temperature : \_\_\_\_\_ at : \_\_\_\_\_ depth

Separator gas gravity (air : 1) at choke size : <sup>91.5</sup> 0.680 AT 32/64", 0.695 AT 48/64"

STO gravity at choke size : <sup>81</sup> 0.814 AT 32/64", 0.807 AT 48/64"

BSW : 3% ON 32/64", 2.5% ON 48/64" Water cut : 3% ON 32/64"  
2.5% ON 48/64"

### REMARKS AND OTHER OPERATIONS

RESULTS ARE THOSE LAST RECORDED.

BSW TAKEN FROM SEPARATOR INLET.

- OPERATING AND MEASURING CONDITIONS -

DST No. 2

A - TYPE OF GAUGE -BOTTOM HOLE :Pressure : SSDR/CRG AT 3752,85 mTemperature : SSDR/CRG AT 3752,85 mWELL HEAD :Pressure : FOXBORO 0-1500 PSIGTemperature : FOXBORO 32°F - 180°F, thermometer 0-200°CSEPARATOR :Pressure : BARTON 0-1500 PSIGTemperature : BARTON 0-200°FB - 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.

760 MM HG  
AT 15°C

WATER PRODUCTION RATE

- Tank  
 Meter  
 \_\_\_\_\_

C - WELL DATA -WELL STATE DURING SURVEY :Well producing through : 3 1/2" tubing/drill pipe/casing PBTB AT 3771,5mMain casing size 7" set at \_\_\_\_\_ Total well depth 4100 METERSTubing size 3 1/2" TDS set at N/A Packer BAKER "D" set at 3733 m

## Perforations :

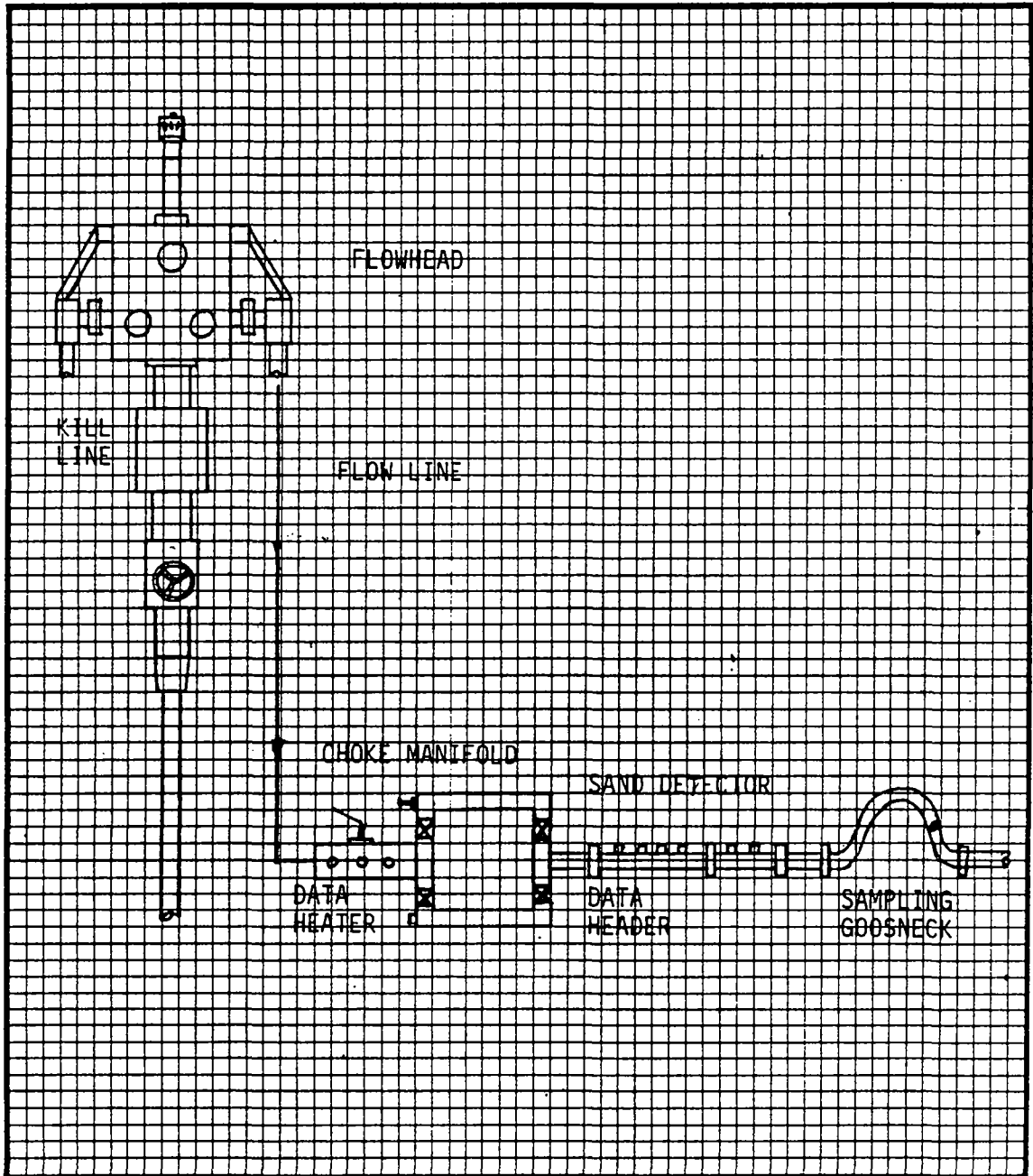
-Zone ETIVE From 3761 m to 3771 m From \_\_\_\_\_ to \_\_\_\_\_

-Zone \_\_\_\_\_ From \_\_\_\_\_ to \_\_\_\_\_ From \_\_\_\_\_ to \_\_\_\_\_

-

WELL STATE BEFORE TEST : Well closed since DST 1 Well flowing since \_\_\_\_\_ Producing zone ETIVEChoke size 32/64" AND 48/64"

- SURFACE EQUIPMENT LAYOUT -

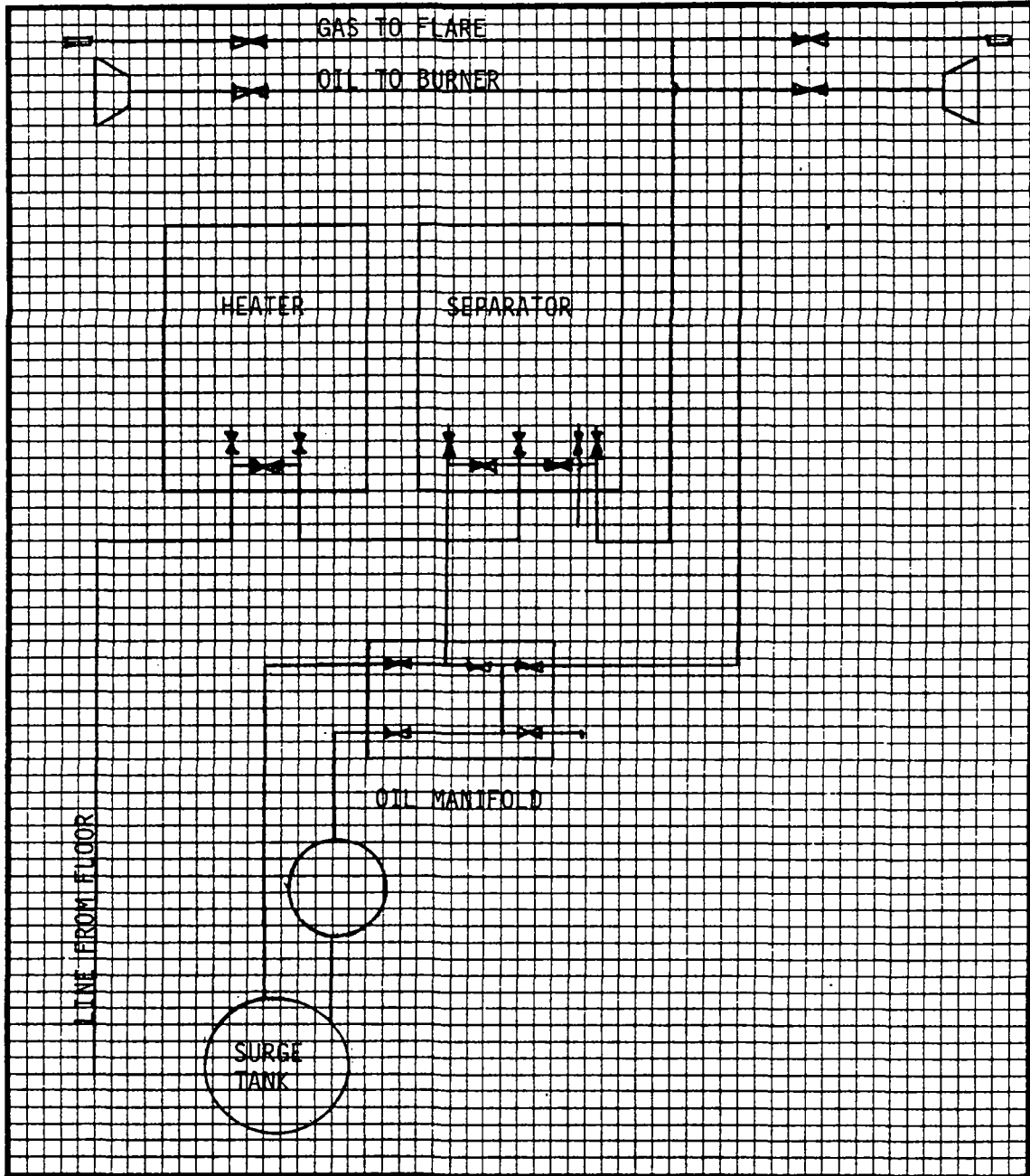


REMARKS :

DRAWING SCHEMATIC ONLY

NOT TO SCALE

## - SURFACE EQUIPMENT LAYOUT -



### REMARKS :

DRAWING SCHEMATIC ONLY  
NOT TO SCALE



**FLOPETROL**

Client : STATOIL

Section : **5**

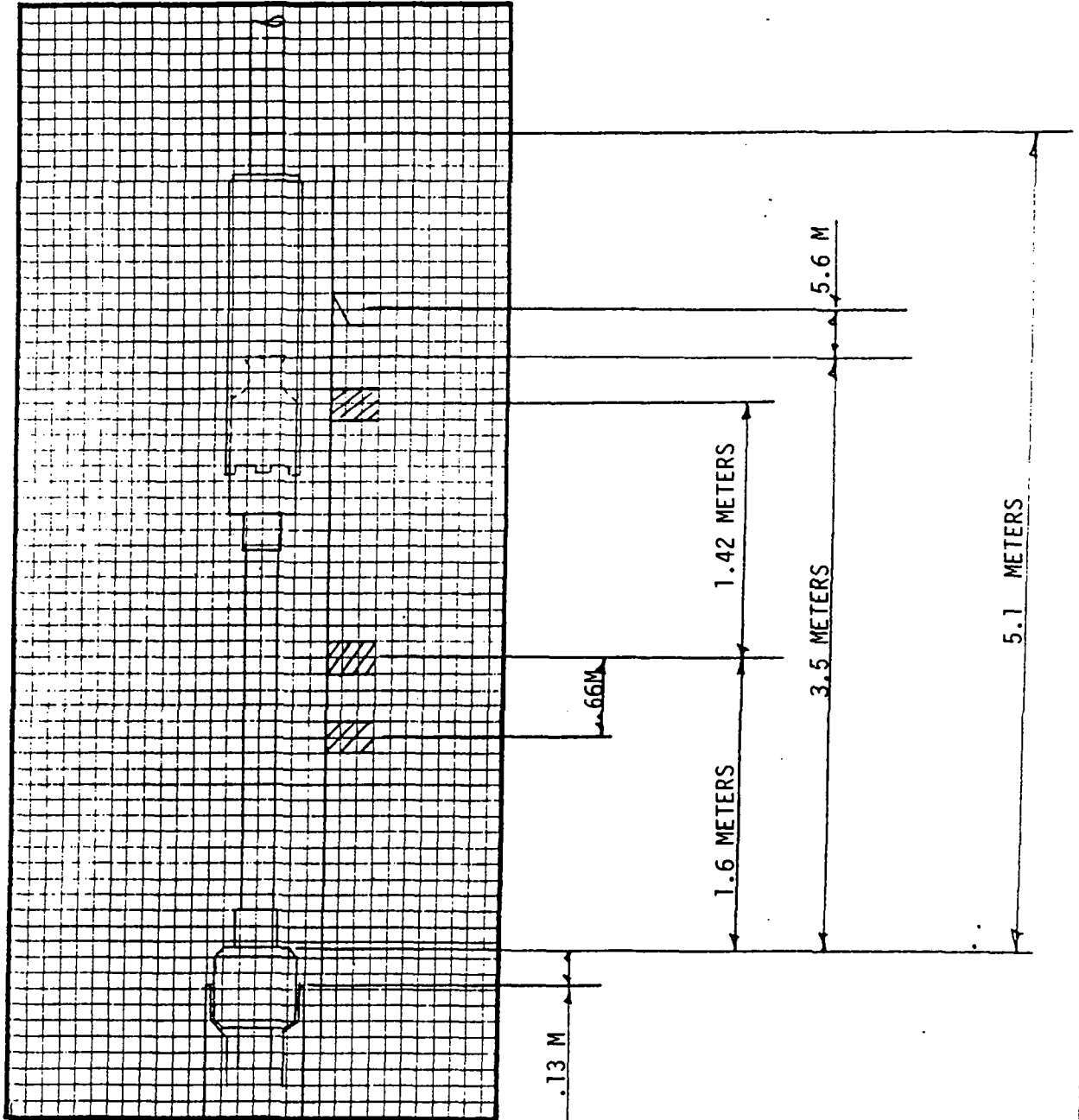
Base : NWB

Field : WILDCAT

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Report N° : 82/2301/29

Well : 30/2-1

- WELL COMPLETION DATA -

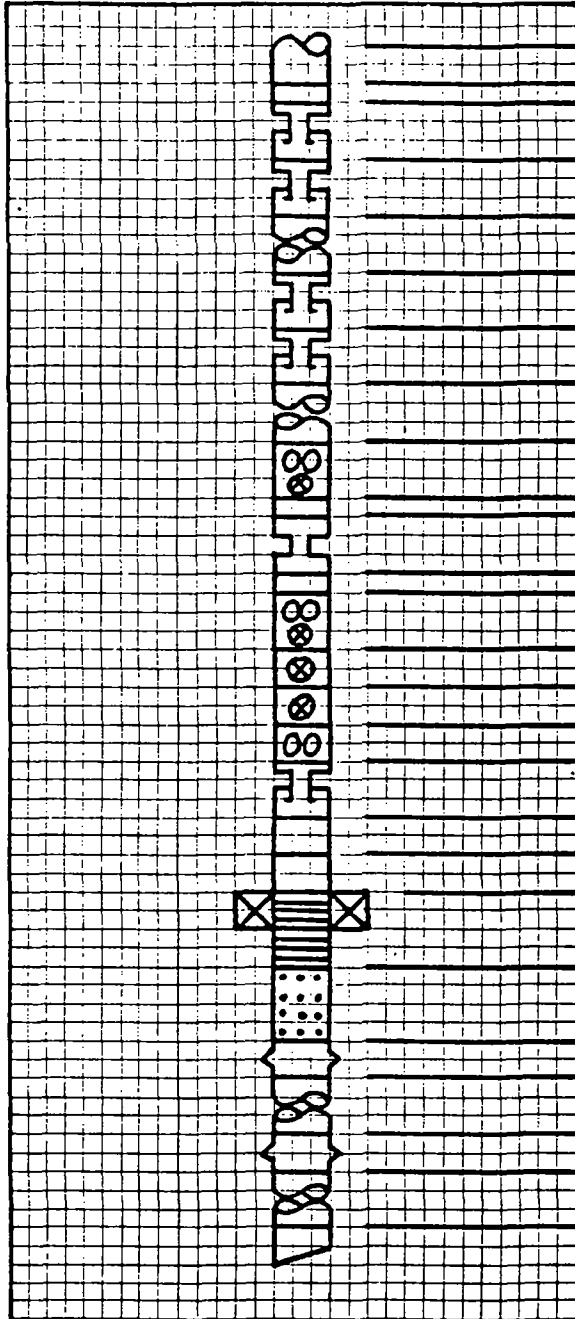


REMARKS :

DRAWING SCHEMATIC ONLY

NOT TO SCALE

-WELL COMPLETION DATA-



119 STD. + 2 SINGLES + PUP 3 1/2"  
 X-O 3 1/2" TDS x 3 1/2" IF  
 SLIP JOINT OPEN  
 SLIP JOINT OPEN  
 12 JOINTS DRILL COLLARS  
 SLIP JOINT CLOSED  
 SLIP JOINT CLOSED  
 11 JOINTS DRILL COLLARS  
 APR-M CIRC. VALVE  
 X-O 3 1/2" IF x 3 1/2" FH  
 HANDLING CHOKE & SUB ASSY.  
 X-O 3 1/2" FH x 3 1/2" IF  
 APR-M REV. CIRC. VALVE  
 DRILL PIPE TESTER VALVE  
 LPR TESTER VALVE  
 FUL FLO HYD. BYPASS  
 BIG JOHN JARS  
 BAKER ROTARY SUB  
 BAKER MOD. "G" LOCATOR  
 BAKER MOD. "D" PACKER AT 3730.65m  
 BAKER SEAL ASSY. AND PERF. JOINT  
 BAKER "F" NIPPLE  
 BAKER SPACER TUBE  
 BAKER "F" NIPPLE  
 BAKER SPACER TUBE  
 MULE SHOE WIRELINE ENTRY

REMARKS

**FLOPETROL**Client : STATOILSection : **6**Base : NWBField : WILDCATPage : 9Well : 30/2-1Report N° : 82/2301/29- SEQUENCE OF EVENTS -

DATE	TIME	OPERATION
		DST # 2
		25 th SEPTEMBER 1982
25.09.82		PRESSURE TEST CHOKE MANIFOLD TO 345 BARS AND 690 BARS
		PRESSURE TEST FLOWHEAD TO 345 BARS AND 690 BARS.
		EMPTY SEPARATOR AND SURGE TANK
26.09.82		PRESSURE TEST EZ-TREE TO 345 BARS AND 690 BARS.
		CHECKING EQUIPMENT FOR DST # 2.
	23:25	FLUSH LINE TO BURNERS AND FLARE VIA HEATER AND SEPARATOR
	23:55	PRESSURE TEST OIL BURNER VALVE ON BOOMS TO 69 BARS.
		UNABLE TO TEST GAS VALVES DUE TO LEAK ON CHECK VALVE ON
		SEPARATOR.
		26th SEPTEMBER 1982
	00:59	PRESSURE TEST OIL MANIFOLD DOWNSTREAM VALVE TO 69 BARS.
	01:20	PRESSURE TEST RIG OIL MANIFOLD BELOW DECK TO 69 BARS.
		LEAK ON AFT VALVE. I THINK BETTER IF THESE VALVES AND
		THE GAS VALVES WERE TAKEN OUT BECAUSE THEY ARE OF NO USE
		BELOW DECK AND WILL ONLY BE KEPT IN OPEN POSITION. IAN
		COOPER.
	01:22	PRESSURE TEST UPSTREAM VALVE ON FLOPETROL OIL MANIFOLD TO
		69 BARS.
	01:33	PRESSURE TEST SEPARATOR TO 83 BARS.
	01:50	PRESSURE TEST INLET, OIL AND GAS BY-PASS ON SEPARATOR TO
		97 BARS. LEAK ON OIL BY-PASS. CLOSE OIL MANIFOLD VALVE
		TO TEST OTHER VALVES. TEST GOOD. CHANGING OUT OIL BY-
		PASS VALVE.
	02:08	PRESSURE TEST HEATER COILS LOW PRESSURE TO 207 BARS.
	03:05	PRESSURE TEST HIGH PRESSURE COILS TO 690 BARS.

N° DOP 107

# FLOPETROL

Section : **6**

\_ SEQUENCE OF EVENTS \_ (Continuation)

Page : 10  
Report N°: 82/2301/2

DATE	TIME	OPERATION
26.09.82	03:16	PRESSURE TEST INLET AND BYPASS VALVES ON HEATER TO 690 BARS. CHECKING OVER EQUIPMENT FOR DST # 2.
27.09.82		PREPARE EQUIPMENT FOR DST # 2.
28.09.82	12:18	TEST SDR # 81065, SENSOR CRG # 81708.
	12:47	BATTERIES ON SDR # 81065, CRG # 81708 AND FUNCTION TESTED. OK.
	13:02	SSDR IN NIPPLE, START RIH. MEMORY FULL 01.10.81 AT 22:47 HRS (1 MIN SAMPLE RATE).
	21:00	PRESSURE TESTED SEPARATOR OIL BYPASS VALVE AND HP GAS LINES.
29.09.82	09:35	PICKED UP EZ-TREE
	09:50	EZ-TREE ON STRING
	10:25	FUNCTION TESTED EZ-TREE LATCH FUNCTION.
	10:30	EZ-TREE THROUGH ROTARY TABLE
	12:10	FLOWHEAD THROUGH "V" DOOR. LOWER X-OVER BENT WHILE HANDLING.
	13:00	FLOWHEAD ON STRING
	13:20	CHOKE MANIFOLD THROUGH "V" DOOR
	14:00	START FLUSHING LINES TO FLARES
	14:18	CLOSED MASTER AND KILL VALVES
	14:35	PRESSURE TEST KILL VALVE 690 BAR OK
	14:50	PRESSURE TEST FAILSAFE AND MASTER VALVES 690 BARS OK.
	15:05	OPENED MASTER VALVE AND PRESSURE TEST STRING 690 BAR. X-OVER 6 1/2 ACME X 3 1/2" TDS LEAKING IN 3 1/2" TDS END. START RIGGING DOWN FLOWHEAD TO CHANGE X-OVER.
	17:30	FLOWHEAD BACK ON STRING.
	18:15	PRESSURE TEST STRING TO 690 BAR. OK.
	18:30	CLOSE EZ-TREE AND BLEED TO 69 BAR.
	18:45	EQUALIZED PRESSURE AND ATTEMPT TO OPEN EZ-TREE, FAILED.

N° DOP 108

# FLOPETROL

Section : **6**

SEQUENCE OF EVENTS -( Continuation )

Page : 11  
Report N°: 82/2301/29

DATE	TIME	OPERATION
29.09.82	19:05	BLED OFF SOME PRESSURE ABOVE EZ-TREE AND PUMP UP SLOWLY.
		EZ-TREE VALVE OPEN.
	19:10	PRESSURIZE STRING TO 690 BAR AND CLOSE EZ-TREE. EZ-TREE
		FAILED TO CLOSE, PRESSURE BLED TO ZERO.
		REPRESSURIZED TO 345 BAR AND CLOSED EZ-TREE OK. BLED
		PRESSURE TO ZERO.
	19:20	REPRESSURIZED TO 345 BAR AND OPENED EZ-TREE. OK.
	19:25	PRESSURIZED TO 690 BAR AND CLOSED EZ-TREE. OK. BLED
		DOWN TO 69 BAR.
	19:30	REPRESSURIZED TO 690 BAR. UNABLE TO OPEN. DECREASED
		PRESSURE AND INCREASED AGAIN SLOWLY, EZ-TREE OPEN OK.
	19:50	PRESSURIZE TO 690 BAR, CLOSED EZ-TREE AND BLED BACK TO 69
		BAR.
	20:00	REPRESSURIZED TO 690 BAR SLOWLY, EZ-TREE OPENED OK.
	20:10	START FLUSHING LINES TO FLARE.
	20:20	START PRESSURE TESTING AGAINST INLET AND BYPASS HEATER
		AND POSITIVE SIDE CHOKE MANIFOLD 690 BAR. OK.
	20:34	PRESSURE TEST AGAINST HEATER AND ADJUSTABLE SIDE ON CHOKE
		MANIFOLD. SMALL LEAK IN NEEDLE VALVE.
	20:45	REPRESSURIZED.
	20:55	TEST OK. CLOSED KILL VALVE, OPENED MASTER VALVE. LANDED
		FLUTED HANGER IN WEAR BUSHING. START GLYCOL INJECTION.
30.09.82	06:39	OPENED KILL LINE AND PRESSURIZED STRING TO 206 BAR.
	06:50	CLOSED KILL VALVE
	07:37	OPENED LPR.
	07:45	OPENED WELL SLOWLY THROUGH ADJUSTABLE CHOKE TO 8/64".
	07:52	CHANGE ADJUSTABLE CHOKE TO 32/64".
	07:53	GAS TO SURFACE
	07:55	CHANGE TO 32/64" FIXED CHOKE.
	08:50	DIVERTED FLOW THROUGH HEATER.

N° DOP 108

# FLOPETROL

Section : **6**

\_ SEQUENCE OF EVENTS \_ (Continuation)

Page : 12  
Report N°: 82/2301/29

DATE	TIME	OPERATION
30.09.82	09:15	DIVERTED FLOW THROUGH SEPARATOR
	09:55	STOPPED GLYCOL INJECTION
	11:05	STOPPED STEAM TO HEATER
	11:10	SHRINKAGE FACTOR: 10.75% AT 60°F.
		(STARTED AT 10:15 HOURS)
	11:20	START DRAINING TANK
	11:40	FINISHED DRAINING TANK
	12:27	SHRINKAGE: 11% at 62°F (STARTED AT 12:00)
	12:50	START TO DRAIN TANK
	13:05	END OF DRAINING TANK
	13:37	START PVT SAMPLING
	14:30	START DRAINING TANK
	15:00	START TO TAKE SECOND PVT SAMPLE
	15:45	START TO DRAIN TANK
	15:46	TAKE TWO WATER SAMPLES AND ONE JERRY CAN OF CONDENSATE PLUS THREE 1 LITER SAMPLES OF CONDENSATE.
	16:07	BYPASSED SEPARATOR
	16:11	CHANGED TO 48/64" ADJUSTABLE CHOKE
	16:25	CHANGED TO 48/64" FIXED CHOKE
	17:02	DIVERTED FLOW THROUGH SEPARATOR
	17:55	SHRINKAGE =9% AT 60°F
	19:52	START TAKING 3RD PVT SAMPLE
	21:00	TAKE ONE JERRYCAN AND THREE JARS OF SEPARATOR OIL.
	21:00	SHRINKAGE 10% at 61°F (STARTED AT 20:30 HOURS)
	21:10	END OF PVT SAMPLING
	21:30	BYPASS SEPARATOR
	21:31	SHUT IN WELL AT CHOKE MANIFOLD
	21:43	APR-M SHEARED AT 3350 PSI
	21:45	START REVERSE CIRCULATING

N° DOP 108

# FLOPETROL

Section : **6**

SEQUENCE OF EVENTS (Continuation)

Page : 13  
Report N°: 82/2301/29

DATE	TIME	OPERATION
30.9.82	22:10	CLOSE MASTER AND OPEN KILL VALVES TO FLUSH LINES TO BURNERS.
	22:40	CLOSED FAILSAFE AND OPEN KILL AND MASTER VALVES.
	22:43	START CIRCULATING
01.10.82	04:00	END CIRCULATING
	04:10	CLOSE CHOKE MANIFOLD AND KILL VALVE, OPENED FAILSAFE.
		NOTE: CHOKE SIZES GIVEN FOR THE ADJUSTABLE CHOKE ARE INCORRECT. CORRECT OPENINGS AS PER SETTINGS ARE:
		8/64" WAS REALLY 32/64".
		32/64" WAS REALLY 63/64"
		48/64" WAS REALLY 78/64".
		THIS WAS DUE TO THE PERCENT SCALE ON THE CHOKE WHICH IS IN PERCENT OF THE FULL BORE AREA AND NOT AS BELIEVED AS A PERCENT OF THE FULL BORE DIAMETER.
	22:00	START DISCONNECTING CHOKE MANIFOLD AND COFLEXIP HOSE.
	22:15	CHOKE MANIFOLD OFF RIG FLOOR.
02.10.82	00:09	START TO PULL EZ-TREE. STRING STUCK.
	00:48	STRING LOOSE
	01:48	BREAK OFF FLOWHEAD FROM STRING
	02:45	FLOWHEAD ON PIPEDECK. NOTE: X-OVER 6 1/2" ACME x 3 1/2" TDS BENT WHILE HANDLING.
	03:15	START CIRCULATION
	09:30	START TO PULL EZ-TREE
	10:30	EZ-TREE ON CATWALK. START PRESSURE TESTING FLOWHEAD AND CHOKE MANIFOLD AS PER PROGRAMME.
	19:45	BURNED OFF SEPARATOR CONTENTS WHILE FLUSHING LINES FOR PRESSURE TESTING.
	20:00	START PRESSURE TESTING SURFACE LINES AND SEPARATOR AS PER PROGRAMME.
03.10.82		SSDR OUT OF NIPPLE. END OF DST # 2.

N° DOP 108

No. DOP 109

# FLOPETROL

Client : STAIOLL  
 Field : WILDCAT  
 Well : 30/2-1

Base : NWB

Section : **7**  
 Page : 14  
 Report N° : 82/2301/29

## - WELL TESTING DATA SHEET -

DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS				SEPARATOR				PROD. RATES AND FLUID PROPERTIES				GOR
Time HRS/min	Cumul min	BOTTOM HOLE		WELL HEAD		TEMP		PRESS		OIL OR CONDENSATE		GAS		Units
		Temp	Pressure	Tg temp	Tg press	Cg press	Temp	Press	Rate	Gravity	BSW	Rate	Gravity	
30.09.82														
07:37	-													
07:45	-													
07:45	0													
07:46	1													
07:48	3													
07:49	4													
07:51	6													
07:52	7/0													
07:53	1													
07:55	3													
07:55	0													
07:57	2													

LIQUID FLOW RATE MEASURING CONDITIONS :

15°C AND 760 mmHg.

TESTED INTERVAL : 3761-3771 m  
 DEPTH REFERENCE : RKB  
 DEPTH OF B H MEASUREMENTS : 3752.85 m





# FLOPETROL

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

Page : 16  
Report N° : 82/2301/29

Section : 7

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS			SEPARATOR				PROD. RATES AND FLUID PROPERTIES				GOR		
	BOTTOM HOLE	WELL HEAD	Temp. of	Temp. of	Temp. of	Press. PSIG	Rate m <sup>3</sup> /D	Gravity 60/60 %	BSW %	Rate mm <sup>3</sup> /D	Rate m <sup>3</sup> /m <sup>3</sup> Air=1	WATER m <sup>3</sup> /day	CO <sub>2</sub> /H <sub>2</sub> S	BS %
30.09.82														
Time HRS/min	Temp.	Pressure	Temp. of	Temp. of	Temp. of	Press. PSIG	Rate m <sup>3</sup> /D	Gravity 60/60 %	BSW %	Rate mm <sup>3</sup> /D	Rate m <sup>3</sup> /m <sup>3</sup> Air=1	WATER m <sup>3</sup> /day	CO <sub>2</sub> /H <sub>2</sub> S	BS %
09:15														
09:30	95		161	5270				.812	4				4/0	0.5
09:45	110		166	5340	118	900	745.9			.680				
10:00	125		167	5370	116	900	334.2		4	747.8	.680	2238		
10:15	140				118	900	327.5			733.4	.680	2239		
10:30	155		177	5400	118	900	315.1		5	733.4	.680	2328		
10:45	170				118	900	337.7			733.4	.680	2172	4/0	
11:00	185		185	5440	120	900	336.5	.804	4	731.5	.680	2174		
11:30	215		184	5440	120	900	330.0			731.5	.680	2217		
12:00	245		192	5470	121	900	331.3	.804		730.4	.680	2205	4/0	
12:30	275		193	5490	126	905	331.8		3	734.3	.680	2213		
13:00	305		193	5497	128	905	327.9		3	732.4	.680	2234	3/0	
13:30	335		198	5535	130	905	323.5	.802		730.5	.680	2258		
14:00	365		199	5540	132	905	325.7		3	728.8	.680	2238	3/0	
14:30	395		199	5540	133	905	324.4	.814		734.0	.680	2263		
15:00	425		199	5525	132	900	319.6		3	732.7	.680	2293	3/0	
15:30	455		199	5550	134	900	324.7			730.8	.680	2251		
16:00	485		201	5550	136	900	319.6		3	729.1	.680	2281	3	



# FLOPETROL

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

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Report N° : 82/2301/29

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DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS		WELL HEAD		SEPARATOR		PROD. RATES AND FLUID PROPERTIES			GOR		
	BOTTOM HOLE	Temp.	Pressure	Tq. temp OF	Tq. press. PSIG	Cg. press.	Temp.	Press.	OIL OR CONDENSATE		GAS	
30.09.82	Cumul							Rate	Gravity	Rate	Gravity	Units
16:26									Air=1			
16:27	2				3230							
16:28	3	203			3360							
16:29	4	204			3385							
16:30	5	206			3445			3 (0.25% BS)				
16:31	6	207			3490							
16:32	7				3500							
16:33	8				3500							
16:34	9				3500							
16:35	10				3500							
16:36	11				3525							
16:37	12				3510							
16:38	13				3510							
16:39	14				3520							
16:40	15				3520							
16:45	20				3525			3				
16:50	25				3530							
16:55	30				3525							

(DISCONNECTED FOXBORO TEMPERATURE SENSOR. OUT OF RANGE.)





# FLOPETROL

DIVISION : NSD  
BASE : NWB  
REPORT N°: 82/2301/29

## Well Testing Report Annexes —

Client : STATOIL  
Field : WILDCAT      Well : 30/2-1  
Zone : ETIVE      Date : 25.09.82 - 30.09.82  
DST No. 2

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  - 1.1 - B. H. guge calibration -
  - 1.2 - B. H. pressure calculation -
  - 1.3 - B. H. temperature calculation -
  
- 2** - LIQUID PRODUCTION RATE MEASUREMENT -
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  - 2.2 - Measurements with meter -
  
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  - 4.2 - Surface sampling -
  
- 5** - CHARTS AND MISCELLANEOUS -



**-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 finale 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.

NOTE: FOR LIQUIDE PRODUCTION RATE MEASUREMENTS BSW IS MEASURED FROM SEPARATOR OIL OUTLET

# FLOPETROL

Client : STATOIL  
 Field : WILDCAT  
 Well : 30/2-1

## - OIL PRODUCTION RATE - - MEASUREMENT WITH TANK -

Section : Annex

2.1

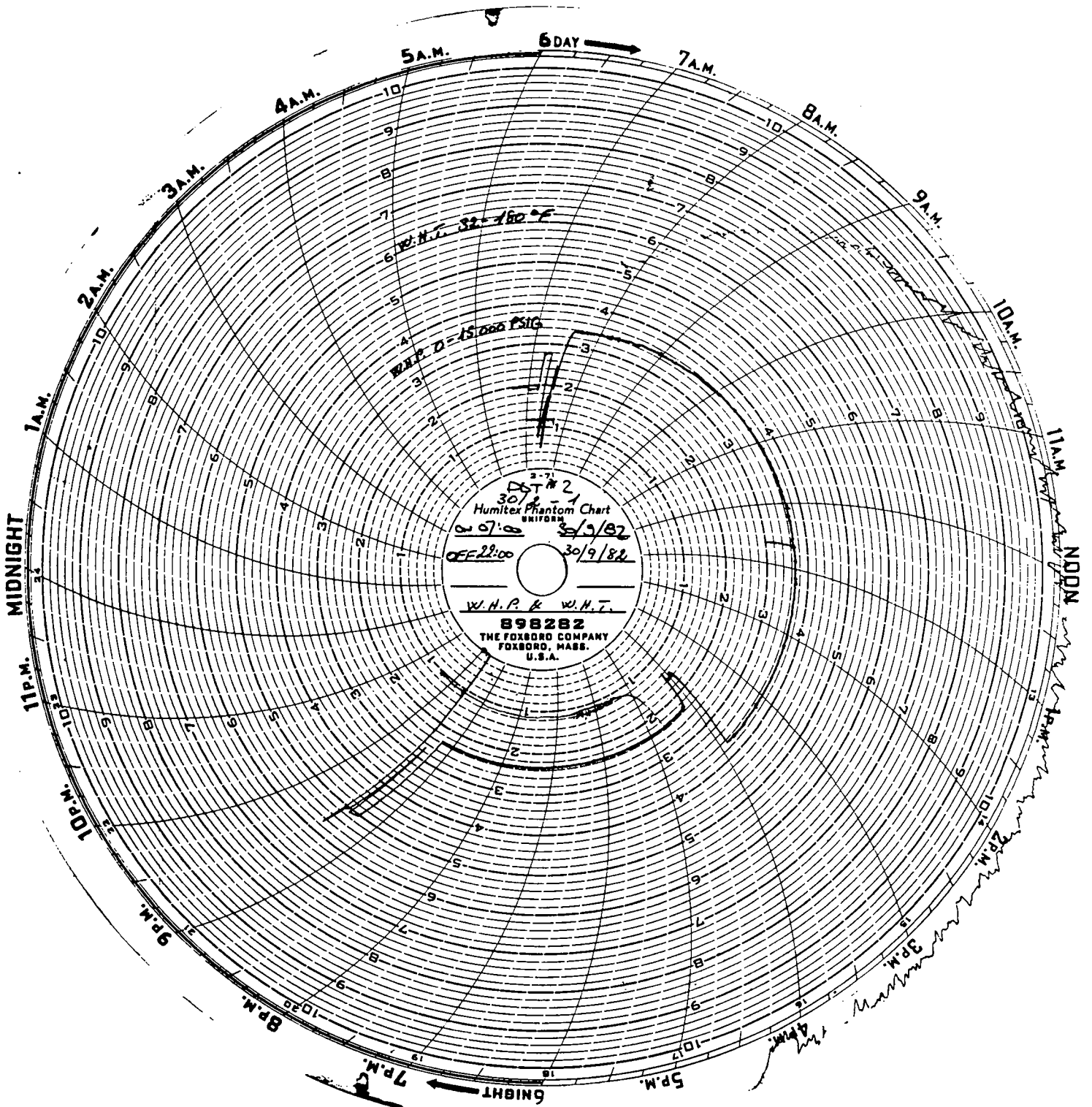
Page : 24  
 Report N° : 82/2301/29

Base : NWB

Date - Time Time HRS	Date - Time Interval min	Gauge graduation cm	Tank volume		STO Gravity		K	BSW %	Net volume of STO V <sub>0</sub> BBLs	Net STO product. rate m <sup>3</sup> /day	Cumulative production Units
			Volume V m <sup>3</sup>	Temp. OF	Gravity	Temp. 60°F					
30.09.82		33.5									
			DST # 2								
10:48	-		DIVERTED FLOW TO TANK ON 2" FLOCO METER								
11.14	-	234	70					35.288			
			METER READING IN SAME PERIOD: 42 BBLs. CORRECTION FACTOR = 0.8402								
12:07	-	34									
12:07	-	259	86					39.60			
12:33			METER READING IN SAME PERIOD: 46 BBLs. CORRECTION FACTOR = 0.8609								
			NOTE: SURGE TANK BACK PRESSURE = 25 PSI WHILE FILLING, THEN BLEED TO 0.								
			DIVERTED FLOW TO TANK ON 2" FLOCO METER								
13:30		37.5									
13:30		211.5	88					30.62			
13:52			METER READING IN SAME PERIOD: 35 BBLs. CORRECTION FACTOR = 0.8749								
			NOTE: SURGE TANK BACK PRESSURE = 40 PSI WHILE FILLING, THEN BLEED TO 0.								

1 cm = 0.176 BBL

Tested interval : E.I.I.V.E.  
 Perforations : 3761 m - 3771 m



2-7-1  
 DST # 2  
 30/8-1  
 Humitex Phantom Chart  
 UNIFORM  
 ON 07:00  
 OFF 22:00  
 30/9/82  
 W.H.P. & W.N.T.  
 898282  
 THE FOXBORD COMPANY  
 FOXBORD, MASS.  
 U.S.A.

W.H.T. 32-160°F  
 W.H.P. 151000 PSI

11 A.M.  
 NOON  
 1 P.M.  
 2 P.M.  
 3 P.M.  
 4 P.M.

MIDNIGHT

6 NIGHT

6 DAY



# FLOPETROL

Client: STATOIL  
 Field: WILDCAT  
 Well: 30/2-1

## - OIL PRODUCTION RATE - - MEASUREMENT WITH METER -

Section: **ANNEX 2.2**  
 Page: 26  
 Report N: 82/2301/29

Base: NWB

DATE - TIME	Interval	Meter reading	Vs	BSW	Vo	1 - Shr		OIL GRAVITY		K	Net volume of STO: Vo	Net STO product rate	Cumulative production
						Factor	Temp	Gravity	Temp				
HRS	min	BBSL	BBSL	%	BBSL	%	OF	S.G.	°C		m <sup>3</sup>	Units	
30.09.82													
09:15	-												
09:45	-												
09:45	-	997.59											
10:00	15	1024.04	26.45	1	22.00	1	70	.814	14.4	.813	21.9	334.2	28.5
10:15	15	1049.96	25.92	1	21.56	1	70				21.5	327.5	31.9
10:30	15	1074.90	24.94	1	20.75	1	70				20.6	315.1	35.2
10:45	15	1101.63	26.73	1	22.23	1	70				22.1	337.7	38.7
11:00	15	1128.13	26.50	0.5	22.15	1	70	.805	13.7	.804	22.0	336.5	42.2
11:30	30	1180.11	51.98	0.5	43.46	1	70				43.2	330.0	49.1
12:00	30	1232.16	52.05	0.25	43.62	1	70	.804	16.0	.804	43.4	331.3	56.0
12:30	30	1284.30	52.14	0.25	43.70	1	70				43.5	331.8	62.9
13:00	30	1335.82	51.52	0.25	43.18	1	70				43.0	327.9	69.7
13:30	30	1386.65	50.83	0.25	42.60	1	70	.801	16.9	.802	42.4	323.5	76.4
14:00	30	1437.70	51.05	0.25	42.89	1	70				42.7	325.7	83.2

Shrinkage factor measured by  Shrinkage tester  Tank   
 \*Vo = Vs x f ( 1 - BSW ) = Net oil volume at separator conditions. f = 0.8658 0.8593  
 2" FLOCO: 0.8402  
 3" ROTRON: 0.8658  
 TESTED INTERVAL: ETIVE  
 PERFORATIONS: 3761m - 3771 m



# FLOPETROL

Client : STATOIL  
 Field : WILDCAT  
 Well : 30/2-1

WATER PRODUCTION RATE -  
 - MEASUREMENT WITH METER -

Section: ANNEX 2.2

Page : 28  
 Report N°: 82/2301/29

Base : NWB

DATE - TIME	Interval	Meter reading	VS	B SW	V'*	1 - Shr		OIL GRAVITY		K	Net volume of STO. V <sub>o</sub>	Net STO product rate	Cumulative production
						Factor	Temp.	Gravity	Temp				
30.09.82		43.20		DST # 2									
09:15	-	DIVERTED FLOW THROUGH SEPARATOR											
10:30	-	START MEASUREMENTS											
10:45	15	43.74	0.54	-	-	-	-	-	-	-	0.54	8.24	
11:00	15	44.12	0.38	-	-	-	-	-	-	-	0.38	5.80	
11:30	30	45.10	0.98	-	-	-	-	-	-	-	0.98	7.48	
12:00	30	45.97	0.87	-	-	-	-	-	-	-	0.87	6.64	
12:30	30	46.80	0.83	-	-	-	-	-	-	-	0.83	6.33	
13:00	30	47.59	0.79	-	-	-	-	-	-	-	0.79	6.03	
13:30	30	48.73	1.14	-	-	-	-	-	-	-	1.14	8.70	
14:00	30	49.68	0.95	-	-	-	-	-	-	-	0.95	7.25	
14:30	30	50.43	0.75	-	-	-	-	-	-	-	0.75	5.72	
15:00	30	51.52	1.09	-	-	-	-	-	-	-	1.09	8.32	
15:30	30	52.00	0.48	-	-	-	-	-	-	-	0.48	3.66	
16:00	30	52.51	0.51	-	-	-	-	-	-	-	0.51	3.89	

Shrinkage factor measured by Shrinkage tester  Tank   
 \*V' = V<sub>S</sub> x f ( 1 - BSW ) = Net oil volume at separator conditions. f = 1  
 TESTED INTERVAL : ETIVE  
 PERFORATIONS : 3761m-3771m





- GAS PRODUCTION RATE MEASUREMENT by orifice meter -

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

a) Equations -

$$Q = C \sqrt{hw \times Pf}$$

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

$$C = Fu \times Fb \times Fg \times Y \times Fff \times Fpv$$

- Fu : Unit conversion factor in desired reference conditions.  
 Fb : Basic orifice factor (Q in Cu. ft/hour).  
 Fg : Specific gravity factor.  
 Y : Expansion factor.  
 Fff : Flowing temperature factor.  
 Fpv : Supercompressibility factor (estimated).

Remarks

- Fm : Manometer factor is equal one since only bellows type meters are used.  
 Fr : Reynolds factor is considered to be one.

TABLE OF Fu FACTOR				
UNITS	REFERENCE CONDITIONS			
	60° F 14.73 psia	0° C 760 mm Hg *	15° C 760 mm Hg*	15° C 760 mm Hg*
Cu. ft/hour	1	0.9483	1.0004	1.0137
Cu. ft/day	24	22.760	24.009	24.329
m3/hour	0.02832	0.02685	0.02833	0.02870
m3/day	0.6796	0.6445	0.6799	0.6889

\* Mercury at 32 F

b) Meter data -

Meter type : DANIEL SENIOR Flange taps - Pf taken down/  stream  
 Flow recorder type : BARTON ID of meter tube : 5.761

c) Specific gravity source -

Sampling point : TOP GAS OUTLET Gravimeter type : KIMRAY

d) Supercompressibility factor Fpv -

All coefficients are from AGA NX 19 manual for natural gas free of air, CO<sup>2</sup> and H<sub>2</sub>S. More accurate values could only be determined by laboratory measurement.

# FLOPETROL

Client : STAI011

Section : ANNEX 3

Field : WILDCAT  
Well : 30/2-1

## - GAS PRODUCT. RATE MEASUREMENT -

Page : 31  
Report N : 82/2301/29

Base : NWB

DATE - TIME Time HRS	Interval min	Flowing Temp OF	P <sub>f</sub> absolute psia	h <sub>w</sub> "of wat.	√h <sub>w</sub> x P <sub>f</sub>	Orifice diameter Inches	Gas gravity (air = 1)	F <sub>b</sub>	F <sub>g</sub>	Y	F <sub>tf</sub>	F <sub>pv</sub>	C	Gas production rate Q M <sup>3</sup> /DAY	Cumulative Production
30.09.82				DST # 2											
09:15	-			DIVERTED FLOW THROUGH SEPARATOR ON A 32/64" CHOKE											
09:45	-			START MEASUREMENTS. ESTIMATED CUMULATIVE PRODUCTION FROM 07:53 TO 09:45 HOURS:										57.00	
09:45	0	118	915	120	331.361	3.500	.680	2695.1	1.2127	1.0007	.9485	1.0673	2251	745.9	
10:00	15	116	915	120	331.361	3.500	.680	2695.1	1.2127	1.0007	.9501	1.0682	2257	747.8	64.79
10:15	15	118	915	116	325.791	3.500	.680	2695.1	1.2127	1.0007	.9485	1.0673	2251	733.4	72.43
10:30	15	118	915	116	325.791	3.500	.680	2695.1	1.2127	1.0007	.9485	1.0673	2251	733.4	80.07
10:45	15	118	915	116	325.791	3.500	.680	2695.1	1.2127	1.0007	.9485	1.0673	2251	733.4	87.71
11:00	15	120	915	116	325.791	3.500	.680	2695.1	1.2127	1.0007	.9469	1.0663	2245	731.5	95.33
11:30	30	120	915	116	325.791	3.500	.680	2695.1	1.2127	1.0007	.9469	1.0663	2245	731.5	110.6
12:00	30	121	915	116	325.791	3.500	.680	2695.1	1.2127	1.0007	.9460	1.0658	2242	730.4	125.8
12:30	30	126	920	118	329.484	3.500	.680	2695.1	1.2127	1.0007	.9420	1.0639	2229	734.3	141.1
13:00	30	128	920	118	329.484	3.500	.680	2695.1	1.2127	1.0007	.9404	1.0630	2223	732.4	156.3
13:30	30	130	920	118	329.484	3.500	.680	2695.1	1.2127	1.0007	.9388	1.0621	2217	730.5	171.6
14:00	30	132	920	118	329.484	3.500	.680	2695.1	1.2127	1.0007	.9372	1.0613	2212	728.8	186.7

F<sub>u</sub> = 0.6799  
Recorder ranges P<sub>f</sub> = 0-1500 PSIG  
h<sub>w</sub> = 0-400" H<sub>2</sub>O Temp = 0-200°F

TESTED INTERVAL : E.I.I.V.E  
PERFORATIONS : 3761m - 3771m



# FLOPETROL

Client : STATOILSection: ANNEX **42**Base : NWBField : WILD CATPage : 33Well : 30/2-1Report N°: 82/2301/29

## - SURFACE SAMPLING -

Date of sampling : 30.09.82 Service order : \_\_\_\_\_ Sampling No : OIL#1(Hg)  
Sample nature : CONDENSATE Sampling point : BOTTOM OF SIGHT GLASS

### A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : ETIVE Perforations : 3761-3771m Sampling interval : N/ADepth origin : RKB Tubing Dia : 3 1/2" Casing Dia : 7"  
Surface elevation : \_\_\_\_\_ Shoe : Packer at 3733m Shoe : \_\_\_\_\_

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

### B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 14:36 Time elapsed since stabilisation : 1 hr 30 min

Bottom hole dynamic conditions	Choke size : <u>1/2"</u> since : <u>OPEN</u> Well head pressure : <u>5540psi</u> Well head temp : <u>199°F</u>
	Bottom hole pressure : _____ at depth : _____ date : _____
	Bottom hole temp : _____ at depth : _____ date : _____

Flow measurement of sampled gas - Gravity (air 1) : 0.680 Factor  $F_{pv} = \frac{1}{\sqrt{Z}}$  : 1.0609  
Values used for calculations :  $F_p=2695.1, F_g=1.2127, \gamma=1.0007, F_{ff}=0.9364, h_w=120$ 

Separator	Pressure : <u>905 PSIG</u> Rates - Gas : <u>734000m<sup>3</sup>/day</u> CFD	GOR : <u>1851 m<sup>3</sup>/m<sup>3</sup></u> (separator cond)
	Temp : <u>133 °F</u> Oil (separator cond) : <u>396.6 m<sup>3</sup>/day</u> OPD	

Stock tank	Atmosphere : _____ mmHg. _____ °F	Oil at 60 °F : <u>324.4m<sup>3</sup>/day</u> OPD
	Tank temperature : _____ °F	

BSW : 0.25 % WLR : 0.25 %Transferring fluid : MERCURY Transfer duration : 13:37hrs-14:36hrsFinal conditions of the shipping bottle : \_\_\_\_\_  
Pressure : 475 psig Temp : 14°C

### C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No : 8207521 sent on : \_\_\_\_\_ by : \_\_\_\_\_ Shipping order No : \_\_\_\_\_  
Addressee : \_\_\_\_\_

Coupled with	LIQUID		GAS	
	Bottom hole samples No	_____	_____	_____
Surface samples No	<u>OIL#2</u>	<u>8207505</u>	<u>GAS#1</u>	<u>A-14072</u>
	_____	_____	<u>GAS#2</u>	<u>A-14055</u>

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

### D - REMARKS -

Visa Chief Operator

No. DOP 127



# FLOPETROL

Client : STATOILSection: ANNEX 42Base : NWBField : WILD CATPage : 35Well : 30/2-1Report N°: 82/2301/29

## - SURFACE SAMPLING -

Date of sampling : 30.09.82 Service order : \_\_\_\_\_ Sampling No : OIL#3(H<sub>g</sub>)  
Sample nature : CONDENSATE Sampling point : BOTTOM OF SIGHT GLASS

### A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : ETIVE Perforations : 3761-3771m Sampling interval : N/ADepth origin : RKB Tubing Dia : 3 1/2" Casing Dia : 7"  
Surface elevation : \_\_\_\_\_ Shoe : Packer at 3733m Shoe : \_\_\_\_\_

<u>Bottom hole static conditions</u>	Initial pressure : _____ at depth : _____ date : _____
	Latest pressure measured : _____ at depth : _____ date : _____
	Temperature : _____ at depth : _____ date : _____

### B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 15:57 Time elapsed since stabilisation : 3 hrs

<u>Bottom hole dynamic conditions</u>	Choke size : <u>1/2"</u> since : <u>OPEN</u> Well head pressure : <u>5550psi</u> Well head temp : <u>201°F</u>
	Bottom hole pressure : _____ at depth : _____ date : _____
	Bottom hole temp. : _____ at depth : _____ date : _____

Flow measurement of sampled gas - Gravity (air 1) : 0.680 Factor F<sub>pv</sub> =  $\frac{1}{\sqrt{Z}}$  : 1.0593Values used for calculations : F<sub>b</sub>=2695.1, F<sub>g</sub>=1.2127, γ=1.0007, F<sub>ff</sub>=0.9341, h<sub>w</sub>=120

<u>Separator</u>	Pressure : <u>900</u> PSIG	Rates - Gas : <u>729100m<sup>3</sup>/day</u>	GOR <u>1866 m<sup>3</sup>/m<sup>3</sup></u>
	Temp : <u>136</u> °F	Oil (separator cond) : <u>390.7 m<sup>3</sup>/day</u>	(separator cond)
		Meter correction factor = <u>1.022</u>	

<u>Stock tank</u>	Atmosphere : _____ mmHg. _____ °F	Oil at 60 °F : <u>319.6m<sup>3</sup>/day</u> OPD
	Tank temperature : _____ °F	

BSW : 0.25 % WLR : 0.25 %Transferring fluid : MERCURY Transfer duration : 15:16hrs-15:57hrsFinal conditions of the shipping bottle :  
Pressure : 575PSIG Temp : 14°C

### C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No : 8207420 sent on : \_\_\_\_\_ by : \_\_\_\_\_ Shipping order No : \_\_\_\_\_  
Addressee : \_\_\_\_\_

<u>Coupled with</u>	<u>LIQUID</u>	<u>GAS</u>
<u>Bottom hole samples No.</u>	_____	_____
	_____	_____
	_____	_____
<u>Surface samples No</u>	_____	<u>GAS#3 A-14073</u>
	_____	<u>GAS#4 A-14063</u>

#### Measurement conditions.

 A - Tank .       B - Meter .       C - Dump .  
 a - Corrected with shrinkage tester.     b - Corrected with tank .

### D - REMARKS -

Visa Chief Operator

No. : DOP 127

# FLOPETROL

Client : STATOILSection: ANNEX 42Base : NWBField : WILD CATPage : 36Well : 30/2-1Report N°: 82/2301/29

## - SURFACE SAMPLING -

Date of sampling : 30.09.82 Service order : \_\_\_\_\_ Sampling No : OIL#4(H<sub>g</sub>)  
Sample nature : CONDENSATE Sampling point : BOTTOM OF SIGHT GLASS

### A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : ETIVE Perforations : 3761-3771m Sampling interval : N/ADepth origin : RKB Tubing Dia : 3 1/2" Casing Dia : 7"  
Surface elevation : \_\_\_\_\_ Shoe : Packer at 3733m Shoe : \_\_\_\_\_

<u>Bottom hole static conditions</u>	Initial pressure : _____ at depth: _____ date: _____
	Latest pressure measured : _____ at depth: _____ date: _____
	Temperature : _____ at depth: _____ date: _____

### B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 21:07 Time elapsed since stabilisation : 1 hr

<u>Bottom hole dynamic conditions</u>	Choke size : <u>3/4"</u> since : <u>16:11hrs</u> Well head pressure : <u>3530psi</u> Well head temp : <u>208°F</u>
	Bottom hole pressure : _____ at depth: _____ date: _____
	Bottom hole temp : _____ at depth: _____ date: _____

Flow measurement of sampled gas - Gravity (air 1) : 0.700 Factor Fpv = 1 : 1.0547  
Values used for calculations :  $VZ$ 

$$F_b = 3718.2, F_g = 1.1995, \gamma = 1.0006, F_{rf} = 0.9143, h_w = 132$$

<u>Separator</u>	Pressure : <u>925</u> PSIG	Rates - Gas : <u>1027000m<sup>3</sup>/day</u>	GOR <u>2106 m<sup>3</sup>/m<sup>3</sup></u>
	Temp : <u>162</u> °F	Oil (separator cond) : <u>487.6 m<sup>3</sup>/day</u>	(separator cond)
		Meter correction factor = <u>0.983</u>	

<u>Stock tank</u>	Atmosphere : _____ mmHg. _____ °F	Oil at 60 °F : <u>415.7m<sup>3</sup>/day</u>
	Tank temperature : _____ °F	

BSW : 0.3 % WLR : 0.3 %Transferring fluid : MERCURY Transfer duration : 19:52hrs-21:07hrsFinal conditions of the shipping bottle :  
Pressure : 475PSIG Temp : 14°C

### C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No : 8207608 sent on : \_\_\_\_\_ by : \_\_\_\_\_ Shipping order No : \_\_\_\_\_  
Addressee : \_\_\_\_\_

<u>Coupled with</u>	<u>LIQUID</u>		<u>GAS</u>	
	<u>Bottom hole samples No</u>	_____	_____	_____
<u>Surface samples No</u>	<u>OIL# 5</u>	<u>8207324</u>	<u>GAS#5</u>	<u>A-14081</u>
	_____	_____	<u>GAS#6</u>	<u>A-14070</u>

### Measurement conditions

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

### D - REMARKS -

Visa Chief Operator

No. : DOP 127

# FLOPETROL

Client : STATOILSection: ANNEX **4.2**Base : NWBField : WILD CATPage : 37Well : 30/2-1Report N°: 82/2301/29

## - SURFACE SAMPLING -

Date of sampling : 30.09.82 Service order : \_\_\_\_\_ Sampling No : OIL#5(H<sub>2</sub>O)  
Sample nature : CONDENSATE Sampling point : BOTTOM OF SIGHT CLASS

### A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : ETIVE Perforations : 3761-3771m Sampling interval : N/ADepth origin : RKB Tubing Dia. : 3 1/2" Casing Dia : 7"  
Surface elevation : \_\_\_\_\_ Shoe : Packer at 3733m Shoe : \_\_\_\_\_

<u>Bottom hole static conditions</u>	Initial pressure : _____ at depth : _____ date : _____
	Latest pressure measured : _____ at depth : _____ date : _____
	Temperature : _____ at depth : _____ date : _____

### B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 21:13 Time elapsed since stabilisation : 1 hr

<u>Bottom hole dynamic conditions</u>	Choke size : <u>3/4"</u> since : <u>16:11hrs</u> well head pressure <u>3530psi</u> Well head temp : <u>208°F</u>
	Bottom hole pressure : _____ at depth : _____ date : _____
	Bottom hole temp : _____ at depth : _____ date : _____

Flow measurement of sampled gas - Gravity (air 1) : 0.700 Factor Fpv =  $\frac{1}{\sqrt{Z}}$  : 1.0547  
Values used for calculations :

$$F_b = 3718.2, F_g = 1.1995, \gamma = 1.0006, F_{gc} = 0.9143, h_w = 132$$

<u>Separator</u>	Pressure : <u>925</u> PSIG	Rates - Gas : <u>1027000m<sup>3</sup>/day</u>	GOR <u>2106</u> m <sup>3</sup> /m <sup>3</sup>
	Temp : <u>162</u> °F	Oil (separator cond) : <u>487.6</u> m <sup>3</sup> /day	(separator cond)

<u>Stock tank</u>	Atmosphere : _____ mmHg - _____ °F	Oil at 60 °F : <u>415.7</u> m <sup>3</sup> /day
	Tank temperature : _____ °F	

BSW : 0.3 % WLR : 0.3 %Transferring fluid : SALT WATER Transfer duration : 19:52hrs-21:13hrsFinal conditions of the shipping bottle : \_\_\_\_\_  
Pressure : \_\_\_\_\_ Temp : \_\_\_\_\_

ALL SALT WATER DRAINED OFF

### C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No : 8207324 sent on : \_\_\_\_\_ by : \_\_\_\_\_ Shipping order No : \_\_\_\_\_  
Addressee : \_\_\_\_\_

Coupled with	LIQUID	GAS
<u>Bottom hole samples No.</u>	_____	_____
<u>Surface samples No.</u>	<u>OIL# 4</u> <u>8207608</u>	<u>GAS#5</u> <u>A-14081</u>
		<u>GAS#6</u> <u>A-14070</u>

### Measurement conditions.

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

### D - REMARKS -

Visa Chief Operator

No. : DOP 127



# FLOPETROL

Client : STATOILSection: ANNEX **42**Base : NWBField : WILD CATPage : 38Well : 30/2-1Report N°: 82/2301/29

## - SURFACE SAMPLING -

Date of sampling : 30.09.82 Service order : \_\_\_\_\_ Sampling No : GAS#1  
Sample nature : GAS Sampling point : SEPARATOR GAS OUTLET

### A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : ETIVE Perforations : 3761-3771m Sampling interval : N/ADepth origin : RKB Tubing Dia : 3 1/2" Casing Dia : 7"  
Surface elevation : \_\_\_\_\_ Shoe : Packer at 3733m Shoe : \_\_\_\_\_

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

### B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 14:21 Time elapsed since stabilisation : 1 hr 30 min

Bottom hole dynamic conditions	Choke size : <u>1/2"</u> since : <u>OPEN</u> Well head pressure <u>5540psi</u> Well head temp : <u>119°F</u>
	Bottom hole pressure : _____ at depth : _____ date : _____
	Bottom hole temp : _____ at depth : _____ date : _____

Flow measurement of sampled gas - Gravity (air 1) : 0.680 Factor Fpv =  $\frac{1}{VZ}$  : 1.0609

Values used for calculations :

 $F_h=2695.1, F_g=1.2127, y=1.0007, F_{tf}=0.9364, h_w=120$ 

Separator	Pressure : <u>905</u> PSIG	Rates - Gas : <u>734000m<sup>3</sup>/day</u>	GOR <u>1851 m<sup>3</sup>/m<sup>3</sup></u> (separator cond)
	Temp : <u>133</u> °F	Oil (separator cond) : <u>396.6 m<sup>3</sup>/day</u>	
	Meter factor = <u>1.022</u>		

Stock tank	Atmosphere : _____ mmHg. _____ °F	Oil at 60 °F : <u>324.4m<sup>3</sup>/day</u>
	Tank temperature : _____ °F	

BSW : 0.25 % WLR : 0.25 %Transferring fluid : VACUUM Transfer duration : 13:38hrs-14:21hrsFinal conditions of the shipping bottle :  
Pressure : 905psig Temp : 14°C

### C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No : A-14072 sent on : \_\_\_\_\_ by : \_\_\_\_\_ Shipping order No : \_\_\_\_\_  
Addressee : \_\_\_\_\_

Coupled with	LIQUID	GAS
Bottom hole samples No.	_____	_____
Surface samples No.	OIL# 1 <u>8207521</u> OIL# 2 <u>8207505</u>	GAS#2 <u>A-14055</u>

### Measurement conditions.

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

### D - REMARKS -

Visa Chief Operator

No. : DOP 127

# FLOPETROL

Client : STATOILSection: ANNEX 4.2Base : NWBField : WILD CATPage : 39Well : 30/2-1Report N°: 82/2301/29

## - SURFACE SAMPLING -

Date of sampling : 30.09.82 Service order : \_\_\_\_\_ Sampling No : GAS#2  
Sample nature : GAS Sampling point : SEPARATOR GAS OUTLET

### A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : ETIVE Perforations : 3761-3771m Sampling interval : N/ADepth origin : RKB Tubing Dia. : 3 1/2" Casing Dia : 7"  
Surface elevation : \_\_\_\_\_ Shoe : Packer at 3733m Shoe : \_\_\_\_\_

<u>Bottom hole static conditions</u>	Initial pressure : _____ at depth : _____ date : _____
	Latest pressure measured : _____ at depth : _____ date : _____
	Temperature : _____ at depth : _____ date : _____

### B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 14:57 Time elapsed since stabilisation : 2 hrs

<u>Bottom hole dynamic conditions</u>	Choke size : <u>1/2"</u> since : <u>OPEN</u> Well head pressure : <u>5540psi</u> Well head temp : <u>119°F</u>
	Bottom hole pressure : _____ at depth : _____ date : _____
	Bottom hole temp : _____ at depth : _____ date : _____

Flow measurement of sampled gas - Gravity (air 1) : 0.680 Factor Fpv =  $\frac{1}{\sqrt{Z}}$  : 1.0610  
Values used for calculations :  $F_h=2695.1, F_g=1.2127, y=1.0007, F_{cf}=0.9372, h_w=120$ 

<u>Separator</u>	Pressure : <u>905</u> PSIG	Rates - Gas : <u>732700</u> m <sup>3</sup> /day	GOR : <u>1875</u> m <sup>3</sup> /m <sup>3</sup>
	Temp : <u>133</u> °F	Oil (separator cond) : <u>390.7</u> m <sup>3</sup> /day	(separator cond)
	Meter correction factor = <u>1.022</u>		

<u>Stock tank</u>	Atmosphere : _____ mmHg. _____ °F	Oil at 60 °F : <u>319.6</u> m <sup>3</sup> /day
	Tank temperature : _____ °F	

BSW : 0.25 % WLR : 0.25 %Transferring fluid : VACUUM Transfer duration : 14:25hrs-14:57hrsFinal conditions of the shipping bottle :  
Pressure : 905psig Temp : 14°C

### C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No : A-14055 sent on : \_\_\_\_\_ by : \_\_\_\_\_ Shipping order No : \_\_\_\_\_  
Addressee : \_\_\_\_\_

Coupled with	LIQUID	GAS
<u>Bottom hole samples No</u>	_____	_____
	_____	_____
	_____	_____
<u>Surface samples No</u>	<u>OIL# 1</u> <u>8207521</u>	<u>GAS#1</u> <u>A-14072</u>
	<u>OIL# 2</u> <u>8207505</u>	_____

### Measurement conditions

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

### D - REMARKS -

Visa Chief Operator

No.: DOP 127

# FLOPETROL

Client : STATOILSection: ANNEX 42Base : NWBField : WILD CATPage : 40Well : 30/2-1Report N°: 82/2301/29

## - SURFACE SAMPLING -

Date of sampling : 30.09.82 Service order : \_\_\_\_\_ Sampling No : GAS#3  
 Sample nature : GAS Sampling point : SEPARATOR GAS OUTLET

### A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : ETIVE Perforations : 3761-3771m Sampling interval : N/A

Depth origin : RKB Tubing Dia. : 3 1/2" Casing Dia. : 7"  
 Surface elevation : \_\_\_\_\_ Shoe : Packer at 3733m Shoe : \_\_\_\_\_

<u>Bottom hole static conditions</u>	Initial pressure : _____ at depth : _____ date : _____
	Latest pressure measured : _____ at depth : _____ date : _____
	Temperature : _____ at depth : _____ date : _____

### B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 15:41 Time elapsed since stabilisation : 3 hrs

<u>Bottom hole dynamic conditions</u>	Choke size : <u>1/2"</u> since : <u>OPEN</u> Well head pressure <u>5550psi</u> Well head temp : <u>201°F</u>
	Bottom hole pressure : _____ at depth : _____ date : _____
	Bottom hole temp : _____ at depth : _____ date : _____

Flow measurement of sampled gas - Gravity (air 1) : 0.680 Factor  $F_{pv} = \frac{1}{\sqrt{Z}}$  : 1.0593  
 Values used for calculations :  $F_b = 2695.1, F_g = 1.2127, \gamma = 1.0007, F_{rf} = 0.9341, h_w = 120$

<u>Separator</u>	Pressure : <u>900</u> PSIG	Rates - Gas : <u>729100m<sup>3</sup>/day</u>	GOR : <u>1866 m<sup>3</sup>/m<sup>3</sup></u>
	Temp : <u>136</u> °F	Oil (separator cond) : <u>390.7 m<sup>3</sup>/day</u>	(separator cond)

<u>Stock tank</u>	Atmosphere : _____ mmHg . _____ °F	Oil at 60 °F : <u>319.6m<sup>3</sup>/day</u> OPD
	Tank temperature : _____ °F	<input checked="" type="checkbox"/> B <input type="checkbox"/> D

BSW : 0.25 % WLR : 0.25 %Transferring fluid : VACUUM Transfer duration : 15:17hrs-15:41hrs

Final conditions of the shipping bottle :  
 Pressure : 900psig Temp : 14°C

### C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No : A-14073 sent on : \_\_\_\_\_ by : \_\_\_\_\_ Shipping order No : \_\_\_\_\_  
Addressee : \_\_\_\_\_

<u>Coupled with</u>	<u>LIQUID</u>		<u>GAS</u>	
<u>Bottom hole samples No</u>	_____	_____	_____	_____
<u>Surface samples No</u>	<u>OIL# 3</u>	<u>8207420</u>	<u>GAS#4</u>	<u>A-14063</u>

### Measurement conditions

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

### D - REMARKS -

Visa Chief Operator

No. : DOP 127

# FLOPETROL

Client : STATOILSection: ANNEX **42**Base : NWBField : WILD CATPage : 41Well : 30/2-1Report N°: 82/2301/29

## - SURFACE SAMPLING -

Date of sampling : 30.09.82 Service order : \_\_\_\_\_ Sampling No : GAS#4  
Sample nature : GAS Sampling point : SEPARATOR GAS OUTLET

### A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : ETIVE Perforations : 3761-3771m Sampling interval : N/ADepth origin : RKB Tubing Dia. : 3 1/2" Casing Dia. : 7"  
Surface elevation : \_\_\_\_\_ Shoe : Packer at 3733m Shoe : \_\_\_\_\_

<u>Bottom hole static conditions</u>	Initial pressure : _____ at depth : _____ date : _____
	Latest pressure measured : _____ at depth : _____ date : _____
	Temperature : _____ at depth : _____ date : _____

### B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 16:05 Time elapsed since stabilisation : 3 hrs

<u>Bottom hole dynamic conditions</u>	Choke size : <u>1/2"</u> since : <u>OPEN</u> Well head pressure : <u>5550psi</u> Well head temp : <u>201°F</u>
	Bottom hole pressure : _____ at depth : _____ date : _____
	Bottom hole temp : _____ at depth : _____ date : _____

Flow measurement of sampled gas - Gravity (air 1) : 0.680 Factor Fpv =  $\frac{1}{\sqrt{Z}}$  : 1.0593Values used for calculations :  $F_b=2695.1, F_g=1.2127, \gamma=1.0007, F_{rf}=0.9341, h_w=120$ 

<u>Separator</u>	Pressure : <u>900</u> PSIG	Rates - Gas : <u>729100m<sup>3</sup>/day</u>	GOR : <u>1866 m<sup>3</sup>/m<sup>3</sup></u>
	Temp : <u>136</u> °F	Oil (separator cond) : <u>390.7 m<sup>3</sup>/day</u>	(separator cond)

<u>Stock tank</u>	Atmosphere : _____ mmHg. _____ °F	Oil at 60 °F : <u>319.6m<sup>3</sup>/day</u> <input checked="" type="checkbox"/> <input type="checkbox"/>
	Tank temperature : _____ °F	

BSW : 0.25 % WLR : 0.25 %Transferring fluid : VACUUM Transfer duration : 15:49hrs-16:05hrsFinal conditions of the shipping bottle :  
Pressure : 900psig Temp : 14°C

### C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No : A-14063 sent on : \_\_\_\_\_ by : \_\_\_\_\_ Shipping order No : \_\_\_\_\_  
Addressee : \_\_\_\_\_

Coupled with	LIQUID	GAS
<u>Bottom hole samples No</u>	_____	_____
<u>Surface samples No</u>	<u>OIL# 3</u> <u>8207420</u>	<u>GAS#3</u> <u>A-14073</u>

### Measurement conditions.

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

### D - REMARKS -

Visa Chief Operator

No. : DOP 127

# FLOPETROL

Client : STATOILSection: ANNEX **42**Base : NWBField : WILD CATPage : 42Well : 30/2-1Report N°: 82/2301/29

## - SURFACE SAMPLING -

Date of sampling : 30.09.82 Service order : \_\_\_\_\_ Sampling No : GAS#5  
Sample nature : GAS Sampling point : SEPARATOR GAS OUTLET

### A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : ETIVE Perforations : 3761-3771m Sampling interval : N/ADepth origin : RKB Tubing Dia. : 3 1/2" Casing Dia : 7"  
Surface elevation : \_\_\_\_\_ Shoe : Packer at 3733m Shoe : \_\_\_\_\_

<u>Bottom hole static conditions</u>	Initial pressure : _____ at depth : _____ date : _____
	Latest pressure measured : _____ at depth : _____ date : _____
	Temperature : _____ at depth : _____ date : _____

### B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 20:25 Time elapsed since stabilisation : 1 hrs

<u>Bottom hole dynamic conditions</u>	Choke size : <u>3/4"</u> since : <u>16:11hrs</u> Well head pressure : <u>3530psi</u> Well head temp : <u>208°F</u>
	Bottom hole pressure : _____ at depth : _____ date : _____
	Bottom hole temp : _____ at depth : _____ date : _____

Flow measurement of sampled gas - Gravity (air 1) : 0.700 Factor Fpv =  $\frac{1}{\sqrt{Z}}$  : 1.0547  
Values used for calculations :  $F_b=3718.2, F_g=1.1995, \gamma=1.0006, F_{gf}=0.9143, h_w=132$ 

<u>Separator</u>	Pressure : <u>925</u> PSIG	Rates - Gas : <u>1027000m<sup>3</sup>/day</u> SCFD	GOR : <u>2106 m<sup>3</sup>/m<sup>3</sup></u>
	Temp : <u>162</u> °F	Oil (separator cond) : <u>487.6 m<sup>3</sup>/day</u> BOPD	(separator cond)

<u>Stock tank</u>	Atmosphere : _____ mmHg. _____ °F	Oil at 60 °F : <u>415.7m<sup>3</sup>/day</u> BOPD
	Tank temperature : _____ °F	

BSW : 0.3 % WLR : 0.3 %Transferring fluid : VACUUM Transfer duration : 19:53hrs-20:25hrsFinal conditions of the shipping bottle : \_\_\_\_\_  
Pressure : 925psig Temp : 14°C

### C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No : A-14081 sent on : \_\_\_\_\_ by : \_\_\_\_\_ Shipping order No : \_\_\_\_\_  
Addressee : \_\_\_\_\_

Coupled with	LIQUID		GAS	
	Bottom hole samples No.	_____	_____	_____
Surface samples No.	OIL# 4	8207608	GAS#6	A-14070
	OIL# 5	8207324	_____	_____

Measurement conditions:

Tank .  Meter .  Dump .

Corrected with shrinkage tester.  Corrected with tank .

### D - REMARKS -

Visa Chief Operator

No. : DOP 127

# FLOPETROL

Client : STATOILSection: ANNEX **42**Base : NWBField : WILD CATPage : 43Well : 30/2-1Report N°: 82/2301/29

## - SURFACE SAMPLING -

Date of sampling : 30.09.82 Service order : \_\_\_\_\_ Sampling No : GAS#6  
Sample nature : GAS Sampling point : SEPARATOR GAS OUTLET

### A - RESERVOIR AND WELL CHARACTERISTICS -

Producing zone : ETIVE Perforations : 3761-3771m Sampling interval : N/ADepth origin : RKB Tubing Dia. : 3 1/2" Casing Dia. : 7"  
Surface elevation : \_\_\_\_\_ Shoe : Packer at 3733m Shoe : \_\_\_\_\_

<u>Bottom hole static conditions</u>	Initial pressure : _____ at depth : _____ date : _____
	Latest pressure measured : _____ at depth : _____ date : _____
	Temperature : _____ at depth : _____ date : _____

### B - MEASUREMENT AND SAMPLING CONDITIONS -

Time at which sample was taken : 21:13 Time elapsed since stabilisation : 1 hr

<u>Bottom hole dynamic conditions</u>	Choke size : <u>3/4"</u> since : <u>16:11hrs</u> Well head pressure : <u>3530psi</u> Well head temp : <u>208°F</u>
	Bottom hole pressure : _____ at depth : _____ date : _____
	Bottom hole temp : _____ at depth : _____ date : _____

Flow measurement of sampled gas - Gravity (air 1) : 0.700 Factor Fpv =  $\frac{1}{\sqrt{Z}}$  : 1.0547  
Values used for calculations :  $F_p=3718.2, F_g=1.1995, \gamma=1.0006, F_{ff}=0.9143, h_w=132$ 

<u>Separator</u>	Pressure : <u>925 PSIG</u> Rates - Gas : <u>1027000m<sup>3</sup>/day</u> FD	GOR : <u>2106 m<sup>3</sup>/m<sup>3</sup></u>
	Temp : <u>162 °F</u> Oil (separator cond) : <u>487.6 m<sup>3</sup>/day</u> OPD	B (separator cond)

<u>Stock tank</u>	Atmosphere : _____ mmHg. _____ °F	Oil at 60 °F : <u>415.7m<sup>3</sup>/day</u> OPD
	Tank temperature : _____ °F	B

BSW : 0.3 % WLR : 0.3 %Transferring fluid : VACUUM Transfer duration : 20:29hrs-21:13hrsFinal conditions of the shipping bottle :  
Pressure : 925psig Temp : 14°C

### C - IDENTIFICATION OF THE SAMPLE -

Shipping bottle No : A-14070 sent on : \_\_\_\_\_ by : \_\_\_\_\_ Shipping order No : \_\_\_\_\_  
Addressee : \_\_\_\_\_

<u>Coupled with</u>	<u>LIQUID</u>		<u>GAS</u>	
	<u>Bottom hole samples No</u>	_____	_____	_____
<u>Surface samples No</u>	<u>OIL# 4</u>	<u>8207608</u>	<u>GAS#5</u>	<u>A-14081</u>
	<u>OIL# 5</u>	<u>8207324</u>	_____	_____

Measurement conditions:  
 Tank .       Meter .       Dump .  
 Corrected with shrinkage tester.     Corrected with tank .

### D - REMARKS -

Visa Chief Operator

No. : DOP 127

