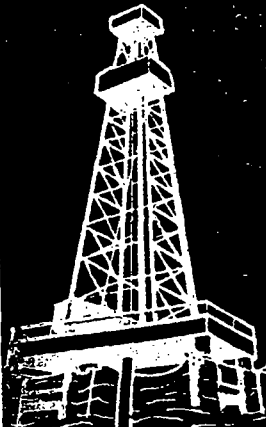


FLOPETROL



Well Testing Report

: STATOIL RIG DYVI DELTA
: WILDCAT Well: 30/2-1 DST No. 1
: RANNOCH Date: 10/9-82 to 25/9-82

Denne rapport
tilhører

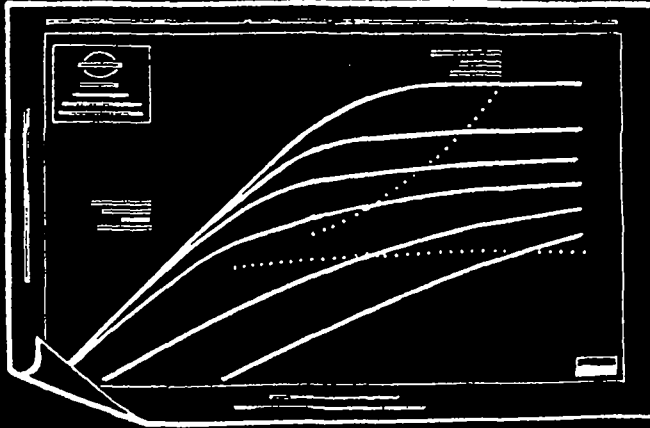
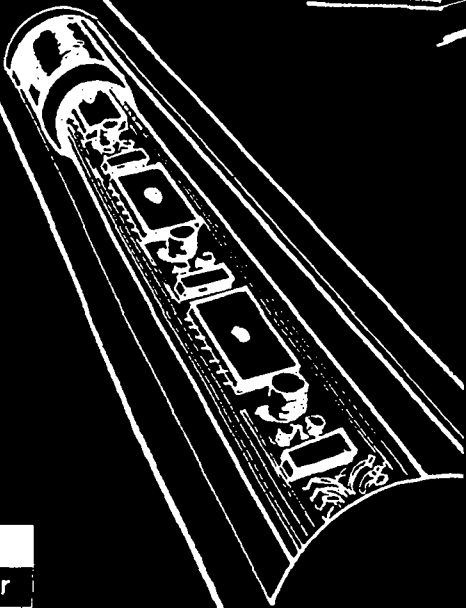
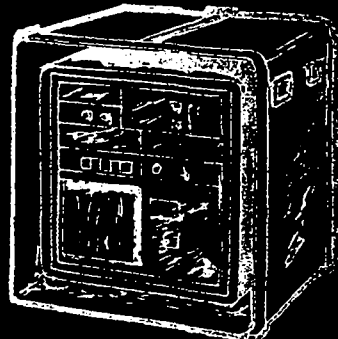


UND DOK.SENTER

L.NR. 92057873

KODE well 30/2-1 nr 9

Returneres etter bruk



FLOPETROL

DIVISION : NSD
BASE : NWB
REPORT N° : 82/2301/35

Well Testing Report

Client : STATOIL RIG DYVI DELTA

Field : WILDCAT

Well : 30/2-1 DST No. 1

Zone : RANNOCH

Date : 10/9-82 to 25/9-82

FLOPETROLClient : STATOILSection : INDEXBase : NWBField : WILDCATPage : 1Well : 30/2-1Report N° : 82/2301/35

INDEX

- 1 _ TEST PROCEDURE _
- 2 _ MAIN RESULTS _
- 3 _ OPERATING AND MEASURING CONDITIONS _
- 4 _ SURFACE EQUIPMENT DATA _
- 5 _ WELL COMPLETION DATA _
- 6 _ SEQUENCE OF EVENTS _
- 7 _ WELL TESTING DATA _

N° DOP 101

Flopetrol chief operator
Name : IAN COOPERClient representative
Name : K. GJERDE

- TEST PROCEDURE -

OBJECTIVES

ESTIMATE PRODUCTIVITY
OBTAIN FLUID SAMPLES
EVALUATE RESERVOIR PROPERTIES
RESERVOIR PRESSURE AND TEMPERATURE

Schlumberger run in hole and perforate 3785-3792 meters R.K.B. using 4" Hyperjet 4 shots per/ft.

Run in hole with Baker "D" production packer and set at 3773 m. Run in hole with test string using Halliburton test tools with a 3/4" choke, 2 MK III and 1 MK I Sperry Sun gauges in test string Flopetrol EZ Tree and flow head.

At 11:35³⁰ on 23rd September 1982 the well was opened for 1 min. initial flow on 32/64" adjustable choke. The flow was directed into surge tank to check returns. 1.007m³ flowed into tank. The well was shut in for initial build up of 68 mins then the LPR valve was reopened.

At 12:43 the well was reopened for clean up and final flow on 28/64" adjustable choke. Choke was changed to 32/64" fixed at 12:54 due to plugging on adjustable at the same time gas arrived at surface. 1 min later the well was flowed through heater. 14:20 the heater was bypassed as temperature at well head was 139°F but due to condensate turning to a wax state it was directed back into the heater at 14:30.

14:45 the well was flowed into separator for flow rate measurement. While flowing through separator the condensate was directed twice into surge tank for meter factors + shrinkage. Also two shrinkages were taken on separator at shrinkage test and was found to have 12% shrinkage.

Three sets of recombination samples were taken, 1 set consisting of 1 oil and two gas.

At 0001 on 24th September the separator was by-passed. 1 min later the well was closed in at surface by the choke manifold. 5 mins later the well was shut in down hole for final build up, by shearing the APR-M valve.

FLOPETROL

Client : STATOIL

Section :

2

Base : NWB

Field : WILDCAT

Page : 3

Well : 30/2-1

Report N°: 82/2301/35

— MAIN RESULTS —

DST No. 1

Tested interval : RANNOCH

Perforations : 3785 - 3792 Meters

Operation	Duration	Bottom hole pressure	Well head pressure	CONDENSATE Oil prod. rate	Gas prod. rate	G.O.R.
Units	MIN		PSIG	SM ³ /D	mmSM ³ /D	M ³ /m ³
INITIAL FLOW 32/64" ADJ. CHOKE	1		160	Water Cushion 1451		
INITIAL BUILD-UP	68					
CLEAN UP 28/64" ADJ. CHOKE	11		3150			
FINAL FLOW 32/64" FIXED CHOKE	668		4970	<u>307</u>	<u>.677</u>	2205 ₅
FINAL BUILD-UP	1450					

Depth of bottom hole measurements : _____ Reference : R.K.B.

Temperature : _____ at : _____ depth

Separator gas gravity (air : 1) at choke size : .695 at 32/64"

STO gravity at choke size .804 : _____ at 32/64"

BSW : 3 % Water cut : _____

REMARKS AND OTHER OPERATIONS

ALL RECORDED READING WERE TAKEN AT LAST OPERATION.

- OPERATING AND MEASURING CONDITIONS -A - TYPE OF GAUGE -BOTTOM HOLE :Pressure : 2 SPERRY SUN MK III AND I MK ITemperature : SPERRY SUNWELL HEAD :Pressure : 50-15000DWT 0-15000 FOXBOROTemperature : 32°F-180°F FOXBOROSEPARATOR :Pressure : BARTON 0-1500 PSIGTemperature : BARTON 0-200 °FB - PRODUCTION RATE CONDITIONS AND SOURCES -OIL PRODUCTION RATE

- | | | |
|---|---|---|
| <input type="checkbox"/> Tank | } | <input checked="" type="checkbox"/> Floco |
| <input checked="" type="checkbox"/> Meter | | |
| <input type="checkbox"/> Dump | } | <input type="checkbox"/> Rotron |
| <input type="checkbox"/> | | |

Reference conditions.

- Separator
 Atmospheric pressure 60 F

Shrinkage measurement.

- With tank
 With shrinkage tester

GAS PRODUCTION RATE

- Orifice meter

Standard conditions.

760 MMHG
 AT 15°C

WATER PRODUCTION RATE

- Tank
 Meter

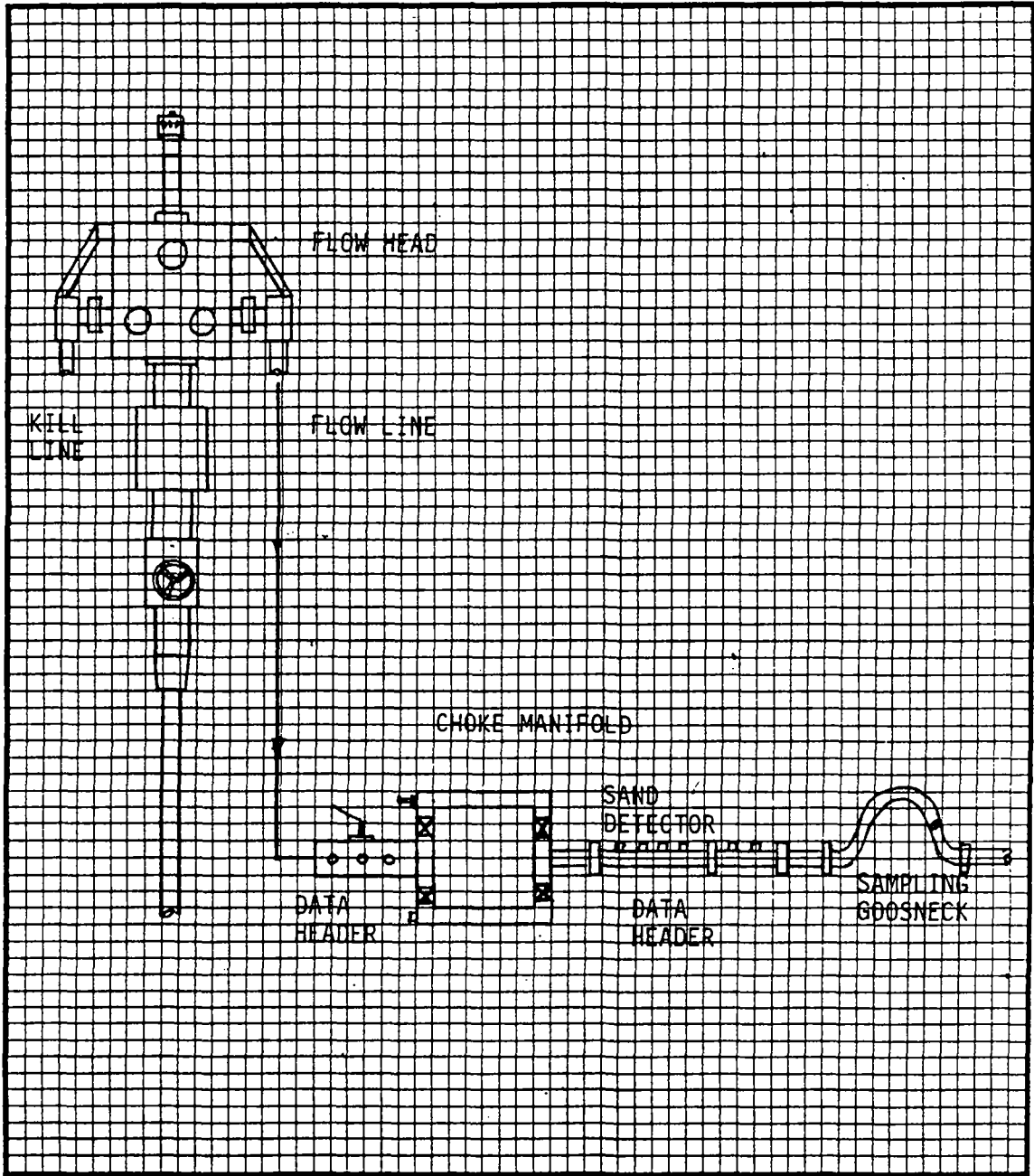
C - WELL DATA -WELL STATE DURING SURVEY :

Well producing through : tubing/drill pipe/casing
 Main casing size 7" set at 3834 Total well depth 4100 METERS
 Tubing size 3 1/2 TDS set at Packer BAKER'D' set at 3773 METERS
 Perforations :
 -Zone RANNOCH From 3785 M to 3792 M From to
 -Zone From to From to
 -

WELL STATE BEFORE TEST : NEWLY DRILLED

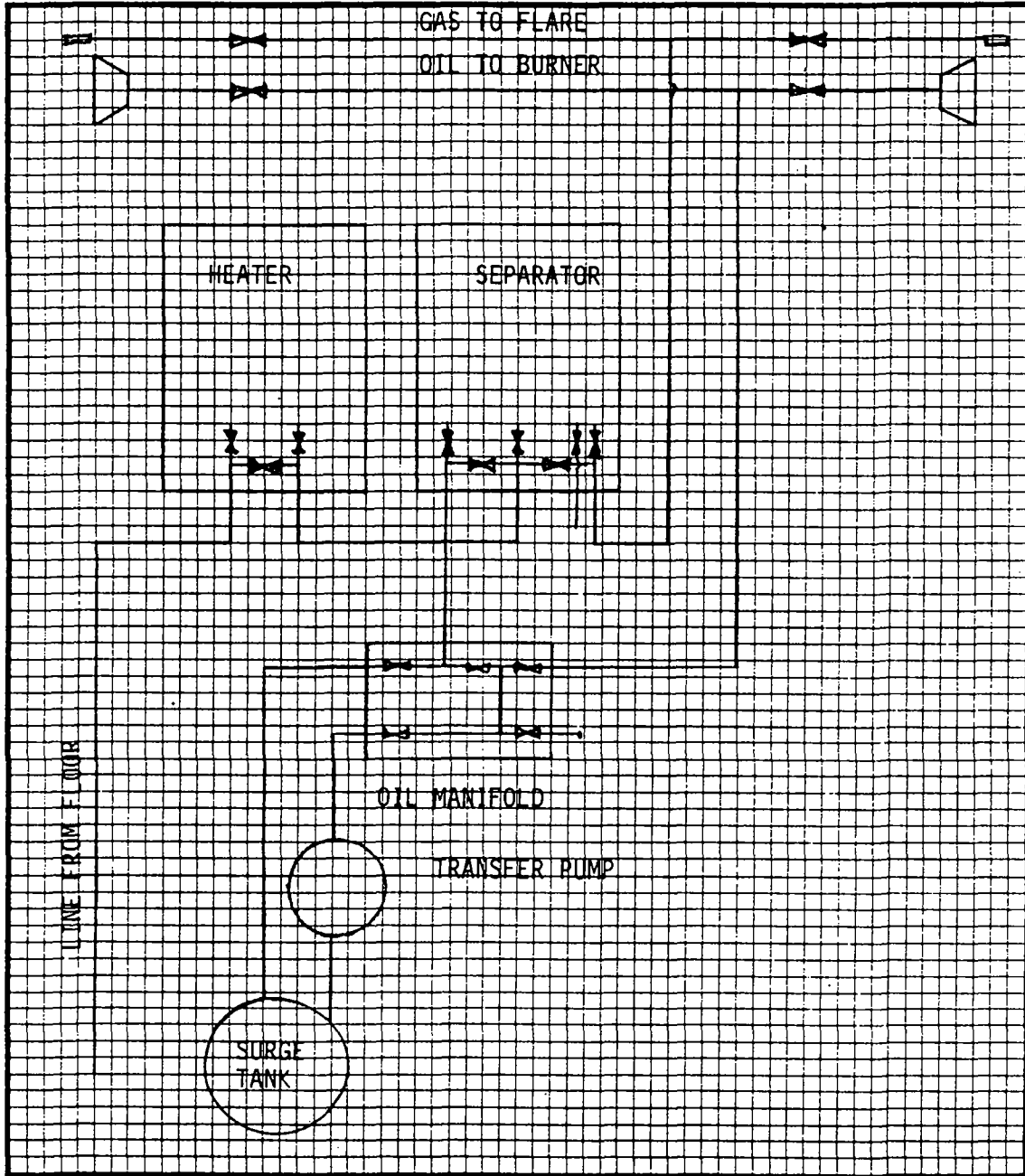
- Well closed since
 Well flowing since Producing zone
 Choke size

- SURFACE EQUIPMENT LAYOUT -



REMARKS :

- SURFACE EQUIPMENT LAYOUT -



REMARKS :

FLOPETROL

Client : STATOIL

Section : **5**

Base : NWB

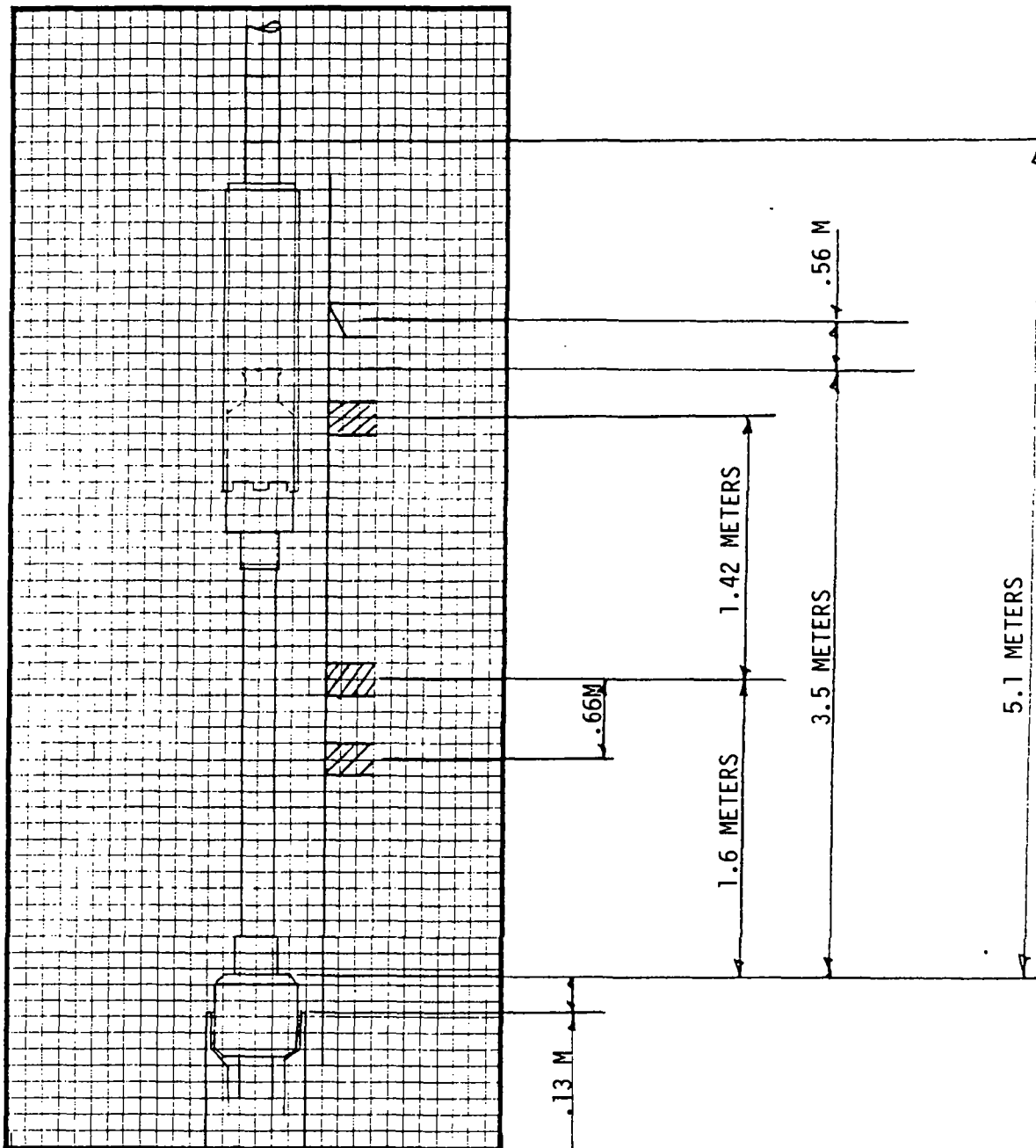
Field : WILDCAT

Page : 7

Well : 30/2-1

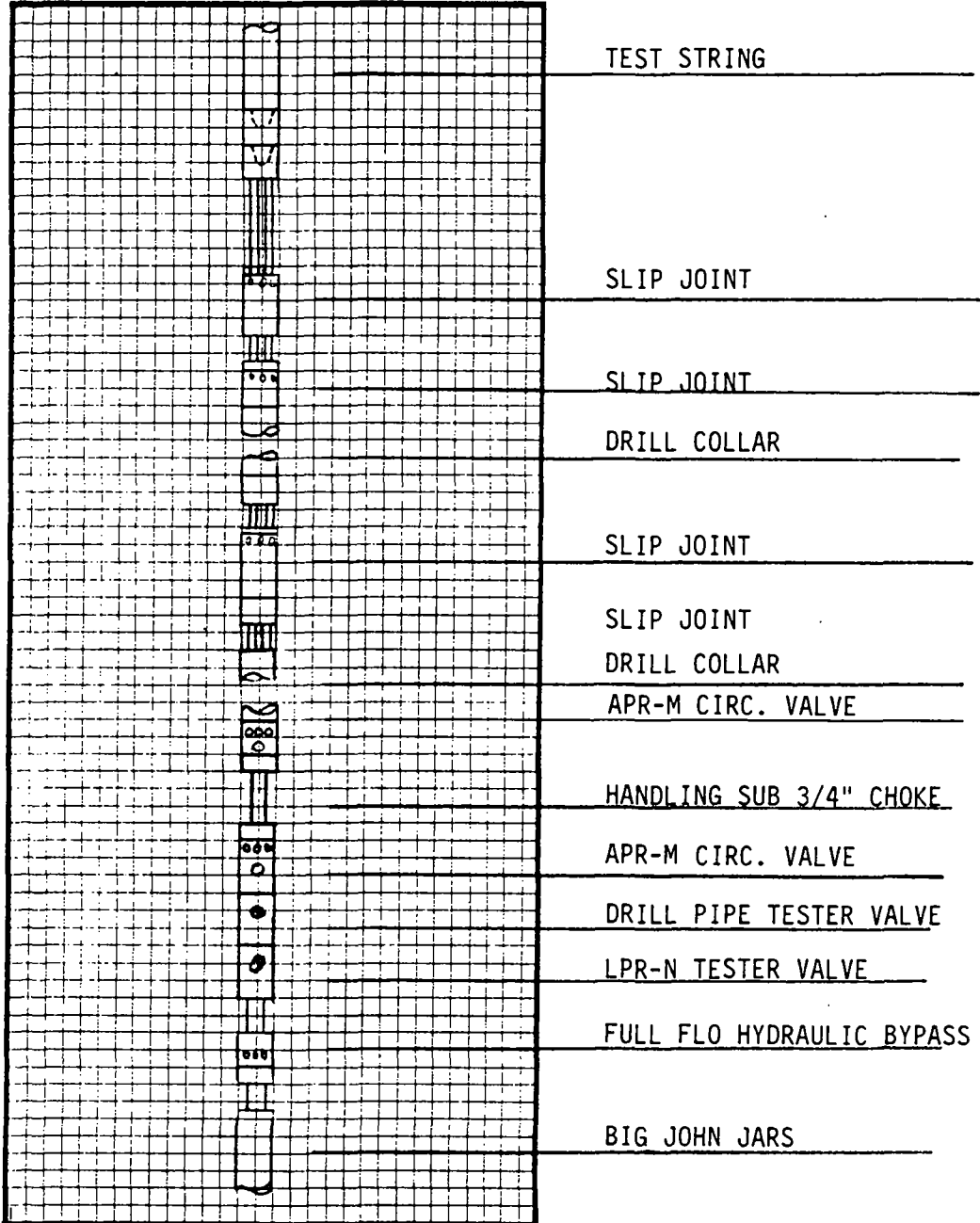
Report N° : 82/2301/35

- WELL COMPLETION DATA -



REMARKS :

- WELL COMPLETION DATA -



REMARKS :

FLOPETROL

Client : STATOIL

Section : **6**

Base : NWB

Field : WILDCAT

Page : 9

Well : 30/2-1

Report N°: 82/2301/35

SEQUENCE OF EVENTS

DATE	TIME	OPERATION
		10TH SEPTEMBER 1982.
10.09.82		STIG HETLEVIK ARRIVE DYVI DELTA
		CHECKING OVER EQUIPMENT FOR TEST
11.09.82		PREPARING EQUIPMENT FOR TEST
		TESTING EQUIPMENT ARRIVE ONBOARD DYVI DELTA.
		CHECKING OVER EQUIPMENT
12.09.82		PREPARE EQUIPMENT FOR TEST
13.09.82		PREPARE EQUIPMENT FOR TEST
14.09.82		PREPARE EQUIPMENT FOR TEST
		IAN COOPER, H. GEHIN, A.TAKLA ARRIVE RIG.
		PREPARE EQUIPMENT FOR TEST
15.09.82		PRESSURE TEST CHOKE MANIFOLD TO 690 BARS
		PRESSURE TEST FLOW HEAD TO 690 BARS.
		MAKE UP EZ-TREE.
16.09.82		PRESSURE TEST EZ-TREE AND CHECK INJECTION INTO EZ-TREE.
		PREPARE EQUIPMENT FOR TEST.
17.09.82	02:10	FLUSH LINES TO GAS FLARE.
		CLOSE DOWN STREAM VALVE ON HEATER.
	02:37	PRESSURE TEST COILS TO 207 BARS
	02:50	PRESSURE TEST INLET AND BYPASS VALVES ON HEATER TO 690
		BARS. LEAK ON RIG CHOKE.
	04:25	PRESSURE TEST INLET AND BYPASS VALVES ON HEATER TO 690
		BARS. SMALL LEAK ON FLOW LINE CONNECTION TO INLET OF
		HEATER.
		DISCONNECT FLOW LINE REPLACE WECO SEAL AND RECONNECT.
		UNABLE TO COMMENCE PRESSURE TESTING AS RIG CREW WERE
		PREPARING TO PULL OUT OF HOLE.
		A. HJELLEN, B. READ, A. LOVERING AND Y. HERVE ARRIVE RIG.

N° DOP 107

FLOPETROL

Section : **6**Page : 10
Report N°: 82/2301/35

SEQUENCE OF EVENTS (Continuation)

DATE	TIME	OPERATION
17.09.82		STRIP AND CHECK FLOW METERS ON SEPARATOR. CHECK FOXBORO, BARTON, AND D.W.T. PRESSURE TEST 2202 FLOWLINE CHICKSANS TO 690 BARS. FLUSH LINE AND FILL UP SEPARATOR.
	20:10	PRESSURE UP SEPARATOR TO 95 BARS AND LIFT RELIEF VALVE. LEAK AT DOWN STREAM VALVE ON HEATER.
	21:00	STOP PRESSURE TESTING AS RIG REQUIRED HALLIBURTON.
	22:18	PRESSURE TEST SEPARATOR TO 90 BARS.
	22:27	PRESSURE TEST INLET AND BYPASS VALVES ON SEPARATOR.
	22:40	FLUSH LINES
	23:06	PRESSURE TEST VALVES ON BURNER HEADS. LEAK ON VALVES.
	23:10	PRESSURE TEST OIL DIVERTER VALVES ON BOOMS TO 69 BARS.
		18TH SEPTEMBER 1982
18.09.82	00:30	PRESSURE TEST BURNER HEADS TO 69 BARS.
	00:45	PRESSURE TEST GAS DIVERTER VALVES ON BOOMS TO 1000 PSI.
	00:55	PRESSURE TEST OIL MANIFOLD TO 69 BARS.
	01:02	PRESSURE TEST UPSTREAM VALVE ON MANIFOLD TO 1000 PSI.
		PREPARE EQUIPMENT FOR TEST.
	14:55	COMMENCE FLOWING THROUGH SEPARATOR FOR METER FACTORS.
	15:25	COMMENCE METER FACTOR ON 2" OIL LINE FLOCO AT 1/2 BBL/MIN. FLOW DIRECTED TO SURGE TANK.
	16:05	FLOWED 19.795 BBLs THROUGH METER. FLOWED 115.25 CM INTO TANK .176 BBL = 1CM, 115.25 CM = 20.284 BBLs.
		METER FACTOR = $20.284 - 19.795 = 1.025$
	16:10	COMMENCE METER FACTOR ON 2" WATER LINE FLOCO AT 1/2 BBL/MIN FLOW DIRECTED OVER BOARD.
	16:50	FLOWED 19.145 BBLs THROUGH METER. FLOWED 20 BBLs FROM HALLIBURTON TANK.
		METER FACTOR = $20 \text{ BBLs} - 19.145 \text{ BBLs} = 1.045$
	17:05	COMMENCE METER FACTOR ON 2" OIL LINE. FLOCO AT 1 BBL/MIN. FLOW DIRECTED TO SURGE TANK.

FLOPETROL

 Section : **6**

_ SEQUENCE OF EVENTS _ (Continuation)

 Page : 11
 Report N': 82/2301/35

DATE	TIME	OPERATION
18.09.82	17:22	FLOWED 19.475 BBLs THROUGH METER. FLOWED 112.5 CM INTO TANK. .176 BBLs = 1 CM, 112.5 cm = 19.8 BBLs
		METER FACTOR= 19.8 BBLs - 19.475 = 1.017
	17:30	FLOWING THROUGH 3" ROTRON AT 2 BBLs/MIN. ROTRON STOP WORKING.
	17:40	PRESSURE TEST DOWNSTREAM VALVE ON HEATER TO 1400 PSI WHILE CHECKING ROTRON. VALVE STILL LEAKING.
	18:00	NOTHING WRONG WITH METER.
	18:06	COMMENCE METER FACTOR ON 3" OIL LINE, ROTRON AT 3 BBLs/MIN, FLOW DIRECTED TO SURGE TANK.
	18:13	FLOWED 20.55 BBLs THROUGH METER, FLOWED 115 CM INTO TANK. .176 BBLs = 1 .CM, 115 CM = 20.24 BBLs.
		METER FACTOR= 20.24 - 20.55 = .985
	21:25	PRESSURE TEST DOWN STREAM VALVE ON HEATER TO 97 BARS. STILL LEAKING.
	21:49	PRESSURE TEST VALVE AGAIN TO 1400 PSI HOLDING.
19.09.82		PRESSURE TEST 1502 FLOW LINE CHICKSANS TO 690 BARS. FILL UP TWO SAMPLING BOTTLES WITH MERCURY. PRESSURE TEST LOW PRESSURE COILS TO 207 BARS. PRESSURE TEST INLET AND BYPASS VALVES ON HEATER TO 10000 PSI. N. HUTCHEON ARRIVE DYVI DELTA. PRESSURE TEST HIGH PRESSURE COILS TO 690 BARS. PRESSURE TEST FLEX HOSE FLANGE ON FLOWHEAD TO 10000 PSI. PRESSURE TEST FLEX HOSE FLANGE ON CHOKE MANIFOLD TO 10000 PSI.
	23:45	COMMENCE RUNNING IN HOLE WITH FLUTED HANGER FOR SPACE OUT OF EZ-TREE.
		20TH SEPTEMBER 1982
20.09.82	00:10	LAND OFF WITH SPACE OUT. CLOSE RAMS.
	00:15	OPEN RAMS. PULL OUT OF HOLE.

No DOP 108

FLOPETROL

Section :

6

- SEQUENCE OF EVENTS - (Continuation)

Page : 12

Report N°: 82/2301/35

DATE	TIME	OPERATION
20.09.82	00:40	OUT OF HOLE WITH FLUTED HANGER. SCHLUMBERGER RUN IN HOLE
		AND PERFORATE 3785-3792 METERS RKB. RUN IN HOLE WITH BAKER
		"D" PRODUCTION PACKER. PRESSURE TEST 2" KILL-LINE
		CHIKSANS TO 690 BARS. PRESSURE TEST 9 1/2" FLUTED HANGER
		ON EZ-TREE. CHECK STEAM SUPPLY AND TEMPERATURE CONTROLLER
		FOR HEATER. DRAIN SEPARATOR OF WATER CONTENTS. CHECKING
		OVER EQUIPMENT FOR TEST.
21.09.82		CHECKING OVER EQUIPMENT FOR TEST
		WAITING ON WEATHER
22.09.82		CHECKING OVER EQUIPMENT
	22:20	REEL PACK AND INJECTION REEL ON DRILL FLOOR.
	22:25	EZ-TREE ON DRILL FLOOR
	22:33	EZ-TREE MADE UP TO TEST STRING.
	23:50	EZ-TREE CONNECTIONS TORQUED UP.
	23:50	HOSES CONNECTED.
23.09.82	00:03	UNLATCH AT SURFACE.
	00:04	RELATCH AND RUN IN HOLE WITH VALVE OPEN.
	03:40	FLOW HEAD MADE UP TO TEST STRING
	04:06	RIGGING UP SURFACE EQUIPMENT
	06:00	RIG UP COMPLETE
	06:20	FLUSH LINES
	06:43	STING OUT OF PACKER.
	06:47	PRESSURE TEST KILL LINE TO 690 BARS
	06:56	TEST COMPLETE
	07:00	FLUSH LINES
	07:15	COMMENCE TO TEST FLOW HEAD TO 690 BARS
	07:30	PRESSURE TEST STRING TO 690 BARS.
	07:35	LEAKING CONNECTION. BLEED OFF AND REPAIR.
	07:40	PRESSURE TEST STRING TO 690 BARS.

FLOPETROL

Section : **6**

_ SEQUENCE OF EVENTS _ (Continuation)

Page : 13
Report N: 82/2301/35

DATE	TIME	OPERATION
23.09.82	08:08	CLOSE EZ-TREE WITH PRESSURE ON STRING AND BLEED OFF ABOVE TO 276 BARS.
	08:20	PRESSURE ABOVE EZ-TREE TO 690 BARS OPEN VALVE.
	08:25	CLOSE EZ-TREE VALVE WITH 690 BARS BELOW AND BLEED OFF TO 276 BARS.
	08:35	TEST OK
	08:37	PRESSURE UP ABOVE EZ-TREE TO 690 BARS. OPEN VALVE.
	08:40	BLEED OFF OPEN FAILSAFE VALVE CLOSE MASTER VALVE.
	08:50	FLUSH LINES TO FLARE
	08:52	PRESSURE TEST HEATER INLET AND BYPASS TO 690 BARS.
	09:00	LEAK ON INSTRUMENT POINTS. BLEED OFF AND REPAIR.
	09:07	RETEST TO HEATER.
	09:10	BLEED OFF. INSTRUMENT POINTS LEAKING AGAIN.
	09:20	REPAIR POINTS AND PRESSURE UP TO 690 BARS
	09:30	TEST OK
	09:40	CLOSE BACK VALVES ON CHOKE MANIFOLD AND PRESSURE TEST TO 690 BARS. BLEED OFF LINE BETWEEN HEATER AND CHOKE MANIFOLD.
		A. HJELLEN DEPART RIG. Y. DEMASAND ARRIVE RIG.
	09:55	CLOSE FRONT 2 VALVES ON CHOKE MANIFOLD AND TEST TO 690 BARS. OPEN BACK VALVES.
	10:10	TEST OK
	10:15	BLEED OFF. OPEN MASTER VALVE.
	10:16	CLOSE FAILSAFE VALVE.
	10:20	PRESSURE UP STRING TO 724 BARS.
	10:25	CHECK EZ-TREE. OPEN AND BLEED OFF
	10:26	LAND SEAL ASSEMBLY
	11:20	PRESSURE UP STRING TO 200 BARS.
	11:25	PUT FOXBORO CHART ON CLOSE KILL VALVE
	11:28	OPEN LPR-N VALVE

FLOPETROL

Section : **6**

_ SEQUENCE OF EVENTS _ (Continuation)

Page : 14
Report N°: 82/2301/35

DATE	TIME	OPERATION
23.09.82	11:35 ³⁰	WELL OPEN ON 32/64 ADJUSTABLE CHOKE. FLOW WELL TO SURGE TANK. FOR INITIAL FLOW
	11:36 ³⁰	WELL CLOSE IN FOR INITIAL BUILD-UP. 1.007M ³ FLOWED INTO SURGE TANK.
	12:43	WELL OPEN FOR CLEAN UP ON 28/64 ADJUSTABLE CHOKE.
	12:50	ADJUSTABLE CHOKE PLUGGING
	12:54	CHANGE TO 32/64" FIXED FOR FINAL FLOW. GAS TO SURFACE. WATER STILL PRESENT.
	12:55	FLOW DIRECTED THROUGH HEATER.
	14:20	BY-PASS HEATER
	14:30	FLOW DIRECTED THROUGH HEATER
	14:45	FLOW DIRECTED THROUGH SEPARATOR
	15:30	COMMENCE FLOW RATE MEASUREMENTS
	17:33	FLOW DIRECTED TO TANK FOR METER FACTOR + SHRINKAGE.
	17:48	BY-PASS TANK METER FACTOR .844 AT 70°F
	18:30	FLOW DIRECTED TO TANK FOR METER FACTOR + SHRINKAGE.
	18:15	COMMENCE 1ST SET OF RECOMBINATION SAMPLES AT SEPARATOR. OIL BOTTLE NO. 8207316. 1ST GAS BOTTLE NO. A14086. 2ND GAS BOTTLE NO. A14085.
	18:52	BY-PASS TANK METER FACTOR .834 AT 70°F.
	19:18	RECOMBINATION SAMPLES COMPLETE.
	21:30	COMMENCE 2ND SET OF RECOMBINATION SAMPLES AT SEPARATOR OIL BOTTLE NO. 8207506, 1ST GAS BOTTLE NO. A-14067, 2ND GAS BOTTLE NO. A-14065.
	22:30	2ND SET OF RECOMBINATION SAMPLES COMPLETE.
	22:35	COMMENCE 3RD SET OF RECOMBINATION SAMPLES AT SEPARATOR. OIL BOTTLE NO. 8207503. 1ST GAS BOTTLE NO. A-14074, 2ND GAS BOTTLE NO. A-14061.
	23:10	ONE OIL AND ONE GAS SAMPLE COMPLETE.
	23:16	COMMENCE DUMPING WATER IN SEPARATOR THROUGH WATER LINE.

FLOPETROL

Section : **6**

_ SEQUENCE OF EVENTS _ (Continuation)

Page : 15
Report N°: 82/2301/35

DATE	TIME	OPERATION
23.09.82	23:19	STOP DUMPING. DUMPED 3.6 BBLs.
	23:45	2ND GAS SAMPLE COMPLETE. 3RD SET OF RECOMBINATION SAMPLES COMPLETE.
24.09.82	00:01	BY-PASS SEPARATOR.
	00:02	WELL CLOSED IN AT CHOKE MANIFOLD.
	00:07	PRESSURE UP ANNULUS SHEAR APR-M CIRCULATING VALVE. LPR-N VALVE CLOSED FOR FINAL BUILD-UP.
	00:08	CHOKE MANIFOLD OPEN. DISPLACE TUBING CONTENTS WITH MUD.
	00:28	MUD TO SURFACE.
	00:38	CHOKE MANIFOLD FULLY OPEN
	00:40	CLOSE CHOKE MANIFOLD
	00:56	OPEN KILL VALVE. CLOSE FAILSAFE VALVE. STATOIL HAS CHECKED WATER IN SEPARATOR AND SAID ITS CONTENTS WAS FRESH WATER. WHEN I WAS ASKED ABOUT IT I TOLD THEM THE SEPARATOR WAS COMPLETELY DRAINED OF WATER AFTER PRESSURE TESTING, AND THE DRAIN VALVES WERE NOT CLOSED UNTILL WE WERE READY TO FLOW WELL INTO SEPARATOR. I ALSO TOLD THEM THAT THE PRESSURE TESTING AND METER FACTORS WERE DONE WITH HALLIBURTON. HALLIBURTON USED SALT WATER. NOTE! WATER WAS PROBABLY PRODUCED FROM THE GAS.
	05:30	OPEN FAIL SAFE VALVE
	05:36	CLOSE KILL VALVE. COLLECT TWO 20 LITER JERRY CANS OF CONDENSATE SAMPLE + ONE 10 AND SEVEN 1 LITRE JARS, THREE 1 LITER WATER SAMPLES FROM SEPARATOR. PREPARING EQUIPMENT FOR DST # 2. S. HETLEVIK AND A. TAKLA DEPART RIG. A. BERGERSSEN ARRIVE RIG.
	22:30	CLOSE MASTER VALVE. OPEN KILL VALVE.
	22:31	COMMENCE FLUSHING LINES
	22:45	STOP FLUSHING
	23:00	COMMENCE RIGGING DOWN SURFACE EQUIPMENT

N. DOP 108

FLOPETROL

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

Base : NWB

- WELL TESTING DATA SHEET -

Section : 7
 Page : 17
 Report N° : 82/2301/35

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS				SEPARATOR				PROD. RATES AND FLUID PROPERTIES				GOR
	BOTTOM HOLE	WELL HEAD	TEMPERATURE		TEMP	PRESS	OIL OR CONDENSATE		GAS		GAS		
Time	Pressure	Ig temp	Ig press	Cg press	Temp	Press	Rate	Gravity	BSW	Rate	Gravity	Rate	Units
Cumul HRS/MIN	PSIG	PSIG		PSIG		Air = 1		Air = 1		Air = 1		Units	
23.09.82													
11:25													
11:28 0													
11:30 2													
11:31 3													
11:32 4													
11:33 5													
11:34 6													
11:35 7													
11:35:30 0													
11:36													
11:36:30 1													
11:37 0													

LIQUID FLOW RATE MEASURING CONDITIONS :

TESTED INTERVAL : RAINNOCH
 DEPTH REFERENCE : RKB
 DEPTH OF 8 H MEASUREMENTS :

WELL OPEN FOR INITIAL FLOW TO SURGE TANK ON 32/64" ADJUSTABLE CHOKE

WELL CLOSE IN FOR INITIAL BUILD UP FLOWED 6.34 BBLs = 1.007 M³

CLOSED LPR-N VALVE

21 AND 22 SEPTEMBER 1982

DST # 1

3210

OPEN LPR-N VALVE

3650

3652

3680

3670

3674

3670

160

4370

FLOPETROL

WELL TESTING DATA SHEET(Continuation)

Page :19
Report N°:82/2301/35

Section : 7

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS		SEPARATOR			PROD. RATES AND FLUID PROPERTIES			GOR		
	BOTTOM HOLE	WELL HEAD	Temp. of	Iq. press. of	Cg. press. of	Rate	Oil or Condensate	GAS			
Time HRS/MIN	Temp. Pressure	Temp. Pressure	PSIG	PSIG	PSIG	MM ³ /DAY	Gravity %	Rate MM ³ /DAY	Gravity Air=1	H ₂ S/CO ₂	Units
23.09.82 12:53											
12:54	11/0										
12:55	1	101	3850								
12:56	2	98	4200								
13:00	6	96	4580				90	PIPE DOPE + H ₂		0/2%	
13:05	11	94	4590								
13:10	16	98	4640								
13:15	21	102	4665								
13:30	36	111	4709								
13:45	51	122	4777								
14:00	66	129	4823								
14:15	81	134	4842								
14:20	86										
14:30	96	139	4885								
14:45	111	146	4885								
15:00	126	149	4934								0/1%
15:15	141	154	4948								
15:30	156	158	4916	108	900		2	.687			

WELL HEAD PRESSURE ARE TAKEN FROM THIS POINT FROM SPERRY SUN.

FOUND OUT LATER THAT D.W.T. WAS FLUGGED

BY-PASS HEATER

FLOW DIRECTED THROUGH HEATER.

FLOW DIRECTED THROUGH SEPARATOR.

FLOPETROL

WELL TESTING DATA SHEET(Continuation)

Page : 20
Report N: 82/2301/35

Section : 7

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS		WELL HEAD		SEPARATOR		PROD. RATES AND FLUID PROPERTIES			GOR		
	BOTTOM HOLE	Temp.	Pressure	Tg. temp. OF	Ig. press. PSIG	Cg. press. PSIG	Temp. OF	Rate M ³ /DAY	Gravity %		BSW %	Rate MM m ³ /DAY
23.09.82												
Time	Cumul											
HRS/MIN	MIN											Units
15:30												
15:45	171			159	4921							
16:00	186			163	4920	108	900	329	.806	2	.687	.689
16:15	201			162	4915							
16:30	216			166	4900	104	900	325	.806	2	.683	.692
16:45	231			167	4910							
17:00	246			168	4913	106	890	323	.806	1.8	.677	.692
17:15	261			170	4957							
17:30	276			171	4970	109	875	324	.806	.7	.687	.693
17:33	279											
17:48	294											
18:00	306			176	5015	112	880	320	.806	1.8	.687	.693
18:15	321			175	4985							
18:30	336			173	4980	114	875	318	.806	1.2	.682	.695
18:30												
18:45	351			175	4976							
18:52	358											
19:00	366			174	4976	114	875	314	.806	1.3	.682	.695

FLOW DIRECTED TO SURGE TANK FOR METER FACTOR + SHRINKAGE

BY-PASS SURGE TANK METER FACTOR = .844 at 70°F

FLOW DIRECTED TO SURGE TANK FOR METER FACTOR + SHRINKAGE

BY-PASS SURGE TANK. METER FACTOR = .843 AT 70°F

FLOPETROL

WELL TESTING DATA SHEET(Continuation)

DATE - TIME	PRESSURE AND TEMPERATURE MEASUREMENTS		WELL HEAD		SEPARATOR		PROD. RATES AND FLUID PROPERTIES				GOR	
	BOTTOM HOLE	Temp	Pressure	Tq temp OF	Iq. press. PSIG	Cg. press. PSIG	Temp. OF	Press. PSIG	OIL OR CONDENSATE	GAS		
23.09.82	Cumul							Rate M ³ /DAY	Gravity	Rate M ³ /DAY	Gravity	M ³ /M ³
HRS/MIN	MIN							%	Air = 1		Air = 1	Units
19:00												
19:15	381			179	4980							
19:30	396			179	4977	116	870	2	.806	.684	.695	2192
19:45	411			178	4979							
20:00	426			179	4980	118	930	2	.805	.674	.695	2160
20:15	441			178	4968							
20:30	456			178	4972	118	930	2	.804	.674	.695	2160
20:45	471			177	4971							
21:00	486			176	4960	118	930	2	.804	.674	.695	2167
21:15	501			179	4950	WELL HEAD PRESSURES ARE FROM D.W.T.						
21:30	516			176	4925	117	930	2	.804	.675	.695	2170
21:45	531			176	4950							
22:00	546			176	4950	117	930	2	.804	.675	.695	2170
22:15	561			176	4950							
22:30	576			175	4950	117	930	2	.804	.675	.695	2192
22:45	591			176	4925							
23:00	606			175	4950	117	930	2	.804	.675	.695	2170
23:15	621			177	4950							

FLOPETROL

WELL TESTING DATA SHEET(Continuation)

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Section : 7

DATE - TIME		PRESSURE AND TEMPERATURE MEASUREMENTS			SEPARATOR			PROD. RATES AND FLUID PROPERTIES				GOR		
Time	Cumul HRS/MIN	BOTTOM HOLE		WELL HEAD		Temp. OF	Press. PSIG	Rate M ³ /DAY	OIL OR CONDENSATE		GAS		M ³ /M ³	Units
		Temp.	Pressure	Iq temp.	Iq. press.				Cg. press.	Rate	Gravity	Rate		
23:15				OF	PSIG				SG	%	MM m ³ /DAY	Air=1		
23:30	636			179	4970	117	930	308	.804	3	.675	.695	2192	
24:00	666			180	4970	118	935	307	.804	3	.677	.695	2205	
						24th	SEPTEMBER 1982							
00:01	667						BY-PASS SEPARATOR							
00:02	668/0						WELL CLOSED IN AT CHOKE MANIFOLD							
00:03	1													
00:04	2													
00:06	4													
00:07	5													
00:08	6													
00:13	11													
00:18	16													
00:23	21													
00:28	26													
00:38	36													
00:40	38													
00:56	54													

TO GAS FLARE

UP SHEAR APR-M VALVE

TUBING CONTENTS WITH MUD

VALVE FOR FINAL BUILD

CIRCULATE OUT TUBING CONTENTS

CLOSE LPR-

MUD TO SURFACE

OPEN CHOK

CHOKE MANIFOLD FULLY OPEN

CLOSE CHOK

CHOKE MANIFOLD

OPEN KILL

VALVE CLOSE FAILSAFE VALVE

FLOPETROL

DIVISION : NSD

BASE : NWB

REPORT N°: 82/2301/35

Well Testing Report Annexes —

Client : STATOIL

Field : WILDCAT

Zone : RANNOCH

Well : 30/2-1

Date : 23/9-82 to 24/9-82

INDEX of ANNEXES

- 1** - BOTTOM HOLE PRESSURE AND TEMPERATURE MEASUREMENT -
 - 1.1 - B. H. guge 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 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 122

FLOPETROL

Client : STATOIL

Field : WILDCAT
Well : 30/2-1

- OIL PRODUCTION RATE - - MEASUREMENT WITH METER -

Section: ANNEX 2.2

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Report N° : 82/2301/35

Base : NMB

DATE - TIME	Meter reading BBLs	VS BBLs	BSW %	V _o BBLs	1 - Shr		OIL GRAVITY		K	Net volume of STO · V _o BBLs	Net STO product rate M ³ / day	Cumulative production M ³	Units	
					Factor + METER	Temp. OF	Gravity SG	Temp OF						Grav. 60°F SG
					23RD SEPTEMBER 1982									
					DST No. 1							0		
14:45					FLOW DIRECTED INTO SEPARATOR									
15:30	115.35											10.1		
16:00	167.68	52.33	2	51.28	.844	70	.804	66	.806	.995	43.1	329	16.9	
16:30	219.38	51.70	2	50.67	.844	70	.804	66	.806	.995	42.6	325	23.7	
17:00	270.70	51.32	1.8	50.40	.844	70	.804	66	.806	.995	42.3	323	30.4	
17:30	321.5	50.8	.7	50.44	.844	70	.801	72	.806	.995	42.4	324	37.2	
17:33					FLOW TO TANK VIA SEPARATOR FOR METER FACTOR + SHRINKAGE									
17:48					BY PASS TANK. METER FACTOR .844 AT 70°F									
18:00	372.3	50.8	1.8	49.89	.844	70	.801	72	.806	.995	41.9	320	43.8	
18:30	422.5	50.2	1.2	49.6	.844	70	.801	72	.806	.995	41.7	318	50.5	
18:30					FLOW TO TANK VIA SEPARATOR FOR METER FACTOR + SHRINKAGE									
18:52					BY PASS TANK. METER FACTOR .843 AT 70°F									
19:00	472.7	50.2	1.3	49.55	.843	70	.800	75	.806	.995	41.1	314	57.0	

Shrinkage factor measured by Shrinkage tester Tank

*V_o = V_S x f x (1 - BSW) = Net oil volume at separator conditions. f = .844

TESTED INTERVAL : RANNOCH

: 3785 METERS - 3792 METERS PERFORMANCES

FLOPETROL

MEASUREMENT WITH METER -(Continuation)

DATE - TIME	Meter reading	Vs	B SW	Vo	1 - Shr		OIL GRAVITY		K	Net volume of STO: Vo	Net STO product. rate	Cumulative production
					Factor + METER	Temp. OF	Gravity SG	Temp. OF				
Time Interval	BBLs	BBLs	%	BBLs								Units
19:00	472.7											
19:30	522.5	49.8	2.0	48.80	.843	70	.800	75	.806	40.9	312	63.5
20:00	572.2	49.7	2.0	48.71	.843	70	.798	78	.805	40.9	312	70.0
20:30	622.0	49.8	2.0	48.80	.843	70	.798	75	.804	40.9	312	76.5
21:00	671.6	49.6	2.0	48.61	.843	70	.798	75	.804	40.8	311	83.0
21:30	721.2	49.6	2.0	48.61	.843	70	.798	75	.804	40.8	311	89.5
22:00	770.7	49.5	2.0	48.51	.843	70	.798	75	.804	40.7	311	96.0
22:30	819.9	49.2	2.0	48.22	.843	70	.7975	76	.804	40.4	308	102.4
23:00	869.4	49.5	2.0	48.51	.843	70	.7975	76	.804	40.7	311	108.8
23:16				COMMENCE	DUMPING WATER	IN SEPARATOR	THROUGH					
23:19				STOP DUMPING.	DUMPED	3.6 BBLs	OF WATER					
23:30	*915.5	46.1										
		+ 3.6										
23:30	915.5	49.7	3.0	48.21	.843	70	.7975	76	.804	40.4	308	115.3
24:00	964.9	49.4	3.0	47.92	.843	70	.7975	76	.804	40.2	307	121.7
00:01				24TH SEPTEMBER 1982	BY PASS	SEPARATOR						
	*	REMARKS 23:30	READING	IS 46.1	BBLs + 3.6	BBLs	OF WATER	DUMPED	THROUGH	WATER	LINE	

- 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/up 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, CO² and H₂S. More accurate values could only be determined by laboratory measurement.

FLOPETROL

Client : STATOIL

Section : ANNEX 3

Field : WILDCAT

- GAS PRODUCT. RATE MEASUREMENT -

Base : NWR

Well : 30/2-1

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Report N : 82/2301/35

DATE - TIME	Flowing Temp. °F	Pf 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 MM ³	Cumulative Production MM ³
					23RD SEPTEMBER 1982									
					DST # 1									
					FLOW DIRECTED THROUGH SEPARATOR									0
14:45					3.500	.689	2695.08	1.2047	1.0006	.9568	1.075	2272	.687	7.16
15:30	108	915	100	302.49	3.500	.689	2695.08	1.2047	1.0006	.9568	1.075	2272	.687	21.48
16:00	30	915	100	302.49	3.500	.692	2695.08	1.2021	1.0006	.9602	1.078	2281	.683	35.7
16:30	30	915	98	299.449	3.500	.692	2695.08	1.2021	1.0006	.9585	1.076	2273	.677	49.8
17:00	30	905	98	297.809	3.500	.693	2695.08	1.2012	1.0006	.9560	1.073	2259	.687	64.1
17:30	30	890	104	304.237	3.500	.693	2695.08	1.2012	1.0006	.9535	1.072	2251	.687	78.4
18:00	30	895	104	305.090	3.500	.695	2695.08	1.1995	1.0006	.9518	1.071	2242	.682	92.6
18:30	30	890	104	304.237	3.500	.695	2695.08	1.1995	1.0006	.9518	1.071	2242	.682	106.9
19:00	30	890	104	304.237	3.500	.695	2695.08	1.1995	1.0006	.9501	1.069	2234	.684	121.1
19:30	30	885	106	306.284	3.500	.695	2695.08	1.1995	1.0005	.9485	1.073	2238	.674	135.1
20:00	30	945	96	301.198	3.500	.695	2695.08	1.1995	1.0005	.9485	1.073	2238	.674	149.2
20:30	30	945	96	301.198	3.500	.695	2695.08	1.1995	1.0005	.9485	1.073	2238	.674	163.2
21:00	30	945	96	301.198	3.500	.695	2695.08	1.1995	1.0005	.9485	1.073	2238	.674	

F_u = .6799 Recorder ranges P_f = 0-1500 PSI TESTED INTERVAL : RANNOCH
 h_w = 0-400' H₂O Temp = 0-200 °F PERFORATIONS : 3785 METERS - 3792 METERS

FLOPETROL

Client : STATOIL

Section : ANNEX

42Base : NWBField : WILDCATPage : 32Well : 30/2-1Report N° : 82/2301/35

SURFACE SAMPLING

Date of sampling : 23-9-82 Service order : _____ Sampling No. : 1
 Sample nature : CONDENSATE Sampling point : SEPARATOR SIGHT GLASS

A - RESERVOIR AND WELL CHARACTERISTICS-

Producing zone : _____ Perforations : 3785-3792 M Sampling interval : _____
 Depth origin : R.K.B. Tubing Dia. : 3 1/2 TDS Casing Dia. : 7"
 Surface elevation : 30 Shoe : _____ Shoe : _____

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

B - MEASUREMENT AND SAMPLING CONDITIONS

Time at which sample was taken : 1815 - 1854 Time elapsed since stabilisation : 15 MIN

Bottom hole dynamic conditions	Choke size : <u>32/64</u> since : <u>1254</u> Well head pressure : <u>4976</u> Well head temp. : <u>175°F</u>
	Bottom hole pressure : _____ at depth : _____ date : _____
	Bottom hole temp. : _____ at depth : _____ date : _____

Flow measurement of sampled gas - Gravity (air: 1) : .695 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.071
 Values used for calculations : Fb 2695-08 Fg 1.1995 Y 1.0006 Ftf .9518

Separator	Pressure : <u>875</u> PSIG	Rates - Gas : <u>.682</u> MMM ³ SCFD	GOR : <u>1874</u> (separator cond.)
	Temp. : <u>114</u> °F	Oil (separator cond.) : <u>364</u> M ³ BOPD	

Stock tank	Atmosphere : _____ mmHg. _____ °F	Oil at 60°F : <u>314</u> M ³ BOPD
	Tank temperature : _____ °F	

BSW : 1-3 % WLR : _____ %Transferring fluid : MERCURY Transfer duration : 39 min

Final conditions of the shipping bottle : 18 cc Hg
 Pressure : 565 PSI Temp. : AMB 60 cc GAS CAP 550 CONDENSATE SAMPLE

C - IDENTIFICATION OF THE SAMPLE

Shipping bottle No. : 8207316 sent on : _____ by : _____ Shipping order No. : _____
Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.	_____	_____
Surface samples No.	_____	<u>A-14085</u>
		<u>A-14086</u>

Measurement conditions.

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

D - REMARKS -

DURING TESTING TWO SHRINKAGES WERE TAKEN WITH SCHRINKAGE TESTER.
 SHRINKAGE WAS 12% FACTOR USED IS .963

Visa Chief Operator

FLOPETROL

Client : STATOIL

Section : ANNEX

42Base : N.W.B.Field : WILDCATPage : 33Well : 30/2-1Report N° : 82/2301/35

SURFACE SAMPLING

Date of sampling : 23.09.82 Service order : _____ Sampling No. : 2
 Sample nature : GAS Sampling point : SEPARATOR GAS OUTLET

A - RESERVOIR AND WELL CHARACTERISTICS-

Producing zone : _____ Perforations : _____ Sampling interval : _____
 Depth origin : RKB Tubing Dia. : 3 1/2 TDS Casing Dia. : 7"
 Surface elevation : 30 Shoe : _____ Shoe : _____

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

B - MEASUREMENT AND SAMPLING CONDITIONS

Time at which sample was taken : 1815-1845 Time elapsed since stabilisation : 15 MIN

Bottom hole dynamic conditions	Choke size : <u>32/64</u> since : <u>1254</u> Well head pressure : <u>4976</u> Well head temp. : <u>175°F</u>
	Bottom hole pressure : _____ at depth : _____ date : _____
	Bottom hole temp. : _____ at depth : _____ date : _____

Flow measurement of sampled gas - Gravity (air: 1) : .695 Factor $F_{pv} = \frac{1}{\sqrt{Z}}$: 1.071
 Values used for calculations : F_b 2695.08 F_g 1.1995 Y 1-0006 F_{tf} .9518

Separator	Pressure : <u>875</u> PSIG	Rates - Gas : <u>682</u> MM^3 <u>SCFD</u>	GOR : <u>1874</u> (separator cond.)
	Temp. : <u>114</u> °F	Oil (separator cond.) : <u>364</u> M^3 <u>BOPD</u>	

Stock tank	Atmosphere : _____ mmHg. _____ °F	Oil at 60°F : <u>314</u> M^3 <u>BOPD</u>
	Tank temperature : _____ °F	

BSW : 1.3 % WLR : _____ %Transferring fluid : VACCUUM Transfer duration : 30 MIN

Final conditions of the shipping bottle : _____
 Pressure : 875 PSI Temp. : AMB

C - IDENTIFICATION OF THE SAMPLE

Shipping bottle No. : A-14086 sent on : _____ by : _____ Shipping order No. : _____
Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.	_____	_____
Surface samples No.	<u>8207316</u>	<u>A-14085</u>

Measurement conditions.

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

D - REMARKS -

Visa Chief Operator

FLOPETROL

Client : STATOIL

Section : ANNEX

42Base : NWBField : WILDCATPage : 34Well : 30/2-1Report N° : 82/2301/35

SURFACE SAMPLING

Date of sampling : 23.09.82 Service order : _____ Sampling No. : 3
Sample nature : GAS Sampling point : SEPARATOR GAS OUTLET

A - RESERVOIR AND WELL CHARACTERISTICS-

Producing zone : _____ Perforations : _____ Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2 TDS Casing Dia. : 7"
Surface elevation : 30 Shoe : _____ Shoe : _____Bottom hole static conditions
Initial pressure : _____ at depth : _____ date : _____
Latest pressure measured : _____ at depth : _____ date : _____
Temperature : _____ at depth : _____ date : _____

B - MEASUREMENT AND SAMPLING CONDITIONS

Time at which sample was taken : 1848-1918 Time elapsed since stabilisation : 48 MINBottom hole dynamic conditions
Choke size : 32/64 since : 1254 Well head pressure : 4980 Well head temp. : 179°F
Bottom hole pressure : _____ at depth : _____ date : _____
Bottom hole temp. : _____ at depth : _____ date : _____Flow measurement of sampled gas - Gravity (air: 1) : .695 Factor $F_{pv} = \frac{1}{\sqrt{Z}}$: 1.069
Values used for calculations : Fb 2695-08, Fg 1-1995, Y 1-0005, Ftf .9485Separator
Pressure : 870 PSIG Rates - Gas : .684 MMM³ BCFD GOR : 1905
Temp. : 116 °F Oil (separator cond.) : 359 M³ BOPD

B
C

 (separator cond.)Stock tank
Atmosphere : _____ mmHg. °F Oil at 60°F : 312 M³ BOPD
Tank temperature : _____ °F

B	a	b
---	---	---

BSW : 2 % WLR : _____ %Transferring fluid : VACCUM Transfer duration : 30 MINFinal conditions of the shipping bottle : _____
Pressure : 870 PSI Temp. : AMB

C - IDENTIFICATION OF THE SAMPLE

Shipping bottle No. : A-14085 sent on : _____ by : _____ Shipping order No. : _____
Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.	_____	_____
Surface samples No.	<u>8207316</u>	<u>A-14086</u>

Measurement conditions.

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

D - REMARKS -

Visa Chief Operator

FLOPETROL

Client : STATOIL

Section : ANNEX

42Base : NWBField : WILDCATPage : 36Well : 30/2-1Report N° : 82/2301/35

SURFACE SAMPLING

Date of sampling : 23.09.82 Service order : _____ Sampling No. : 5
Sample nature : GAS Sampling point : SEPARATOR GAS OUTLET

A - RESERVOIR AND WELL CHARACTERISTICS-

Producing zone : _____ Perforations : _____ Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2 TDS Casing Dia. : 7"
Surface elevation : 30 Shoe : _____ Shoe : _____Bottom hole static conditions
Initial pressure : _____ at depth : _____ date : _____
Latest pressure measured : _____ at depth : _____ date : _____
Temperature : _____ at depth : _____ date : _____

B - MEASUREMENT AND SAMPLING CONDITIONS

Time at which sample was taken : 2130-2200 Time elapsed since stabilisation : 3 HRS 30 MINBottom hole dynamic conditions
Choke size : 32/64 since : 1254 Well head pressure : 4950 Well head temp. : 176°F
Bottom hole pressure : _____ at depth : _____ date : _____
Bottom hole temp. : _____ at depth : _____ date : _____Flow measurement of sampled gas - Gravity (air: 1) : 695 Factor Fpv = $\frac{1}{\sqrt{Z}}$: 1.074
Values used for calculations : Fb 2695.08, Fg 1.1995, Y 1-0005, Ftf .9493Separator Pressure : 930 PSIG Rates - Gas : .675 MMM³ SCFD GOR : 1891
Temp. : 117 °F Oil (separator cond.) : 357 M³ BOPD (separator cond.)
 B CStock tank Atmosphere : _____ mmHg. _____ °F Oil at 60°F : 311 BOPD
Tank temperature : _____ °F B a bBSW : 2 % WLR : _____ %Transferring fluid : VACCUUM Transfer duration : 30 MINFinal conditions of the shipping bottle : _____
Pressure : 930 Temp. : AMB

C - IDENTIFICATION OF THE SAMPLE

Shipping bottle No. : A-14067 sent on : _____ by : _____ Shipping order No. : _____
Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.	_____	_____
Surface samples No.	<u>8207506</u>	<u>A-14065</u>

Measurement conditions.

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

D - REMARKS -

Visa Chief Operator

FLOPETROL

Client : STATOIL

Section : ANNEX

42Base : NWBField : WILDCATPage : 38Well : 30/2-1Report N° : 82/2301/35

SURFACE SAMPLING

Date of sampling : 23.09.82 Service order : _____ Sampling No. : 7
Sample nature : CONDENSATE Sampling point : SEPARATOR SIGHT GLASS

A - RESERVOIR AND WELL CHARACTERISTICS-

Producing zone : _____ Perforations : _____ Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2 TDS Casing Dia. : 7"
Surface elevation : 30 Shoe : _____ Shoe : _____Bottom hole static conditions
Initial pressure : _____ at depth : _____ date : _____
Latest pressure measured : _____ at depth : _____ date : _____
Temperature : _____ at depth : _____ date : _____

B - MEASUREMENT AND SAMPLING CONDITIONS

Time at which sample was taken : 2235-2310 Time elapsed since stabilisation : 4 HRS 35 MINBottom hole dynamic conditions
Choke size : 32/64 since : 1254 Well head pressure : 4950 Well head temp. : 177°F
Bottom hole pressure : _____ at depth : _____ date : _____
Bottom hole temp. : _____ at depth : _____ date : _____Flow measurement of sampled gas - Gravity (air: 1) : .695 Factor $F_{pv} = \frac{1}{\sqrt{Z}}$: 1.074
Values used for calculations : F_b 2695.08, F_g 1.1995, Y 1-0005, F_{tf} .9493Separator Pressure : 930 PSIG Rates - Gas : .675 MMM³ SCFD GOR : 1891
Temp. : 117 °F Oil (separator cond.) : 357 M³ BOPD (separator cond.)
 B CStock tank Atmosphere : _____ mmHg. _____ °F Oil at 60°F : 311 M³ BOPD
Tank temperature : _____ °F B a bBSW : 2 % WLR : _____ %Transferring fluid : MERCURY Transfer duration : 35 MINFinal conditions of the shipping bottle : _____
Pressure : 570 PSIG Temp. : AMB 60 cc GAS CAP 550 cc CONDENSATE SAMPLE

C - IDENTIFICATION OF THE SAMPLE

Shipping bottle No. : 8207503 sent on : _____ by : _____ Shipping order No. : _____
Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.	_____	_____
	_____	_____
	_____	_____
Surface samples No.	_____	A-14074
	_____	A-14061

Measurement conditions.

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

D - REMARKS -

Visa Chief Operator

FLOPETROL

Client : STATOIL

Section : ANNEX

42Base : NWBField : WILDCATPage : 39Well : 30/2-1Report N° : 82/2301/35

SURFACE SAMPLING

Date of sampling : 23.09.82 Service order : _____ Sampling No. : 8
Sample nature : GAS Sampling point : SEPARATOR GAS OUTLET

A - RESERVOIR AND WELL CHARACTERISTICS-

Producing zone : _____ Perforations : _____ Sampling interval : _____

Depth origin : RKB Tubing Dia. : 3 1/2 TDS Casing Dia. : 7"
Surface elevation : 30 Shoe : _____ Shoe : _____Bottom hole static conditions
Initial pressure : _____ at depth : _____ date : _____
Latest pressure measured : _____ at depth : _____ date : _____
Temperature : _____ at depth : _____ date : _____

B - MEASUREMENT AND SAMPLING CONDITIONS

Time at which sample was taken : 2235-2305 Time elapsed since stabilisation : 4 HRS 35 MINBottom hole dynamic conditions
Choke size : 32/64 since : 1254 Well head pressure : 4950 Well head temp. : 175°F
Bottom hole pressure : _____ at depth : _____ date : _____
Bottom hole temp. : _____ at depth : _____ date : _____Flow measurement of sampled gas - Gravity (air: 1) : .695 Factor $F_{pv} = \frac{1}{\sqrt{Z}}$: 1.074
Values used for calculations : F_b 2695.08, F_g 1.1995, Y 1.0005, F_{tf} .9493Separator
Pressure : 930 PSIG Rates - Gas : .675 MMM³ SCFD GOR : 1891
Temp. : 117 °F Oil (separator cond.) : 357 M³ BOPD (separator cond.)
CStock tank
Atmosphere : _____ mmHg. _____ °F Oil at 60°F : 311 M³ BOPD
Tank temperature : _____ °F B a bBSW : 2 % WLR : _____ %Transferring fluid : VACCUM Transfer duration : 30 MINFinal conditions of the shipping bottle :
Pressure : 930 Temp. : AMB

C - IDENTIFICATION OF THE SAMPLE

Shipping bottle No. : A-14074 sent on : _____ by : _____ Shipping order No. : _____
Addressee : _____

Coupled with	LIQUID	GAS
Bottom hole samples No.	_____	_____
Surface samples No.	<u>8207503</u>	<u>A-14061</u>

Measurement conditions.

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

D - REMARKS -

Visa Chief Operator

