

U-298

ESSO EXPLORATION & PRODUCTION

WELL TEST REPORT

DST NO 1

SLEIPNER 15/8-1

1 2 MARS 1982

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SEQUENCE OF OPERATIONS



OEC-872-B

TEST NUMBER DST 1	NAME GLOWAR BISCAY II	PAGE OF 1 7
WELL NAME OR NUMBER 15/8-1	FIELD SLEIPNER	AREA NORRH SEA

CUSTOMER
ESSO EXPLORATION & PROD. NORWAY
CUSTOMER REPRESENTED BY

OTIS TEST SUPERVISOR

DATE	TIME	OPERATIONS
11.11.81	12.30	S.S.T.T. ON RIG FLOOR. MADE UP X-OVERS AND TORQUED TO REQUIRED TORQUE. CHECKED ALL BODY JOINTS AND
2		FUNCTION TESTED MECHANICAL DISCONNECT.
3	14.30	SET S.S.T.T. ON PIPE-DECK.
4	15.00	PICKED UP HALCO. BOTTOM-HOLE ASSY AND MADE UP X-OVERS TO TEST TOOLS.
5	16.00	PRESSURE TESTED ASSY, AND SET DOWN ON PIPE-DECK.
6	16.30	PICKED UP LUBRICATOR VALVE TO RIG FLOOR. MADE UP X-OVERS AND CHECKED BODY JOINTS.
7	17.15	LAID DOWN ON CATWALK.
8	01.06	ENGAGED STYLUS AND CLOCK ON OTIS AMERADA GAUGE.
9	02.16	GAUGES SET IN X-N NIPPLE.
10	02.30	START TO MAKE UP BOTTOM HOLE HALCO TOOLS.
11	03.00	START TO R.I.H. WITH TEST-STRING.
12	21.00	R.I.H. WITH HANG-OFF TOOL. WAIT ON WEATHER.
13	07.00	S.S.T.T. ON RIG FLOOR.
14	07.06	S.S.T.T. MADE UP TO DRILL STEM TEST STRING.
15	07.25	FUNCTION BALL CONTROL LINE. TORQUE HANDLING SUB.
16	08.15	R.I.H. WITH S.S.T.T.
17	09.00	LUBRICATOR VALVE ON RIG FLOOR.
18	09.08	LUBRICATOR VALVE MADE UP TO TEST STRING.
19	09.20	FUNCTION BALL VALVE OPEN LINE.



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DATE	TIME	OPERATIONS
14.11.81	09.46	LUBRICATOR VALVE THROUGH ROTARY TABLE.
14.11.81	10.00	RIG UP 50 FT. BALES TO DRAWWORKS.
14.11.81	10.30	PRESSURE TEST-STRING TO 7500 PSI.
14.11.81	11.00	S.T.T. ON RIG FLOOR.
14.11.81	11.20	RIG UP FLOW AND KILL LINES TO S.T.T.
14.11.81	11.42	S.T.T. MADE UP TO TEST-STRING.
14.11.81	11.57	R.I.H. WITH LANDING STRING AND SET FLUTED HANGER IN WELLHEAD.
14.11.81	12.13	CLOSED FAILSAFE VALVE.
14.11.81	12.15	PRESS TEST STRING TO 500 PSI AND 7500 PSI.
14.11.81	12.30	LEAK ON KILL LINE CHIKSAN. BLEED PRESSURE. CHANGE SWIVEL.
14.11.81	12.50	OPEN FAILSAFE VALVE. FLUSH LINES.
14.11.81	12.53	CLOSE FAILSAFE VALVE. TEST-STRING TO 7500 PSI.
14.11.81	12.55	CLOSE I.P. RAMS. CHECKED FLUID VOLUME TO CLOSE.
14.11.81	13.15	CLOSE S.S.T.T. BLEED OFF ABOVE TO 500 PSI.
14.11.81	13.30	EQUALISE ACROSS S.S.T.T. AND RE-OPEN. TEST O.K.
14.11.81	13.32	CLOSE LUBRICATOR VALVE. BLEED OFF ABOVE TO 500 PSI.
14.11.81	13.50	EQUALISE ACROSS LUBRICATOR VALVE. RE-OPEN.
14.11.81	13.55	RE-TEST STRING TO 7500 PSI.
14.11.81	14.10	TEST O.K. BLEED OFF PRESSURE.

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DATE	TIME	OPERATIONS
14.11.81	14.15	CLOSE LOWER MASTER VALVE ON S.T.T. TEST TO 500 PSI. AND 7500 PSI.
14.11.81	14.35	TEST O.K. BLEED OF PRESSURE.
14.11.81	14.40	COMMENCE RIGGING UP CHOKE MANIFOLD AND SURFACE FLOW LINES.
14.11.81	15.20	OPEN FAILSAFE VALVE. FLUSH LINES STB. BURNER.
14.11.81	15.33	CLOSE UPSTREAM CHOKE V/V'S. TEST TO 500 PSI AND 7500 PSI.
14.11.81	15.56	LEAK ON KILL LINE CHIKSAN. CHANGE OUT SWIVEL.
14.11.81	16.10	OPEN CHOKE VALVES. FLUSH LINES. CLOSE UPSTREAM CHOKE VALVES.
14.11.81	16.15	RE-TEST CHOKE UPSTREAM VALVES 7500 PSI. LEAK ON KILL LINE CHIKSANS.
14.11.81	16.40	OPEN CHOKE VALVES RIG UP NEW KILL LINE WITH FLEXIBLE H.P. HOSE.
14.11.81	16.45	CLOSE UPSTREAM VALVES ON CHOKE. TEST TO 5500 PSI.
14.11.81	16.55	TEST TO 7500 PSI.
14.11.81	17.05	TEST O.K. BLEED OFF PRESSURE.
14.11.81	17.10	OPEN FRONT V/V'S. ON CHOKE. CLOSE DOWNSTREAM VALVES. TEST TO 500 PSI AND 7500 PSI.
14.11.81	17.25	OPEN DOWNSTREAM CHOKE VALVES. CLOSE HEATER INLET/BY-PASS V/V'S. TEST TO 500 PSI.
14.11.81	17.30	TEST HEATER V/V'S. 5000 PSI.
14.11.81	17.35	BLEED PRESSURE. OPEN HEATER VALVES.
14.11.81	17.40	PRESSURE TEST SEPARATOR INLET AND BY-PASS VALVES TO 500 PSI AND 1200 PSI.
14.11.81	17.50	BLEED OFF PRESSURE. TEST O.K.
14.11.81	18.00	RIG UP EXTRA 10 FT CHIKSAN TO FLOW LINE.

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DATE	TIME	OPERATIONS
14.11.81	18.15	PRESSURE TEST FLOW LINE AGAINST CHOKE MANIFOLD FRONT VALVES 7500 PSI.
14.11	18.31	TEST O.K. BLEED OFF PRESSURE.
14.11.81	18.35	CLOSE S.T.T. KILL-LINE VALVE. OPEN MASTER VALVE.
14.11.81	18.56	SET R.T.T.S. PACKER 25 ROTATIONS AND SET DOWN FLUTED HANGER IN WELLHEAD.
14.11.81	19.15	PRESSURE ANNULUS TO OPEN APR-N TESTER VALVE. (L.P. RAMS CLOSED).
14.11.81	19.20	NO INDICATION ON SURFACE OF WELL OPEN.
14.11.81	19.25	INCREASE ANNULUS PRESSURE.
14.11.81	19.27	NO INDICATION ON SURFACE.
14.11.81	19.36	OPEN CHOKE MANIFOLD. BLEED OFF WATER IN FLOW LINE.
14.11.81	19.37	FLOW WELL TO SAMPLE POINT ON CHOKE MANIFOLD ONLY. CHOKE CLOSED.
14.11.81	19.47	PICK UP TEST-STRING 6 METERS AND ROTATE 1.5 TURNS TO CYCLE DRILL PIPE TESTER VALVE.
14.11.81	19.54	SET DOWN TEST-STRING WEIGHT IN WELLHEAD.
14.11.81	19.55	RE-PRESSURE ANNULUS TO CYCLE APR-N TESTER VALVE.
14.11.81	19.57	NO INDICATION OF APR-N OPEN AT SURFACE.
14.11.81	20.28	PICK-UP STRING WEIGHT TO CYCLE DRILL-PIPE TESTER VALVE. ROTATE 2 TURNS TO RIGHT.
14.11.81	20.37	SET DOWN TEST STRING WEIGHT IN WELLHEAD.
14.11.81	20.40	RE-PRESSURED ANNULUS TO CYCLE APR-N TESTER VALVE OPEN.
14.11.81	20.41	SLIGHT INDICATION AT SURFACE.
14.11.81	20.44	NO INDICATION AT SURFACE.



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14.11.81	20.45	CLOSE NEEDLE VALVE AT SAMPLE POINT.
14.11.81	22.23	OPEN KILL LINE VALVE ON S.T.T.
14.11.81	22.25	PRESSURE TEST-STRING TO 3500 PSI.
14.11.81	22.28	BLEED OFF THROUGH ADJUSTABLE CHOKE SLOWLY TO 200 PSI.
14.11.81	22.38	RE-PRESSURED TEST-STRING TO 3500 PSI.
14.11.81	22.40	BLEED OFF THROUGH ADJUSTABLE CHOKE TO 25 PSI.
14.11.81	22.45	BLEED OFF ANNULUS PRESSURE.
14.11.81	22.48	PRESSURE TEST-STRING TO 510 PSI.
14.11.81	22.50	RE-PRESSURED ANNULUS TO 2400 PSI. TEST-STRING PRESSURE INCREASED TO 800 PSI.
		DUE TO COMPRESSION OF TEST-STRING. INCREASE ANNULUS PRESSURE TO 3100 PSI.
14.11.81	23.00	BLEED OFF TEST-STRING PRESSURE AT ADJUSTABLE CHOKE TO STOCK-TANK.
14.11.81	23.02	CLOSE VALVES ON CHOKE MANIFOLD.
14.11.81	23.20	PRESSURE ANNULUS TO OPEN APR-M CIRCULATING VALVE 4300 PSI. SURFACE PRESSURE 5600 PSI.
		CLOSE S.T.T. KILL LINE VALVE.
14.11.81	23.36	OPEN ADJUSTABLE CHOKE AND COMMENCE REVERSE CIRCULATION AT CONTROLLED PRESSURE TO GAS FLARE.
15.11.81	00.12	MUD TO SURFACE. CLOSE VALVES AT CHOKE MANIFOLD. STOP CIRCULATING.
15.11.81	00.15	OPEN S.T.T. KILL LINE VALVE. RECOMMENCE CIRCULATING THROUGH SHALE SHAKERS.
15.11.81	02.20	STOP CIRCULATING. CLOSE S.T.T. MASTER VALVE.
15.11.81	02.26	COMMENCE FLUSHING THROUGH SURFACE FLOW-LINES.

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15.11.81	02.35	FINISHED FLUSHING SURFACE FLOW-LINES.
15.11.81	02.40	PICK-UP LANDING STRING AND BREAK OUT S.T.T. AND SINGLE TUBING T.T.
15.11.81	02.45	RIG DOWN CHIKSAN LINES FLOW AND KILL FROM S.T.T.
15.11.81	03.00	LAID DOWN S.T.T. ON PIPE-DECK.
15.11.81	03.15	PICKED UP SINGLE TUBING T.T. AND MADE UP TO STRING.
15.11.81	03.29	UNSEATED R.T.T.S PACKER.
15.11.81	03.34	SET LANDING STRING DOWN IN WELLHEAD.
15.11.81	03.50	COMMENCE CIRCULATING UNDER PACKER.
15.11.81	04.00	LAID DOWN CHOKE MANIFOLD AND CHIKSANS.
15.11.81	05.10	PUMPED SLUG DOWN STRING.
15.11.81	05.27	START P.O.O.H WITH DRILL-STEM TEST TOOLS. STRING HANGING UP WHILST P.O.O.H.
15.11.81	06.12	LUBRICATOR VALVE THROUGH ROTARY TABLE.
15.11.81	06.52	LUBRICATOR VALVE ON PIPE-DECK. COMMENCE P.O.O.H. WITH S.S.T.T.
15.11.81	07.45	S.S.T.T. IN ROTARY TABLE. TEST-STRING STILL HANGING UP WHILST P.O.O.H. ATTEMPT TO LOCATE RIG DIRECTLY OVER LOCATION.
15.11.81	08.00	UNLATCHED S.S.T.T. AT DISCONNECT. CLEANED AND GREASED LATCH PACKING MANDREL.
15.11.81	08.07	RE-LATCHED S.S.T.T. AND LAID DOWN ON PIPE-DECK.
15.11.81	21.20	X-N NIPPLE IN ROTARY.
15.11.81	21.45	B.H.P. GAUGES RECOVERED. NO AMERADA ON TOOLSTRING.

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DATE	TIME	OPERATIONS
16.11.81	17.30	1 COMMENCE IN HOLE WITH TAIL PIPE OF TEST STRING.
16.11.81	17.50	2 CLOCK OF AMERADA ENGAGED.
16.11.81	18.00	3 STYLUS OF AMERADA ENGAGED.
16.11.81	18.36	4 GAUGE STRING LOWERED INTO TEST STRING.
16.11.81	18.40	5 GAUGE STRING LANDED OFF IN X-N NIPPLE.
16.11.81	18.45	6 START TO R.I.H. WITH TEST STRING.
17.11.81	09.33	7 S.S.T.T. ON CATWALK.
17.11.81	09.53	8 S.S.T.T. MADE UP TO TEST-STRING.
17.11.81	10.19	9 FUNCTION TESTED HYDRAULIC DISCONNECT.
17.11.81	10.25	10 PRESSURED CONTROL LINE. BALL VALVES OPEN.
17.11.81	10.35	11 S.S.T.T. THROUGH ROTARY TABLE.
17.11.81	11.03	12 LUBRICATOR VALVE ON RIG FLOOR.
17.11.81	11.07	13 LUBRICATOR VALVE MADE-UP TO TEST-STRING.
17.11.81	11.18	14 FUNCTION TEST LUB.VALVE CLOSED.
17.11.81	11.27	15 FUNCTION TEST LUB.VALVE OPEN.
17.11.81	11.28	16 LUB. VALVE THROUGH ROTARY TABLE.
17.11.81	12.00	17
17.11.81	13.00	18 MAKE UP WIRE BALES TO DRAWWORKS. PRESS-TEST STRING TO 7500 PSI.
17.11.81	13.18	19 S.T.T. ON RIG FLOOR IN MOUSEHOLE.
17.11.81	13.20	20 TORQUE CONNECTIONS ABOVE LIT-20 SWIVEL.



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DATE	TIME	OPERATIONS
17.11.81	13.40	RIG UP KILL AND FLOW LINES TO S.T.T.
17.11.81	14.10	S.T.T. MADE-UP TO TEST-STRING.
17.11.81	14.15	LAND S.S.T.T. IN WELLHEAD.
17.11.81	14.25	FILL UP TEST-STRING WITH WATER.
17.11.81	14.30	CLOSE FAILSAFE VALVE.
17.11.81	14.32	PRESS. TEST STRING TO 500 PSI AND 7500 PSI.
17.11.81	15.05	CLOSE S.S.T.T. BALL VALVES.
17.11.81	15.10	BLEED OFF ABOVE TO 500 PSI.
17.11.81	15.23	EQUALISE ACROSS S.S.T.T.
17.11.81	15.25	RE-OPEN S.S.T.T.
17.11.81	15.32	CLOSE LUBRICATOR VALVE.
17.11.81	15.33	BLEED OFF ABOVE LUB. VALVE TO 500 PSI.
17.11.81	15.48	EQUALISE ACROSS LUB. VALVE.
17.11.81	15.53	RE-OPEN LUB. VALVE.
17.11.81	15.56	BLEED OFF STRING PRESSURE.
17.11.81	16.08	CLOSE I.M. VALVE ON S.T.T.
17.11.81	16.10	PRESS. TEST I.M. VALVE 500 PSI AND 7500 PSI.
17.11.81	16.30	BLEED OFF PRESSURE. TEST O.K.
17.11.81	16.31	OPEN FAILSAFE VALVE.



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DATE	TIME	OPERATIONS
17.11.81	16.35	START TO RIG UP CHOKE MANIFOLD AND SURFACE FLOW LINES.
17.11.81	17.17	CLOSE L.P. RAMS AND CIRC. CHOKE/KILL LINES.
17.11.81	17.25	FLUSH THROUGH SURFACE LINES TO GAS FLARE.
17.11.81	17.27	CLOSE FRONT VALVES ON CHOKE MANIFOLD.
17.11.81	17.28	PRESS. TEST TO 500 PSI AND 7500 PSI.
17.11.81	17.50	BLEED OFF PRESSURE. CLOSE BACK VALVES. OPEN FRONT VALVES.
17.11.81	17.54	PRESS. TEST TO 500 PSI AND 5,000 PSI.
17.11.81	18.06	PRESSURE DROPPING. OPEN NEEDLE VALVE TO BLEED OFF AIR.
17.11.81	18.10	RE-TEST BACK VALVES 5,000 PSI.
17.11.81	18.14	PRESSURE DROPPING OFF.
17.11.81	18.15	BULL-PLUG 2" KILL-LINE AND TEST TO 5,000 PSI.
17.11.81	18.20	TEST O.K. TIGHTEN WECO UNION ON FLOW-LINE.
17.11.81	18.36	RE-TEST BACK VALVES ON CHOKE 5,000 PSI.
17.11.81	18.40	PRESSURE DROP TO 4750 PSI.
17.11.81	18.50	PUMP SEALING COMPOUND INTO VALVES AND OPERATE.
17.11.81	19.15	RE-TEST VALVES TO 5,000 PSI.
17.11.81	19.25	TEST O.K.
17.11.81	19.28	FLUSH LINES TO GAS FLARE AND CLOSE HEATER VALVES. PRESSURE TO 500 PSI.
17.11.81	19.34	LEAK ON WECO CONNECTION.



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17.11.81	19.45	BREAK UNION AND REPLACE SEAL.
17.11.81	20.00	RE-TEST HEATER VALVES TO 5,000 PSI AND 500 PSI.
17.11.81	20.26	TEST O.K. OPEN HEATER BY-PASS VALVE AND CLOSE SEPARATOR INLET/BY-PASS VALVES.
17.11.81	20.28	PRESS. TEST TO 500 PSI AND 1200 PSI.
17.11.81	20.45	BLEED OFF PRESS. TEST O.K.
17.11.81	21.00	PICK UP LANDING STRING, ROTATE TO SET R.T.T.S. PACKER.
17.11.81	21.05	CLOSE VALVES ON CHOKE.
17.11.81	21.12	CLOSE KILL-LINE VALVE. OPEN MASTER VALVE.
17.11.81	21.14	PRESSURE ANNULUS TO OPEN APR-N TESTER VALVE 1900 PSI.
17.11.81	21.18	NO PRESSURE INDICATION ON SURFACE. NO FLOW. OPEN CHOKE 21.21 CLOSE CHOKE 21.23
17.11.81	21.36	BLEED OFF ANNULUS PRESSURE CLOSE N-TOOL.
17.11.81	21.37	RE-PRESSURED ANNULUS TO OPEN APR-N TESTER VALVE.
17.11.81	21.38	NO FLOW INDICATION ON SURFACE.
17.11.81	21.47	BLEED OFF PRESSURE. TO CLOSE APR-N.
17.11.81	21.48	RE-CYCLE DRILL PIPE TESTER VALVE. 21.51 LAND S.S.T.T. CLOSE L.P. RAMS.
17.11.81	21.54	RE-PRESSURED ANNULUS TO OPEN APR-N TESTER VALVE. 1900 PSI.
17.11.81	21.56	NO FLOW INDICATION ON SURFACE.
17.11.81	22.02	INCREASE ANNULUS PRESSURE TO 2100 PSI. NO SURFACE INDICATION.
17.11.81	22.05	CLOSE NEEDLE VALVE ON CHOKE.



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17.11.81	22.12	BLEED OFF ANNULUS PRESSURE. CLOSE N-TOOL.
17.11.81	22.14	RE-CYCLE DRILL PIPE TESTER VALVE. LAND S.S.T.T. AND CLOSE RAMS.
17.11.81	22.20	RE-PRESSURED ANNULUS TO OPEN APR-N TESTER VALVE.
17.11.81	22.22	NO FLOW INDICATION ON SURFACE.
17.11.81	23.31	BLEED OFF ANNULUS PRESSURE. CLOSE N-TOOL. 23.40 PRESSURE STRING 1500 PSI.
17.11.81	23.42	PRESSURE ANNULUS TO OPEN APR-N TESTER VALVE. NO FLOW INDICATION.
17.11.81	23.46	BLEED PRESS. FROM TEST-STRING FROM 1500 PSI TO ZERO.
17.11.81	23.50	BLEED OFF ANNULUS PRESSURE. CLOSE N-TOOL.
17.11.81	23.52	PRESSURE STRING TO 1900 PSI.
17.11.81	23.54	PRESSURE ANNULUS TO OPEN APR-N TESTER VALVE.
17.11.81	23.56	BLEED OFF STRING PRESSURE TO STOCK-TANK.
17.11.81	23.58	BLEED OFF ANNULUS PRESSURE. TO CLOSE N-TOOL.
18.11.81	00.02	PRESSURE ANNULUS TO OPEN APR-N TESTER VALVE. 00.03 PRESSURE STRING TO 1900 PSI.
18.11.81	00.11	CLOSE S.T.T. FAILSAFE VALVE.
18.11.81	00.12	PRESSURE STRING TO 3800 PSI. BLEED OFF STRING THROUGH HALLIBURTON UNIT.
18.11.81	00.18	BLEED OFF ANNULUS PRESSURE. CLOSE N-TOOL.
18.11.81	00.20	PRESS UP STRING TO CHECK VOLUME DIFFERENCE WITH APR-N CLOSED. 00.26 PRESS. ANNULUS APR-N OPEN.
18.11.81	00.30	OPEN S.T.T. FAILSAFE. 00.29 BLEED OFF ANNULUS. CLOSE N-TOOL.
18.11.81	00.31	RE-CYCLE DRILL PIPE TESTER VALVE.



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1 18.11.81	00.34	SET LANDING STRING BACK IN WELLHEAD.
2 18.11.81	00.45	PRESSURE ANNULUS TO OPEN APR-N TESTER VALVE. WELL OPEN TO BUBBLE-HOSE.
3 18.11.81	01.10	CLOSED KILL-LINE. WELL OPEN TO BUBBLE-HOSE ONLY.
4 18.11.81	01.15	NO FLOW INDICATION. NO PRESSURE READINGS.
5 18.11.81	07.08	CLOSED. SHUT IN WELL AT CHOKE MANIFOLD FRONT VALVES. NO BUILD-UP AT SURFACE.
6 18.11.81	09.30	PRESSURE ANNULUS TO 1900 PSI.
7 18.11.81	09.35	PRESSURE ANNULUS TO 2100 PSI.
8 18.11.81	09.38	PRESSURE ANNULUS TO 2200 PSI.
9 18.11.81	09.39	PRESSURE ANNULUS TO 2400 PSI.
10 18.11.81	09.41	PRESSURE ANNULUS TO 2600 PSI.
11 18.11.81	09.44	PRESSURE ANNULUS TO 2800 PSI.
12 18.11.81	09.46	PRESSURE ANNULUS TO 3000 PSI.
13 18.11.81	09.50	PRESSURE ANNULUS TO 3200 PSI.
14 18.11.81	09.52	PRESSURE ANNULUS TO 3400 PSI.
15 18.11.81	09.53	APR-N SHEARED. TEST-STRING PRESSURE INCREASED TO 4000 PSI.
16 18.11.81	09.54	32/64 OPEN CHOKE AND COMMENCE REVERSE CIRCULATION TO GAS FLARE.
17 18.11.81	10.16	STOP PUMPING.
18 18.11.81	10.19	RE-COMMENCE PUMPING.
19 18.11.81	10.23	STOP PUMPING. MUD AT SURFACE.



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WELL NAME OR NUMBER 15/8-1	FIELD SLEIPNER	AREA NORTH SEA

CUSTOMER
ESSO EXPLORATION & PROD. NORWAY

CUSTOMER REPRESENTED BY

OTIS TEST SUPERVISOR

DATE	TIME	OPERATIONS	
1 18.11.81	10.30	CLOSE MASTER VALVE. OPEN KILL VALVE. FLUSH SURFACE LINES.	1
2 18.11.81	10.40	STOPPED PUMPING.	2
3 18.11.81	11.00	RIG DOWN S.T.T. AND FLOW-LINE TO CHOKE MANIFOLD.	3
4 18.11.81	11.50	UNSEATED R.T.T.S. AND START CIRCULATING LONG WAY.	4
5 18.11.81	12.15	LAY DOWN CHOKE MANIFOLD.	5
6			6
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18			18
19			19



TEST NUMBER D.S.T. 1 B		NAME GLONAR BISCAY II		PAGE OF 1 3	
WELL NAME OR NUMBER 15/8-1		FIELD SLEIPNER		AREA NORTH SEA	
CUSTOMER ESSO EXPLORATION & PROD. NORWAY		OTIS TEST SUPERVISOR			

CUSTOMER REPRESENTED BY		OPERATIONS	
DATE	TIME		
19.11.81		PREPARE EQUIPMENT FOR TEST PROGRAMME.	1
20.11.81	05.23	B.H.P. GAUGES HUNG OFF IN 'XN' NIPPLE AND TEST STRING RUN IN HOLE. TEST STRING HUNG OFF BECAUSE OF	2
		WORSENING WEATHER.	3
21.11.81	11.35	PULL TEST STRING.	4
21.11.81	16.29	REMOVE B.H.P. GAUGES FROM TAILPIPE.	5
21.11.81	16.41	RE-ENGAGE CLOCK AND STYLUS ON AMERADA GAUGES (CHART RENEWED).	6
21.11.81	17.30	B.H.P. GAUGES HUNG OFF IN 'XN' NIPPLE AND TEST STRING RUN IN HOLE.	7
22.11.81	15.10	S.S.T.T. PICKED UP.	8
22.11.81	15.14	S.S.T.T. STABBED ON STRING AND TESTED.	9
22.11.81	15.40	S.S.T.T. RUN IN HOLE.	10
22.11.81	16.30	LUBRICATOR VALVE PICKED UP.	11
22.11.81	16.40	LUBRICATOR VALVE STABBED ON STRING, TESTED AND RUN IN HOLE.	12
22.11.81	17.10	PICK UP S.T.T., WIRELINE SLINGS AND RIG UP FLOWLINES TO S.T.T.	13
22.11.81	18.45	S.T.T. STABBED ON STRING, RIG UP KILL LINE, DATA HEADER AND INSTRUMENTS.	14
22.11.81	20.00	FLUSH LINES TO AFT GAS FLARE LINE.	15
22.11.81	20.08	PRESSURE TEST HEATER INLET (500 - 5-00 PSI).	16
22.11.81	20.25	TEST GOOD.	17
22.11.81	20.28	PRESSURE TEST BACK VALVES ON OTIS CHOKE MANIFOLD (500 - 5000 PSI).	18
22.11.81	20.38	TEST GOOD.	19



UNIT OF U

OEC-872-B

CUSTOMER

ESSO EXPLORATION & PROD. NORWAY

CUSTOMER REPRESENTED BY

TEST NUMBER

D.S.T. 1 B

WELL NAME OR NUMBER
15/8-1

P.I.G. NAME

GLOMAR BISCAY II
FIELD
SLEIPNER

AREA

NORTH SEA

PAGE OF

2 | 3

OTIS TEST SUPERVISOR

DATE	TIME	OPERATIONS
22.11.81	20.43	PRESSURE TEST FRONT VALVES ON OTIS CHOKE MANIFOLD (500 - 7500 PSI).
22.11.81	21.00	TEST GOOD.
22.11.81	21.05	PRESSURE TEST FLOWLINE FAILSAFE VALVE (500 - 7500 PSI).
22.11.81	21.22	TEST GOOD.
22.11.81	21.26	PRESSURE TEST KILL VALVE (500 - 7500 PSI).
22.11.81	21.50	TEST GOOD.
22.11.81	22.25	LOST CONTROL LINE PRESSURE ON S.T.T. (BUNDLE SEVERED).
22.11.81	22.45	RIG DOWN S.T.T. AND FLOWLINES.
23.11.81	00.25	LUBRICATOR VALVE THROUGH ROTARY (DAMAGE FOUND IN S.S.T.T. CONTROL BUNDLE). REDRESS AND TEST HOSE BUNDLE.
23.11.81	01.15	LUBRICATOR VALVE RUN IN HOLE.
23.11.81	02.10	S.T.T. PICKED UP AND LINES MADE UP.
23.11.81	02.35	S.T.T. STABBED ON STRING.
23.11.81	02.55	FLUSH LINES TO AFT GAS FLARE LINE.
23.11.81	03.06	REPEAT ALL PRESSURE TESTS, W.O.W., RIG DOWN SURFACE LINES AND PULL S.S.T.T.
24.11.81		WAITING ON WEATHER.
25.11.81		WAITING ON WEATHER.
26.11.81		SET PACKER AND CIRCULATE WELL, WAITING ON WEATHER.
27.11.81		PULL TEST STRING.



SEQUENCE OF OPERATIONS

DEC-872-B

CUSTOMER ESSO EXPLORATION & PROD. NORWAY CUSTOMER REPRESENTED BY	WELL NAME OR NUMBER 15/8-1	TEST NUMBER D.S.T. 1 B	NAME GLOMAR BISCAY II	PAGE OF 3 3
	FIELD SLEIPNER		AREA NORTH SEA	

OTIS TEST SUPERVISOR

DATE	TIME	OPERATIONS
1		
28.11.81		WAITING ON WEATHER.
2		
29.11.81		WAITING ON WEATHER.
3		
30.11.81		PREPARE EQUIPMENT FOR D.S.T. 1 C.
4		
01.12.81		PREPARE EQUIPMENT FOR D.S.T. 1 C.
5		
6		
7		
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SEQUENCE OF OPERATIONS

OEC-872-B



CUSTOMER

ESSO EXPLORATION

CUSTOMER REPRESENTED BY

TEST NUMBER

D.S.T. 1c

WELL NAME

GLOMAR BISCAY 2

PAGE OF

1 4

WELL NAME OR NUMBER

15/8-1

FIELD

SLEIPNER

AREA

NORWAY

OTIS TEST SUPERVISOR

DATE	TIME	OPERATIONS
02:12:81	06.55	Pick up S.S.T.T.
	07.00	S.S.T.T. stabbed on string.
	07.10	S.S.T.T. in slips and function tested.
	07.40	S.S.T.T. run in hole (valves open).
	09.20	Pick up lubricator valve.
	09.30	Lubricator valve stabbed on string.
	09.34	Lubricator valve run in hole (valve open).
	09.57	Pick up S.T.T.
	10.00	S.T.T. in mousehole and flowlines rigged up.
	10.20	S.T.T. stabbed on string.
	10.32	Pick pp Otis choke manifold.
	11.08	Complete rigging up flow/kill lines, data header etc.,
	11.50	Close master and swab valves, flush lines to aft gas flare line.
	12.00	Close and pressure test kill valve (500, 7500 psi).
	12.35	Test good.
	12.40	Open kill and master valves, close flowline failsafe valve.
	12.46	Pressure test tubing (500, 5000 psi).
	13.06	Close and differential test S.S.T.T.
	13.20	Test good.



SEQUENCE OF OPERATIONS

OEC--972-B

TEST NUMBER D.S.T. 1c	WELL NAME OR NUMBER 15/8-1	OTIS TEST SUPERVISOR
AREA GLOMAR BISCAY 2	FIELD SLEIPNER	AREA NORWAY

R / NAME

PAGE OF
2 | 4

CUSTOMER

ESSP EXPLORATION

CUSTOMER REPRESENTED BY

DATE	TIME	OPERATIONS
1		
02:12:81	13.22	Equalise over and open S.S.T.T.
2		
13.25		Close and differential test lubricator valve (5000 psi).
3		
13.40		Test good.
4		
13.41		Equalise over and open S.S.T.T.
5		
13.45		Bleed down tubing.
6		
13.46		Close master valve, open flowline failsafe valve.
7		
13.47		Close upstream valves on Otis choke manifold, and pressure test (500, 7500 psi).
8		
14.02		Change out leaking chicksan.
9		
14.30		Repeat test (close flowline failsafe valve). Leak at cement unit.
10		
15.05		Test good.
11		
15.41		Open flowline failsafe valve.
12		
16.25		Pressure test downstream valves on Otis choke manifold (500, 5000 psi).
13		
16.35		Test good.
14		
16.37		Pressure test heat exchanger inlet (500, 7500 psi).
15		
16.53		Test good.
16		
17.00		Pressure test burner oil lines (500, 1000 psi).
17		
17.15		Test good.
18		
17.58		Set R.T.T.S. packer.
19		
18.28		Open APR-N for enclosed chamber test.



SEQUENCE OF OPERATIONS

DEC-87Z-B

TEST NUMBER D.S.T. 1c	WELL NAME OR NUMBER 15/8-1	OTIS TEST SUPERVISOR	NAME GLOMAR BISCAY 2	AREA NORWAY	PAGE OF 3 4
CUSTOMER ESSO EXPLORATION		FIELD SLEIPNER			

CUSTOMER REPRESENTED BY

DATE	TIME	OPERATIONS
02:12:81	18.31	Well opened through 32/64" variable choke, flow directed to stock tank.
	18.34	Well shut in at APR-N and Otis choke manifold for initial build up.
	19.57	Open APR-N.
	20.01	Well opened through 24/64" variable choke, flow directed to stock tank.
	20.12	Changed to 20/64" variable choke.
	20.40	Gas to surface.
	20.41	Changed to 30/64" variable choke.
	20.53	Changed to 36/64" variable choke.
	21.01	Changed to 40/64" variable choke.
	21.16	Changed to 44/64" variable choke.
	21.25	Changed to 48/64" variable choke.
	21.36	Flow directed through heat exchanger.
	22.22	Changed to 48/64" fixed choke.
	23.00	Flow directed through separator.
03:12:81		Flow directed to tank to obtain meter factor. Bypass tank, flow directed to aft burner.
	08.34	Bypass separator.
	08.36	Well shut in at APR-N and Otis choke manifold for final build up.
	13.57	Bleed down tubing.
	14.24	Close Otis choke manifold.

SEQUENCE OF OPERATIONS

DEC-872-B



TEST NUMBER	D.S.T. 1c	NAME	GLOMAR BISCAY 2	PAGE OF	4	4
WELL NAME OR NUMBER	15/8-1	FIELD	SLEIPNER	AREA	NORWAY	

CUSTOMER ESSE EXPLORATION
 CUSTOMER REPRESENTED BY OTIS TEST SUPERVISOR

DATE	TIME	OPERATIONS	
03:12:81	14.36	Open kill valve.	1
	14.40	Commence pumping 79 barrels of mud.	2
04:12:81	04.36	Open APR-M (D.S.T. 1c complete, because of worsening weather).	3
			4
			5
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			19

SURFACE SAMPLING DATA



OEC-877-B

TEST NUMBER D.S.T. 1 C	RATE NUMBER 1	AREA Norway	DATE (DAY MO YR.) 03.12.81	PAGE OF 1
WELL NAME OR NUMBER 15/8-1		FORMATION SLEIPNER		
STANDARD CONDITIONS				
<input checked="" type="checkbox"/> 14.73 psi 60°F		<input type="checkbox"/> OTHER		
EVALUATION (FEET)				
TIME WELL FLOWING OR SHUT IN BEFORE SAMPLING		INTERVAL TESTED (FEET)		

SAMPLE # 1

WELL HEAD	CONTAINER #	CONTAINER VOL. (cc) or (gal)	INITIALLY FILLED WITH	SAMPLE TYPE	SAMPLE TAKEN AT	SAMPLING PRESSURE (psig)	SAMPLING TEMP. (°F)	ATMOSPHERIC PRESS. (psi)	ATMOS. TEMP. (°F)	TIME TO TAKE SAMPLE (min)
860	108	20 L.	EVAC.	GAS	SEPARATOR	515	88	14.76		5

FIELD READINGS AND FACTORS USED

WELL HEAD PRESS. (psig)	CHOKE SIZE (64th INCH)	LO STAGE SEP.			BOTTOM HOLE			OIL			GAS			TOTAL GAS/OIL FLOW RATE AT STOCK TANK (BPD) (MMCF/D)	WATER FLOW RATE (BPD)	
		HI STAGE SEP. TEMP. (°F)	HI STAGE SEP. PRESS. (psig)	LO STAGE SEP. TEMP. (°F)	LO STAGE SEP. PRESS. (psig)	TEMP. (°F)	PRESS. (psig)	FT	FT	GRAVITY @ 60 °F (°API)	BSW (%)	W _f (C)	C ₁ (C)			GRAVITY (AIR=1)
860	48	515	88			56.1			2	.86			.835	1.0861	14.70	7582.9

SAMPLE # 2

WELL HEAD	CONTAINER #	CONTAINER VOL. (cc) or (gal)	INITIALLY FILLED WITH	SAMPLE TYPE	SAMPLE TAKEN AT	SAMPLING PRESSURE (psig)	SAMPLING TEMP. (°F)	ATMOSPHERIC PRESS. (psi)	ATMOS. TEMP. (°F)	TIME TO TAKE SAMPLE (min)
732	102	20 L.	EVAC.	GAS	SEPARATOR	515	88	14.76		8

FIELD READINGS AND FACTORS USED

WELL HEAD PRESS. (psig)	CHOKE SIZE (64th INCH)	LO STAGE SEP.			BOTTOM HOLE			OIL			GAS			TOTAL GAS/OIL FLOW RATE AT STOCK TANK (BPD) (MMCF/D)	WATER FLOW RATE (BPD)	
		HI STAGE SEP. TEMP. (°F)	HI STAGE SEP. PRESS. (psig)	LO STAGE SEP. TEMP. (°F)	LO STAGE SEP. PRESS. (psig)	TEMP. (°F)	PRESS. (psig)	FT	FT	GRAVITY @ 60 °F (°API)	BSW (%)	W _f (C)	C ₁ (C)			GRAVITY (AIR=1)
860	48	515	88			56.1			2	.86			.835	1.0861	14.70	7582.9

SAMPLE # 3

WELL HEAD	CONTAINER #	CONTAINER VOL. (cc) or (gal)	INITIALLY FILLED WITH	SAMPLE TYPE	SAMPLE TAKEN AT	SAMPLING PRESSURE (psig)	SAMPLING TEMP. (°F)	ATMOSPHERIC PRESS. (psi)	ATMOS. TEMP. (°F)	TIME TO TAKE SAMPLE (min)
720	505 CC	505 CC	BRINE	OIL	SEPARATOR	515	88	14.76		10

FIELD READINGS AND FACTORS USED

WELL HEAD PRESS. (psig)	CHOKE SIZE (64th INCH)	LO STAGE SEP.			BOTTOM HOLE			OIL			GAS			TOTAL GAS/OIL FLOW RATE AT STOCK TANK (BPD) (MMCF/D)	WATER FLOW RATE (BPD)	
		HI STAGE SEP. TEMP. (°F)	HI STAGE SEP. PRESS. (psig)	LO STAGE SEP. TEMP. (°F)	LO STAGE SEP. PRESS. (psig)	TEMP. (°F)	PRESS. (psig)	FT	FT	GRAVITY @ 60 °F (°API)	BSW (%)	W _f (C)	C ₁ (C)			GRAVITY (AIR=1)
1860	48	515	88			56.1			2	.86			.835	1.0861	14.70	7582.9

1) CONTAINER MAY BE INITIALLY FILLED WITH WATER OR MERCURY (HG) OR BE EVACUATED (VACUUM).
 2) VOLUME OF WATER OR MERCURY LEFT WITH WELL EFFLUENT SAMPLE.
 3) CORRECTION FACTOR FOR CONVERTING OIL VOLUME FROM SEPARATOR TO STOCK TANK CONDITIONS. IT INCLUDES

DTIS
OEC-877-B

SURFACE SAMPLING DATA

TEST NUMBER: D.S.T. 1 C RATE NUMBER: 1 AREA: NORWAY DATE (DAY MO YR.): 03.12.81 PAGE OF: 2

WELL NAME OR NUMBER: 15/8-1 FIELD: SLEIPNER FORMATION: SLEIPNER

STANDARD CONDITIONS: 14.73 psi 60°F OTHER PRESS. TEMP. TIME WELL FLOWING OR SHUT IN BEFORE SAMPLING INTERVAL TESTED (FEET)

SAMPLE # 4

CONTAINER #	CONTAINER VOL. (cc) or (gal)	INITIALLY FILLED WITH	SAMPLE TYPE	SAMPLE TAKEN AT	SAMPLING PRESS. (psig)	SAMPLING TEMP. (°F)	ATMOSPHERIC PRESS. (psi)	ATMOS. TEMP. (°F)	TIME TO TAKE SAMPLE (min.)
600	20 L.	EVAC.	GAS	SEPARATOR	510	88	14.76		5

FIELD READINGS AND FACTORS USED

WELL HEAD PRESS. (psig)	TEMP. (°F)	HI STAGE SEP.		LO STAGE SEP.		BOTTOM HOLE		OIL			GAS			TOTAL GAS/OIL FLOW RATE AT STOCK TANK (BPD) (MMCF/D)	WATER FLOW RATE (BPD)	
		CHOKE SIZE (64th INCH)	TEMP. (°F)	PRESS. (psig)	TEMP. (°F)	PRESS. (psig)	TEMP. (°F)	FT	FT	GRAVITY @ 80 °F (°API)	BSW (%)	C _f (c)	W _f (c)			GRAVITY (AIR=1)
800	128	48	88	510	88	56.1	1	.86					.835	1.0853	15.27	7813.5

SAMPLE # 5

CONTAINER #	CONTAINER VOL. (cc) or (gal)	INITIALLY FILLED WITH	SAMPLE TYPE	SAMPLE TAKEN AT	SAMPLING PRESS. (psig)	SAMPLING TEMP. (°F)	ATMOSPHERIC PRESS. (psi)	ATMOS. TEMP. (°F)	TIME TO TAKE SAMPLE (min.)
605	20 L.	EVAC.	GAS	SEPARATOR	510	88	14.76		

FIELD READINGS AND FACTORS USED

WELL HEAD PRESS. (psig)	TEMP. (°F)	HI STAGE SEP.		LO STAGE SEP.		BOTTOM HOLE		OIL			GAS			TOTAL GAS/OIL FLOW RATE AT STOCK TANK (BPD) (MMCF/D)	WATER FLOW RATE (BPD)	
		CHOKE SIZE (64th INCH)	TEMP. (°F)	PRESS. (psig)	TEMP. (°F)	PRESS. (psig)	TEMP. (°F)	FT	FT	GRAVITY @ 80 °F (°API)	BSW (%)	C _f (c)	W _f (c)			GRAVITY (AIR=1)
800	128	48	88	510	88	56.1	1	.86					.835	1.0853	15.27	7813.5

SAMPLE # 6

CONTAINER #	CONTAINER VOL. (cc) or (gal)	INITIALLY FILLED WITH	SAMPLE TYPE	SAMPLE TAKEN AT	SAMPLING PRESS. (psig)	SAMPLING TEMP. (°F)	ATMOSPHERIC PRESS. (psi)	ATMOS. TEMP. (°F)	TIME TO TAKE SAMPLE (min.)
600	510 CC	BRINE	OIL	SEPARATOR	510	83	14.76		13

FIELD READINGS AND FACTORS USED

WELL HEAD PRESS. (psig)	TEMP. (°F)	HI STAGE SEP.		LO STAGE SEP.		BOTTOM HOLE		OIL			GAS			TOTAL GAS/OIL FLOW RATE AT STOCK TANK (BPD) (MMCF/D)	WATER FLOW RATE (BPD)	
		CHOKE SIZE (64th INCH)	TEMP. (°F)	PRESS. (psig)	TEMP. (°F)	PRESS. (psig)	TEMP. (°F)	FT	FT	GRAVITY @ 80 °F (°API)	BSW (%)	C _f (c)	W _f (c)			GRAVITY (AIR=1)
1800	128	48	88	510	88	56.1	1	.86					.835	1.0853	15.27	7813.5

SAMPLED BY: _____

CONTAINER MAY BE INITIALLY FILLED WITH WATER OR MERCURY (HG) OR BE EVACUATED (VACUUM).
 VOLUME OF WATER OR MERCURY LEFT WITH WELL EFFLUENT SAMPLE.
 CORRECTION FACTOR FOR CONNECTING OIL VOLUME FROM SEPARATOR TO STOCK TANK CONDITIONS. IT INCLUDES

Otis Field Readings

DATE 02:12:81
DST No. 1C

WELL NUMBER 15/8-1
WELL NAME

ENGR:	FLOWING CONDITIONS										SAMPLES										OIL	GAS	WATER	GOR
	WELLHEAD			SEPARATOR			OIL GRAV.ITY	GAS GRAV.ITY	CO ₂	H ₂ S	MER. CAP. TANS	BS & W	CHLORIDES PH.	METERED	SEPARATOR FLOW RATE MSCFD	METERED	GOR							
	SEPA. RATOR SAMPLES	PRESS	TEMP	PRESS DIFF	SHRINK-AGE	OIL T GAS T												SEPARATOR SHRINK-AGE	SEPARATOR FLOW RATE MSCFD	METERED				
CHOKE SIZE	TYPE	PSIG	° F	PSIG	FACTOR	° F	° API	S.G.	%	PPM	PPM	%	mg/l	BOPD	MSCFD	SCF/bbl								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19						
17.58		SET R.T.T.S. PACKER.																						
18.28		OPEN APR-N																						
18.31	32		1650	50	WELL OPENED THROUGH 32/64 VARIABLE CHOKE, FLOW DIRECTED TO STOCK TANK.																			
18.34	32		790																					
18.36	32		880																					
18.38			894		WELL SHUT IN AT OTIS CHOKE MANIFOLD.																			
18.40					CLOSE APR-N																			
18.41			815																					
18.42			912																					
18.43			888																					
18.44			850																					
18.45			830																					
18.46			820																					
18.47			802																					
18.48			802																					

PERFORATED INTERVAL:

Otis Field Readings

WELL NUMBER 15/8-1
WELL NAME

DATE 02:12:81
DST No. 1C

ENGR:		FLOWING CONDITIONS										OIL			WATER		GOR			
		WELLHEAD				SEPARATOR			SAMPLES			METERED	METERED	BOPD	BOPD					
TIME	CHOKE SIZE	SEPA-RATOR SAMPLES	PRESS	TEMP	PRESS DIFF	SHRINK-AGE	SEPARATOR FACTOR	OIL T	GAS T	OIL GRAV-ITY	GAS GRAV-ITY	CO ₂	H ₂ S			MER-CAP-TANS	BS & W	CHLOR-IDES	RH.	SEPARATOR FLOW RATE
HOURS	64th IN.	TYPE	PSIG	° F	PSIG			° F		° API	S.G.	%	PPM	PPM	%	mg/l		MSCFD	BWPD	
1	2	3	4	5	6	7	8			9	10	11	12	13	14	15		17	18	19
18.49			802																	
18.50			770																	
18.52			772																	
18.54			775																	
18.56			742																	
18.58			732																	
19.00			712																	
19.02			700																	
19.04			685																	
19.06			672																	
19.08			667																	
19.10			660																	
19.15			653																	
19.20			632																	
19.25			617																	

PERFORATED INTERVAL:

Otis Field Readings

DATE 02:12:81
DST No. 1C

WELL NUMBER 15/8-1
WELL NAME

ENGR:	FLOWING CONDITIONS										SAMPLES					OIL	GAS	WATER	GOR			
	TIME	CHOKE SIZE	SEPA. RATOR SAMPLES	WELLHEAD		SEPARATOR		OIL GRAV. ITY	GAS GRAV. ITY	CO ₂	H ₂ S	MER. CAP. TANS	BS & W	CHLOR. IDES RH.	METERED					SEPARATOR FLOW RATE MSCFD	METERED	SCF/bbl
				PRESS	TEMP	PRESS DIFF	SHRINK-AGE															
HOURS	64th IN.	TYPE		PSIG	• F	PSIG	FACTOR	• F	• API	S.G.	%	PPM	PPM	%	mg/l	BOPD	BOPD	17	18	19		
1	2	3		4	5	6	7	8	9	10	11	12	13	14	15	16						
19.30			607																			
19.35			600																			
19.40			590																			
19.45			582																			
19.50			575																			
19.55			566																			
19.57			2000				OPEN APR-N															
20.01	24		1150																			
20.03	24		1070																			
20.06	24		495	51																		
20.08	24		600																			
20.10	24		695	57																		
20.12	20		805				CHANGED TO 20/64" VARIABLE CHOKE.															
20.15	20		1530	67																		
20.17	20		2220	68																		

Otis Field Readings

DATE 02:12:81
DST No. 1C

WELL NUMBER 15/8-1
WELL NAME

ENGR:		FLOWING CONDITIONS										SAMPLES							OIL		GAS		WATER		GOR		
		WELLHEAD			SEPARATOR			OIL GRAVITY		GAS GRAVITY		CO ₂		H ₂ S		MER. CAP. TANS		BS & W		CHLORIDES PH.		METERED		METERED		METERED	
		PRESS	TEMP	PSIG	DIFF	PSIG	SHRINK-AGE	OIL T	API	S.G.	%	PPM	PPM	PPM	%	%	mg/l	BOPD	MSCFD	BWPD	GOR	GOR					
TIME	CHOKE SIZE	SEPA-RATOR SAMPLES																									
HOURS	64th IN.	TYPE																									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19									
20.19	20		1710																								
20.21	20		1850	71																							
20.23	20		1740																								
20.25	20		1850	74																							
20.27	20		2050																								
20.29	20		2540																								
20.32	20		2750	80																							
20.34	20		2900																								
20.38	20		3250																								
20.40	20																										
20.41	30																										
20.43	30		2930	84																							
20.45	30		2840																								
20.47	30		2760																								
20.49	30		2680																								

PERFORATED INTERVAL:

Otis Field Readings

DATE 02:12:81
DST No. 1C

WELL NUMBER 15/8-1
WELL NAME

ENGR:		FLOWING CONDITIONS										SAMPLES										OIL		GAS		WATER		GOR				
		SEPA- RATOR SAMPLES		WELLHEAD		SEPARATOR		OIL T		OIL GRAV- ITY		GAS GRAV- ITY		CO ₂		H ₂ S		MER- CAP- TANS		BS & W		CHLOR- IDES		METERED		SEPARATOR FLOW RATE MSCFD		METERED		SCF/bbl		
TIME	CHOKE SIZE	TYPE	PRESS	TEMP	PSIG	SHRINK- AGE	PSIG	DIFF	PSIG	FACTOR	° F	OIL T	GAS T	° API	S.G.	%	PPM	PPM	%	mg/l	BOPD	BWPD	BOPD	BWPD	BOPD	BWPD	BOPD	BWPD				
HOURS	64th IN.																															
1	2	3	4	5	6	7	8							9	10	11	12	13	14	15	16	17	18	19								
20.52	30		2630																													
20.53	36		CHANGED TO 36/64" VARIABLE CHOKE.																													
20.55	36		2250																													
20.57	36		2180																													
21.00	36		2125																													
21.01	40		CHANGED TO 40/64" VARIABLE CHOKE.																													
21.03	40		2000	80																												
21.05	40		1920																													
21.07	40		1915	84																												
21.09	40		1930																													
21.10	40		1945																													
21.12	40		2045																													
21.15	40		2155																													
21.16	44		CHANGED TO 44/64" VARIABLE CHOKE.																													
21.17	44		1930	88																												

PERFORATED INTERVAL:

Otis Field Readings

WELL NUMBER 15/8-1
WELL NAME

DATE 02:12:81
DST No. 1C

ENGR:	FLOWING CONDITIONS										SAMPLES							OIL	GAS	WATER	GOR		
	TIME	CHOKE SIZE	SEPA-RATOR SAMPLES		WELLHEAD		SEPARATOR		OIL GRAY-ITY	GAS GRAY-ITY	CO ₂	H ₂ S	MER-CAP-TANS	BS & W	CHLOR-IDES RH.	METERED	SEPARATOR FLOW RATE MSCFD					METERED	SCF/bbl
			TYPE	PSIG	PSIG	PSIG	SHRINK-AGE	FACTOR															
HOURS	64th IN.																						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19					
21.19	44		1865																				
21.21	44		1855	90																			
21.23	44		1880																				
21.25	48		CHANGED TO 48/64" VARIABLE CHOKE.																				
21.30	48		1730																				
21.32	48		1732																				
21.34	48		1730																				
21.36	48		1745																				
21.40	48		1748																				
21.45	48		1760	96																			
21.50	48		1720																				
21.55	48		1725																				
22.00	48		1730																				
22.15	48		1650	104																			
22.22	48		CHANGED TO 48/64" FIXED CHOKE.																				

PERFORATED INTERVAL:

ARTISER/KENNET LITVANGUER

Otis Field Readings

DATE 02:12:81
DST No. 1C

WELL NUMBER 15/8-1
WELL NAME

ENGR:		FLOWING CONDITIONS										SAMPLES										OIL		GAS		WATER		GOR	
		WELLHEAD		SEPARATOR		OIL GRAVITY		GAS GRAVITY		CO ₂	H ₂ S	MER. CAP. TANS	BS & W	CHLORIDES PH.	METERED	SEPARATOR FLOW RATE MSCFD	METERED	GOR											
TIME	CHOKE SIZE	PRESS	TEMP	PRESS DIFF	SHRINKAGE	OIL T. GAST	OIL GRAVITY	GAS GRAVITY	%	PPM	PPM	%	mg/l	BOPD	MSCFD	BWPD	SCF/bbl												
HOURS	64th IN.	PSIG	° F	PSIG	FACTOR	° F	° API	S.G.	%	PPM	PPM	%																	
1	2	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19												
22.30	48																												
22.45	48	1693	108																										
23.00	48	1655	112	FLOW DIRECTED THROUGH SEPARATOR.																									
23.15	48	1669	114																										
23.30	48	1775	115																										
23.45	48	1785	118																										
24.00	48	1785	116						7.5	0	0																		
00.15	48	1700	120																										
00.30	48	1709	122	510		80									15.005														
00.45	48	1711	122	510		80									15.110														
01.00	48	1711	124	510		76								2128.2	15.110		7099.9												
01.15	48	1715	124																										
01.30	48	1717	126	510		78								2112.6	15.17		7180.9												
02.00	48	1720	126	510		80								2071.6	15.23		7351.6												
02.30	48	1722	126	510		80								2044.3	15.23		7449.9												

PERFORMED INTERVAL:

Otis Field Readings

DATE 03:12:81
DST No. 1C

WELL NUMBER 15/8-1
WELL NAME

ENGR:	FLOWING CONDITIONS										SAMPLES										OIL			GAS		WATER		GOR	
	TIME	CHOKE SIZE	SEPA- RATOR SAMPLES	WELLHEAD		SEPARATOR		OIL T	OIL GRAV- ITY	GAS GRAV- ITY	CO ₂	H ₂ S	MER- CAP. TANS	BS & W	CHLOR- IDES PH.	METERED BOPD	SEPARATOR FLOW RATE MSCFD	METERED BWPD	SCF/bbl										
				PRESS	TEMP	PRESS DIFF	SHRINK- AGE													OIL T GAST	PSIG	PSIG	° F	° F	° F	%	PPM	PPM	mg/l
1	2	3	TYPE	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19										
03.00	48			1719	126	510		80	56.4	.822	6	0	0	3		1997.7	15.20		7608.5										
03.00	48			1719	128	510		81								1964.6	15.18		7726.6										
04.00	48			1732	128	227		82								1949.2	15.23		7813.1										
04.30	48			1728	128	510		82								1937.3	15.24		7866.3										
05.00	48			1734	128	228		88								1954.3	15.34		7849.3										
05.30	48			1736	128	229		83								1949.1	15.27		7834.4										
06.00	48			1800	128	510		88	56.1		2.5	0	0	1		1954.3	15.27		7813.5										
06.30	48			1790	128	218		83								1929.3	15.00		7775.5										
07.00	48			1890	128	214		88	56.1	.851	3.0	0	0	1		1941.3	14.84		7744.2										
07.30	48			1860	128	210		84								1938.5	14.70		7582.9										
08.00	48			1790	128	207		88	58	.851				1		1951.3	14.59		7476.9										
08.30	48			1756	126	210		78								1996.8	14.77		7396.6										
08.34	48			BYPASS SEPARATOR.																									
08.36				WELL SHUT IN AT APR-N AND OTIS CHOKE MANIFOLD FOR FINAL BUILD UP.																									
08.37				1752																									

PERFORMED INTERVAL:

Otis Field Readings

DATE 03:12:81
DST No. 1C

WELL NUMBER 15/8-1
WELL NAME

ENGR:		FLOWING CONDITIONS										SAMPLES					OIL		GAS		WATER		GOR	
		TIME	CHOKE SIZE	SEPA. RATOR SAMPLES	WELLHEAD		SEPARATOR		OIL GRAV. ITY	GAS GRAV. ITY	CO ₂	H ₂ S	MER. CAP. TANS	BS & W	CHLOR. IDES PH.	METERED	SEPARATOR FLOW RATE MSCFD	METERED	GOR					
PRESS	TEMP				PRESS DIFF	PSIG	SHRINK-AGE	OIL T GAST												• F	• F	• API	S.G.	%
HOURS	64th IN.	TYPE	PSIG	• F	PSIG	FACTOR	• F	• API	S.G.	%	PPM	PPM	%	mg/l	BOPD	MSCFD	BOPD	GOR						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19						
08.38			1752																					
08.39			1754																					
08.40			1754	118																				
08.41			1754																					
08.42			1759																					
08.43			1760																					
08.44			1762																					
08.45			1768	100																				
08.46			1772																					
08.47			1780																					
08.48			1789																					
08.49			1798																					
08.50			1820	91																				
08.52			1840																					
08.54			1880																					

AKTIEVAKSERET / STAVANGER

Otis Field Readings

DATE 03:12:81
DST No. 1C

WELL NUMBER 15/8-1
WELL NAME

ENGR:		FLOWING CONDITIONS										SAMPLES				OIL		GAS		WATER		GOR	
		TIME	CHOKE SIZE	SEPA-RATOR SAMPLES	WELLHEAD		SEPARATOR		OIL GRAV-ITY	GAS GRAV-ITY	CO ₂	H ₂ S	MER. CAP. TANS	BS & W	CHLOR-IDES PH.	METERED	SEPARATOR FLOW RATE MSCFD	METERED	GOR				
PRESS	TEMP				PRESS DIFF	SHRINK-AGE	OIL T	GAS T												PSIG	PSIG	• F	• F
HOURS	64th IN.	TYPE		PSIG	• F		PSIG	FACTOR	• F	• API	S.G.	%	PPM	PPM	%	mg/l	BOPD	17	18	19			
1	2	3		4	5		6	7	8	9	10	11	12	13	14	15	16	17	18	19			
08.56			1900		86																		
08.58			1910																				
09.00			1925																				
09.05			1950																				
09.10			1950																				
09.15			1985																				
09.20			1987																				
09.25			1989																				
09.30			1947		68																		
09.35			2000																				
09.40			2520																				
09.45			2680		62																		
09.50			2740																				
09.55			2820																				
10.00			2930		61																		

Otis Field Readings

WELL NUMBER 15/8-1
 WELL NAME

DATE 03:12:81
 DST No. 1C

ENGR:		FLOWING CONDITIONS										SAMPLES					OIL		GAS		WATER		GOR	
		TIME	CHOKE SIZE	SEPA. RATOR SAMPLES	WELLHEAD		SEPARATOR		OIL T. GRAV. GAST	OIL GRAV. GAST	OIL GRAV. GAST	GAS GRAV. GAST	CO ₂	H ₂ S	MER. CAP. TANS	BS & W	CHLORIDES PH.	METERED	SEPARATOR FLOW RATE	METERED	GOR			
PRESS	TEMP				PRESS DIFF	SHRINK-AGE	PSIG	PSIG														PSIG	PSIG	PSIG
HOURS	64th IN.	TYPE	PSIG	° F	PSIG	PSIG	PSIG	° F	° API	S.G.	%	PPM	PPM	PPM	%	mg/l	BOPD	MSCFD	BOPD	SCF/bbl				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19						
10.15			3010																					
10.30			3140	58																				
10.45			3250	59																				
11.00			3500	58																				
11.15			3725	56																				
11.30			3950	56																				
11.45			4050	56																				
12.00			4270	56																				
12.15			4550	54																				
12.30			4539	53																				
12.45			4765	53																				
13.00			4850	52																				
13.15			4850	52																				
13.30			4985	52																				
13.57			BLEED DOWN TUBING THROUGH OTIS CHOKE MANIFOLD, TO GAS FLARE LINE.																					

Otis Field Readings

DATE 03:12:81
DST No. 1C

WELL NUMBER 15/8-1
WELL NAME

ENGR:		FLOWING CONDITIONS										SAMPLES					OIL	GAS	WATER	GOR
		CHOKE SIZE	SEPA. RATOR SAMPLES	WELLHEAD		SEPARATOR		OIL GRAV. ITY	GAS GRAV. ITY	CO ₂	H ₂ S	MER. CAP. TANS	BS & W	CHLOR. IDES PH.	METERED	SEPARATOR FLOW RATE MSCFD				
PRESS	TEMP			PRESS DIFF	PSIG	PSIG	SHRINK-AGE										OIL T	GAST	• F	• F
HOURS	64th IN.	PSIG	• F	PSIG	PSIG	PSIG	• F	• F	• API	S.G.	%	PPM	PPM	%	PPM	%	mg/l	BOPD	BWPD	SCF/bbl
1	2	4	5	6	7	8			9	10	11	12	13	14	15	16	17	18	19	
14.24		CLOSE			OTIS CHOKE MANIFOLD.															
14.36		500			EQUALISE OVER AND OPEN KILL VALVE.															
14.40		COMMENCE			PUMPING MOD.															
14.46		800			(WELL HEAD PUMPING PRESSURE)											10	(VOLUME PUMPED)			
14.49		950			(WELLHEAD PUMPING PRESSURE)															
14.52		1000			(WELLHEAD PUMPING PRESSURE)											30	(VOLUME PUMPED)			
14.55		1000			(WELLHEAD PUMPING PRESSURE)															
14.57		1000			(WELLHEAD PUMPING PRESSURE)															
15.00		1000			(WELLHEAD PUMPING PRESSURE)															
15.02		1000			(WELLHEAD PUMPING PRESSURE)															
15.08		1500			(WELLHEAD PUMPING PRESSURE)															
15.15		BLEED BACK 2			BARRELS AND CLOSE KILL VALVE.															
16.00		710	52																	
16.10		710	52																	
16.20		711	52																	

PERFORATED INTERVAL:

Otis Field Readings

DATE 03:12:81
DST No. 1C

WELL NUMBER 15/8-1
WELL NAME

TIME	CHOKE SIZE	FLOWING CONDITIONS										SAMPLES							OIL	GAS	WATER	GOR
		WELLHEAD			SEPARATOR			OIL GRAVITY	GAS GRAVITY	CO ₂	H ₂ S	MER. CAP. TANS	BS & W	CHLORIDES PH.	METERED							
		PRESS	TEMP	PRESS DIFF	SHRINKAGE	SEPARATOR FACTOR	OIL T									GAS T	PSIG	PSIG				
HOURS	64th IN.	TYPE	PSIG	• F	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19				
16.30			707	50																		
16.40			710	50																		
16.50			707	50																		
17.00			700	50																		
17.10			703	50																		
17.20			703	50																		
17.30			698	50																		
17.40			695	50																		
17.50			680	50																		
18.00			680	50																		
18.10			688	50																		
18.20			700	50																		
18.30			700	50																		
18.40			685	49																		
18.50			692	49																		

Otis Field Readings

DATE 03:12:81
DST No. 1C

WELL NUMBER 15/8-1
WELL NAME

ENGR:	FLOWING CONDITIONS										SAMPLES										OIL		GAS		WATER		GOR	
	TIME	CHOKE SIZE	SEPA- RATOR SAMPLES	WELLHEAD		PRESS DIFF	SEPARATOR		OIL T	OIL GRAV- ITY	GAS GRAV- ITY	CO ₂	H ₂ S	MER- CAP- TANS	BS & W	CHLOR- IDES PH.	METERED	SEPARATOR FLOW RATE MSCFD	METERED	GOR								
				TEMP ° F	PSIG		SHRINK- AGE	FACTOR													° F	° API	S.G.	%	PPM	%	PPM	mg/l
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19									
	19.00			692	49																							
	19.10			692	49																							
	19.20			692	48																							
	19.30			692	48																							
	19.45			692	48																							
	20.00			695	48																							
	20.15			705	48																							
	20.30			705	48																							
	20.45			707	48																							
	21.00			707	48																							
	21.15			703	46																							
	21.30			699	46																							
	21.45			703	46																							
	22.00			705	46																							
	22.15			708	46																							

Otis Field Readings

DATE 03:12:81
DST No. 1C

WELL NUMBER 15/8-1
WELL NAME

ENGR:	FLOWING CONDITIONS										SAMPLES										OIL	GAS	WATER	GOR	
	WELLHEAD					SEPARATOR					OIL GRV. ITY	GAS GRV. ITY	CO ₂	H ₂ S	MER. CAP. TANS	BS & W	CHLOR. IDES PH.	METERED							
	PRESS	PSIG	TEMP	PSIG	PSIG	SHRINK-AGE	SEPARATOR	OIL T	GAS T	• F									• F	• API					S.G.
CHOKE SIZE	SEPA-RATOR SAMPLES	TYPE	PSIG	• F	PSIG	PSIG	DIFF	PSIG	PSIG	PSIG	PSIG	PSIG	PSIG	PSIG	PSIG	PSIG	PSIG	PSIG	PSIG	PSIG	SEPARATOR FLOW RATE MSCFD	METERED	BWPD	SCF/bbl	
HOURS	64th IN.																								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19							
22.30			708	46																					
22.45			700	46																					
23.00			702	46																					
23.15			710	46																					
23.30			700	48																					
23.45			700	48																					
24.00			695	48																					
00.15			700	48																					
00.30			700	48																					
00.45			700	48																					
01.00			700	48																					
01.15			700	48																					
01.30			700	48																					
01.45			700	48																					
02.00			700	48																					

PERFORATED INTERVAL:

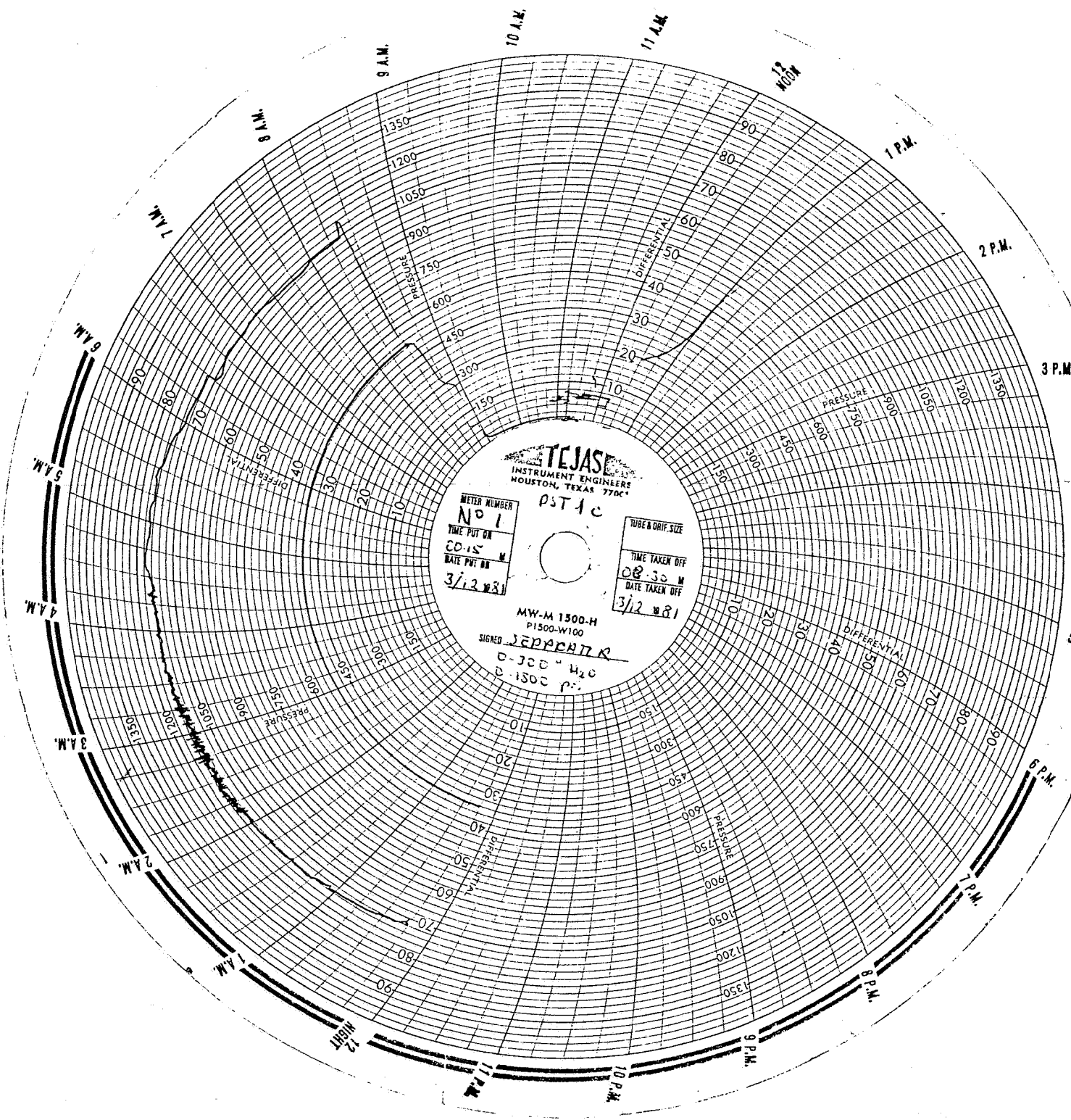
Otis Field Readings

DATE 03:12:81
DST No. 1c

WELL NUMBER 15/8-1
WELL NAME

ENGR:	FLOWING CONDITIONS							SAMPLES								OIL		WATER		GOR
	WELLHEAD		SEPARATOR		PRESS DIFF	PSIG	TEMP °F	OIL T		OIL GRAVITY	GAS GRAVITY	CO ₂ %	H ₂ S PPM	MER. CAP. TANS PPM	BS & W %	CHLORIDES PH.	METERED	SEPARATOR FLOW RATE MSCFD	METERED	
TIME	CHOKESIZE	SEPA. RATOR SAMPLES	PRESS PSIG	SHRINK-AGE				FACTOR	• F											GAS T
HOURS	64th IN.	TYPE	PSIG	PSIG	PSIG	• F	• F	• F	• API	S.G.	%	PPM	PPM	PPM	%	mg/l	BOPD	BOPD	BOPD	
1	2	3	4	6	7	8	8	9	10	11	12	13	14	15	16	17	18	19		
02.15			700																	
02.30			690																	
02.45			695																	
03.00			695																	
03.15			695																	
03.30			689																	
03.45			684																	
04.00			682	PRESSURE ANNULUS TO 100 psi.																
04.15			675																	
04.30			669	FINAL PRESSURE READING.																
04.36			OPEN APR-M	(D.S.T. 1c COMPLETE) BECAUSE OF WORSENING WEATHER.																

PERFORATED INTERVAL:

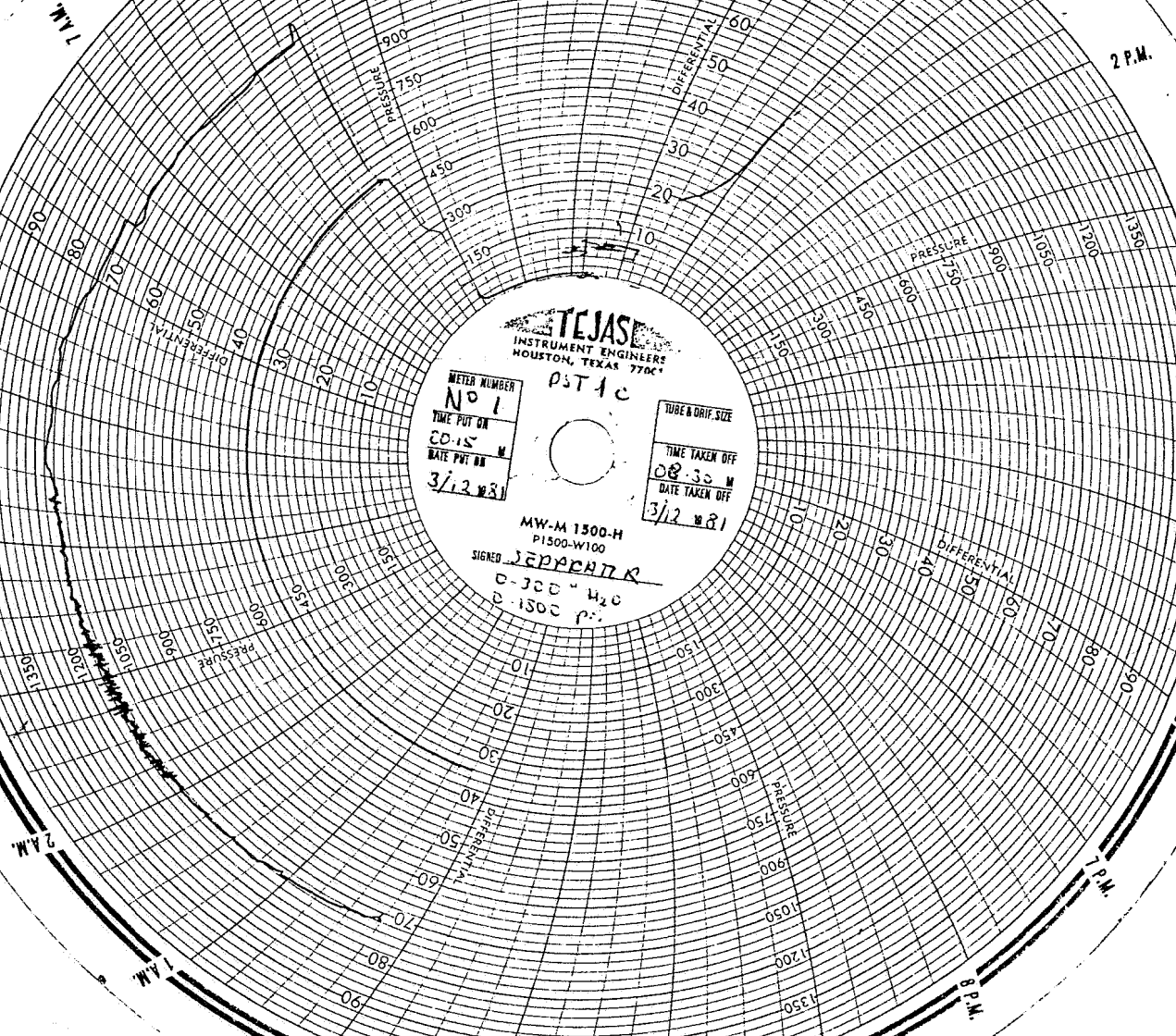


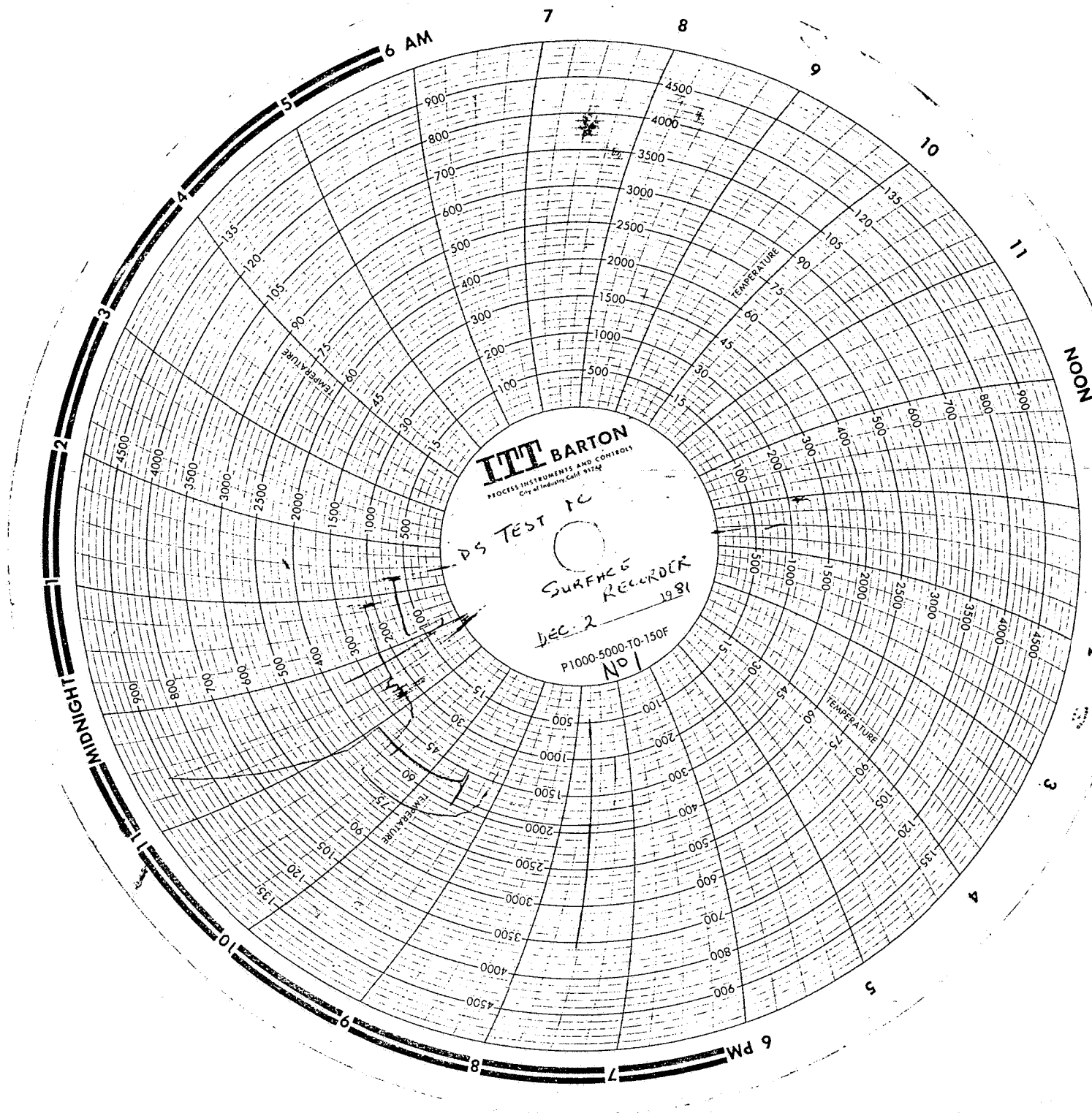
METER NUMBER
NO 1
 TIME PUT ON
00:15 M
 DATE PUT ON
3/12 W81

PST 1 C

TUBE & DRIF. SIZE
 TIME TAKEN OFF
08:30 M
 DATE TAKEN OFF
3/12 W81

MW-M 1500-H
 P1500-W100
 SIGNED **JEDPPATK**
 C-100 H₂O
 C-1500 P₁







GAS FLOW RATE CALCULATION

TEST NUMBER: D.S.T. 1 C
 WELLS NAME: 15/8-1
 DATE (Day, Mo, Yr): 03.12.81
 AREA: NORWAY
 MEAS. EST. Gas Specific Gravity - G: 0.835
 STANDARD CONDITIONS: OTHER:

CUSTOMER: DANIEL
 ESSE EXPLORATION & PROD. NORWAY
 METER RUN SIZE (Inch): 5.761
 FLOW RECORDER TYPE: BARTON
 METER RUN SIZE (Inch): 5.761
 FLOW RECORDER TYPE: BARTON
 STATIC PRESS. RANGE (psi): 0-1500
 F_u Table Prev. Page: 24
 C₁ = F_u x F_g: 26.264
 MEAS. EST. Gas Specific Gravity - G: 0.835

DAY	TIME 24 Hr Clock	FLOW TIME (Hours)	STATIC PRESS. P _f (psia)	DIFF. PRESS. h _w (Inch. water)	Down Stream Gas Temp. (°F)	h _w P _f	C ₂ = F _b X F _f X F _p X Y ₂				C (C = C ₁ X C ₂)	CORRECTED GAS FLOW RATE Q _g = C √(h _w P _f) (MMSCFD)	
							F _b	F _f	F _p	Y ₂			
03.12	00.30		525	216	80	336.75	1582.0	0.9813	1.0900	1.0026	1696.48	44557.2	15.005
00.45			525	219	80	339.08	1582.0	0.9813	1.0900	1.0026	1696.54	44558.73	15.11
01.00			525	219	80	339.08	1582.0	0.9813	1.0900	1.0026	1696.54	44558.73	15.11
01.30			525	222	82	341.39	1582.0	0.9795	1.0888	1.0026	1691.58	44428.48	15.17
02.00			525	225	84	343.69	1582.0	0.9777	1.0876	1.0027	1686.68	44299.69	15.23
02.30			525	225	84	343.69	1582.0	0.9777	1.0876	1.0027	1686.68	44299.69	15.23
03.00			525	225	85	343.69	1582.0	0.9768	1.087	1.0027	1684.22	44235.04	15.20
03.30			525	225	86	343.69	1582.0	0.9759	1.0864	1.0027	1681.77	44170.75	15.18
04.00			525	227	87	345.22	1582.0	0.9750	1.0858	1.0027	1679.38	44107.85	15.23
04.30			525	228	88	345.98	1582.0	0.9741	1.0853	1.0027	1676.97	44044.77	15.24
05.00			525	231	88	348.25	1582.0	0.9741	1.0853	1.0027	1677.034	44046.33	15.34
05.30			525	229	88	346.73	1582.0	0.9741	1.0853	1.0027	1676.99	44045.29	15.27
06.00			525	229	88	346.73	1582.0	0.9741	1.0853	1.0027	1676.99	44045.29	15.27
06.30			530	218	87	339.91	1582.0	0.9750	1.0867	1.0026	1680.41	44134.88	15.002
07.00			530	214	88	336.78	1582.0	0.9741	1.0861	1.0025	1677.90	44068.99	14.84
07.30			530	210	88	333.62	1582.0	0.9741	1.0861	1.0025	1677.82	44066.92	14.70
08.00			530	207	88	331.23	1582.0	0.9741	1.0861	1.0024	1677.76	44065.38	14.59
08.30			530	210	85	333.62	1582.0	0.9768	1.0878	1.0025	1685.15	44259.45	14.77