

5.4 Testing

The interval 2791 - 2816 mRKB MD (2193.0 - 2214.6 mRKB TVD) in the Top Draupne Sand was perforated and tested. After the clean-up flow and build-up the well was opened for the 48 hour main flow period. The final flowrate was 1040 Sm³/d through a 15.9 mm choke at a wellhead pressure of 124 bar and a GOR of 94 Sm³/m³ at separator conditions.

5.4.1 Test interval

The Top Draupne sand was perforated and tested. All depths refer to the DPIL-MAC-DSC-TTRM log run made on 22 Aug., 1996.

Perforated interval:

- 2791 - 2816 mRKB MD
- 2193.0 - 2214.6mRKB TVD

The test was performed as described in Table 5.5:

Operation	Final choke size, mm	Duration, hours
Clean-up flow period	11.1	4.63
Initial build-up		2.33
Main flow period	15.9	46.3
Main build-up		24.65
Bottom-hole sampling flow	7.9	2.33

Table 5.5: Test plan and timing for well 34/7-25S.

Downhole conditions (in Figure 5.2 and Figure 5.2 show signs of decline while the surface data are quite stable during the flow periods. As is illustrated in Figure 5.4 and Figure 5.5, the oil production rate at the end of the main flow period was measured to 1040 Sm³/d with a flowing wellhead pressure of 124.3 bar and a separator GOR of 94 Sm³/Sm³ (referenced to a separator pressure of 22.9 bar and 52.3 °C). No sand production was observed. As shown in Figure 5.4, problems with the transfer

pumps caused observable disturbances in the flowmetering systems. Typical flowrates and conditions are tabulated in Table

Well no.	347-25S
Formation	Top Draupne Sand
Test no.	1
Fluid produced	Oil
Perforation interval	2791 - 2816 mRKB MD 2193.0 - 2214.6 mRKB TVD
Main Flow	
Final flow rate	1040 Sm ³ /d
Final FWHP	124.3 bar
• Final FBHP	299.7 bar
• (ref. depth)	2748.8 mRKB MD
• (ref. choke size)	15.9 mm
Separator Oil Data	
• Stabilized oil density	844 kg/m ³
• Gas gravity (air=1)	0.72
• GOR	94 Sm ³ /m ³
• Separator pressure	22.9 bar
• Separator temperature	52.3 °C
Reservoir Data	
• Pressure	306 bar
• Temperature	82 °C
(ref. depth)	2193.1 mRKB TVD.

Table 5.6: Test data summary

5.4.2 Fluid Sampling.

During the test the following pressurised hydrocarbon samples were taken:

- Four monophasic bottomhole sample.
- Six separator PVT sets for recombination'
- Three separator oil samples (in 20 l gas bottles)

As described in Table 5.8, additional samples were taken for geochemical analyses. Studies of these samples are not complete as of this writing.

Date	Time	WHP bar	WHT °C	BHP bar	BHT °C	Q _{gas} kSm ³ /d *	Q _{oil} m ³ /d*	GOR Sm ³ /Sm ³	P _{sep} bar	T _{sep} °C	Choke mm
Clean-up flow											
960905	1045	80.8	14.2								4.8 adj.
	1500	144.6	35.8	304.5	81.5	-	587		21.4	54.1	11.1 adj.
	1523	144.7	37.4	305.3	81.4						Shut-in
Main flow											
	1745	133.0	20.7	305.5	80.9	-	-				11.1 adj.
	2000	142.4	44.3	304.1	81.6	65.3	646	101			11.1 fix
960906	0100	142.5	48.3	303.8	81.8	62.8	620	101	22.5	64.4	- " -
960907	0200	124.7	63.1	300.7	82.1	98.5	1017	97	22.5	57.1	11.1 fix
	1545	124.3	63.1	299.7	82.1	102.2	1045	98	22.9	57.3	- " -
	1601	124.4	63.5	301.6	82.1	106.6			22.9	57.3	Shut-in
Sample flow											
960908	1709	149.8	14.4	302.9	80.9	-	-	-	130	11.7	3.18 adj.
	1830	146.7	17.7	302.7	81.8	84.6	222	97	17.0	45.4	7.94 adj.
	1900	147.5	21.5	302.6	81.9	23.0	235	98	19.0	49.0	- " -
	1929	147.8	22.7	302.9	81.9	23.1	247	94	18.5	49.8	Shut-in

Table 5.7: Flow rate summary.

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
960731	9 7/8"		1.18			/		/					SPUD MUD
960801	9 7/8"		1.18			/		/					SPUD MUD
960802	36"		1.18			/		/					SPUD MUD
960803	26"		1.18			/		/					SPUD MUD
960804	26"		1.18			/		/					SPUD MUD
960805	26"		1.18			/		/					SPUD MUD
960806	16"	397.0	1.05	25.0	24.0	15/30	9.0	/					SPUD MUD
960807	16"	1089.0	1.15	22.0	27.0	20/45	8.0	/					SPUD MUD
960808	16"	1262.0	1.20	25.0	26.0	24/40	8.8	/	80	2400	.3		SPUD MUD
960809	16"	1262.0	1.20	32.0	31.0	26/53	8.5	/	80	2900	.3		SPUD MUD
960810	16"	1262.0	1.03			/		/					SPUD MUD
960811	12 1/4"	1265.0	1.03			/		/					WATER BASED
960812	12 1/4"	1268.0	1.03			/		/					WATER BASED
960813	12 1/4"	1271.0	1.03			/		/					WATER BASED
960814	12 1/4"	1587.0	1.35	31.0	23.0	19/35		/		97	.3	18.0	OIL BASED
960815	12 1/4"	2240.0	1.40	34.0	16.0	18/33		/		93	.3	19.0	OIL BASED
960816	12 1/4"	2240.0	1.40	34.0	16.0	18/33		/		93	.3	19.0	OIL BASED
960817	8 1/2"	2275.0	1.45	31.0	23.0	16/35		/		93	.3	20.0	OIL BASED
960818	8 1/2"	2805.0	1.59	40.0	24.0	21/42		/		131	.3	24.0	OIL BASED
960819	8 1/2"	2832.0	1.59	41.0	21.0	23/43		/		205	.3	24.0	OIL BASED
960820	8 1/2"	2832.0	1.61	41.0	23.0	22/44		/		176	.3	24.0	OIL BASED
960821	8 1/2"	3235.0	1.59	40.0	23.0	23/45		/		128	.3	25.0	OIL BASED
960822	8 1/2"	3235.0	1.59	40.0	23.0	22/44		/		128	.3	25.0	OIL BASED
960823	8 1/2"	3235.0	1.59	45.0	23.0	23/46		/		130	.0	25.0	OIL BASED
960824	8 1/2"	3235.0	1.61	39.0	22.0	23/45		/		127	.0	25.0	OIL BASED
960825	8 1/2"	3235.0	1.62	43.0	19.0	23/45		/		127	.0	25.5	OIL BASED
960826	8 1/2"	3235.0	1.63	41.0	17.0	22/44		/		127	.0	25.0	OIL BASED

Table 6.3.1 Mud Properties, Daily Report part 1

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
960827	8 1/2"	3235.0	1.62	41.0	17.0	21/42	/	/	/	127	.0	25.0	OIL BASED
960828	8 1/2"	3235.0	1.62	38.0	20.0	21/42	/	/	/	128	.0	25.0	OIL BASED
960829	8 1/2"	3235.0	1.62	43.0	17.0	21/42	/	/	/	121	.0	25.0	OIL BASED
960830	8 1/2"	3235.0	1.62	43.0	18.0	21/43	/	/	/	117	.0	25.0	OIL BASED
960831	8 1/2"	3235.0	1.62	42.0	20.0	**/44	/	/	/	117	.0	25.0	OIL BASED
960901	8 1/2"	3235.0	1.62	43.0	19.0	21/43	/	/	/	114	.0	25.0	OIL BASED
960902	8 1/2"	3235.0	1.62	43.0	19.0	21/43	/	/	/	114	.0	25.0	OIL BASED
960903	8 1/2"	3235.0	1.62	43.0	19.0	21/43	/	/	/	114	.0	25.0	OIL BASED
960904	8 1/2"	3235.0	1.62	43.0	19.0	22/43	/	/	/	114	.0	25.0	OIL BASED
960906	8 1/2"	3235.0	1.62	43.0	19.0	22/43	/	/	/	114	.0	25.0	OIL BASED
960907	8 1/2"	3235.0	1.62	43.0	19.0	22/43	/	/	/	114	.0	25.0	OIL BASED
960908	8 1/2"	3235.0	1.62	43.0	20.0	22/43	/	/	/	114	.0	25.0	OIL BASED
960909	8 1/2"	3235.0	1.62	45.0	20.0	21/43	/	/	/	102	.0	24.0	OIL BASED
960910	8 1/2"	3235.0	1.62	46.0	17.0	20/41	/	/	/	99	.3	24.0	OIL BASED
960911	8 1/2"		1.45	32.0	18.0	15/30	/	/	/		.3	20.0	OIL BASED
960912	P&A		1.20			/	/	/	/			20.0	WATER BASED
960913	P&A					/	/	/	/			20.0	WATER BASED
960914	P&A					/	/	/	/				WATER BASED
960915	P&A					/	/	/	/				WATER BASED

Table 6.3.1 Mud Properties, Daily Report part 2

Final Well Report 34/7-25S

Material	Unit	36"x26"	16"	12 1/4"	8 1/2"	P&A sect.	Total
Anco Vert M	KG			760			760
Anco Vert P	KG			5320	1330	950	7600
Anco Vert S	KG			1045	285		1330
Anco Vert F	KG			1171	1503		2674
Anco Vert Vis	KG			2250	400	50	2700
Anco Vert Received	M3			230	362	428	1020
Anco Vert Backl.	M3			-362	-415	-438	-1215
Barite	MT	98	51	148	137	107	541
Bentonite	MT	66	48			-3	111
Bicarb of soda	KG					50	50
Baseoil	M3			179	64	25	268
CMC EHV	KG		525			600	1125
CaCl2	KG			5600	3200	25	8825
Lampac exlo	KG		2250				2250
Lime	KG	220	120	3480	2040		5860
Mica Fine	KG		500				500
Renex 100	KG					800	800
Rhodopol 23P	KG					25	25
Soda Ash	KG	500	275			250	1025

Table 6.3.2 Mud Materials Used