

Well no :	7228/9-1 S	Operator :	HYDRO
Coordinates :	72° 23' 48.36" N 28° 43' 08.67" E	UTM coord. :	803423891 N 55802328 E
Licence no :	161	Permit no :	625
Rig :	ROSS RIG	Rig type :	SEMI-SUB.
Contractor :	TRANSNOR RIG AS		
Bottom hole temp:	140 °C	Elev. KB :	23 M
Spud. date :	89.12.22	Water depth :	279 M
Compl. date :	90.05.07	Total depth :	4576.5 M
Spud. class :	WILDCAT	Form. at TD	PALEOZOIC
Compl. class :	P&A. OIL/GAS SHOWS	Prod.form. :	
Seisloca :	SH 87 - 178 SP 722		

LICENSEES

10.000000	PHILLIPS PETROLEUM NORSK A/S
50.000000	DEN NORSKE STATS OLJESELSKAP A.S
40.000000	MOBIL DEVELOPMENT NORWAY A.S.

CASING AND LEAK-OFF TESTS

Type	Casing diam.	Depth below KB	Hole diam.	Hole depth below KB	Lot mud eqv. g/cm3
CONDUCTOR	30	400.0	36	401.0	
INTERM.	20	948.0	26	965.0	1.62
INTERM.	13 3/8	2600.0	17 1/2	2614.0	1.69
INTERM.	9 5/8	4176.0	12 1/4	4192.0	1.85
OPEN HOLE		4600.0	8 1/2	4600.0	

CONVENTIONAL CORES

Core no.	Intervals corcd meters	Recovery	
		M	%
1	1042.0 - 1049.8	7,8	100,0
2	1083.0 - 1092,5	9,5	100,0
3	1094,5 - 1122,2	27,7	100,0
4	1123,0 - 1133,4	10,4	100,0
5	2871,0 - 2888,1	18,1	100,0
6	4300,0 - 4318,7	18,7	100,0
7	4418,0 - 4442,0	24,0	100,0

MUD

Depth	Mud weight	Visc.	Mud type
330.000	1.38	19.0	WATER BASED
356.000	1.05	10.0	WATER BASED
377.000	1.20	7.0	WATER BASED
379.000	1.05	9.0	WATER BASED
430.000	1.50	11.0	WATER BASED

Depth	Mud weight	Visc.	Mud type
430.000	1.50	11.0	WATER BASED
430.000	1.03	10.0	WATER BASED
435.000	1.50	10.0	WATER BASED
780.000	1.03	10.0	WATER BASED
780.000	1.05	6.0	WATER BASED
964.000	1.20	3.0	DUMMY
964.000	1.13	2.0	DUMMY
964.000	1.20	3.0	DUMMY
964.000	1.10	2.0	DUMMY
964.000	1.05	8.0	DUMMY
965.000	1.17	17.0	WATER BASED
965.000	1.03	31.0	WATER BASED
965.000	1.05	16.0	WATER BASED
965.000	1.17	17.0	WATER BASED
965.000	1.03	9.0	WATER BASED
965.000	1.05	16.0	WATER BASED
965.000	1.17	17.0	WATER BASED
965.000	1.05	16.0	WATER BASED
1095.000	1.17	18.0	WATER BASED
1146.000	1.18	17.0	WATER BASED
1700.000	1.17	14.0	WATER BASED
3423.000	1.22	17.0	WATER BASED
4000.000	1.25	17.0	WATER BASED
4005.000	1.38	19.0	WATER BASED
4445.000	1.25	20.0	WATER BASED
4600.000	1.38	20.0	WATER BASED

DRILL BIT CUTTINGS AND WET SAMPLES

Sample type	Interval below KB	Number of samples
WET SAMPLES	970 - 4600	870
CUTTINGS	3195 - 4600	450

SHALLOW GAS

Interval below KB	Remarks
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AVAILABLE LOGS

Log type	Intervals	1/200	1/500	Div.
AMS	948.0 - 2581.0		X	
AMS	2601.0 - 4191.0		X	
AMS	4178.0 - 4588.0		X	
CBL VDL GR CCL	4175.0 - 4607.0	X		
CDM AP	2601.0 - 4196.0	X	X	
SHDT	2601.0 - 4195.0	X		

Log type	Intervals		1/200	1/500	Div.
DIL LSS GR	401.0	- 943.0	X	X	
DIL MSFL GR	948.0	- 1141.0	X	X	
DIL SDT SP GR	948.0	- 2613.0	X	X	
DIL LSS MSFL GR	2601.0	- 4197.0	X	X	
DIL SDT MSFL GR	4178.0	- 4606.0	X	X	
DLL MSFL SP	948.000	- 2600.0	X	X	
LDL CNL	948.5	- 1141.0	X	X	
LDL CNL	948.5	- 2594.0	X	X	
LDL CNL NGS	2601.0	- 4191.0	X	X	
LDL CNL NGS	4178.0	- 4606.0	X	X	
NGS	948.0	- 2581.0	X	X	
NGS PLAYBACK	2601.0	- 4182.0	X		
NGS RATIOS	2601.0	- 4182.0		X	
NGS PLAYBACK	4178.0	- 4591.0	X		
NGS RATIOS	4178.0	- 4591.0		X	
RFTB HP	1073.0	- 1279.0		X	
RTF HP AMS	1277.0	- 2407.0		X	
RTF HP AMS	4417.0	- 4481.0	X		
CBL VDL CCL	4175.0	- 4607.0	X		
MUD	302.0	- 4600.0		X	
VELOCITY	950.0	- 4600.0		X	
SYNTHETIC SEISMOGRAM	10 cm/s				2
V.S.P,	10 cm/s	- 20 cm/s			15
TWO WAY TRAVEL TIME	10 cm/s				1

Main operations for well: 7228/9-1 S**Main operation: DRILLING**

Sub operation:	Minutes:	Hours:	% of total:
BOP ACTIVITIES	6120	102,0	4,34
BOP/WELLHEAD EQ	120	2,0	0,09
CASING	15180	253,0	10,76
CIRC/COND	4440	74,0	3,15
DRILL	72300	1205,0	51,27
HOLE OPEN	6180	103,0	4,38
OTHER	480	8,0	0,34
REAM	5850	97,5	4,15
SURVEY	1050	17,5	0,74
TRIP	28350	472,5	20,10
WAIT	960	16,0	0,68
Total	141030	2350,5	100,00

Main operation: FORMATION EVAL

Sub operation:	Minutes:	Hours:	% of total:
CIRC SAMPLES	600	10,0	2,55
CIRC/COND	690	11,5	2,93
CORE	3150	52,5	13,39
LOG	12900	215,0	54,85
OTHER	30	0,5	0,13
RFT/FIT	1560	26,0	6,63
TRIP	4590	76,5	19,52
Total	23520	392,0	100,00

Main operation: INTERRUPTION

Sub operation:	Minutes:	Hours:	% of total:
FISH	1470	24,5	6,30
LOST CIRC	960	16,0	4,11
MAINTAIN/REP	7290	121,5	31,23
OTHER	4260	71,0	18,25
WAIT	9360	156,0	40,10
Total	23340	389,0	100,00

Main operation: MOVING

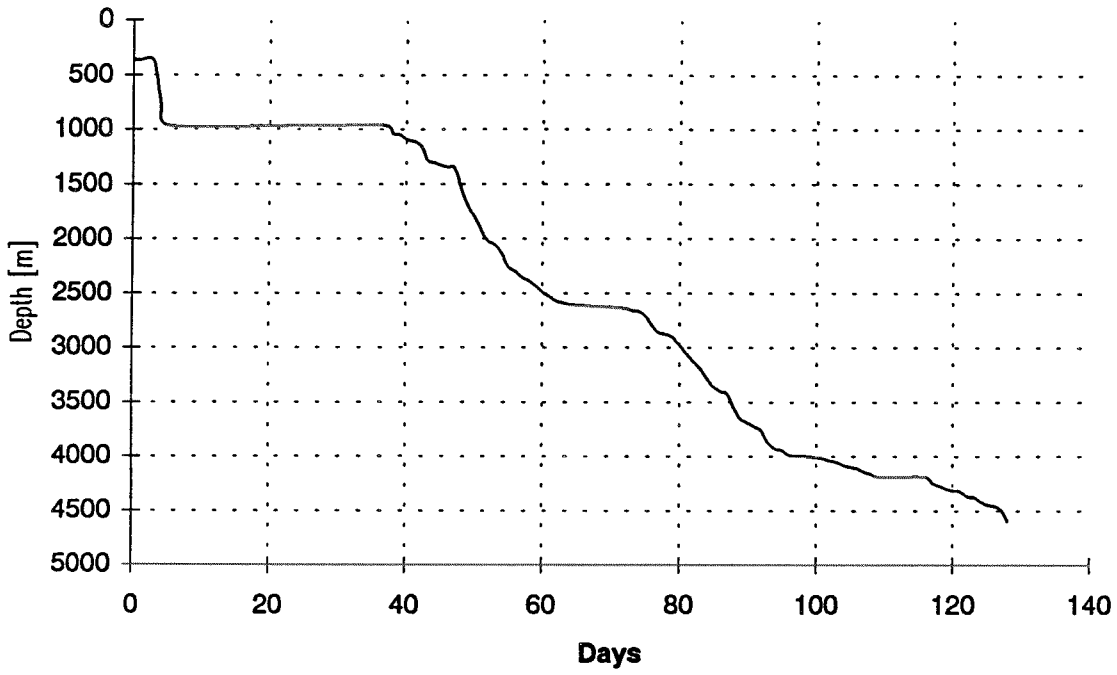
Sub operation:	Minutes:	Hours:	% of total:
ANCHOR	2280	38,0	55,07
TRANSIT	1860	31,0	44,93
Total	4140	69,0	100,00

Main operation: PLUG & ABANDON

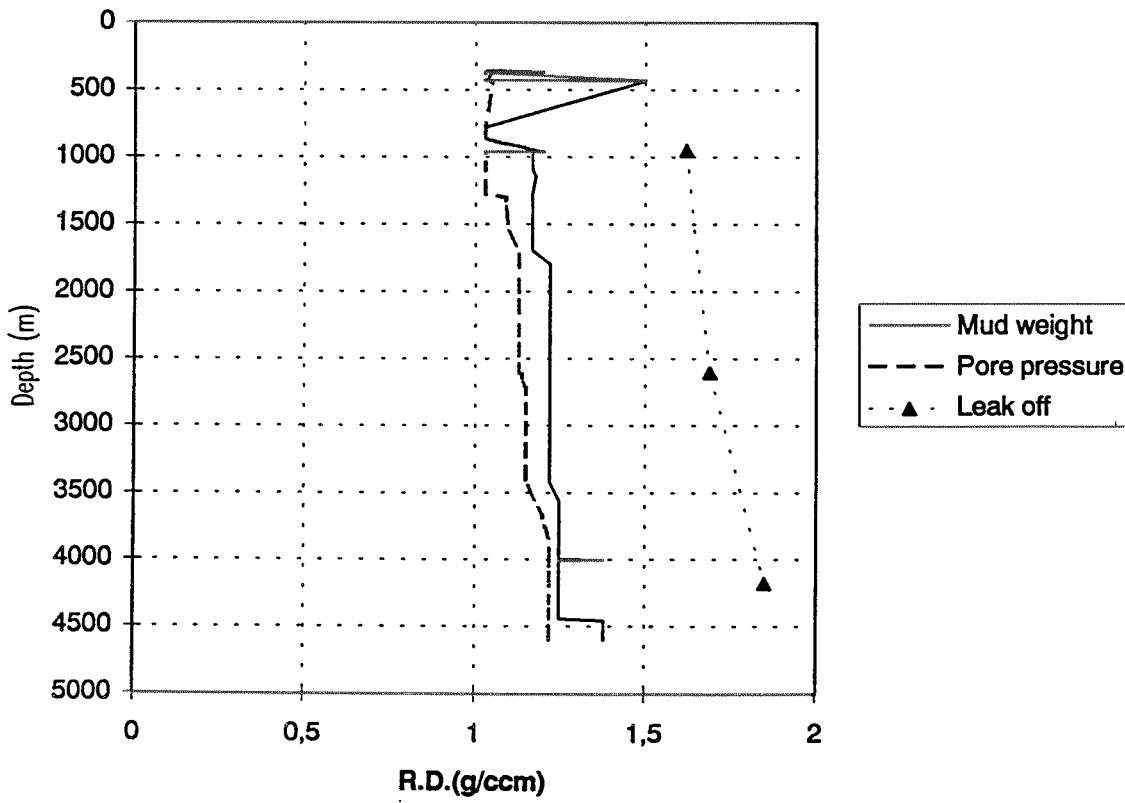
Sub operation:	Minutes:	Hours:	% of total:
CEMENT PLUG	540	9,0	10,29
CIRC/COND	270	4,5	5,14
CUT	420	7,0	8,00
EQUIP RECOVERY	1410	23,5	26,86
MECHANICAL PLUG	450	7,5	8,57
OTHER	300	5,0	5,71
TRIP	1860	31,0	35,43
Total	5250	87,5	100,00

Total time used: Hours

Depth vs time for well: 7228/9-1 S



Composite plot for well: 7228/9-1 S



Well History 7228/9-1 S.

General:

Well 7228/9-1 S was planned to a total depth of 4960 m RKB. The total depth to depend on the depth to Base Sakmarian, and should be set maximum 300 m below that reflector. If massive evaporites were encountered below the Base Sakmarian reflector, the well would be stopped within 50 m. The well would be deviated from approximately 2300 m RKB in direction 270° to avoid major faults and to test potential reserves updip. Well 7228/9-1 was the first well to be drilled in the license and is located in the Nordkapp Basin South. The main objectives of the well were:

- to test the Jurassic and Triassic prospects above the salt pillow.
- to obtain stratigraphic information from the Paleozoic for future exploration in the area.
- to leave a minimum of untested potential updip from the well location.
- to avoid faults in the vicinity of the well location to ensure a good seismic tie.
- to gather as much geological information as possible regarding reservoir, source and cap rock intervals.
- to be approved as the commitment well in licence 161.

No shallow gas was expected in the well.

Operations:

Wildcat well 7228/9-1 S was spudded 22 Desember 1989 by the semi-submersible rig Ross Rig, but due to severe difficulties with thight hole problems in the top hole section, the well was re-spudded twice. The well was completed 7 May 1990 at a depth of 4576 m RKB in rocks of Paleozoic age, Early Permian evaporites. The well was permanently plugged and abandoned as a dry hole with oil / gas shows in Middle-Early Jurassic / Late Triassic and Middle Triassic sandstones. Three cores were cut in the interval from 1083 to 1145,7 m RKB in Jurassic / Late Triassic rocks. In addition cores were also cut in the Hekkingen formation from 1042 to 1052 m RKB, in the Early Triassic Havert formation at 2871 - 2888,1 m RKB, in the Early Permian P1-2 formation from 4300 to 4319 m RKB, and in the Early Permian interbedded halite, anhydrite and dolomite sediments from 4418 - 4445 m RKB of the P1-1B formation, altogether seven cores were cut in the well. A total of 510 side wall cores were attempted throughout the well and 387 wererecovered. No shallow gas was observed in the well. The primary reasons for the thight hole problems was due to the extremely reactive swelling clay. Exposed to water, the clay swelled without space to expand and thereby rised the formation pressure.

Testing:

No DST tests were performed

Geological Tops.

Well:7228/9-1 S.

	Depth m (RKB).
Nordland Group	302,0
Nordvestbanken Group	308,0
Teistengrunnen Group	1030,0
Hekkingen Fm	1030,0
Fuglen Fm	1068,5
Realgrunnen Group	1072,5
Stø Fm	1072,5
Nordmela Fm	1082,5
Fruholmen Fm	1139,5
Ingøydjupet Group	1232,0
Snadd Fm	1232,0
Kobbe Fm	1594,5
Klappmyss Fm	2097,0
Havert Fm	2637,5
Late Permian Group	3884,0
P2-3 Fm	3884,0
P2-1/P2-2 Fm	3966,0
Early Permian Group	4064,0
P1-2 Fm	4064,0
P1-1B Fm	4390,0
P1-1A/K3B Fm	4437,0
T.D.	4576,0