

ELF NORGE A/S  
Exploration Division

Provisional Geological Report

11/9-1

(Without Laboratory Results)

# WELLFILE

Stavanger, March 1976

1. PERTINENT DATA

1.1 General Data

Licence:	009 Norway offshore
Owner:	Petronord
Operator:	Elf Norge A/S
Rig:	Deep Sea Driller
Contractors:	Deep Sea Drilling Co. Mud logging: Geoservices
Location:	06° 44' 51,8" E 57° 16' 32,1" N
Water depth:	-73 m
RKB:	+25 m

1.2 Drilling Operation Time Table

10./13.01.76	Moving on location.
13./16.01.76	Running anchors - W.O.W.
17.01.76	Drilled 36" hole down to 145 m. Attempts to run 30" casing failed.
18.01.76	Drilled 36" hole down to 145 m. Run 30" casing. Shoe at 145 m.
19./22.01.76	W.O.C., W.O.W.
23./26.01.76	Drilled 17 1/2" hole down to 663 m. SPE: BHC-GR
27./29.01.76	Run 13 3/8 casing. Shoe at 653 m. Set 13 3/8" BOP stack.
30.01./09.02.76	Drilled 12 1/4" hole down to 1400 m. Twist off.
10.02.76	Fishing.
10./11.02.76	Drilled 12 1/4" hole down to 1455 m. Twist off.
11./12.02.76	Fishing.
13./17.02.76	Drilled 12 1/4" hole down to 1727 m.
18.02.76	SPE logs: BHC GR, IES, SWC 1.
19.02.76	Run 9 5/8" casing. Shoe at 1718 m.

20./24.02.76	Drilled 8 1/2" hole down to 1972 m.
24./25.02.76	SPE: BHC GR, IES, HDT' SWC 2, Velocity Survey.
25./28.02.76	Abandonment of well.
28.02.76	Rig leaves location.

### 1.3 Status

Dry well, plugged and abandoned.

## 2. GEOLOGICAL DATA AND RESULTS

### 2.1 Objectives

The interest of this well was in a big saliferous structure stretching partly on the block 11/12.

Most of the series were expected to be alternatives of sand and shales without sealing properties. The lower Bunter, however, was prognosed to be more shaly having been able to generate some hydrocarbons. Therefore possible underlying Kupferschiefer sandstones were the only objective of this well.

### 2.2 Stratigraphical and structural Results

#### 2.2.1 Stratigraphical Data

The detailed lithology is given in the enclosed composite log and "fiche 1/5000".

The only valuable stratigraphic correlation with the well 10/8-1 concerns the top of Zechstein that we set at 1930 m, i.e. at the top of the first anhydrite levels.

### 2.2.2 Structural Results

Differences between the prognosis and the well results are important due mostly to a wrong evaluation of the seismic velocity of the Triassic section - 3600 m/s against 2800 m/s in the prognosis.

The main marker related to Quartzitic levels expected around -1480 m was in fact the top of salt and has been found at -1905 m.

### 2.3 Reservoir Results

There has been locally an important development of sands but with no real sealing sections between.

The porosity of these sandy reservoirs was generally poor, those sands/sandstones being often argillaceous or silicified; average porosity inferred from Sonic log on clean sand seldom exceeds 15%, becoming nearly nil on silicified levels.

### 2.4 Shows and Fluids

During all the drilling, absolutely no gas shows has been detected on the chromatograph.

The Induction log has proved that the formations were waterbearing.

No FIT has been run on the formations.

### C O N C L U S I O N

On a hydrocarbon point of view this well has been rather disappointing showing some reservoirs but no gas or oil show probably by lack of source rock.

It establishes definitively the non interest of the continental Triassic formation in the Norwegian-Danish basin and will allow to release acreage based on Triassic prospects.

A P P E N D I X E S

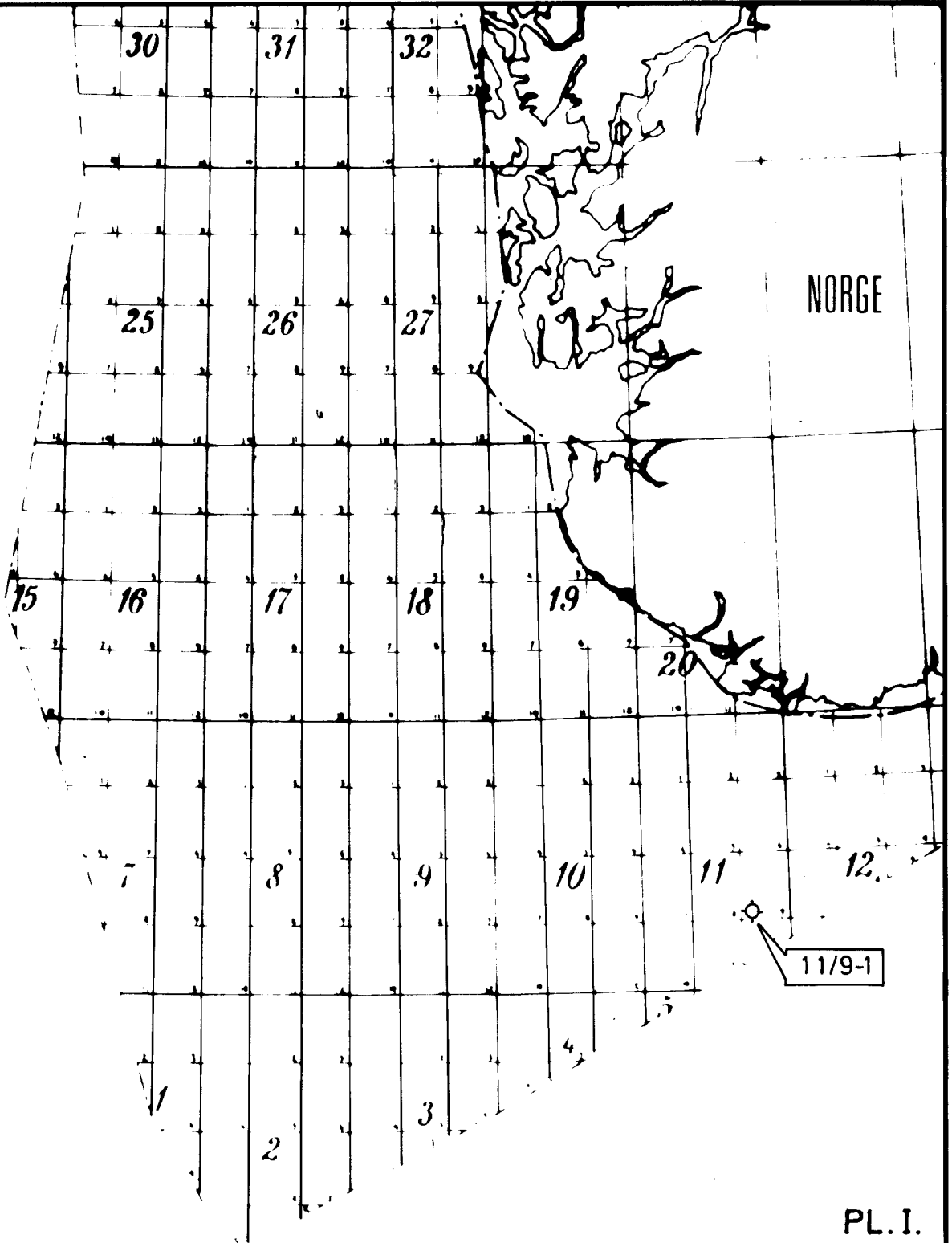
- 1/ Location map
- 2/ "Fiche 1/5000"
- 3/ Side Wall Core description
- 4/ Composite log



# Position Map



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FROM DAILY REPORTS AND ELECTRICAL LOGS.

Coord x 06°44'52,6" E z ground - 73 y 57°16'33,2" N z RKB + 25 pt. 108 of line 69/5716. Depths datum R.K.B. Rig Deep Sea Driller Stopped in Zechstein	Spudded 16.01.76 Started drilling 17.01.76 At TD 24.02.76 Completed 28.02.76 TD Driller 1972 m TD Logger 1967 m	Well <h2 style="text-align: center;">11/9-1</h2> Country <h3 style="text-align: center;">Norway off-shore</h3>
OPERATOR <b>ELF NORGE A/S</b>	LICENCE <b>009</b>	OWNED BY <b>PETRONORD</b>
TARGETS  Brockelshiefer Sandstones Cap Rock of the salt dome		RESULTS  Dry well, plugged and abandoned.
CASINGS 30" 14.5 m 13 3/8" 653 m 9 5/8" 1718 m	CORES SWC1 737 - 1725 23/30 SWC2 1962 - 1732 17/30	<p style="text-align: right;"><b>ISOCHRONE MAP</b> Horizon Infra M2. scale :1/200.000</p>
SHOWS		
NONE		
TESTS	LOGS	INTERPRETATION
	BHC/GR 655 - 145 1 BHC/GR 1726 - 653 2 IES 1726,7 - 653 1 BHC/GR 1964 - 1718 3 IES-PS 1963,5 - 1718 2 HDT 1963 - 1718 1 CBL 1718 - 300 1	



FROM DAILY REPORTS AND ELECTRICAL LOGS

Depths E .	Litho section	Formations	Stages Shows	Descriptions Obs	Deviation	RKB		Well 11/9-1
						Z	Z	
				25m Sea level			+25m	
200				98m Sea bed			-73m	
400				Drilling without returns				
600				145m				
800				<u>Sd/Sdst</u> , wht to rd, f to md gr, calc. cmt.				
1000				interc. <u>Cly/Sh</u> , grn. wht, calc, soft r. stgs <u>Lmst</u> , and <u>Dol.</u> , brn, hd, argill.				
1200				<u>Cly/Sh</u> , grading to <u>Mrl</u> , some heter (radioact?) <u>Sdst</u> .				
1400				thin intbds a.a. <u>Cly</u> and <u>Sh</u> bkg <u>Mrl</u> sft, plastic, some heter <u>Sdst</u>				
1600				<u>Mrl</u> , grading back to <u>Cly/Sh</u> , tr. grn <u>Sdst</u> , md gr, w. srted				
1800				tr. grn <u>Sdst</u> , md gr, w. sort				
2000				<u>Sh</u> , bkg firmer				
2200				<u>Cly/Sh</u> , rd-brn, sft, sticky, loc. slty, calc. w/ stgs <u>Sd</u> , f. to md, and <u>Sdst</u> , brn, mic, arg, calc. cmt				
2400				stgs <u>Lmst</u> , lt gry-wh, mdst, sft, slty, arg.				
2600				<u>Slst</u> , brnsh, rd w/ silic. elements				
2800				Tr. <u>Tuff</u> gry, sft, black pigmented.				
3000				<u>Cly/Volc. ash</u> , wh, sft.				
3200				<u>Sdst</u> , dk brn, v.f. to f, mnly consol, loc. fri, mic, occ. pyr, w/ some bik min, arg, calc, cmt, w/ interbeds <u>Cly</u> , brn.				
3400				<u>Slst</u> , brn to rd, v. sft, arg. sl. calc				
3600				<u>Sd</u> , f to md, subang. to ang., transl. to opaque				
3800								

TRIASSIC

TRIASSIC

ZECHSTEIN

Sd, a/a. w/stgs of Sdst, wh crm to lt brn, fri. f. grn, abund calc. cmt. some intbds Sh and Slst.

Sdst, dk rd-brn, f to md gr, ang. gr. porous, arg-sil cmt, loc. wh calc. Sdst, intbds Sh and Slst.

Sd, transl. to opaque, f to md ang. to subang, loc. calc. cmt. loc. argill.

Cly, Slst, brn, rd, sft, v. slty, sdy, loc. stgs of Dol, ylw, argill.

Cly, a/a. bkg ochre, w/ int. Sdst, dk-brn, ang., sil-arg. cmt, loc. intbds Sh/Slst, brn, md hd, micmic. non calc. after 1828 m, tr. Anhydr. gry, transl.

1930m Anhydr. wh, sft, pasty  
Salt, massive, gry to pink.  
1972m Sh, dk rd-brn, sft, plast, w/gr. of Salt, Potash Salt and Gypsum.

192m  
5°  
1214m  
5°  
1273m  
5 3/4°  
1321m  
6°  
1369m  
6°  
1442m  
5 3/4°  
1727m  
4 1/4°  
1752m  
3 1/2°  
1850m  
3 1/2°  
1920m  
6 1/2°

<b>SIDE WALL CORES DESCRIPTION</b>		SERVICE COMPANY : SPE	
		ASKED : 30	RECOVERED : 30
WELL : 11/9-1		RUN N° : 1	SHOT : 23
LICENCE : 009		PAGE N° : 1	LOST : -
		DATE : 18.02.76	FULL BULLET :

tr : trace - M : medium - G : good

N°	DEPTHS	REC %	L I T H O L O G Y	Fluorescence	
					CUT
1	1725	100	clay: red-brn. firm v.silty, sdy, rare mica calc		
2	1720	80	cly:a/a v.calc		
3	1713	70	cly:a/a calc.w/incl. of wh.minerals.non calc		
4	1706	60	silt:v.arg.brn. sft. w/grn of sd.calc.		
5	1684	80	a/a		
6	1675	30	cly:v. silty brn-red,sft w/incl. of tiny lignite,v.calc.		
7	1670	60	cly:v.silty a/a		
8	1652	70	silt:v.arg. w/sd.grains,sft calc.		
9	1625	30	a/a		
10	1597	30	sdst:brn.fn. to med. ang. to subang w/dk minerals,v.calc.		
11	1585	25	sdst: y.arg a/a		
12	1578	X	M.F.		
13	1548	50	sdst: brn.fn. to med ang. to subang. friable calc.		
14	1533	30	sdst: a/a w/incl.of wh.friable sdst. w/different dk. minerals		
15	1515	X	M.F.		
16	1500	20	sdst : red.brn. fn. to med.subang.friable calc. w/dk minerals		
17	1495	15	sdst : a a		
18	1483	X	M.F.		

# SIDE WALL CORES DESCRIPTION

SERVICE COMPANY:	30
ASKED:	30
RECOVERED:	23
SHOT :	23
LOST :	-
FULL BULLET :	

WELL :	11/9-1	RUN N° :	1
LICENCE :	009	PAGE N°:	2
		DATE :	18.02.76

tr : trace - M : medium - G : good

N°	DEPTHS	REC %	L I T H O L O G Y	Fluorescence				CUT
				1	2	3	4	
19	1455	10	sdst:fn. to med subang v.arg. friable calc.cmt.					
20	1425	10	a.a.					
21	1400	X	M.F.					
22	1350	30	cly:v.silty brn. sft. calc. rare mic.					
23	1225	60	silt v.arg.red-brn. firm. micmic. calc.					
24	1202	X	M.F.					
25	1185	60	sdst:red-brn. fn. to v.fn. subang, friable. v.calc.					
26	1177	100	cly: red-brn.firm silty micmic,v.calc.					
27	935	X	M.F.					
28	852	70	sh: red-brn.compact,micmic,slghty silty, calc.					
29	737	80	sdst: brn.med.some crs,mod.hd.w/some wh.sdst:incl.mic. calc-arg.cmt.					
30	697	X	M.F.					

SIDE WALL CORES DESCRIPTION			SERVICE COMPANY: SPE
			ASKED: 30
WELL : 11/9-1			RECOVERED: 20
			SHOT : 21
LICENCE : 009			LOST : 1
			FULL BULLET : 12
RUN N° : 2			
PAGE N°: 1			
DATE : 25.02.76			

tr : trace - M : medium - G : good

N°	DEPTHS	REC cm	L I T H O L O G Y	Fluorescence				CUT
1	1962	5	shale, dark red-brown, soft - medium hard, plastic, non calcareous with inclusions of salt					
2	1960	5.5	shale a/a more salted, with potash salt grains					
3	1959	5	salty shale a/a					
4	1955	1	salt, massive, grey, locally pinky					
5	1945	5.4	salty shale, a/a, more thinly crystalline					
6	1936.5	2	salt. very thinly crystallised in Anhydrite matrix, white, soft pasty.					
7	1935	1	salt, white and pink, crystalline					
8	1935	0.2	salt a/a					
9	1931	X	empty					
10	1929	2.2	shale, dark brown, hard and fissile when dry, "soluble" in water, with very small inclusions of marcasite.					
11	1929	X	empty					
12	1900	X	empty					
13	1889	X	empty					
14	1869	2	clay, brown, soft, very silty, partly ochre brown, less silty					
15	1861	2.7	conglomerate, very heterogenous (Qz, sh, slst, limst), heterometric (gravel to silt) micromicaceous, argillaceous cement					
16	1859	2.5	clay, ochre brown, very sandy, with very fine sand; locally sand very fine, argillaceous, sl. calcareous					
17	1853	2.7	sandstone, hard, friable dark red-brown, fine to very fine grained, heterogenous, argillaceous cement					
18	1851	X	misfire					

		SERVICE COMPANY: SPE	
		ASKED:	30
		RECOVERED:	20
		SHOT :	21
		LOST :	1
		FULL BULLET :	12
<b>SIDE WALL CORES DESCRIPTION</b>			
WELL :	11/9-1	RUN N° :	2
LICENCE :	009	PAGE N°:	2
		DATE :	25.02.76

tr : trace - M : medium - G : good

N°	DEPTHS	REC cm	L I T H O L O G Y	Fluorescence					
								CUT	
19	1840	3	sdst, dark brown, friable, porous, very fine quartz grain, angular well sorted, argillaceous cement						
20	1835	1	sand, very fine quartz grain, very argillaceous (with white, slightly calcareous clay) angular grains						
21	1815	X	misfire						
22	1813	2	clay, ochre brown, with white inclusions, calcareous, very sandy						
23	1803	2	sand, very fine grained, light yellow-orange to translucent, very argillaceous, with white calcareous clay and brown clay						
24	1793	X	Misfire						
25	1783	X	Misfire						
26	1763	X	Misfire						
27	1755	X	Misfire						
28	1741	X	Misfire						
29	1735	X	Misfire						
30	1732	X	Misfire						