



General information

Lithostrat. unit	SKAGERRAK FM
NPDID lithostrat. unit	146
Level	FORMATION
Lithostrat. unit, parent	HEGRE GP

Level below

Lithostrat. unit

Description



Skagerrak Formation

Name

From the channel separating Norway from Denmark.

Well type section

Norwegian well [10/8-1](#) (Petronord) ([Fig 1.12-14](#)). from 1567 to 2749 m below KB.

Well reference section

Norwegian well [17/10-1](#) (Norske Shell) ([Fig 1.15-16](#)).

Thickness

The formation is 1182 m thick in the type well and thicker further east where seismic data indicate that it may reach a maximum thickness of over 3000 m. Westward from the type well the formation interdigitates with and progrades over the associated claystone sequence ([Smith Bank Formation](#)). The maximum thickness at the north-west limit of well control is 660 m and at the south-west limit 250 m.

Lithology

The formation consists of interbedded conglomerates, sandstones, siltstones and shales. Various shades of reds and browns are the dominant colours but light to dark grey beds are also present. Sandstones may be orthoquartzitic arkosic or highly lithic. Anhydrite, dolomite and limestone are subordinate lithologies.

Boundaries

The formation has gradational to sharp contacts with the claystone sequence of the [Smith Bank Formation](#). Dip meter surveys suggest that in places this contact is an unconformity. Over some structures the formation rests on pre-Triassic rocks. The formation is normally overlain unconformably by Jurassic or younger sediments but in a few wells it passes up into the [Gassum Formation](#) (of Rhaetian age).

Distribution

The formation is present throughout the eastern part of the Central North Sea and the western Skagerrak. It may be missing over certain structures because of erosion or halokinesis.

Age

Middle to Late Triassic. It may possibly extend down to the Early Triassic in the areas of maximum development.

Depositional environment

The bulk of the Skagerrak Formation was probably deposited in a coalescing and prograding system of alluvial fans along the eastern and southern flanks of a structurally controlled basin. The limited areal extent and poorly preserved faunal components suggest that some of the dark shale, carbonate and anhydrite beds were deposited in lakes. Better preserved microfossils and other indicators such as glauconite show that some beds were deposited when minor marine incursions occurred between floods of continental clastics.

Source

- Deegan, C. E. and Scull, B. J. (compilers) 1977: A standard lithostratigraphic nomenclature for the Central and Northern North Sea. UK Institute of Geological Sciences, Report 77/25. The Norwegian Petroleum Directorate, NPD-Bulletin No. 1, 36 pp.



Wellbores penetrating

Wellbore name	Wellbore completion date	Top depth [m]	Bottom depth [m]
1/3-12 S	22.07.2010	5818	5931
2/1-3	29.03.1980	4101	4163
2/1-4	03.08.1982	4346	4470
2/1-6	12.08.1984	4587	4588
2/1-8	23.11.1985	4081	4151
2/1-10	14.01.1992	4435	4525
2/1-13 S	07.03.2009	4362	4435
2/2-1	03.07.1982	3820	3947
2/3-1	03.04.1969	2580	2832
2/3-3	20.11.1971	2875	2930
2/4-23 S	05.09.2015	5310	5548
2/5-6	16.08.1978	4087	4132
2/5-7	24.02.1984	4387	4531
2/5-10	26.08.1993	4587	4701
2/5-10 A	25.09.1993	4673	4715
2/5-13	21.01.2009	4576	4675
2/6-6 S	18.01.2019	3521	3545
2/8-12 S	27.04.1989	5225	5300
3/7-2	20.06.1981	2945	2998
3/7-11 S	27.05.2019	3611	3706
6/3-1	01.02.1985	2978	3560
6/3-2	10.03.1986	3165	3293
7/1-1	05.08.1971	2661	2808
7/4-2	13.03.2008	3400	3421
7/8-5 S	03.06.2006	4021	4168
7/9-1	29.05.1971	2609	2811
7/11-7	25.12.1983	4566	4856
7/11-7 R	08.10.1984	4566	4856
7/11-12 A	31.12.2011	5587	5672
7/11-12 S	16.07.2011	5213	5420
7/11-13	03.11.2012	3697	3800
7/12-3 A	06.09.1977	3929	4095
7/12-5	07.06.1981	3917	4145
7/12-6	24.07.1981	3521	3700
7/12-8	23.12.1988	3814	3900
7/12-9	14.05.1990	3760	3820



7/12-10	29.08.1991	3642	3667
7/12-11	06.11.1991	3800	3868
8/1-1	07.02.1972	2704	2727
8/3-1	10.10.1966	2113	2205
8/3-2	04.12.1982	2417	2657
8/4-1	25.07.1977	2513	2582
8/10-1	01.07.1969	2833	2866
8/10-2	17.03.1980	2752	2795
8/10-3	06.10.2010	3158	3221
8/10-4 A	18.12.2011	3602	3639
8/10-4 S	27.10.2011	3004	3058
8/10-5 A	24.05.2014	2470	2618
8/10-5 S	04.03.2014	2760	2791
8/10-6 S	16.07.2014	2110	2196
8/11-1	29.06.1975	2871	3182
8/12-1	23.07.1971	2813	2875
9/1-1 S	21.11.2011	2484	2533
9/2-1	28.04.1987	3685	3756
9/2-2	21.09.1987	3498	3550
9/3-1	04.09.1986	1955	1971
9/3-2	09.12.2005	3118	3154
9/4-1	19.05.1968	2329	2590
9/4-2	29.08.1970	2633	3025
9/4-3	19.08.1972	2613	2682
9/4-4	20.08.1977	2845	2902
9/4-5	01.08.2006	2836	4638
9/11-1	19.08.1971	2121	2196
9/12-1	06.05.1969	2107	2417
10/5-1	26.06.1976	1539	1561
10/8-1	17.01.1971	1567	2749
11/9-1	28.02.1976	145	644
11/10-1	19.08.1969	1900	2430
15/3-3	09.08.1979	5033	5115
15/3-4	30.03.1982	4044	4259
15/5-7	07.09.2008	4008	4037
15/6-3	19.12.1974	3579	3795
15/6-4	16.08.1976	3268	3505
15/6-5	29.11.1977	3723	3824
15/6-6	09.06.1982	3655	3760
15/6-7	08.06.1993	3411	3476
15/6-8 S	05.04.1997	3174	3225



15/6-9 A	13.06.2007	3666	3690
15/6-9 S	27.05.2007	3872	3940
15/6-10	06.04.2009	3613	3700
15/6-12	09.02.2011	3876	3930
15/6-13	15.05.2015	3499	3577
15/6-13 A	03.06.2015	3860	3925
15/6-13 B	29.06.2015	3670	3773
15/6-15	02.06.2019	3645	3795
15/6-16 S	28.06.2019	4130	4203
15/9-1	30.05.1977	3701	3734
15/9-2	17.06.1978	3699	3764
15/9-3	03.04.1979	3703	3796
15/9-4	14.06.1979	3629	3716
15/9-5	11.04.1980	3769	3946
15/9-6	07.09.1980	3828	3946
15/9-8	25.05.1981	3625	3676
15/9-9	14.07.1981	2642	2776
15/9-10	07.11.1981	3183	3241
15/9-14	27.06.1982	3360	3543
15/9-15	01.08.1982	2821	3200
15/9-17	30.03.1983	2741	2847
15/9-18	02.03.1984	3420	3593
15/9-19 A	09.11.1997	3966	4097
15/9-19 SR	29.04.1993	4340	4641
15/9-19 SR2	25.07.1997	4343	4644
15/9-20 S	20.03.1994	3259	3503
15/9-22	13.03.2006	3756	3923
15/9-23	03.01.2010	3169	3225
15/12-1	06.09.1975	3204	3269
15/12-5	04.05.1986	3077	3150
15/12-6 S	04.11.1990	2979	3050
15/12-7 S	07.01.1991	3036	3477
15/12-8	14.07.1991	2854	3054
15/12-8 A	29.07.1991	2856	2940
15/12-9 S	08.10.1992	3688	3848
15/12-10 S	04.11.1996	3429	3550
15/12-11 S	19.05.1997	3544	3597
15/12-12	09.02.2001	2977	3085
15/12-13 B	11.06.2003	3092	3151
15/12-16 S	31.03.2006	2914	2961
15/12-17 A	23.03.2007	3550	3620



15/12-17 S	04.02.2007	3331	3345
15/12-19	20.05.2008	2973	3212
15/12-20 S	01.07.2008	3874	4192
15/12-21	21.05.2009	3122	3310
15/12-21 A	21.06.2009	3493	3702
15/12-22	16.05.2010	2985	3035
15/12-23	29.05.2010	3192	3485
15/12-24 S	20.05.2015	3097	3181
16/1-2	07.08.1976	2424	2620
16/1-7	28.05.2004	3083	3186
16/1-9	22.04.2008	2456	2544
16/1-11	26.04.2010	2401	2625
16/1-11 A	09.05.2010	2501	2595
16/1-14	30.11.2010	2496	2550
16/1-16	07.12.2012	2429	2642
16/1-16 A	01.01.2013	2729	2897
16/1-18	14.05.2014	1894	1985
16/1-20 A	21.10.2013	3060	3106
16/1-21 A	20.04.2015	3194	3313
16/1-21 S	03.03.2015	2491	2630
16/1-22 A	04.06.2015	2769	2896
16/1-22 B	14.06.2015	3066	3215
16/1-22 S	27.05.2015	2506	2640
16/1-23 S	25.08.2015	1953	2094
16/1-26 S	14.04.2016	4896	5330
16/1-27	11.04.2017	1968	2240
16/1-33 S	05.08.2020	3068	3158
16/1-35 S	28.02.2023	3177	3257
16/2-6	20.09.2010	1955	2075
16/2-7	01.09.2011	1986	2134
16/2-7 A	29.09.2011	2041	2100
16/2-8	19.08.2011	1951	2140
16/2-9 S	24.09.2011	1949	1986
16/2-10	28.10.2011	1968	2090
16/2-11	29.03.2012	1946	2126
16/2-11 A	04.05.2012	2239	2365
16/2-13 A	29.09.2012	2626	2658
16/2-13 S	30.08.2012	1949	1955
16/2-14	17.11.2012	1887	1982
16/2-15	13.01.2013	1969	2006
16/2-16	12.12.2012	1999	2065



16/2-16 A	07.02.2013	2385	2503
16/2-17 S	20.05.2013	2020	2052
16/2-19	03.04.2014	1952	1989
16/2-19 A	03.05.2014	2283	2310
16/2-20 A	16.02.2014	2125	2167
16/2-20 S	21.11.2013	2038	2095
16/2-21	07.06.2013	1965	2070
16/2-U-18	28.11.2016	2057	2143
16/4-6 S	03.05.2013	1955	2198
16/4-7	21.08.2013	2529	2600
16/4-8 S	26.08.2014	1934	2700
16/4-9 S	16.08.2015	1984	2358
16/4-11	01.04.2018	1950	2069
16/5-2 S	28.01.2012	1967	2042
16/5-3	20.03.2013	1912	1990
16/5-4	28.09.2013	1936	2100
16/5-6	10.07.2016	2241	2350
16/7-4	06.12.1982	2521	2781
16/7-5	03.08.1984	2594	2775
16/7-6	24.07.1997	2565	2725
16/7-7 S	29.12.1997	2770	2994
16/7-8 S	19.01.2003	2856	2900
16/7-9	03.01.2011	2515	2553
16/7-11	04.09.2015	2546	2650
16/9-1	12.07.1968	2464	3074
16/10-1	14.07.1986	3053	3116
16/10-2	01.08.1991	2923	3150
16/10-3	01.12.1996	2532	2626
16/10-4	10.08.1998	2547	2550
17/4-1	26.08.1968	2352	2532
17/6-1	07.02.2011	2988	3065
17/8-1	23.10.2021	2466	2544
17/9-1 R	11.06.1974	2992	3161
17/10-1	24.03.1969	2825	3398
17/11-1	30.06.1968	2211	2315
17/11-2	17.05.1976	2521	2608
17/12-1 R	21.06.1972	2446	3965
17/12-3	03.02.1980	2638	2730
17/12-4	10.07.2009	2439	2470
18/10-1	01.01.1980	2506	2800
25/4-5	26.03.1981	4127	4207



25/6-1	03.02.1986	2503	2651
25/7-8 S	09.01.2020	3120	3250
25/8-19 A	19.03.2020	2483	2806
25/8-19 S	30.12.2019	2434	2716
25/8-20 B	28.05.2021	2438	2698
25/8-20 S	10.05.2021	2504	2733
25/8-21 S	20.06.2021	2391	2633
25/8-22 S	20.07.2021	2325	2589
25/10-10	02.04.2010	2173	2368
25/10-12 S	18.01.2015	2439	2540
25/10-15 S	02.08.2016	2564	2628
25/10-16 A	09.08.2018	3653	3680
25/10-16 A	09.08.2018	3686	3704
25/10-16 B	18.08.2018	4832	4893
25/10-16 C	26.08.2018	4305	4405
25/10-16 S	30.07.2018	2655	2701
25/10-16 S	30.07.2018	2706	2712
25/10-17 S	10.02.2023	4052	4150
25/11-1	09.07.1967	2109	2391
25/11-29 S	13.05.2019	2147	2230

Wellbores with cores

Wellbore name	Wellbore completion date	Core length [m]
1/3-12 S	22.07.2010	8
2/5-10	26.08.1993	3
2/8-12 S	27.04.1989	17
6/3-1	01.02.1985	137
6/3-2	10.03.1986	32
7/4-2	13.03.2008	20
7/11-7	25.12.1983	46
7/12-6	24.07.1981	126
7/12-10	29.08.1991	13
7/12-11	06.11.1991	9
8/10-4 S	27.10.2011	24
8/10-5 S	04.03.2014	10
8/10-6 S	16.07.2014	0
15/6-3	19.12.1974	59
15/6-4	16.08.1976	37
15/6-7	08.06.1993	16



15/6-8 S	05.04.1997	7
15/9-9	14.07.1981	107
15/9-15	01.08.1982	57
15/9-17	30.03.1983	53
15/9-19 A	09.11.1997	50
15/9-19 SR	29.04.1993	42
15/12-6 S	04.11.1990	8
15/12-7 S	07.01.1991	18
15/12-8 A	29.07.1991	46
15/12-10 S	04.11.1996	18
15/12-12	09.02.2001	19
15/12-19	20.05.2008	156
15/12-20 S	01.07.2008	24
15/12-21	21.05.2009	45
15/12-23	29.05.2010	104
16/1-11	26.04.2010	121
16/1-16	07.12.2012	13
16/1-18	14.05.2014	83
16/1-21 A	20.04.2015	30
16/1-21 S	03.03.2015	96
16/1-22 S	27.05.2015	44
16/1-23 S	25.08.2015	117
16/1-27	11.04.2017	52
16/2-6	20.09.2010	3
16/2-7 A	29.09.2011	12
16/2-8	19.08.2011	56
16/2-9 S	24.09.2011	33
16/2-11	29.03.2012	7
16/2-11 A	04.05.2012	4
16/2-13 A	29.09.2012	32
16/2-13 S	30.08.2012	6
16/2-14	17.11.2012	18
16/2-15	13.01.2013	22
16/2-16 A	07.02.2013	35
16/2-17 S	20.05.2013	21
16/2-19	03.04.2014	37
16/2-19 A	03.05.2014	22
16/2-20 A	16.02.2014	14
16/2-20 S	21.11.2013	16
16/2-21	07.06.2013	11
16/4-6 S	03.05.2013	69



16/4-8 S	26.08.2014	74
16/4-9 S	16.08.2015	80
16/4-11	01.04.2018	52
16/5-2 S	28.01.2012	7
16/5-3	20.03.2013	11
16/5-4	28.09.2013	27
16/7-4	06.12.1982	94
16/7-5	03.08.1984	9
16/7-6	24.07.1997	61
16/7-7 S	29.12.1997	116
17/9-1 R	11.06.1974	5
17/11-2	17.05.1976	8
25/4-5	26.03.1981	32
25/7-8 S	09.01.2020	14
25/8-19 A	19.03.2020	8
25/8-19 S	30.12.2019	88
25/8-20 S	10.05.2021	52
25/8-21 S	20.06.2021	110
25/11-1	09.07.1967	25