



General information

Lithostrat. unit	TRYGGVASON FM
NPDID lithostrat. unit	173
Level	FORMATION
Lithostrat. unit, parent	SHETLAND GP

Level below

Lithostrat. unit

Description

Tryggvason Formation

Name

Named after Olav Trygvason, a Norwegian king (A.D. 995-1000).

Well type section

Norwegian well [25/1-1](#) from 3790 m to 3582 m, coordinates N 59°53'17.40", E 02°04'42.70" ([Fig 5.33](#)). No cores.

Well reference sections

Norwegian well [35/3-2](#) from 3190 m to 2864 m, coordinates N 61°51'05.98", E 03°46'28.22" ([Fig 5.34](#)). No cores. Norwegian well [24/9-1](#) from 3783 m to 3638 m, coordinates N 59°16'09.48", E 01°47'31.18" ([Fig 5.35](#)). No cores. Norwegian well [30/11-3](#) from 3207 m to 3162 m, coordinates N 60°02'38.59", E 02°32'15.47" ([Fig 5.36](#)). No cores.

Thickness

In the Viking Graben, the formation is 208 m thick in the type well ([25/1-1](#)), 326 m in well [35/3-2](#) and 145 m in well [24/9-1](#). It is 45 m thick in well [30/11-3](#) on the western margin of the Horda Platform.

Lithology

The Tryggvason Formation consists generally of mudstones with interbedded limestones. Interbedded sandstones are common in the Agat area. The content of limestones relative to mudstones is generally lower in the northern part of the Viking Graben (from blocks 30/2 and 30/3 northwards) than in the southern part. At the transition between the Viking Graben and the Horda Platform (e.g. block 30/11, ([Fig 5.36](#)), the formation consists of limestone. The mudstones are light to dark grey, often calcareous, occasionally micaceous, glauconitic and pyritic. The limestones are white to light grey or brownish grey and argillaceous. The sandstones are clear to light grey, very fine to fine grained and cemented by calcite.

Basal stratotype

The lower boundary is defined by a decrease in gamma-ray intensity and an increase in velocity from the [Blodøks Formation](#) into the Tryggvason Formation ([Fig 5.33](#), [5.34](#)). This is due to the difference in carbonate content.

Characteristics of the upper boundary

The upper boundary shows an increase in gamma-ray intensity and a decrease in



velocity from the Tryggvason Formation upwards into the [Kyrre Formation \(Fig 5.33\)](#). This log change is due to the lower carbonate content of the [Kyrre Formation](#).

Distribution

The formation is present in the Viking Graben and northern Tampen Spur area towards the Marulk Basin.

Age

Early to Mid Turonian.

Depositional environment

Open marine.

Remarks

The Tryggvason Formation is time-equivalent with the Herring Formation and the lower part of the [Hod Formation](#) in the central North Sea, and also with the informal "formation C" of Deegan & Scull (1977) ([Fig 5.6](#)).

Source

- Isaksen, D. and Tonstad, K. (eds.) 1989: A revised Cretaceous and Tertiary lithostratigraphic nomenclature for the Norwegian North Sea. NPD-Bulletin No. 5, 59 pp.

Wellbores penetrating

Wellbore name	Wellbore completion date	Top depth [m]	Bottom depth [m]
15/3-3	09.08.1979	3250	3521
15/3-7	01.09.2001	3327	3654
15/3-8	11.04.2006	3341	3673
15/3-9	13.08.2010	3304	3615
15/3-11	09.08.2018	3161	3428
15/3-12 A	03.03.2020	3205	3369
15/3-12 S	20.01.2020	3133	3340
15/6-10	06.04.2009	3277	3327
15/9-19 A	09.11.1997	3584	3637
15/9-19 B	02.02.1998	3654	3678
15/9-19 SR2	25.07.1997	4113	4153
15/9-19 SR	29.04.1993	4110	4150
16/3-4	28.06.2011	1694	1706
16/3-4 A	18.07.2011	1812	1824
16/3-5	07.03.2013	1691	1699
16/3-6	16.07.2013	1709	1724
16/3-7	08.11.2013	1686	1703
17/8-1	23.10.2021	1467	1485
24/6-1	25.08.1985	3663	3925
24/9-1	03.07.1976	3638	3783



24/12-1	09.04.1978	3550	3672
24/12-1 R	14.08.1978	3550	3672
24/12-2	21.01.1982	3257	3598
24/12-6 S	20.12.2010	3741	3913
25/1-1	22.07.1971	3582	3790
25/2-4	20.10.1975	3370	3632
25/2-5	04.08.1976	3158	3240
25/2-6	15.11.1977	3021	3083
25/2-12	12.11.1988	3333	3550
25/2-12 A	06.04.1989	3342	3610
25/2-13	25.01.1990	3187	3268
25/2-14	30.03.1991	2970	3029
25/2-15	13.01.1993	3189	3346
25/2-15 R	01.03.1993	3193	3350
25/2-15 R2	11.04.1993	3193	3350
25/2-16 S	13.09.2001	3488	3631
25/2-18 A	19.10.2016	3337	3482
25/2-18 B	30.10.2016	3504	3658
25/2-18 C	17.11.2016	3342	3509
25/2-18 S	11.09.2016	3077	3194
25/2-19 A	08.10.2017	3264	3353
25/2-23 S	01.04.2022	3735	4041
25/4-1	09.12.1972	3062	3154
25/4-5	26.03.1981	3258	3376
25/4-6 S	24.08.1991	3335	3381
25/4-6 SR	14.09.2003	3344	3390
25/7-2	18.07.1990	3060	3260
25/7-7	09.11.2019	3106	3344
25/7-8 S	09.01.2020	2697	2743
25/9-1	22.04.1995	2047	2050
25/9-2 S	03.08.2003	2050	2067
25/9-3	20.09.2009	2021	2027
25/9-4	27.02.2014	2100	2137
25/10-2 R	08.07.1972	2542	2623
25/10-6 S	22.03.1996	3160	3521
25/10-11	10.08.2011	3124	3311
25/10-13 S	19.06.2015	2450	2475
25/10-17 S	10.02.2023	3196	3276
25/11-17	22.03.1993	1870	1882
26/5-1	06.05.2013	1883	1910
29/3-1	15.09.1986	3286	3435



29/6-1	09.05.1982	3632	3743
29/9-1	24.02.1984	3604	3770
30/2-2	04.05.1985	3442	3679
30/2-3	05.10.1992	3419	3543
30/2-4 S	09.08.2008	3954	4140
30/3-1	07.09.1979	3410	3605
30/3-1 R	26.04.1982	3410	3605
30/3-7 A	29.01.1998	4447	5852
30/3-7 B	04.08.1998	3693	4261
30/3-7 BR	17.11.2001	3693	4261
30/3-7 S	12.12.1995	3969	4667
30/3-9	01.07.2000	3236	3460
30/3-10 S	29.04.2009	3418	3455
30/3-11 S	09.09.2022	3494	3668
30/4-1	14.05.1979	3520	3761
30/4-3 S	09.10.2016	3904	3974
30/5-1	29.07.1972	3178	3277
30/5-2	21.12.1996	3167	3288
30/5-3 A	30.05.2009	4090	4391
30/5-3 S	12.04.2009	3220	3359
30/6-27	30.10.2001	2996	3095
30/7-3	25.10.1976	3475	3633
30/7-7	01.07.1979	3569	3631
30/8-3	05.01.1998	3044	3141
30/9-2	12.07.1983	2505	2507
30/9-2 R	07.07.1986	2505	2507
30/9-8 R	25.09.1989	2704	2722
30/9-19	22.10.1998	2954	3036
30/9-19 A	21.12.1998	3062	3140
30/9-24	17.10.2009	2838	2854
30/9-25	20.09.2013	2678	2688
30/10-5	01.05.1975	3630	3782
30/10-6	09.11.1992	3608	3780
30/11-3	14.03.1983	3162	3239
30/11-4	24.07.1984	3156	3193
30/11-7	03.02.2009	3425	3710
30/11-7 A	25.05.2009	3450	3810
30/11-8 A	03.07.2011	3481	3557
30/11-8 S	20.05.2011	3378	3433
30/11-10	26.12.2014	3238	3304
30/11-10 A	13.02.2015	3482	3539



31/3-4	05.01.2014	1545	1592
31/8-1	24.07.2011	1494	1527
31/11-1 S	28.06.2021	1595	1614
32/4-1	04.12.1996	894	940
32/4-2	21.09.2019	597	702
32/4-3 S	26.10.2019	630	720
33/2-2 S	10.06.2015	2829	2897
33/5-1	18.10.1979	2650	2672
33/5-2	18.11.1981	2828	3349
33/6-2	02.01.1997	3110	3455
33/6-3 S	24.07.2012	3320	3949
33/6-5 S	16.10.2021	3105	3273
33/9-16	20.01.1993	2625	2649
33/9-17	04.05.1994	2858	2930
33/9-18	20.12.1994	2821	2841
33/9-18 A	24.01.1995	2996	3190
33/9-22 S	17.09.2017	2622	2644
34/2-2 R	08.05.1981	2970	3111
34/2-5 S	31.03.2018	3247	3370
34/3-1 A	30.10.2008	3450	3776
34/3-1 S	10.09.2008	3429	3769
34/3-2 S	30.12.2009	3417	3679
34/3-3 A	03.01.2012	4042	4726
34/3-3 S	19.11.2011	3433	3739
34/4-5	06.04.1984	3015	3235
34/4-8	21.06.1994	2600	2761
34/4-10 R	18.04.2000	3323	3773
34/4-11	10.01.2010	3340	3685
34/4-14 S	19.05.2015	3357	4072
34/4-15 A	12.08.2020	3360	3524
34/4-15 S	15.07.2020	3184	3373
34/4-16 S	31.03.2021	3150	3386
34/4-18 S	06.03.2022	2496	2802
34/5-1 A	10.04.2010	3802	4070
34/5-1 S	13.03.2010	3355	3544
34/5-2 S	04.07.2018	3285	3472
34/6-1 S	28.08.2002	3240	3378
34/6-2 A	12.12.2012	3207	3413
34/6-2 S	05.11.2012	3208	3449
34/6-3 A	01.11.2014	3363	3501
34/6-3 S	24.09.2014	3377	3643



34/6-4	02.03.2016	3291	3751
34/6-5 S	08.06.2021	3207	3368
34/7-36 S	17.09.2014	3320	3376
34/8-2	17.11.1986	2699	2882
34/8-6	03.11.1991	3352	3418
34/8-7	16.07.1992	3260	3826
34/8-7 R	10.02.1993	3260	3826
34/8-10 S	09.12.1993	2838	2843
34/8-13 A	13.05.2009	3045	3326
34/8-13 S	26.06.2009	3830	3857
34/8-15 S	19.02.2013	3340	3427
34/9-1 S	19.06.2022	3581	3960
34/10-20	23.04.1984	3045	3477
34/10-23	13.10.1985	3450	3550
34/10-54 A	18.04.2014	3328	3563
34/10-54 S	11.02.2014	3275	3459
34/10-55 S	26.03.2017	5300	7200
34/11-1	25.10.1994	3200	3503
34/11-2 S	17.05.1996	2762	3342
34/11-5 S	03.07.2006	4848	5613
34/11-6 S	26.01.2017	4841	5978
34/12-1	30.04.2008	3497	3705
35/1-1	18.07.2002	3301	3726
35/3-1	26.10.1976	2962	3359
35/3-2	26.10.1980	2864	3190
35/3-4	06.06.1981	2714	3040
35/3-5	31.03.1982	2569	2904
35/3-6	02.04.2002	2223	2771
35/3-7 S	01.10.2009	2847	3234
35/4-1	24.05.1997	3326	3500
35/4-3	17.05.2022	3351	3742
35/6-2 S	04.04.2009	2375	2620
35/7-1 S	15.08.2011	3360	3586
35/8-1	24.01.1981	3047	3170
35/8-2	21.05.1982	2947	3059
35/8-5 S	20.07.2003	2847	3083
35/8-6 A	14.05.2016	3293	3391
35/8-6 S	22.04.2016	3397	3500
35/9-5	07.02.2010	2237	2586
35/9-6 S	07.12.2010	2802	2989
35/9-7	14.04.2012	2482	2540



35/9-8	11.04.2013	2549	2627
35/9-9	18.11.2013	2173	2351
35/9-10 S	26.11.2013	2922	2980
35/9-11 A	21.05.2014	2800	2945
35/9-11 S	15.04.2014	2800	2945
35/9-13	20.01.2018	2508	2743
35/9-14	02.03.2018	2502	2737
35/9-14 A	29.03.2018	2606	2933
35/9-16 A	25.04.2022	2277	2541
35/9-16 S	06.04.2022	2160	2410
35/10-1	16.01.1992	3007	3043
35/10-2	22.08.1996	3414	3645
35/10-4 A	12.11.2018	2860	3392
35/10-4 S	10.10.2018	2860	3125
35/11-2	04.12.1987	2675	2682
35/11-13	28.05.2005	2565	2626
35/11-14 S	07.12.2006	2547	2621
35/11-15 S	28.06.2007	2470	2502
35/11-16 S	18.03.2014	2839	2910
35/11-18	27.09.2015	2885	2918
35/11-18 A	16.12.2015	2934	2983
35/11-20 A	07.08.2016	3239	3295
35/11-20 B	15.09.2016	3632	3720
35/11-20 S	19.06.2016	2837	2898
35/11-22 S	02.02.2019	2639	2656
35/12-3 S	16.02.2011	1842	1923
35/12-4 A	17.07.2011	2792	2836
35/12-5 S	19.06.2015	2412	2612
35/12-6 A	30.06.2018	2545	2671
35/12-6 S	14.06.2018	2484	2607
36/1-2	27.10.1975	2217	2575
36/1-3	25.03.2019	1972	2284
36/1-4 S	30.01.2022	2360	2565
36/7-4	26.09.2016	2005	2215
6205/3-1 R	30.11.1990	2425	2876

Wellbores with cores

Wellbore name	Wellbore completion date	Core length [m]
25/4-1	09.12.1972	5