



General information

Lithostrat. unit	ULA FM
NPDID lithostrat. unit	179
Level	FORMATION
Lithostrat. unit, parent	VESTLAND GP

Level below

Lithostrat. unit

Description

Ula Formation

Name

From the [Ula Field](#) in Norwegian Block 7/12. The name was first proposed by Bailey et al., (1981) to describe a sequence of Oxfordian – Kimmeridgian marine sands overlying the non-marine [Bryne Formation](#) (then termed the Haldager Formation) in the [Ula Field](#), but is extended here to a wider geographic area and stratigraphic range.

Well type section

Norwegian well [7/12-2](#) (BP) in the [Ula Field](#), from 3378.5 to 3531.5 m, coord N 57°06'41.34", E 02°50'50.73" ([Fig 3.32](#)).

Well reference sections

Norwegian well [2/1-2](#) (BP) from 3316 m to 3346.5 m, coord N 56°57' 30.76", E 03°12'23.07" ([Fig 3.33](#)).

Thickness

152 m in the type well and 30.5 m in the reference well.

Lithology

In the type well the Ula Formation is a generally massive, fine to medium grained, grey sandstone. A thin, dark grey siltstone is present in the basal part of the formation. The sandstones are arkosic to subarkosic, glauconitic and micaceous. Sorting and angularity vary between individual units of the formation. Bivalve shells and belemnite debris occur, often concentrated in thin lag deposits. Thin, nodular calcite-cemented bands are common.

Within the [Ula Field](#) the Ula Formation can be subdivided into a number of units on the basis of large scale coarsening upward and fining upward cycles (Bailey et al., op. cit.). The sandstones are extensively bioturbated throughout, and this usually obliterates smaller scale sedimentary features. However, in rare zones, parallel or low angle inclined lamination and planar cross bedding are preserved.

Boundaries

The base of the Ula Formation usually occurs where the marine sandstones pass downwards into the nonmarine sandstones/shale/coal sequence of the [Bryne Formation](#). This boundary is often difficult to establish on log characteristics alone. In the region of the [Ula Field](#) there is a gamma ray break between the low values of the Ula Formation and the higher values of the more argillaceous Bryne Formation (e.g. in the type well [7/12-2](#). Elsewhere, where the [Bryne Formation](#) contains cleaner, more massive sands,



the base of the Ula Formation is picked at the top of the highest penetrated coal band. The top of the Ula Formation is easily recognized where the sands give way to the shales of the [Tyne Group](#).

Distribution

The Ula Formation is developed around the eastern flanking "highs" of the Central Graben, in particular on the south-western flank of the Southern Vestland Arch. It passes basinwards into marine shales but is often recognizable as a very thin sandstone. It becomes thin or absent over the "highs". Tongues of similar sands occur locally in the [Tyne Group](#) mudstones (e.g. [3/5-2](#) from 3175 m to 3182.5 m). Comparable formations in lithofacies and partly in age occur both in the Sleipner Area (the [Hugin Formation](#)) and in the Fiskebank and Egersund Sub-Basins (the [Sandnes Formation](#)).

Age

Oxfordian to Ryazanian. In the region of the [Ula Field](#) the sands are Oxfordian to Early Volgian in age. Around the fringes of the Jæren and Mandal Highs and locally on the Southern Vestland Arch, developments of the formation may be as young as Middle/Late Volgian or possibly Ryazanian.

Depositional environment

The sands of the Ula Formation are generally shallow marine in origin although the type of marine environment probably varies from area to area. In the [Ula Field](#) the depositional environment of the sands is particularly difficult to establish due to the unusual thickness of the formation and the scarcity of sedimentary structures; the sands have at this location variously been called shoreface, offshore bar and tidal sand wave deposits (Bailey et al., 1981).

Source

- Vollset, J. and Doré, A. G. (eds.) 1984: A revised Triassic and Jurassic lithostratigraphic nomenclature for the Norwegian North Sea. NPD-Bulletin No. 3, 53 pp.

Wellbores penetrating

Wellbore name	Wellbore completion date	Top depth [m]	Bottom depth [m]
1/3-3	24.03.1983	4178	4324
1/3-3	24.03.1983	4435	4542
1/3-8	27.05.1997	5005	5086
1/3-9 S	31.07.1998	4266	4414
1/3-9 S	31.07.1998	4431	4516
1/5-5	16.09.2016	5831	5911
2/1-2	26.02.1978	3316	3347
2/1-3	29.03.1980	3820	3991
2/1-4	03.08.1982	4251	4261
2/1-5	05.04.1983	4193	4199
2/1-6	12.08.1984	4560	4566
2/1-7	06.03.1985	4024	4061
2/1-8	23.11.1985	4037	4063
2/1-9	06.07.1991	4048	4257



2/1-9 A	08.03.1992	4099	4379
2/1-10	14.01.1992	4189	4322
2/1-12	10.02.1999	3251	3341
2/1-12	10.02.1999	3513	3548
2/1-14 S	28.02.2009	6022	6036
2/1-16 S	13.07.2013	3490	3659
2/1-16 S	13.07.2013	3701	3891
2/2-1	03.07.1982	3357	3752
2/2-3	11.05.1983	3880	3930
2/2-4	07.06.1988	3324	3902
2/2-5	19.02.1992	3538	3989
2/3-4	24.07.1984	3006	3215
2/4-17	29.02.1992	4340	4389
2/4-20	14.03.2008	5176	5225
2/4-22 S	22.02.2015	4567	4622
2/4-23 S	05.09.2015	5205	5310
2/6-1	30.05.1969	3217	3233
2/7-19	02.02.1981	4693	4810
2/7-19 R	14.03.1990	4690	4807
2/7-31	09.06.1999	4469	4634
2/9-2	04.09.1979	4292	4316
2/9-3	14.12.1989	4525	4543
2/12-1	12.03.1987	4597	4672
3/4-1	26.02.1994	2736	2920
7/1-2 S	08.05.2008	2945	3122
7/4-1	21.08.1993	3065	3083
7/4-2	13.03.2008	3382	3400
7/7-2	25.04.1992	3327	3347
7/7-3	04.07.1993	3491	3507
7/8-3	12.12.1983	3724	3767
7/8-5 S	03.06.2006	3950	4021
7/9-1	29.05.1971	2487	2495
7/11-5	10.06.1982	4155	4241
7/11-6	20.10.1982	4098	4145
7/11-7	25.12.1983	4527	4566
7/11-7 R	08.10.1984	4527	4566
7/11-9	09.03.1986	4169	4183
7/11-10 S	10.09.1990	4341	4395
7/11-11 S	10.06.2007	4470	4618
7/11-12 A	31.12.2011	5493	5587
7/11-12 S	16.07.2011	5197	5213



7/11-14 S	31.10.2021	4075	4104
7/12-2	23.09.1976	3379	3532
7/12-3 A	06.09.1977	3638	3827
7/12-4	12.12.1977	3445	3529
7/12-5	07.06.1981	3831	3901
7/12-6	24.07.1981	3406	3521
7/12-7	26.07.1988	3772	3855
7/12-8	23.12.1988	3718	3814
7/12-9	14.05.1990	3701	3760
7/12-10	29.08.1991	3627	3642
7/12-11	06.11.1991	3788	3800
7/12-12 S	17.03.1996	6018	6079
7/12-13 S	18.05.2012	4255	4481
8/10-4 A	18.12.2011	3432	3602
8/10-4 S	27.10.2011	2948	3004
8/10-5 A	24.05.2014	2403	2470
8/10-5 S	04.03.2014	2708	2760
8/10-6 S	16.07.2014	2051	2110
8/10-7 S	04.01.2019	2938	2954
15/12-24 S	20.05.2015	2903	2985
15/12-26	13.05.2021	2709	2764
16/4-7	21.08.2013	2489	2529
16/10-5	27.11.2012	2929	3016

Wellbores with cores

Wellbore name	Wellbore completion date	Core length [m]
1/3-3	24.03.1983	67
1/3-8	27.05.1997	15
1/3-9 S	31.07.1998	105
2/1-2	26.02.1978	18
2/1-3	29.03.1980	51
2/1-9	06.07.1991	104
2/1-9 A	08.03.1992	178
2/1-10	14.01.1992	95
2/2-1	03.07.1982	32
2/2-3	11.05.1983	17
2/2-5	19.02.1992	45
2/4-17	29.02.1992	16
2/6-1	30.05.1969	9



2/9-3	14.12.1989	18
2/12-1	12.03.1987	37
3/4-1	26.02.1994	18
7/4-1	21.08.1993	7
7/4-2	13.03.2008	18
7/7-2	25.04.1992	9
7/7-3	04.07.1993	16
7/8-3	12.12.1983	36
7/11-5	10.06.1982	70
7/11-6	20.10.1982	45
7/11-7	25.12.1983	17
7/11-9	09.03.1986	14
7/11-10 S	10.09.1990	38
7/11-11 S	10.06.2007	109
7/12-2	23.09.1976	88
7/12-3 A	06.09.1977	86
7/12-4	12.12.1977	81
7/12-5	07.06.1981	56
7/12-6	24.07.1981	114
7/12-7	26.07.1988	41
7/12-8	23.12.1988	26
7/12-9	14.05.1990	21
7/12-10	29.08.1991	15
8/10-4 S	27.10.2011	45
8/10-5 S	04.03.2014	52
8/10-6 S	16.07.2014	53