General information

Lithostrat. unit	HAUGESUND FM
NPDID lithostrat. unit	57
Level	FORMATION
Lithostrat. unit, parent	TYNE GP

Level below

Lithostrat. unit

Description

Haugesund Formation

Name

After the town of Haugesund on the west coast of Norway.

Well type section

Norwegian well 2/7-3 (Phillips) from 3695 to 4191 m, coord N 56°23'02.9", E 03°15'45.9'7, (Fig 3.40).
See “remarks” for qualification of this well type section.

Well reference sections

Norwegian well 3/5-2 (Gulf) from 3182.5 to 3345 m, coord N 56°32', 56°32'34.46", E 04°23 '11.1", (Fig 3.42). and 2/8-3 (Amoco) from 3761 m to 4115 m (TD.), coord N 56°18'31", E03°26'54.1", (Fig 3.41).

Thickness

496 m in the type well, 162.5 m in 3/5-2, and 354 m in 2/8-3. The formation is thickest in the axis of the Central Graben and thins towards the flanking highs, where it passes partially or entirely into the sandy lithology of the Ula Formation.

Lithology

The Haugesund Formation consists predominantly of shale ranging in colour from light grey to brownish black. The shale is often carbonaceous and calcareous, and contains frequent thin sandstone interbeds. In general the upper part of the formation represents an overall "coarsening-upward cycle", becoming sandier and siltier upwards.

Boundaries

In the type well, 2/7-3, the Haugesund Formation overlies Zechstein salt and the base of the formation is therefore obvious from both logs and cuttings. However, the Zechstein salt is almost certainly penetrative at this location and does not therefore provide a true stratigraphic base for Haugesund Formation (see “remarks”). In the reference well 2/8-3 and elsewhere in the Central Graben the base of the Haugesund Formation is often found overlying the Vestland Group. This is shown in the reference well 3/5-2 where the upward change from the sandy Bryne Formation to the shales of the Haugesund Formation produces the expected gamma ray/sonic log break (see (Fig 3.42).
The top of the Haugesund Formation in the type well is the contact with the sandy Eldfisk Formation. In areas of the Central Graben where the Eldfisk Formation is absent, the top of the Haugesund Formation is picked at a clearly correlatable gamma ray minimum, above which the gamma ray increases to the higher values of the basal

Farsund Formation (e.g. well 2/8-3).

Distribution

The formation is ubiquitous in the Central Graben and widely distributed around the flanks of the basin and intra-basinal highs. It is absent in the Ula Field where it is entirely replaced by time-equivalent sands of the Ula Formation, and is also absent on the crest of the Southern Vestland Arch and intra-basinal highs.

Age

Callovian to Early Kimmeridgian. In neither the type nor the reference wells have pre-late Oxfordian ages been proven but Callovian mudstones assignable to the Haugesund Formation occur in the vicinity of the reference well 3/5-2.

Depositional environment

The bulk of the shales of the Haugesund Formation were deposited in a marine, low energy, basinal environment. The common thin sand interbeds may represent sporadic turbidite influxes emanating from the adjacent shelf where coarser elastics (i.e. the Ula Formation) were being deposited. The "coarsening-upward" nature of the sequence represents an overall regression which was terminated by a further transgression and the deposition of the Farsund Formation shales.

Remarks

The type well 2/7-3 penetrated a thick development of the Haugesund Formation, considered to be typical of the formation as it is commonly encountered in the Central Graben. However, the inadequately defined base of the formation makes 2/7-3 ultimately unsatisfactory as a type well. None of the other Central Graben wells available to this study establish a base for this formation, and penetrations on the flanks of the basin (such as the reference well 3/5-2 are fewer, atypical and potentially controversial stratigraphically. Penetration of a well-defined base for the Haugesund Formation by a future well in the Central Graben would perhaps provide a rare instance in which replacement of a type well might be justified.

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]
1/3-12 S	22.07.2010	5627	5736
1/5-5	16.09.2016	5752	5831
1/6-6	08.03.1993	5305	5457
1/6-7	12.07.1992	4655	4995
1/9-3 R	30.09.1978	4387	4570
1/9-7	02.08.2003	4504	4911
2/1-4	03.08.1982	4164	4251
2/1-5	05.04.1983	4053	4193
2/1-6	12.08.1984	4426	4560
2/1-7	06.03.1985	3996	4024

2/1-8	23.11.1985	3965	4037
2/1-10	14.01.1992	4347	4435
2/1-11	07.05.1997	4323	4506
2/1-12	10.02.1999	3384	3513
2/1-13 S	07.03.2009	4176	4241
2/1-15	05.09.2013	3393	3431
2/4-16	04.11.1991	4828	4877
2/4-16 R	15.07.1992	4828	4877
2/4-17	29.02.1992	4283	4340
2/4-22 S	22.02.2015	4543	4567
2/4-23 S	05.09.2015	5142	5205
2/5-9	18.01.1992	4313	5460
2/5-13	21.01.2009	4456	4525
2/6-2	25.05.1980	4236	4560
2/7-3	11.10.1972	3695	4192
2/7-15	02.06.1980	4181	4423
2/7-28	07.08.1992	3518	3796
2/7-29	06.01.1994	4658	4664
2/7-29	06.01.1994	4698	4756
2/8-3	03.09.1972	3761	4115
2/8-12 S	27.04.1989	4207	5191
2/9-2	04.09.1979	4032	4292
2/9-3	14.12.1989	4125	4525
2/11-1	03.10.1969	4075	4691
2/11-7	06.09.1986	4720	5042
2/12-1	12.03.1987	4365	4597
2/12-2 S	14.09.1990	5175	5537
3/4-1	26.02.1994	2920	3013
3/5-1	28.06.1978	2817	2902
3/5-2	20.08.1978	3183	3345
3/7-4	23.01.1990	3261	3411
3/7-5	07.02.1992	3085	3379
3/7-6	30.11.1996	4050	4120
3/7-7	27.10.2008	3857	3930
3/7-8 S	03.03.2013	3801	3892
3/7-9 S	28.04.2013	3490	3524
3/8-1	29.12.2010	3465	3563

Wellbores with cores

Wellbore name	Wellbore completion date	Core length [m]
1/6-7	12.07.1992	46
2/1-8	23.11.1985	16
2/4-17	29.02.1992	1
2/7-28	07.08.1992	2
2/7-29	06.01.1994	5
2/9-3	14.12.1989	0
2/12-2 S	14.09.1990	7
3/7-8 S	03.03.2013	2