



General information

Lithostrat. unit	RAUDE FM
NPDID lithostrat. unit	127
Level	FORMATION
Lithostrat. unit, parent	STATFJORD_GP

Level below

Lithostrat. unit

Description

Raude Formation

Name

The formation is named after Eirik Raude (Raude=Red), the Viking discoverer of Greenland.

Well type section

Norwegian well [33/12-2](#) (Mobil) ([Fig 1.17](#)). from 2790 m to 2951 m below KB.

Well reference section

UK well 211/24-1 (Conoco/Gulf/NCB) ([Fig 1.17](#)).

Thickness

In the type well the formation is 161 m thick and in 211/24-1 it is 119 m.

Lithology

In the type well the basal part of the formation consists of a coarsening upward sequence of grey, green, and red-brown silty claystones, grey arkosic sandstones and white, pink and grey-brown dolomitic limestones. This basal part of the section is often difficult to recognise away from the type well and is locally absent. Above 2905 m in the type well the formation consists of approximately equal amounts of sandstone and silty shale. These sandstones are fine to medium grained and poor to moderately sorted with subangular grains. They are generally micaceous and have a kaolinitic matrix. The silty shales are grey and light green or occasionally red-brown in colour, and micromicaceous. Carbonaceous debris, sometimes in thin laminae, is present but distinct lignite beds are absent. Away from the type well the sandstone percentage in the upper part of the formation may vary from about 15 to about 75. In the area of the Brent and [Statfjord](#) fields the average sandstone bed thickness is about 2.5 m and shale beds average about 4 m in thickness. Correlation of individual beds from well to well is virtually impossible.

In well [33/12-5](#) the Raude Formation consists of alternating, 5 to 10 m-thick, red claystones and sandstones, except for the lowermost 25 m of claystone, while in well [30/6-5](#) a similar pattern as in the type well is observed.

Boundaries

The originally Raude Member of the Statfjord Formation was elevated to formation level by Lervik, 2006. The base of the formation is the base of the [Statfjord Group](#). The change from the underlying more argillaceous sediments to the more sandy [Statfjord Group](#) via the transitional coarsening-upward units is clearly defined on the gamma ray



and sonic logs. The top of the formation is the base of the first massive sandstone of the overlying more arenaceous formation. This boundary is normally clearly marked by a change from irregular to a blockier log response, particularly in the gamma ray log. Individual sandstone beds in the overlying [Eiriksson Formation](#) are more laterally extensive. The base of the lowermost sandstone can be well correlated which will generally indicate the top of the Raude Formation.

Distribution

The formation can generally be recognized wherever the [Statfjord Group](#) is well developed. The basal coarsening upward unit is thought to have a more limited distribution but this cannot be defined as many wells terminated in or just above this basal unit.

Age

Rhaetian. The top of the formation may approximate to the Rhaetian – Lower Jurassic boundary in the type well but is probably older to the west ([Fig 1.18](#)).

Depositional environment

The Raude Formation was interpreted as a braided-stream, based on the lithological content and sedimentary structures in the upper part of the formation, particularly large cross-bedding, scour and fill, Deegan and Scull (1977), Røe and Steel (1985) interpreted the few component sandstones within Raude Formation as distal alluvial-fan stream deposits in a flood-basin environment. Mudstones of reddish-brown or mottled colours with palaeosols may represent a subaerial, well-drained floodplain environment (Nystuen and Fält, 1995). Carbonate nodules, root structures and dessication cracks are abundant in the palaeosols.

Compiled from

- 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.
- Goldsmith, P. J., Hudson, G. and Van Veen, P. Triassic. 105 – 127 in: Evans, D., Graham, C., Armour, A. and Bathurst, P. (editors and coordinators) 2003: The Millennium Atlas: petroleum geology of the central and northern North Sea. The Geological Society of London, 389 pp.
- Lervik, K.-S. 2006: Triassic lithostratigraphy of the Northern North Sea Basin. Norwegian Journal of Geology, Vol. 86, pp. 93-116.

Wellbores penetrating

Wellbore name	Wellbore completion date	Top depth [m]	Bottom depth [m]
16/1-34 S	31.07.2021	2316	2383
25/7-8 S	09.01.2020	3067	3120
30/3-2 R	16.02.1981	3394	3567
30/6-1	22.09.1979	2959	3003
30/6-9	16.12.1982	3334	3389
30/6-9 R	12.05.1990	3332	3387
30/6-14	08.02.1984	2855	2900
30/9-3 A	20.05.1984	4161	4249
33/2-1	26.12.2014	4411	4459



33/6-3 S	24.07.2012	4332	4377
33/12-2	23.08.1974	2790	2951
34/2-2 R	08.05.1981	3957	4074
34/4-14 S	19.05.2015	4723	4754
34/4-18 S	06.03.2022	2918	3045
34/7-6	30.05.1985	2586	2654
34/7-7	16.12.1985	2629	2678
34/7-10	29.10.1986	2620	2683
34/10-1	08.09.1978	2329	2367
34/10-2	08.12.1978	3497	3540
34/10-3	07.06.1979	2677	2715
34/10-3 R	10.10.1987	2674	2712
34/10-4	15.10.1979	2458	2481
34/10-5	02.01.1980	2732	2764
34/10-7	23.03.1980	2140	2180
34/10-7 R	14.07.1983	2137	2177
34/10-11	05.03.1981	2000	2089
34/10-21	22.10.1984	3930	4005
34/10-32	13.07.1987	3488	3538
34/10-32 R	10.08.1987	3488	3538
34/10-43 S	11.04.2001	4165	4370
34/10-44 S	08.07.2001	3982	4200
34/10-54 A	18.04.2014	4635	4656
34/10-55 S	26.03.2017	7274	7390

Wellbores with cores

Wellbore name	Wellbore completion date	Core length [m]
25/7-8 S	09.01.2020	53
34/7-6	30.05.1985	34
34/7-7	16.12.1985	37
34/7-10	29.10.1986	43
34/10-21	22.10.1984	16