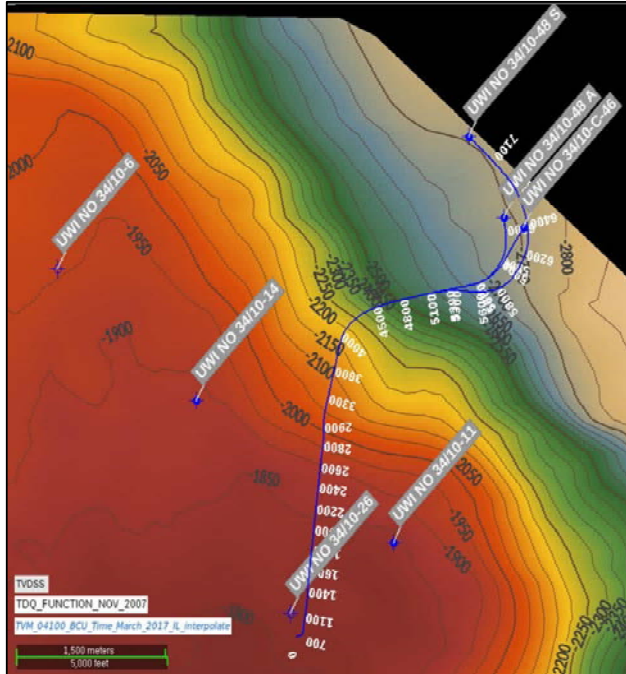




FINAL COMPLETION LOG Gimle Field (Topas, GFC)

Scale 1:500

Well: NO 34/10- C-46 (48 AT2)



KB Elevation: 84,1m
Water Depth: 216,9m
Depth Reference: RKB
Country: Norway
Licence: PL050, PL120
Drillers Total Depth: 5878,0m MD
 2845,6m TVD
Loggers Total Depth: N/A
Formation at Total Depth: unknown
Date Sidetracked: 10 jan 2005
Date Reached TD: 15 jan 2005
Date Completed: 15 feb 2005
Well Status: Completed Producer
Well Classification: Appraisal / Producer
Prepared By: C. Sparks / J. Arndt
Controlled By: P. Zanetta
Date: 01 des 2017
Revision: 0

Owners: PL050: Statoil (61%), Norsk Hydro (9%), Ptero (30%); PL120: Statoil (30.1%), Ptero (16.9%), Norsk Hydro (29%), Conoco (13%), TotalFinaElf (11%).
Field: Gimle (earlier Topas)
Platform: Gullfaks C
Drilling Contractor: Smedvig
Mudlogging Company: Schlumberger/Geoservices
Logging Company: Schlumberger
MWD Company: Schlumberger
Geologists: Stein Befring, Bjørn Kjellin, Svein Erik Ingdahl

Slot Location -0,93 mS +27.8 mE

Well Introduction

The objectives of the well were to explore the Gimle (previously Topas) prospect and 3 leads. The Topas prospect is located northeast and downflank of the Gullfaks structure, in both the PL050 and PL120 licences. The main objective of the well 34/10-48 S was to test the hydrocarbon potential of the Brent Group in the Topas prospect, should they be economically viable it was planned to complete the well. The secondary objectives were to test the hydrocarbon potential in 3 leads; the Nesle lead east of the Topas prospect, the U2 lead in the slope of the Gullfaks Horst and upper Jurassic at the base of the main bounding fault limiting the Gullfaks Structure to the east.

After the sidetrack 48 A was abandoned a new open-hole sidetrack called 48 AT2 was drilled from 5608m MD. Well 48 AT2 was later renamed to producer 34/10-C-46.

The preliminary results of the well 34/10-48 S indicated that the wellpath had penetrated low on the Topas structure and that the wellpath was not ideal for production. It was therefore decided to drill a sidetrack and aim as high on the re-interpreted structure as possible. The well 34/10-48 A drilled through hydrocarbon filled sands of both Tarbert and Ness Formations before entering the upper Jurassic sequence. The well was abandoned before reentering the Topas structure in the north, due to severe hole problems after a bit trip to change a failed drilling assembly.

A short open hole sidetrack 34/10-C-46 was performed with kick-off in the Tarbert Formation. TD for the well was set at 5878m MD/2846m TVD RKB in the upper Jurassic sequence.

Remarks

Well 34/10-C-46 was an open hole sidetrack kicking off at 5608 m MD. The new wellpath was planned to avoid the hard formations experienced in well 34/10-48 A but did not manage to do that and after experiencing ROP around 0.5 m/hrs TD was set at 5878 m MD based on information from the previous 8 1/2' section which showed that this should be enough for production. No issues were reported running and cementing the 7" Liner which was subsequently perforated for production. No remarks to logging.

Well Configuration and Logging Runs

Hole Size (")	Hole Section MD (m)	Casing Size (")	Type	Shoe/Liner MD (m)	LOT / FIT / XLOT					Comments
					Date	Type	Result (g/cc)	Depth MD (m)	TVD RKB (m)	
12 1/4"	5105.0	9 5/8"	Casing shoe	5105	08 nov 2004	FIT	1,850	5105	2873.9	This casing was part of motherwell 48 S. FIT was performed before drilling wellbore 48A.
8 1/2"	5878.0	7"	Liner shoe	5877						

Run	Hole Size (")	Suite	Dates (From-To)	Interval MD (m)	Max Temp. (°C)	Comments
11	8 1/2"	GR-RES-DEN-NEU	10 jan 2005 - 16 jan 2005	5608.0 - 5878.0	111	Real time and memory data was lost from the ADN tool due to interval with hard stringers at start of run.

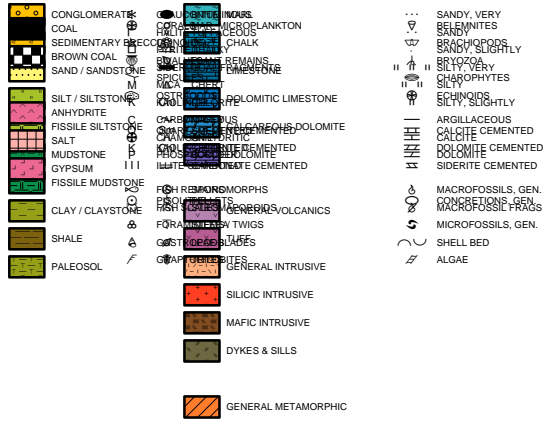
Wireline Logging Summary

Run	Hole Size (")	Suite	Dates (From-To)	Interval MD (m)	Max Temp. (°C)	Comments

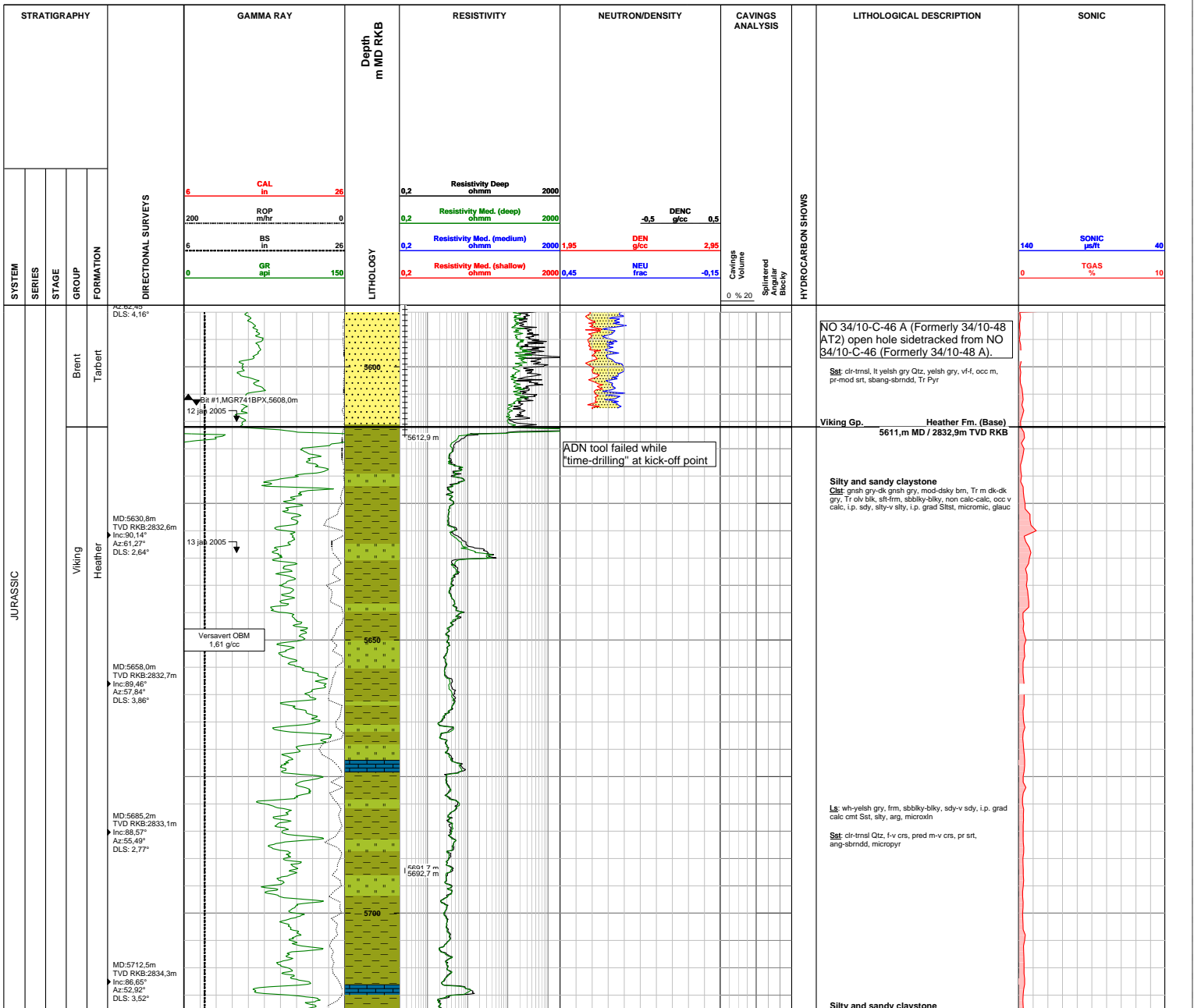
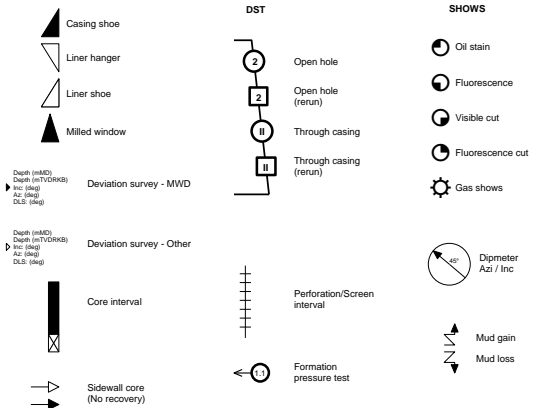
Number	Type	Top MD (m)	Top TVD RKB (m)	Base MD (m)	Base TVD RKB (m)	Comments
1	PERF	5157.4	2889.3	5258.3	2892.2	Tarbert 3A/B & 2B
1	PERF	5304.2	2882.8	5320.6	2878.9	Tarbert 2A/B
1	PERF	5330.4	2876.6	5346.8	2872.6	Tarbert 2A
1	PERF	5360.1	2869.5	5386.3	2863.7	Tarbert 1B/C
1	PERF	5425.5	2856.2	5451.6	2850.3	Tarbert 1A
1	PERF	5468.0	2846.4	5491.1	2841.4	Tarbert 1A
1	PERF	5508.1	2838.8	5517.9	2837.8	Tarbert 1A
1	PERF	5554.5	2835.8	5564.2	2835.4	Tarbert 2B
1	PERF	5574.5	2834.8	5612.9	2832.8	Tarbert 2A
1	PERF	5691.7	2833.3	5692.7	2833.4	Heather Fm.
1	PERF	5762.7	2836.9	5772.5	2837.4	Heather Fm.
1	PERF	5779.9	2837.8	5812.6	2840.0	Heather Fm.
1	PERF	5823.5	2840.9	5833.2	2841.7	Heather Fm.

Strat. Unit	Name	Top MD (m)	Top TVD RKB (m)
GROUP	Brent	5158.0	2889.5
GROUP	Viking	5611.0	2832.9
FORMATION	Heather	5611.0	2832.9
FORMATION	undifferentiated	5850.0	2844.0
MEMBER	Base Intra Heather Sand	5795.0	2838.7
MEMBER	Top Intra Heather Sand	5813.0	2840.0

Lithology Legend



Symbol Legend



JURASSIC

JURASSIC

Viking

Heather

Viking

Heather

undifferentiated

MD-5739,7m
TVD RKB:2835,7m
Inc:87,22°
Az:49,32°
DLS: 4,92°

Versavert OBM
1,61 g/cc

MD-5767,1m
TVD RKB:2837,1m
Inc:86,97°
Az:45,82°
DLS: 3,83°

14 jan 2005

MD-5794,3m
TVD RKB:2838,7m
Inc:86,34°
Az:41,54°
DLS: 4,78°

MD-5821,3m
TVD RKB:2840,7m
Inc:85,13°
Az:37,02°
DLS: 5,18°

MD-5848,7m
TVD RKB:2843,0m
Inc:85,13°
Az:33,49°
DLS: 3,86°

MD-5860,0m
TVD RKB:2844,0m
Inc:84,86°
Az:33,38°
DLS: 0,73°

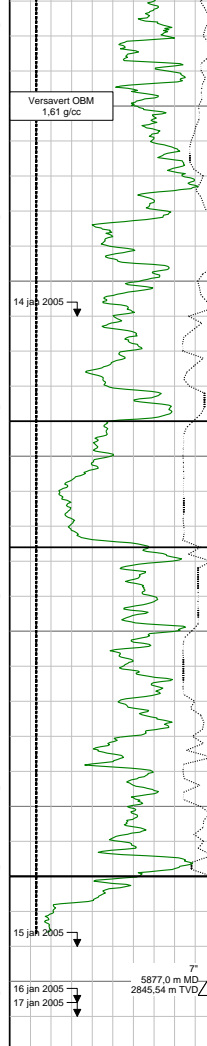
MD-5878,0m
TVD RKB:2845,6m
Inc:84,86°
Az:33,38°
DLS: 0,00°

15 jan 2005

16 jan 2005

17 jan 2005

5877,0 m MD / 2845,54 m TVD



5750

5762,7 m

5772,5 m

5779,9 m

5812,6 m

5823,5 m

5833,2 m

5850

Interbedded sand, silt, claystone and coals
Cst: m-dk gry, gnsh gry, olv gry, frm-mod hd, sbbiky, i.p. sily/sdy, non calc, occ Pyr
Sst: cl-trnsl Qtz, lse, m-v crs, mod srt, ang-sbrmdd

Sst: cl-trnsl Qtz, lse, m-v crs, mod srt, ang-sbrmdd

Base Intra Heather Sand
5795,m MD / 2838,7m TVD RKB
Sst: cl-trnsl Qtz, lse, vl-v crs, pr-mod srt, ang-sbrmdd

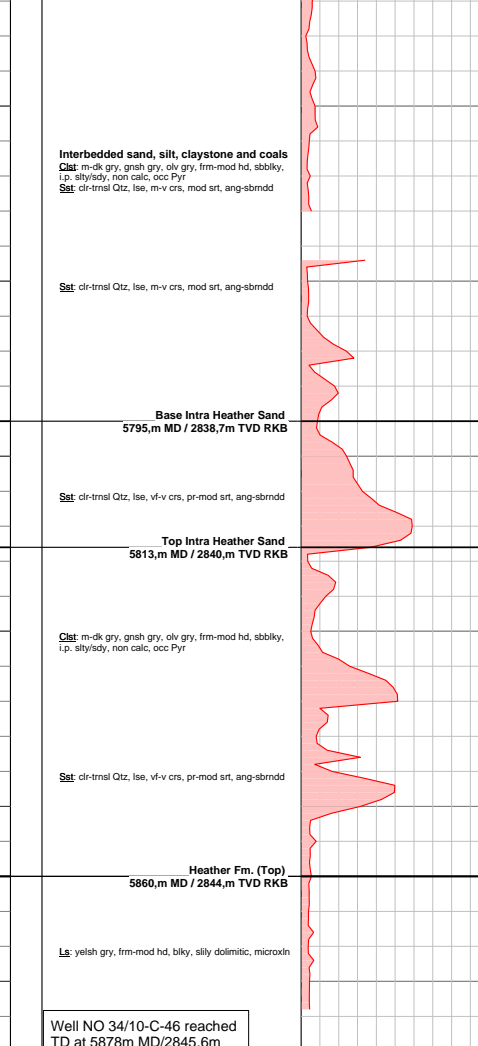
Top Intra Heather Sand
5813,m MD / 2840,m TVD RKB
Cst: m-dk gry, gnsh gry, olv gry, frm-mod hd, sbbiky, i.p. sily/sdy, non calc, occ Pyr
Sst: cl-trnsl Qtz, lse, vl-v crs, pr-mod srt, ang-sbrmdd

Heather Fm. (Top)
5860,m MD / 2844,m TVD RKB
Ls: yelsh gry, frm-mod hd, blk, sily dolimitic, microxin

Fault?

Fault?

Well NO 34/10-C-46 reached TD at 5878m MD/2845.6m TVD RKB on 15.01.2005.



SYSTEM	SERIES	STAGE	GROUP	FORMATION	DIRECTIONAL SURVEYS	LITHOLOGY	RESISTIVITY	NEUTRON/DENSITY	CAVINGS ANALYSIS	HYDROCARBON SHOWS	LITHOLOGICAL DESCRIPTION	SONIC
					GR apt BS in ROP m/hr CAL in		0,2 Resistivity Med. (shallow) ohmm 2000 0,45 NEU frac -0,15 0,2 Resistivity Med. (medium) ohmm 2000 1,95 DEN g/cc 2,95 0,2 Resistivity Med. (deep) ohmm 2000 -0,5 DENC g/cc 0,5 0,2 Resistivity Deep ohmm 2000		0 % 20 Spinnened Cavings Volume Bluish Black	0 TGAS % 10 140 SONIC psi 40		

Test Results

Run No.	Point No.	Depth MD (m)	Depth TVD RKB (m)	Formation Pressure (Bar)	Hydrostatic Pressure Before (Bar)	Hydrostatic Pressure After (Bar)	Mobility (md/cP)	Sample	Formation	Comments
Core No.		Drilled Depth		Recovery		Formation		Comments		
		Top MD (m)	Base MD (m)	(m)	(%)					
Run	No.	MD (m)	TVD RKB (m)	Recovery	Summary / Descriptions					