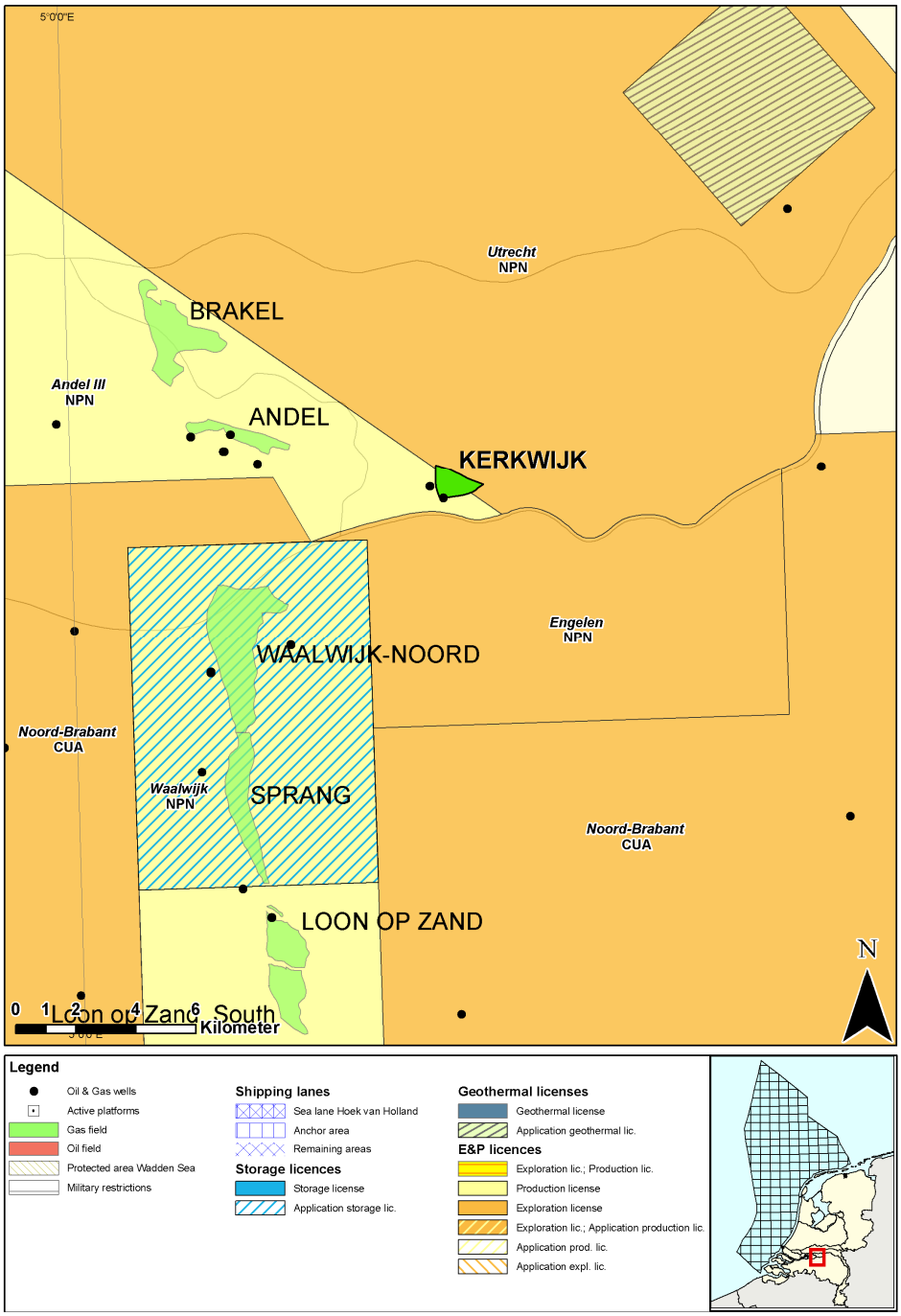
Fact sheet Kerkwijk field

Stranded fields - Q4 2009



Location map of the Kerkwijk gas field

Introduction

The onshore Kerkwijk gas field was discovered in 1988 with exploration well KWK-01. Gas is contained in reservoirs of the Röt Fringe Sandstone Member (RNROF or Upper Bunter) and the Main Buntsandstein Subgroup (RBM or Middle Bunter). The field has not been developed and currently lies partly in the Andel III drilling license and partly in the Utrecht exploration license, both of Northern Petroleum. There is no 3D survey covering the field.

For general information on the geology of the Kerkwijk field area reference is made to the Geological atlas of the Netherlands, map sheet Breda-Valkenswaard & Oss-Roermond and map sheet Noordwijk-Rotterdam & Amsterdam-Gorinchem. (NITG-TNO 2001-2002), in which for example the geological history of the area is explained and also petrophysical analyses of a selection of key wells are reported. The KWK gas field represents a faulted dip-closure. UV core photographs show the presence of a small oil rim.

Sequence of events

Date	Event
20-01-1983	Award of exploration license Andel (NAM)
11-03-1983	Exploration license Andel effective
05-11-1987	Concession application Andel (NAM)
27-06-1988	Spud date well KWK-01 (NAM)
25-08-1988	TD reached (3281 m ah)
05-08-1988	RFT's 2605-2605,7
03-09-1988	Completion date well KWK-01
26-01-1989 to 03-02-1989	Production tests (DC and BS)
25-03-1992	Withdrawal of Andel concession application (NAM)
15-12-1992	Production license application Andel II (NAM)
30-06-1995	Award of production license Andel II (NAM)
20-07-2006	License Andel II split up in Andel III and Andel IV
20-07-2006	Exploration license Andel III effective (NPN)
25-04-2007	Exploration license Utrecht effective (NPN)
17-11-2008	Production license Andel III effective (NPN)

Plug data

Depth m ah	Porosity %	Grain density g/cm^3	Stratigraphy
2419.1	5.4	2.692	RNROY
2428.8	4.4	2.706	RNROY
2429.1	4.6	2.707	RNROF
2433.3	3.9	2.699	RNROF
2548.2	3.4	2.8	RNSOB
2554.7	5.1	2.757	RNSOB
2555.3	1.8	2.779	RBMH
2568.1	5.1	2.708	RBMH
2581.9	2.6	2.686	RBMH
2582.4	3.7	2.683	RBMDU
2589.1	6.9	2.664	RBMDU
2597.8	6.2	2.682	RBMDU
2598.1	7.7	2.66	RBMDL
2601.6	6.2	2.674	RBMDL

More detailed information of this interval is available

Reservoir data

Reservoir	Depth interval m TVD/NAP	Net pay m	N/G %	Porosity %	Gas saturation %
Upper Bunter	2295-2337	14	33	7	56
Middle Bunter	2440-2464	15	63	8	36

Hydrocarbon specifications

Reservoir	CH_4 %	CO_2 %	N_2 %	H_2S %	GHV MJ/m3	Density rel. to air
Main Buntsandstein Subgroup (RBM)	90.79	1.53	3.08	0	40.61	0.625

Volumes

Reservoir	GIIP $10^9 m^3 st$ Expected	Reserves $10^9 m^3 st$ P90 (1P)	Expected	P10 (3P)
Main Buntsandstein Subgroup (RBM)	0 - 0,5		0 - 0,5	

Productivity

Reservoir	interval m -RT	method	gas m^3/d
Upper Bunter	2421-2465	Pre acid	10020 at 3.3 bara thp
Upper Bunter	2421-2465	Post acid	65000 at 40.5 bar thp 42000 at 134 bar fthp
Middle Bunter	2585-2610	Natural flow	No flow

Stratigraphy	Test interval m ah	Reservoir pressure in bar abs	Q well production at s.c. m^3/d	Drawdown bar	Q50 calculated m^3/d at 50 bar drawdown
Main Buntsandstein Subgroup (RBM)	2431-2475	236.5	65000	197.2	37854

Q50 based on available public data from CWL
More RFT and production test information is available on the well log

Well status

KWK-01, plugged and abandoned

Infrastructure

The nearest production facility is located approximately ten kilometers to the southwest.

References

NITG-TNO 2001, Geological Atlas of the deep Subsurface of the Netherlands, Map sheet XIII & XIV, Valkenswaard & Oss-Roermond.

NITG-TNO 2002, Geological Atlas of the deep Subsurface of the Netherlands, Map sheet VII & VIII, Noordwijk-Rotterdam & Amsterdam-Gorinchem.

RGD & NOGEPA 1993, Stratigraphic nomenclature of the Netherlands, Mededelingen Rijks Geologische Dienst, Nr. 50

SodM 1988, Proces-Verbaal nr. 196. (Official Report of the State Supervision of the Mines on the proven occurrence of gas/oil in a well)

SodM 1989, Proces-Verbaal nr. 831. (Official Report of the State Supervision of the Mines on the proven occurrence of gas/oil in a well)

NAM, composite well log KWK-01. *On open file*

For more information stranded Oil&Gas fields in the Netherlands:

http://www.nlog.nl/nl/reserves/reserves/stranded.html

For released Well data and Seismic data contact DINO*loket:*

http://www.dinoloket.nl

For geological maps of the deep subsurface of the Netherlands:

http://www.nlog.nl/nl/pubs/maps/geologic_maps/NCP1.html