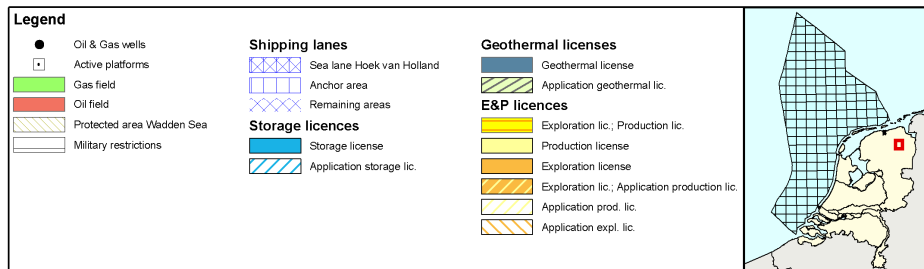
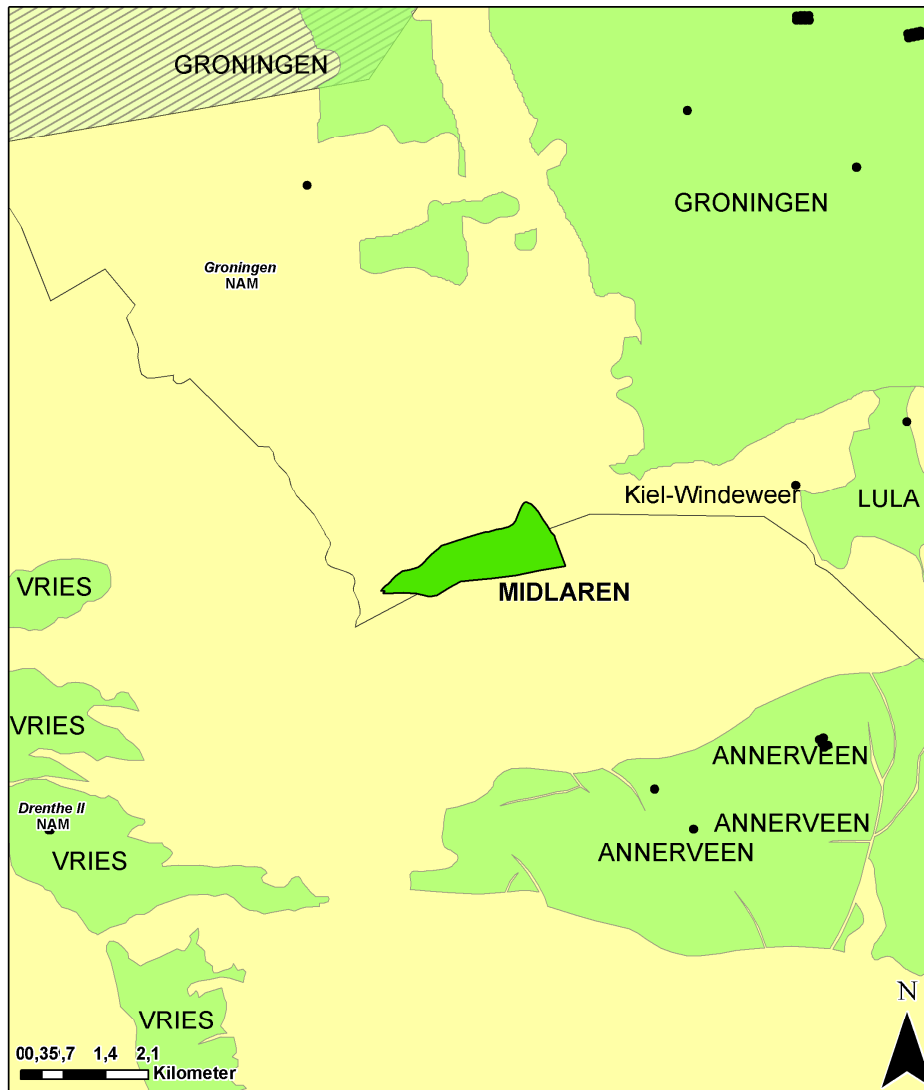




# Fact sheet Midlaren

## Stranded fields - Q4 2009



Location map of the Midlaren gas field

### **General information**

The Midlaren gas and oil field was discovered in 1985 by NAM by well Midlaren-01. The gas in the Rotliegend is the primary target. The gas is situated in the Slochteren formation and occurs in sand layers in between the claystones of the Ten Boer Member (ROCLT). The oil is trapped in the Slochteren sandstone. Both reservoirs are located in a Horst block below the Zechstein. RFT's are performed at several reservoir levels from the Z2 Zechstein Formation to the Limburg group. Results of RFT's are available on the composite well log.

The Midlaren gas and oil field is situated in the Lauwerszee Trough which lies in between the Friesland Platform and the Groningen High. The field is located to the South of the Groningen gas field, at 2 km distance. The Midlaren field is located half in the Groningen concession and half in the Drenthe II concession. The field has not been produced due to its limited size.

For general information on the regional geology of the Midlaren field area reference is made to the Geological atlas of the Netherlands, map sheet III Rottumeroog-Groningen and VI Veendam-Hoogeveen.

### **Sequence of events**

Date	Event
30-05-1963	NAM production license Groningen
04-11-1968	NAM license Drenthe
20-11-1981	Area Drenthe license expanded and changed
10-03-1985	Spud date Midlaren-01
13-02-1985	RFT's 3115.9 – 3621.5 m ah
02-03-1985	RFT sample 3212.5 m ah (ROSL)
1985	TD reached 3650.0 m ah
18-07-2007	Drenthe license split up in Drenthe II, Drenthe III and Drenthe IV
28-08-2007	NAM production license Drenthe II (after split up Drenthe license)

### **Plug data**

Depth m	Porosity %	Hor. Permeability mD	Density g/cm <sup>3</sup>
3438.8	5.9		2.716
3440.6	6.6		2.753
3441.8	3.3	29.6	2.734
3442.7	2.3	10.7	2.74
3443.6	3.6	4.2	2.742
3444.2	4	9.7	2.73
3446.6	3.4	26.9	2.726
3451.1	5		2.762
3452.3	0.7		2.958

### **Reservoir data**

Geological unit	Top m ah	Base m ah	Net m ah	N/G %	Porosity %
RGD & NOGEP A (1993)					
Silverpit Formation (ROCL)	3135.32	3308.04	30 - 40	30 - 40	0 – 10%
Slochteren Formation (ROSL)	3171.91	3308.04	120 - 130	90 – 100 (van CWL)	0 – 10%

### Hydrocarbon specifications

Reservoir	CH <sub>4</sub> %	CO <sub>2</sub> %	N <sub>2</sub> %	H <sub>2</sub> S %	GHV MJ/m <sup>3</sup>
Upper Rotliegend Group gas (RO)	78.94	1.05	10.27	-	40.14

### Volumes

Gas Reservoir	GIIP 10 <sup>9</sup> m <sup>3</sup>	Reserves 10 <sup>9</sup> m <sup>3</sup>		
		Proven	Expected	Possible
Upper Rotliegend group (RO)	0 - 1			

Oil Reservoir	STOIP 10 <sup>6</sup> m <sup>3</sup>	Reserves 10 <sup>6</sup> m <sup>3</sup>		
		Proven	Expected	Possible
Slochteren Sandstone (ROSL)	0 - 1			

### Pressure & Productivity

Test depth	Reservoir pressure bar
RFT 3127.0 m-RT (ZEZ2C)	549.8
RFT 3196.0 m-RT (ROCLT)	364.1
RFT 3212 m-RT (ROSLN)	366.7
RFT 3254.2 m-RT (ROSLN)	366.0
RFT 3254.2 m-RT (ROSLN)	365.0
RFT 3254.2 m-RT (ROSLN)	361.3
RFT 3254.2 m-RT (ROSLN)	360.8
RFT 3254.2 m-RT (ROSLN)	364.1
RFT 3254.2 m-RT (ROSLN)	366.9
RFT 3254.2 m-RT (ROSLN)	370.8
RFT 3619.5 m-RT (DCCP)	401.8
RFT 3619.5 m-RT (DCCP)	419.0

Test depth	Q well production at s.c. m <sup>3</sup> /d	Drawdown bar
Upper Rotliegend group (RO)	5000 - 10000	50

### Well status

The well MLA-01 is closed-in.

### Infrastructure

The nearest production facility is located approximately seven kilometers to the southeast.

### Public References

- RGD 1995. Geological Atlas of the Deep subsurface of the Netherlands. Map sheet III: Rotumeroog-Groningen, Haarlem.
- TNO-NITG 2000. Geological Atlas of the Deep subsurface of the Netherlands. Map sheet VI: Veendam-Hoogeveen. Utrecht.
- RGD & NOGEPa 1993, Stratigraphic nomenclature of the Netherlands, Mededelingen Rijks Geologische Dienst, Nr. 50

NAM 1985: Composite well log. *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 DINOloket:

*<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](http://www.nlog.nl/nl/pubs/maps/geologic_maps/NCP1.html)*

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