

Shallow gas

Bright opportunities in the Dutch offshore

Seismic data in the northern Dutch offshore shows many shallow amplitude anomalies, often indicating the presence of gas.

Miocene-Pleistocene unconsolidated sands form reservoirs (300-800 m depth), sealed by intercalating clays. Traps are generally low relief anticlines formed by underlying salt domes.

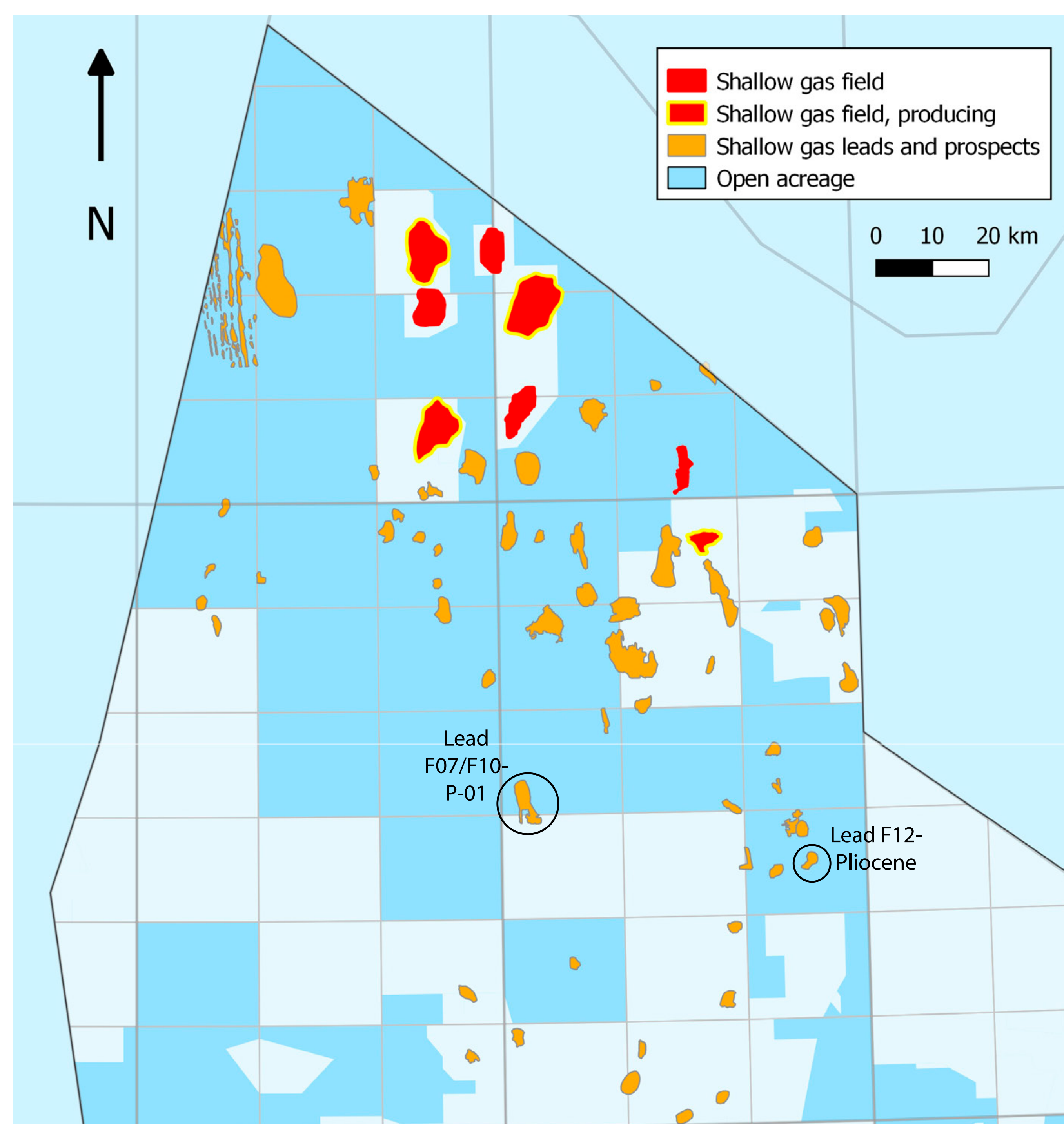
Reservoir properties*

* Based on fields currently in production

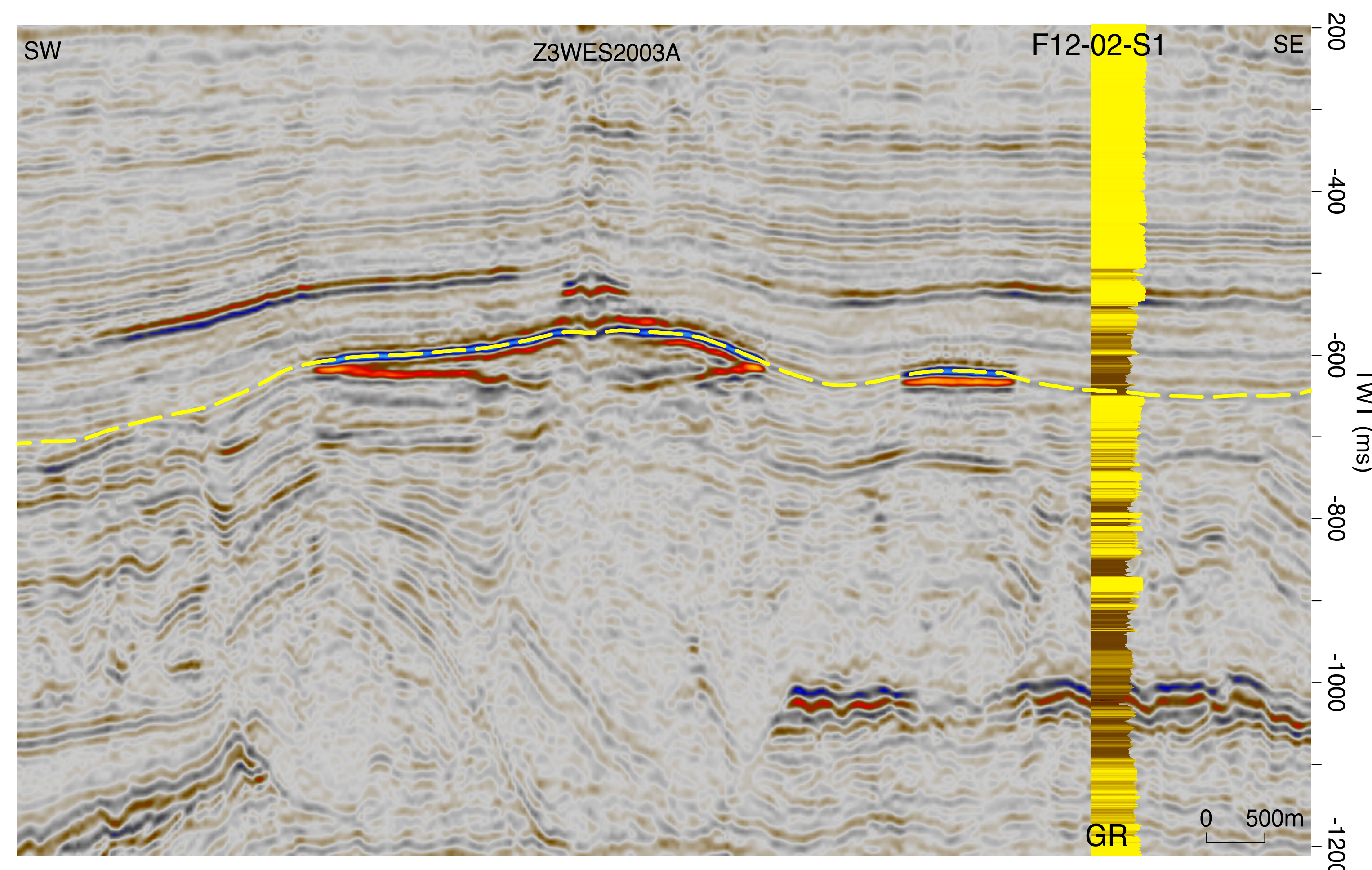
- Expected ultimate recovery around 70 %
- Porosities range between 20-25 %
- Good to excellent permeability (100-500 mD)

Why explore for shallow gas?

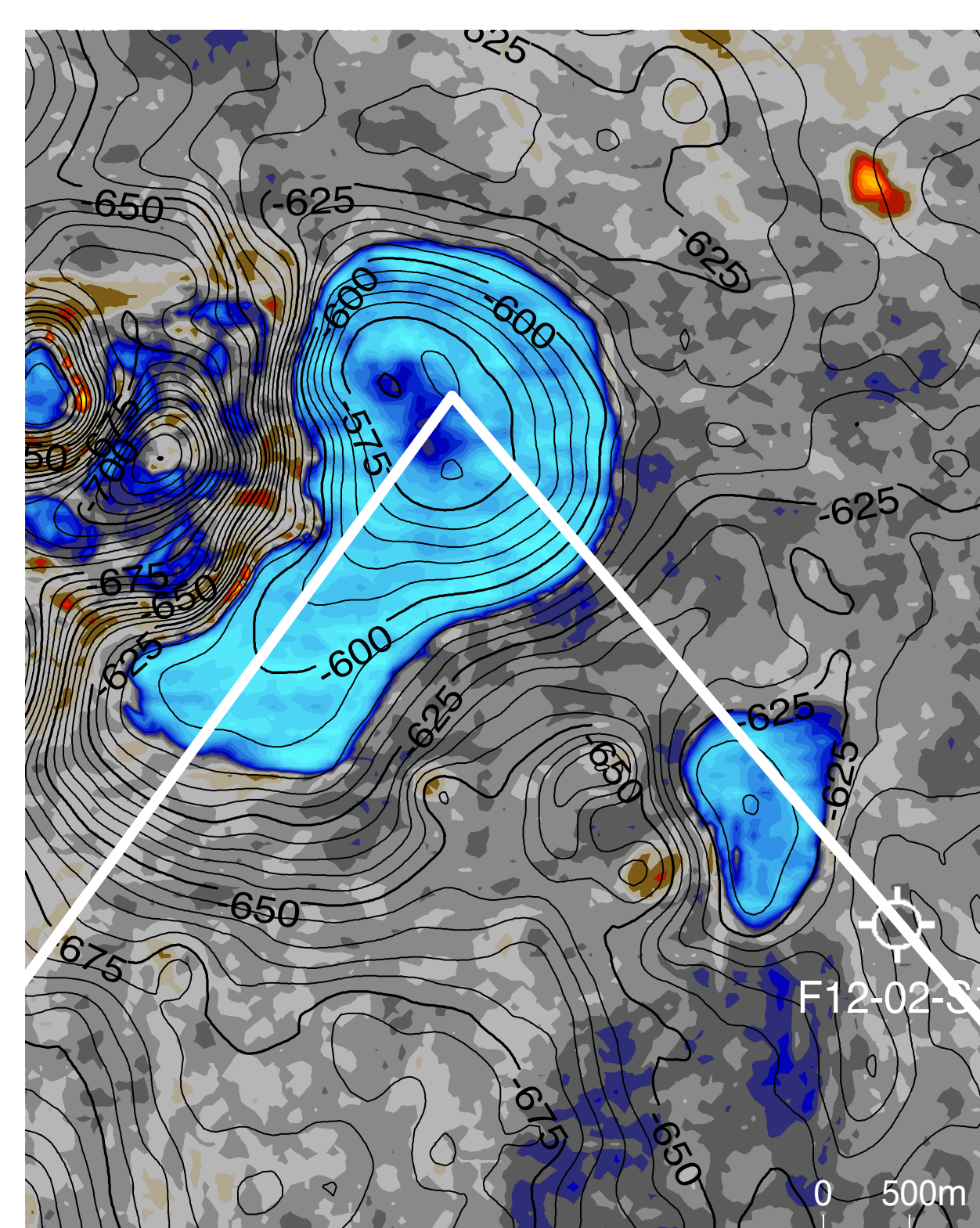
- 8 discovered fields of which 4 are currently successfully producing.
- Production rates of 3 million Nm³/day have been achieved in the A12-FA field, making it one of the best producing gas fields in the Netherlands.
- Significant additional potential: many shallow leads identified.



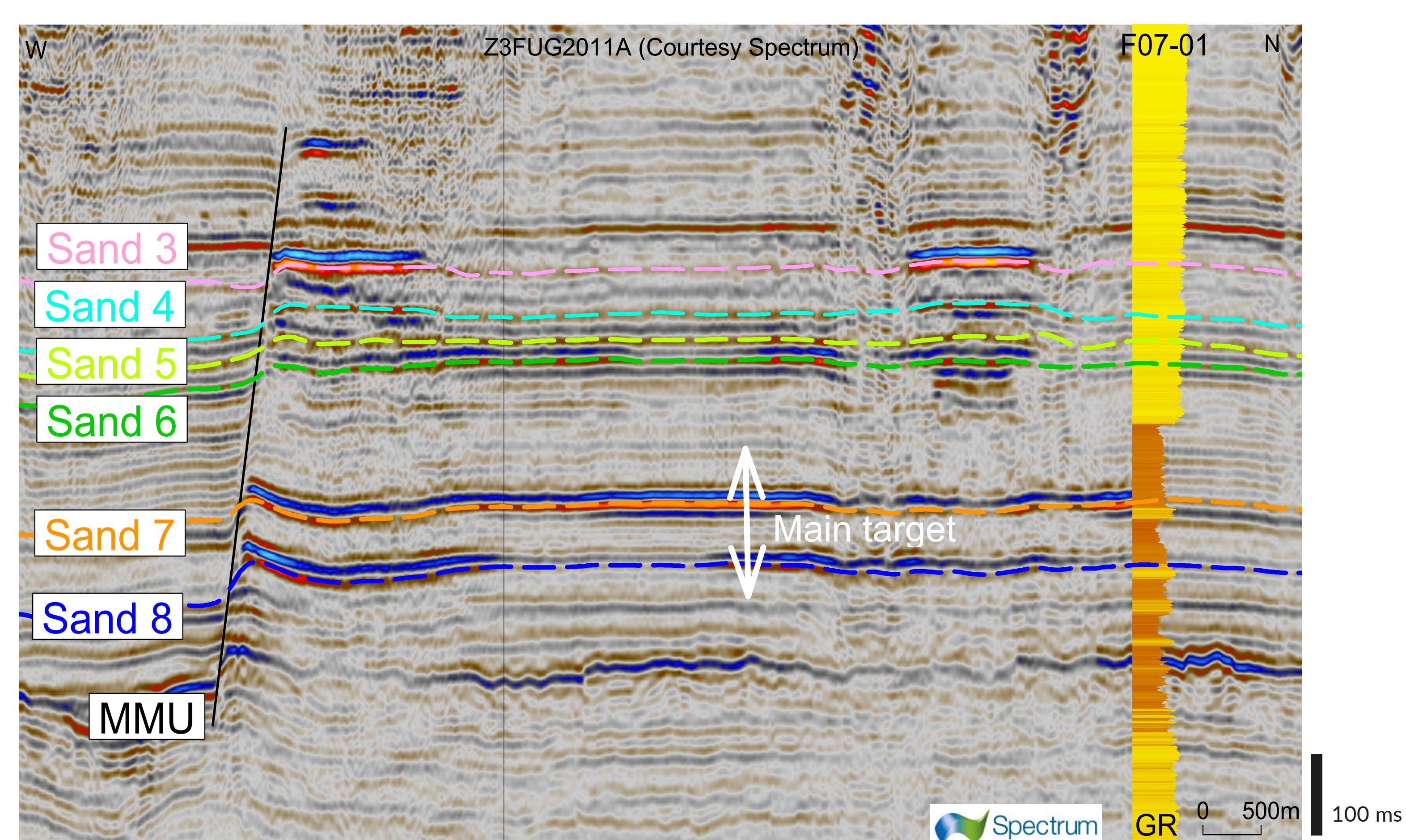
Lead F12-Pliocene



Licence	Open acreage
Seismic data	3D coverage, seismic data in public domain
Seismic response	Amplitude anomaly conformable to structure, flat-spot, push-down effect and attenuation
Structure	4-way dip closure
Thickness	~ 50 m (net-to-gross: 85 %)
Porosity	> 25 %
Gas saturation	60 %
GIIP	0.5 – 0.8 – 1.1 bcm (P90-P50-P10)



Lead F07/F10-P1



Licence	Mainly open acreage
Seismic data	3D multiclient survey (Spectrum, 2011)
Seismic response	8 stacked amplitude anomalies of which 2 major bright spots and velocity push-down
Structure	Fault-dip closure
Thickness	2 layers, 10 – 20 m each
GIIP	1.0 - 2.5 - 5 bcm (P90-P50-P10)

Information from neighbouring wells F07-01 drilled the edge of the lead – it has gas shows between 300-1000 m

