Eight wells, new insights: SCAN geothermal exploration results

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Geothermal Forum NL, Delft, 28-05-2026

Ministerie van Economische Zaken en Klimaat

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SCAN project phases and activities

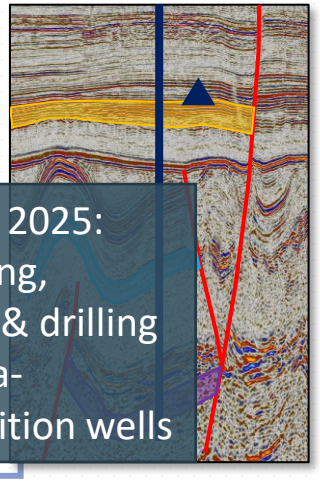
Project Proposal

Seismic Funded

Seismic survey design complete. Long regional lines, connecting wells and infilling areas with poor seismic coverage.

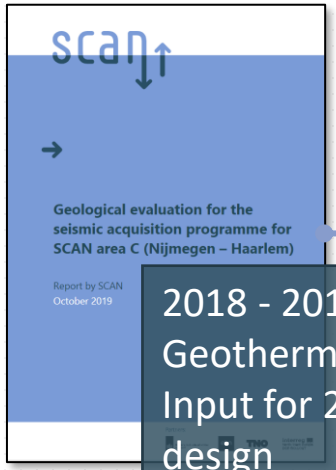
Wells Funded

2021 - 2025: Planning, design& drilling of data-acquisition wells



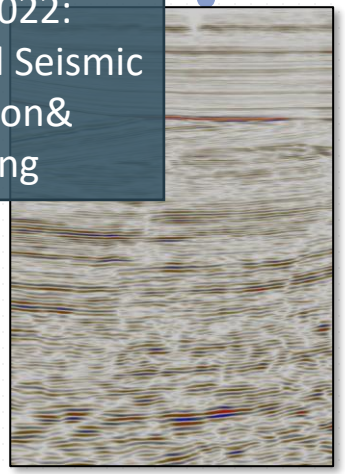
Additional 3D and 2D Seismic Acquisition Funded

2017 2018 2019 2020 2021 2022 2023 2024 2025 2026

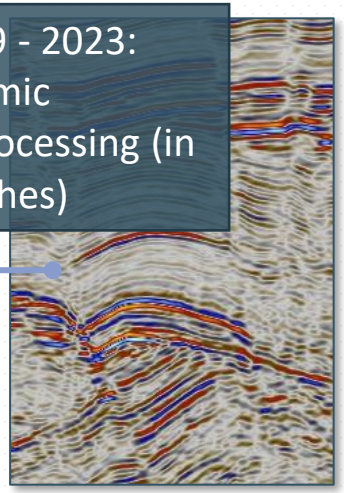


2018 - 2019: Geothermal play analysis. Input for 2D seismic survey design

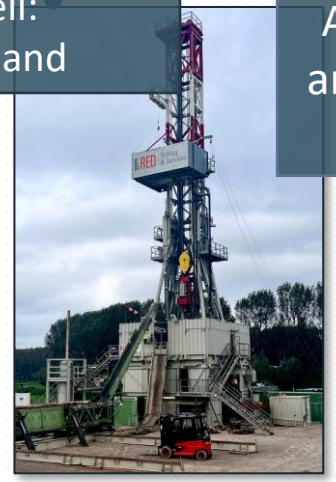
2019 - 2022: Regional Seismic acquisition& processing



2019 - 2023: Seismic reprocessing (in batches)



First well: Amstelland



Additional 3D and 2D Seismic Acquisition

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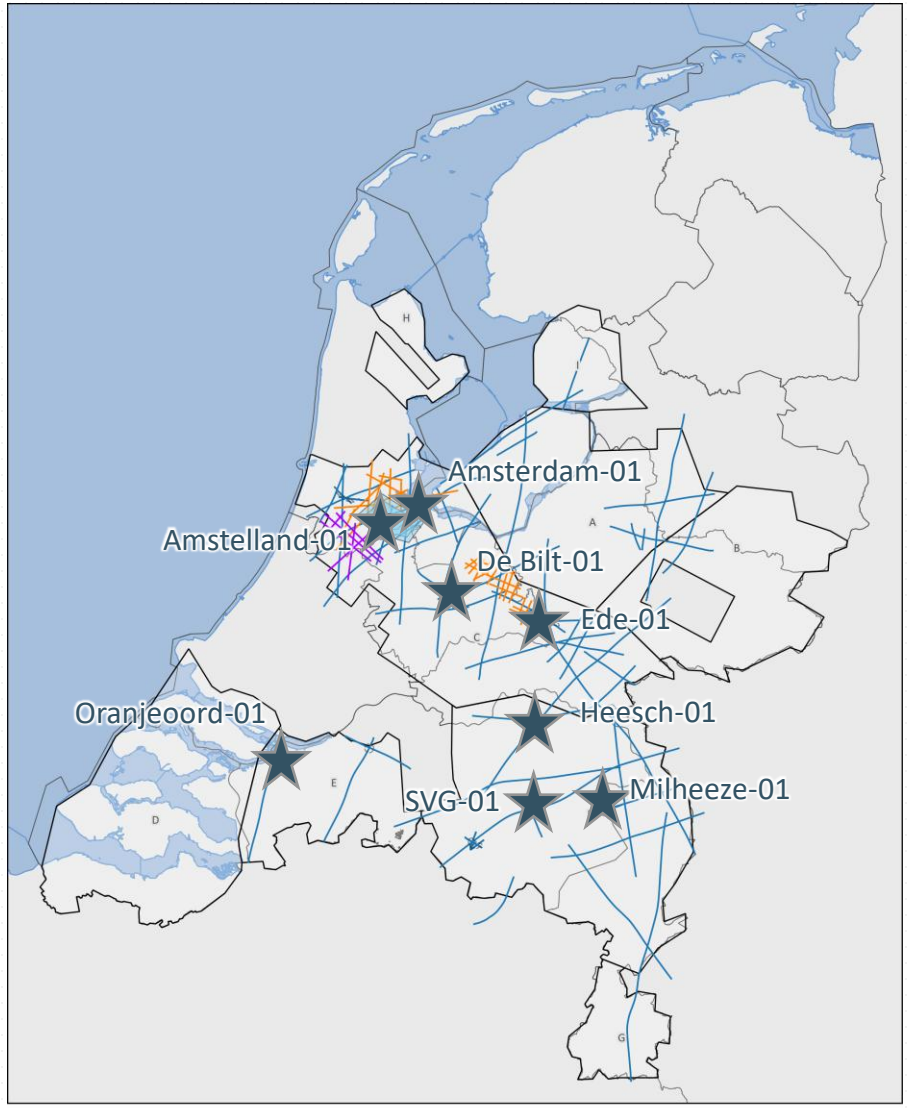
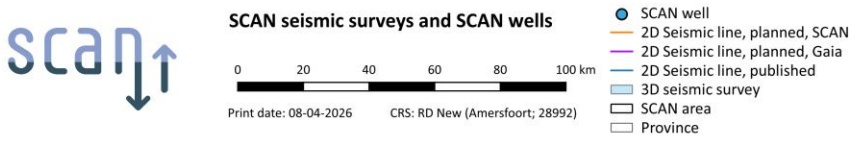
SCAN Wells& Targets





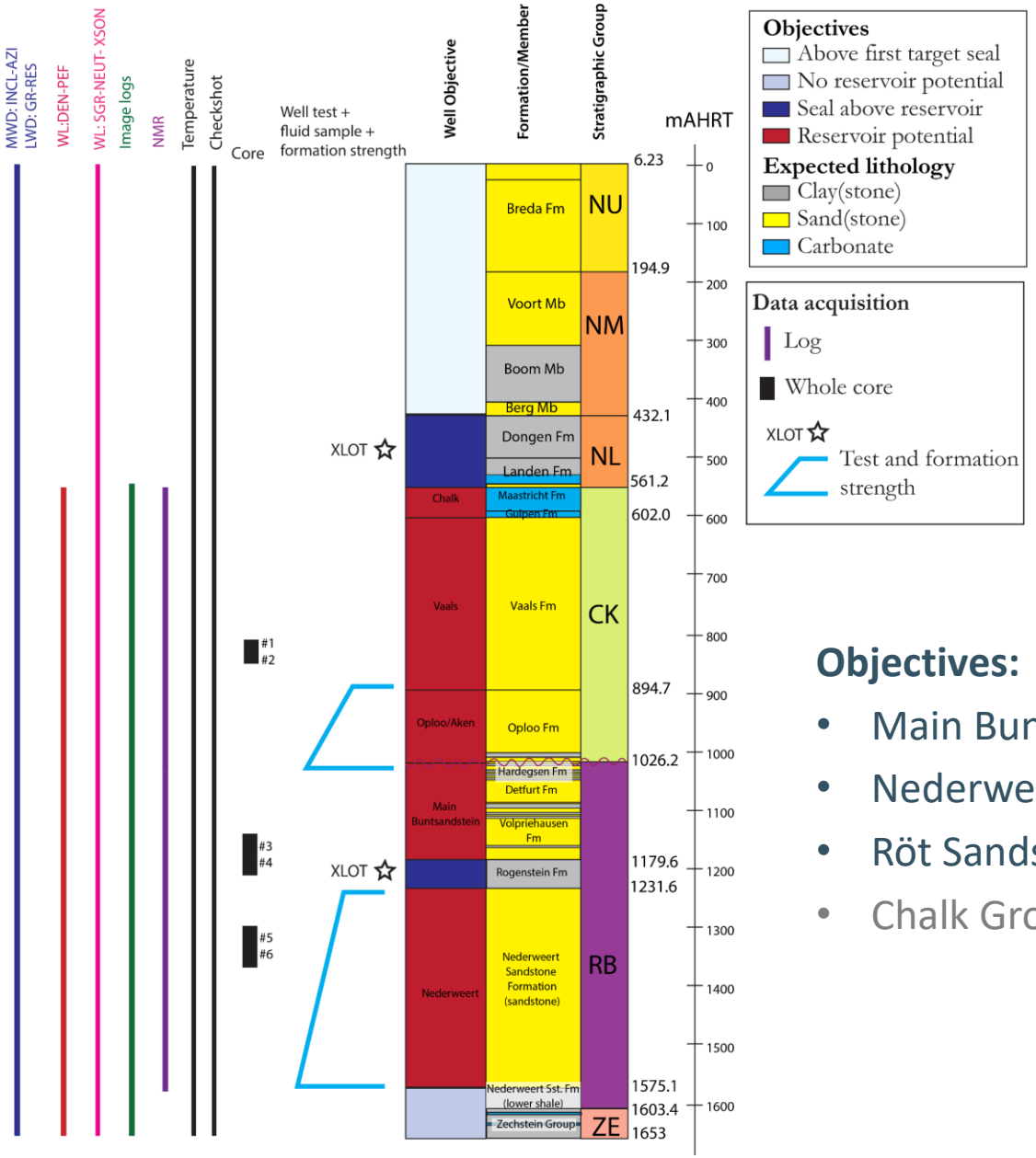
Well	SCAN Search Area (Well)	Primary objective	Secondary objective(s)
AMS-01	Amstelland (Amstelland-01)	Rotliegend (Permian)	Chalk, Vlieland (E. Cret)
BLT-01	**Utrecht (De Bilt-01)**	Rotliegend (Permian)	**Triassic**, Vlieland (E. Cret.), Chalk
EDE-01	Ede-Veenendaal (Ede-01)	Rotliegend (Permian)	Vlieland (E. Cret), Zechstein (Permian)
ASD-01	Amsterdam-Diemen-Almere (Amsterdam-01)	Rotliegend (Permian)	North Sea (Neogene)
HEE-01	**Oss (Heesch-01)**	**Triassic**	Vlieland, Rotliegend, **Cret. (Oploo/Vaals Fm)**
MHZ-01	**Deurne (Milheeze-01)**	**Triassic**	**Chalk Gp**
SVG-01	**Eindhoven (Stad van Gerwen-01)**	**Upper North Sea Gp, Breda Subgp (Neogene)**	Middle North Sea Gp (Paleogene)
ORO-01	**West-Brabant Noord (Oranjeoord-01)**	**Lower North Sea Gp (Paleogene)**	Middle North Sea Gp (Paleogene)

➜ SCAN Well Campaign Complete!

➜ 8 Wells drilled, logged& tested

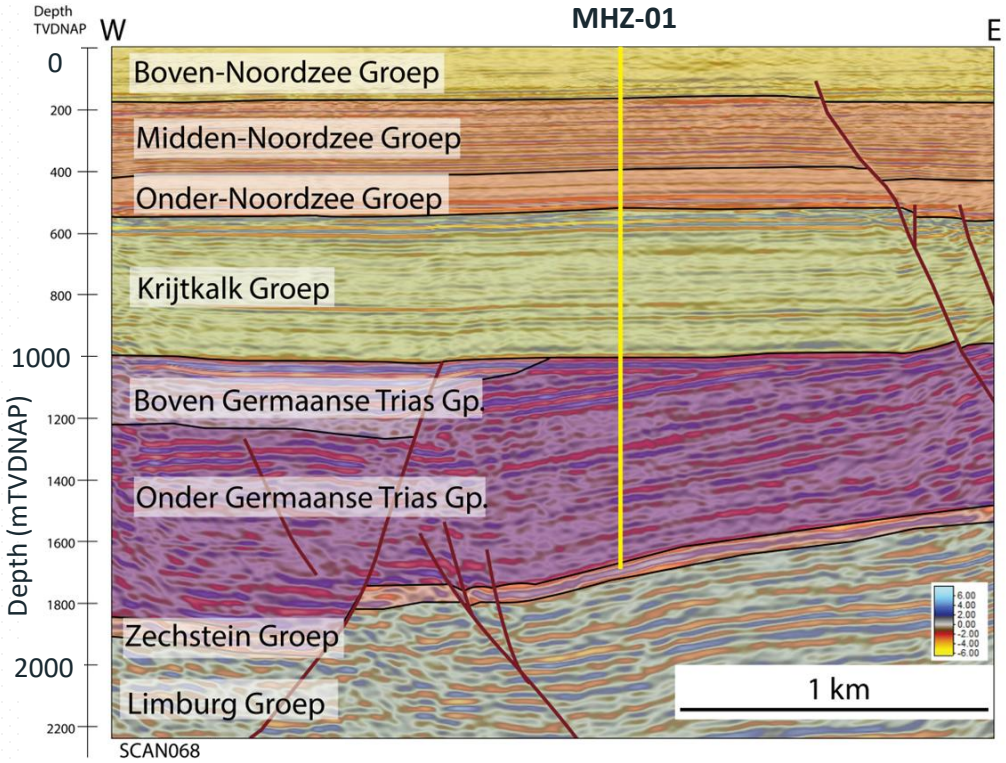
Triassic& Chalk wells

Milheeze-01 (MHZ-01)



Objectives:

- Main Buntsandstein (Triassic)
- Nederweert Fm (Triassic)
- Röt Sandstone Fm (Triassic)
- Chalk Group



Milheeze-01 (MHZ-01)- Results

Vaals /Oploo Formations (Chalk Group)

- ➜ Siliciclastic development
- ➜ High porosity (20–35%)
- ➜ High permeability (up to multi-Darcies locally)
- ➜ Very high transmissivity (10's to 100's of Dm in total)
- ➜ Temperature 42°C

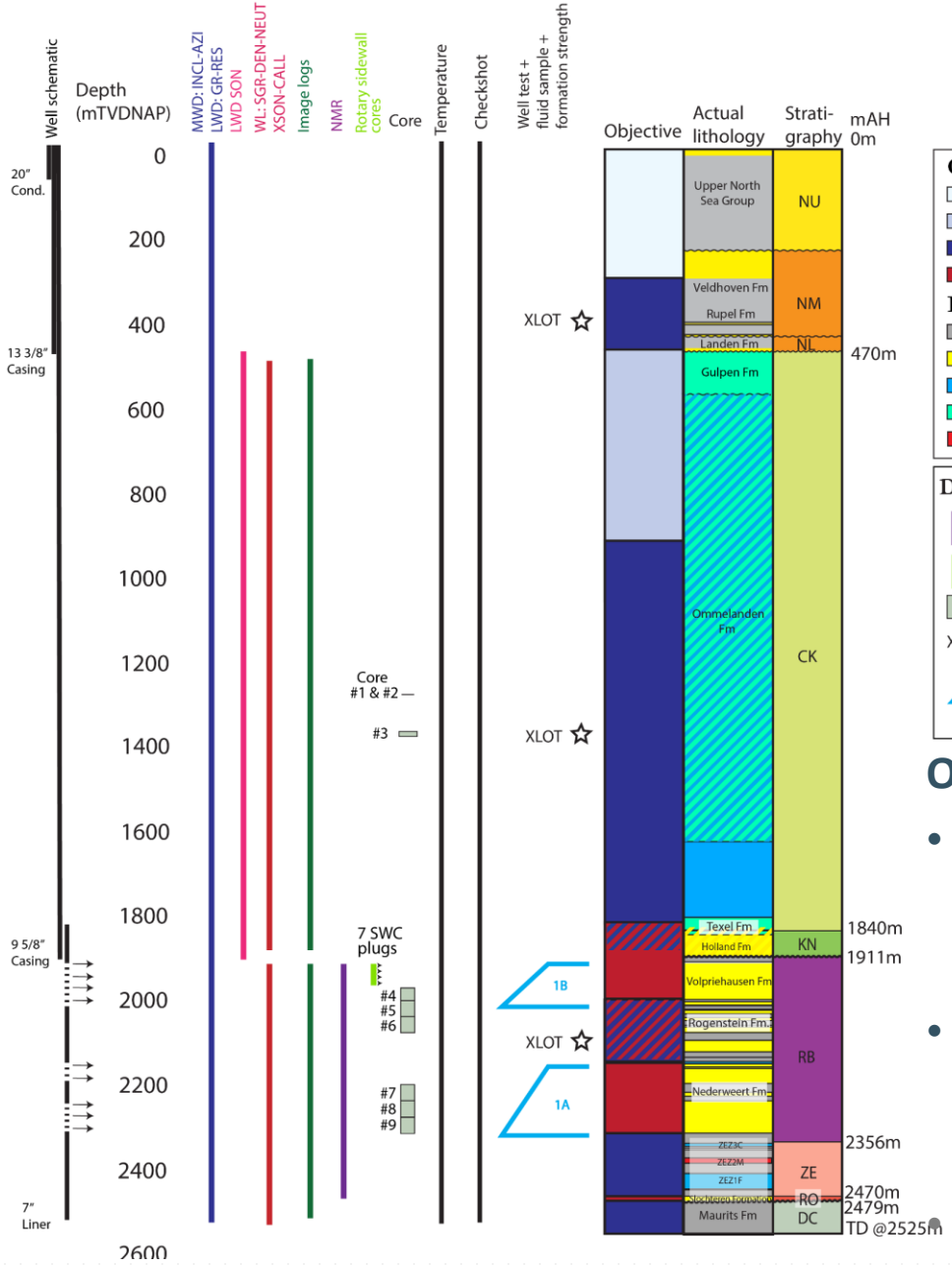
Main Buntsandstein

- ➜ Thickness: 154m, reservoir quality assessment ongoing

Nederweert Sandstone Fm.

- ➜ Thickness: 344m
- ➜ Transmissivity 6 – 7 Dm in total from well test
- ➜ Temperature 53°C

Heesch-01 (HEE-01)



Objectives
- Above first target seal
- No reservoir potential
- Seal above reservoir
- Reservoir potential

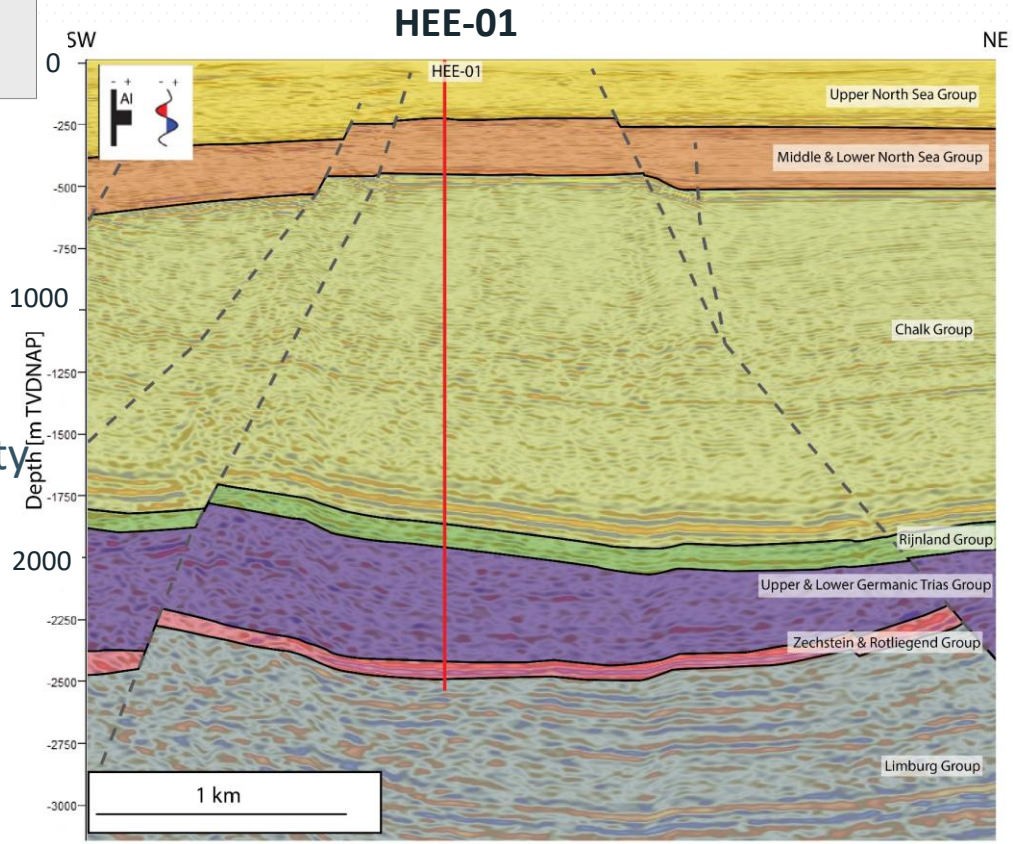
Expected lithology
- Clay(stone)
- Sand(stone)
- Carbonate
- Marlstone
- Anhydrite

Data acquisition
- Log
- Rotary sidewall core
- Whole core
- XLOT ☆ Test and formation strength

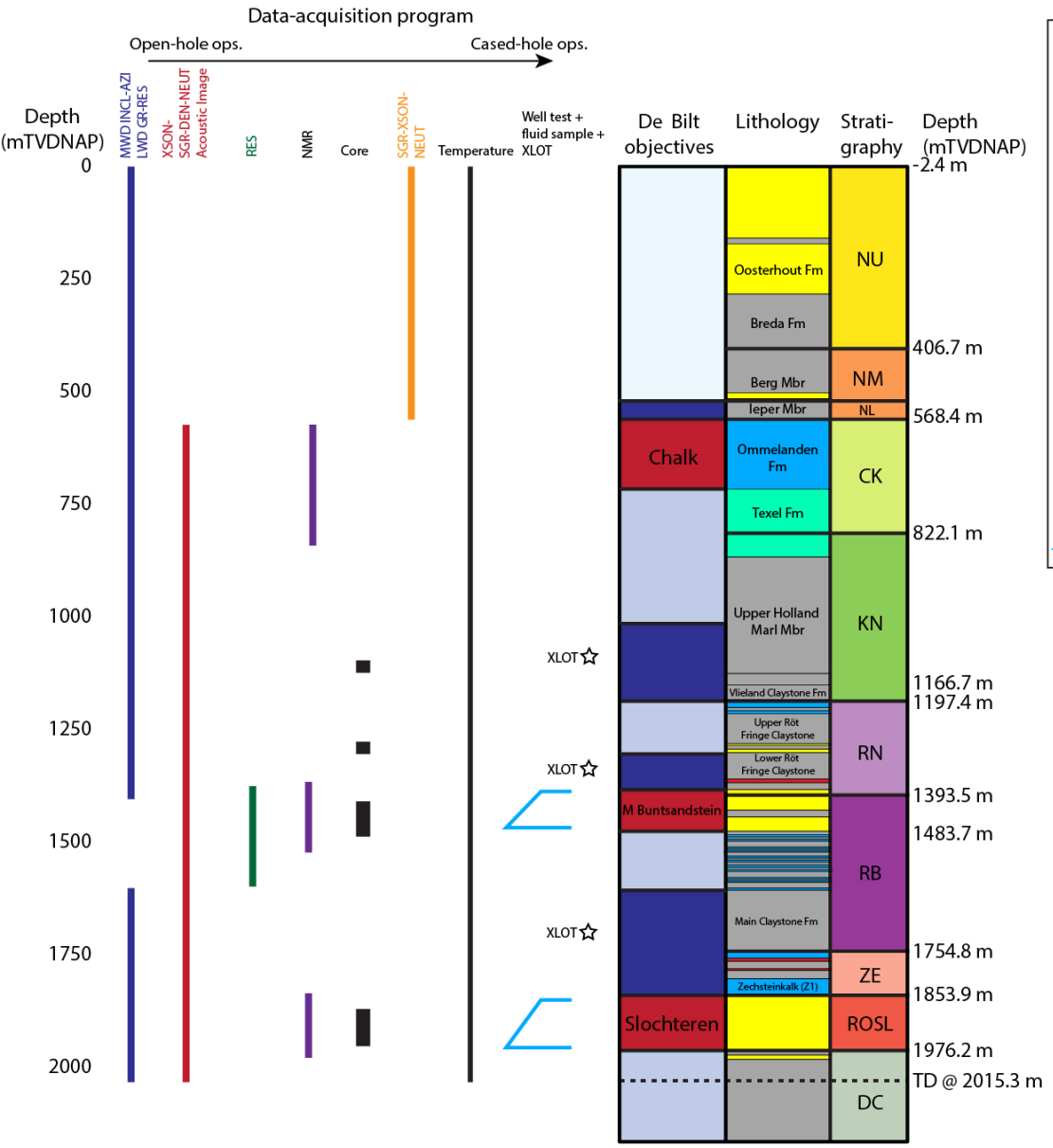
Objectives:

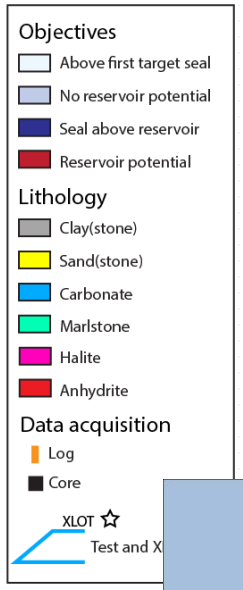
- Main Buntsandstein (Triassic): low transmissivity (~0,5 Dm) – 79°C
- Nederweert Fm (Triassic): low transmissivity (~1,5 Dm) – 87°C

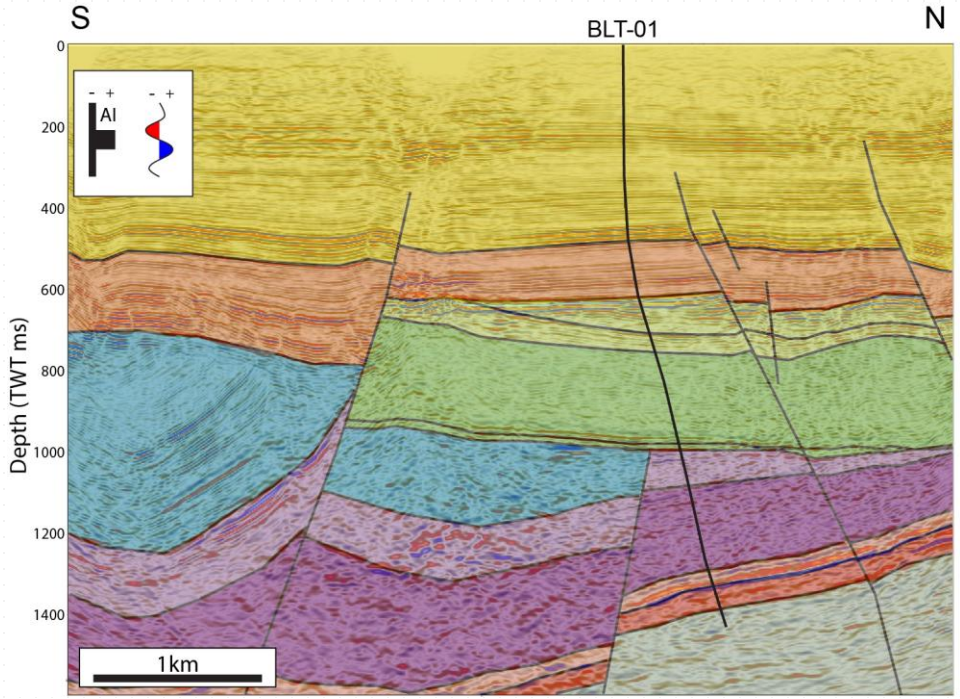
Chalk Gp: no sand(stone)

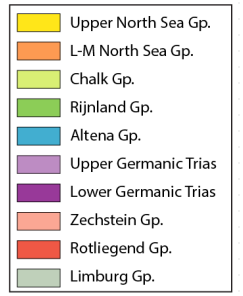


De Bilt-01 (BLT-01)









Objectives& Results:

- Main Buntsandstein Subgp: ~4,7 Dm, 58°C
- *Slochteren: ~4,9 Dm, 76°C*
- *Vlieland Sandstone & Chalk: no reservoir*

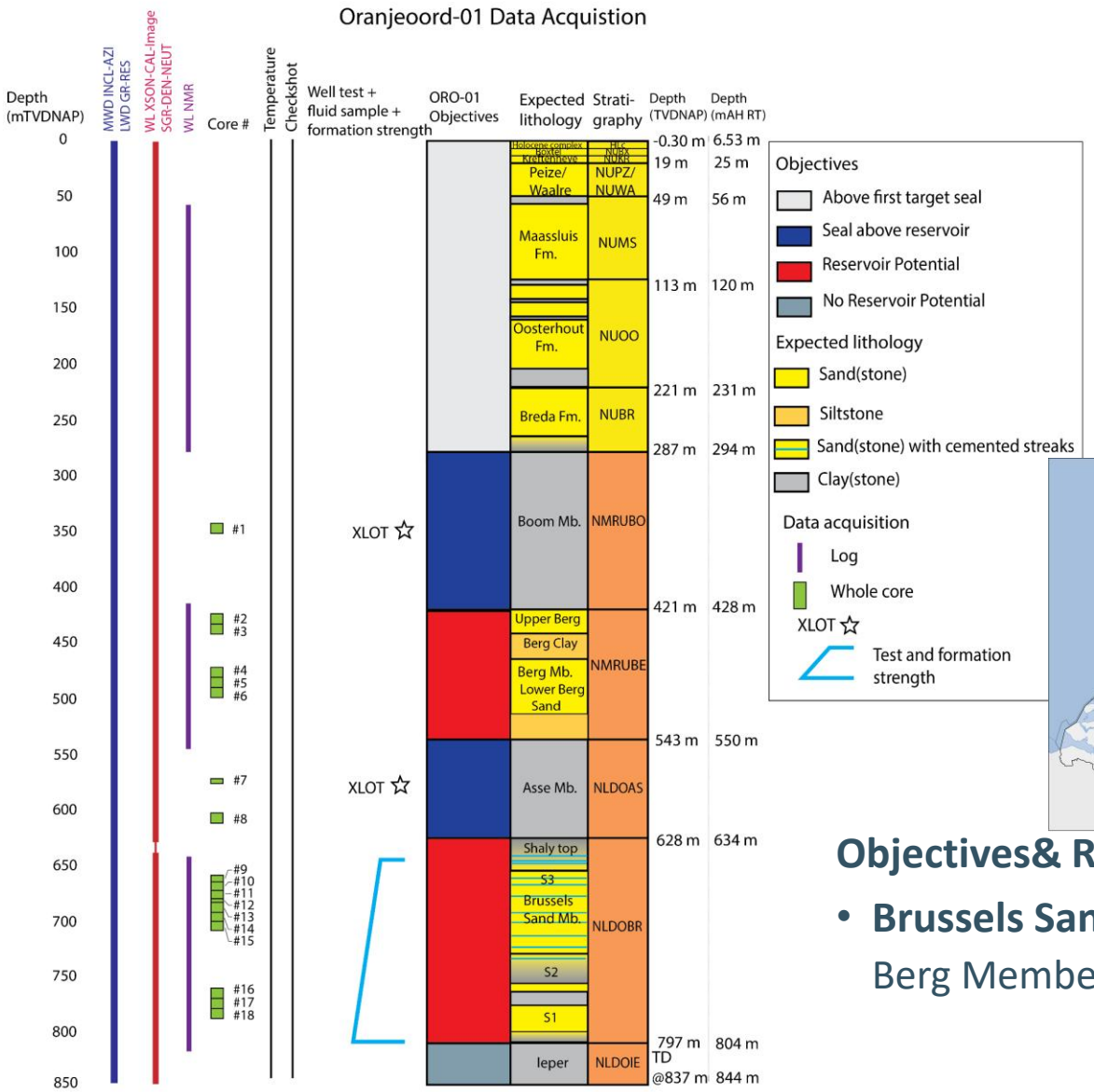
North Sea Group wells

Oranjeoord

Stad van Gerwen

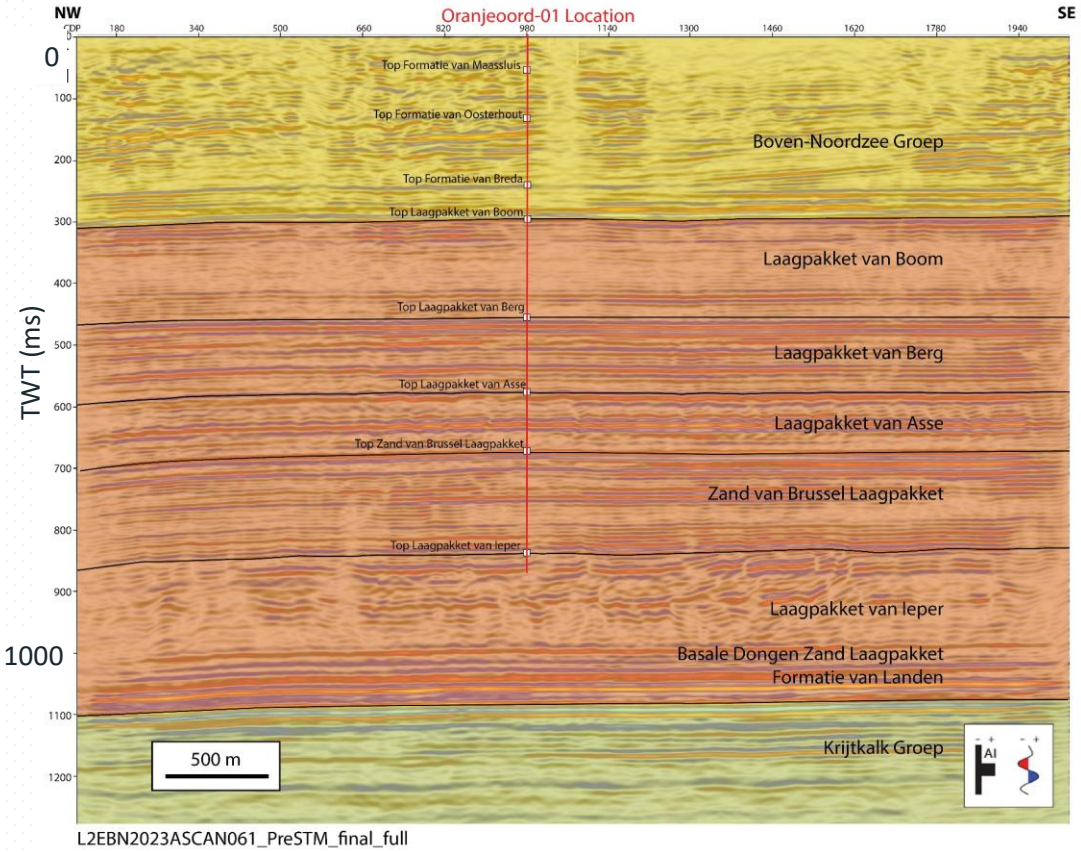
Amsterdam

Oranjeoord-01 (ORO-01)



Objectives& Results:

- **Brussels Sand Member**
  Berg Member



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Oranjeoord-01 (ORO-01)- Results

Brussels Sand Member (Lower North Sea Gp):

- Thickness: 159m
- Poorly consolidated sands alternated by hard sandstones
- Transmissivity: ~22 Dm
- Temperature: 31°C
- Implication study commissioned by provinces released (see our website); geothermal potential in the Provinces of Noord-Brabant, Zuid-Holland & Zeeland

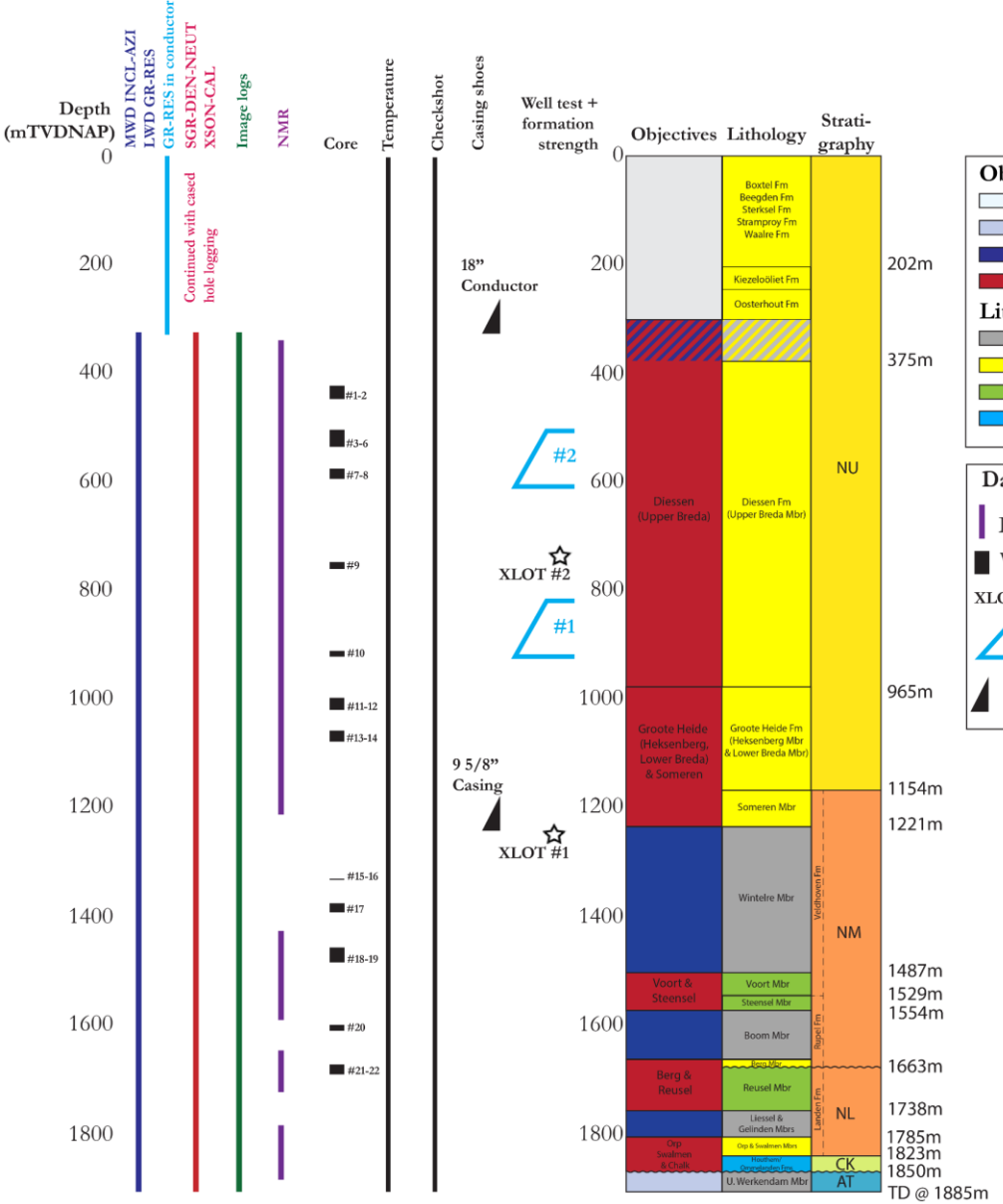
Berg Member (Middle North Sea Gp)

- Thickness: 119 m
- Low permeability

Brussels Sand Member (Cemented bank)

Brussels Sand Member (Poorly consolidated sand)

Stad van Gerwen (SVG-01)

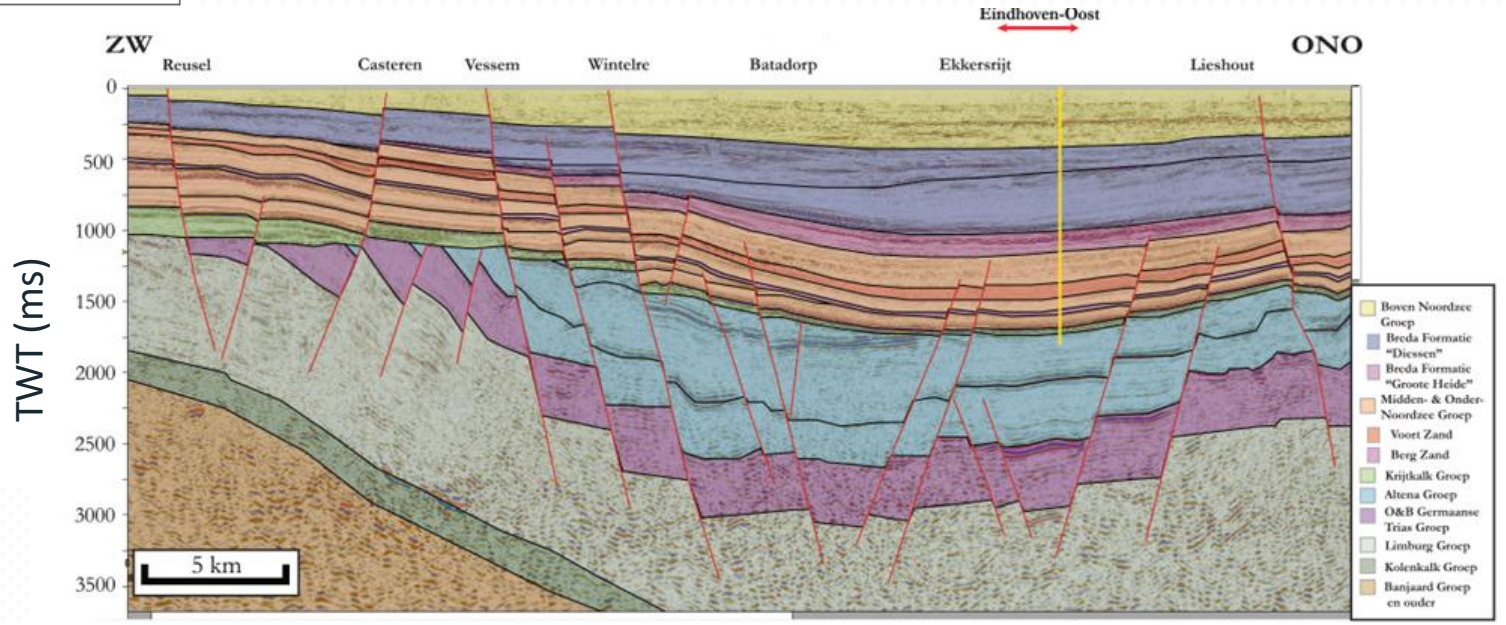


Objectives
- Above first target seal
- No reservoir potential
- Seal above reservoir
- Reservoir potential

Lithology
- Clay(stone)
- Sand(stone)
- Siltstone
- Carbonate

Data acquisition
- Log
- Whole core
- XLOT ☆ Formation strength
- Test interval
- Casing shoe

Objectives:
- **Diessen Fm (Breda Subgp)**
- Groote Heide Fm (Breda Subgp)
- Voort Mb, Berg Mb & Chalk Gp



Stad van Gerwen-01 (SVG-01) - Results

Diessen Formation (Breda Subgroup, Upper North Sea Gp):

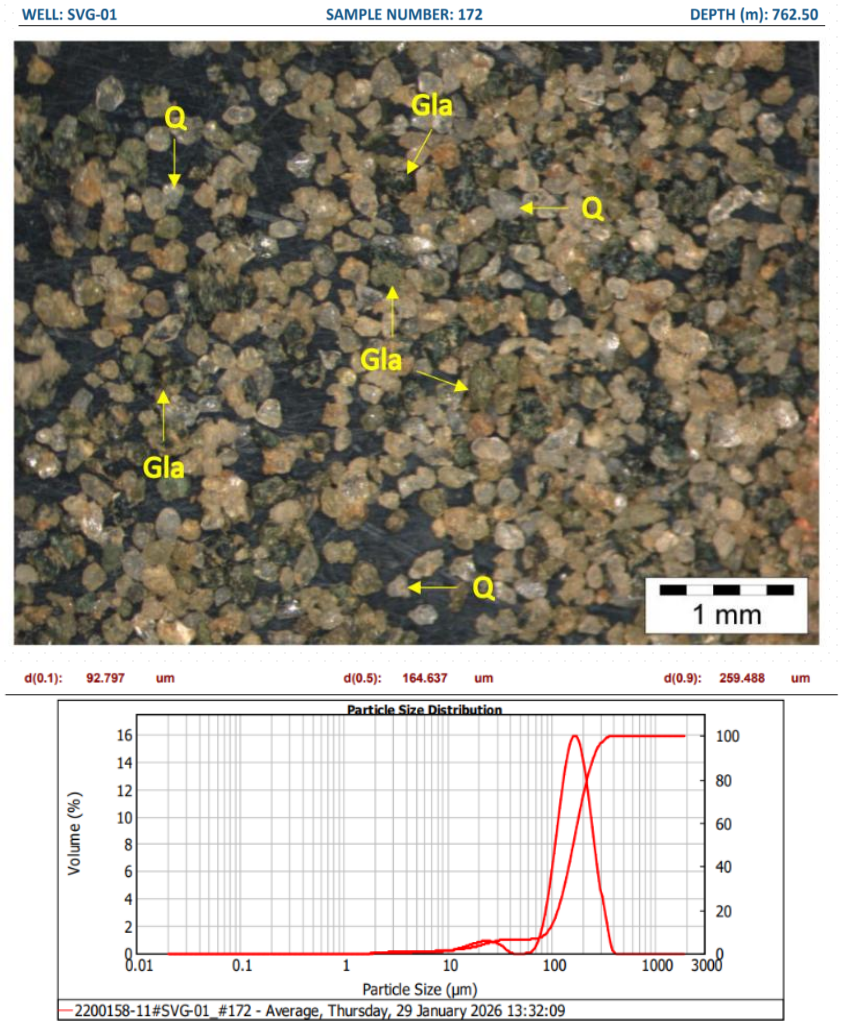
- ➜ Lots of sand!
- ➜ High thickness: 590 m
- ➜ Gas permeability from core: 1000-10000 mD
- ➜ Transmissivity: test results under investigation
- ➜ Temperature: 19-30°C
- ➜ Extensive low temperature geothermal potential

Groote Heide Formation (Breda Subgroup, Upper North Sea Gp):

- ➜ Low permeability

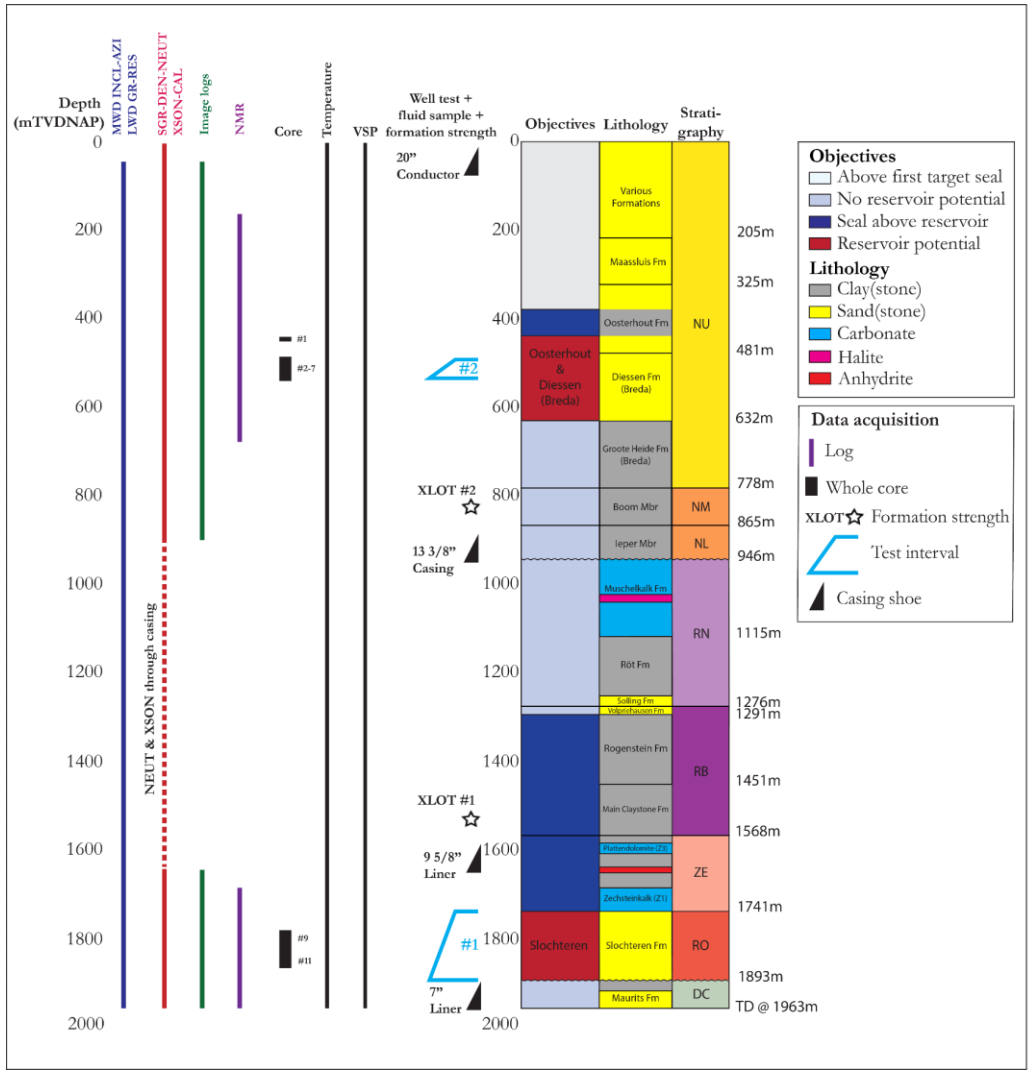
Middle North Sea Group& below (Voort Member, Berg Member, etc.

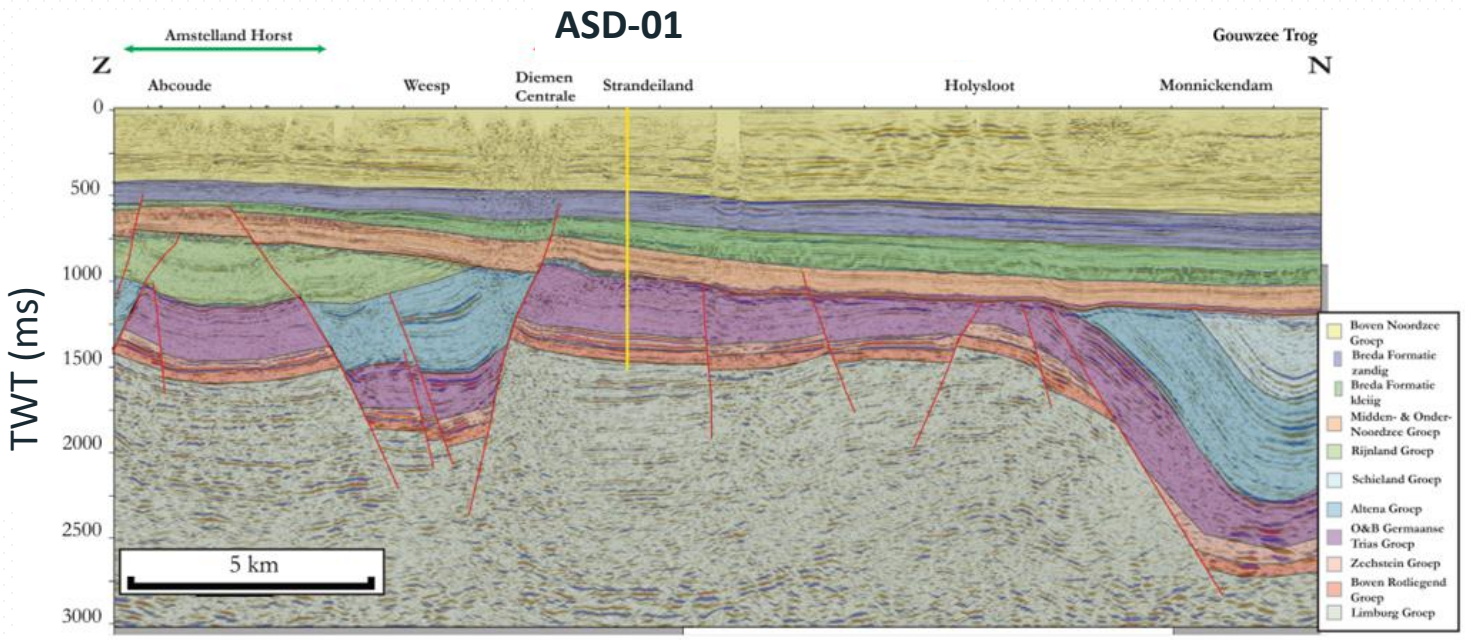
- ➜ Low thicknesses, low permeabilities



Diessen reservoir

Amsterdam-01 (ASD-01)





Objectives:

- **Diessen Formation (Breda Subgp)**
- *Slochteren: 6-6,5 Dm, 66°C*

Amsterdam-01 (ASD-01) - Results

Diessen Formation (Breda Subgp, Upper North Sea Gp)

- ➜ Thickness: 151 m
- ➜ Gas permeability from core: 1000-3500 mD
- ➜ Transmissivity from well test: 10’s of Dm
- ➜ Temperature: 19-23°C
- ➜ Relevant for low temperature geothermal potential or high temperature storage

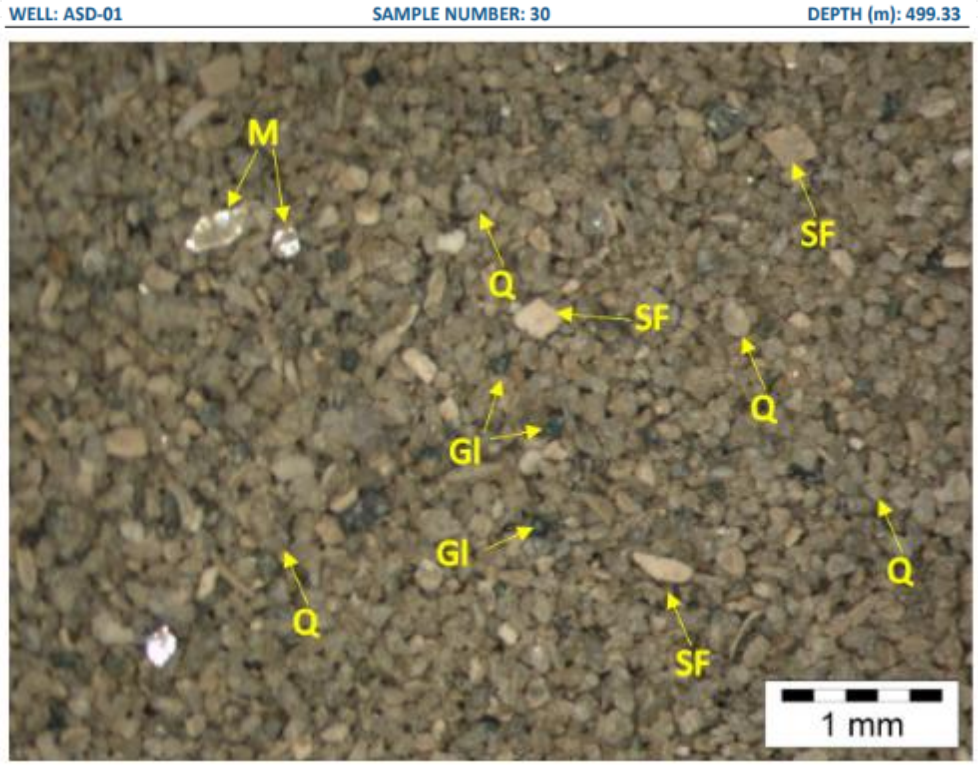
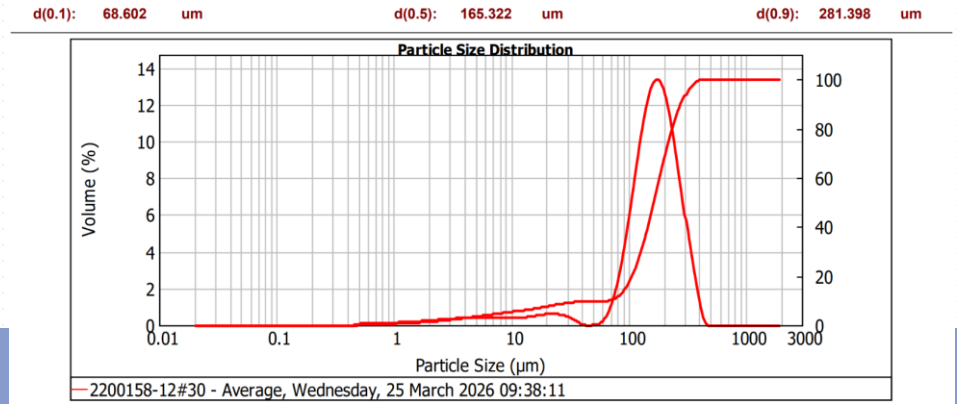


Plate B: Higher-magnification view of the sample. Detrital components consist dominantly of quartz grains (Q), abundant shell fragments (SF), rare glauconite grains (Gl) and rare black grains (Gl). Micas (M) are present but rare to very sparse.



How do results compare to pre-drill expectations?

➜For each geothermal target interval in a well, an estimate was made of the geological chance of success. Geological success is defined as the presence of a permeable layer. Geological success does not yet imply economic success.

➜An example: The Ede well had two targets: the Slochteren (76% chance of a permeable reservoir) and the Vlieland Sandstone (30% chance). The expected number of permeable layers to be encountered in this well is 0.76 + 0.30 = 1.06.

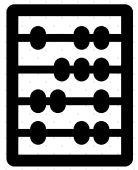
8

SCAN wells drilled

29

Potentially permeable targets tested

15,3



Pre-drill expectation of permeable targets

16

Permeable targets found

Thank you for your attention!

Upcoming SCAN workshops:

- North Sea groups (ORO-01, SVG-01, ASD-01): 24 September 2026
- Triassic (HEE-01, BLT-01, MHZ-01): 27 November 2026
- ASD-01 (Slochteren) and SCAN Drilling Campaign Wrap-Up: Early 2027

Update on seismic acquisition later this afternoon:

- 16:15 – The SCAN Geothermal Exploration Program: Lessons Learned (Gitta Zaalberg)

All SCAN data is published on NLOG

scan

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