

## **SPE company visits Noord-Holland; a collaboration between two student chapters**

On the 2nd of April the AAPG Student Chapter from the University of Southampton and SPE student chapter of Amsterdam collaborated on a day trip exploring the energy industry of the Noord-Holland. The aims were to learn about the different energy resources like gas production, storage and geothermal energy related to the Rotliegend reservoir. We were joined by geologists from the TNO who shared their knowledge and sedimentary cores from the region



The morning started with a warm welcome at the ECW geothermal facilities of Middenmeer. We learnt about how ECW provides geothermal heat to a consortium of horticultural companies in Middenmeer. Lectures were also given on the basinal history in which the Permian Rotliegend reservoir was formed and how it was related to salt tectonics.

Afterwards the group was split in two: one group was taken to study sedimentary cores originating from the Rotliegend basin. We had the pleasure of studying almost the entire sequence, starting with the underlying carboniferous mud rocks, working through the two aeolian Rotliegend sands, up to the overlying Zechstein. The other group was given a tour at the ECW geothermal facilities, learning about the engineering behind the facility. We were educated on the decisions behind their well emplacement, and how it relates into maintaining a good heat flow within the reservoir over time. The challenges behind such projects were also explained, i.e. the influence of gas, and mineral scales.

After a superb lunch break we travelled to the Bergermeer gas storage facilities (the third largest gas storage facility in Europe!) operated by TAQA. Here we were shown how dry reservoirs can be used to store gas, and the economics behind it. The challenges in redeveloping this project had been explained ranging from the planning phase to the mitigation of seismic events generated by the addition of pressure into the reservoir. A tour of the facilities was provided, highlighting on the careful design of the facilities to fit in with planning regulation, and the technical need to remove water and hydrate from the system through an automated pigging process.

Overall the trip provided a fantastic and unique opportunity for both Chapters, granting first-hand experience of the relationship between engineering and geoscience when exploiting the Rotliegend. We would like to give special thanks to Harmen Mijnlief of the TNO whom without, this trip would not have been possible. Further gratitude is given to Danny van den Berg and

Martin van der Hout of ECW whom gave up their time to show us around the facilities and teach us about the geothermal potential of the Rotliegend. Finally thank you to Richard Brocx whom allowed us the unique opportunity visiting the Bergermeer Gas Storage Site.



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