

SPE Field Trip – Wintershall's Barnstorf Facility, November 14th 2016



The public keeps questioning how the comparably small amounts of oil mainly produced in northern Germany are being extracted at an economic level. Therefore, some of our SPE student chapter members visited the upstream facilities in and around Barnstorf operated by Wintershall with its high water cuts of up to 98%.

In order to clarify this issue, the facilities having the greatest impact on production and separation efficiency were introduced. The excursion began at the separator facility, where the oil is separated from other reservoir fluids as well as small amounts of solid particles. These still occur at the separator despite a previous field treatment. Another problematic issue is the precipitation of waxes within the pipeline from the field to the treatment plant. To counteract these issues and provide flow assurance, the use of so called 'pipe pigs' is unavoidable. Thus, the pigging station was explained in detail.

Afterwards, the oil storage facilities were visited including the unique opportunity to inspect a recently constructed 1500 m³ double wall tank from the inside as well as from the top.

After a small lunchbreak, the tour was continued to the Bockstedt oil field, where the EOR station was explained. This EOR pilot project station uses polymers to increase the oil

recovery. Its goal is to evaluate the capabilities of the recently industrialized bio-polymer Schizophyllan. To displace a higher amount of recoverable oil, Schizophyllan, which is a polysaccharide produced by the fungus *Schizophyllum commune*, is added to water and is then injected together with biocides into the producing formation. This increases the water's viscosity and thus the mobility ratio. Furthermore, compared with currently used

polymers, Schizophyllan has a superior resistance against high temperatures and high shear rates.



In the end of the field trip the core shed including some several thousand core meters and cutting samples, dating all the way back to the 1940's, were shown. The samples including not only conventional hydrocarbon formation zones but also cap rock formations (e.g. shales or salts), tight gas and oil zones as well as overburden rocks were also allowed to be touched. Quite remarkable were the unconsolidated Dichotomiten sandstone samples recently drilled. Containing a high amount of oil and having a permeability of up to 5 Darcy these sandstone cores were crumbling when touched.

According to the discussions on the way back to Clausthal-Zellerfeld the field trip was not only an interesting but also a quite informative as well as impressive occasion to all the participants.