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Analysis of Reservoir Water Samples and Injection Water for Enhanced Oil Recovery

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Presented by PhD student Sofie Nitsche Gottfredsen

To improve existing enhanced oil recovery (EOR) techniques it is important to understand the underlying mechanisms that take place in the reservoir. Evidence exists that lower total salinity and higher content of certain divalent ions including sulphate (SO_4^{2-}) and magnesium (Mg^{2+}) can in some cases lead to higher recovery. The effect on North Sea chalk is being investigated by analyzing the ionic composition and the changes herein in different fluid samples that has been in contact with chalk. For this Inductively Coupled Plasma – Optical Emission Spectroscopy (ICP-OES) and Ion Chromatography (IC) is used. Analysis of produced water samples will be compared to laboratory experiments and data from e.g. flooding experiments and models. From this, we will investigate the effect of salinity on recovery.

Work Programme: Advanced Water Flooding 1 – Development of Ekofisk
(with relevance to Cost Transformation 2 - Transformation of Asset Cost)