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**EOR from Micro-Scale to Field Implementation -
Example of Polymer Injection**

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Abstract:

Various Enhanced Oil Recovery (EOR) methods have been used to increase oil production and reserves. However, implementing such projects is challenging owing to the higher complexity and larger uncertainty of EOR projects compared with conventional water flooding.

To implement EOR technologies, first, the portfolio of the company should be screened for applicability of the various EOR methods. Next, an appropriate field needs to be chosen for pilot testing of the selected technology. Laboratory experiments are required to determine ranges for the injected EOR fluid properties and fluid-rock-interaction. Pilot testing leads to reducing the subsurface uncertainties but also improves the operating capabilities of the company and economic understanding of EOR projects.

At the example of a polymer EOR project, it is shown that within the last years, significant improvements in predicting polymer EOR performance have been achieved. Injectivity can be assessed using coupled geomechanical-fluid flow models and polymer injection incremental oil recovery can be simulated and optimized taking uncertainty into account. Also, pilot interpretation was advanced by applying the latest tracer technology for reservoir characterisation and monitoring.

In addition to the subsurface assessment, a more holistic view on EOR pilot projects including surface challenges is required to ensure conclusive pilot test results to either implement or drop EOR full-field implementation. A long-term commitment is needed for EOR implementation as well as seamless cooperation between staff operating pilot tests and staff involved in pilot test interpretation.

Biography:

Dr. Torsten Clemens is a Senior Reservoir Engineering Adviser with OMV Upstream. He used to work in Shell on EOR projects and fractured reservoirs and joined OMV in 2005. In OMV, he is covering EOR/IOR as well as fractured reservoirs and uncertainty management. Torsten published more than 70 technical papers, is a member of various conference committees (SPE, EAGE, WPC), technical editor of several journals and is chairing the IEA EOR Technology Cooperation Program.