**Polymer Flooding**

**Description:**
Improve macroscopic sweep efficiency with water soluble polymers to increase oil production rate and accelerate recovery.

**Application:**
Reservoirs suffering from water channeling issues due to poor mobility control of water (viscous oil and/or unfavorable relative permeability).

**Results:**
With the successes of the Daqing and Pelican Lake projects, two full-field polymer flood implementations, The EOR Alliance has demonstrated its capability in designing successful polymer flood projects. The design includes reservoir characterization, laboratory study, modeling (PumaFlow™ software), recommendation for surface facility and on-field assistance.

**Challenges:**
- Select stable polymers (thermally, chemically and mechanically) in reservoir conditions.
- Potential injectivity issues related to operational constraints or reservoir characteristics.
- Polymer behavior in the reservoir (simulations and forecast).

**Solutions:**
- Performance evaluation workflow for polymer selection, injection strategy definition and data generation for reservoir simulation.
- Anticipate any potential operational issues (injectivity issues, viscosity loss, polymer degradation, etc.).
- Evaluate the process through reservoir simulation work, including reservoir characterization/history matching, 1D to 3D simulations.

**Objectives:**
- Reduce risks of failure through careful preparation, stepwise implementation and continuous monitoring.
- Extend the application of Polymer Flooding to difficult reservoir conditions (heavy oil, high salinity, high hardness, low permeability formations, high temperature, etc.) considering readily available commercial EOR polymers.
- Demonstrate that for new developments, EOR scenarios should be considered early.