

Laboratori Area Pozzo - LAAP

Laboratori di Area Pozzo (LAAP) - Drilling and Production Chemical Laboratories

LAAP carries out experimental activities addressed to Eni affiliates' field assistance and to research projects related to production optimization, drilling and completion fluids and cements.

LAAP activities can be divided in five working groups:

Drilling and Completion fluids

Most activities are based on physical and chemical analysis on drilling and completion fluids such as products' quality control, optimization of well fluid formulations and relevant performance evaluation. Such analysis are rheology tests, salt contamination resistance, filtrate control, PAC contamination, clay inhibition and conductivity. Further, research activities on low environmental impact fluids and extreme well conditions as High Pressure and High Temperature (HPHT wells) are carried out.

Cements

Most activities are based on drilling cements performance evaluation through the simulation of well conditions and the optimization of slurry formulation. The analysis are based on pumpability, compressive strength, filtrate control, rheology behaviour and sedimentation test. Furthermore, specific research activities on the mitigation of "micro annulus phenomena" and on spacer formulations are carried out. Technical audits on the products and services provided by the cement and pumping service companies are also performed.



Laboratori Area Pozzo - LAAP

Flow Assurance

Physical and chemical analysis of the oils and their most components are performed. Dedicated studies on the prevention and/or remediation of asphaltene, wax and hydrates deposition are carried out through technological pilot plants and thermodynamic models. Specific test on chemical products employed for flow assurance and/or production chemistry issues are performed such as the chemical remedial for issues derived from water in oil emulsions. Technical assessment for the chemical products proposed by the service companies is also carried out.

Formation Damage

Prediction, prevention and diagnosis of the issues related to formation damage by drilling and re-injection fluids are currently performed. Relevant chemical treatment for remedial, prevention and/or mitigation of said issues are also investigated. Through specific research projects a significant production chemistry aspects are studied and developed such as: new chemical for sand control technology, water/oil separation in dispersed systems, heavy oil viscosity reduction, chemical EOR techniques and oil production from tar sands. Furthermore, an extensive knowledge of nanoemulsion technology has been developing for up stream applications.

Water Management

Physical, chemical and microbiological analysis of production water are carried out. Compatibility study for mixing re-injection water with formation fluids are performed. Other activities are based on the selection and optimization of chemical treatments for scale deposit removal from well completion and surface production facilities. New technologies for de-oiling treatment of production water is under investigation in order to minimize the economical and environmental impact of its injection, reutilization and disposal.



Laboratori Area Pozzo - LAAP

Mud/Cementing Laboratories

- Chemical & physical analysis
- Design studies & research
- Chemical quality control
- Failure prevention
- Field operation support
- Environmental impact reduction



Water Management

- Water quality control
- Efficiency of water injection process
- Scale deposition: prediction and prevention
- Produced Water impact minimizing
- Development of water treatment technologies



Formation Damage

- Prediction & prevention
- Diagnosis & chemical remedial
- Dispersed system and oil/water separation
- Sands bitumen extraction process
- Surfactant/polymer formulations for EOR
- Nanotechnologies



Flow Assurance

- Flow Assurance control
- Production optimization support
- Prediction & prevention
- Technical support in chemicals contract
- Technical audit



eni

exploration & production