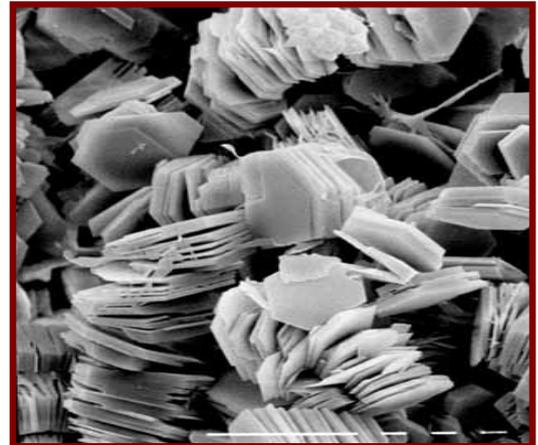


4-day training seminar

Formation Damage: Examination, Diagnosis and Prescription



Course Overview and Objectives

Most hydrocarbon reservoirs have been in a state of relative equilibrium for hundreds of millions of years. In attempting to release their great potential, drilling practices will disturb the natural balance of ancient hydrocarbon bearing strata. Subsequently these changes can impede on the extraction of hydrocarbons, consequently restricting our ability to maximise production and/or injection rates. Formation Damage can be defined as “any reduction in permeability (the ability of fluids to flow) in the near wellbore region as a result of drilling, completion, attempted stimulation, production or injection”. Formation Damage is known to occur during any stage of a well’s life; from initial exploration, through appraisal, through production and through secondary or tertiary recovery. It can result in missed opportunities, deferred production revenues, lost production or lost injection. The global cost of Formation Damage is difficult to measure but it is estimated that billions of dollars per annum are lost through deferred production, remedial treatments and irrecoverable damage. Recently many technologies and developments have been focused on Formation Damage reduction to improve hydrocarbon extraction.

It is for the reasons stated above that this 4 day formation damage training seminar has been developed utilizing unrivalled experience and incorporating all the latest test developments which are the results of continual in-house research. The goal for the attendees to gain an improved understanding of the process associated with formation damage and some of the topics covered will include causes of formation damage, geological influences on formation damage, sample evaluation techniques. The seminar will also focus attention on the importance of understanding scale and how injected fluids and/or chemicals to aid improved recovery can encourage formation damage. A key understanding will be gained on the importance not just to focus on minimising existing formation damage but by avoiding formation damage in the first instance through pre-screen evaluations of wellbore fluids such as drilling mud, stimulation treatments and/or fluid sequences etc. to determine the most suitable and least damaging for your reservoir. The training seminar will conclude with an in depth tour of Corex’s **World Leading Independent Formation Damage Laboratory**.

Who Should Attend

The seminar is aimed to be attended by Reservoir, Production and Petroleum Engineers, Drilling and Completion Engineers, Reservoir, Production and Petroleum Geologists, Production Chemists and Formation Damage Specialists.

Enquires

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Formation Damage: Examination, Diagnosis and Prescription

<p>Day 1 1000 hrs to 1630 hrs</p>	<p>Introduction to Formation Damage: Examination, Diagnosis and Prescription Overview of course content and learning outcomes.</p> <p>Financial Impact of Formation Damage Cost of Formation Damage and the impact on well production.</p> <p>Geological influences on Formation Damage Clastic and Carbonates productivity and damage sensitivity.</p> <p>Conclusion and Discussion Review of the key points.</p>
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Day 2, 0930 hrs	Day 3, 0930 hrs	Day 4, 1000 hrs
<p>Causes of Formation Damage Examining the different clay types, kaolinite, illite, smectite, chlorite and mixed layer clays.</p> <p>Microbial Formation Damage Hydrogen sulphide souring, insoluble metal sulphide precipitation and polymer/cell plugging.</p> <p>Geological Sample Evaluation Techniques Examining the importance of XRD, thin section, before/after test dry SEM and before/after test cryogenic SEM evaluation.</p> <p>Lunch</p> <p>Formation Damage Laboratory Testing Sample selection, sample preparation, coreflood test procedures and examples of laboratory tests.</p> <p>Geological Sample Evaluation Techniques Examining the importance of XRD, thin section, before/after test dry SEM and before/after test cryogenic SEM to identify damage mechanisms.</p>	<p>Sand Production and Sand Control Sanding potential, sand control and productivity. Fines migration, the selection of sand control and the integrated drilling and completion testing.</p> <p>Interpretation of Formation Damage Test Results Worked examples and exercise to identify formation damage mechanisms.</p> <p>Field Examples and Technical Papers Worldwide formation damage case studies and key technical formation damage papers.</p> <p>Lunch</p> <p>What is Scale Introduction to scale and scale types.</p> <p>Formation of Scale Focusing on the causes of scale precipitation through mixing, temperatures and pressures.</p> <p>Scale and the Field Implications Examining the implications from different types of scale has on production and injection rates.</p>	<p>Scale Removal Methods Focusing on the mechanical and chemical removal options such as jetting, scale-inhibition and squeeze treatments.</p> <p>Scale Treatment Design Through Laboratory Analysis Examining what laboratory test designs can be employed to pre-screen scale treatments.</p> <p>Lunch</p> <p>Conclusion and Discussion Review of the key issues and learning outcomes.</p> <p>Formation Damage Laboratory Tour In depth tour of Corex’s World Leading Independent Formation Damage Laboratory.</p> <p>Finish by 1600 final day.</p>