



Society of Petroleum Engineers

Continuing Education

Training Course Outline

Course Title

Formation Damage and Productivity Enhancement in Oil & Gas Reservoirs
(with coverage of waterflooding and EOR)

Instructor Name, Organization

Pavel Bedrikovetsky University of Adelaide

Course Duration

2 days, February 7-8, 2017 • 8.30 – 17.30

Who Should Attend (Target Audience)

The course is aimed at drilling, production, and reservoir engineers, simulation and laboratory specialists involved in exploitation of oil and gas fields, water flooding, EOR, drilling, and well stimulation.

Course Objectives

The course will provide an overview at awareness level of common issues in formation damage and well stimulation, with a focus on waterflooding and EOR.

Course Content

1. Outline of the training course
2. Introduction: General formation damage concepts (e.g. theory, characterisation and management).
3. Formation damage in water injection and disposal wells. Mathematical model. Laboratory study. Injectivity test. Field cases. *Exercises: permeability reduction; water quality; pore and particle size distributions; skin prediction.*
4. PWRI and RWI. Waterflood above fracture gradient. *Exercises: depth of particle penetration; prediction of skin in fractured well.*
5. Formation damage during drilling and completion stages (e.g. perforating) *Exercises: particle sizing in drilling fluids, thickness of external filter cake.*



6. Production formation damage (e.g. fines migration, scaling, sanding). Laboratory studies. Fines-migration test. Chemical compatibility test. Mathematical modelling. *Exercises: calculate maximum retention function; predict productivity decline.*
7. Formation-damage-assisted technologies: low-salinity and smart waterflooding, water-production control, cost-effective EOR. Incremental recovery due to wettability alteration and additional sweep due to induced damage. Field cases.
8. Lessons (Russia, Brazil, Germany, China).

Instructor Bio



Pavel Bedrikovetsky is an author of a seminal book in reservoir engineering and 215 technical papers in international journals and SPE. His research covers formation damage, unconventional resources, waterflooding and EOR. He holds MSc in Applied Mathematics, PhD in Fluid Mechanics and DSc in Reservoir Engineering from Moscow Oil-Gas Gubkin University. In 1991-1994 he was a Visiting Professor at Delft University of Technology and at Imperial College of Science and Technology. From 1994 and until now Pavel is a Petrobras Staff Consultant. He boasts 40-year industrial experience in Russia, Europe, Brazil and Australia. Currently he holds Chair in Petroleum Engineering at Australian School of Petroleum at the University of Adelaide. He served as Section Chairman, short course instructor, key speaker and Steering Committee member at many SPE Conferences. He is 2008-2009 and 2016-2017 SPE Distinguished Lecturer.

E-mail: pavel@asp.adelaide.edu.au

Prior Teaching or Speaking Experience

The instructor has extensive teaching and speaking experience at industrial scale, including numerous SPE courses.

Bookings at www.spe-wa.org