

RE 6 PRINCIPLES OF RESERVOIR & PRODUCTION ENGINEERING

Mr. Mehdi Azari

IN-HOUSE

COURSE OVERVIEW:

This reservoir & production engineering course is designed to provide a fundamental and applied understanding of fluid flow in the reservoirs, wellbore, and surface facilities and to provide the optimum flow conditions from the reservoir to the surface facilities.

COURSE OBJECTIVES:

To understand the reservoir rock and fluid properties with fluid-rock and fluid-fluid interactions. Calculate the reserves and the recoverable reserves with volumetric and with material balance equations. To predict the initial flow and calculate flow rate from a reservoir. To recognize the effect of skin damage and how it affects productivity and if it should be removed by acidizing or fracturing. To comprehend wellbore and surface facility issues controlling fluid flow and to provide the optimum flow conditions from the reservoir to the surface facilities.

COURSE CONTENT:

- Petrophysical reservoir rocks properties including porosity,
- saturation, permeability, formation sources, coring
- Laboratory and well log methodologies for rock and fluid properties including PVT parameters.
- Recognize different hydrocarbon fluids (dry gas, wet gas, gas condensate, volatile oil, and black oil) and their properties in the reservoir and at standard conditions.
- Relative permeability, wettability, capillary pressure, and their relationship with fluid saturation.
- Skin factor, permeability, flow capacity, reservoir pressure, and flow efficiency.
- Radial flow, steady state, pseudosteady state, and transient flow.
- Coning & control of excess water production & conformance technology
- Different energy drive mechanisms for fluid production and their impact on oil and gas well performance.
- Basic understanding of secondary and tertiary recovery.
- Volumetric and material balance to calculate fluid reserves and recovery including original gas and original oil in place.
- Gradient surveys, fluid Identification, & fluid density
- Converting surface pressure data to downhole
- Wellbore storage effects
- Pressure transient analysis

- Fractured reservoirs (naturally fractured, hydraulically fractured, surgifrac)
- Horizontal Wells
- Chokes & flow rate calculations
- Flow rates required to lift sand, water, & oil from wellbore and syphon string
- Pressure drop through pipes and critical flow rates to retard particle settlement

COURSE SCHEDULE:

- Location:
- Classroom:
- Session Dates:
- Duration: 5 Days

THE LECTURER



Dr. Mehdi Azari

Mehdi Azari is a Senior Reservoir Engineering Advisor with Halliburton Consulting on the Burgan Field Production Optimization in Kuwait. He Previously worked on the South Ghawar Unconventional Gas project at ARAMCO in Saudi Arabia, worked with the Production Optimization Team in Algeria, Technical Advisor for reservoir engineering in the Wireline and Perforating product line in Houston. Prior to that, worked at Halliburton Production Enhancement Services in Duncan, Oklahoma, and as a professor of Petroleum Engineering at the University of Wyoming.

He holds a BS degree in Chemical Engineering and, MS and PhD degrees in Petroleum Engineering from University of Southern California.

Dr. Azari has authored over 80 publications in reservoir engineering, well testing, perforation, production engineering, reservoir simulation, formation damage, and geo-pressured reservoirs. He also has 14 US and international patents. He has made numerous technical presentations, seminars, short courses, SPE talks in United States, South America, Middle East, Africa, and SE Asia

Dr. Azari was the chairman of the Reservoir Mechanics Technical Interest Group (TIG) of the Society of Petroleum Engineers (SPE)