

Well Productivity & Reservoir - Wellbore Interface

5 days
Overview

PPLCT-EN-P

LEVEL

Knowledge

PURPOSE

This course provides the knowledge and skills needed to optimize the reservoir-wellbore interface and well productivity.

LEARNING OBJECTIVES

Upon completion of the course, participants will be able to:
select a reservoir-wellbore interface adapted to the conditions encountered in the reservoir,
detect problems holding down productivity and select adequate solutions.

WAYS AND MEANS

Numerous exercises on the influence of key parameters.
Numerous animations and videos.
Summary notes prepared and presented by the participants.
Application to a real case (project) for the participants in the "Drilling & Completion Engineering" training course.

LEARNING ASSESSMENT

Quiz.

PREREQUISITES

Basics of drilling, completion operations, well performance and/or production engineering.

Agenda

NECESSARY FUNDAMENTALS OF RESERVOIR ENGINEERING FOR COMPLETION

1 d

Main parameters about the rock-fluid couple: porosity, permeability, saturation.
Means of reservoir knowledge: core, logging, well test.
PVT study: PV diagram, PT diagram, terminology (bubble point, dew point, R_s , B_o , B_g , GOR, WOR...).
Drainage mechanisms: primary, secondary and enhanced recovery.

COMPLETION FUNDAMENTALS

0.5 d

Completion: operations involved, main phases.
Main factors influencing completion design.
Completion configurations: fundamental requirements, main configurations.
Main completions of gas storage wells and Geothermal wells

WELL PRODUCTIVITY (PART 1)

1 d

Fundamentals: overall approach of the well flow capacity:
Inflow (study of the bottom hole pressure from the upstream side): main parameters, Productivity Index (PI), global skin and flow efficiency.

Outflow (study of the bottom hole pressure from the downstream side): case of oil wells and case of gas wells.

Analysis of inflow and outflow performance curves, need for artificial lift.

RESERVOIR WELLBORE INTERFACE IMPLEMENTATION (EXCLUDING "WELLBORE TREATMENTS")

1 d

Specific aspects linked to drilling and cementing the pay zone.

Perforating: main techniques, key parameters for productivity.

Specific case of horizontal drains.

WELL PRODUCTIVITY (PART 2)

1 d

Additional information about PI:

Productivity index and flow regime.

Inflow performance below bubble point pressure (IPR).

Additional information about skin:

Components of completion skin.

Damage skin estimation.

KNOWLEDGE ASSESSMENT

0.5 d