

# Training - Practical Aspects of Well Construction and Planning



PAWPCE-EN-P



Face-to-face only



10 days

This course provides a comprehensive overview of all steps that should be taken to properly plan and budget Oil & Gas exploration or development wells, from pre-planning with geoscientists all the way to the well delivery for production or testing

## Level

Knowledge

## Public

Professionals involved in drilling operations and interested in well construction & planning for Oil & Gas, geothermal and storage wells (i.e. drilling & completion engineers, mud engineers, supervisors, drilling contractor personnel)

## Objectives

Attendees will be able to implement the following skills:

- Optimize and review the different parameters involved in oil or gas well planning
- Identify major concerns and plan for dealing with them
- Apply procedures and methods for designing oil or gas wells and preparing drilling programs
- Learn how to estimate drilling time and costs, along with corresponding margins of error
- Recognize the importance of effective well engineering and planning

## Pedagogical & technical resources

- Interactive course with practical exercises using the Drilling Data Handbook
- Videos and animations

## Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

## Prerequisites

No prerequisites are necessary to follow this course

## Responsible

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

## Program

### WELL OBJECTIVES & INPUTS TO THE DRILLING PROGRAM

0.25 day

Typical objectives and inputs to an exploration or/and a development well program.  
Pore and fracturation pressure evaluation.  
Criteria to consider for the well design.

## **CASING DESIGN: SHOE POSITIONING**

**0.5 day**

Swab and surge considerations, kick tolerance, hypothesis selection.  
Selection of mud weights, additional constraints, exercises with different hypothesis.

## **CASING DESIGN: CASING SELECTION**

**1.5 days**

Physical and mechanical properties of casings and casing connections.  
Casing string calculation, selection.

## **WELLHEAD DESIGN & SELECTION**

**0.25 day**

Different wellheads in onshore and offshore environments.  
Wellhead and BOP selection.

## **BITS PROGRAM**

**0.75 day**

Different types of bits, bit selection: bit records, cost per foot, bit hydraulics.  
Exercises.

## **DRILL STRING, COMPONENTS & SELECTION**

**0.75 day**

Drill string components.  
Characteristics and limit of use.  
BHA and drill pipe selection.  
Exercises.

## **MUD & CEMENT PROGRAM**

**1.5 days**

Drilling fluid types and characteristics, mechanical treatment equipment.  
Selection of mud program according to the well construction criteria.  
Cementing technology and procedures, cement and slurry design.  
Cementing program, cementing quality control.  
Exercises.

## **FORMATION EVALUATION PROGRAM**

**0.5 day**

Open hole-logging tools (GR, resistivity, density, neutron, sonic).  
Quick look exercise.

## **DEVIATED WELLS DESIGN: DIRECTIONAL DRILLING METHODS & TECHNOLOGY**

**1 day**

Directional drilling tools and technology, directional program.  
Trajectory planning coordinates systems.  
Trajectory calculation methods, uncertainty evaluation, anti-collision.  
Drill string selection.

## **RIG SELECTION**

**0.5 day**

Main drilling rig functions.  
Types of rigs, rig selection criteria.

## **STUCK PIPE**

**0.5 day**

Borehole stability, causes of stuck pipes and first actions.  
Warning signs and method to free pipes, preventive measures.

## **WELL COMPLETION**

**1.25 days**

Different ways to complete the well.  
Sand control, stimulation.  
Tubing, packer, safety valve selection.  
Well intervention: wireline, coiled tubing, snubbing, workover.

## **TECHNOLOGIES IN USE FOR ENERGETIC TRANSITION**

**0.5 day**

Geothermal Wells and their thermal cyclic, casing strength at high temperature, corrosion resistance.  
Underground storage well architecture guidelines for liquid, gaseous hydrocarbons, hydrogen and compressed air, as well as for aquifer and depleted reservoir storage facilities.  
Expandable casing to reduce the amount of energy needed to drill the bore.

## **TIME ESTIMATE & PROVISIONAL PROGRESS CURVE**

**0.25 day**

Typical rig times required for the different operations, contingencies.  
Progression curve.  
Cost estimation according to the environment (type of well, rigs).

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.  
Please contact our disabled persons referent to check the accessibility of this training program : [referent.handicap@ifptraining.com](mailto:referent.handicap@ifptraining.com)