

A LDI Training Course

# DRILLING FOR NON DRILLERS

(An Introduction to Drilling of Oil and Gas Wells)

*Faried Rudiono*

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## Course Objective

This training course provides participants with least knowledge of drilling experience, a broad overview and complete understanding of the process involved in the Drilling of oil and gas wells.

The course addresses the basic concepts of drilling a well, the general overview of well construction, how it fits into the exploration and production process and its interaction with other domains. Participants will also learn what information is required to drill a well including the risk and safety involving drilling a well. It will also discuss the roles and responsibilities at the well site and at the office. Drilling equipment discusses various types of Rigs for different type of drilling environments.

The participants will also obtain an understanding of well designs, the purpose of running casings and the importance of fluids in drilling. Typical timelines, long lead items, offset well analysis, cost, risk and AFE generation will also be discussed.

By completion of the course, you will be able to understand phases, operations and terminology used in the drilling of an oil and gas well, the various equipments used and an overview of the engineering well design.

## What You'll Learn

You will learn the following:

- Understanding the basic of Petroleum geology
- Well Design and Construction, understanding the concepts and consideration in Designing a well
- Drilling Rig, hoist and rotary system, Mud system, Drill string and Blow Out Preventers, understanding the basic equipments to drill a well
- Drilling Reporting, cost and AFE
- Drilling Safety
- Introduction to directional Drilling

## Course Outline

### Basic Petroleum Geology

#### 1. Types of sedimentary rocks

- 2. Source Rock and Hydrocarbon generation**
- 3. Pressure and temperature Gradient**
- 4. What is a reservoir**
- 5. Types of Hydrocarbon of interest to the Petroleum Exploration**

#### **Well Design and Construction**

##### **1. Tangible Equipment**

- Christmas Tree
- Well head
- Casing
- Tubing
- Sub Surface equipment

##### **2. Introduction Well Design**

- Understanding Pore Pressure Estimation
- Understanding basic Casing Design
- Understanding basic Drill String Design

#### **Drilling Rigs**

##### **1. Type of Drilling Rigs**

- Land Rig
- Jack Up
- Semi Submersible
- Drill ship

##### **2. Basic elements of a Drilling Rig**

- Hoist and Rotary System
- Mud Circulating and solids control System
- Drill string Rotary System
- Blow Out Preventers System

##### **3. Other Equipments**

- Handling Tools
- Cementing Unit
- Logging Unit

#### **Drilling Report, Cost and AFE**

##### **1. Drilling Report**

- Morning Drilling Report
- Days vs Depth Curve

##### **2. Cost and AFE**

- Daily Drilling Accrual Cost
- Planning the AFE

#### **Drilling Safety**

##### **1. OSHA Safety Statistics**

- Lost Time Incident Rate
- Recordable Incidents
- Medical Treatment
- Near Miss

## **2. Drilling Safety Measures**

- Personal Protective Equipment
- Stop Card
- Job Safety Analysis
- Lock Out Tag out

### **Introduction to Directional Drilling**

#### **1. Directional Equipment**

#### **2. Calculation methods**

## Who Should Attend

The course is targeted for those who work in the support services of an Oil and Gas company whom requires Drilling overview to perform their work such as

- *Employees of the Financial Department*
- *Employees of the Human Resources Department*
- *Employees of the Safety, Health and Environment Department*
- *Employees of the Construction Department*
- *Employees of the Public Affairs Department*
- *Employees of the Planning and Risk Management Department*

## Why You Should Attend

By completion of this course, the participants will have a good understanding of what and how a well is drilled, what equipment is required to drill a well and an overview of how the AFE cost estimation are generated. The process from the planning stage, design and execution will be better understood after going through this course.

LDI Training ensures that our instructor, learning tools and resources will provide course attendants with up-to-date knowledge for direct applications in their professional duties. It will also enable them to extrapolate and extend the provided information to related problems in different industrial situations. By requesting preliminary information about the technical background of our participants we make sure that the course is taught at the appropriate level thus maximizing individual benefit. Furthermore we encourage a comprehensive and fully explorative question and answer teaching style.

## Your Instructor

### **Ir. Faried Rudiono**

He received a Bachelor degree in Mechanical Engineering from Bandung Institute of Technology (ITB) in 1983. From then on he went to work for Mobil Oil Indonesia as a drilling engineer. He was assigned to the United States 3 times in 1990-2001 in Louisiana working in the Gulf of Mexico, then in 1995-2000 working as an engineer in the International Drilling Services division, and then moving on to Mobil Producing Nigeria as Drilling Engineering Manager from 2000 to 2003. He was assigned back to Houston in

2005-2006 as Project Staff working on various projects in Australia, Papua New Guinea and Vietnam. He then was called back home to become the Banyu Urip Drilling Manager. He left ExxonMobil in 1998 to join Pertamina as Operational Director and eventually CEO and President Director of Pertamina Drilling Services Indonesia (PDSI). He has close to 35 years experience in the Drilling business and has gone through all aspects of Drilling sub divisions in Engineering and Operational. He retired from PDSI in 2015.

### Enrollment Information

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**LDI Training**

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