

**Training Title**

**DYNAMIC PRESSURE DRILLING (DPD)**

**Training Duration**

**5 days**

**Training Venue and Dates**

DE529	Dynamic Pressure Drilling (DPD)	5	22 – 26 February 2021	\$6,250	Milan, Italy
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**In any 5 star hotel. The exact venue will be intimated once finalized.**

**Training Fees**

**6,250US\$ per participant for Public Training. Fees Includes Course Materials/Handouts, Tea/Coffee, refreshments, International Buffet Lunch.**

**Training Certificate**

**Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.**

**TRAINING DESCRIPTION**

This 5 day course is designed to help drilling engineering professionals understand the emerging technologies under the umbrella term of Dynamic Pressure Drilling (DPD). DPD refers to a group of technologies that relies on manipulation of downhole pressure via means other than mud weight alone to achieve wellbore objectives. DPD technologies include, Managed Pressure Drilling (MPD), Underbalanced Drilling (UBD), Flow Drilling, Low Head Drilling, (Pressurized) Mud Cap Drilling, Dual Gradient Drilling, Air Drilling, Foam Drilling and Continuous Circulation.

**TRAINING OBJECTIVE**

**By the end of the course** the participants should know where and how to apply the appropriate DPD method through their gained understanding of DPD equipment and DPD design and control methods. The safe implementation and delivery of DPD projects will also be studied. The course will involve numerous examples of the applications of these types of projects drawn from the literature and the lecturer's own experiences. Examples will show the benefits, as well as the downsides and pitfalls of using these technologies. The aim of this course is to draw on the experience of previous operators' implementation experience to learn how to implement a DPD project safely and correctly. Each day will end with a quiz on that day's topics and participants will be assessed at the end of the course via an exam that tests their fundamental understanding of DPD methodology.

**TRAINING METHODOLOGY:**

DMCT/OL/9/18(Rev3Dt:23/9/18)

This training program is lecture-based and customized to the needs of the audience, providing meaningful experience for personnel that work in petroleum plants.

Daily sessions include formal presentation, prepared in the Power Point, interspersed with directed discussions and case study.

In addition to formal lectures and discussions, the delegates will learn by active participation through the use of problem solving exercises, group discussions, analysis of real-life case studies etc. All attendees receive a course manual as a reference.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work& Practical Exercises
- 20% Videos& General Discussions

### **WHO SHOULD ATTEND?**

This course is designed for drilling professionals embarking on a Dynamic Pressure Drilling assessment.

### **COURSE OUTLINE**

#### **Day 1**

#### **DPD Overview and Application Drivers**

- Introduction and expectations
- DPD overview
- DPD application drivers

Participants will be given an overview of the large variety of DPD technologies, the IADC risk classification of these technologies in order to put them into some kind of perspective, and a brief history lesson on how these technologies have emerged, especially in the last decade. To understand why these technologies have developed it is important to understand the application drivers for the implementation of these technologies; this can range from a simple desire to increase ROP to the more complex and challenging reservoir characterization in real time while drilling.

#### **Day 2**

#### **DPD Techniques and Fluids**

- DPD Techniques
- DPD Fluid selection
- DPD Gas selection
- Specialty single phase fluids
- Two phase flow

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The various DPD techniques will be examined one by one, going over the methodology, current status, and advantages & disadvantages of each technology and where they should be applied. DPD Pressure Drilling reduces the necessity for heavier fluids and opens up opportunities to use lighter fluids and some novel fluid options will be discussed. For Underbalanced Drilling, it is often necessary to use injected gas to lighten the fluid, therefore the various gases that can be used and the ways of injecting them into the well bore will be covered along with two-phase flow physics and modelling.

### Day 3

#### DPD Equipment

- Rotating Control Devices
- MPD equipment
- UBD equipment

Day three will focus on the equipment used in DPD operations. Starting with the Rotating Control Device, which is at the heart of holding pressure in the wellbore while drilling, then moving onto the various pieces of surface equipment that are used in both managed pressure and underbalanced drilling. Equipment covered will include chokes, separators, flow meters, nitrogen generation, flare lines and ancillary equipment. Participants will gain familiarity with the equipment, learn how the equipment works and the selection criteria for equipment in different applications. Various equipment layouts for different applications will also be covered including onshore, offshore and deep water.

### Day 4

#### DPD Design and Control

- MPD Design & Control
- UBD Design & Control
- PMCD Design & Control
- DPD Tripping & Completion

The fourth day will be all about the design and control of DPD operations. Of the upmost importance is well control and participants will learn about the differences between the primary barriers in conventional drilling versus DPD operations. The design of various DPD operations (MPD, UBD & PMCD) will be discussed, with the concept of the 'Anchor Point' in MPD operations covered in detail. Drilling with DPD techniques is often considered the 'easy' part, while tripping, running casing and cementing require the most thought and attention. The attendees will learn about the various methods to trip in and out of the well while staying in the drilling pressure window, as well as how to successfully cement and/or complete the well following a DPD operation.

### Day 5

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## DPD Project Implementation

- DPD candidate selection
- DPD project management and HSE
- Final Exam

The last day will build on the knowledge gained from the previous days and will look at how to select the appropriate candidates for DPD operations. Contra-indicators for using DPD techniques will be discussed. The overall implementation and management of a typical DPD project will be examined with the emphasis on ensuring that the project is delivered safely through training and appropriate use of barriers.

### NOTE:

**Pre & Post Tests will be conducted**

**Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.**



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