

**TRAINING TITLE**

**FAULT SEAL ANALYSIS IN EXPLORATION AND DEVELOPMENT: THEORY AND APPLICATION**

**Training Duration**

**5 days**

**Training Venue and Dates**

DE371	Fault Seal Analysis in Exploration and Development: Theory and Application	5	26-30 May 2025	\$5,750	ABU DHABI, UAE
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In any of the 4 or 5-star hotels. The exact venue will be informed later.

**Training Fees**

- \$5,750 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch

**Training Certificate**

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

**TRAINING DESCRIPTION**

The Fault Seal Analysis in Exploration and Development course is designed to provide participants with a deep understanding of fault sealing mechanisms in subsurface environments and how to apply this knowledge in exploration and development activities. This course covers the theory behind fault seals, their impact on hydrocarbon accumulation, and the methodologies used to analyze fault seals in the context of reservoir characterization and exploration. Participants will learn to apply fault seal analysis techniques to improve exploration success, manage reservoir development, and mitigate risks in exploration and production operations.

[www.definetraining.com](http://www.definetraining.com)

**TRAINING OBJECTIVES**

**By the end of this course, participants will be able to:**

- Understand the fundamental principles of fault seal analysis in exploration and development.
- Gain knowledge of the physical and geological mechanisms that control fault sealing and leakage.
- Learn the methods and tools used to perform fault seal analysis in different geological settings.

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- Understand the impact of fault seals on hydrocarbon migration, accumulation, and reservoir management.
- Apply fault seal analysis techniques to improve exploration decisions and development strategies.

### **WHO SHOULD ATTEND?**

- Geologists and geophysicists in exploration and production teams
- Reservoir engineers and hydrocarbon development professionals
- Seismic interpreters and structural analysts
- Exploration managers and decision-makers
- Anyone involved in fault analysis and reservoir characterization

### **TRAINING METHODOLOGY**

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

Very useful Course Materials will be given.

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

### **COURSE PROGRAM:**

#### **Day 1: Introduction to Fault Seal Theory**

- Overview of fault sealing and its importance in exploration and development
- Basic concepts of faults: types, classification, and behavior
- Faulting processes and their impact on subsurface fluid migration
- Sealing versus non-sealing faults: characteristics and behavior in different geological settings
- Geological and geophysical data used in fault seal analysis

#### **Day 2: Mechanisms of Fault Sealing**

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- Capillary and lithological seals: how they control fault permeability
- Fault gouge, clay, and other sealing materials
- The role of fault geometry and pressure gradients in fault sealing
- Fault zone characteristics: thickness, porosity, and permeability
- Fluid flow and leakage through faults: key concepts and models

### **Day 3: Fault Seal Analysis Methods and Tools**

- Seismic and geological data for fault seal analysis
- Fault seal analysis workflow: from data collection to interpretation
- Use of fault rock properties, pressure data, and fluid geochemistry in fault seal analysis
- Numerical and analytical methods for fault seal prediction
- Software tools for fault seal analysis (e.g., Petrel, FaultSeal, etc.)

### **Day 4: Fault Seal Analysis in Exploration**

- Fault seal analysis in exploration settings: implications for hydrocarbon traps
- Identifying sealing and non-sealing faults from seismic and well data
- How fault seal analysis impacts exploration risk assessment and play evaluation
- Case studies of successful fault seal analysis in exploration
- Fault seal prediction and its impact on well placement and drilling strategy

### **Day 5: Fault Seal in Reservoir Development and Management**

- Fault seal analysis in reservoir development: optimizing field recovery
- The effect of faults on reservoir compartmentalization and fluid migration
- Managing faults in enhanced oil recovery (EOR) and waterflooding operations
- Integrated fault seal analysis for reservoir management and monitoring
- Future trends in fault seal analysis: advances in modeling, simulation, and data integration

**NOTE:**

**Pre-& Post Tests will be conducted.**

**Case Studies, Group Exercises, Group Discussions, Last Day reviews, and assessments will be carried out.**

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