

## Wellsite Operations Training Courses 2021

Wellsite Geology  
Mudlogging  
Formation Evaluation  
Drilling Technology



[www.stag-geological.com](http://www.stag-geological.com)

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## Training Overview

### Scheduled Open Courses

Since 1995 Stag have been providing wellsite operations and formation evaluation training courses for personnel from Major Operators and Service Companies throughout the world.

Because of Covid 19 all our courses are currently only being offered as online presentations using suitable conference meeting software applications.

### Course Structure

All our programmes follow the same format and over the same number of days as our traditional classroom courses. The only difference being that we cannot do any hands-on work with drill cuttings.

### Bespoke Course Design

We can design programmes to suit your specific needs for presentation at any time, for online presentation.

### Course Accreditation

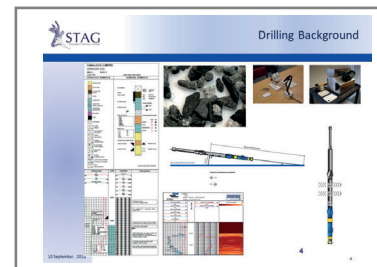
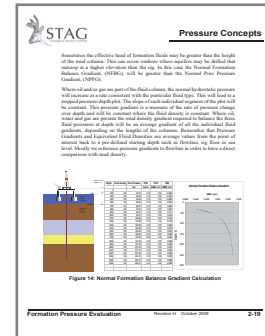


The  
Geological  
Society

*accredited training course*

We have received accreditation from The Geological Society of the United Kingdom for the following courses:

- WO1: Introduction to Drilling & Wellsite Geology
- G2: Operations & Wellsite Geologist
- FE1: Basic Log Interpretation
- P1: Formation Pressure Evaluation



## Bespoke Training

- All our scheduled public courses are available to organisations on a proprietary basis for presentation at a mutually convenient date. Currently due to Covid19 these will be online presentations.

- Rates for proprietary courses are based upon location, course length, numbers of participants and the need for any re-design to suit specific requirements

## In-House Programmes



**STAG**  
The Geological Society

**Wellsite Operations Training**

**WO1: Introduction to Drilling & Wellsite Geology**

**accredited training course**

**Target Audience**

- Geologists
- Operations Technicians
- Well Engineers
- Wellsite Supervisors
- Wellsite Engineers
- Wellsite Support Staff

**Course Length**

5 days

**Course Fee**

£2500 (VAT)

**Drilling Technology**

- Well Planning & Design
- Drilling Equipment & Technology
- Drilling Fluids & Mud Technology
- Drilling & Completion
- Drilling & Completion

**Wellsite Geology & Wellbore**

- Wellsite Geology
- Wellsite Geology
- Wellsite Geology
- Wellsite Geology
- Wellsite Geology

**Formation Evaluation**

- Wellsite Geology
- Wellsite Geology
- Wellsite Geology
- Wellsite Geology
- Wellsite Geology



**STAG**  
The Geological Society

**Wellsite Operations Training**

**G2: Operations & Wellsite Geology**

**accredited training course**

**Target Audience**

- Geologists
- Operations Technicians
- Well Engineers
- Wellsite Supervisors
- Wellsite Engineers
- Wellsite Support Staff

**Course Length**

4 days

**Course Fee**

£1950 (VAT)

**Operations & Well Planning**

- Well Planning & Design
- Drilling Equipment & Technology
- Drilling Fluids & Mud Technology
- Drilling & Completion
- Drilling & Completion

**Wellsite Geology**

- Wellsite Geology
- Wellsite Geology
- Wellsite Geology
- Wellsite Geology
- Wellsite Geology

**Geological Control & Geosensing**

- Wellsite Geology
- Wellsite Geology
- Wellsite Geology
- Wellsite Geology
- Wellsite Geology

## Course Dates 2021

### January

11-15 WO1: Introduction to Drilling & WSG  
18-20 FE1: Basic Log Interpretation

Reading  
Reading



### February

08-11 G2: Operations & Wellsite Geologist  
22-24 P1: Formation Pressure Evaluation

Reading  
Reading



### March

15-19 WO1: Introduction to Drilling & WSG  
22-24 FE1: Basic Log Interpretation

Reading  
Reading



### April

12-15 G2: Operations & Wellsite Geologist  
26-28 P1: Formation Pressure Evaluation

Reading  
Reading



### May

10-12 FE1: Basic Log Interpretation

Reading



### June

07-10 G2: Operations & Wellsite Geologist  
14-16 P1: Formation Pressure Evaluation

Reading  
Reading



### July

19-23 WO1: Introduction to Drilling & WSG

Reading



### September

13-16 G2: Operations & Wellsite Geologist  
20-22 P1: Formation Pressure Evaluation

Reading  
Reading



### October

11-15 WO1: Introduction to Drilling & WSG  
18-20 FE1: Basic Log Interpretation

Reading  
Reading



### November

08-11 G2: Operations & Wellsite Geologist  
15-17 P1: Formation Pressure Evaluation

Reading  
Reading



### December

06-09 G2: Operations & Wellsite Geologist

Reading





## Target Audience

- Wellsite Geologists
- Operations Geologists
- Mud Loggers
- MWD Operators
- Directional Drillers
- Technical & Support Staff

## Course Length

4 days

## Course Fee

£1950 (+VAT)

## Operations & Well Planning

Well Planning Processes  
Geological Prognosis  
    Geology & Stratigraphy  
    Pore Pressure/Fracture Gradient  
    Site Survey & Shallow Gas  
    Other Geological Hazards  
Geological Data Acquisition Procedures

## Wellsite Geology

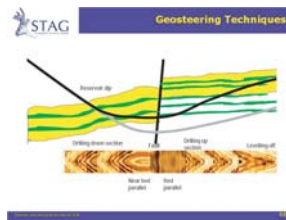
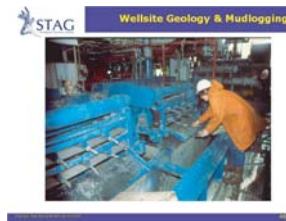
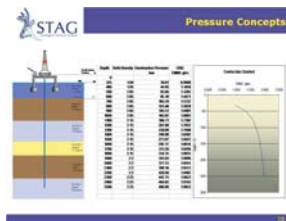
Duties and Responsibilities  
Supervision of Wellsite Services  
    Mudlogging  
    Coring  
    Wireline Logs  
    MWD  
Lithology and Completion Logs  
Geological Reports

## Geological Control & Geosteering

Wellsite Geological Techniques  
    Drill Cuttings Evaluation  
    Gas Evaluation  
    Log Interpretation

Geosteering Techniques  
    Drilling Overburden  
    Landing the Well  
    Drilling the Reservoir

## G2: Operations & Wellsite Geology





## Course Aims

To provide an overview of the role of Operations and Wellsite Geologists in Well Planning and Drilling Surveillance phases. To provide practical instruction in wellsite geological techniques and geosteering co-ordination.

## Delegates will learn how to:

- Describe & Evaluate drill cuttings
- Produce a Formation Pressure Profile to include estimated pore pressure and fracture gradient data
- Determine Lithology and Reservoir information from well logs
- Use Mudlogging and MWD data to perform real-time geosteering co-ordination

## Operations Geology Overview

Duties & Responsibilities  
Well Planning Processes

G&G Chapter of Drilling Programme  
Geology & Stratigraphy  
Pressure Profile  
Site Survey & Shallow Gas  
Geological Hazards  
Data Acquisition Procedures  
Provision of Wellsite Services  
Identification & Selection  
Logging Programmes

Data Management & Distribution  
Technical Support

## Wellsite Geology

Duties and Responsibilities  
Supervision of Wellsite Services

Mudlogging Services  
Mudlogging Units  
Sensors  
Data Acquisition  
Gas Detection  
Sampling and Cuttings Evaluation  
Depth and ROP

Coring Services  
Conventional  
Sidewall  
Coring Procedures  
Retrieval and Packing

## G2: Operations & Wellsite Geology

### Wireline Logs

Witnessing & QA Procedures  
Quick-Look Log Interpretation  
MWD/LWD Services  
Directional Surveys  
Formation Evaluation Services

### Documentation & Reports

Daily/Weekly  
Lithlog & Composite Log Preparation  
End-of-Well Report

### Practical Wellsite Geology

Description & Evaluation of Drill Cuttings  
Oil Show Evaluation  
Basic Log Interpretation  
Construction of Lithlog from cuttings and log data

### Geosteering & Geological Control

Strategies & Teamwork  
Horizontal & ERD Formation Evaluation  
Geological Targets  
Structural & Well Path control  
Landing the Well  
Drilling the Reservoir  
Calling T.D.

### Geosteering Case Study

Real-time geosteering case study using LWD, MWD & Mudlogging data in a role-play exercise



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## Target Audience

- Wellsite Geologists
- Operations Geologists
- Mud Loggers
- Drilling Engineers
- Directional Drillers
- MWD Operators
- Technical & Support Staff

## Course Length

5 days

## Course Fee

£2050 (+VAT)

## WO1: Introduction to Drilling & Wellsite Geology

### Drilling Technology

- Well Planning & Rig Selection
- Drilling Equipment & Techniques
  - Drillstring Design & Bit Technology
  - Drilling Fluids & Well Control
  - Casing & Cementing
  - Directional Drilling

### Wellsite Geology & Mudlogging

- Data Acquisition Systems
- Evaluation of Drill Cuttings
- Gas Detection Equipment
- Lithology Logs
- Safety Monitoring

### Formation Evaluation

- Cuttings Descriptions
- Coring Procedures
- Wireline Logging
- Measurement While Drilling
- Oil & Gas Show Evaluation
- Geosteering Techniques



Pipe Handling/Motion Compensation

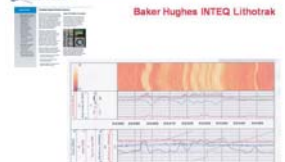


Wellsite Geology & Mudlogging



MWD Overview

Baker Hughes INTEQ Lithotrak





## Course Aims

To provide an introduction to drilling technology and wellsite geological techniques for those personnel new to the industry or transferring from non-operational roles.

## Delegates will learn:

About the fundamental processes of drilling oil and gas wells

About the rig types, onshore and offshore drilling techniques, the drillstring components, drill bits, drilling fluids, casing and cementing operations, well control and directional drilling operations

How wellsite geologists collect & interpret geological data during the drilling process

About Surface data Logging, Coring, Wireline Logging and LWD Services

About, and receive instruction and hands-on practice in, the microscopic description of drill cuttings and oil shows

## WO1: Introduction to Drilling & Wellsite Geology

### Drilling Rigs

Land Rigs  
Offshore Rigs  
Platforms

### Drilling Technologies

#### Bit Technology

Design: Roller cone; PDC  
Applications

#### BHA Design, Drill Pipe

Hoisting, Rotating, Motion Compensation  
Well Control Equipment  
Drilling Fluids

Properties & Specifications  
Fluid Systems:

Oil Based Mud  
Water Based Mud  
Polymer Fluids  
Synthetic Systems

#### Fluid Circulation System

Hydraulics Calculations  
Casing and Cementing  
Directional Drilling

Applications  
Steering Systems  
Formation Evaluation  
Survey Processes/calculations

### Drill Returns Logging

Mud Logging Services  
Cuttings Recovery  
Lag Time Calculations  
Depth and ROP Recording  
Hydrocarbon Gas Evaluation  
Total Gas  
Chromatographic Analysis  
Interpretation of Gas Shows

### Wellsite Geology

Cuttings Sampling and Preparation  
Cuttings Description  
Clastics  
Carbonates  
Evaporites  
Reporting Procedures  
Lithology Logs  
Oil and Gas Show Evaluation  
UV Light and Solvent tests

### Coring Operations

Conventional Coring  
Sidewall Cores

### Formation Evaluation

Wireline Logging Operations  
MWD Operations





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## Target Audience

- Wellsite Geologists
- Operations Geologists
- Mud Loggers
- MWD Operators
- Directional Drillers
- Technical & Support Staff

## Course Length

3 days

## Course Fee

£1500 (+VAT)

## Obtaining Well Logs

The nature of well logs  
Conveyance Methods  
Borehole Environment  
Invasion  
Log Scales and Presentation  
Theory of Operation

Gamma Ray  
Resistivity  
Neutron Porosity  
Density  
Sonic

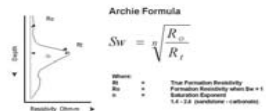
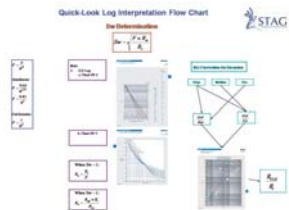
## Log Interpretation

Log QC  
Lithology Determination  
Gamma & S.P.  
Density/Neutron Logs  
Crossplots  
Facies & Environments

## Reservoir Evaluation

Recognition of Permeability  
Identification of Hydrocarbons  
Fluid types & contacts  
Porosity and Permeability Determination  
Water Saturation (Sw) estimation

## FE1: Basic Log Interpretation





## Course Aims

To enable delegates to determine lithology, reservoir and pore fluid characteristics using Quick-Look log interpretation techniques from traditional open hole Wireline and LWD logs.

## Delegates will learn how to:

- Identify lithology from well logs
- Identify and evaluate potential reservoir rocks
- Determine porosity from Sonic, Bulk Density and Neutron Porosity logs
- Identify and evaluate hydrocarbon bearing zones and calculate  $S_w$  using Archie and graphical methods
- Correct for borehole and environmental conditions

## Wireline Logs: Basic Concepts

Types of Open Hole Logs  
Information Required  
Log Header  
Relationships  
Borehole Environment  
Invasion Profiles  
 $R_w$  &  $R_{mf}$   
Porosity and Permeability  
Resistivity and Water Saturation  
Temperature Corrections

## Theory of Operation

Spontaneous Potential  
Gamma Ray  
Resistivity Logs  
    Laterologs  
    Induction Logs  
    Microresistivity Logs  
Neutron Porosity  
Sonic  
Formation Density  
Dipmeter Tools

## MWD & LWD Tools

Theory of Operation  
Transmission Systems  
Tool Configuration  
Sensors  
Operating Procedures and Practice  
MWD/Wireline Response Comparison  
Borehole Imaging Logs

## FE1: Basic Log Interpretation

### Geological Interpretation

Identification of Lithology  
Environment and Facies  
Identification of Permeability  
Identification of Porosity  
Geosteering Applications

### Reservoir Evaluation

Quick Look Porosity Calculations  
Identification of Hydrocarbon Bearing Zones  
Hydrocarbon Type Evaluation  
Saturation Calculations  
    Archie  
    Shaly sands  
    Carbonates  
    Resistivity Ratio  
    Cross-Plots

### Imaging logs

Sonic  
Density  
Resistivity

### Case Studies and Worked Examples



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## Target Audience

- Wellsite Geologists
- Operations Geologists
- Mud Loggers
- MWD Operators
- Drilling Engineers
- Directional Drillers
- Technical & Support Staff

## Course Length

3 days

## Course Fee

£1500 (+VAT)

## Well Planning

Planning Wells with a safe operating window  
Health, Safety, Security and Environment  
Drilling HPHT Wells  
Shallow Gas

## Pressure Concepts and Gradients

Definitions and Normal Pore Pressure  
Overburden Pressure Calculations  
Pressure Gradient Calculations  
Fracture Pressure Calculations & Modelling

## Abnormal Pressure

Causes of Abnormal Pore Pressure  
Pore Pressure Prediction from:

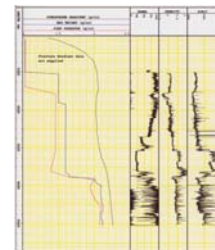
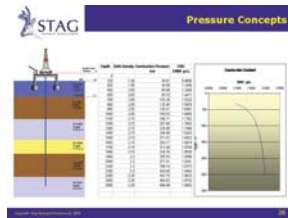
Dxc, ROP, Mud-Gas relationships  
Resistivity, Sonic, Density data  
Borehole Stability: cavings  
torque and drag, overpull

## Fracture Pressure

Evaluation of Rock Fracture Pressure:  
Leak-Off Tests  
Mathematical Modelling  
Kick Tolerance

## Well Control Procedures

## P1: Formation Pressure Evaluation





## Course Aims

To familiarize delegates with the challenges of planning and drilling wells in a safe operating window to minimise Health and Safety Incidents and Non-Productive Time.

To provide practical instruction in pore pressure and fracture pressure prediction to produce PPFG plots.

## Delegates will learn:

- How to calculate and plot normal hydrostatic pore pressure and overburden pressure
- About the mechanisms that generate abnormal pore pressures
- How to calculate fracture pressure for LOT data and mathematical models
- How to produce PPFG plots from offset well data

## Introduction

Well Planning Requirements  
Safe Operating Window (PP-FG)  
Pore Pressure prediction and detection  
Wellbore Stability  
Fracture Pressure

## Health, Safety, Security, Environment

Requirements and Well Planning  
Recent Incidents  
Operator Responsibilities  
Individuals' Responsibility  
General Duty

## HP/HT Drilling: Definitions & Challenges

Definitions of HPHT  
High Fluid Density  
High Formation Temperature  
Narrow Operating Windows  
Managed Pressure Drilling

## Formation Pressure Evaluation

Fundamentals  
Hydrostatic Pressures  
Pressure Gradients  
Elevations and Datums  
Formation Balance Gradient  
RFT data and PZ plots  
Overburden Pressure Gradient  
Data Sources  
Calculation methods

## P1: Formation Pressure Evaluation

### Origin of Abnormal Pore Pressure

Compaction Disequilibrium  
Aquathermal Processes  
Clay Diagenesis  
Stratigraphic Processes  
Tectonic Processes  
Fluid Expansion

### Practical Formation Pore Pressure Evaluation

Seismic Data  
ROP and Dxc  
Formation Gas Evaluation  
Borehole Behaviour  
Drilling Parameters  
Drill Cuttings and Cavings  
Geothermal Gradients  
Wireline/MWD Data

### Methods

Trend Line Methods  
Ratio  
Eaton  
Equivalent Depth  
Unloading  
Bowers

### Fracture Pressure Gradients

Leak-off Tests  
Mathematical Modelling  
High Angle wells

### Kick Tolerance

## Target Audience

- Drilling Engineer
- Directional Drillers
- MWD Operators
- Bit Design Engineers
- Drilling Fluids Engineers
- Technical Assistants
- Office Support Staff

## Course Length

3 days

## Course Fee

£1500 (+VAT)

## Geological Processes

### Structure of the Earth

Stratigraphy & the Time Scale

Rock Classification

Sedimentary Processes

Surface Processes

Environments of Deposition

### Structural & Petroleum Geology

Bedding & Lamination

Dip & Strike

Folding

Faulting

Geological maps

Petroleum Geology

Origin & Migration

Reservoirs & Traps

Reservoir Fluids

### Sedimentary Petrology

Grains & Minerals

Textures

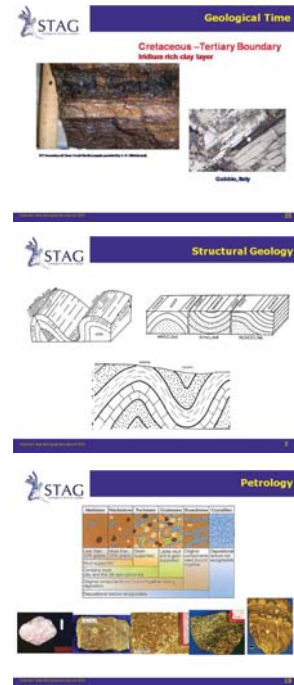
Porosity & Permeability

Pore Fluids

Log Interpretation

Wellsite Geology & Drilling

## G1: Introduction to Geology



## G1: Introduction to Geology

### Course Aims

To provide an introduction to petroleum geology and practical wellsite geological procedures for engineers and those without formal geological training.

### Delegates will learn how to:

- Recognize the physical and chemical properties of the major sedimentary rocks
- Examine hand specimens and drill cuttings of all the major rock types
- Understand sub-surface structures and basic reservoir geology
- Understand the effect of geology on key drilling practices
- Interpret lithology & geological features from LWD & Wireline Logs

Introduction to Geology  
Structure of the Earth  
Plate tectonics/Continental Drift  
The Geological Time Scale  
Stratigraphy and Fossils  
Rock Forming Minerals  
Rock Classifications  
    Igneous  
    Metamorphic  
    Sedimentary

Sedimentary Rocks

#### Classification Schemes:

Clastics  
Carbonates  
Chemical Rocks

Geological Processes

#### Surface Processes

Weathering, Erosion, Transportation  
Environments of Deposition  
    Continental  
    Fluvial  
    Marine

#### Depositional Features

Bedding & Lamination  
Sedimentary Features  
Erosional Features

#### Structural Geology

Dip & strike, Folding and Faulting

Geological Maps

Creating surface maps from outcrop data  
Drawing structural cross sections

Petroleum Geology

Origin of Hydrocarbons  
Migration  
Traps  
Reservoir Properties

Sedimentary Petrology

#### Mud Rocks:

Textures, Colours, Mineralogy, Environments

#### Sandstones:

Grain Texture, Components, Cements, Porosity and Permeability, Environments

#### Carbonates:

Components, Grains, Cement/Matrix, Diagenesis, Environments, Dunham Classification

#### Chemical Rocks:

Evaporites, Others

Drill Cuttings /Oil Show Evaluation

Sample Collection/Processing  
Sample Description & Analysis  
Oil Show Evaluation

LWD & Wireline Logs

Lithology from Basic Open Hole Logs

## C1: Best Practices in Core Handling & Analysis

### Target Audience

- Wellsite Geologists
- Operations Geologists
- Petrophysicists
- Exploration & Development Geologists
- Reservoir Engineers
- Technical & Support Staff

### Course Length

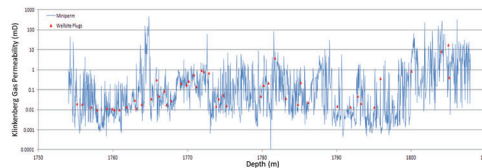
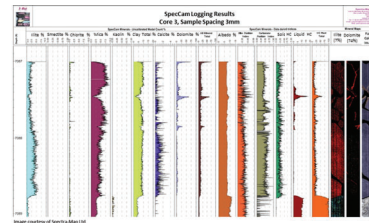
3 days

### Course Fee

£1500 (+VAT)

### Overview

- The course will be a combination of short lectures, practical workshops and plenary discussions to consolidate learning.
- Each topic will be presented by the expert tutor using MS PowerPoint presentations.
- Sessions will be structured carefully to ensure optimisation of learning expectations verbally and on PowerPoint, followed by practical exercises to embed understanding.
- Discussions and question and answer sessions are encouraged to ensure understanding.
- Each session will contain a practical exercise which will be either on paper and in Excel.
- Attendees should be familiar with basic calculation and charting functions in Excel.
- Attendees will have opportunities to share their own experiences, discuss data and explore any issues they may have had relating to core and core analysis data.



## C1: Best Practices in Core Handling & Analysis

### Course Aims

To provide an understanding and appreciation for best practice in core handling and processing.

Provide an awareness of the effects of mineralogy and heterogeneity on core and log data quality.

Be able to design a core sampling strategy and build a core analysis programme for all stakeholders.

### Delegates Will Learn:

- About different coring techniques
- How to recover and process core safely and competently
- The importance of heterogeneity and mineralogy and their effects on sampling strategy
- How to design a core analysis test programme and work successfully with laboratories
- How to measure porosity, permeability and water saturation in core
- Gain an understanding of methods to integrate core analysis data with log interpretation and geological models.

### Day 1

Course Introduction – Why do we Core?

Introduction to Coring

Coring in 'Problematic' Formations:  
Fractured, Vuggy and Unconsolidated Formations  
Pressure Coring

Safe Core Recovery

Wellsite Core Handling:  
inc. Core Stabilisation Methods

Core Transport to the Laboratory

Factors Effecting Core and Log data Quality

Introduction to Scales of Measurement  
in Core Analysis and Logs

### Day 2

The Effects of Heterogeneity on Core and Log Data

Core to Log Depth Shifting Theory and Practice

Sidewall Coring/Plugging:  
Tool Types, Sample Recovery  
Handling, Limitations

Designing a Core Analysis and SCAL Test Programme

Core Analysis Laboratory Selection

Core Handling in the Laboratory

Sample Selection, Plugging, Core Slabbing and Preserving

Sample Cleaning and Drying Methods

Core and Log Porosity:

Understanding Different Measurements  
Factors Effecting Data Quality  
and integration

### Day 2

Water Saturation from Core:

Dean-Stark Measurements Theory,  
Best Practice and Integration with  
Log and Other Core Data

Permeability

Controlling Factors, Measurement Choices  
and Quality Control

Pore Volume Compressibility and Net Overburden Pressure:  
its Effects on Core Analysis Data

Mineralogy from Core.

Different Measurement Types and Integration  
with Log Data

Integration of Reservoir Geology, Core Analysis and Log Data

Petrophysical Rock Types:

An Introduction to Different Rock Types  
(Inc. Flow Zone Index). Integration with  
Core and Log Data. Comparison with  
Geological Facies.

Definition of Pore Geometry from Core using Mercury  
Injection Capillary Pressure, Backscattered Electron  
Microscopy and CT Imaging

Course Conclusion and Review



## WPFT1: Geological control on drilling performance

### Target Audience

Subsurface and Drilling personnel involved in Well Planning and Delivery:

- Well Planning Engineers
- Drilling Engineers
- Exploration Geologists
- Operations Geologists
- Wellsite Geologists

### Course Length

5 Days

### Course Style

A practical workshop, predominately field based using locations in and around Dorset and Somerset, southern UK.

### Workshop Overview

A short field course to examine Geological control and influence on drilling predictability and performance.

This trip is suitable for all Subsurface and Drilling personnel involved in Well Planning and Delivery.

### Course Summary

The standard workshop is based in Dorset and travels to other locations in Somerset.

Bespoke workshops can be designed around other areas of relevant geology specific to client requirements. This is particularly useful if a team wants to gain an appreciation of drilling considerations around a particular stratigraphy, structure or lithology, or perhaps to gain a better understanding of perceived or historically recognised problems.

## WPFT1: Geological control on drilling performance

### Course Aims

To examine rocks in the field and build a mutual understanding, within the team, of why rocks drill the way they do.

- To understand the geological significance to drillers.
- To understand the drilling significance to geologists.
- To appreciate geology that is predictable and what is not.
- To help reduce uncertainty and geological NPT.
- To promote the value of field and outcrop analogue, in the well planning process.
- To improve performance in a cost challenged environment.

### Delegates will learn that:

- During post-well evaluation of drilling problems it is often apparent that warning signs were missed, not recognised or ignored.
- Inappropriate reaction to observed warning signs often exacerbate or escalate problems.
- Many geology related issues experienced while drilling, or geological NPT, can be predicted and mitigated during well planning.
- Appropriate mitigation to unforeseen geological events experienced while drilling can be developed and promoted within a team to ultimately yield improved performance.

### Common Scenarios

Scenarios that are considered and measured during this workshop:

- An event that was identified and predicted during the well planning process that became managed.
- An event that was identified and predicted during the well planning process but was worse than anticipated while drilling, but with appropriate planning as actively managed with little NPT.
- An event that was not predicted during planning, but due to enhanced reaction and mitigation planning, was managed with some NPT, but a significant event was avoided.
- An event that was not predicted during planning, was difficult to manage and resulted in significant NPT.

## WPFT1: Geological control on drilling performance

### Discussion Topics

- Drilling unconsolidated, and poorly cemented sands
- Mudrocks matter to drillers!, and getting to grips with gumbo
- Sandstones, Chalk, Marl and Limestone - Planning for and managing losses
- Geological Scale -Seismic vs log resolution vs outcrop scale
- Faults, folds and other geological structures at various scales, and the problems that they can cause
- Bedding, Joints and other discontinuities and their influence on drilling
- Hard bands and negative drill breaks
- Geological control on directional drilling and geosteering
- Ledging, Key-seating and wellbore geometry
- Considerations for casing running and shoe positioning
- Predicting and mitigating drilling problems during the well planning process
- Using drilling data to interpret geology in the absence of logs
- Geosteering, geostopping and geology at the bit
- Predicting and mitigating wellbore instability
- Understanding how geological uncertainty adds to the challenge of drilling
- Reservoir, Source and Seal rocks, Oil seeps



## Instructor Profiles



**Martin B. Saunders**  
Training Manager

has forty four years experience as wellsite geologist and technical training manager. He specializes in wellsite operations and petroleum geology training and has been teaching oilfield courses for twenty five years. Martin holds a B.Sc. (Hons.) degree in geology from the University of Wales, Aberystwyth and began his career with EXLOG (now Baker Hughes Inteq) in 1974 and worked at the wellsite before joining the training department of Baker Hughes in the UK in 1982. Here he was responsible for all internal technical training for the Europe/Africa/Middle East Division and was also responsible for the expansion of its external, commercial training operations.

He has presented courses throughout the world to personnel from major operators and service companies including BP, Exxon, Anadarko, MOL, Chevron, Maersk, Total, Wintershall, Perenco, ADNOC, Saudi Aramco, GDF Suez, Tullow Oil, Spirit Energy, Ophir Energy, Baker Hughes and Halliburton among many others.

## Instructor Profile



**Dr. Adam K. Moss**  
Core Analysis Expert

Adam is a core analysis expert with over 25 years' experience working in petrophysics. He has designed and presented training courses internationally on a wide range of topics, including:

*Special Core Analysis for Reservoir Modelling, Guildford, UK, NAMCOR, September 2017*

*An Introduction to Special Core Analysis, Reading, UK, BG Group, January 2016*

*Unconventional Reservoir Core Analysis, Brisbane, Australia, Queensland Gas Company, November 2013.*

*NMR – Basic to Expert User, Abu Dhabi, UAE, Public Course, December 2003*

In 2017 Adam formed AKM Geoconsulting Ltd, to offer core and special core analysis consulting services to industry. From 2006 to 2016, he was the Global Group Technical Authority for Core Analysis at BG Group. He was responsible for all aspects of BG Group's coring and core analysis projects worldwide. This included defining best practice workflows and working with assets and multi-functional teams to ensure core analysis data was of the best quality and used appropriately. Prior to joining BG Group, he was the Senior NMR Petrophysicist at ResLab UK, and responsible for all aspects for the company's NMR core analysis services.

Adam has an established track record in teaching and research in academia, working at the Royal School of Mines: Imperial College (1995-2001) and since 2015, as Honorary Assistant Professor at Heriot-Watt University. He served as president of the London Petrophysical Society (LPS) from 2010-2012.

He holds a PhD on the 'Characterisation and Modelling of the Pore Structure of Reservoir Sandstones.

## Training Centre Locations

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