COURSE OVERVIEW DE0532
Drill Cuttings Description and Quality Control

Course Title
Drill Cuttings Description and Quality Control

Course Date/Venue
Session 1: July 20-24, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
Session 2: December 22-26, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference
DE0532

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Description

This practical and highly-interactive course includes real-life case studies where participants will be engaged in a series of interactive small groups and class workshops.

This course is designed to provide participants with a detailed and up-to-date overview of Drill Cuttings Description and Quality Control. It covers the formation of drill cuttings and the role of drill cuttings in geological interpretation; the basics of drilling and mud circulation; the drill cuttings recovery and handling, proper labeling and storage of cuttings samples; the drying and sieving procedures and best practices for sample preservation; the basic geological principles in cuttings analysis; and the safety and quality control in cuttings handling.

Further, the course will also discuss the identification of lithologies through color, texture, and grain size; the factors affecting the appearance of cuttings and artificial contamination in samples; the classification of lithological cuttings, mineralogical composition of cuttings and cuttings texture and sorting; the hardness and porosity estimation and fluorescence and hydrocarbon indicators in cuttings; and the thin section and petrographic analysis, x-ray diffraction (XRD) for mineralogical analysis and x-ray fluorescence (XRF) for geochemical analysis.

During this interactive course, participants will learn the scanning electron microscopy (SEM) in cuttings analysis, mud logging techniques for cuttings evaluation and geochemical and thermal maturity analysis; integrating cuttings data with wireline logs and cuttings contamination and quality control; the cuttings-based reservoir evaluation, drilling-related artifacts and advances in automated cuttings analysis; the proper reporting and documentation of cuttings analysis; and providing unknown cuttings samples for analysis.

Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an in-depth knowledge on drill cuttings description and quality control
- Discuss the formation of drill cuttings and the role of drill cuttings in geological interpretation
- Explain the basics of drilling and mud circulation and apply drill cuttings recovery and handling
- Carryout proper labeling and storage of cuttings samples, drying and sieving procedures and best practices for sample preservation
- Discuss the basic geological principles in cuttings analysis and apply safety and quality control in cuttings handling
- Identify lithologies through color, texture, and grain size, factors affecting the appearance of cuttings and artificial contamination in samples
- Classify lithological cuttings, mineralogical composition of cuttings and cuttings texture and sorting
- Apply hardness and porosity estimation and identify fluorescence and hydrocarbon indicators in cuttings
- Carryout thin section and petrographic analysis, x-ray diffraction (XRD) for mineralogical analysis and x-ray fluorescence (XRF) for geochemical analysis
- Apply scanning electron microscopy (SEM) in cuttings analysis, mud logging techniques for cuttings evaluation and geochemical and thermal maturity analysis
- Integrate cuttings data with wireline logs and apply cuttings contamination and quality control
- Employ cuttings-based reservoir evaluation, identifying drilling-related artifacts and advances in automated cuttings analysis
- Prepare proper reporting and documentation of cuttings analysis and provide unknown cuttings samples for analysis

Exclusive Smart Training Kit - H-STK®

*Participants of this course will receive the exclusive "Haward Smart Training Kit" (**H-STK®**). The **H-STK®** consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspects and considerations of drill cuttings description and quality control for geologists and geoscientists, petroleum engineers, mud loggers, geotechnical engineers, oil and gas industry professionals and other technical staff.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

- The International Accreditors for Continuing Education and Training (IACET - USA)

  Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

  Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

  Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:

Dr. Chris Kapetan, PhD, MSc, is a **Senior Petroleum Engineer** with over **30 years** of international experience within the **onshore** and **offshore oil** & **gas** industry. His wide experience covers **Asset Management** Principles, Risks & Economics, **Petroleum Economics**, **Decision Analytic Modelling Methods** for **Economic Evaluation**, **Probabilistic Risk Analysis** (**Monte Carlo Simulator**) **Risk Analysis Foundations**, **Global Oil Demand**, Crude Oil Market, Global Oil Reserves, Oil Supply & Demand, Governmental Legislation, Contractual Agreements, **Financial** Modeling, **Oil Contracts**, **Project Risk Analysis**, **Feasibility Analysis** Techniques, **Capital Operational Costs**, Oil & Gas Exploration Methods, **Reservoir** Evaluation, **Extraction of Oil & Gas**, **Crude** Oil Types & Specifications, Sulphur, Sour Natural Gas, **Natural Gas Sweeting**, **Petroleum Production**, Field Layout, **Production** Techniques & Control, **Surface Production** Operations, **Oil Processing**, Oil Transportation-Methods, **Flowmetering & Custody Transfer** and **Oil Refinery**. Further, he is also well-versed in Enhanced Oil Recovery (**EOR**), Electrical Submersible Pumps (**ESP**), **Oil Industries Orientation**, **Geophysics**, Cased Hole **Formation Evaluation**, Cased Hole **Applications**, Cased Hole **Logs**, Production **Operations**, Production **Management**, Perforating **Methods & Design**, Perforating **Operations**, **Fishing** Operations, **Well & Reservoir** Testing, **Reservoir Stimulation**, **Hydraulic Fracturing**, **Carbonate** Acidizing, **Sandstone** Acidizing, **Drilling Fluids Technology**, Drilling **Operations**, **Directional** Drilling, **Artificial Lift**, **Gas Lift Design**, **Gas Lift Operations**, **Petroleum Business**, **Field Development Planning**, **Gas Lift Valve** Changing & Installation, **Well Completion** Design & Operation, Well **Surveillance**, Well **Testing**, Well **Stimulation** & **Control** and **Workover Planning**, **Completions** & **Workover**, **Rig Sizing**, **Hole Cleaning** & **Logging**, **Well Completion**, **Servicing** and **Work-Over Operations**, Practical **Reservoir Engineering**, **X-mas Tree & Wellhead** Operations, Maintenance & Testing, **Advanced Petrophysics/Interpretation** of **Well Composite**, **Construction Integrity** & **Completion**, **Coiled Tubing Technology**, **Corrosion Control**, **Slickline**, **Wireline & Coil Tubing**, **Pipeline Pigging**, **Corrosion Monitoring**, **Cathodic Protection** as well as Root Cause Analysis (**RCA**), Root Cause Failure Analysis (**RCFA**), **Gas Conditioning & Process Technology**, **Production Safety** and **Delusion of Asphalt**. Currently, he is the **Operations Consultant** & the **Technical Advisor** at **GEOTECH** and an independent **Drilling Operations Consultant** of various engineering services providers to the international clients as he offers his expertise in many areas of the **drilling & petroleum discipline** and is well **recognized & respected** for his process and procedural expertise as well as ongoing participation, interest and experience in continuing to promote technology to producers around the world.

Throughout his long career life, Dr. Chris has worked for many international companies and has spent several years **managing** technically **complex wellbore interventions** in both **drilling** & **servicing**. He is a **well-regarded** for his **process** and **procedural expertise**. Further, he was the **Operations Manager** at **ETP Crude Oil Pipeline Services** where he was fully responsible for optimum operations of crude oil pipeline, **workover** and **directional drilling**, **drilling rigs** and equipment, drilling of various geothermal deep wells and **exploration wells**. Dr. Chris was the **Drilling** & **Workover Manager** & **Superintendent** for **Kavala Oil** wherein he was responsible for supervision of **drilling operations** and **offshore exploration**, quality control of performance of **rigs**, **coiled tubing**, crude oil transportation via pipeline and abandonment of **well** as per the API requirements. He had occupied various key positions as the **Drilling Operations Consultant**, **Site Manager**, **Branch Manager**, **Senior Drilling** & **Workover Manager** & **Engineer** and **Drilling** & **Workover Engineer**, **Operations Consultant**, **Technical Advisor** in several petroleum companies responsible mainly on an **offshore** sour oil field (under water flood and gas lift) and a gas field. Further, Dr. Chris has been a **Professor** of the **Oil Technology College**.

Dr. Chris has **PhD** in **Reservoir Engineering** and a **Master's** degree in **Drilling & Production Engineering** from the **Petrol-Gaze Din Ploiesti University**. Further, he is a **Certified Surfaced BOP Stack Supervisor** of **IWCF**, a **Certified Instructor/Trainer**, a **Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management** (**ILM**) and has conducted **numerous short courses**, **seminars** and **workshops** and has published several technical books on **Production Logging**, **Safety Drilling Rigs** and **Oil Reservoir**.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures
20% Practical Workshops & Work Presentations
30% Hands-on Practical Exercises & Case Studies
20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Fee

US$ 8,000 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction to Drill Cuttings*** *Definition and Formation of Drill Cuttings • The Role of Drill Cuttings in Geological Interpretation • Drill Cuttings vs. Core Samples • Challenges in Cuttings Analysis*
0930 – 0945	*Break*
0945 – 1030	***Basics of Drilling & Mud Circulation*** *Overview of Drilling Processes and Drill Bit Types • How Mud Circulation Affects Cuttings Transportation • Impact of Drilling Parameters on Cuttings Quality • Contamination Risks in Drilling Fluids*
1030 – 1130	***Drill Cuttings Recovery & Handling*** *Cuttings Retrieval Methods at the Shale Shaker • Factors Affecting Cuttings Recovery Rate • Cuttings Washing and Handling Techniques • Common Issues with Cuttings Contamination*
1130 – 1215	***Sample Preparation for Description*** *Proper Labeling and Storage of Cuttings Samples • Drying and Sieving Procedures • Best Practices for Sample Preservation • Importance of Representative Sampling*
1215 – 1230	*Break*

1230 – 1330	***Basic Geological Principles in Cuttings Analysis*** *Fundamentals of Rock Classification • Depositional Environments and Lithology Indicators • The Role of Mineralogy in Formation Evaluation • Understanding Formation Tops Using Cuttings*
1330 – 1420	***Safety & Quality Control in Cuttings Handling*** *Personal Protective Equipment (PPE) for Sample Handling • Health Hazards Associated with Drill Cuttings • Preventing Cross-Contamination in Cuttings Handling • Best Practices for Quality Assurance in Cuttings Analysis*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day One*

Day 2

0730 – 0830	***Visual Description of Cuttings*** *Identifying Lithologies Through Color, Texture, and Grain Size • Factors Affecting the Appearance of Cuttings • Recognizing Artificial Contamination in Samples • Using Color Charts and Comparison Tools*
0830 – 0930	***Lithological Classification of Cuttings*** *Clastic vs. Non-Clastic Rock Types • Differentiating Shale, Sandstone, and Carbonate Cuttings • Recognition of Hydrocarbon-Bearing Formations • Lithology Classification Schemes and Terminology*
0930 – 0945	*Break*
0945 – 1100	***Mineralogical Composition of Cuttings*** *Common Minerals Found in Cuttings Samples • Carbonate vs. Silicate Content Analysis • Methods for Identifying Mineral Grains in Cuttings • Indicators of Reservoir Quality Minerals*
1100 – 1215	***Cuttings Texture & Sorting*** *The Significance of Grain Shape and Roundness • Sorting and Its Geological Implications • Matrix and Cementation in Cuttings Samples • Estimating Depositional Energy from Cuttings*
1215 – 1230	*Break*
1230 – 1330	***Hardness & Porosity Estimation*** *Field Tests for Cuttings Hardness (Scratch and Crush Tests) • Porosity Indicators in Different Lithologies • The Role of Cementation in Porosity Reduction • How Diagenesis Affects Porosity Preservation*
1330 – 1420	***Fluorescence & Hydrocarbon Indicators in Cuttings*** *Understanding Fluorescence Tests in Cuttings • Recognition of Hydrocarbon Staining in Cuttings • Use of UV Light in Hydrocarbon Detection • Interpretation of Cut Fluorescence Intensity and Color*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Two*

Day 3

0730 – 0830	***Thin Section & Petrographic Analysis*** *Preparing Thin Sections from Drill Cuttings • Optical Microscopy for Mineral and Texture Identification • Use of Polarized Light in Mineral Classification • Interpreting Diagenetic Features in Thin Sections*
0830 – 0930	***X-Ray Diffraction (XRD) for Mineralogical Analysis*** *Principles of XRD and Its Applications in Cuttings Analysis • Sample Preparation for XRD Analysis • Interpreting XRD Diffraction Patterns • Limitations of XRD in Drill Cuttings Assessment*
0930 – 0945	*Break*
0945 – 1100	***X-Ray Fluorescence (XRF) for Geochemical Analysis*** *The Importance of Elemental Analysis in Cuttings • XRF Instrumentation and Sample Preparation • Interpreting Major and Trace Element Results • Identifying Source Rock Potential with XRF*
1100 – 1215	***Scanning Electron Microscopy (SEM) in Cuttings Analysis*** *High-Resolution Imaging of Cuttings Samples • SEM-EDS for Elemental Composition Analysis • Identifying Pore Structure and Diagenetic Features • Advantages of SEM Over Optical Microscopy*
1215 – 1230	*Break*
1230 – 1330	***Mud Logging Techniques for Cuttings Evaluation*** *Basics of Mud Logging and Real-Time Cuttings Monitoring • Gas Detection and Mud Gas Chromatography • Cuttings Lag Time and Depth Correction • Integration of Cuttings Data with Drilling Parameters*
1330 – 1420	***Geochemical & Thermal Maturity Analysis*** *TOC (Total Organic Carbon) and Its Significance • Rock-Eval Pyrolysis for Source Rock Evaluation • Vitrinite Reflectance as a Thermal Maturity Indicator • Geochemical Signatures of Reservoir Rocks*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Three*

Day 4

0730 – 0830	***Integration of Cuttings Data with Wireline Logs*** *Comparing Cuttings Descriptions with Gamma-Ray Logs • Calibrating Cuttings Lithology with Density and Neutron Logs • Identifying Miscorrelation Issues in Cuttings-Log Integration • Using Resistivity Logs to Validate Cuttings Analysis*
0830 – 0930	***Cuttings Contamination & Quality Control*** *Common Sources of Contamination in Cuttings • How Drilling Mud Affects Cuttings Quality • Verifying Cuttings Integrity Before Analysis • Best Practices for Preventing Contamination*
0930 – 0945	*Break*
0945 – 1100	***Cuttings-Based Reservoir Evaluation*** *Indicators of Reservoir Quality in Cuttings • How Permeability and Porosity Affect Reservoir Potential • Recognizing Diagenetic Alterations in Reservoir Rocks • Relationship Between Cuttings Properties and Reservoir Performance*
1100 – 1215	***Identifying Drilling-Related Artifacts*** *Recognizing Bit-Induced Changes in Cuttings • Mud Additives and Their Impact on Cuttings Description • Effects of Drilling Rate on Cuttings Fragmentation • How Overpressure Affects Cuttings Quality*

1215 – 1230	*Break*
1230 – 1330	***Advances in Automated Cuttings Analysis*** *AI and Machine Learning in Cuttings Classification • Automated Mineral Identification Techniques • Digital Imaging and Texture Analysis • Benefits and Challenges of Automation in Cuttings Analysis*
1330 – 1420	***Reporting & Documentation of Cuttings Analysis*** *Standard Formats for Cuttings Description Reports • Importance of Accurate Depth Calibration • Documenting Key Observations and Uncertainties • Best Practices for Data Storage and Retrieval*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Four*

Day 5

0730 – 0930	***Case Studies of Drill Cuttings Analysis*** *Lessons from Successful Cuttings-Based Interpretations • Cuttings Data Validation in Exploration Wells • Cuttings Descriptions in Unconventional Reservoirs • Examples of Misinterpretations and Their Consequences*
0930 – 0945	*Break*
0945 – 1100	***Hands-On Drill Cuttings Description Practice*** *Identifying and Describing Real Cuttings Samples • Group Discussions on Sample Interpretations • Comparative Analysis with Core Samples • Practical Application of Fluorescence and Hardness Tests*
1100 – 1215	***Quality Control Exercises*** *Analyzing Real versus Contaminated Cuttings Samples • Verifying Consistency in Cuttings Descriptions • Error Analysis in Cuttings Classification • Team-Based QC Evaluations*
1215 – 1230	*Break*
1230 – 1345	***Interpretation Challenge – Mystery Samples*** *Providing Unknown Cuttings Samples for Analysis • Participants Describe, Classify and Interpret Data • Group Presentations of Findings • Expert Review and Feedback*
1330 – 1345	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about t Topics that were Covered During the Course*
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-

Course Coordinator

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