



AL147: Fluid Evaluation and Sampling for Facilities

Training Description:

This intensive course is designed to provide participants with a detailed and up-to-date overview of fluid evaluation and sampling for facilities. It covers the crude oil chemistry comprising of physical properties and chemical properties of crude oil, the complexities of crude oil composition, crude oil assays, crude oil specification and marketing; the main functions of oil and gas testing equipment; the gas and water sampling procedures; operating testing equipment as per manufacturer procedures; and the various international standards applicable to oil, gas and water tests.

During this interactive course, participants will learn the equipment handling procedures and procedures of basic oil and gas tests; the major component categories of crude oil and their specifications; analyzing the results of GLP; the standard procedures in accordance with the ASTM/API related analysis of oil field waters; the composition, impurities and chemistry of water in petroleum industries; the operation and troubleshooting of water testing equipment as per ASTM and manufacturer procedures; and the inorganic constituents, non-metallic constituents, metallic constituents and organic constituents as well as microbiological characteristics.

Training Objectives:

By the end of the training, participants will be able to:

- ✓ Apply and gain an in-depth knowledge on fluid evaluation and sampling for facilities
- ✓ Gain an in-depth knowledge about crude oil chemistry covering the physical properties and chemical properties of crude oil, the complexities of crude oil composition, crude oil assays, crude oil specification and marketing
- ✓ Learn the main functions of oil and gas testing equipment that include UV-visible spectrophotometer, atomic absorption spectrophotometry, gas chromatography, HPLC, ICP and NMR
- ✓ Learn the oil, gas and water sampling procedures
- ✓ Operate testing equipment as per manufacturer procedures
- ✓ Recognize the various international standards applicable to oil, gas and water tests comprising of ASTM test methods, other American standards, British standards (BS), other European standards and ISO
- ✓ Carryout equipment handling procedures and procedures of basic oil and gas tests
- ✓ Identify the major component categories of crude oil and their specifications covering gas, gasoline, diesel, kerosene, naphtha, petroleum coke and other crude oil components
- ✓ Analyze the results of GLP and apply result handling procedure, data validation, method validation, uncertainty measurement and reporting procedure
- ✓ Discuss standard procedures in accordance with the ASTM/API related analysis of oil field waters
- ✓ Identify composition, impurities and chemistry of water in petroleum industries
- ✓ Operate and troubleshoot water testing equipment as per ASTM and manufacturer procedures
- ✓ Determine inorganic constituents, non-metallic constituents, metallic constituents and organic constituents as well as microbiological characteristics

Training Designed for:

This course is intended for chemists and laboratory staff.



Training Program:

DAY ONE:

- ❖ PRE-TEST
- ❖ Introduction
- ❖ Crude Oil Chemistry
 - Physical Properties of Crude Oil, Chemical Properties of Crude Oil
 - The Complexities of Crude Oil Composition
 - Crude Oil Assays, Crude Oil Specification & Marketing
- ❖ The Main Functions of Oil & Gas Testing Equipment
 - UV-Visible Spectrophotometer
 - Atomic Absorption Spectrophotometry
 - Gas Chromatography, HPLC, ICP, NMR
- ❖ Oil, Gas & Water Sampling Procedures
 - Sampling & Sample Handling
 - Representative Sampling & Effect of Sampling Error on Overall Precision

DAY TWO:

- ❖ Oil, Gas & Water Sampling Procedures (cont'd)
 - Sample Contamination and Preservation
 - Transmittal of Samples to Laboratory and Sample Receiving
 - Disposal of Completed Samples, Reporting of Data and Sample Accountability
- ❖ Operate Testing Equipment as per Manufacturer Procedures
 - UV-Visible Spectrophotometer
 - Atomic Absorption Spectrophotometry
 - Gas Chromatography, HPLC, ICP, NMR

DAY THREE:

- ❖ International Standards Applicable to Oil, Gas & Water Tests
 - ASTM Test Methods, Other American Standards
 - British Standards (BS), Other European Standards, ISO
- ❖ Equipment Handling Procedures
 - Clearing/Resetting Procedures
 - Safe Handling Procedures, Preventive Maintenance, Other Manufacturer Procedures

DAY FOUR:

- ❖ Procedures of Basic Oil & Gas Tests
 - ASTM Crude Oil Proficiency Testing
 - Standard Test Methods
 - Kinetic Viscosity, Vapor Pressure, Flash Point, Net Heat of Combustion, Density
 - Sulphur Contents, Boiling Point, API Gravity, Acidity, Other Tests
- ❖ Procedure of Basic Water Tests
 - Standard Procedures ASTM/API Related Analysis of Oil Field Waters
 - Water Composition & Impurities, Chemistry of Water in Petroleum Industries
 - Operating & Troubleshooting Water Testing Equipment as per ASTM & Manufacturer Procedures



- Determination of Inorganic Constituents, Determination of Nonmetallic Constituents
- Determination of Metallic Constituents, Determination of Organic Constituents
- Determination of Microbiological Characteristics

❖ **Practical Sessions**

- This hands-on, highly-interactive course includes real-life case studies and exercises

DAY FIVE:

❖ **Major Component Categories of Crude Oil & their Specifications**

- Gas, Gasoline, Diesel
- Kerosene, Naphtha, Petroleum Coke
- Other Crude Oil Components

❖ **Analyze Test Results**

- Good Laboratory Practice (GLP)
- Result Handling Procedure, Data Validation
- Method Validation, Uncertainty Measurement, Reporting Procedure

❖ **Course Conclusion**

❖ **POST-TEST and EVALUATION**

Training Requirement:

“Hand’s on practical sessions, equipment and software will be applied during the course if required and as per the client’s request”.

Please note that the above topics can be amended as per client’s learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

As per the course location - This rate includes participant’s manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.



Training Timings:

Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:30	Recess (Prayer Break & Lunch)
13:30 - 15:00	Last Session

For training registrations or in-house enquiries, please contact:

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Training & Career Development Department

