



# AL037: Water Analysis in Petroleum Industry

### Training Description:

This course presents an overview of the need for analysis of water, how analytical methods are developed and quality control is applied and how the results of analysis are used. It will describe the physical, chemical and other relevant properties of water components and will also cover sampling, clean up, extraction and derivatization procedures. Older techniques that are still in use will be compared to recently developed techniques and participants will direct to future trends. A similar strategy will be followed for discussion of detection methods.

Water is an excellent solvent which dissolves many substances. To get correct results and values, analysts have to follow sample strategies. Sampling has become a quality-determining step. If samples can't be analyzed directly they have to be stored and preserve. Physical, chemical or biological activities in a water sample can distort the chemical composition in water. Statistical treatment of data ensures the reliability of the results. Statistical methods will also be reviewed.

Water is living element housing a lot of organisms, wanted or unwanted, harmful or harmless. Some of these organisms produce toxic substances. The course will discuss bacteriological and algal analysis. It will give participants detailed information on most of the cited techniques, sample preparation, separation and detection methods.

### Training Objectives:

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

- ✓ Apply up to date knowledge and skills on water analysis and quality control techniques
- ✓ Select proper water samples from different sources including seawater, MSF, boiler feed water, boiler blow down water, boiler water, produced steam, condensate water and drain effluent water
- ✓ Practice the latest water analysis methods and use the correct analytical equipment to achieve the required results
- ✓ Implement the various laboratory methods and technology in water analysis
- ✓ Calculate error, limitation and accuracy of the various analytical methods and calibrate the analytical equipment

### Training Designed for:

This course is intended for all Regulators and water industry professionals, those who are carrying out water analysis and young professionals who want to update their knowledge of water analysis.

### 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."

**Contents can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client's learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.**

## Training Program:

### DAY ONE:

- ❖ Water Analysis, Techniques
  - Water Analysis
  - Quality Control Techniques
- ❖ Water Samples
  - Sea Water
  - MSF
  - Boiler Feed Water
  - Boiler Blow Down Water
  - Boiler Water
  - Produced Steam
  - Condensate Water and Drain Effluent Water

### DAY TWO:

- ❖ Water Sample Handling, Analysis, Preservation
  - Sample Handling
  - Classification of Samples by Type of Analysis
  - Sample Preservation
- ❖ Water Sample Treatment, Prevention, SOP
  - Preservation Treatment for Various Filtered Samples
  - Pollution Prevention
  - SOP's
- ❖ Water Sample Procedures, Control, Assurance
  - Laboratory Sample Control Procedures
  - Quality Control/ Quality Assurance
  - Blank Samples

### DAY THREE:

- ❖ Samples-Replicate, Spike, Blind
  - Replicate Samples
  - Spike Samples
  - Blind Samples
- ❖ Interferences, Analytical, Safety
  - Interferences
  - Analytical Services Request Form
  - Safety
- ❖ Equipment, Supplies, Properties, Temperature
  - Equipment and Supplies
  - Physical Properties (Water)
  - Temperature PH- Color Turbidity

### DAY FOUR:

- ❖ Site Visit/Practical Session
  - Laboratory Methods

- Technology in Water Analysis
- ❖ Qualitative/Quantitative Analysis

#### DAY FIVE:

- ❖ Calculate Errors
- ❖ Various Analytical Methods
- ❖ Calibrate the Analytical Equipment
- ❖ Course Conclusion
- ❖ POST-ASSESSMENT and EVALUATION

### 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, Gamification, Software & General Discussions
- Pre and Post Test

### Training Certificate(s):

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

### Training Fees:

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

### 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 - 13:00	Recess (Prayer Break & Lunch)
13:00 - 14:00	Last Session

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

**Aisha Relativo** - Training & Career Development Manager

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