

# **WATER TREATMENT PLANT OPERATIONS**



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**TRAINING TITLE**

WATER TREATMENT PLANT OPERATIONS

**VENUE**

Dubai, UAE

**DURATION**

5 Days

**DATES**

17 - 21 October 2021

**PRICE**

US\$4,000 per attendee including training material/handouts, morning/afternoon coffee breaks and Lunch buffet.

**TRAINING INTRODUCTION**

- A petroleum industry requires the water analysis from any sources and different using technique. Starting from analysis of the associated water produced with the crude oil and/or natural gas till the water analysis for different types of processing.
- This program 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, cleanup, extraction and derivative procedures. Older techniques that are still in use will be compared to recently developed techniques and participants will be directed to future trends. A similar strategy will be followed for discussion of detection methods. In addition, the applications of analysis of water types (potable water, tap water, wastewater, seawater and associated produced water) will be reviewed.
- Because water is an excellent solvent, it 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 preserved. 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 in this course.

- The course will deal with the water characteristics (physical, chemical and biological) and their analysis methods. Physical characteristics of water, such as temperature, color, turbidity, etc., will be discussed, in addition to hardness, acidity, alkalinity, antioxidant demand and how dissolved oxygen is detected.
- Water is a 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**

This Training will go through the basic principles of water chemistry and water treatment & wastewater treatment techniques and establish a common way of approach to water use issues. It will examine the various techniques and technologies, which can be used to achieve what can sometimes be enormous savings through the implementation of appropriate solutions. The course covers the industry in general but will be customized to the needs of the participants / clients during the programme. A key part of the course is the total system approach to Quality , Health , Safety , Environmental Management , and Pollution control

This programme provides an overview of a number of Appropriate Techniques associated with Water Treatment equipment, systems, people and management. It describes both the background to each technique and its practical application to achieve the best results.

To understand the role of the following concepts:

Water Chemistry, Water Treatment, and Waste Water Treatment techniques in increasing productivity , Quality, Health, Safety, Environment , Pollution Control etc.

To apply the appropriate Techniques / Processes

- Each of these techniques contributes to maintenance efficiency
- These techniques can be stand alone or can interact with and support each other
- To achieve the best results in practicing these technique's
- To develop an action plan to utilise these techniques in their own areas of responsibility, fitting them into the overall treatment strategy, and measuring benefits

## **TRAINING AUDIENCE**

This program is intended for laboratory specialists, regulators and water industry professionals who plan and use the results of water monitoring programs and those who are carrying out water analysis.

It is particularly aimed at young professionals and those who want to update their knowledge of water analysis.

## **TRAINING OUTLINE**

### **Day 1:**

- Introduction to analytical chemistry principles
- Element – Compound – Mixture – Solution
- Atoms, atomic weight and molecular weight
- Ions –valence – equivalent weight
- Acid – base – salt – concentration expressions
- pH scale – SI unit of measurement
- Water sample and analysis
- Chemical, physical and biological properties
- Qualitative and Quantitative analysis (Full analysis of water)
- Water constituents (Anions – Cations)

### **Day 2:**

- Water external and internal treatment (Aeration – clarification and filtration)
- Different type of filters used in water treatment
- Graphical presentation of analysis results (water patterns)
- Oil in water analysis
- Suspended solids analysis
- Water quality for different usage
- Particle size analysis and distribution
- Oil field water analysis
- Microbiological Treatment Of Water
- Microorganism found in Oil Field Water Systems
- Bacteria which cause problems (SRB)
- Reservoir Souring

**Day 3:**

- Water Sampling For Bacteria
- Iron Oxidizing Bacteria
- Slime-forming bacteria
- Culturing, Identifying and Counting Bacteria
- Extinction Dilution Technique
- Chemical Control of Microorganisms
- Treatment Methods
- Water Disinfection
- Disinfection Media

**Day 4:**

- Chlorination and de-chlorination
- Advantages and disadvantages of using chlorine for disinfection
- Ozone disinfection
- Ozone Generation
- Ultraviolet Disinfection
- UV-treated water safe to drink
- Types of UV systems
- Component of a UV system
- Maintain a UV system
- ASTM and NACE Standard Tests

**Day 5:**

- Water Injection Systems
- Water Sensitive Formation
- Guidelines To System Design
- Types Of Treating Systems
- System Designs
- Water Injection System
- Water Disposal Systems
- Subsurface Disposal
- Produced Water Disposal
- Surface Disposal
- Treating Chemicals Toxicity

## **TRAINING CERTIFICATE**

**MAESTRO CONSULTANTS** Certificate of Completion for delegates who attend and complete the training course

## **METHODOLOGY**

Our courses are highly interactive, typically taking a case study approach that we have found to be an effective method of fostering discussions and transferring knowledge. Participants will learn by active participation during the program through the use of individual exercises, questionnaires, team exercises, training videos and discussions of “real life” issues in their organizations. The material has been designed to enable delegates to apply all of the material with immediate effect back in the workplace.