Training Title
WATER TREATMENT AND WATER WELL OPERATIONS

Training Duration
5 days

Training Venue and Dates

Water Treatment and Water Well Operations	*5*	*09 - 13 September 2024*	*$5, 500*	*Dubai, UAE.*

Training will be conducted in any of the 4 or 5 star hotels.

Training Fees
$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch.

Training Certificate
Prolific Consultants FZE Certificate of Course Completion will be issued to all attendees.

TRAINING OVERVIEW
COURSE DESCRIPTION
This course contains information on water sources and characteristics, factors influencing water demand, and the development of water sources. It examines the operations and problems associated with water treatment and the importance of optimizing each unit process to maintain water quality.

Water treatment is any process that improves the quality of water to make it more acceptable for a specific end-use. The end use may be drinking, industrial water supply, irrigation, river flow maintenance, water recreation or many other uses, including being safely returned to the environment. Water treatment removes contaminants and undesirable components, or reduces their concentration so that the water becomes fit for its desired end-use

Two of the main processes of industrial water treatment are boiler water treatment and cooling water treatment. A lack of proper water treatment can lead to the reaction of solids and bacteria within pipe work and boiler housing. Steam boilers can suffer from scale or corrosion when left untreated. Scale deposits can lead to weak and dangerous machinery, while additional fuel is required to heat the same level of water because of the rise in thermal resistance. Poor quality dirty water can become a breeding ground for bacteria such as Legionella causing a risk to public health.

Well water construction and maintenance considerations are also discussed in details.

During the course candidates will get knowledge of different water treatment processes depending upon intake quality and end-use requirement. This will enable them to critically analyze and find out optimization methods and rehabilitation of existing plants.

COURSE OBJECTIVE:

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

- *Become familiar with the requirements for optimization of water treatment plants including the management structure, plant maintenance and housekeeping of these plants*
- *Apply the proper procedure of assessing plant performance and identifying defects by observing plant operation, raw water metering and learn the flocculation systems*
- *Analyse the physical, biological and chemical variables & contamination related to the water analysis for treatment control of water treatment plants*
- *Recognize the importance of plant records, pre-treatment units & filter rehabilitation in improving plants and their operation*
- *Understand the basic hydraulic functions and unit operations of individual parts of water treatment plant unit operations.*
- *Understand and use the various test parameters and methods to determine the adequacy of existing operations and to understand and design upgrades for new operations. This includes understanding how pilot plants work and the scale factors which need to be applied.*
- *Become aware of the choice of process & health risks of various water treatment chemicals and disinfection systems, and the advantages thereof.*
- *Learn and apply the principles of optimizing & upgrading treatment plants including applying new technology, optimizing the treatment process & plant performance as well as know the design information. This will include methods to evaluate existing and new performance of desalination facilities.*
- *Best practices for constructing and maintaining well water system.*

The attendees are encouraged to bring real problems that they are working to use in discussions at any time during the course. These problems should be of a non-confidential nature that can be discussed without violation of any confidentiality restrictions.

SUITABLE FOR:

- ✓ *Oil & Gas Field Operators, control room Operators*
- ✓ *Production Engineers/ Supervisors / Team Leaders*
- ✓ *Maintenance Engineers/Supervisors /Technicians*
- ✓ *Process Engineers, Project Engineers & Planning Engineers.*
- ✓ *Operators & Supervisors working in water treatment plants.*

TRAINING METHODOLOGY:

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on a daily basis to examine the effectiveness of delivering the course.

COURSE OUTLINE:

Day-1 Water sources, characteristics & Requirements

- *Sources of water*
- *Water Characteristics*
- *Water Requirement in Oil & Gas plant*
- *Fire water*
- *Cooling water*
- *Once through water & circulating water*
- *Utility water*
- *Potable water*
- *Water quality requirement*
- *Water quality testing methods*
- *International standards on quality for potable water*

Day-2 Water treatment methods

- *Different methods available*
- *Selection of appropriate methods*
- *Aeration, Chemical Oxidation, & Taste & Odour Control*
- *Clarification*
- *Filtration*
- *Types of filters*
- *Back washing requirements*

- *Precipitation softening process*
- *Ion exchange*
- *Mixed bed resins*
- *Demineralisation*

Day-3 Seawater treatment - RO and Boiler feed water

- *Sea water intake system*
- *Floatation, filtration inlet pump sump*
- *Chlorination*
- *Fire water & water lift pumps general layout*
- *Evaporation & Cooling method*
- *RO (Reverse Osmosis) plant*
- *Ultra-filtration*
- *Chemical dosages*
- *High pressure pumps*
- *Membrane filter-construction*
- *Water sampling and analysis*
- *Potable water treatment*
- *Water storage and distribution network*

Day-4 Water wells sources & construction

- *Well water characteristics*
- *Working of water well system-with examples*
- *Types of water wells*
- *Key components of well water system*
- *Types of well pumps*
- *Consider before constructing a well system*
- *Well siting & Potential Contaminants*

Day-5 Maintaining of a well water system

- *Inspection and preventive maintenance*
- *Some popular sources of these contaminants*
- *Keeping contaminants out of well water*
- *The Springwell SWRO Under-Counter Reverse Osmosis Systems*
- *Water Contamination and Diseases*
- *Germs that can contaminate Tap Water*
- *Chemicals that can contaminate Tap Water*
- *Removing contaminants from drinking water*

Case Studies, Role Plays, Videos, Discussions, Last Day Review & Assessments will be carried out.

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