



WE083: Advanced Sewage Treatment & Plant Operations

Training Description:

This intensive course will discuss on about how to set up, analyze, and run a wastewater treatment plant, whether it is municipal or industrial. It is complete review and teaches analysis and the use of models where appropriate to help analyze operations.

Training Objectives:

Upon successful completion of this course, participants will be able to Analyze, Operate, and Troubleshoot wastewater treatment plants. Participants will learn theory of operations as well as analysis tools and how and where models will be helpful. They will learn to analyze poorly performing wastewater treatment works and make recommendations to correct and improve operations, including maintenance. They will also learn proper techniques for sludge digestion, alternatives to digestion, and sludge disposal.

Training Designed for:

This course is intended for Operators, Engineers, Supervisors, Biologists, and others who may be involved in operating, supervising, designing, or monitoring wastewater treatment plants. It is also suited for anyone wishing to know more about how a wastewater treatment plant is run, or should be run. Participants are encouraged to bring problems or challenges for group discussion and solutions. Individual problems will be given priority in problem solving.

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:

- ❖ PRE-TEST
- ❖ Introduction
- ❖ The Basics: What Type of Plant do you have?
- ❖ A Critical Review of the types of wastewater treatment plants, and their highlights and lowlights
- ❖ The Basics:
 - What’s in your permit? Types and kinds of permitting approaches
- ❖ Flow measurement
- ❖ Wastewater Characteristics
- ❖ How to use the laboratory and what tests to run on the Influent
 - Basics of Chemical dosages and calculations
- ❖ Chemical dosing
- ❖ Oxygen Transfer
- ❖ BOD, COD, TSS, VSS, tests and their meanings

DAY TWO:

- ❖ Plant Basics: and calculations and sizing
 - Bar Screens
 - Grit Chambers
 - Primary Clarifiers
 - Aeration Tanks
 - Secondary Clarifiers
 - Recirculating Pumps
 - Secondary Clarifiers
 - Filtration Systems
 - Membrane Systems
 - Disinfection Systems
- ❖ The River/Lake/Sea Environment and the impact of a discharge on it
- ❖ Nitrogen Removal Systems
- ❖ Phosphorous Removal Systems & methods

DAY THREE:

- ❖ Aeration Systems
- ❖ Aeration Calculations
- ❖ What is MLSS and how does it affect my plant?
- ❖ Measuring MLSS
- ❖ Controlling MLSS
- ❖ High MLSS Problems & Solutions
- ❖ Low MLSS Problems & Solutions
- ❖ Membrane Systems and their use
- ❖ Clarifier Problems and their solutions, Bulking, floating and foaming sludge
- ❖ Introduction to Microscopy and what it can tell you about the plant operations
- ❖ Types of problems microscopy can reveal and how to solve them

DAY FOUR:

- ❖ Error Measurement and your permit- how reliable are your numbers?
- ❖ The chemistry of biological treatment
- ❖ Aerobic Digestion
- ❖ Anaerobic Digestion
 - Operation, theory, and problems
 - Gas Production
 - High vs Low rate digestion
- ❖ Sludge Handling and Disposal
 - Dewatering
 - Thermal
 - Composting
 - Landfilling
 - Reuse
- ❖ Plant Models and modeling as an assist to operations

DAY FIVE:

- ❖ Plant Operations & Manpower Requirements
- ❖ Maintenance Frequencies
 - Records
 - Analysis
- ❖ Measurement and Statistical Considerations
 - Error Analysis in measurements and calculations
- ❖ Permit Modification – how to approach
- ❖ Other Maintenance Issues
- ❖ Specific challenges and class problems
- ❖ 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.

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

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

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