



MU234: Utility Systems in Process Plants & Oil/Gas Processing Facilities

Training Description:

Plant utilities or offsites are a vital service to the operation of process plants and oil/gas processing facilities. Unfortunately, they are all too often ignored until they cause problems. It's too late to start thinking about them when the plant/facility gets hit with a major derating or outage that could have been avoided.

This intensive course covers a complete and up-to-date overview of the various offsite and utility systems. It will cover the key selection considerations of the utility systems and how they are integrated into process plant or oil/gas facilities. Participants will develop a basic understanding of the wide variety of utility systems and components. The course will discuss how the offsite and utility system integrate with the process facilities and overall operation.

The course will cover the offsite and utility systems selection, costs and other managerial decisions pertinent to utility operations. Case studies and exercises will be used to demonstrate the application of key design and troubleshooting considerations.

During this highly interactive course, participants will be involved on hands-on practical sessions to select sites for high level utility systems. They will design various utility systems and learn the key elements affecting the operation, maintenance and troubleshooting such systems.

Training Objectives:

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

- ✓ Design, operate, maintain and troubleshoot utility systems in process plants and oil/gas processing facilities
- ✓ List the various options in selecting utility systems
- ✓ Evaluate and select utility systems based on key criteria and technical considerations
- ✓ Implement the key site selection considerations for high level utility systems
- ✓ Troubleshoot utility systems and identify the common failure mechanisms
- ✓ Determine the various maintenance and management considerations for offsite and utility systems

Training Designed for:

This course is intended for Engineers and other Technical Staff responsible for the design, operation, maintenance or troubleshooting of utility systems in process plants and oil/gas facilities.

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

❖ Process Cooling System

- Three Critical Points to Consider in the Operation of any Cooling System
- Contact and Non-Contact Cleaning
- Once-Through Cleaning
- Recirculating or Cooling Tower Systems
- Closed Loop Recirculating Systems

❖ Process Heating System

- Once the Water is in the Boiler, How is it Maintained in the Best State to Keep the Boiler Operating Reliably and Efficiently During Steady-State Operation?
- What can Happen During Start-Up, Shutdown and Transient Conditions?
- What Happens when Contamination is Carried over with the Steam or Brought Back from the Process?
- Monitoring the Operation
- What is the Best Choice for Different Applications, E.G., Cogeneration, SAGD Recovery of Heavy Oils or Heating a Distillation Column

DAY TWO:

❖ Fresh & Potable Water System

- Basic Principles of MF and UF
- Fouling of UF and MF Systems
- Cleaning of MF and UF Systems
- Basic Principles of Reverse Osmosis Technology
- Design of Reverse Osmosis Systems
- Overview RO and NF Membranes
- Fouling in RO and NF Systems
- Pre-treatment for RO and NF Systems
- Post-treatment for RO and NF Systems

❖ Process Refrigeration System

- Major Industrial Systems Including High and Low Heat Load Systems, Direct Contact with Process Fluids and Closed Loops for Critical Systems
- The Condenser in Electrical Generation Systems, Including Cogeneration

❖ Power Generation & Distribution System

- Three Critical Points to Consider in the Operation of any Boiler Plant
- The Various Classes of Boilers and their Special Needs
- The Boiler as a Concentrating Mechanism
- Guidelines and Needs for Different Pressures

❖ Steam System

- How to Make it Suitable for Boiler Applications
- How is the Choice of Equipment Related to the Overall Plant Design?
- Do the Attendees' Plants Have any Special Problems?

DAY THREE:

❖ Post Rolling Processes

- Cold Rolling, Shearing, Heat Treating, Sawing

❖ Process Drains-Open and Closed

- ❖ Instrument/Plant Air and Breathing Air
 - Fuel Systems Natural Gas, Diesel, Crude Oil, Aviation Fuels
- ❖ Inert Gas Systems

DAY FOUR:

- ❖ Firewater
- ❖ Utilities Management Issues
- ❖ Utilities Maintenance Considerations
- ❖ Performance Monitoring
 - Can we Assess the Cleanliness of a Steam Condenser or HVAC Chiller Without Having to Shut Down and Open Them Up?
- ❖ Practical Sessions
 - This hands-on and includes real-life case studies and exercises

DAY FIVE:

- ❖ Workshop on Monitoring Heat-Exchanger Cleanliness
 - The Specific Topics will be Chosen to Match the Needs of those Attending
- ❖ In-Service Cleaning
 - Chemical and Mechanical Methods for Both Off-Line On-Line Cleaning
- ❖ 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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