Electrical System Training for Water Treatment Plants

Two-Day Course Outline

HIGH VOLTAGE MAINTENANCE™
A VERTIV Company

Ensuring Electrical Power Reliability and Safety

A water treatment plant's electrical power system supports critical environmental and life-sustaining services. Maintaining electrical reliability and safety requires a high level of knowledge and expertise in order to be successful and comply with industry standards. The National Fire Protection Association Standard provides the most current requirements for minimizing the risks of fire and explosion and maintaining electrical safety.

NFPA 110, the standard for Emergency and Standby Power Systems contains requirements covering the installation and performance of backup power systems in critical applications where a power outage would create an environmental or life safety risk to the community. This standard is critical to ensuring electrical power safety and operations of the water treatment plant.

Participants who complete this course will learn about electrical power system theory and operation maintenance within water treatment facilities and gain an understanding of NFPA and IEEE requirements.

Experts in Electrical Reliability

To learn more about HVM's Training Services, please contact us at 866-HVM-TEAM (486-8326).

Course Overview

This course is focused on electrical power systems management and safety in water treatment facilities. It provides an understanding of electrical system operation, maintenance requirements, and troubleshooting approaches to managing power system reliability and safety. The course also covers electrical system design, instrumentation, and control systems that are utilized in daily operations.

The instructor will present a logical approach to the daily functions of power, process, and control involved in water treatment operations. Common electrical systems, sensors and controls and their operational requirements will be discussed. Having an in-depth knowledge of systems will permit the student to clearly understand daily operations.

A site walkthrough of the clients' water treatment facility to bridge the classroom experience to an operation facility is offered. This will allow the lessons learned in instruction to be clearly identified in a functional setting.

Course Duration: 16 Hours.

Two Day Seminar Course Outline:

Day 1

Introduction & Safety

- Course Goals
- Qualified & Unqualified Persons
- NFPA 70E Safety Concerns
- PPE Requirements

Specifics

- Single vs Dual Utility Feed
- IEEE Relay Protection
- Generator Backup
- Synchronous vs Asynchronous

System Operations

- Utility, N+1, Distribution
- Redundancy Systems Process Control
- DC Voltage Systems Automation Control

Types Of Diagrams

- View Schematics
- One-Line Diagrams
- Interconnect Wiring Diagrams
- PLC Diagrams (Ladder Logic)

Day 2

System Applications

- Flow Applications
- Pressure Control
- VFD and Motor Integration
- Level Control
- 4-20mA Applications

Water Treatment Specifics

- UV Lighting
- Motor Operated Valves
- Chemical Hazards
- Rotating Equipment
- Electro-Mechanical Systems

Training Materials

High Voltage Maintenance (HVM) will provide student manuals, supplemental materials, video presentations, and demonstration equipment. A "Certificate of Completion" is provided for students meeting or exceeding minimum course standards. Minimum course standards are defined as a 80% score on the written post-course examination.

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