



## **Qualified Operator 5-Day [802]**

### **Overview**

This course is designed to qualify Integrated Transmission System (ITS) operators. It provides hands-on experience in a distribution substation. The training defines the purpose and operations of a substation and provides an explanation of responsibilities. Both individual safety and substation safety are emphasized throughout the program.

Participants are shown how to read system one-line diagrams to identify system configuration, direction of power flow, voltages, system equipment, zones of protection and associated relay location. They also receive hands-on training in the operation and inspection of substation equipment, and the writing and executing of switching orders.

This program provides participants with the basic knowledge of how to safely perform normal operating duties and restore power in a substation after a fault, following the Electrical System Operating Procedures.

### **Duration**

5 Days

### **Topics**

- Introduction
- Safety
- System One-Line Diagrams
- Relaying
- Substation Zones of Protection
- Operating Procedures
- Equipment
- Interpreting Substation Trouble
- Writing and Executing Switching Orders

### **Who should take this course?**

Anyone required to operate ITS equipment.

### **Prerequisites**

None

## **Objectives**

- Apply all safety rules in accordance with safety procedures before and after entering a substation and when operating equipment on the ITS.
- Identify equipment symbols and associated numbering method used on the system one-line diagrams to verify that a correct switching order has been issued.
- Receive, write and physically execute a correct switching order in accordance with the Electrical System Operating Procedures.
- Identify, inspect and explain the purpose of the following individual equipment: station battery and battery charger, fuses, switches, transformers, circuit breakers and distribution voltage regulators.
- Physically demonstrate proper procedure in manually opening and closing the following switches: plain air break, bare-line de-energizer and rated load break.
- Physically demonstrate proper procedure in operating a circuit breaker by electrically opening and closing plus manually tripping.
- Physically demonstrate proper procedure for removing, refusing and replacing a power fuse.
- Physically demonstrate proper procedures in operating a voltage regulator by manually changing taps, placing in the neutral position and turning off the control power.
- Physically demonstrate proper procedures for restoring power in a substation following an outage by gathering and interpreting information appropriately.

## **Activities**

*Day One:* Introduction, Safety, System One-Line Diagrams, Relaying

*Day Two:* Relaying, Substation Zones of Protection, Operating Procedures, Equipment

*Day Three:* Equipment, Interpreting Substation Trouble

*Day Four:* Writing and Executing Switching Orders

*Day Five:* Evaluation

## **Requirements**

- Classes are held only at the Electric Cooperative Training Center.
- All participants must attend complete training session from 8:00 a.m. - 4:00 p.m. each day.
- Participants must complete all parts of the examination.
- Re-qualification is required annually.
- Training must be scheduled at least one month in advance.

## **CEUs**

4.0