Introduction to the CSA Z463 Electrical Maintenance Guideline

CSA has launched a new Z463 guideline governing the electrical maintenance of industrial, commercial and institutional electrical power systems. The new guideline has been designed to complement CE Code, CSA Z462 (Workplace Electrical Safety) and CSA Z460 (Control of Hazardous Energy) to help to encourage implementation of safe equipment operations and procedures.

This comprehensive one-day CSA Z463 workshop provides invaluable information to anyone who wishes to know and understand the role of the new CSA Z463 Electrical Maintenance Guideline, which governs the procedures for the optimal maintenance of electric power systems.

Who Should Attend:
This course is a must for electrical engineers, electrical maintenance personnel, plant electricians, electrical contractors, power specialists, maintenance managers, consultants and technologists responsible for the design, construction, installation, inspection, operation, or maintenance of electrical systems, electrical technicians, inspectors, safety personnel and other employees responsible for the operation and maintenance of electrical systems in a commercial, industrial, institutional setting.

You Will Be Able To:
Gain an understanding of the new CSA Z463 electrical maintenance guidelines.

Electrical Maintenance as Part of a Quality Management System

Objective:

SUBTOPICS:

- Requirements for an Electrical Maintenance Management System
- Effective maintenance management systems
- Electrical Manufacturing Standards
- Application of Installatin & Design Standards
- Maintenance Requirements
- Operating Conditions
- Drawings and Documents

Maintenance Practices

Objective:

SUBTOPICS:

- Safe Work Practices
- Introduction to Maintenance Strategies
- Importance of Selecting a Proactive Maintenance Strategy
- Reactive Maintenance
• Preventive Maintenance Approach (Time Based Maintenance)
• Predictive Maintenance Approach (Condition Based Maintenance)
• Reliability Centered Maintenance Approach
• Risk Based Maintenance (RBM) Approach

**Electrical Maintenance as Part of a Workplace Safety**

**Objective:**

**SUBTOPICS:**

• Examples of Safety Impacts due to Lack of Maintenance
• Effects of Lack of Maintenance on Hazard Identification
• Risk Assessment for Maintenance activity planning
• Electrical Equipment Inspections
• Factoring aging of equipment
• Incorrect Protection Settings
• Competency Qualifications & Skill Level of Workers
• Electrical contractor safety
• Qualification of testing equipment
• Tools, Procedures, Enforcement

**Emergency Preparedness**

**Objective:**

**SUBTOPICS:**

• Electrical personnel duties and responsibilities in the Maintenance of Emergency Equipment and Systems
• Emergency shutdown of Facility Electrical Systems
• Post Electrical Emergency Actions, Repairs & Restoration
• Electrical Emergency Systems and Associated Equipment
• Electrical Maintenance Management for the Safety of Personnel

**Energized Maintenance Practices**

**Objective:**

**SUBTOPICS:**

• Energized Testing Methods
• Infrared Scanning/Thermography
• Acoustics/Ultrasound, Corona Imaging
• Partial Discharge
• Oil Analysis, Vibration Analysis, Motor Current Signature Analysis
• Specialized Electrical Cleaning
• On-line Condition Based Maintenance Strategies
• De-energized Maintenance Methods
• Creating Safe Conditions for Work on De-energized Equipment
• Frequency of De-energized Maintenance tasks
• Power Distribution Switchgear
• Medium Voltage MCC, Low Voltage MCC
• Protective Relays
• Transformers
• UPS Systems
• Emergency Standby Generators, Prime Power Generators
• Large and Small Electric Motors

**Maintenance of Equipment in Hazardous Locations**
Objective:

SUBTOPICS:

- Installation and Commissioning
- Maintenance and Inspection
- Periodic Hazardous Location Inspections
- Removal of power sources procedures for hazardous locations

Testing

Objective:

SUBTOPICS:

- Electrical Tests, Mechanical Tests, Equipment Tests
- System Tests, Test Results
- Energization of Equipment

Equipment-Specific Maintenance Practices

Objective:

SUBTOPICS:

- Switchgear, Transformers, Cables
- Disconnect Switches & Circuit Switches
- Circuit Breakers
- Network Protectors, Protection, Control, and Metering Devices
- Instrument Transformers
- MCCs (Motor Control Centers)
- Adjustable Speed Drives (ASD)
- Direct Current Battery Systems
- Surge Protection Devices
- Power Factor Correction (PFC) Capacitors
- Emergency Systems, Engine Generators
- Communication Systems

Specialized Equipment Maintenance

Objective:

SUBTOPICS:

- Supervisory Control and Data Acquisition (SCADA)
- Programmable Logic Controllers (PLC)
- Alarms, Signals, and Communication Systems
- Telecommunication, Radio, and Television Towers
- Surveillance and Security System
- Fire Alarm and Fire Detection Systems
- Lighting, signs, and outline lighting, Emergency lighting
- Airfield Lighting Maintenance
- Mining Equipment