
HIGH VOLTAGE SAFETY OPERATING PROCEDURES FOR ENGINEERS AND TECHNICIANS



YOU WILL LEARN HOW TO:

- Demonstrate approved ways of operating and earthing high voltage equipment to ensure safety of personnel at all times.
- Identify safe and unsafe working conditions
- Identify requirements for a responsible person or appointed operator
- Demonstrate a fundamental knowledge of the documentation required for Occupational Safety Acts
- Perform live chamber and limited access procedures

WHO SHOULD ATTEND:

- Electrical engineers
- Project engineers
- Design engineers
- Instrumentation and design engineers
- Electrical tradespeople
- Electrical technicians
- Field technicians
- Electricians
- Plant operators
- Staff visiting or working in hazardous areas

The Workshop

Safety should be the first consideration for anyone working with electricity, especially high voltage. This course introduces participants to all aspects of the procedures required for ensuring safe work in any job involving high voltage.

Pre-requisites

Fundamental knowledge of electrical engineering and some experience with high voltage systems.

Practical Sessions

This is a practical, hands on workshop enabling you to work through practical exercises which reinforce the concepts discussed.



The Program

INTRODUCTION

- The requirements of a typical Safety Act with reference to employer and employee

PLANT SAFETY REGULATIONS IN PERSPECTIVE

- Identify industrial hazards
- Understand dangers and precautions
- Regulations awareness
- Identify basic duties/responsibilities of employers and employees
- Offences and penalties policy
- Protection against electrical hazards

DEFINITIONS AND BASIC SAFETY PRINCIPLES

- Official terminology
- Operating terms and their meanings
- Electric shock hazards
- Electrical arcing hazards
- Electrical insulation and its maintenance

FUNDAMENTAL PRINCIPLES

- Regulations and their purpose
- Operating regulations
- Fundamental principles that regulations are based upon
- Study the various dangers of electricity and the precautions to be taken to avoid these dangers
- High voltage operations and safety precautions

ISOLATION

- The meaning of isolation
- List the terms related to isolation
- Procedures of isolating a device
- Study breakers, links and switches and their uses

REASONS FOR EARTHING

- What is earthing?
- Earthing arrangement families
- The unearthed system
- The properties of safe earth connections
- The dangers of inadequate earth connections
- The concepts of dead and alive
- Understand how the apparatus can be accidentally alive
- Study the meanings of static charge and residual voltage
- List the reasons for earthing isolated apparatus

MAKING FEEDERS AND APPARATUS SAFE TO WORK ON

- Minimum earthing requirements
- Additional earths
- The procedure of work on a cable feeder
- The special provision for double circuit structures

THE WORK PERMIT SYSTEM

- Explain the purpose of the work permit system
- State the conditions under which a permit is not required
- List, in the correct order, the steps in issuing and clearing of a permit
- Explain the duties of a responsible person and the appointed operator, re the Workman's declaration
- Explain what the workman declares when he signs the workman's declaration

LIVE CHAMBERS AND PROHIBITED AREAS

- The meaning of live chambers and prohibited areas
- The locking of doors and gate
- Entry to live chambers and prohibited areas
- The security of keys
- State the conditions under which skilled and unskilled persons may enter live chambers and prohibited areas
- List the responsibilities of persons to whom keys have been issued

ABNORMAL CONDITIONS

- What is emergency switching?
- Testing high voltage equipment
- Managing the testing
- The precautions taken for high voltage testing

APPOINTED OPERATOR AND THE RESPONSIBLE PERSON

- Operative procedures
- Appointed operators and their duties and responsibilities
- The responsible person and his duties and responsibilities
- Supervision of work
- The reasons, prevention and investigation of accidents/incidents

LOCKOUT AND TAGOUT PROCEDURES

- Hazardous energy control
- The lockout method and lockout/tagout program
- The Lockout/tagout procedures and policies
- Common lockout devices
- LOTO implementation steps

TYPICAL ELECTRICAL MACHINERY REGULATIONS

- List the safety appliances
- Safety in switch gear and transformer premises
- Electrical control gear and switch board
- Electrical machinery in hazardous locations
- Study proper use and precautions while handling portable tools
- Portable electric lights and electric fences
- The clearance of power lines

FIRST AID AND ARTIFICIAL RESUSCITATION

- Electric shock
- The types of contacts
- The parameters which lead to shock
- The precautions to avoid shock
- First aid facilities within the work place
- Resuscitation and emergency procedures