

Electrical qualification in accordance with NF C 18-510

Electrical personnel performing LV, HV-A and HV-B qualification - Initial training

Credentials: B0, B1, B1V, B2, B2V, BE, BC, BR, H0, H0V, H1, H1V, H2, H2V, HE and HC

Ref. F1040E



Audience

Electrical operators performing electrical operations on ELV, LV, HV-A and HV-B electrical installations



Prerequisites

None set



Method

70% Theory / 30% Practical
Practising LV, HV-A and HV-B lockouts.
Electrical troubleshooting and measurements on LV installations



Duration

5 days



Capacity

4 to 12 trainees



Place

Aix-les-Bains



Objectives

- List the electrical risks and choose the prevention and protection methods
- Be fully familiar with the electrical safety regulations
- Safely perform LV, HV-A and HV-B electrical operations in accordance with standard NF C 18-510 and its amendments A1 and A2



Program

Electrical risks

- Statistics on accidents at work
- Electric shocks, electrocutions and burns
- Direct and indirect contact and principles of electrical protection

Definitions and standard NF C 18-510

- Labour Code, Criminal Code, Civil Code and electrical regulations
- Voltage ranges: ELV, LV and HV
- Definitions and authorisation credentials
- Operations by electrical environment
- Means of protection: PPE, tools and clearance zones

Electrical lockout

- Electrical lockout procedure
- LV electrical switchgear, documents and certificates

LV electrical tasks

- Supervisor in charge of general and basic tasks
- Troubleshooting and connections with voltage presence

Specific operations

- Specific operations supervisor
- Switching, measurements, verifications and testing
- Test platforms

Incidents and accidents on electrical structures

- Emergency procedures in the event of an electrical accident (PREFAS - Protect, Examine, Raise Alarm, Provide First Aid))
- Equipment for extinguishing a fire on an electrical structure (fire extinguishers)

Works on HV-A structures with power off

- HV-A electrical switchgear and functions
- PPE, VAV and earthing devices
- Principle of key interlocks and switching sheets

Works and operations on HV-B structures

- Specific features of HV-B risks
- Electrical lockout on HV-B switchgear using AIS and GIS technology
- PPE, CPE and VAV at HV-B
- Induction and capacitive phenomena
- Additional HV-B risks
- Analysis of a real accident at 110 kV

Practical training

- Practical training on an electrical installation with an HV-A delivery substation and 2 HV-A/LV satellite substations
- Analysis of electrical hazards during works
- Drafting and executing LV and HV-A lockout procedures
- Troubleshooting an LV device
- Carrying out electrical measurements and choosing safety equipment
- Electrical lockouts on 245 kV and 145 kV GIS substations
- Electrical lockout on a 400 kV AIS circuit breaker
- Role play between the works supervisor, the lockout supervisor and the operators



Trainer

CARSAT-certified trainer (France)

Experienced trainer on LV, HV-A, HV-B electrical switchgear, measuring devices, electromechanical equipment, protection and supervision systems



Assessment of prior learning

At the beginning of the training course, the participants are invited to express their expectations in order to confirm the match between their knowledge, their individual objectives and those of the training course (positioning rubric).

These expectations will be reviewed during a round table discussion in order to refine, if necessary, the training content and sequences.

Prior learning and skills are assessed via a theoretical MCQ and a practical assessment rubric.

At the end of the training, each trainee must complete a post-training feedback evaluation. At the end of the session, a certificate of attendance will be issued.

Electrical qualification in accordance with NF C 18-510

Electrical personnel performing LV, HV-A and HV-B qualification - Refresher course

Credentials: B0, B1, B1V, B2, B2V, BE, BC, BR, H0, H0V, H1, H1V, H2, H2V, HE and HC

Ref. F1041E



Audience

Electrical operators performing electrical operations on ELV, LV, HV-A and HV-B installations



Prerequisites

Be in possession of a valid credential



Method

70% Theory / 30% Practical
Practical implementation of electrical lockouts and tasks on LV, HV-A and HV-B installations.



Duration

3 days



Capacity

4 to 12 trainees



Place

Aix-les-Bains



Objectives

- List the electrical risks and choose the prevention and protection methods
- Be fully familiar with the electrical safety regulations
- Safely perform LV, HV-A and HV-B electrical operations in accordance with standard NF C 18-510 and its amendments A1 and A2



Programme

Refresher on electrical hazards

- Statistics on accidents at work
- Electric shocks, electrocutions and burns
- Direct and indirect contact and principles of electrical protection

Refresher on standard NF C 18-510

- Labour Code, Criminal Code, Civil Code and electrical regulations
- Voltage ranges: ELV, HV-A and HV-B
- Definitions and authorisation credentials
- Operations by electrical environment
- Means of protection: PPE, tools and clearance zones

Electrical lockout

- Electrical lockout procedure
- LV electrical switchgear, documents and certificates

LV electrical tasks

- Supervisor in charge of general and basic tasks
- Troubleshooting and connections with voltage presence

Specific operations

- Specific operations supervisor
- Switching, measurements, verifications and testing
- Test platforms

Incidents and accidents on electrical structures

- Emergency procedures in the event of an electrical accident (PREFAS - Protect, Examine, Raise Alarm, Provide First Aid))
- Equipment for extinguishing a fire on an electrical structure (fire extinguishers)

Works on HV-A structures with power off

- HV-A electrical switchgear and functions
- PPE, VAV and earthing devices
- Principle of key interlocks and switching sheets

Works and operations on HV-B structures

- Specific features of HV-B risks
- Electrical lockout on HV-B switchgear using AIS and GIS technology
- PPE, CPE and VAV at HV-B
- Induction and capacitive phenomena
- Additional HV-B risks
- Analysis of a real accident at 110 kV

Practical training

- Practical training on an electrical installation with an HV-A delivery substation and 2 HV-A/LV satellite substations
- Drafting and executing LV and HV-A lockout procedures
- Troubleshooting an LV device
- Electrical lockouts on 245 kV and 145 kV GIS substations
- Electrical lockout on a 400 kV AIS circuit breaker
- Role play between the works supervisor, the lockout supervisor and the operators



Trainer

CARSAT-certified trainer (France)

Experienced trainer on LV, HV-A, HV-B electrical switchgear, measuring devices, electromechanical equipment, protection and supervision systems



Assessment of prior learning

At the beginning of the training course, the participants are invited to express their expectations in order to confirm the match between their knowledge, their individual objectives and those of the training course (positioning rubric).

These expectations will be reviewed during a round table discussion in order to refine, if necessary, the training content and sequences.

Prior learning and skills are assessed via a theoretical MCQ and a practical assessment rubric.

At the end of the training, each trainee must complete a post-training feedback evaluation. At the end of the session, a certificate of attendance will be issued.

Electrical qualification according to NF C 18-510 HV-B electrical personnel – Initial or Refresher Training

Credentials: H0, H0V, H1, H1V, H2, H2V, HE and HC

Ref. F1040-1E/41-1E



Audience

Electrical operators performing electrical operations on HV-B installations



Prerequisites

For the initial training: be in possession of a valid HV-A credential
For the refresher training: be in possession of a valid HV-B credential



Method

60% Theory / 40% Practical
Practising a lockout on HV-B installations



Duration

1 day



Capacity

4 to 6 trainees



Place

Aix-les-Bains



Objectives

- List the electrical risks and choose the prevention and protection methods
- Be fully familiar with the electrical safety regulations
- Safely perform HV-B electrical operations in accordance with standard NF C 18-510 and its amendments A1 and A2



Program

Specific features of the HV-B range

- Voltage range (refresher)
- Specific and increased risks associated with the HV-B range
- Network and switchgear voltages
- Principles of protection against direct contact with HV-B installations

Works and operations on HV-B structures

- Operations by electrical environment (free field, overhead lines and electrical equipment rooms)
- Electrical lockout on switchgear using AIS and GIS technology
- PPE, CPE and VAV at HV-B
- Choice of earthing devices and earthing switches
- Induction and capacitive phenomena
- Additional HV-B risks
- Analysis of a real accident at 110 kV

Practical training

- Analysis of electrical hazards during works
- Drafting and executing HV-B lockout procedures
- Electrical lockouts on 245 kV and 145 kV GIS substations
- Electrical lockout on a 400 kV AIS circuit breaker
- Role play between the works supervisor, the lockout supervisor and the operators



Trainer

CARSAT-certified trainer (France)

Experienced trainer on LV, HV-A, HV-B electrical switchgear, measuring devices, electromechanical equipment, protection and supervision systems



Assessment of prior learning

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