Demonstrate knowledge of entry into restricted areas in an electrical supply environment

US 17026

Training and Assessment Resource

NCES Level 2

Electricity Supply Industry Training Organisation

www.esito.org.nz

Contents

Introduction to Training Assessment Resource

This Training Assessment Resource (TAR) contains the information that you require to complete the written assignment in the assessment pack for this unit standard.

Purpose

> People who obtain credit for this unit standard are able to, in an electricity supply environment:

> Identify the requirements for entry into a restricted site

> Demonstrate knowledge on an electricity supply site of health and safety requirements and procedures

> Demonstrate knowledge of on-site workplace practices covered by entry approval

> Enter and exit a restricted site

> Demonstrate knowledge of on-site emergency procedures

1. Introduction

The Electricity Supply Industry (ESI) in New Zealand has a high degree of regulation in the requirements for entering areas that have restricted access. These are areas that are particularly dangerous to the general public and also to electrical workers required to carry out installation and maintenance work in these areas.

This resource is only a guide towards completion of the unit standard and should be used in conjunction with the Safety Manuals – Electricity Industry (SM-EI) Part 1 Minimum Safety Requirements, Part 2 General Safety Guide and Part 3 Rules for Work on Equipment.

Examples only of documentation used in this TAR have been provided. You should be familiar with the documentation used by the company you are working with.

Important Note: A pass in this unit standard does not allow the trainee to enter restricted areas without complying with the asset owner's policy approval procedures and the issuing of appropriate documentation.

Activity

Read SM-EI, Part 1, Section 3: 1.302 – Control of Entry and 3.301 – Control of Work

Summarise in your own words what these sections mean

2. Site Entry and Exit Procedures (SM-EI Part 1 Section 3)

You should be very familiar with 1.301 – Control of Entry and 3.301 Control of Work. A person is required to complete the requirements that are applicable to the asset owner of the network facility or the contractor carrying out the work.

Examples only of the types of control that is placed on entry into restricted areas is shown in these notes. All employees and contractors are to be adequately introduced to the particular procedures of a site or asset owner. This is required to meet the requirements of 1.301 which requires:

1. An appropriate level of authority to be held, and
2. Competency to enter or be under the direct and continuous supervision of someone who is competent

Activity

Provide a definition of a restricted area

2.1 Entry and Approval Certificates

Entry and Approval Certificates (EAC) are issued by a company to give entry approval to contractors and employees. They provide control over access to restricted areas with a formal approach to entry and departure.

Entry approvals to areas in the network are based on the requirements of the Electricity Regulations Compilation 2003 and the SM-EI 2004. The EAC allows a holder to carry out activities that do not present either; “A hazard to personal safety, or an operational risk to equipment”.

The Transpower definition of an EAC is:

A certificate issued by an employer to an employee which:

> Declares the holder as competent and having the authority to receive entry approvals.

> Defines the restricted areas the holder can enter.

> Defines any restrictions placed on the holder

Only a person holding a valid EAC, or having received entry approval training approved by the asset owner should be granted entry into a restricted area.

2.2 Competency Certificates

This certificate gives an endorsement to the type of work that a person is deemed competent to perform. These are updated as a person receives further training and becomes qualified in a particular area of work. This is recorded in a book or held in company records. Transpower terminology is an “Authorisation Holders Certificate” (AHC).

The Transpower definition is:

> Authorisation holder's certificate (AHC): A certificate issued by an employer to an employee which:

> Provides personal identification.

> Defines which authorisations the employee is competent to hold.

> Defines any limits on the type of work which can be carried out by the employee.

> Defines any limits on the places where the AHC applies.

Note: The standards for assessing competence are set by the equipment owner, and a certificate is valid only for a specified time. [SM-EI July 2004]

This certificate can be endorsed for a range of competencies depending on the training received. The certificate must be carried by the holder and made available on request.

Example of a wallet sized competency certificate.

2.3 Work Authority Certificates (WAC)

A work authority is required for work on or near network plant and equipment to ensure the security of the network. Some examples of the type of work are:

- Entry into a switchyard with a vehicle;
- Climbing in a switchyard;
- Tree trimming;
- Drilling holes in protection panels;
- Pulling communication cables through protection panels;
- Straightening poles supporting high voltage lines.

It is a certificate, issued by an employer, to an employee which:

- Declares the employee competent to hold a work authority,
- Defines the equipment the employee can work on or near, and the type of work the employee can carry out

Work Authority Certificate

Unendorsed Company working in a live Substation

Contractor/Company Name

Person in Charge

Full Name (please print) | Position

Personnel working on site

Name	Access Accreditation Level	Name	Access Accreditation Level

Site Name/Structure Number or Address

Site Access: Substation ☐ Radio hut ☐ Tower Anti-Climb ☐

Purpose of permit (state nature of work)

Work area defined by Switching Officer

Special precautions

SAMPLE

By signing this agreement the Contractor agrees:

- Hazard identification and safety instruction provided to all personnel listed.
- Work to be completed only in work area as defined by yellow rope, or other approved means.
- This permit will cover only personnel listed on this form.
- Special precautions relating to this site have been provided.
- Any break in continuity of work for more than five (5) working days voids this permit.
- On completion of work this Entry Permit must be returned immediately to the Authorising Officer.
- To be authorised by the company to approve and be responsible for the above requirements

Contractor Signature

Office Use Only Sign Off & Checklist

Authorising Officer (print name) | Position

Example of a Work Authority Certificate.

2.4 Network Security

Entry into restricted facilities is under the control of the System Controller. The reasons are for personnel safety and the operational security of the system. Only persons holding an EAC can obtain entry approval from a System Controller for entry into these areas.

Each visit to the area will require approval from the system controller.

3. On-site Workplace Practices

All hazards identified in the work place are to be reported on a special “Hazard Identification Form”. These are required to be completed and signed by all persons participating in a particular job.

Before entering a restricted area the requirements for Personal Protective Equipment (PPE) must be observed.

HEALTH, SAFETY & ENVIROMENTAL HAZARD IDENTIFICATION RECORD

The purpose of this procedure is to ensure that each staff member understands the job to be undertaken and to identify work hazards on site.
Staff must determine whether hazards can be ELIMINATED, ISOLATED or at the very least, MINIMISED
If a hazard cannot be effectively minimised, the work activity must not take place.

FULL PHYSICAL ADDRESS OF JOB/SITE: JOB No.

PERSON IN CHARGE: DATE:

WORK PARTY DETAILS			New Hazards	
Name	Task/Responsibility	Signature	No's	Initial

CONTINUE WORK PARTY DETAILS OVERLEAF ON HAZARD EXTENSION FORM IF REQUIRED

HAZARD IDENTIFICATION AND CONTROL			
If new Hazards are found during the job identify on hazard extension form and add the controls		Eliminate	= E
		Isolate	= I
HAZARD	METHOD OF CONTROL	Minimise	= M

Example of a Personal Protective Equipment (PPE).

3.1 Minimum Approach Distances (MAD)

The minimum approach distances for employees approaching exposed live equipment is clearly defined in SM-EI 3.703 and for mobile plant and equipment in SM-EI 3.712. It is important to be very familiar with these requirements.

When working near live equipment all moves should be well planned and adequate safety observation in place. When carrying any materials such as ladders and long poles in these areas particular attention needs to be given. Aerials on vehicles can be a hazard.

Workers must remain aware of these minimum approach distances and remain alert at all times. The operator must back away if advised by observers that the minimum approach distance has been compromised.

Activity

Read through SM-EI, 3.703 and 3.712 and answer the following questions when approaching exposed live equipment:

What is the minimum approach distance for a safety observer?

What is the minimum approach distance for a vehicle?

What is the minimum approach distance for a ladder?

3.2 Carbon Dioxide Gas (CO_2) Concentration

Some ESI facilities such as substations and power stations have an automatic device which floods the building with CO_2 gas in the event of a fire or explosion. Sometimes this is related to a large item of plant or equipment. Refer to SM-EI 3.903.

These areas can be extremely dangerous in situations where gas can be released while workers are in the confined area. When working in these areas it may be a requirement to isolate the gas by mechanical or electrical means.

The Control Centre must be notified prior to entry and after departure in each instance and when the gas is isolated they should issue that instruction.

Symptoms of CO_2 poisoning

Physical symptoms of CO_2 poisoning vary, depending on the amount of CO_2 in the bloodstream. The higher the concentration, the greater the danger.

Mild Exposure	Medium Exposure	Severe Exposure
> Slight headache > Nausea > Vomiting > Fatigue > Flu-like symptoms	> Severe headache > Drowsiness > Confusion > Rapid heart rate	> Unconsciousness > Convulsions > Cardiac/respiratory failure > Death

Activity

What would you do if you heard the emergency siren/alarm when you were working in a restricted area?

Next Steps

Well done! You have completed the training assessment resource for Unit Standard 17026 – Demonstrate knowledge of safe entry into restricted areas in an electricity supply environment.

When you are ready to complete your assessment tasks, please contact your assessor for instructions.

Model Answers to Activity Questions

Activity (page 4)

Read SM-EI, Part 1, Section 3: 1.302 – Control of Entry and 3.301 – Control of Work

Summarise in your own words what these sections mean

All persons who are required to enter a restricted area shall hold the appropriate level of authority in accordance with the asset owner's requirements and be competent or be under the direct and continuous supervision of a competent employee.

Stations and any restricted areas shall be secured against unauthorised access entry at all times.

Activity (page 5)

Provide a definition of a restricted area

An area or enclosure containing equipment that could cause serious harm e.g., a switchyard.

Activity (page 10)

Read through SM-EI, 3.703 and 3.712 and answer the following questions when approaching exposed live equipment:

What is the minimum approach distance for a safety observer?

See Rule 2.1201 or reduced as rule 3.703

What is the minimum approach distance for a vehicle?

See Rule 2.905 4 metres or reduced as per rule 3.712

What is the minimum approach distance for a ladder?

See Rule 2.1201 or reduced as rule 3.703

Activity (page 11)

What would you do if you heard the emergency siren/alarm when you were working in a restricted area?

Evacuate the area by the closest exit and assemble at the evacuation point.