Electricity at Work

SITES & SERVICES

1. Introduction

This procedure describes the control systems necessary for sites to ensure that electrical equipment under their control is procured, operated and maintained so as to present no risk to the safety of employees and others who might be on a Veolia site. It assigns responsibilities for the control of safe systems, safe places of work and is the minimum requirements for all sites to ensure legal compliance.

2. Scope

This procedure shall apply to all electrical systems under the control of Veolia.

The Manager (see Definitions) shall ensure a number of key objectives are implemented:

- ensuring proper authorisation of designated work
- ensuring that all electrical systems are adequately designed, installed, operated and maintained by competent persons;
- ensuring that electrical systems are subject to periodic inspections and maintenance.
- Ensuring that safe systems of work are in place whenever work is to be carried out on electrical systems or electrically powered equipment.
- ensuring that only competent persons/organisations are engaged in work activities, or are under such degree of supervision as may be appropriate having regard to the nature of the work.

Such procedures/works instructions must be approved in line with System Procedure SYS/2/005 Document Control and Records Management.

3. References

UK Legislation and Guidance

Electricity at Work Regulations 1989
Electricity at Work – Safe Working Practices (HSE) HSG 85
Electrical test equipment for use on low voltage electrical systems – HSE Guidance GS38
BS 7671: IET Wiring Regulations (Current Edition)

Irish Legislation and Guidance

The Safety Health and Welfare at Work (General Application) Regulations 2007 Part 3: Electricity

UK&I Veolia Policy and Procedures

Appointment of Persons to Work on Electrical Systems
Workplace Equipment
Personal Protective Equipment Procedure

4. Definitions

Competent Person: A person who has the necessary Technical Knowledge or Experience, to carry out the proposed range of activities on the various categories of electrical equipment.

Technical knowledge or experience: The scope shall include:

- adequate knowledge of electricity;
- adequate experience of the electrical work being carried out;
- adequate understanding of the system to be worked on and practical experience of that class of system;

- understanding of the hazards which may arise during the work and the precautions which need to be taken
- the ability to recognise at all times whether it is safe for work to continue.

The Manager: Where used within this procedure refers to the manager with direct responsibility for the Site/Contract/Location/Department/Portfolio of sites regardless of actual job title.

Location: Within this procedure, location is used for the appropriate office e.g. Service Centre, Operational Site, Department etc. for which Veolia has responsibility.

Danger: Means risk of **injury**

Injury: Means death or personal injury resulting from electric shock, electric burn, electrical explosion or arcing, or from fire or explosion initiated by electrical energy, where any such death or injury is associated with the generation, provision, transmission, transformation, rectification, conversion, conduction, distribution, control, storage, measurement or use of electrical energy

High Voltage (HV) A Voltage above 1,000V AC or 1,500V DC between live conductors, 600 V AC or 900 V DC between a live conductor and earth;
Note: The Republic of Ireland defines a voltage between 1000V AC and 38000V AC as **Medium Voltage**, greater than 38000V AC as High Voltage. For clarity, within this procedure High Voltage takes it's UK & NI definition above

Low voltage (LV) A Voltage greater than Extra Low Voltage but not exceeding 1,000V AC or 1,500V DC between live conductors, 600 V AC or 900 V DC between a live conductor and earth

Extra low voltage (ELV) Voltage not exceeding 50 V AC or 120 V DC between conductors or from conductors to earth (ELV).

Electrical System: Definition Electricity at Work Regulations (1989). The term 'system' includes all parts of a system, e.g. conductors and electrical equipment in it, and is not a reference solely to the functional circuit as a whole.

Live: Equipment that is at a Voltage because it is directly connected to a source of electrical energy

Charged: Equipment that is at a Voltage either because it is Live or has retained or regained that Voltage even though it is disconnected from the rest of the Electrical System.

Dead: Neither Live nor Charged

Isolation: Isolation, where referred to in this document, is the **Disconnection** and **Separation** of the electrical equipment from all sources of electrical energy in such a way that the **Disconnection** and **Separation** is **Secure**.

5. Procedure

5.1 Maintaining and Operating the Electrical Systems

Where danger will result from an unauthorised access, Electrical Systems shall be secured so as to prevent such danger.

5.1.1 For ELV and LV electrical systems

Maintenance of the electrical system shall be undertaken to ensure such systems remain fit for purpose and safe for use. Defects identified during maintenance shall be addressed by competent persons who have been authorised in writing to do so. Maintenance records shall be kept and held until superseded. Frequency of maintenance will be determined by usage and environmental conditions. In all instances this shall not exceed 5 years. The frequency of fixed installation inspection and testing shall be in accordance with BS7671 and current best practice.

5.1.2 For locations with HV systems (includes MV for RoI)

A planned maintenance programme shall be in place in line with the relevant Standards, and/or manufacturer's recommendations which may be set higher.In all instances this interval shall not exceed 4 years.
Maintenance records shall be kept and held until superseded.

Access to HV systems must be for authorised personnel only and shall be secured.

5.2 Portable Electrical Tools and Appliances

Hand held electrical tools should operate at a maximum of 110 Volts AC. Where this is not possible, a suitable and sufficient risk assessment must be in place.

The Manager shall ensure an equipment register is maintained, listing all portable electrical tools and appliances, showing the new date, last/next full test dates, frequency and pass/fail status of each item. The frequency of portable appliance testing is determined by risk assessment in accordance with the current Code of Practice - suggested frequencies can be found in the appendix to this procedure.

It is the responsibility of all users of electrical equipment to carry out a visual inspection of each item every time before use. If there are any signs of damage the item must be removed from service and reported to The Manager. Repairs must only be undertaken by a person competent and authorised in writing to carry out such repairs.

5.3 Modifying the Electrical System

The Manager of the location shall ensure that all modifications or additions to the electrical system are designed, and installed in accordance with all relevant standards and regulations and are fit for purpose. Documentation shall be updated to record all changes to the system in compliance with the Management of Change Procedure.

In all instances the new installation shall be inspected and tested before being energised and appropriate certification produced.

5.3.1 For Modifications or Additions to HV Systems (includes MV for RoI)

This work shall be carried out by suitably HV trained and authorised Veolia staff or Veolia approved contractors.

5.3.2 For Modifications or Additions to ELV and LV Systems

This work shall be carried out by suitably trained and authorised Veolia staff or Veolia approved electrical installation contractors.

5.4 Means for Cutting off the Supply and for Isolation,

Where necessary to prevent danger, a suitable means (including, where appropriate, methods of identifying circuits) shall be available for –

(a) cutting off the supply of electrical energy to any electrical equipment; and
(b) the isolation of any electrical equipment.

Means for cutting off the supply and for isolation may not apply to electrical equipment which is itself a source of electrical energy, such as a battery, but, in such a case , precautions shall be taken to prevent, so far as is reasonably practicable, danger.

5.5 Live Working and Testing

No person shall be engaged in any work activity on or near any live conductor (other than one suitably covered with insulating material so as to prevent danger) that danger may arise unless-
(a) It is unreasonable in all the circumstances for it to be dead; and
(b) It is reasonable in all the circumstances to be at work on or near it while it is live; and
(c) Suitable precautions (including where necessary the provision of suitable protective equipment) are taken to prevent injury.

If live testing / working is necessary, a suitable and sufficient risk assessment must be produced by the person performing the task or by a competent person, which justifies the work against the regulations as follows:

5.5.1 LV Systems

Testing ‘Live’ may only be considered where it is not practical to carry out sufficient testing on ‘Dead’ LV circuits. Testing ‘Live’ shall only be carried out by authorised competent persons. Any subsequent remedial work must be carried out with the circuits isolated and ’Dead’.

Live work on battery banks, UPS and standby generating sets must only be undertaken by authorised competent persons.

5.5.2 HV Systems (includes MV for RoI)

Testing of ‘Live’ HV Apparatus shall only be used for the purpose of voltage phase checking of circuits and primary injection testing. Testing shall only be carried out by Veolia HV Authorised Persons (see Appointment of Persons to Work on Electrical Systems Procedure) or a Veolia Approved Contractor. Any subsequent remedial work must be carried out with the circuits isolated, earthed and ’Dead’.

5.5.3 Extra Low Voltage

Extra Low Voltage (ELV) systems may be worked on live by authorised competent persons because of the reduced potential levels and fault currents inherent in the circuit power supplies. The competent person must take adequate precautions to avoid any potential electrical hazards that may arise taking into the account the environment in which they are undertaking the activity

5.6 Decommissioned Equipment

Before electrical equipment is decommissioned, dismantled or abandoned for any reason, it shall be disconnected from all sources of electrical energy and effective steps taken to ensure that it is isolated. Isolations shall be suitably marked.

5.7 Provision of protective equipment, information and tools

The manager is responsible for ensuring that any protective equipment and tools provided are suitable for the task, used correctly and maintained in a safe condition The Manager shall ensure that relevant information, such as electrical drawings and operations & maintenance manuals, are available.

5.8 The Appointment of Persons to Work on Electrical Systems

The Appointment of Persons to Work on Electrical Systems procedure defines how Veolia will meet its statutory obligations with respect to the appointment of persons who operate, isolate and or test electrical systems and equipment, and identifies the key roles and responsibilities to ensure that all persons who carry out these roles and duties at Veolia Sites are competent and appointed to do so.

Only Veolia Approved electrical contractors shall be used.

6. Variation

None.

7. Documentation

Reference No	Title	Minimum Retention Period
UKI/RA/008/001	Portable Appliance Inspection and Test Frequencies	n/a