PR-NET-OSM-081

RESPONSE TO LOW CONDUCTOR REPORTS

OPERATIONAL SAFETY MANUAL - SECTION 12.10

Scottish & Southern Electricity Networks

	Name	Title
Author	N/A	Distribution SHE Team
Checked by	Peter Vujanic	Head of SHE Distribution
Approved by	Richard Gough	Designated Engineer

CONTENTS

1 Introduction

1.1 The purpose of this **Approved** Procedure is to provide guidance and requirements for responding to reports of low Conductors or wires.

1.2 Such incident reports are normally received by the **SSEN-D** Customer Contact Centres and can be made by **SSEN-D** field staff, **SSEN-D** contractors, members of the **Public** or the emergency services.

2 Scope

2.1 The scope of this document applies to:

- Low **Conductors** or wires in the air or on the ground that are owned/operated by **SSEN-D**, which are either below or believed to be below statutory height
- Distribution **System** Overhead Lines
- Low **Conductors** as a result of failure or as a result of temperature rise/loading.

2.2 The scope does not apply to:

- Reporting requirements under **ESQCR** Regulation 31, see PR-NET-OSM-078 Reporting Requirements for Electricity, Safety, Quality, and Continuity Regulations - Operational Safety Manual - Section 12.7.

2.3 This **Approved** procedure is applicable to all persons employed by or working on behalf of **SSEN-D.**

3 References

The documents detailed in Table 3.1 - Scottish and Southern Electricity Networks Documents, and Table 3.2 – External Documents, should be used in conjunction with this document.

Table 3.1 - Scottish and Southern Electricity Networks Documents

Reference	Title
PR-NET-OSM-006	SSEN Distribution Operational Safety Rules – Operational Safety Manual – Section 1.1
PR-NET-OSM-028	Switching Terminology and Approved Abbreviations - Operational Safety Manual - Section 4.4
PR-NET-OSM-043	Access to Substations and Switching Sites - Operational Safety Manual – Section 6.1
PR-NET-OSM-075	Ensuring Public Safety Whilst Operating or Working on the System - Operational Safety Manual - Section 12.2
PR-NET-OSM-078	Reporting Requirements for Electricity, Safety, Quality, and Continuity Regulations - Operational Safety Manual - Section 12.7
WI-NET-OSM-002	Personal Protective Equipment and Workwear for Live Environments

Table 3.2 – External Documents

Reference	Title
ESQCR	Electricity Safety, Quality and Continuity Regulations 2002 (as amended)

4 Definitions

4.1 The words printed in bold text within this document are either headings or definitions. Definitions used within this **Approved** Procedure are defined within the list presented immediately below, or within section 2 of the **Operational Safety Rules**.

4.2 **ESQCR**

Electricity Safety, Quality and Continuity Regulations 2002 (as amended).

4.3 **HSE**

Health and Safety Executive.

4.4 **Operational Safety Rules (OSR)**

The **SSEN-D** set of rules, as read with related documents and procedures, that provide generic safe systems of work on the **System** therefore ensuring the health and safety of all who are liable to be affected by any **Danger** that might arise from the **System**.

4.5 **Public**

General **Public**, customers, emergency service personnel and site visitors.

4.6 **RIDDOR**

Reporting of Injuries, Disease and Dangerous Occurrence Regulations 2013 (as amended).

5 General Responsibilities

5.1 Persons who are required to operate and undertake work on the **System**, **Shall** have a thorough understanding of the work and ensure on-site risks are suitably assessed and appropriate control measures put in place before, during and after all activities.

5.2 Persons **Shall** ensure that, at all times during the work (or associated testing), **General Safety** arrangements are maintained and that other work areas are not adversely affected by the activities for which they are responsible.

6 Authorisation

6.1 It **Shall** be the responsibility of the individual to ensure that any actions performed are within the bounds of their competency and authority level.

6.2 Competence and Authorisation certificates **Shall** be retained personally and be made available upon request.

7 Personal Protective Equipment

7.1 Persons who are required to work on or near the **System Shall** wear suitably **Approved** Personal Protective Equipment (PPE). Furthermore, where warning labels or labels that identify a particular hazard exist, additional and appropriate PPE **Shall** be worn.

7.2 As a minimum, PPE **Shall** meet the requirements of WI-NET-OSM-002.

8 General Requirements

8.1 Reports of Low Conductors

8.1.1 Reports, which can be from **SSEN-D** employees, contractors or third-parties, such as emergency services or members of the **Public**, are normally received by the **SSEN-D** Customer Contact Centres.

8.1.2 Customer Contact Centre employees are trained to handle emergency calls. Clearly it is vitally important that the Call Advisor obtains accurate information, especially the location of the incident, from the caller, as this data **Shall** be used not only to inform any **System** decisions required to be taken by the **Control Engineer**, but also to facilitate the rapid deployment of **SSEN-D** employees to the site.

8.1.3 It is expected that reporting by **SSEN-D** employees and the emergency services **Shall** be concise and accurate, however, additional information might still be required.

8.1.4 The quality of information provided by a third-party, which is the most common situation, will inevitably be variable. Callers are likely to require careful and patient questioning to ensure that the information is not misleading or incorrect.

8.1.5 To support the Customer Contact Centre Call Advisors in obtaining the most appropriate information, a list of questions in Appendix A, should be used when logging reports of low **Conductors**, which are designed to provide a uniform approach and also to act as an aide-memoir.

8.1.6 The person making the call **Shall** be advised to:

- Remain at the location, if at all possible, until a **SSEN-D** representative arrives
- Keep a safe distance away from the low **Conductor**, bearing in mind a broken **Conductor** on the ground, if re-energised, could move significantly and quickly
- Warn other employees or members of the **Public** not to approach the low **Conductor**

8.1.7 Once appropriate information has been obtained from the caller, the Customer Contact Centre **Shall** immediately inform the **Control Engineer** of a low **Conductor** incident, as there might be a significant risk of death or injury if inadvertent contact with **Live Conductors** is made.

8.2 Death and Serious Injury

8.2.1 Should the low **Conductor** event lead to the death or injury of an employee of **SSEN-D**, it Shall be reported to **HSE** under **RIDDOR** only, in accordance with the Approved procedure PR-NET-OSM-078 Reporting Requirements for Electricity, Safety, Quality, and Continuity Regulations - Operational Safety Manual - Section 12.7.

8.2.2 Deaths and injuries to members of the **Public** attributable in whole or in part to contact with a low **Conductor**, **Shall** be reported to the **HSE** in accordance with the **ESQCR** and **Approved** procedure PR-NET-OSM-078 Reporting Requirements for Electricity, Safety, Quality, and Continuity Regulations - Operational Safety Manual - Section 12.7.

8.3 Overhead Lines below Statutory Height

8.3.1 Any event which leads to an overhead line being below statutory height, e.g., a line brought down during a storm, broken or damaged poles etc, **Shall** be reported in accordance with the **Approved** procedure PR-NET-OSM-078 Reporting Requirements for Electricity, Safety, Quality, and Continuity Regulations - Operational Safety Manual - Section 12.7.

8.3.2 Any event that gives rise to a significant risk of death **Shall** also be reported in accordance with the **Approved** procedure PR-NET-OSM-078 Reporting Requirements for Electricity, Safety, Quality, and Continuity Regulations - Operational Safety Manual - Section 12.7.

8.3.3 Examples of events that involve significant risk of death include:

- Lines below statutory height over roads
- Lines below statutory height over commercial or domestic premises and associated surrounds, e.g., car park, school field etc
- Lines below statutory height where people are known to be present, e.g., field used for an event or camping site when the activity is taking place

9 Danger to the Public

9.1 Both members of the **Public** and livestock might be at risk of burns or electrocution due to contact with **Live Conductors** at both **High Voltage** and **Low Voltage**.

9.2 **Danger** to the **Public** and livestock from low **Conductors** might typically be caused by issues such as broken or damaged poles, damaged buildings to which **Conductors** are attached, vehicle impact with poles causing the pole to lean or break, high temperatures or loads causing the **Conductors** to sag, lack of awareness in agricultural or industrial installations where tall vehicles are utilised, such as tipper trucks, lorry mounted cranes or “Combines”.

9.3 In certain situations, low **Conductors** can be difficult to see due to their small size. At night, facing bright sunlight or at dusk, there is a high risk that a low **Conductor** could not be seen, and inadvertent contact will be made.

9.4 Specific areas which pose a particular risk to the **Public** include:

- Urban and rural communities with **Low Voltage** overhead networks
- Rural paths and bridleways
- Recreational areas such as parks, sailing and fishing expanses
- Agricultural land both arable and grazing
- Stables and horse riding or training establishments
- Rural industrial complexes such as quarries or construction sites
- Caravan parks

9.4.1 The elevated risk from a low **Conductor** reported in one of the specific areas above, **Shall** inform the decision by the **Control Engineer** whether to make **Dead** the **Conductor** immediately.

10 General Requirements to Ensure the Safety of the Public

10.1 The safety and welfare of all personnel, including the **Public**, **Shall** always take priority during any operational or work activities on the **System**.

10.2 During fault related work or operations, there might be a sense of urgency to minimise customer minutes lost but this must never take priority over the safety of personnel and the **Public**.

10.3 All persons involved with the operational response to low **Conductor** reports on the **System** **Shall**:

- Have the correct authorisation and training for the operational or work activities required
- Have received basic first aid training
- Have available an **Approved** first aid kit
- Wear and make use of the appropriate **Approved** PPE provided for their safety and protection

10.4 Any works or operations on the **System Shall** only be carried out in accordance with **Approved** Procedures and only after they have been fully risk assessed, considering any reasonably foreseeable hazards to staff and the **Public**. The risk assessment **Shall** be recorded (either on paper or electronically) and all members of the **Working Party Shall** agree and sign on to the risk assessment.

10.5 The risk assessment **Shall** consider the location and site-specific conditions. Examples requiring particular caution are:

- Adjacent to schools or playgrounds where young children might be at risk
- Recreational areas with large numbers of the **Public** nearby
- Busy roads with heavy traffic
- Construction sites with other contractors working nearby or sharing site access, etc

10.6 The risk assessment **Shall** be updated if conditions change during the works or operations. For instance, changes in weather could have an impact or the time of day could lead to an increase in the numbers of the **Public** in the area.

10.7 Work or operations on the **System Shall** not commence unless a risk assessment has been prepared and agreed, and the person in charge is in receipt of the correct **Safety Document** (if required) and has been personally instructed at the point of work by the **Senior Authorised Person** issuing the **Safety Document**, or the supervisor, as appropriate.

10.8 During operations or works on any part of the **SSEN-D System** located in a **Public** area, members of the **Public Shall** be kept sufficiently far away from the activity such that, if a flashover or an explosion occurs, they will not be harmed.

10.9 All reasonably practicable steps (such as the use of barriers, fences, warning signs, lookout or watch person etc.) **Shall** be taken to exclude the **Public** from areas where operational or work activities are taking place on the **System**, even if the activity is being carried out on premises owned by a member of the **Public**, i.e., the customer.

10.10 Any barrier system employed to create an exclusion zone **Shall** be clearly visible and so designed such as not to create any additional significant hazard to staff or the **Public**, and **Shall** allow safe controlled access and egress for **SSEN-D** employees.

10.11 If works are to carry on for more than one day, care **Shall** be taken to make sure materials that could be of interest to thieves are not left in plain sight overnight or over weekends, so as to attract theft.

10.12 If operational or work activities are being carried out at height, then extra care **Shall** be taken to ensure any exclusion zone is large enough to ensure safety of **SSEN-D** employees and the **Public** from falling tools or other objects. It is important to consider that a falling object might be deflected outwards a considerable distance, if it were to strike another fixed object whilst falling. Further guidance on exclusion zones for working at height is given in the SHE Handbook

10.13 Any scaffolding used for work at heights **Shall** comply with the guidance in the SHE Handbook and all relevant current legislation, and **Shall** be **Earthed** if in close proximity to **Live Apparatus** to ensure the safety of **SSEN-D** employees and the **Public**.

10.14 Any defects on the **System** found which have the potential to reduce the security of any operational premises or equipment, **Shall** be immediately reported and rectified as soon as practicable.

10.15 The responsibility for the full and correct application of the requirements of this **Approved** Procedure sits with the operational person on site. Where there is more than one operational person on site, then the responsibility for compliance is held both individually and collectively.

11 Specific Responsibilities

11.1 Field Staff

11.1.1 The first **SSEN-D** employee or contractor on site Shall:

1. Make contact with the caller if possible, identifying themselves as an **SSEN-D** representative.
2. Assess any damage to the **Conductors** and supporting infrastructure whilst maintaining the **Safety Distance**.
3. Assess **Danger** to surrounding environment such as **Public**, livestock, vehicles, property, highways, railways, waterways etc.
4. Secure the area and ensure no third-party or member of the **Public** is in **Danger** or can deliberately or accidentally interfere with the low **Conductor**.
5. Make an assessment as to whether the low **Conductor** needs to be made **Dead** immediately or can be screened in such a way to prevent **Danger**.
6. Report back to the **Control Engineer** with observations.
7. Barrier off the affected site where possible.
8. Request additional site assistance if required.

11.1.2 If the **SSEN-D** employee or contractor attending the site is not **Authorised** to operate on the **System**, they **Shall** report the situation to the appropriate Dispatcher or **Control Engineer** and remain on site until the appropriate **Authorised** staff arrive to either effect a repair or make the damage safe.

11.1.3 Only in exceptional circumstances **Shall** the first attending **SSEN-D** employee or contractor leave the securing of the site to a third-party, e.g., leaving site to withdraw fuses or to communicate with the Dispatcher or **Control Engineer**.

11.1.4 On no account **Shall** fuses be replaced until the damage has been isolated, e.g., by cutting the **Conductor** as a temporary measure or making a permanent repair.

11.1.5 Where the hazardous situation is discovered by site visit, line patrol etc. and/or is the result of third-party activity, e.g., erecting a building under a **Live** overhead line, raising ground levels below an overhead line, then every attempt **Shall** be made to contact the third-party responsible and draw their attention to the hazard, issuing a Dangerous Situation Notice.

11.1.6 Once the site risk has been mitigated, the height of the low **Conductor Shall** be established by a **Competent Person**.

11.1.7 On completion of the incident, all details **Shall** be recorded and Reg 31 report submitted in accordance with the **Approved** procedure.

11.2 Field Staff Dealing with the Public on site

11.2.1 If necessary, field staff should take time to explain to members of the **Public** the reasons for any request to vacate a work area or retreat to a safe distance. The **Public Shall** be told that it is to safeguard them in the event of an unforeseen problem.

11.2.2 Where a member of the **Public** will not comply with reasonable requests to leave the work or operational area, then work or operations **Shall** be suspended, and the matter referred to the supervisor or manager for resolution. Under no circumstances **Shall** work continue if members of the **Public** are not considered to be at a safe distance.

11.3 Control Engineers

11.3.1 Following receipt of a low **Conductor** report, the **Control Engineers Shall** undertake a dynamic risk assessment to decide whether or not a circuit **Shall** be de-energised immediately by remote control or what alternative action to take. If the risk assessment determines that this alternative action is to delay de-energisation, then the priority **Shall** normally be for the first member of **SSEN-D** staff to arrive on site, to attend the incident and report details back to inform any decision.

11.3.2 The **Control Engineer Shall** be responsible for informing the relevant agencies which might be affected by or need to act in supporting **SSEN-D**, following a report of a low **Conductor**. These agencies include:

- Emergency Services
- Network Rail or ScotRail
- Highways England or Transport Scotland
- Canal and River Trust or Scottish Canals
- Environment Agency or Scottish Environment Protection Agency

11.3.3 There are two distinct situations for the **Control Engineer** to consider:

- Where protection has operated causing a circuit-breaker or pole mounted auto-recloser (PMCB) to trip and auto-reclose, where part or all of the circuit remains energised
- Where there has been no protection operation

11.3.4 Where Protection has operated, the **Control Engineer Shall** open the nearest available upstream device to de-energise the circuit remotely if:

- There is a subsequent report of low **Conductors** or sustained arcing
- The circuit location can be reasonably identified by the **Control Engineer**

11.3.5 Where no Protection has operated:

- The **Control Engineer Shall** decide whether or not to de-energise the circuit based on the information available considering the specific area and land use
- This situation with no protection operation is more difficult to assess. However, the **Control Engineer Shall** always adopt a cautious approach to the risk assessment that favours de-energisation but that accounts for the risk caused by disconnecting supplies. A **Control Engineer**'s action **Shall** always be respected for de-energising a circuit when presented with limited information that could lead to a dangerous situation

11.3.6 On discovery of a low **Conductor** by **SSEN-D** employees, the **Control Engineer** may decide to switch the circuit out in a controlled manner if the section is not exposed to the **Public** and can be adequately guarded by **SSEN-D** employees. This **Shall** minimise supply disruption.

11.3.7 A decision not to switch out a circuit **Shall** be accompanied by an appropriate risk assessment.

12 Revision History

No	Overview of Amendments	Previous Document	Revision	Authorisation
01	New document created	TBC	1.00	Richard Gough
02				

Appendix A Guidance to Call Advisors

1. **SSEN-D** Customer Contact Centre staff are trained to handle emergency calls. On receipt of a low or grounded **Conductor** (wire) report, the Call Advisor **Shall** request that the caller stays on site, if possible, to warn others, until **SSEN-D** staff arrive. The Call Advisor **Shall** then quickly obtain as much detailed information from the caller as possible and then **Shall** immediately inform the **Control Engineer**.

2. They **Shall** make every effort to obtain the caller's contact number, and then ask a series of questions designed to identify the site location and to determine the level of **Danger** present.

3. The Call Advisor **Shal**l include the following question topics:

Injuries (a priority):

a) Is anyone hurt, if so, have the emergency services been called?

b) Is anyone in immediate **Danger** of making contact with the **Conductors**?

c) Is a vehicle involved? If yes, what type of vehicle? (i.e., car, van, heavy goods, agricultural).

d) If a vehicle is involved, is anyone still in the vehicle?

NOTE: If the answer is Yes to any of the questions above, keep the caller on the line and inform the Shift Manager.

Incident location (needs to be accurate):

a) What is the address or postcode of the nearest property and an estimate of the distance and direction from the property to the incident?

b) If the address is unknown, please describe the locality, especially any distinctive landmarks or structures.

c) Use any available GPS data or positioning app (what3words).

d) Can a Grid reference number be provided that would assist in pinpointing the location?

e) Can a picture from a smart device be provided to assist in identifying the location and incident? (Consider the use of the "Start Report" function on the Power Track app)

Assessing Danger

a) Is the **Conductor** touching the ground?

b) If not, estimate how far the **Conductor** is above the ground.

c) Compare this with the height of a person, vehicle, pole, or anything that will provide perspective.

d) What is the type of surrounding land, e.g., field, playground, main road, **Public** park, river, railway etc)?

e) Are there any people and vehicles about, if so, how much activity is there?

f) Is the any flashing / sparking coming from the **Conductors**?

g) Are the structures supporting the **Conductors**, wood poles or steel towers/pylons?

h) How many **Conductors** are there attached to the structure?

i) Are the **Conductors** on the pole normally vertically or horizontally positioned? **SSEN-D** equipment, or someone else's (e.g., BT Open Reach)?

j) Are there small foot holds that run up either side of the pole to the top?

k) Is there a yellow '**Danger of Death'** sign attached to the pole?

In all instances:

a) Retain the callers contact telephone number and request a picture by text or email if possible.

b) Advise the caller not to approach any **Conductors**, even if someone is injured, until **SSEN-D** attend.

c) Ask caller if the area can be kept safe until **SSEN-D** attend site.

4. This list is not exhaustive but is designed to provide baseline information to **Control Engineers**, allowing them to make appropriate decisions quickly. Additional questions may be asked as appropriate during the conversation with the caller and any supplementary information **Shall** be provided to the **Control Engineer**.

5. Finally, it is important to record all answers provided by the caller.