

1. SCOPE

This Safety Instruction applies the principles established by the ScottishPower Safety Rules (Electrical and Mechanical) and **Company** Safety Instructions to achieve **Safety from the System** for personnel testing **High Voltage (HV) Apparatus** under a **Sanction for Test**.

2. ISSUE RECORD

This is a **Reference** document. The current version is held on the EN Document Library.

It is your responsibility to ensure you work to the current version.

Issue Date	Issue No.	Author	Amendment Details
October 1998	1		Initial Issue.
June 1999	2		Update.
September 2015	3	Phil Currie	General review and update. Additional Danger added. Section 11.9 changed to require test leads only to be connected or removed from earthed conductors, following issue of Express EXP-10-331 Incident: Wishaw 33kV Substation 8th December 2013.

3. ISSUE AUTHORITY

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4. REVIEW

This is a **Reference** document which has a 5 year retention period after which a reminder will be issued to review and extend retention or archive.

5. DISTRIBUTION

This Energy Networks' Safety Instruction is maintained by EN Document Control and is part of the ScottishPower Safety Rules which is published to the SP Energy Networks Internet site.

6. CONTENTS

1. SCOPE.....	1
2. ISSUE RECORD.....	1
3. ISSUE AUTHORITY	1
4. REVIEW	1
5. DISTRIBUTION.....	1
6. CONTENTS	2
7. DEFINITIONS	3
8. PLANT AND APPARATUS IDENTIFICATION	3
9. DANGERS	3
10. PREPARATION FOR TESTING.....	3
11. TESTING.....	4
12. COMPLETION OF TESTING	5

7. DEFINITIONS

Terms printed in bold type are as defined in the ScottishPower Safety Rules (Electrical and Mechanical).

8. PLANT AND APPARATUS IDENTIFICATION

Apparatus on which testing is to be carried out shall be readily identifiable or have fixed to it, a means of identification which shall remain effective throughout the course of the testing.

9. DANGERS

The main **Dangers** to personnel during the course of testing are electric shock, burns or physical damage arising from:

- (i) Inadvertent or erroneous contact with the **System** to which **Apparatus** is normally connected;
- (ii) Electrical energy and mechanical pressures and forces imposed by testing sources;
- (iii) Stored energy not adequately controlled.

10. PREPARATION FOR TESTING

- 10.1 The **Senior Authorised Person** shall confirm with the **Control Person** that there is no other **Safety Document** in force for the **Apparatus** on which he is to issue a **Sanction for Test**.
- 10.2 The **Apparatus** on which testing is to be done shall be **Isolated** and prepared for test. This preparation shall include:
- (i) The placing of **Danger Notices** on any **Apparatus** which may give rise to **Danger** and which will be in the vicinity of persons carrying out the testing;
 - (ii) Where reasonably practicable, the visible identification of the test area and its boundaries and limits in accordance with the principles laid down and the equipment detailed in PSSI 6. The **Authorised Person** in charge of testing shall ensure that "Danger - Testing in Progress" notices are attached in conspicuous positions inside the test area facing outwards, such that they will be seen by persons approaching the test area.
- 10.3 The test area shall be **Isolated** from all supplies other than those test supplies necessary to allow the testing to take place. The **Safety Keys** for those **Points of Isolation** which shall be maintained for the period of test shall be **Locked** in a **Key Safe**.
- 10.4 Before issuing a **Sanction for Test** the **Senior Authorised Person** shall ensure that **Primary Earth(s)** are applied to the **Apparatus** on which testing is to be carried out.
- 10.5 The **Sanction for Test**, the **Key Safe Key(s)** where appropriate and such **Safety Keys** as are necessary to enable the testing to be carried out, shall be issued to and received by the **Authorised Person** together with any necessary **Drain Earths**, and if applicable an associated **Earthing Schedule**.

11. TESTING

- 11.1 Under the terms of the **Sanction for Test** the recipient is responsible for all matters of safety concerned with the test and for the control function within the test area. To enable testing to be carried out he may, if specified on the **Sanction for Test**, remove, replace or instruct to be removed or replaced, **Primary Earths**. He may also operate, or instruct to be operated, **Apparatus** within the section of the **System Isolated** for testing. Minor work essential to the completion of testing may also be carried out under the **Sanction for Test** provided that **Safety from the System** is maintained.
- 11.2 Minor work, for the purposes of testing on mixed 33kV and 11kV cable and overhead line sections, may include the disconnection and reconnection of overhead line connections, provided such work is done under the **Personal Supervision** of the recipient of the **Sanction for Test**. The recipient of the **Sanction for Test** shall, at the point of work, identify the line to be worked on and shall verify that the line is not **Live** by the use of an **Approved** voltage indicator. The voltage indicator shall be tested immediately before and immediately after use. If from the point of work, the conductors can be seen to be **Earthed**, a voltage indicator need not be used. **Drain Earths** shall be applied as determined by PSSI 4 and these may be removed and replaced under the instructions of the recipient of the **Sanction for Test**.
- 11.3 If the testing requires access to overhead lines and towers, where applicable, **Circuit Identification** wristlets and flagsticks shall be issued and procedures carried out in accordance with PSSI 4.
- 11.4 Before test connections are applied to a conductor or test prods inserted in metal enclosed switchgear spouts, subject to the note below, an **Approved** voltage indicator shall, where practicable, be used to verify that the conductor or spouts are not **Live**. The voltage indicator shall be tested immediately before and immediately after use.
- Note: Where, under the conditions of issue of the **Sanction for Test**, an **Earthing Device** has been applied to the conductor or spouts, where the test connections are to be made, or test prods are to be inserted, an **Approved** voltage indicator need not be used.
- 11.5 The recipient of the **Sanction for Test** shall check the test prods immediately before and after use to ensure that there are no loose parts or signs of deterioration or damage.
- 11.6 Connections used for test purposes shall be of adequate size for the purpose and easily visible.
- 11.7 Test connections may be applied in a cell or cubicle only when all exposed conductors are **Isolated** from the **System**. However, **Approved** voltage measuring devices or **Approved** devices for phasing out circuits may be applied in a cell or compartment in which there is exposed metal which may be **Live** at **High Voltage**.
- 11.8 The application of the test supplies shall be done under the **Immediate Supervision** of the **Authorised Person** who has received the **Sanction for Test**.
- 11.9 **Apparatus** which is associated with a test and likely to have retained an electrical charge shall be discharged to earth before and after the application of the test supply. **HV** conductors, or test leads connected to **HV** conductors, shall be effectively discharged to earth and in the case of overhead lines and cables, a connection to earth established prior to touching. The earth connection may be a local wandering earth lead. Consider, during the risk assessment, whether the use of rubber gloves is necessary to minimise the risk of electric shock during the application and removal of test connections.
- 11.10 Where **Apparatus** is to have a test voltage applied to it and that **Apparatus** has a remote end that may be made **Live** by the test voltage, then the remote end of that **Apparatus** shall be safeguarded so as to prevent **Danger**.

11.11 If the remote end of the **Apparatus** which may become **Live** by the test voltage is readily accessible from ground level, i.e. is not within a **Locked** compartment or on a structure or tower, then it is the responsibility of the **Authorised Person** who receives the **Sanction for Test** to obtain confirmation that it is roped or barred off and under the control of an **Authorised Person** before a test voltage that may give rise to **Danger** is applied. It is the responsibility of that **Authorised Person** to ensure that any person, including himself, does not approach the **Apparatus** unless instructed to do so by the recipient of the **Sanction for Test**.

12. COMPLETION OF TESTING

The **Authorised Person** clearing a **Sanction for Test** shall:

- (i) Specify on the **Sanction for Test** all changes to the conditions of isolation and earthing originally specified on that **Sanction for Test**;
- (ii) Confirm on the **Sanction for Test** that all test connections and test prods (where applicable) have been removed.

The **Senior Authorised Person** cancelling the **Sanction for Test** shall advise the **Control Person** of any changes to the conditions within the **Isolated** zone and shall confirm to the **Control Person** that all test connections and test prods (where applicable) have been removed and that test access covers have been replaced (where applicable).