1. SCOPE

This Safety Instruction applies the principles established by the ScottishPower Safety Rules (Electrical and Mechanical) and the **Company** Safety Instructions to establish **Safety from the System** for personnel working on or testing **High Voltage** static capacitors.

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.
September 2015	2	Phil Currie	10.2 earths to be applied in accordance with an **Approved** procedure. 10.2 and 11.1 deal with situations where access cannot be gained to capacitor until **Safety Document** is issued e.g. due to interlocked enclosure.

3. ISSUE AUTHORITY

Author	Owner	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

7. DEFINITIONS

For the purpose of this document the following definitions apply:

Post Earths and *Rack Earths* are fixed or **Portable Earthing Devices** provided for the purpose of earthing and/or short-circuiting capacitor units or groups and the racks or frames supporting them. The earths may be single phase or three phase.

Note: The term *Rack Earth* includes frame earths.

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

8. PLANT AND APPARATUS IDENTIFICATION

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

9. DANGERS

The main **Dangers** to personnel from **HV** static capacitors are:

(i) Electric shock or burns from the discharge of electrical energy retained by the static capacitors after they have been **Isolated**;

(ii) Contamination by contact with Polychlorinated Biphenyl (PCB).

10. PREPARATION FOR WORK OR TESTING

10.1 The capacitors shall be **Isolated** from all sources of **HV** supply and **Primary Earths** applied between each **Point of Isolation** and the **HV** connections to the capacitor.

10.2 *Post Earths* and *Rack Earths* shall, where practicable, be applied to appropriate points including the following in accordance with an **Approved** procedure:

(i) The capacitor posts and racks or frames;

(ii) The common connection of each group of capacitors, where this is not achieved by (i) above.

Where it is not practicable (e.g. due to interlocked access arrangements or differing requirements in an **Approved** procedure) then *Post Earths* and *Rack Earths* shall be applied in accordance with section 11.1.

10.3 A **Permit for Work** or **Sanction for Test** shall be issued for the group or groups of capacitors on which work or testing is to be carried out. In addition to the positions of the **Primary Earths**, the **Safety Document** shall also record the positions of the *Post Earths* and *Rack Earths,* if applicable at this stage.

11. WORK OR TESTING

11.1 When required by an **Approved** procedure or when considered necessary by the **Senior Authorised Person** preparing the **Safety Document**, **Drain Earths** and, if not completed in section 10.2, *Post Earths* and *Rack Earths* shall be applied by, or under the **Personal Supervision** of the **Safety Document** recipient to earth the capacitor units at the point of work at the same time short-circuiting and bonding the units to the racks or frames.

11.2 When a disconnection is necessary, **Drain Earths** shall be applied on both sides of, and in close proximity to, the disconnection before it is done. These earths shall only be applied or removed by, or under the **Personal Supervision** of the **Safety Document** recipient.

11.3 Capacitor units to be removed shall be short-circuited and remain short-circuited once removed from the circuit.

11.4 When testing requires the removal of earths and special requirements to permit subsequent access to capacitors, these actions shall be carried out by, or under the **Personal Supervision** of the recipient of the **Sanction for Test**.

12. REMOVAL OR SPILLAGE OF PCB

Some capacitors contain PCB's therefore handling PCB's or PCB contaminated materials or substances shall be in accordance with **Approved** procedures.