

1. SCOPE

This document details the **Approved** procedure for work or testing on 33kV ring main units where the cable connected to the circuit breaker cable box remains **Live**, but the absence of a busbar earthing facility prevents the application of Basic Safety Rule A3, CSI 1 and OPSAF-10-003 (PSSI 3).

This procedure confirms in writing the **Approved** manner for work or testing to proceed in order to comply with General Provision GP3 – Special Instructions.

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
January 2012	Issue 1	Dave Naylor	Initial Issue: 5 Page Document
February 2019	Issue 2	Dave Naylor	To reflect the withdrawal of OPSAF-11-021 (MSP 2.10)

3. ISSUE AUTHORITY

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4. REVIEW

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

DISTRIBUTION

This document is part of the Management Safety Procedures but does not have a maintained distribution list.

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6. RELATED DOCUMENTS

ScottishPower Safety Rules (Electrical & Mechanical) 4th Edition

7. DEFINITIONS

Terms printed in bold are as defined in the ScottishPower Safety Rules (Electrical and Mechanical) 4th Edition.

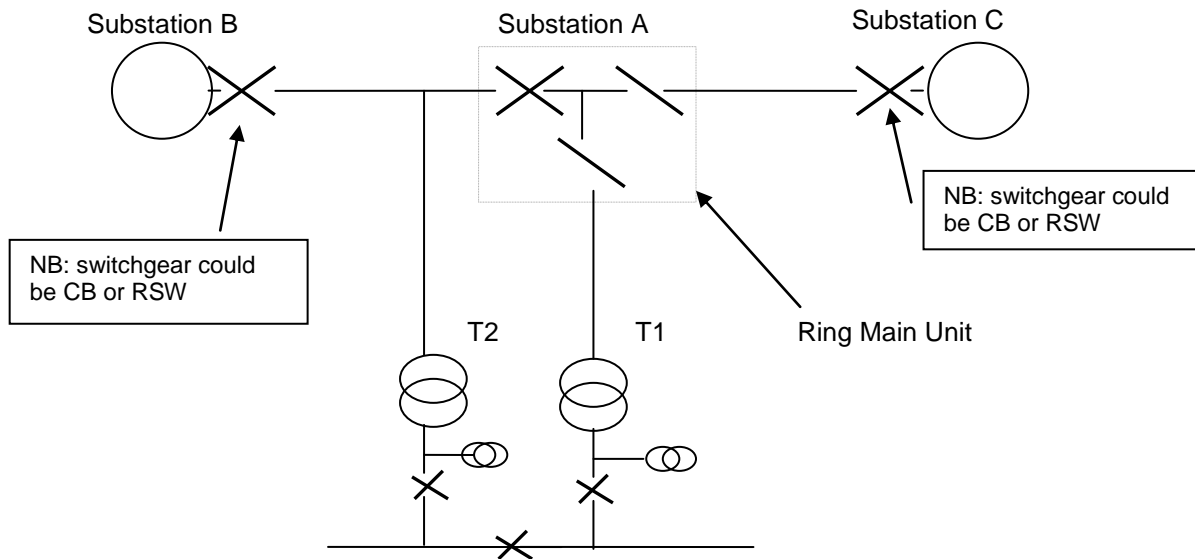
The following abbreviations are also used throughout the document:

RMU	Ring main unit
CB	Circuit breaker
RSW	Ring switch

8. INTRODUCTION

Work or testing on the RMU or transformer at a conventional SPM 33kV RMU substation where the RMU is connected to plain feeder cables is usually carried out by applying the requirements of the Safety Rules, with **Primary Earths** applied at the substations either side of the one where work or testing is to take place which ensures there is a **Primary Earth** between the point of work and each **HV Point of Isolation**.

In certain situations there is a second transformer present at the substation that is solidly breached onto the feeder cable connected to the RMU circuit breaker– see diagram below.



For work or testing on the RMU at substation A it is often not reasonably practicable for both of the transformers to be **Isolated**. In most cases the RMU has a busbar earthing facility enabling the cable connected to T2 to remain **Live** and the requirements of Basic Safety Rule A3, CSI 1 and OPSAF-10-003 (PSSI 3) to be met by applying a **Primary Earth** to the RMU busbars.

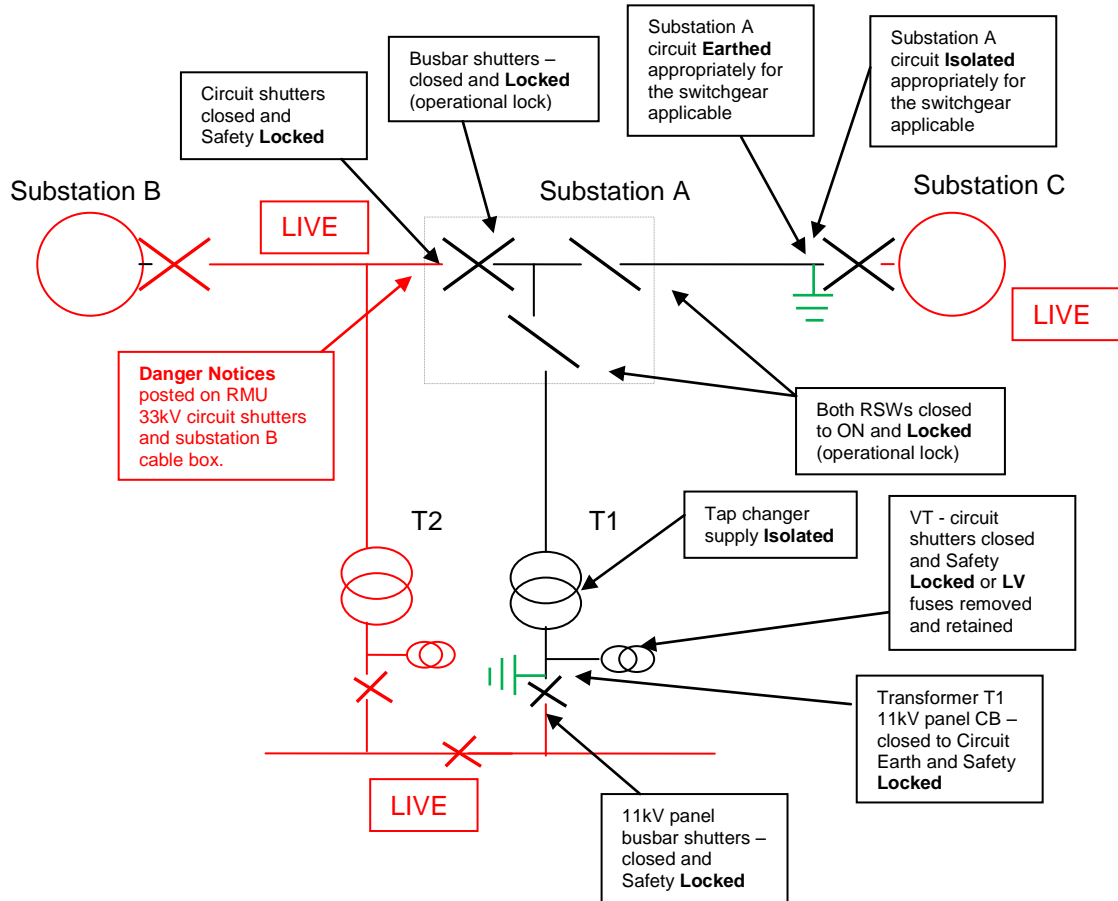
This **Approved** procedure is required for cases where the RMU to be worked on or tested has no busbar earthing facility - preventing the application of a **Primary Earth** between the point of work or testing and a **Point of Isolation**.

9. APPROVED PROCEDURE

This procedure covers work or testing on the RMU at Substation A as shown in the diagram in section 8. Before the application of this procedure, the normal requirements to achieve **Safety from the System** shall be met in full.

The basic principle is that all **HV Apparatus** on which work or testing is to be carried out shall be connected to a **Primary Earth** prior to issue of the **Permit for Work**.

The required precautions are summarised in the diagram below and listed explicitly in sections 9.1 to 9.4.



9.1 Isolation

At substation A:

1. The 33/11kV transformer T1 11kV panel busbar shutters – closed and Safety **Locked**
2. The 33/11kV transformer T1 11kV/415V VT - circuit shutters closed and Safety **Locked** or LV fuses removed and retained as appropriate
3. The 33/11kV transformer T1 tap changer supply **Isolated**
4. The substation B 33kV panel circuit shutters – closed and Safety **Locked**

At substation C:

1. The substation A circuit **Isolated** appropriately for the switchgear applicable (RSW or CB as appropriate).

Note – **Caution Notices** shall be applied at all **Points of Isolation**.

9.2 Earthing

At substation A:

1. The 33/11kV transformer T1 11kV panel CB – closed to Circuit Earth and Safety **Locked**.

At substation C:

1. The substation A circuit **Earthed** appropriately for the switchgear applicable (RSW or CB as appropriate).

Where the circuit between substations A and C includes an overhead line section, in addition to the Earth applied at substation C, a portable **Primary Earth** or a portable **Drain Earth**, as appropriate, shall be applied to the overhead line as near as reasonably practicable to substation A.

9.3 Additional Locking

At substation A:

1. The substation B 33kV panel busbar shutters – closed and **Locked** (operational lock)
2. The substation C RSW – closed to 'ON' and **Locked** (operational lock)
3. The 33/11kV transformer T1 RSW - closed to 'ON' and **Locked** (operational lock)

9.4 Additional precautions to be taken

In addition to any site-specific demarcation or other further precautions identified:

Danger Notices shall be posted on the RMU at substation A as follows and recorded on the **Safety Document**:

1. On the substation B 33kV panel circuit shutters
2. On the substation B 33kV feeder cable box

Immediately before issuing a **Safety Document**, at substation A the 33kV RMU busbar spouts shall be unlocked, proved not **Live** using an **Approved** voltage indicator, and re-locked. The voltage indicator shall be tested immediately before and after use.

9.5 Safety Document

A single **Safety Document** may be issued for work or testing on all of the **Isolated** and **Earthed** components of the 33kV RMU at substation A. No other **Safety Document** shall be in force on associated plant or **Apparatus** while work or testing takes place under this procedure.

This procedure only enables work or testing on the RMU at substation A. It does not enable work or testing on other **Plant** or **Apparatus** at the substation, e.g. for work or testing on the 33/11kV transformer T1 then a separate **Safety Document** shall be issued, after the cancellation of the **Safety Document** issued under this procedure, with appropriate precautions taken to achieve **Safety from the System**.

For work under this procedure, the **Safety Document** shall state that work or testing is to be in accordance with this procedure and a copy of this procedure shall be issued with the **Safety Document**.

The **Safety Document** shall specify the sequence of work or testing to be undertaken such that during the course of work or testing, **Apparatus** to be worked on or tested shall be **Earthed** by means of **Switching** that connects it to a **Primary Earth**. The sequence may, therefore, permit the removal of an operational lock on one of the substation A 33kV RMU ring switches in order that the switch may be worked on or tested, providing the other ring switch remains closed and **Locked**. The ring switch that has been worked on or tested shall be returned to the 'closed to ON' position and **Locked** before moving to the next stage of the sequence of work or testing.

If work or testing is required on the substation A RMU 33kV busbar spouts, both RMU ring switches shall be in the 'closed to ON' position, the busbar spouts shall be proved not **Live** immediately before the work or testing and the work or testing shall take place under the **Personal Supervision** of a **Senior Authorised Person**.