

PSMSP	2.6
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WORK IN HALL TYPE INDOOR SUBSTATIONS (HUNTERSTON 132 kV)

1 FOREWORD

Hunterston 132 kV sub-station is a Hall Type indoor double busbar sub-station with the Main and Reserve busbars situated at roof level, 12 metres from the ground.

Maintenance of the Main and Reserve busbars is carried out by means of six access trolleys that travel on **Earthed** metal rails suspended above the busbars from the roof structure.

The busbars, which are also suspended from the roof structure, are sectionalised, and each section is provided with a single earth switch. When the earth switch is in the fully closed position a castell key is released, which, if inserted in the corresponding key box on the trolley associated with that section of busbar, will allow the maintenance trolley to be moved from the parked position. Movement of the trolley will trap the key.

When work and/or testing has to be carried out on the busbars and/or associated **HV Apparatus**, the Safety Rules require that additional **Primary Earths** are applied to the busbars before the **Control Person** gives his **Consent** to the issue of the **Safety Document**. At Hunterston the physical arrangement of the busbars prevent the application of these earths before the **Safety Document** has been issued.

2 SCOPE

This Procedure details the procedure to be adopted for personnel working in Hall Type Indoor Substations when the normal application of **Portable Earths** to the busbar is not practicable.

3 DEFINITIONS

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

Terms printed in italics are as defined in the Definitions Section of these Procedures.

4 ACCESS TROLLEY EARTHING ARRANGEMENTS

4.1 All busbar access trolleys shall have a *Trolley Earth* lead of not more than 30 inches (750 mm) in length permanently bolted to each of the four corners of the platform and a trolley continuity earth fixed to the upper cross frame. These five leads shall be interconnected by a continuous earth tape permanently bolted to the trolley steel work. All the above leads and tape shall be of not less than 65 mm² copper equivalent cross section.

4.2 The earths shall be applied using an **Approved** short earthing pole which is permanently attached to the trolley.

4.3 The following procedure, which allows the use of the busbar maintenance trollies installed in 132 kV Hall Type Indoor Substations, shall be adopted when applying *Trolley Earths* between the point of work and the points of isolation to act as **Primary Earths** after the **Permit for Work** or **Sanction for Test** has been issued, but before the work or testing commences:

- (i) All work under this procedure shall be carried out under the **Immediate Supervision** of a **Senior Authorised Person**.
- (ii) Interlocks shall not be defeated.
- (iii) The section of busbar to be **Earthed** shall be **Earthed** by the appropriate interlocked busbar earth switch.
- (iv) When a **Permit for Work** or **Sanction for Test** allowing the use of busbar access trolleys is in force, no other **Permit for Work** or **Sanction for Test** shall be issued on that section of busbar.
- (v) Section 2(ii) of the **Permit for Work** or **Sanction for Test** shall be endorsed "Trolley earths shall be applied at in accordance with PSMSP 2.6 before work/testing commences".
 - e.g. Trolley earths shall be applied on the Reserve busbars, Principal Side at the junction of isolators 996, 716, 596 and 396 in accordance with PSMSP 2.6 before work commences.
- (vi) The number of *Trolley Earths* shall be recorded on the **Permit for Work** or **Sanction for Test**. No other **Portable Earths** shall be issued for work involving the use of the busbar access trolley.
- (vii) All persons using busbar access trolleys shall make proper use of **Approved** PPE including fall-arrest equipment.

- (viii) When testing from busbar access trolleys, before the trolley leaves the storage area, the test leads shall be securely anchored to the trolley framework and shall be as short as possible.
- (ix) At each position, before work commences, the trolley brakes shall be applied and the trolley continuity earth lead bolted to the upper cross frame shall be securely connected to the **Earthed** steel structure, or where this is not practicable to the **Earthed** trolley rail. The four earth leads, permanently attached to the corners of the platform, shall then be connected to the busbars, either side of the trolley to provide the earth connections required by PSSI 2.