

## 1. SCOPE

This Procedure specifies **Approved** categories of work or testing which may be undertaken on poles supporting **Live HV** conductors by **Authorised Persons** who remain outside the *Upper Portion* at all times during the course of work. **Safety from the System** is achieved by limiting the testing, the work or work area and/or by the application of **Approved** devices from a position outside the *Upper Portion* of the pole. **HV Rubber Glove Working** techniques are dealt with in OPSAF-11-007 (MSP 1.5).


This Procedure does not include work on towers and high structures. Such work shall be carried out in strict accordance with PSSI 16.

## 2. ISSUE RECORD

This document is not controlled. The current version is held on the Energy Networks Intranet.

Issue Date	Issue No	Author	Amendment Details
Oct 2005	3 <b>Published to Intranet only</b>	Jack Neilson / Geoff Ryan	New document format. Minor editorial changes. Addition of Cable Terminations to Category (ii) work
Dec 2010	4	Geoff Ryan  Dave Naylor	Minor editorial changes. Range extended to include 132kV for work on fibre optic joints. Raising <b>LV</b> conductors added to Category (ii) work. Added requirement for testing existing earthing arrangements if they are to be re-used. Use of Crossarm leakage detector added to Safety Precautions. Additional guidance on application of red band.

## 3. ISSUE AUTHORITY

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## 4. REVIEW

This document shall be reviewed as dictated by business change. The proposed revision date can be viewed in the Management Safety Procedures Index DOC-00-238.

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## 6. FOREWORD

The principles for achieving **Safety from the System** for work on poles carrying **Live HV** conductors where the work does not require contact with any conductors, insulators or associated fittings are contained in PSSI 16. Specific requirements are that there is no infringement of the **Safety Distance** defined in Safety Rule A2 and that the work can be carried out by limiting the work or work area in accordance with Safety Rule A3.1.

PSSI 16 additionally specifies that work on the *Upper Portion* of poles in close proximity to, but outside the **Safety Distance** from exposed **Live HV** conductors may be carried out under a **Limited Work Certificate** and where necessary red pennants or marker tape shall be fixed to define the limits of access.

For work other than on the *Upper Portion* where it is considered necessary to confirm instructions in writing, a **Limited Work Certificate** shall be issued.

Work on **Live HV** overhead lines is outside the scope of PSSI 16, and is covered by Specialised Procedures 3 and 4.

Work on, or within **Safety Distance**, of conductors, insulators or fittings is covered by PSSI 4.

## 7. DEFINITIONS

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

Terms printed in italics are as defined in the Definitions document (OPSAF-11-002) of the Management Safety Procedures.

## 8. SAFETY PRECAUTIONS

8.1 The categories of work or testing which may be carried out on a pole supporting **Live HV** conductors by limiting the testing, the work or the work area are listed in Section 9 of this Procedure. It is not intended that the tasks listed in Section 9 shall in all cases and in all circumstances be carried out by limiting the testing, the work or the work area.

8.2 Before deciding whether **Safety from the System** can be achieved by this method an **Authorised Person** shall assess the nature and extent of the work or testing and shall satisfy himself that:

- (i) The **Safety Distance** from **Live HV** conductors shall not be infringed by any part of the body or by tools or equipment other than tools or equipment designed and **Approved for Live HV** work or testing.
- (ii) A minimum distance of 300mm shall be maintained from steelwork supporting **Live HV** conductors.

8.3 Before commencing Category (ii) or (iii) work or testing (and Category (iv) work or testing where the procedure being followed requires it) on lines rated up to 11.5kV any unearthed steelwork on the pole shall be tested by the application of the **Approved** crossarm leakage detector.

Category (ii) or (iii) work or testing shall not proceed if there is reason to suspect that unearthed steelwork may be **Live**. Category (iv) work or testing shall only proceed if the procedure being followed makes provision for dealing with the situation.

- 8.4 Category (ii) and (iii) work require a red marker band to be applied to the pole in order to define the limit of access. The height at which the red band is applied shall be the lowest height possible conducive to completing the work, and shall ensure that the distances described in Section 8.2 are not infringed. It is quite acceptable for the red band to be applied further from **Live HV** conductors than the minimum **Safety Distance** and/or further than 300mm from steelwork supporting **Live HV** conductors.
- 8.5 The requirements of Health and Safety Executive Guidance Note GS6 – “Avoidance of danger from overhead electric power lines”- shall be recognised and applied as appropriate. Cranes, Hiabs or other powered lifting equipment shall not be raised under or near **Live** lines unless the equipment is suitably constructed and **Approved** for this type of operation e.g. fitted with a height restrictor.
- 8.6 Where there are any **LV** cables or lines on the pole to be worked on precautions shall be taken to prevent **Danger** from **Live** conductors or backfeed from any possible source including generators. These precautions, which include Isolation, the application of shorting kits, and the use of shrouding, are detailed in PSSI 12 and Live Working Manual Section 5.

## 9. CATEGORIES OF WORK OR TESTING WHICH MAY BE CARRIED OUT

9.1 Subject to the precautions set out in Section 8, the following categories of work or testing may be undertaken on poles carrying **Live HV** conductors by limiting the testing, the work or the work area:

- Category (i) - Work or testing on **Apparatus** or equipment located outside the *Upper Portion* of the pole and not requiring any access to the *Upper Portion* of the pole.
- Category (ii) - Work or testing as in Category (i), but which carries the risk of inadvertent access to the *Upper Portion* of the pole.
- Category (iii) - Work or testing on **HV Apparatus, Isolated** by **HV Live Working** procedures, where the **Isolated Apparatus** is outside the *Upper Portion* of the pole.
- Category (iv) - Work or testing on **Apparatus** or equipment on the *Upper Portion* of a pole by the application of **Approved** devices from a position outside the *Upper Portion* of the pole.

9.2 Summary

Work Category	Work or Testing within <i>Upper Portion</i>	Limited Work Certificate (LWC) Issued	Red Band Required
(i)	No	No	No
(ii)	risk of inadvertent access	Yes	Yes
(iii)	No	No; if work carried out by <b>HV Live Working Team</b> that carried out isolation. Yes; otherwise.	Yes
(iv)	Yes	No	No

9.3 Category (i) - Work or testing on **Apparatus** or equipment located outside the *Upper Portion* of the pole and not requiring any access to the *Upper Portion* of the pole.

This category shall be carried out by a suitably **Authorised Person** and comprises:

- (a) Work on items such as **LV** fuse units, safety signs, anti-climbing devices, and **LV** lines, excluding raising and lowering of conductors.
- (b) Examination and testing of earthing arrangements at pole mounted equipment in accordance with Part 5 of the Live Working Manual.
- (c) Testing of wood poles.
- (d) Work on Protection/Control equipment.

9.4 Category (ii) - Work or testing as in Category (i), but which carries the risk of inadvertent access to the *Upper Portion* of the pole.

This category requires that a **Senior Authorised Person** shall assess and approve the work/testing and work/testing method to ensure the risk of inadvertent access into the *Upper Portion* is eliminated. The **Senior Authorised Person** shall issue a **Limited Work Certificate** detailing the work/testing, the work/testing method and the safety precautions. An **Authorised Person** shall carry out the work or testing after applying a red marker band to the pole to define the limit of access. In addition to the items listed as Category (i), this category comprises:

- (a) Erection or removal of a tee-off channel. Such an operation shall be **Approved** only if the **Senior Authorised Person** assesses that it can be done without encroaching within the **Safety Distance**. If the channel could, by swinging through 90° on its fixing bolt, come within the **Safety Distance**, the work shall not be **Approved**.
- (b) Erection of **HV** conductors on a tee-off channel. Conductors shall be made off on the ground, hung up on the tee-off channel, and pulled up from a remote point. New conductors shall be **Earthed** as required by PSSI 4.
- (c) Installation and removal of **Apparatus** together with associated steelwork. Examples: Transformer, pole mounted switchgear, tele control boxes and associated aerials, **HV** cable termination not connected to the **System** (i.e. short length of cable).
- (d) Erection of **LV** conductors on a transformer pole. The conductors shall be made off on the ground, hung on the transformer pole, and pulled up from a remote **LV** only pole (i.e. this procedure shall not be used for dual construction lines).
- (e) Work on fully insulated fibre-optic cable joints. (This is the only Category (ii) activity allowed at 132kV).

If a work/testing method cannot be devised which eliminates the risk of inadvertent access to the *Upper Portion* of the pole the overhead line shall be **Isolated, Earthed** and a **Permit for Work** issued.

9.5 Category (iii) - Work or testing on **HV Apparatus, Isolated** by **HV Live Working** procedures, where the **Isolated Apparatus** is outside the *Upper Portion* of the pole.

Isolation of **Apparatus** shall have been achieved by removal of jumpers on the same pole as the **Apparatus** on which work or testing is to be carried out. A red marker band defining the limit of access shall be applied to the pole.

This category does not require a **Safety Document**, provided the work is carried out by the **HV Live Working** Team that carried out the isolation. Otherwise a **Limited Work Certificate** shall be issued as for Category (ii) work.

This category comprises work or testing, installation and removal of:

- (a) Pole mounted switchgear, associated steelwork, and control boxes. Examples: Auto-recloser, ABSD, Soule switches, **HV** fuses or smart links.
- (b) Transformers and associated steelwork, **LV** wiring and fuses. Erection of **LV** conductors on the transformer pole is allowed provided the conductors are made off on the ground, hung on the transformer pole, and pulled up from a remote **LV** only pole (i.e. this procedure shall not be used for dual construction lines).

9.6 Category (iv) - Work or testing on **Apparatus** or equipment on the *Upper Portion* of a pole by the application of **Approved** devices from a position outside the *Upper Portion* of the pole.

This category does not require the issue of a **Limited Work Certificate** and comprises:

- (a) Work or testing which can be carried out using **Approved** measuring devices or insulated devices, e.g. voltage indicator or fuse operating rods.
- (b) **HV Hot Stick** Working carried out in accordance with Specialised Procedure SP3 and with the Live Working Manual by suitably **Authorised Persons**.
- (c) Mirror and stick inspection in accordance with Part 5 of the Live Working Manual.