THESE DISTRIBUTION SAFETY RULES HAVE BEEN MADE FOR THE PROTECTION OF EMPLOYEES AND THE SAFETY OF ALL WHO MAY WORK ON DISTRIBUTION NETWORK OPERATORS SYSTEMS

Golden Distribution Safety Rule

If you’re not sure, stop and ask for help.
Golden Distribution Safety Rule

If you’re not sure, stop and ask for help.
WESTERN POWER DISTRIBUTION

DISTRIBUTION SAFETY RULES

2017 EDITION
(Based on Model Rules 2016)

FOR THE CONTROL, OPERATION AND MAINTENANCE OF HIGH AND LOW VOLTAGE APPARATUS

1.0 General Provisions
2.0 Definitions
3.0 General Safety Precautions
4.0 Safety Precautions for Work on or Near High Voltage Systems
5.0 Procedures for Work on Particular Items of Plant, Apparatus or Conductors
6.0 Safety Precautions for High Voltage Live Line Work on High Voltage Overhead Lines
7.0 Safety Precautions for the Testing of High Voltage Apparatus
8.0 Safety Precautions and Procedures for Work on Low Voltage Systems
9.0 Responsibilities of Persons
10.0 Appendices

I acknowledge receipt of this copy

.......................................................... (Signed)

.......................................................... (Print Name)

.......................................................... (Date)
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# WESTERN POWER DISTRIBUTION

## DISTRIBUTION SAFETY RULES

### 2017 EDITION

(Based on Model Rules 2016)

## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>...........................................................................................................</td>
<td>10</td>
</tr>
<tr>
<td>Policy</td>
<td>...........................................................................................................</td>
<td>11</td>
</tr>
</tbody>
</table>

## SAFETY RULES:

### Section 1

**General Provisions** ........................................................................................................... 13

1.1 Scope and Application of the Distribution Safety Rules ................................................................... 14

1.2 Other Safety Rules, Related Documents and Procedures ....................................................................... 14

1.3 Information, Instruction and Training ................................................................................................. 15

1.4 Issue of Distribution Safety Rules ..................................................................................................... 16

1.5 Variation of Distribution Safety Rules .................................................................................................. 16

1.6 Special Procedures ................................................................................................................................. 16

1.7 Objections .............................................................................................................................................. 17

1.8 Reporting of Accidents and Dangerous Occurrences ........................................................................... 17

1.9 Duties ...................................................................................................................................................... 17

1.10 Use and Wearing of Safety Equipment and Protective Clothing .............................................................. 18

1.11 Treatment for Electric Shock .............................................................................................................. 18

### Section 2

**Definitions** ................................................................................................................................. 19
Section 3

General Safety Precautions .................................................. 27

3.0 General Safety .................................................................... 28
3.1 Access to and Work in Operational Premises, Underground Chambers and Confined Spaces ........ 28
3.2 Access to, and Work in Fire Protected Areas...................... 29
3.3 Climbing etc of Poles, Towers and High Structures ...................... 30
3.4 Access to High Voltage Apparatus and Conductors .................. 30
3.5 High Voltage Switching ...................................................... 31
3.6 Records ........................................................................... 33
3.7 Failure of Supply ................................................................ 34
3.8 Use of Voltage Testing Devices ........................................... 34
3.9 Excavation near Live Cables ................................................ 34
3.10 Use of Mobile Plant and Equipment near Overhead Lines ........ 34

Section 4

Safety Precautions for Work on or Near High Voltage Systems .................................................. 35

4.1 General Requirements ....................................................... 36
4.2 Isolation of Apparatus and Conductors ................................. 38
4.3 Earthing ........................................................................... 38
4.4 Approach to Exposed Live High Voltage Conductors or Insulators supporting them ...... 41
4.5 Work in Substations and Switching Stations containing Exposed Live High Voltage Conductors..... 44
4.6 Permits-to-Work .............................................................. 47
4.7 Sanctions-for-Test ............................................................ 49
4.8 Limitations-of-Access ....................................................... 50
Section 5

Procedures for Work on particular items of Plant, Apparatus or Conductors

5.1 General Safety Precautions

5.2 Remotely and Automatically Controlled Equipment

5.3 Withdrawable Apparatus

5.4 Busbar Spouts, Busbars and Busbar Connections of Multi-Panel Switchboards

5.5 Feeder Spouts and Connections, Voltage Transformer Spouts and Connections, Single Panel Busbar Spouts and Connections

5.6 High Voltage Apparatus and Plant operated by, or containing Compressed Air or other Gases, or operated by Hydraulic Power

5.7 Transformers

5.8 High Voltage Static Capacitors

5.9 High Voltage Cables

5.10 High Voltage Overhead Lines - General

5.11 Single or Multiple Circuit High Voltage Overhead Lines without Keyed Flag Brackets and with all Conductors Dead

5.12 Double Circuit High Voltage Overhead Lines without Keyed Flag Brackets and with one Circuit Live

5.13 Single Circuit High Voltage Overhead Lines with Keyed Flag Brackets

5.14 Double Circuit High Voltage Overhead Lines with Keyed Flag Brackets and with one Circuit Live

5.15 High Voltage Overhead Lines with more than two Circuits with one or more Circuits Live
Section 6

Safety Precautions for High Voltage Live Line Work on High Voltage Overhead Lines ........................................ 75
  6.1 Authorisation ................................................................. 76
  6.2 Live Line Tools and Equipment ....................................... 76
  6.3 General Safety Precautions ............................................. 77

Section 7

Safety Precautions for the Testing of High Voltage Apparatus ............................................................... 81
  7.1 General ................................................................. 82
  7.2 Work under the Terms of a Sanction-for-Test ................. 82
  7.3 Testing of High Voltage Apparatus .................................. 83

Section 8

Safety Precautions and Procedures for Work on Low Voltage Systems .......................................................... 85
  8.1 General ................................................................. 86
  8.2 General Requirements for Work on Dead Low Voltage Apparatus and Conductors ............................... 88
  8.3 Additional Precautions for Work on Dead Low Voltage Cables ......................................................... 90
  8.4 Additional Precautions for Work on Dead Low Voltage Overhead Lines .............................................. 90
  8.5 Work on Live Low Voltage Apparatus and Conductors ............................................................. 91
  8.6 Additional Precautions for Work on Live Low Voltage Cables ......................................................... 92
  8.7 Additional Precautions for Work on Live Low Voltage Overhead Lines .............................................. 92
  8.8 Application of High Voltage Rules to Work on Low Voltage Apparatus and Conductors .................... 93
  8.9 Testing and Adjustment of Live Low Voltage Apparatus ............................................................. 93
Section 9
Responsibilities of Persons ................................................................. 95
9.1 General........................................................................................... 96
9.2 Competent Persons ....................................................................... 97
9.3 Authorised Persons ...................................................................... 98
9.4 Senior Authorised Persons ........................................................... 99
9.5 Control Engineers .......................................................................... 101

Section 10
Appendices .......................................................................................... 103
A Specimen Permit-to-Work ................................................................. 105
B Specimen Sanction-for-Test ............................................................. 107
C Specimen Limitation-of-Access ......................................................... 109
D Working and Access Clearances ....................................................... 111
E First Aid ........................................................................................... 119
F Approved Equipment ...................................................................... 123
G Approved Procedures ..................................................................... 129
H Index of Engineering Business Directives .................................... 149
FOREWORD

These Distribution Safety Rules (DSRs) are based on the National Model Distribution Safety Rules and provide a set of generic Rules that Western Power Distribution uses as the foundation of its safety management system for operations on its network.

The National Model Distribution Safety Rules is a copyrighted document and has been produced and approved by the Safety, Health and Environment Committee of the Energy Networks Association.

The Distribution Safety Rules were originally written using experience gained over many years of operating electricity networks and are now regularly reviewed in the light of recent events and the introduction of updated equipment and new technology. Where practical, revisions have been included as a result of pro-active risk assessments of new circumstances in addition to lessons learned reactively.

These Distribution Safety Rules are written to fulfil a number of extremely important roles:

- By documenting generic safe systems of work, these Distribution Safety Rules, in conjunction with approved procedures produced following risk assessments by individual companies of their own circumstances, fulfil a variety of legal obligations placed on Electricity Companies by legislation such as the Health and Safety at Work (etc) Act 1974 and the Management of Health and Safety at Work Regulations 1999;
- They provide a common framework that allows co-operation and safe movement of staff and contractors throughout the country;
- They allow best practicable safety standards to be known and shared throughout the industry; and
- More importantly, they provide guidance to staff and contractors working in the industry to ensure that they are able to work safely and reduce the risk of serious injury to themselves and their colleagues.
POLICY

P1
The design of Regional Electricity Companies' Systems and associated Plant and Apparatus for the distribution of electrical energy, at voltages up to and including 132kV, is such that they may be operated safely when Approved operational procedures are followed correctly. However, when Switching for operational purposes, or when work such as maintenance, testing and repair has to be carried out or when, particularly, Systems and associated Plant and Apparatus have to be taken temporarily out of normal operational use, it is necessary for these Distribution Safety Rules and related documents and procedures to be applied so as to ensure the health and safety of all who are liable to be affected by any Danger that might arise. These Distribution Safety Rules, as read with related documents and procedures, are based on the principle that they should state what should be done to ensure that specified work or activity may be carried out without Danger so far as is reasonably practicable. The Dangers that can arise are two-fold:

(i) inherent Dangers from distribution Systems, Plant and Apparatus, which are covered by the Distribution Safety Rules;

(ii) general Dangers associated with the work as it proceeds including, in addition to the work process, Dangers from access and egress, the place of work and the working environment. (These Dangers may be of a different kind, and under different control, from the inherent Dangers in (i) above and may not be specifically covered by these Distribution Safety Rules).

P2
In the implementation of these Distribution Safety Rules, related documents and procedures, specified methods of work, and other forms of local instruction, management Shall allocate responsibility for the achievement of health and safety from the inherent Dangers mentioned in (i) above during the various stages of work or activity.
Management **Shall** also carry out a suitable and sufficient risk assessment, issue instructions and allocate responsibility for dealing with the general **Dangers** mentioned in (ii) above where such **Dangers** are not already specifically covered in these Distribution Safety Rules or associated **Approved** procedures or Codes of Practice.

**P3**

It is the policy of Western Power Distribution that the **Persons** in charge of the various stages of the work or activity **Shall** have the appropriate competence and written authority and **Shall** understand these Distribution Safety Rules, related documents and procedures, the methods of work and any local instructions. Such persons **Shall** understand the **Dangers** that might arise and the precautions to be taken over the whole period of the work or activity. The policy of Western Power Distribution requires that all persons at work are adequately instructed and supervised and are competent to avoid **Danger**, according to the circumstances of the work they are doing. It is also the policy of Western Power Distribution that the relevant legal requirements, these Distribution Safety Rules and other required health and safety precautions are observed at all times.
SECTION 1

GENERAL PROVISIONS
SECTION 1: GENERAL PROVISIONS

1.1 SCOPE AND APPLICATION OF THE DISTRIBUTION SAFETY RULES

These Distribution Safety Rules apply to distribution Systems up to and including 132kV and to associated Plant and Apparatus under the ownership or control of Western Power Distribution under whose authority they have been issued. They, or equivalent Safety Rules, Shall normally be the only Rules applicable to such Systems, Plant and Apparatus and Shall be applied, in accordance with management instructions, together with related documents and procedures, for the whole course of the work for which they are intended.

1.2 OTHER SAFETY RULES, RELATED DOCUMENTS AND PROCEDURES

In addition, or as an alternative, to the application of these Distribution Safety Rules and related documents and procedures, other Rules, documents and procedures issued by Western Power Distribution or by other authorities, Shall be complied with in accordance with management instructions. Whereas the Appendices to these Safety Rules are not in themselves individual Distribution Safety Rules, they Shall be read in conjunction with the Rules to which they relate. As such, the Appendices form important supporting information for the implementation of the Distribution Safety Rules.

Where an appropriate written agreement exists between Western Power Distribution and a third party, the employees of that third party may carry out work and operate on the Distribution System which is under the control and ownership of Western Power Distribution. The employees of the third party may carry out work and operate in accordance with other Rules and procedures, provided that this approach complies fully with the detail of the written agreement between Western Power Distribution and the third party.
Safety precautions required across control/ownership boundaries Shall be carried out and documented in accordance with Approved procedures. Such procedures Shall be agreed between the controller/owner of the other System and Western Power Distribution and Shall be made known to the staff concerned. In all cases these Distribution Safety Rules, related documents and procedures Shall be used as a guide to safe working.

1.3 INFORMATION, INSTRUCTION AND TRAINING

Arrangements Shall be made by Western Power Distribution to ensure:

(i) that all employees and contractors concerned are adequately informed as to:

- the risks to their health and safety as identified by risk assessment;
- the preventative and protective measures to be taken;
- the procedures to be followed in the event of serious and imminent Danger; and
- the potential for risks arising from the activities of any other employer in the workplace.

(ii) that adequate levels of supervision of its employees and those under its control are provided.

(iii) that all employees and contractors concerned are adequately informed and instructed as to the Systems, Plant and Apparatus which are affected by a particular operation or work (whether or not they are owned or operated by Western Power Distribution) and which legal requirements, Safety Rules, related documents and procedures Shall apply;

(iv) that, where reasonably practicable, other persons who are not employees, but who may be exposed to Danger by the operations or work of Western Power Distribution, also receive adequate information and instruction.
(v) that the capabilities of employees are taken into account in allocating tasks; and

(vi) that employees and contractors are provided with adequate health and safety training;

1.4 ISSUE OF DISTRIBUTION SAFETY RULES

A copy of these Distribution Safety Rules and, as appropriate, related documents Shall be issued to such employees of Western Power Distribution and such other persons as the Designated Person may determine. Such employees and other persons Shall sign a receipt for a copy of these Distribution Safety Rules, related documents and procedures (and any amendments thereto) and Shall keep them in good condition and have them available for reference as necessary when work is being carried out under these Distribution Safety Rules.

1.5 VARIATION OF DISTRIBUTION SAFETY RULES

In exceptional or special circumstances these Distribution Safety Rules may be varied to such an extent as is necessary and Approved by a Designated Person or another officer specially authorised in writing to do so. Such variations Shall ensure that safety requirements are satisfied in some other way.

1.6 SPECIAL PROCEDURES

Work on or testing of Apparatus, Conductors or Plant to which these Distribution Safety Rules cannot be applied, or for special reasons should not be applied, Shall be carried out in accordance with an Approved procedure. Such procedure Shall ensure that the safety requirements of these Distribution Safety Rules are satisfied in some other way.
1.7 OBJECTIONS
When any person receives instructions regarding the operation of or work upon Western Power Distribution’s System, and associated Plant and Apparatus, they Shall report any objections on safety grounds to the carrying out of such instructions to the Persons issuing them, who Shall then have the matter investigated and, if necessary, referred to a higher authority for a decision before proceeding.

1.8 REPORTING OF ACCIDENTS AND DANGEROUS OCCURRENCES
All Persons Shall comply with Western Power Distribution procedures for the statutory reporting of accidents and dangerous occurrences. In addition, all electrical accidents, electrical dangerous occurrences and such other accidents and dangerous occurrences as may be specified by the appropriate Designated Person involving Western Power Distributions’ High Voltage System or associated Plant or Apparatus, Shall be reported immediately to the appropriate Control Engineer in accordance with Approved procedures. In the case of accidents and dangerous occurrences involving the Low Voltage System or associated Plant or Apparatus, these Shall be reported immediately to the appropriate person in accordance with Approved procedures.

1.9 DUTIES
Western Power Distribution as an employer has a duty to comply with the provisions of the Health and Safety at Work etc Act 1974, the Electricity at Work Regulations 1989, and other relevant statutory provisions. Additionally, authoritative guidance is available from the Health and Safety Executive and other sources.
Employees and contractors of Western Power Distribution also have a duty to comply with certain provisions of the Health and Safety at Work etc Act 1974, the Electricity at Work Regulations 1989 and with other relevant statutory provisions.

In addition to these statutory duties and any other duties separately allocated to them, all Persons who may be concerned with the operation of, or work upon, distribution and transmission Systems and associated Plant and Apparatus Shall be conversant with, and comply with, those Distribution Safety Rules relevant to their duties and related documents and procedures. Ignorance of legal requirements or of Distribution Safety Rules and related documents and procedures, Shall not be accepted as an excuse for neglect of such duties.

If any Person has any doubt as to any of these duties they Shall report the matter to a higher authority for advice before proceeding with work, i.e. if you are not sure, stop and ask for help.

1.10 USE AND WEARING OF SAFETY EQUIPMENT AND PROTECTIVE CLOTHING

Where any work under these Distribution Safety Rules and related documents and procedures takes place, appropriate safety equipment and protective clothing of an Approved type Shall be issued and used in accordance with management instructions. At all times employees are expected to wear sensible clothing and footwear having regard to the work being carried out.

1.11 TREATMENT FOR ELECTRIC SHOCK

All Persons who may be concerned with the operation of, or work upon, Western Power Distributions’ Systems, and associated Plant and Apparatus, Shall be trained in and be conversant with the treatment of electric shock. Information regarding such treatment is given in Appendix E.
SECTION 2

DEFINITIONS
SECTION 2: DEFINITIONS

D1. Apparatus
Any item of electrical machinery or equipment in which Conductors are used, or supported, or of which they form part.

D2. Approved
Sanctioned by the Designated Person in order to satisfy in a specified manner the requirements of any or all of these Distribution Safety Rules.

D3. Designated Person
The person appointed by Western Power Distribution to be responsible for the application of these Distribution Safety Rules.

D4. Conductor
An electrical conductor arranged to be electrically connected to a System.

D5. Control Engineer
A Control Engineer or an appropriate 'Control Person' recognised by Western Power Distribution as being one of the following:

(i) Distribution Control Engineer
In the case of a centrally controlled System the Control Engineer at Western Power Distribution’s Control Centre.

(ii) Field Control Engineer
In the case of a locally controlled System, the engineer specifically deputed to exercise the function of control of such a System in accordance with an Approved procedure.

D6. Danger
A risk to health or of bodily injury.
D7. **Dead**
At or about zero voltage and disconnected from any **Live System**.

D8. **Earth**
The conductive mass of the Earth, whose electric potential at any point is conventionally taken at zero.

D9. **Earthed**
Connected to **Earth** through switchgear with an adequately rated earthing capacity or by **Approved** earthing leads.

D10. **Circuit Main Earth**
**AE8** Earthing equipment of **Approved** type applied before the issue of, and at a position recorded in, a **Safety Document**.

D11. **Additional Earth**
**AE8** Earthing equipment of **Approved** type which is applied after the issue of a **Safety Document** (for example an earth applied at a point of work).

D13. **High Voltage Live Line Work**
**AP11** Work in an **Approved** manner on the **Conductors** or **Apparatus** of a **High Voltage** overhead line with the **Conductors Live**.

D14. **Isolated**
Disconnected from associated **Plant**, **Apparatus** and **Conductors** by an **Isolating Device** in the isolating position, or by adequate physical separation, or sufficient gap.

D15. **Isolating Device**
A device for rendering **Plant** and **Apparatus Isolated**.
D16. Key Safe
AE9 A device of an Approved type for the secure retention of keys.

D17. Live
Electrically charged.

D18. Caution Notice
AE9 A notice in Approved form prohibiting unauthorised interference, with such additional Approved words as Western Power Distribution may determine.

D19. Danger Notice
AE9 A notice in Approved form reading "Danger", with such additional Approved words as Western Power Distribution may determine.

D20. Persons, being one of the following:
(i) Competent Person
A Person appointed in writing by Western Power Distribution who is recognised as having sufficient technical knowledge and experience to enable them to avoid Danger and who may be nominated to receive and clear specified Safety Documents.

(ii) Authorised Person
A Competent Person over 18 years of age who has been appointed in writing by Western Power Distribution to carry out specified duties which may include authority to issue and cancel Limitations-of-Access and/or to receive Sanctions-for-Test.

(iii) Senior Authorised Person
An Authorised Person who has been appointed in writing by Western Power Distribution to carry out specified duties, including the issue and cancellation of Safety Documents.
D21. **Plant**
   Mechanical plant including all machinery and equipment not elsewhere defined as **Apparatus**.

D22. **Safety Distance**
   The distance from the nearest **High Voltage** exposed **Conductor** not **Earthed** or from an insulator supporting a **High Voltage Conductor**, which must be maintained to avoid **Danger** (See Diagram 1 in Rule 4.4.1).

D23. **Working and Access Clearance**
   The distance to be maintained from the nearest **Live** exposed **High Voltage Conductor** as specified in these Distribution Safety Rules to ensure observance of the **Safety Distance** for work on **Systems**.

D24. **Safety Documents**, being one of the following:
   (i) **Limitation-of-Access**
      A **Safety Document** of a format indicated in these Distribution Safety Rules which defines the limits and nature of work which may be carried out when verbal instructions are not considered sufficient for that purpose, and where a **Permit-to-Work** or **Sanction-for-Test** is not applicable.

   (ii) **Permit-to-Work**
      A **Safety Document** of a format indicated in these Distribution Safety Rules specifying the **High Voltage Apparatus** which has been made safe to work on and the work which is to be carried out.

   (iii) **Sanction-for-Test**
      A **Safety Document** of a format indicated in these Distribution Safety Rules specifying the **High Voltage Apparatus** which has been made safe for the testing described in the **Safety Document** to proceed and the conditions under which the testing is to be carried out.
N.B. Specimen Safety Documents are reproduced in Appendices A, B & C.

D25. Safety Lock

AP1 A lock used exclusively for Approved purposes (such as for locking off the points at which the circuit can be energised) that lock being different from all other standard locks used on Systems.

D26. Supervision, being one of the following:

(i) Immediate Supervision

Supervision by a Person (having adequate technical knowledge, experience and competence) who is continuously available at the location where work or testing is in progress and who attends the work area as is necessary for the safe performance of the work or testing.

(ii) Personal Supervision

Supervision by a Person (having adequate technical knowledge, experience and competence) such that they are at all times during the course of the work or testing, continuously observing and in the presence of the person(s) being supervised, with the ability and competence to directly intervene.

Supervision at ground level provided for Persons positioned at height is considered to be Personal Supervision when the supervisor at ground level maintains verbal and visual communication with the Person(s) being supervised.

D27. Switching

The operation of circuit breakers, isolators, disconnectors, fuses or other methods of making or breaking an electrical circuit and/or the application and removal of Circuit Main Earths.
D28. System
An electrical system in which **Conductors** and **Apparatus** are electrically connected to a common source of supply.

**Voltage Categories:**
(Based on the Electricity Safety, Quality and Continuity Regulations 2002).

D29. Low Voltage (LV)
A voltage not exceeding 1,000 volts AC or 1500 volts DC.

D30. High Voltage (HV)
A voltage exceeding 1,000 volts AC or 1500 volts DC.

D31. Working Party
Either the persons under the **Immediate Supervision** of a **Competent** or **Authorised Person** (who **Shall** themselves be a member of the working party) or a **Competent** or **Authorised Person** when working alone.

D32. **Shall**
Where **Shall** is used in these Distribution Safety Rules with no qualification, this indicates a mandatory requirement with no discretion permitted and no judgement to be made.

The term **Shall** can be qualified by:

‘where practicable’
If **Shall** is qualified by the words ‘where practicable’ a slightly less strict standard is imposed. It means that where it is possible to achieve in the light of current knowledge and invention, but bearing in mind the hazards associated with the work to be undertaken, then the requirement must be met. One is not allowed to avoid the requirement on the grounds of difficulty, inconvenience or cost.

‘where reasonably practicable’
When ‘**Shall** where reasonably practicable’ is used to qualify a requirement then a judgement must be made as to
what is reasonable, taking into account the magnitude of the risk on one hand and the cost, time and trouble, or effort necessary for averting the risk on the other hand.

D33. General Safety

The control and management of risks posed by hazards in the working environment which are not covered by these Distribution Safety Rules.
SECTION 3

GENERAL SAFETY PRECAUTIONS
SECTION 3: GENERAL SAFETY PRECAUTIONS

3.0 GENERAL SAFETY

In addition to all other requirements specified in these Distribution Safety Rules the safety of persons at work Shall also be achieved by maintaining at all times General Safety at and in the vicinity of the place of work. Before work or testing commences the Person in charge of the Working Party must ensure that safety precautions are taken to establish General Safety at and in the vicinity of the workplace. This Person must ensure that at all times during the work or testing that General Safety arrangements are maintained and that other work areas are not adversely affected by the activities for which they are responsible. The discharging of responsibilities for General Safety will be achieved as part of the normal pattern of management delegation and control by ensuring that all activities are carried out in accordance with appropriate instructions and guidance.

3.1 ACCESS TO AND WORK IN OPERATIONAL PREMISES, UNDERGROUND CHAMBERS, CONFINED SPACES AND VESSELS CONTAINING OIL OR OTHER FLAMMABLE OR TOXIC SUBSTANCES

3.1.1 AP1 No person Shall, without proper authority, enter or have access to any operational premises such as any control room, substation, switching station or underground chamber belonging to, or wholly under the control of, Western Power Distribution.

3.1.2 AP2 Access to confined spaces such as underground chambers, cable tunnels and indoor substations with restricted access or egress Shall be gained in accordance with an Approved procedure.

3.1.3 AP2 Access to vessels recently emptied of flammable or toxic substances, Shall only be allowed in accordance with an Approved procedure which includes provision to expel all dangerous vapours and substances.
3.1.4 Work involving the application of heat or the use of exposed flames in the vicinity of open vessels containing, or having recently contained, flammable substances, **Shall** be prohibited until all practicable steps have been taken in accordance with an **Approved** procedure to prevent Danger.

3.2 ACCESS TO AND WORK IN FIRE PROTECTED AREAS

3.2.1 Automatic Control

**AP2** Unless alternative **Approved** procedures apply because of special circumstances then before access to, or work or other activities are carried out in, any enclosure protected by automatic fire extinguishing equipment;

(a) the automatic control **Shall** be rendered inoperative and the equipment left on hand control and where the facility exists locked. A **Caution Notice** **Shall** be attached.

(b) precautions taken to render the automatic control inoperative and the conditions under which it may be restored **Shall** be noted on any **Safety Document** or written instruction issued for access, work or other activity in the protected enclosure; and

(c) the automatic control **Shall** be restored immediately after the persons engaged on the work, or other activity, have withdrawn from the protected enclosure.

3.2.2 Portable Fire Extinguishers

**AE10** Only **Approved** portable fire extinguishers **Shall** be available and used in the vicinity of **Live Apparatus** and **Conductors**. In the handling of fire extinguishers the appropriate **Safety Distances** specified in Rule 4.4 **Shall** be maintained. After the discharge of portable fire extinguishers in an enclosed space, personnel **Shall** leave the space until the precautions set out in Rule 3.2.3 have been taken.

3.2.3 General

After any explosion or fire, or after the discharge of fire extinguishers in an enclosed space, either the space **Shall**
be adequately ventilated before the entry of personnel, or
Approved breathing apparatus and, where necessary,
Approved safety harnesses Shall be worn by persons specially trained in their use. Such breathing apparatus and safety harnesses Shall be worn in any case of doubt.

3.3 ACCESS TO, OR WORK ON POLES, TOWERS AND HIGH STRUCTURES

3.3.1 Before any pole is climbed it Shall be tested in an
Approved manner. No pole badly impaired by decay or
damage or whose stability is in doubt Shall be climbed
until it has been supported by Approved means. The pole
Shall then either be climbed by only one person at a time
or access to the top of such pole Shall be by Approved
means independent of the pole.

3.3.2 All Persons gaining access to and during work on towers,
poles and high structures Shall make proper use of
Approved safety equipment and Shall be in visual range
of another Person. All Persons concerned Shall be fully
conversant with Approved rescue procedures. Unaccompanied access is allowed for switching or testing
when it is of limited duration and is covered by an
Approved procedure.

3.3.3 Gates and devices to prevent climbing of towers and
gantries supporting High Voltage Conductors Shall
always be kept secured in an Approved manner and
access Shall be controlled by an Authorised Person or
Competent Person in receipt of an appropriate Safety
Document.

3.4 ACCESS TO HIGH VOLTAGE APPARATUS AND CONDUCTORS

3.4.1 High Voltage Structures and Outdoor Compounds

Guards on access ladders and barriers, doors or gates on
or in outdoor compounds preventing access to Live High
Voltage Conductors, Shall be kept secured in an
Approved manner and access Shall be in accordance
with Approved procedures.
3.4.2 **High Voltage Chambers, Cubicles and Cells**
Barriers, doors or gates preventing access to totally enclosed chambers, cubicles and cells containing **Live High Voltage Conductors, Shall** where the facility exists be kept locked and the keys **Shall** be accessible only to an **Authorised Person**.

3.4.3 **Spout Shutters on High Voltage Switchgear**
All spout shutters not required for immediate work or operation **Shall**, if the spouts are not otherwise made inaccessible, be locked shut, the keys **Shall** only be accessible to an **Authorised Person**.

3.5 **HIGH VOLTAGE SWITCHING**

3.5.1 No **High Voltage Switching Shall** be carried out other than by an **Authorised Person** or by a **Competent Person** acting under the **Personal Supervision** of the **Authorised Person**. No such **Switching Shall** be carried out without the authority of the appropriate **Control Engineer**, except in cases of emergency, or other **Approved cases**, which may include **Switching** by remote control by a **Control Engineer**.

3.5.2 When a **Control Engineer** gives authority for **High Voltage Switching to be carried out** they **Shall** communicate directly with the **Person** who is to carry out the **Switching**. Where, for special reasons, direct communication is not possible, an **Approved procedure Shall** be followed. Any **Person** who is to carry out **High Voltage Switching Shall** have an **Approved record** of the **Switching** instruction available at the point of **Switching**. A verbal **Switching instruction given by a Control Engineer Shall** be written down/ recorded by **Approved means** and read back to the **Control Engineer** before undertaking the **Switching operation**.

3.5.3 Before any **High Voltage Switching is carried out on any System which may affect another System**, the **Control Engineer authorising the Switching Shall** communicate
with the **Control Engineer** of the other **System** and the **Switching** **Shall** be agreed between them and recorded by all **Control Engineers** concerned.

**3.5.4** Where **High Voltage Switching** is to be carried out for the purpose of issuing a **Safety Document** and there are two or more control functions involved, then in the absence of a standing agreement for such matters, the **Control Engineers** concerned **Shall** agree on the **Person** who **Shall** be in control of the part of the **System** in the **Isolated** state and who **Shall** be responsible for giving consent to the issuing of a **Safety Document**. Such agreement between the **Control Engineers** **Shall** be recorded by each **Control Engineer**.

**3.5.5** Where special requirements are to be complied with before, during or after **High Voltage Switching** operations, **Approved** **procedures** **Shall** apply and special provision **Shall** be made to ensure that the **Control Engineers**, the operators and others affected are aware of their responsibilities.

**3.5.6** **High Voltage Switching** with the **Control Engineer**’s authority **Shall** be carried out without unnecessary delay. Completed **Switching** operations **Shall** be confirmed to the **Control Engineer** as agreed and without unnecessary delay. Emergency **Switching** (in accordance with DSR 3.5.1) **Shall** be reported to the **Distribution Control Engineer** without unnecessary delay. The circumstances necessitating such **Switching** **Shall** be explained at that time.

**3.5.7** All switchgear operations **Shall**, so far as reasonably practicable, be planned and completed in accordance with the following hierarchy:

(i) Remotely via remote control facilities;

(ii) Remotely on site via control panels in a different room to the switchgear being operated;

(iii) Remotely via a control panel in the same room as the
switchgear being operated;

(iv) Remotely via an Approved umbilical device or similar; or

(v) via the operating facilities on the switchgear.

Switchgear (including associated equipment) which is to be operated locally on site Shall be visually inspected immediately before any Switching operation to check its condition is satisfactory. The switch to be operated Shall be visually checked to ensure that it is in the expected position prior to operating.

Following the intended operation, switchgear Shall be visually checked to ensure the anticipated position has been achieved and it has operated fully and correctly.

When switchgear shows any signs of distress, its condition Shall be reported immediately to the Control Engineer and it Shall be examined before a decision is made about further operation.

3.5.8 When operating switchgear mounted on a pole or other structure from ground level, the operator Shall wear Approved personal protective equipment including insulating gloves and use such other equipment as may be Approved.

3.5.9 It is forbidden to undertake Switching by signal or pre-arranged understanding after an agreed period of time.

3.6 RECORDS

3.6.1 Messages

Verbal messages by telephone or otherwise, relating to the operation of any High Voltage System, Shall be written down/recorded by Approved means. Every such message Shall be read back to the sender to ensure that it has been accurately received.

3.6.2 Recording of Switching

The Control Engineer Shall ensure that a record is made of the time and particulars of all High Voltage Switching
including any carried out by the Control Engineer by remote control.

3.7 FAILURE OF SUPPLY
A failure of supply, from whatever cause, to or from any part of the High Voltage System Shall be immediately reported to the Distribution Control Engineer. During failures of supply all Apparatus and Conductors Shall be regarded as being Live unless Isolated and proved Dead by Approved means.

3.8 USE OF VOLTAGE TESTING DEVICES
Where voltage testing devices are used they Shall be of Approved type and such use Shall be in accordance with Approved procedures. Such devices Shall be tested in an Approved manner immediately before and after use or, where this is not reasonably practicable; they Shall be tested in accordance with Approved procedures.

3.9 EXCAVATION NEAR LIVE CABLES
All damaged cables or cables with exposed Conductors Shall be treated as Live until identified and proved Dead by an Approved procedure. When excavation work is carried out in proximity to Live cables by Western Power Distribution employees or contractors, the work Shall be carried out in accordance with an Approved procedure.

3.10 USE OF MOBILE PLANT AND EQUIPMENT NEAR OVERHEAD LINES
When Western Power Distribution employees or contractors are working adjacent to overhead lines with mobile Plant and equipment which is capable of reaching within the Safety Distance of a Live High Voltage Conductor, or touching a Live LV Conductor the work Shall be done in accordance with an Approved procedure.
SECTION 4

SAFETY PRECAUTIONS FOR WORK ON OR NEAR HIGH VOLTAGE SYSTEMS
SECTION 4: SAFETY PRECAUTIONS FOR WORK ON OR NEAR HIGH VOLTAGE SYSTEMS

4.1 GENERAL REQUIREMENTS

All High Voltage Apparatus and Conductors, including those that are damaged or have faulted, Shall be treated as Live unless they have been made safe in accordance with Rule 4.1.1.

4.1.1 Subject to the exceptions stated below and those expressly permitted by individual Rules, no person Shall undertake any repair, maintenance, cleaning, alteration or such work, on or within the Safety Distance of an exposed Conductor or on any part of a High Voltage System unless such parts of the System are:

(a) Dead;

(b) Isolated and all practicable steps taken to lock off from all points of supply, including voltage and auxiliary transformers, common neutral earthing equipment and other sources from which the Apparatus and Conductors may become Live, and Caution Notices fixed at all points of isolation;

(c) connected to Earth by Approved means at all points of disconnection of High Voltage supply from the System or between such points and the point(s) of work;

(d) screened where necessary to prevent Danger and Danger Notices attached to Apparatus containing Live Conductors and attached adjacent to other Live Conductors;

(e) identified at the point of work by Approved means; and

(f) released for work and the measures taken under this Rule are formally communicated to the Working Party using an Approved procedure which involves the issue of appropriate Safety Documents which Shall not be issued unless the issuer and the recipient are fully conversant with the precise parts of the Systems,
Apparatus and Conductors to be worked upon, the nature and also the extent of the work to be done and the safety precautions to be taken.

It is the duty of the Person issuing the appropriate Safety Document to ensure compliance with the foregoing provisions in the correct sequence.

EXCEPTIONS:

(i) Cleaning and painting of Earthed metal enclosures, connections or disconnections of circuits to or from Live High Voltage Systems, Live line testing and Live insulator washing may be carried out but only in accordance with Approved procedures.

(ii) High Voltage Live Line Work on High Voltage overhead lines may be carried out but only in accordance with Section 6 of these Distribution Safety Rules.

(iii) Where the design of Apparatus precludes strict compliance with all the requirements of Rule 4.1.1 the work Shall be carried out in accordance with an Approved procedure or to the special instructions of a Senior Authorised Person, and after agreement with the Distribution Control Engineer, to ensure that safety is achieved in another way. Such work Shall be carried out under the Personal Supervision of a Senior Authorised Person.

(iv) Where work is carried out on a High Voltage overhead System and where it is not reasonably practicable to isolate all connected customers in accordance with Rule 4.1.1(b) an Additional Earth Shall be provided and maintained between those customers and the point of work unless a Circuit Main Earth is provided in that position.
4.2 ISOLATION OF APPARATUS AND CONDUCTORS

4.2.1 No isolation or re-connection of High Voltage Apparatus or Conductors Shall be initiated except with the sanction of the Control Engineer.

4.2.2 Safety Locks

(a) Where a locking facility exists Safety Locks Shall be used to lock open all switchgear at points where the circuit on which work is to be carried out could be energised. The keys for such locks Shall be kept in a Key Safe, in the possession of a Senior Authorised Person or in accordance with an Approved procedure.

(b) Details of the isolation referred to in Rule 4.2.1 and deposit of Safety Lock keys associated with the isolation Shall be recorded at centres specified in Approved procedures.

4.2.3 Fuses or Links

When the circuit on which work is to be carried out is controlled only by fuses or links, the fuses or links (and carriers) Shall be removed and kept in a safe place which may include custody by the Person responsible for issuing the Safety Document. Where such removal is not practicable, Approved procedures to ensure safety Shall be followed.

4.2.4 Caution Notices

Caution Notices Shall be fixed at all points of isolation and secured with a Safety Lock where reasonably practicable.

4.3 EARTHING

4.3.1 When High Voltage Apparatus and Conductors are to be discharged and Earthed in accordance with Rule 4.1.1 (c) it Shall be done:
(a) where reasonably practicable by the use of a circuit breaker or earthing switch provided for the purpose to make the earthing connection. When a circuit breaker is used, the trip feature Shall be rendered inoperative before closing, unless this is not practicable when it Shall be done afterwards. After closing, the circuit breaker or earthing switch Shall be Safety Locked in the Earthed position, so that it remains inoperative while it is the Circuit Main Earth;

(b) where (a) is not reasonably practicable or not applicable, the High Voltage Apparatus and Conductors Shall be checked by means of an Approved voltage testing device or other Approved means to verify that they are not Live, and may then be discharged and Earthed by an earthing lead applied by means of an Approved earthing pole or other Approved appliance.

(c) in addition to the requirements in sections (a) and (b) above, the first earth applied to, and the last earth removed from a circuit, Shall where reasonably practicable be achieved using a circuit breaker or earthing switch provided for that purpose.

4.3.2 Earthing Leads and Connections

Earthing leads and associated clamps Shall be of Approved type and of adequate capacity for the duty at the point of application. They Shall be adequately maintained and always examined immediately prior to use.

4.3.3 Procedure for the Use of Earthing Leads

Subject to Rule 4.3.1 the general procedure to be followed when using earthing leads Shall be as follows:

(a) the circuit Shall be verified that it is not Live and, where practicable, checked by means of an Approved voltage testing device or other Approved means;
(b) earthing leads **Shall** be connected to **Earth** before being connected to the phase **Conductors**. They **Shall** only be connected to the phases by means of an **Approved** earthing pole or other **Approved** appliance. Care **Shall** be taken to ensure that good contact is made and that earthing leads are clearly visible;

(c) all phases **Shall** be **Earthed**, even if work is to be carried out only on one phase;

(d) earthing leads **Shall** not be applied in any cell or compartment in which there is any exposed metal **Live** at **High Voltage** which may be a source of **Danger**. Earthing leads **Shall** be applied in such a manner that they remain clearly visible so far as is reasonably practicable;

(e) when earthing leads are being removed, each one **Shall** be disconnected from the phase **Conductor** by means of an **Approved** earthing pole or other **Approved** appliance before it is removed from the **Earth** connection;

(f) for the purpose of earthing on spout contacts of metal-enclosed switchgear, only **Approved** appliances **Shall** be used. The insertion of the hand or any tool into contact spouts for this purpose is forbidden.

### 4.3.4 Circuit Main Earths

(a) **Operation**

No **High Voltage** earthing switch **Shall** be operated or **Circuit Main Earth** connected or disconnected except with the consent of the **Control Engineer** (or under the terms of a **Sanction-for-Test** or under Rules 5.1.2 or 5.5.4(i)).

Where a locking facility exists **Circuit Main Earths** **Shall** be secured by a **Safety Lock**.
(b) **Recording of Circuit Main Earths**
Completed earthing operations **Shall** be confirmed to the **Control Engineer** as agreed and without unnecessary delay. The location of each **Circuit Main Earth** **Shall** be recorded on the **Safety Document**.

(c) The **Control Engineer** **Shall** record in their log the time of application and the location of each **Circuit Main Earth** connection and the time of its removal except where it has been removed under the terms of a **Sanction-for-Test** or Rules 5.1.2 or 5.5.4(i).

4.3.5 **Additional Earths**

(a) **Additional Earths** applied after the issue of a **Permit-to-Work** or **Sanction-for-Test** may only be attached or removed by the recipient of the **Safety Document** or a **Competent Person** under their **Personal Supervision**.

(b) When the recipient of a **Permit-to-Work** clears and returns the **Permit-to-Work** to a **Senior Authorised Person** they **Shall** ensure that the **Senior Authorised Person** is aware of the position of any **Additional Earths** that have not been removed.

4.4 **APPROACH TO EXPOSED LIVE HIGH VOLTAGE CONDUCTORS OR INSULATORS SUPPORTING THEM**

4.4.1 **Safety Distances**

(a) The **Safety Distance** (designated 'X' in Table 1 and Diagram 1) **Shall** be maintained at the respective **System** voltages between any part of a person or object and the nearest exposed **Live High Voltage Conductor**.
(b) A distance of 300mm **Shall** also be maintained, at all **System** voltages, from the portion of insulators supporting **Live High Voltage Conductors** which is outside the appropriate **Safety Distance** from the Conductors.

### Table 1 - Safety Distances

<table>
<thead>
<tr>
<th>Nominal System Voltage</th>
<th>Safety Distance 'X'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to and including 33kV</td>
<td>0.8m</td>
</tr>
<tr>
<td>Exceeding 33kV but not exceeding 66kV</td>
<td>1.0m</td>
</tr>
<tr>
<td>Exceeding 66kV but not exceeding 132kV</td>
<td>1.4m</td>
</tr>
<tr>
<td>Exceeding 132kV but not exceeding 275kV</td>
<td>2.4m</td>
</tr>
<tr>
<td>Exceeding 275kV but not exceeding 400kV</td>
<td>3.1m</td>
</tr>
</tbody>
</table>

**Diagram 1**

**Safety Distance 'X' (from live high voltage conductors)**
4.4.2 Approach of Persons

(a) Subject to the provisions of Rule 4.4.2(b) and 4.4.2(c), no Person Shall allow any part of their body to approach exposed High Voltage Conductors, or insulators supporting such Conductors, within the Safety Distance specified in Rule 4.4.1 unless the Conductors have been made safe for work and a Safety Document issued as required by Rule 4.1.1.

(b) When a Person is applying an Approved voltage testing device to High Voltage Conductors contained within the open spouts of metal enclosed switchgear, it is allowable for those parts of the body required to perform the task to approach within the Safety Distances specified in Rule 4.4.1 subject to Approved procedures. Approved insulating gloves Shall be worn.

(c) When High Voltage Live Line Work is being carried out in accordance with Approved Hot Glove Procedures, it is allowable for the body to approach within the Safety Distances specified in Rule 4.4.1.

4.4.3 Objects Being Handled

(a) When exposed High Voltage Conductors are not Isolated the only objects which Shall be caused to approach them, or insulators supporting them, within the Safety Distances specified in Rule 4.4.1 Shall be those Approved for High Voltage Live Line Work and Approved voltage testing devices.

(b) When exposed Conductors are Isolated but not proved Dead, the only objects which Shall be caused to approach them, or insulators supporting them within the Safety Distances specified in Rule 4.4.1 Shall be insulated devices Approved for High Voltage Live Line Work and Approved voltage testing devices.
4.4.4 Working and Access Clearances

Taking account of the nature and location of the work, the hazards and the presence of persons, the Senior Authorised Person or the Person in charge of the work as listed below, Shall establish Working and Access Clearances such as to ensure that the Safety Distances specified in Rule 4.4.1 are maintained both in respect of those persons present and the objects being handled.

N.B. Recommended Working and Access Clearances for the guidance of Senior Authorised Persons are specified in Appendix D.

The following Persons may also establish Working and Access Clearances provided that the Working and Access Clearances are not less than those recommended in Appendix D:

(a) An Authorised Person responsible for the Personal Supervision of Live Line Work.

(b) An Authorised Person with authority to issue Limitation-of-Access documents.

(c) A Competent Person when responsible for the Personal Supervision of work in accordance with Rule 5.10.5.2.

4.5 WORK IN SUBSTATIONS AND SWITCHING STATIONS CONTAINING EXPOSED LIVE HIGH VOLTAGE CONDUCTORS

4.5.1 Zone of Work

(a) When work is to be carried out in a substation or switching station in proximity to exposed Live High Voltage Conductors, the zone of work Shall be properly identified by a Senior Authorised Person. The zone of work Shall then be defined as far as possible by the use of Approved barriers, chains or by other Approved means. These Shall be so arranged that the specified Working and Access Clearances, from the nearest exposed Live Conductors or supporting insulator, to ground level,
or platform or access way which may be required to be used, are established.

(b) The zone of work to be defined at ground level Shall only be that in which the work is to be carried out.

(c) If the work cannot be carried out without leaving ground level or a platform or access way, the Working and Access Clearances Shall also be obtained from the nearest exposed Live High Voltage Conductor to the points from which work is actually carried out. In such cases access Shall only be by means of an Approved ladder or other Approved means in accordance with Rules 4.5.4 and 4.5.5. The climbing of structures to gain access is forbidden. In the case of terminal poles or towers in substations, access Shall be in accordance with an Approved procedure.

(d) If the work is such that the specified Working and Access Clearances are not sufficient to avoid Danger other suitable arrangements Shall be made.

(e) The Approved barriers or chains Shall be clearly visible, so far as is reasonably practicable, and Shall not be supported by any structure carrying electrical Apparatus or Conductors and Shall not carry any notice. At ground level the section so defined Shall be clearly distinguished in accordance with an Approved procedure. Danger Notices Shall be attached to adjoining Apparatus containing Live Conductors or adjacent Conductor supports at the limits of the zone of work.

4.5.2 Access to Zone of Work
Where necessary to prevent Danger the access and egress ways to and from the zone of work Shall be clearly defined in an Approved manner.

4.5.3 Working and Access Clearances
The Working and Access Clearances required at the
4.5.4 Use of Portable Ladders and Long Objects where there are Exposed Live Conductors

AE12 (a) Portable ladders Shall be of Approved type and of no greater length than is required for the work involved.

(b) Portable ladders and other long objects Shall not be used without the permission of a Senior Authorised Person, who Shall define the conditions of use to the Authorised Person in charge of the work. The movement and erection of such ladders and objects Shall then be carried out only under the Personal Supervision of the Authorised Person in charge of the work, and when moved at ground level they Shall be carried only in a horizontal position and as near to the ground as reasonably practicable.

(c) Portable ladders provided to allow access to fixed ladders which terminate above ground level, and to provide access in other Approved cases, Shall be padlocked in position or otherwise secured by an Authorised Person while work is being carried out.

(d) All portable ladders within substations or switching stations Shall be securely locked to a suitable anchorage when not in use.

4.5.5 The Movement and Use of Cranes, Scaffolds, Mobile Elevated Work Platforms and Other Equipment

(a) When cranes, scaffolds, mobile elevated work platforms and other equipment and materials transported by vehicles or otherwise are taken into or out of a substation the route to be followed Shall be agreed by a Senior Authorised Person. Cranes or other equipment Shall be connected to the substation earthing system as soon as reasonably practicable.
(b) The limits of operation of such equipment Shall be defined by a Senior Authorised Person to an Authorised Person who Shall be in charge of the work and thereafter the equipment Shall be erected or moved only within these limits under the Personal Supervision of the Authorised Person.

4.5.6 Danger Notices, Barriers and Screens

Danger Notices, barriers and screens Shall be fixed or moved only by, or under the Personal Supervision of, a Senior Authorised Person.

4.5.7 Adverse Weather Conditions

In the event of or near approach of a lightning storm, work on exposed Conductors in outdoor substations or outdoor switching stations, or on Apparatus directly connected to exposed Conductors, Shall cease immediately where necessary to prevent Danger and the Control Engineer Shall be informed.

4.6 PERMITS-TO-WORK

4.6.1 Authority for Issue

(a) A Permit-to-Work Shall be issued by a Senior Authorised Person before any work is carried out on any Apparatus or Conductor.

(b) A Permit-to-Work Shall only be issued with the authority of the Control Engineer, who Shall maintain an Approved record of the issue and cancellation of each Permit-to-Work.

4.6.2 Procedure for Issue and Receipt

(a) A Permit-to-Work Shall be explained and issued to the Person in direct charge of the work, who after reading its contents and confirming that they understand it and are conversant with the nature and extent of the work to be done, Shall sign its receipt and its duplicate. The recipient Shall confirm their understanding by explaining the safe working area,
the work to be carried out and precautions required. The recipient **shall** also ensure that the **Permit-to-Work** is effectively explained to the other members of the **Working Party** in accordance with an **Approved** procedure.

(b) The recipient of a **Permit-to-Work** **shall** be a **Competent Person** who **shall** retain the **Permit-to-Work** in their possession at all times whilst work is being carried out.

(c) Where more than one **Working Party** is involved a **Permit-to-Work** **shall** be issued to the **Competent Person** in direct charge of each **Working Party** and these **shall** at the time of issue, be cross-referenced with each other.

4.6.3 **Procedure for Clearance and Cancellation**

(a) A **Permit-to-Work** **shall** be cleared and cancelled:

(i) when work on the **Apparatus** or **Conductor** for which it was issued has been completed;

(ii) when it is necessary to issue a **Sanction-for-Test**, in which case all **Permits-to-Work** that are associated with the **Apparatus** and **Conductors** to be tested **shall** be cancelled;

(iii) when it is necessary to change the **Person** in charge of the work detailed on the **Permit-to-Work**;

(iv) at the discretion of a **Senior Authorised Person** when it is necessary to interrupt or suspend the work detailed on the **Permit-to-Work**.

(b) The recipient **shall** sign the clearance and return the **Permit-to-Work** to a **Senior Authorised Person** who **shall** cancel it and inform the **Control Engineer**. In all cases the recipient **shall** indicate in the clearance section whether **Additional Earths** have been “removed” or “accounted for”, whether the work is "complete" or "incomplete" and that all gear and tools "have" or "have not" been removed.
(c) Where more than one Permit-to-Work has been issued for work on High Voltage Apparatus or Conductors associated with the same Circuit Main Earths, the Control Engineer Shall ensure that all such Permits-to-Work have been cancelled before those Circuit Main Earths are removed.

4.6.4 Procedure for Temporary Withdrawal or Suspension
Although this Rule appears in the National Model Distribution Safety Rules there is no such Approved procedure within Western Power Distribution.

4.6.5 Procedure for Transfer
Although this Rule appears in the National Model Distribution Safety Rules there is no such Approved procedure within Western Power Distribution.

4.6.6 Minor Testing Under A Permit-To-Work
Where there is a requirement for minor testing to be carried out under a Permit-to-Work, this Shall be in accordance with an Approved procedure.

4.7 SANCTIONS-FOR-TEST

4.7.1 Authority for Issue
(a) A Sanction-for-Test Shall be issued by the Senior Authorised Person initiating the testing under these Distribution Safety Rules before any testing is carried out on any Apparatus or Conductors.
(b) A Sanction-for-Test Shall only be issued with the authority of the Control Engineer, who Shall maintain an Approved record of the issue and cancellation of each Sanction-for-Test.

4.7.2 Procedure for Issue and Receipt
(a) A Sanction-for-Test Shall be explained and issued to the Authorised Person in direct charge of the testing, who after reading its contents and confirming that they understand it and are conversant with the nature and extent of the testing to be done, Shall sign its’ receipt
and its’ duplicate. The recipient shall confirm their understanding by explaining the safe working area, the testing to be carried out and precautions required. The recipient shall also ensure that the Sanction-for-Test is effectively explained to other members of the Testing Party in accordance with an approved procedure.

(b) The recipient of a Sanction-for-Test shall be an Authorised Person who shall retain the Sanction-for-Test in their possession at all times whilst tests are being done.

4.7.3 Procedure for Clearance and Cancellation

When testing on Apparatus for which a Sanction-for-Test has been issued is suspended or completed the recipient shall sign the clearance and return the Sanction-for-Test to a Senior Authorised Person who shall cancel it and inform the Control Engineer.

4.7.4 Procedure for Temporary Withdrawal or Suspension

Although this Rule appears in the National Model Distribution Safety Rules there is no such approved procedure within Western Power Distribution.

4.7.5 Minor Work Under A Sanction-for-Test

Where there is a requirement for minor work under a Sanction-for-Test, this shall be in accordance with an approved procedure.

4.8 LIMITATIONS-OF-ACCESS

4.8.1 Authority for Issue

(a) A Limitation-of-Access shall be issued by a Senior Authorised Person or an Authorised Person specially authorised to do so when it is considered necessary to have written instructions to avoid Danger and when a Permit-to-Work or a Sanction-for-Test is not applicable.

(b) In particular a Limitation-of-Access may be issued
for the following types of activity when there is Danger:

AP 2
(i) work in proximity to, but outside the Working and Access Clearance from, exposed Live High Voltage Conductors;
(ii) work on Plant operated by or containing compressed air or other gases;
(iii) such other access or work as specified by an Approved procedure.

4.8.2 Procedure for Issue and Receipt
(a) A Limitation-of-Access Shall be explained and issued to the Person in direct charge of the work who after reading its contents and confirming that they understand it and are conversant with the nature and extent of the work to be done, Shall sign its receipt and its duplicate. The recipient Shall confirm their understanding by explaining the safe working area, the work to be carried out and precautions required. The recipient Shall also ensure that the Limitation-of-Access is effectively explained to the other members of the Working Party in accordance with an Approved procedure.

(b) The recipient of a Limitation-of-Access Shall be a Competent Person who Shall retain the Limitation-of-Access in their possession at all times whilst work is being carried out.

(c) Where more than one Working Party is involved, a Limitation-of-Access Shall be issued to the Competent Person in direct charge of each Working Party.

4.8.3 Procedure for Clearance and Cancellation
A Limitation-of-Access Shall be cleared by the recipient signing the clearance and then returning the Limitation-of-Access for cancellation to a Senior Authorised Person or Authorised Person specially authorised to do so.
Golden Distribution Safety Rule

If you’re not sure, stop and ask for help.
SECTION 5

PROCEDURES FOR WORK ON PARTICULAR ITEMS OF PLANT, APPARATUS OR CONDUCTORS
5.1 GENERAL SAFETY PRECAUTIONS

5.1.1 The safety precautions detailed in Section 4 for work on or near High Voltage Systems Shall apply.

5.1.2 Zone of Work

When, in order to work on particular items of Plant, Apparatus or Conductors, a section of the System larger than the zone of work is Isolated and Earthed (as for example, in the case of work on ring main units) the Safety Rules specified in Section 5 relating to isolation, earthing and the requirements for Personal Supervision by the Senior Authorised Person, for such work may be waived in Approved circumstances provided that:

(a) before the waiver the normal requirements of Rule 4.1.1 are applied in full;

(b) all High Voltage Apparatus and Conductors within the zone of work are connected to the Circuit Main Earths at the time when the specified Apparatus or Conductors are released for work or testing by the issue of a Safety Document; and

(c) an Approved procedure applies.

In these circumstances, the recipient of the Safety Document may, in the course of work or testing, disconnect from the Circuit Main Earths as required any Apparatus or Conductors within the zone of work.

The Senior Authorised Person Shall, at the time of issue of the Safety Document, demonstrate to the recipient by Approved means that the Apparatus or Conductors are Dead.
The **Apparatus** and **Conductors** Shall be reconnected to the **Circuit Main Earths** before the **Safety Document** is cleared, unless the **Circuit Main Earths**, the **Apparatus** or the **Conductors** have been permanently removed from the **System**.

Precautions Shall be taken to avoid **Danger** from potential differences arising from remote **Earth** points, by bonding and earthing **Conductors** in an **Approved** manner at a point as near as possible to the point of work.

### 5.2 REMOTELY AND AUTOMATICALLY CONTROLLED EQUIPMENT

Before work is carried out on remotely or automatically controlled equipment such as circuit breakers, isolators, tap changing gear or air compressors, all remote control and automatic features Shall first be rendered inoperative and, where the facility exists, **Safety Locked** off and **Caution Notices** posted. Whilst such work is in progress no work Shall be carried out on the controlling equipment and associated wiring or relays, except by an **Authorised Person** or a **Competent Person** acting under their **Personal Supervision**. In this case the **Distribution Control Engineer** Shall be informed but no work of this kind Shall be carried out if it could restore the remote control or automatic features.

### 5.3 WITHDRAWABLE APPARATUS

#### 5.3.1

When withdrawable **High Voltage Apparatus** has been disconnected from all supplies and removed from its normal housing, its **Conductors** Shall be discharged to **Earth**, but need not remain connected to **Earth**. Where a risk assessment shows there is no **Danger** from stored electrical energy, it is not necessary to discharge the withdrawable **Apparatus**.

#### 5.3.2

All spout shutters not required to be opened for immediate work or operation Shall where practicable be
locked shut or otherwise made inaccessible.

5.3.3 Work, at the location, on withdrawable High Voltage Apparatus that has been disconnected in accordance with Rule 5.3.1 Shall be carried out under a Limitation-of-Access.

5.4 BUSBAR SPOUTS, BUSBARS AND BUSBAR CONNECTIONS OF MULTI-PANEL SWITCHBOARDS

5.4.1 Isolation
When work is to be carried out on busbar spouts, busbars and busbar connections, all of the following isolation procedures Shall be carried out:

(a) the section of the busbars on which work is to be carried out Shall be Isolated from all points of supply from which it can be made Live;

(b) the isolating arrangements Shall be locked so that they cannot be operated and, where practicable the shutters of Live spouts locked shut. Where duplicate circuit breakers or switches in one tank or on-load selectors are installed, and it is not possible to isolate them from all points of supply, then all circuit breakers or switches that can be closed on to the busbars on which work is to be carried out Shall have their mechanisms locked in the open position and the closing mechanism Shall be made inoperative;

(c) Caution Notices Shall be attached at all points where the busbars can be made Live; and

(d) Danger Notices Shall be attached on or adjacent to Apparatus containing Live Conductors at the limits of the zone of work.

5.4.2 Earthing
(a) Where practicable the section of busbar on which work is to be carried out Shall be checked by means of an Approved voltage testing device to verify that it is not Live. The checking with the voltage testing device Shall be done on the panel at which the Circuit Main Earth is to be applied.
(b) **Circuit Main Earths of Approved** type Shall be applied at a panel, other than that at which work is to be undertaken, on the **Isolated** section of busbars. The insertion of the hand or any tool into contact spouts for this purpose is forbidden.

5.4.3 **A Permit-to-Work** or **Sanction-for-Test** Shall be issued in accordance with Rules 4.6 or 4.7.

5.4.4 **Work**

Before obtaining the receipt signature on the **Permit-to-Work** the **Senior Authorised Person** who is issuing the **Permit-to-Work** Shall, at the point of work, satisfy themselves that the recipient is aware of the location of all adjacent **Live High Voltage Apparatus** and of the safety precautions to be taken by the recipient.

Immediately after the **Senior Authorised Person** has obtained the receipt signature on the **Permit-to-Work** and before any work is carried out, then:

(i) Where work is to be carried out on busbar spouts it Shall be carried out under the **Personal Supervision** of the **Senior Authorised Person** who Shall identify the busbar spouts to be worked on and where necessary provide access by removing any locks applied to such spout shutters. They Shall then prove that each spout is **Dead** by means of an **Approved** voltage testing device or other **Approved** means before any work is undertaken on the spout.

(ii) Where work is to be carried out on busbars or busbar connections the **Senior Authorised Person Shall** identify in an **Approved** manner where access is to be made. Access Shall then be made, by the removal of the appropriate cover plates, under the **Personal Supervision** of the **Senior Authorised Person** who Shall not leave site until they are satisfied that no further access is required to complete the work and that they have taken such action to prove, where practicable, that each busbar or busbar connection in the working area is **Dead** by means of testing with an
5.5 FEEDER SPOUTS AND CONNECTIONS, VOLTAGE TRANSFORMER SPOUTS AND CONNECTIONS, AND SINGLE PANEL BUSBAR SPOUTS AND CONNECTIONS

5.5.1 Isolation
When work is to be carried out on feeder and voltage transformer spouts or connections, or on the busbar spouts or connections of a single panel, the following procedures Shall be carried out:

(a) the spouts or connections on which work is to be carried out Shall be Isolated from all points of supply from which they can be made Live;

(b) the isolating arrangements Shall be locked so that they cannot be operated and the shutters of Live spouts Shall be locked shut;

(c) Caution Notices Shall be attached at all points where the circuit can be made Live; and

(d) Danger Notices Shall be attached, where applicable, on or adjacent to the Apparatus containing Live Conductors at the limits of the zone of work.

5.5.2 Earthing

(a) Where practicable the spout contacts or connections Shall be checked by means of an Approved voltage testing device to verify that they are not Live.

(b) The circuit Shall be Earthed with Approved earthing equipment at the point of work and, where reasonably practicable, at all points of isolation from the supply. Any special appliances used for the purposes of earthing metal-enclosed switchgear Shall also be Approved but the insertion of the hand or any tool into contact spouts for this purpose is forbidden.
(c) Where the spouts are connected to an overhead line circuit a **Circuit Main Earth** or **Additional Earth Shall** be applied at a point nearest to the point of work where access to the **Conductors** can safely be obtained.

5.5.3 A **Permit-to-Work** or **Sanction-for-Test Shall** be issued in accordance with Rules 4.6 or 4.7. Where the work to be done requires removal of the **Circuit Main Earths** at the point of work the **Permit-to-Work Shall** state that this is permitted under Rule 5.5.4 (i).

5.5.4 **Work**

Before obtaining the receipt signature on the **Permit-to-Work** the **Senior Authorised Person** who is issuing the **Permit-to-Work Shall**, at the point of work, satisfy themselves that the recipient is aware of the location of all adjacent **Live High Voltage Apparatus** and of the safety precautions to be taken by the recipient.

Immediately after the **Senior Authorised Person** has obtained the receipt signature on the **Permit-to-Work** and before any work is carried out, then:

(i) where the work is to be carried out on the feeder, voltage transformer or busbar spouts on a single panel unit, it **Shall** be carried out under the **Personal Supervision** of a **Senior Authorised Person** who, notwithstanding the requirements of Rule 4.3.4(a) may, where necessary, remove the **Circuit Main Earths** at the point of work and provide access by removing any locks applied to such spout shutters. They **Shall** then prove that each spout is **Dead** by means of an **Approved** voltage testing device or other **Approved** means before any work is undertaken on the spout. On completion of the work, the **Circuit Main Earths Shall** be re-applied, if necessary, before the **Permit-to-Work** is cancelled.

If the only earthing devices that can be applied to the circuit are those applied to the spouts and are **Circuit**
Main Earths then, while the work is in progress no other work Shall be carried out on the circuit connected to those spouts.

(ii) where work is to be carried out on feeder or voltage transformer connections and single panel busbars or connections the Senior Authorised Person Shall identify in an Approved manner where access is to be made. Access Shall then be made by the removal of the appropriate cover plates under the Personal Supervision of the Senior Authorised Person who Shall not leave site until they are satisfied that no further access is required to complete the work and that they have taken such action to prove, where practicable, that each connection or busbar in the working area is Dead by means of testing with an Approved voltage testing device or other Approved means. No further access Shall be made to other parts of the switchboard during the course of the work.

5.6 HIGH VOLTAGE APPARATUS AND PLANT OPERATED BY OR CONTAINING COMPRESSED AIR OR OTHER GASES OR OPERATED BY HYDRAULIC POWER

5.6.1 Compressed Air

All of the following precautions Shall be taken before any work other than operating adjustments is carried out:

(a) if the zone of work includes the compressor plant, then the supply to the prime mover of the compressor Shall be switched off and any such switch and/or control handle Safety Locked in the off or neutral position as appropriate. A Caution Notice Shall be attached at each such position;

(b) all valves positioned between the part of the system to remain in service and the zone of work Shall be closed and locked in the closed position by Safety Locks, and a Caution Notice Shall be attached at each such position.
In addition, the supply to any such valve that is power operated Shall be rendered inoperative and where the facility exists the power supply Safety Locked in the off position, a Caution Notice Shall be fitted;

(c) the compressed air in any zone of work Shall be released before work commences, and Approved methods Shall be used to ensure that the equipment or pipes concerned remain open to atmosphere for the duration of the work; and

(d) all keys for Safety Locks fitted under the provisions of this Rule Shall be placed in a Key Safe, in the possession of a Senior Authorised Person or in accordance with an Approved procedure.

5.6.2 Operating Adjustments
Notwithstanding the requirements of Rule 5.6.1, operating adjustments on equipment operated by or containing compressed air, which require the normal air supply, may be carried out but only under the Personal Supervision of an Authorised Person.

5.6.3 Equipment Containing SF6
Access to or work on equipment containing SF6 Shall be carried out in accordance with an Approved procedure.

5.6.4 Where the additional safety precautions required for work on associated Apparatus are not detailed on a Permit-to-Work, then a Limitation-of-Access Shall, where necessary, be used in accordance with Rule 4.8.

5.7 TRANSFORMERS
5.7.1 Isolation
(a) When work within the terms of Rule 4.1 is to be carried out on the connections to, or the windings of a transformer, the switchgear or fuse-gear controlling all windings Shall be opened or the windings or connections Isolated by other Approved means from Live Conductors.
(b) Additionally, to prevent the possibility of the transformer being made Live by back-feed, all Low Voltage fuses or links on associated voltage and auxiliary transformers Shall be withdrawn and a Caution Notice attached. Where the facility exists a Safety Lock Shall be applied to the fuse and link carriers, or the voltage and auxiliary transformers Shall be Isolated.

(c) The transformer Shall be Isolated from all common neutral earthing equipment from which it may become Live. Except for the isolation of transformers supplying traction loads, which Shall be in accordance with an Approved procedure, this does not require the disconnection of solidly Earthed neutrals or neutral equipment connected solely to the transformer on which work is to be done.

(d) Where work is to be carried out on a High Voltage to Low Voltage transformer and the Low Voltage windings of the transformer are controlled by a switch or isolator, the switch or isolator Shall be secured open in an Approved manner.

In other cases arrangements Shall be made to ensure that the Low Voltage windings are Isolated from all sources of Low Voltage supply.

(e) Before any withdrawable voltage transformer is Isolated or re-connected the associated High Voltage connections Shall, where reasonably practicable, be made Dead. If it is suspected that a voltage transformer is faulty the associated busbars or feeder connections Shall be made Dead before it is Isolated.

(f) Caution Notices Shall be attached at all points of isolation including those of Low Voltage.

(g) All keys for Safety Locks fitted under the provisions of this Rule Shall be placed in a Key Safe, in the possession of a Senior Authorised Person or in accordance with an Approved procedure.
5.7.2 The transformer **Shall** be **Earthed** in accordance with Rule 4.1.1 (c).

5.7.3 Before a **Permit-to-Work** or **Sanction-for-Test** is issued the **Senior Authorised Person Shall**, at the point of work, identify the transformer to be worked on, in accordance with Rule 4.1.1 (e).

5.7.4 A **Permit-to-Work** or **Sanction-for-Test Shall** be issued in accordance with Rules 4.6 or 4.7.

5.8 **HIGH VOLTAGE STATIC CAPACITORS**

5.8.1 **Isolation**

Static capacitors **Shall**, in accordance with Rule 4.1.1 be **Isolated** from all **Live Conductors**, locked off where practicable and **Caution Notices** fixed.

5.8.2 **Earthing**

After the **Circuit Main Earths** have been applied to the instructions of the **Control Engineer**, the following earthing operations **Shall** be carried out under the **Personal Supervision** of a **Senior Authorised Person** in the following sequence:

- **AE8 (i)** Apply **Approved** capacitor earthing devices to the capacitor frames;

- **AE8 (ii)** Apply **Approved** capacitor earthing devices to the common connections of each group of capacitors. (See Rule 5.8.4 (b)).

5.8.3 A **Permit-to-Work** or **Sanction-for-Test Shall** then be issued in accordance with Rule 4.6 or 4.7.

5.8.4 **Work**

- **AE8 (a)** **Approved Additional Earths Shall** then be applied to the capacitor units at the point of work. These **Additional Earths Shall** be applied or removed only under the **Personal Supervision** of a **Senior Authorised Person**.

- (b) Capacitor units **Shall** be short-circuited and remain
short-circuited when removed from the circuit or in cases where earthing in accordance with Rule 5.8.2(ii) is impracticable.

5.9 HIGH VOLTAGE CABLES

5.9.1 All cables Shall be treated as Live (especially cables which are either damaged, or have exposed
Conductors), until proved Dead by an Approved procedure. No Person Shall touch the insulation which covers any Conductor subject to High Voltage unless the Conductor has been made safe in accordance with Rule 4.1.1.

5.9.2 Before issuing a Permit-to-Work for work on a High Voltage cable, the Senior Authorised Person, in addition to the procedure of Rule 4.1.1 Shall, at the point of work, identify the cable to be worked on, then by the use of an Approved spiking procedure, or other Approved means, prove it Dead. The Distribution Control Engineer Shall be informed before and immediately after any cable is spiked.

5.9.3 Where work is to be carried out on the insulated sheath system of a High Voltage cable route, additional precautions to prevent Danger from any sheath voltages Shall be taken in accordance with an Approved procedure.

5.9.4 Where work is to be carried out on any cable or ancillary equipment associated with a High Voltage cable route which may be subjected to induced voltages from other Live circuits in their proximity, then such work Shall only be carried out in accordance with Approved procedure. (See also Rule 8.3.2).

5.9.5 A Permit-to-Work or Sanction-for-Test Shall be issued in accordance with Rule 4.6 or 4.7.

5.10 HIGH VOLTAGE OVERHEAD LINES – GENERAL

Before issuing a Permit-to-Work for work on a High Voltage overhead line, in accordance with Rule 4.1.1.
the **Conductors Shall** be bonded together and connected to **Earth**. Where **Earthed** metalwork is present, the metalwork **Shall** be bonded to the **Conductors** and **Earth**.

No **Person Shall** access any pole, tower or structure subject to a **Safety Document** unless:

(i) they have confirmed that the poles, towers or supports are those detailed on the **Safety Document**;

(ii) they have also identified the pole, tower or support by any additional means provided e.g. circuit designation colours;

(iii) The **Apparatus** as defined on the **Safety Document** at the intended point of work, can be seen from ground level, to be connected to **Earth** with **Approved** earthing equipment, located not more than two spans away from the intended point of work. If not, then before work commences the line **Shall** be checked to verify that it is not **Live** and an **Additional Earth Shall** be applied in accordance with Rule 5.10.3; and.

(iv) they are instructed to do so by the recipient of the **Safety Document**. All instructions given by the recipient **Shall** be in the presence of all members of the **Working Party** who are providing assistance to the **Person** accessing the pole and who **Shall** remain in visual contact with them for the duration of the work.

**LINES IN PROXIMITY**

If there are other overhead lines in proximity to the one to be worked on, the recipient of the **Safety Document Shall** ensure that the **Working Party** are warned of the additional **Danger**.

5.10.1 **Safe Access**

(a) Access arrangements **Shall** be in accordance with Rule 3.3.
(b) Where ladders are used they **Shall** be of an **Approved** type.

(c) **Caution Notices**, **Danger Notices**, barriers and screens **Shall** be fixed or moved only under the **Personal Supervision** of an **Authorised Person**.

(d) No **Person** **Shall**, at a point more than 3.7 metres from ground level, touch any unearthed pole or structure supporting **Live High Voltage Apparatus** unless adequate precautions have been taken to prevent **Danger** from leakage currents in accordance with an **Approved** procedure.

5.10.2 **Use of Circuit Colours, Numbers or Symbols**

When circuit colours, numbers or symbols are used as part of the identity of a circuit the following Rules **Shall** apply:

(a) the **Senior Authorised Person** **Shall** inform and agree the circuit colours, numbers or symbols with the **Control Engineer**;

(b) the **Senior Authorised Person** **Shall** write the circuit colours, numbers or symbols on the **Safety Document**. The recipient of the **Safety Document** **Shall** check that they are the correct colours, numbers or symbols and initial the statement of circuit colours, numbers or symbols in the presence of the **Senior Authorised Person** issuing the **Safety Document**. The **Senior Authorised Person** **Shall** provide the recipient of the **Safety Document** with sufficient numbers of wristlets; and

(c) each **Person** who will work on **Apparatus** for which a **Safety Document** has been issued, which includes circuit colours or symbols, **Shall** be provided with a wristlet by the document recipient, marked with the circuit colours or symbols and **Shall** wear it in such manner that it will be readily visible to the user during the whole period that they are engaged on the work. On conclusion of the work the wristlets **Shall** be returned by the recipient of the **Safety Document** to the **Senior Authorised Person**;
5.10.3 **Additional Earths**

(a) When required and before work commences on a **High Voltage** overhead line, **Additional Earths Shall** be applied at or as near as practicable to the points of work in accordance with an **Approved** procedure. All **Conductors Shall** be bonded together and connected to **Earth**. Where **Earthed** metalwork is present, the metalwork **Shall** also be bonded to the **Conductors and Earth**.

(b) The number and position of **Additional Earths** applied after a **Permit-to-Work** is issued **Shall** be the responsibility of the recipient of the **Permit-to-Work**. Where special precautions have to be taken, the point of application of **Additional Earths Shall** be specified by the **Senior Authorised Person** in accordance with an **Approved** procedure.

(c) Where line **Conductors** are to be disconnected, **Approved** earthing devices **Shall** be applied on each side of the intended break before the **Conductors** are disconnected. Where **Conductors** are to be reconnected across an existing break, **Approved** earthing devices **Shall** be applied on each side of the break before the **Conductors** are connected.

(d) **Additional Earths** may only be applied by the recipient of a **Permit-to-Work** or **Sanction-for-Test** or by a **Competent Person** under their **Personal Supervision**.

(e) The **Additional Earths Shall** remain in position during the progress of the work and may only be removed by a **Competent Person** after all other members of the **Working Party** have descended the pole or tower on completion of the work.

(f) When painting towers the **Additional Earths** and pennants may be removed by a **Competent Person** in sequence as work proceeds down the tower.

(g) **Additional Earths** used by a **Working Party Shall** be issued by and **Shall** be returned to the recipient of the **Permit-to-Work** who **Shall** ascertain that all the
**Additional Earths** issued have been returned or accounted for before the **Permit-to-Work** is cleared. When the recipient of a **Permit-to-Work** clears and returns the **Permit-to-Work** to a **Senior Authorised Person** they **Shall** ensure that the **Senior Authorised Person** is aware of the position of any **Additional Earths** that have not been removed.

5.10.4 **Suspension of Work**

If a **Working Party** leaves a line at any time then, before work is restarted, the **Competent Person** in receipt of the **Permit-to-Work** **Shall** re-identify the line in accordance with Rule 5.11.1, **Shall** verify that all **Earths** adjacent to the point of work are still in position and **Shall** re-instruct the **Working Party** on the work covered by the **Permit-to-Work**.

5.10.5 **Work on Overhead Lines Carrying Live High Voltage Conductors**

5.10.5.1 **Live Line Work on High Voltage Overhead Lines**

**High Voltage Live Line Work**, connections to or disconnections from a **High Voltage** overhead line, or **Live Line** testing, may be carried out with the **Conductors Live**, but only in accordance with Section 6 of these Distribution Safety Rules.

5.10.5.2 **Access to Poles or Towers by a Competent Person**

**General access below any Conductor** may be permitted to a **Competent Person** on any pole or tower supporting **Live High Voltage Conductors** provided that the requirements of Rule 4.4 and 5.10.1(d) are observed. Where appropriate, a marker or markers **Shall** be placed on the pole or tower, as an indication of the safe **Working and Access Clearance** (Appendix D - Diagrams 2 & 3).

5.10.6 **Work on Upper Portions of Towers Carrying Live Conductors**

(a) When work is to be carried out on towers with all
**Conductors Live**, above the position specified in 5.10.5.2, the zone of work and / or route for climbing **Shall** be established by a **Senior Authorised Person** and a **Limitation-of-Access** **Shall** be issued and the **Control Engineer** notified.

(b) Where reasonably practicable work **Shall** be carried out from within the body of the tower where the design of the tower permits. Work and climbing on the outside faces of a tower **Shall** be in accordance with an **Approved** procedure. No part of a **Persons** body or tool that is being carried or used **Shall** at any time encroach the **Safety Distance** surrounding a **Live Conductor**.

(c) **Danger Notices**, barriers and screens **Shall** be fixed or moved only under the **Personal Supervision** of an **Authorised Person**.

### 5.10.7 Running Out or Lowering of Overhead Conductors

When any overhead line **Conductor** is to be raised or lowered or otherwise held on temporary supports / connections, **Approved** procedures **Shall** be followed to ensure that no **Danger** is caused at locations such as road / railway crossings, where other persons may be present. Where the overhead line **Conductors** pass over or under, or are in close proximity to a **High Voltage** overhead line, a **Senior Authorised Person** **Shall** determine whether the overhead line is to be made **Dead** or whether other **Approved** procedures are to be applied to adequately avoid **Danger**. When the **High Voltage** overhead line has been made **Dead** the requirements of Rule 4.1.1 **Shall** apply and a **Permit-to-Work** **Shall** be issued.

**AP9** When other **Approved** procedures are to be applied the work **Shall** either be supervised by a **Senior Authorised Person** or a **Limitation-of-Access** **Shall** be issued. In all instances the **Control Engineer** responsible for the existing overhead line **Shall** be informed of the work and where appropriate, auto-reclosing facilities on the circuit concerned **Shall** be temporarily suspended.
5.10.8  **Work on Auxiliary Cables Suspended on Catenary below High Voltage Overhead Lines**

Where work is to be carried out on auxiliary cables suspended on a catenary below a Live High Voltage overhead line, the same clearances as specified in Rule 4.4.4 must be observed and the work must not be carried out at a distance of more than 3m from a supporting pole or tower when the High Voltage line is Live.

5.10.9  **Adverse Weather Conditions**

(a) On the near approach of a lightning storm all work on overhead lines Shall cease immediately and the Control Engineer Shall be informed.

(b) No person Shall patrol an overhead line alone across country during the hours of darkness or when visibility is dangerously impaired as by fog or snow or when snow drifts or similar hazards exist.

(c) If overhead lines are to be patrolled during the hours of darkness suitable lighting equipment Shall be used.

5.11  **SINGLE OR MULTIPLE CIRCUIT HIGH VOLTAGE OVERHEAD LINES, WITHOUT KEYED FLAG BRACKETS AND WITH ALL CONDUCTORS DEAD**

5.11.1  **Preparation for a Permit-to-Work**

The Senior Authorised Person, in addition to the procedures of Rules 4.1.1 and 5.10 Shall ensure that the line to be worked upon is identified in an Approved manner at the point of work and, where practicable, Shall ensure that the line is checked by means of an Approved voltage testing device or other Approved means to verify that the line is not Live. If from the point of work the Conductors can be seen to be Earthed, the use of a voltage testing device may be dispensed with.

5.11.2  **A Permit-to-Work Shall be issued.**
5.12 DOUBLE CIRCUIT HIGH VOLTAGE OVERHEAD LINES WITHOUT KEYED FLAG BRACKETS AND WITH ONE CIRCUIT LIVE

5.12.1 Preparation for a Permit-to-Work

(a) Where work is to be carried out on double circuit overhead lines with one circuit Live the following precautions in addition to the provision of Rule 5.11 Shall be taken.

(b) The Senior Authorised Person in charge Shall ensure that at the point of work the circuit to be worked upon is identified in an Approved manner.

AP6

5.12.2 A Permit-to-Work Shall be issued.

5.12.3 Work

(a) Before commencing work and during the course of the work, the Senior Authorised Person in charge Shall at the point of work take steps, in accordance with an Approved procedure, to avoid Danger from steelwork being Live or becoming Live.

(b) A green flag Shall be affixed near ground level on the Dead circuit side of the pole or tower under the Immediate Supervision of a Senior Authorised Person. Similarly, a Danger Notice Shall be affixed on the Live circuit side. Before any Person is allowed access, a Competent Person or Competent Persons at the point of work Shall climb the pole or tower on the Dead side, check that the overhead line is not Live using an Approved voltage testing device or other Approved means and Shall connect to Earth all three Conductors on that side.

Red pennants or Danger Notices Shall be affixed by a Competent Person to the crossarms drawing attention to the Danger of the Live circuit and, in the case of lattice steel towers, Shall be affixed at the junction of the tower with the crossarms carrying the Live circuit.
(c) The **Conductors Shall** remain **Earthed** and the green flags, **Danger Notices** and the red pennants **Shall** remain in position throughout the progress of the work. All **Earths**, **Danger Notices** and pennants **Shall** be removed by a **Competent Person** or **Competent Persons** only after all other members of the **Working Party** have descended the pole or tower on completion of the work.

5.13 **SINGLE CIRCUIT HIGH VOLTAGE OVERHEAD LINES WITH KEYED FLAG BRACKETS**

5.13.1 In addition to the requirements of Rules 4.1.1 and 5.10 the following Rules **Shall** also apply.

5.13.2 The recipient of the **Permit-to-Work** who is also in charge of the **Working Party** **Shall** personally identify at the point(s) of work the circuit to be worked upon by reference to the route identification, the circuit colours and pole or tower number(s).

5.13.3 The recipient of the **Permit-to-Work** **Shall** be provided with green flag(s) that fit the keyed flag bracket(s) for the circuit on the pole or tower on which work is to be done, and **Shall** place the green flag in position on the tower before allowing any **Person** to climb the pole or tower. The recipient of the **Permit-to-Work** or the **Competent Person** who is to apply the **Additional Earths** **Shall** then climb the tower and apply **Additional Earths** in accordance with Rule 5.10.3.

5.14 **DOUBLE CIRCUIT HIGH VOLTAGE OVERHEAD LINES WITH KEYED FLAG BRACKETS AND WITH ONE CIRCUIT LIVE**

5.14.1 In addition to the requirements of Rules 5.10 and 5.13, the following Rules **Shall** also apply.

5.14.2 The recipient of the **Permit-to-Work** or the **Competent Person** who is to apply the **Additional Earths** **Shall** then climb the pole or tower on the side indicated by the green flag, apply **Additional Earths** in accordance with Rule 5.10.3 and then affix red pennants to the crossarms.
supporting the circuit not being worked on. The red pennants Shall be positioned at the junction of the crossarms and the pole or tower body. The Person doing this Shall be under Personal Supervision of the document recipient from ground level. Pennants Shall be removed by a Competent Person only after all other members of the Working Party have descended the pole or tower on completion of work.

5.14.3 When work is to be done on terminal, tee-off or heavy angle poles or towers of a double circuit line with one circuit Live, Danger may occur due to reduced clearances. The work Shall be done under the Personal Supervision of a Senior Authorised Person at ground level unless special precautions are taken in accordance with an Approved procedure.

5.15 HIGH VOLTAGE OVERHEAD LINES WITH MORE THAN TWO CIRCUITS WITH ONE OR MORE CIRCUITS LIVE

5.15.1 When work is to be done on multiple circuit High Voltage overhead lines with one or more circuits Live, Rules 4.1.1, 5.15.2, 5.15.3 and 5.15.4, in addition to either Rules 5.10 and 5.12 or 5.13 and 5.14 Shall apply.

5.15.2 Preparation for a Permit-to-Work

The Senior Authorised Person in charge of the work Shall at the point of work identify the circuit to be worked on.

5.15.3 A Permit-to-Work Shall be issued after the zone of work has been checked and the precautions to be observed have been verified with the recipient of the Permit-to-Work.

5.15.4 Work

Work on one circuit of multiple circuit lines with one or more other circuits still Live Shall not be carried out except under the following conditions:
(a) separate means of access Shall be provided to the circuit to be worked on;

(b) the Conductors of each circuit Shall be adequately screened to prevent Danger or the Working and Access Clearance from the nearest point of work to the remaining Live circuits Shall be those specified in Rule 4.4.4.

(c) Rule 5.12 Shall apply where appropriate. The fixing of green flags or red pennants and Additional Earth connections Shall be carried out under the Personal Supervision of a Senior Authorised Person from ground level.
SECTION 6

SAFETY PRECAUTIONS FOR HIGH VOLTAGE LIVE LINE WORK ON HIGH VOLTAGE OVERHEAD LINES
SECTION 6: SAFETY PRECAUTIONS FOR
HIGH VOLTAGE LIVE LINE WORK ON HIGH
VOLTAGE OVERHEAD LINES

6.1 AUTHORIZATION

6.1.1 No High Voltage Live Line Work Shall be carried out except in accordance with Approved procedures.

6.1.2 All staff engaged on High Voltage Live Line Work Shall have received appropriate training and Shall possess written authorisation from Western Power Distribution to undertake High Voltage Live Line Work.

6.1.3 High Voltage Live Line Work Shall only be undertaken under the Personal Supervision of an Authorised Person who Shall have received training in the procedures and is authorised in writing by Western Power Distribution to act in this capacity. They Shall be present throughout the whole of the High Voltage Live Line Work.

6.1.4 Only Approved tools and equipment Shall be used for High Voltage Live Line Work.

6.2 LIVE LINE TOOLS AND EQUIPMENT

6.2.1 Live line tools and equipment Shall be kept in a clean and dry condition and before use Shall be inspected by the Authorised Person referred to in Rule 6.1.3 to ensure that they are clean and dry and in sound condition. If any live line tool or piece of equipment is suspected to be defective it Shall not be used.

6.2.2 Where Approved procedures for High Voltage Live Line Work are based on the use of insulating rods, a clear mark Shall be maintained on every live line tool and piece of equipment, where appropriate, indicating the limit of the safe handling position which Shall be not less than the following:
Table II - Live Line Tools Safe Handling Limits

<table>
<thead>
<tr>
<th>Nominal System Voltage</th>
<th>Minimum Effective Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not exceeding 11kV</td>
<td>0.9m</td>
</tr>
<tr>
<td>Exceeding 11kV but not exceeding 33kV</td>
<td>1.1m</td>
</tr>
<tr>
<td>Exceeding 33kV but not exceeding 66kV</td>
<td>1.3m</td>
</tr>
<tr>
<td>Exceeding 66kV but not exceeding 132kV</td>
<td>1.7m</td>
</tr>
</tbody>
</table>

6.3 GENERAL SAFETY PRECAUTIONS

6.3.1 Subject to the conditions allowed by this section 6 for High Voltage Live Line Work the safety precautions detailed in Section 4 for work on or near High Voltage Systems Shall apply.

6.3.2 High Voltage Live Line Work Shall not take place on any section of High Voltage overhead line where the failure of any component, Conductor or tool could energise an associated or adjacent overhead line which is Dead and Earthed and subject to a Permit-to-Work or Sanction-for-Test.

6.3.3 Work Shall not commence until the Authorised Person in charge of the High Voltage Live Line Work has advised the appropriate Control Engineer of the nature and location of the work to be carried out.

If the circuit on which work is being carried out becomes Dead owing to the operation of protective equipment or for any other reason, the Control Engineer Shall not sanction the circuit to be re-energised without reference to the Authorised Person in charge of the High Voltage Live Line Work. Auto-reclose and protection equipment controlling the line Shall be managed in accordance with an Approved procedure.
6.3.4 No High Voltage Live Line Work Shall commence in unfavourable weather. If in the course of work unfavourable weather develops, work Shall be suspended.

6.3.5 If it is necessary to suspend High Voltage Live Line Work for any reason, the line and equipment Shall be left in a safe condition and the Control Engineer informed.

6.3.6 Before work commences, all Conductors and associated pole top, line and tower fittings, steelwork and insulators Shall be thoroughly examined at the point of work for signs of incipient failure, through binoculars if necessary, so as to minimise the possibility of failure of these parts during High Voltage Live Line Work. The examination Shall extend to include the adjacent spans and poles or towers on all sides of the point of work.

6.3.7 Before displacing Live Conductors adequate precautions Shall be taken to avoid Danger and to ensure safety including that of members of the public. Safe Working and Access Clearances, in accordance with Approved procedures Shall also be maintained between the line and other Apparatus and objects.

6.3.8 No vehicle, or person other than a member of the team doing the work, Shall be allowed in the near vicinity of the point of work while work is in progress without the sanction of the Authorised Person in charge of the High Voltage Live Line Work. Where mobile platforms etc. are used for access, the limits of movement of the platform Shall be established by the Authorised Person in charge of the High Voltage Live Line Work and strictly controlled so as to ensure that no metalwork, or any part of the platform, places any person in a position of Danger.
6.3.9 Before any pole is climbed it shall be tested in an Approved manner. No pole badly impaired by decay or damage or whose stability is in doubt shall be climbed until it has been supported by Approved means. The pole shall then either be climbed by only one Person at a time or access to the top of the pole shall be by Approved means independent of the pole.

6.3.10 Before any pole is climbed and during the course of High Voltage Live Line Work the Authorised Person in charge shall take all reasonably practicable steps to avoid Danger from steelwork being Live or becoming Live, in accordance with Approved procedures.

6.3.11 Where Approved procedures for High Voltage Live Line Work are based on the use of insulating rods, no Person shall climb, move or work in such a position as to bring any part of their body, clothing or any working tool (other than insulated High Voltage Live Line Work tools or equipment Approved for those procedures) within the safe handling limits referred to in rule 6.2.2, from Live exposed High Voltage Apparatus and, where appropriate, a marker or markers shall be placed on the pole or tower as an indication. (See also Appendix D – Diagrams 5, 6 and 7).

6.3.12 On completion of the High Voltage Live Line Work, the Distribution Control Engineer shall be informed when all Persons and tools have been withdrawn from the point of work.
Golden Distribution Safety Rule

If you’re not sure, stop and ask for help.
SECTION 7

SAFETY PRECAUTIONS FOR THE TESTING OF HIGH VOLTAGE APPARATUS
SECTION 7: SAFETY PRECAUTIONS FOR TESTING OF HIGH VOLTAGE APPARATUS

7.1 GENERAL
Testing of High Voltage Apparatus may involve a change of state from a condition of Dead to Live Conductors, possibly involving the issue and cancellation of a Permit-to-Work prior to the issue of a Sanction-for-Test. It is the duty of the issuer of the Sanction-for-Test to ensure that controls are put in place to avoid Danger during the testing, by undertaking a risk assessment and identifying appropriate control measures that will be implemented by the Person carrying out the testing. This should take due account of the types of test being carried out, the location of the Apparatus being tested and its accessibility to Western Power Distribution staff, contractors, members of the public, etc. To allow reasonable flexibility during testing and to ensure the maintenance of appropriate safety standards, the following Rules of this section require that an Authorised Person Shall assume special responsibility in this respect.

7.2 WORK UNDER THE TERMS OF A SANCTION-FOR-TEST
Any Apparatus which has been Isolated and Earthed for testing under the terms of a Sanction-for-Test Shall not be connected to the System until such Apparatus has passed the Approved tests and then connected only with the sanction of the Control Engineer. The recipient of the Sanction-for-Test Shall be responsible for co-ordinating all testing operations on the Isolated equipment and for ensuring safety during the tests. They may, without further reference to the Control Engineer, remove and replace Circuit Main Earths as necessary and carry out tests including making Live the Apparatus concerned from a testing supply. The recipient of the Sanction-for-Test Shall either make the tests personally or such tests Shall be carried out under their Supervision so as to ensure the tests are conducted in a...
safe manner. The re-application of the **Circuit Main Earths** at the end of testing may not be necessary. If an **Approved** procedure applies, they can be left removed and reported to the **Control Engineer** as exceptions on the **Sanction-for-Test**. Otherwise each **Circuit Main Earth** removed by the recipient of the **Sanction-for-Test Shall** be replaced before signing the clearance section of the **Sanction-for-Test**.

7.3 **TESTING OF HIGH VOLTAGE APPARATUS**

7.3.1 When any **High Voltage Apparatus** is to be subjected to test voltage before being connected or reconnected to the **High Voltage System**, the **Authorised Person** responsible for applying the test voltage **Shall** ensure that such **Apparatus** and the associated test equipment, leads and connections are adequately guarded to prevent **Danger**. **Danger Notices Shall** be attached in conspicuous positions during the period the **Apparatus** may be subject to voltage. All cables and capacitors **Shall** be discharged before and after the application of test voltage.

7.3.2 Temporary **Conductors** used for testing purposes **Shall** be of an adequate size and be easily visible.

7.3.3 Test connections **Shall** not be applied in a cell or compartment in which there is any exposed metal **Live** at **High Voltage**. (This Rule does not preclude the use of **Approved** voltage testing devices or other **Approved** devices for testing and phasing out circuits in an **Approved** manner).

7.3.4 The requirements of Rule 4.4 **Shall** be observed in respect of access or work in the proximity of **Live** test leads and connections and in respect of testing in the vicinity of **Live Conductors**.
Golden Distribution Safety Rule

If you’re not sure, stop and ask for help.
SECTION 8

SAFETY PRECAUTIONS AND PROCEDURES FOR WORK ON LOW VOLTAGE SYSTEMS
SECTION 8: SAFETY PRECAUTIONS AND PROCEDURES FOR WORK ON LOW VOLTAGE SYSTEMS

8.1 General

8.1.1 The term Low Voltage System and this section of the Distribution Safety Rules apply to Western Power Distributions’ distributing System operating at Low Voltage.

8.1.2 When work or testing is carried out on or near Low Voltage Apparatus and Conductors precautions Shall be taken to prevent Danger from burn injury due to electric arc and from electric shock if the Conductors are exposed. These precautions are necessary to prevent Danger to Competent Persons and, so far as reasonably practicable, Danger to Third Parties, i.e. persons that may not have sufficient technical knowledge and/ or experience to enable them to maintain safety from the System.

If the Conductors are covered with insulation and screening, the adequacy of these materials to prevent Danger Shall be assessed with regard to the nature of the work or testing. Where necessary the precautions appropriate to work on or near exposed Conductors Shall be applied. Danger may arise in the following circumstances:

(a) a Person confuses Apparatus and Conductors which have been made Dead with those that remain Live;

(b) Dead Apparatus and Conductors are accidentally or inadvertently made Live;

(c) a Person accidentally or inadvertently makes contact with adjacent Live Conductors; or

(d) inadequate precautions are taken during Live work or testing.
8.1.3 The term ‘earthed’ when applied to the Low Voltage System will mean the bonding of all the phase Conductors (including any switch or earthwire) to the neutral Conductor by means of an Approved device or Approved leads.

8.1.4 Control and operation of Low Voltage Systems Shall be in accordance with an Approved procedure. Only Persons appointed in accordance with an Approved procedure Shall have authority to carry out Switching and the Live testing of Low Voltage Systems.

8.1.5 Work on, or testing of Low Voltage Apparatus and Conductors Shall only be carried out by a Competent Person. Where working arrangements so require, Approved procedures for the control of work, including the issue of a Safety Document, Shall apply.

8.1.6 Where work or testing involves the initial connection, or the re-arrangement of Conductors to a customer, supply Shall not be commenced or recommenced to that customer until checks have been carried out at an appropriate point on the System to ensure the polarity, phase rotation and earthing arrangements are acceptable.

8.1.7 No Low Voltage overhead line Shall be erected or dismantled under a Live High Voltage line without the authority of a Senior Authorised Person who Shall ensure that when necessary, for example because of insufficient clearance, the High Voltage line is made Dead and a Permit-to-Work issued. The Permit-to-Work Shall reference the Low Voltage work to be carried out. When a Low Voltage overhead Conductor is to be raised or lowered or otherwise held on temporary supports / connections Approved procedures Shall be followed to ensure that no Danger is caused at locations such as road / rail crossings etc. where other persons may be present.
8.1.8 When work or testing of the **Low Voltage System** is planned, precautions **Shall** be taken to safeguard the integrity of the **Low Voltage System** and in the process prevent, so far as is reasonably practicable, **Danger** to Third Parties i.e. persons that may not have sufficient technical knowledge and/or experience to enable them to maintain safety from the **System**.

8.2 **GENERAL REQUIREMENTS FOR WORK ON DEAD LOW VOLTAGE APPARATUS AND CONDUCTORS**

8.2.1 When work is to be carried out on **Dead Low Voltage Apparatus** the **Conductors Shall** be **Isolated** from all sources of supply from the **System**. Where the **Isolating Devices** are lockable, **Safety Locks Shall** be applied. If components such as fuses and links are removable they **Shall** be removed. **Caution Notices Shall** be securely fixed at all points of isolation. Keys and removed components **Shall** be kept in a secure place.

8.2.2 The **Conductors Shall** be **Earthed** where an earthing device or earthing leads are **Approved** for use on the **Conductors** concerned.

8.2.3 Unless work is being carried out on **Low Voltage Apparatus** as part of an **Approved High Voltage Live Line** procedure the following requirements **Shall** apply:

(a) If it is appropriate to establish a point of **Isolation** on **High Voltage Apparatus** in order to make **Low Voltage Apparatus Dead** for work to take place on that **Low Voltage Apparatus**, a **Limitation-of-Access Shall** be issued and the **Control Engineer** of the **High Voltage System** advised.

(b) If **Persons** working on **Low Voltage Apparatus** could encroach within the **Working and Access Clearance** of exposed **Live High Voltage Conductors** then the **High Voltage Conductors Shall** be made safe in accordance with Rule 4.1.1 and a **Permit-to-Work** issued.
(c) If work is to be carried out on **Low Voltage Apparatus** in conjunction with work on **High Voltage Apparatus** which has been made safe in accordance with Rule 4.1.1, then unless the **Low Voltage** work is included on the Permit-to-Work issued for **High Voltage** work, a separate **Safety Document** for the **Low Voltage** work **Shall** be issued, with the consent of the **Control Engineer** of the **High Voltage System**.

**8.2.4** Suitable precautions **Shall** be taken by Approved screening or other Approved means to avoid Danger from inadvertent contact with adjacent **Live Conductors** including, where necessary, the fixing of **Danger Notices** to **Apparatus** containing **Live Conductors**, adjacent to other **Live Conductors** and at the limits of the zone in which the work may be carried out.

**8.2.5** Where **Conductors** may become **Live** due to the operation of a customer’s generator, one or more of the following precautions **Shall** be taken to prevent Danger;

(a) the **Conductors** **Shall** be **Isolated** from the customer’s **System**;

(b) the **Conductors** **Shall** be **Earthed** or an **Earth** provided between the point of work and the customer’s **System**;

(c) the work **Shall** be carried out in accordance with Rule 8.5 and Rules 8.6 and 8.7 as appropriate.

**8.2.6** Before work commences the **Apparatus** and **Conductors** **Shall** be identified and proved **Dead** at the point of work by means of an Approved voltage testing device. Whilst work is in progress any **Live** working methods that can reasonably be applied to minimise the risk of Danger from the **Conductors** being accidentally or inadvertently made **Live** **Shall** be used.
8.3 ADDITIONAL PRECAUTIONS FOR WORK ON DEAD LOW VOLTAGE CABLES

8.3.1 The cable to be worked on Shall be identified in accordance with an Approved procedure which Shall include the following:

(a) all damaged cables Shall be treated as Live until identified and proved Dead by an Approved procedure;

(b) unless the point of work can be physically traced from a point where the Conductors are accessible and have been proved Dead at that point, it will normally be necessary to open the cable as if it is Live and test each Conductor with an Approved voltage testing device; or

(c) if the cable has been damaged or is faulty this test Shall be made at a safe distance from the suspected point of damage / fault, unless an Approved procedure has specific provisions which allow testing at the point of damage. The cable Shall then be physically traced from the point of test to the suspect point of damage / fault. Appropriate precautions Shall be taken to avoid Danger from electric shock and explosive arcing until the point of damage / fault is located and the cable made Dead.

8.3.2 When work is to be carried out on an auxiliary cable which may be subject to induced voltage from a High Voltage circuit, additional precautions to prevent Danger from these voltages Shall be taken in accordance with Approved procedures.

8.4 ADDITIONAL PRECAUTIONS FOR WORK ON DEAD LOW VOLTAGE OVERHEAD LINES

8.4.1 Bare open-wire Low Voltage Conductors Shall be Earthed using Approved earthing leads. Where insulated but unscreened Conductors are present the requirements for Live working Shall be observed until the Conductors have been proved Dead.
8.4.2 Any unearthed steelwork such as an offset bracket or the upper portions of stay wires above the insulator Shall be treated as Live until it or the Conductors have been proved Dead.

8.5 WORK ON LIVE LOW VOLTAGE APPARATUS AND CONDUCTORS

8.5.1 No Low Voltage Live work Shall be carried out except in accordance with an Approved procedure. This Approved procedure Shall adequately prevent Danger from electric shock and inadvertent short-circuiting of the Conductors.

8.5.2 Where Live work is to be carried out under an Approved procedure, the Authorised Person in charge of the Working Party Shall make an assessment of the site conditions. Live work Shall only be commenced where site conditions enable the work to be done safely. If the site conditions become unfavourable Live working Shall be suspended. In particular the following requirements Shall be assessed:

(a) the Apparatus to be worked upon Shall be visually inspected to see that it is in a satisfactory condition;

(b) there Shall be adequate working space and safe means of egress;

(c) the working space and the Apparatus to be worked on Shall be adequately illuminated; and

(d) if the work is outdoors the weather conditions Shall not be unduly adverse.

All Persons who carry out Live working Shall be Authorised Persons and Shall have received appropriate training in the particular Approved procedure. They Shall be adequately instructed by the Authorised Person in charge of the Working Party.

8.5.3 Only tools and equipment Approved for that purpose Shall be used for work on, or the testing of, Live Low Voltage Apparatus and Conductors.
8.5.4 No Person Shall carry out work which involves, or is equivalent to, the manipulation of bare Live Conductors unless accompanied by another Person who Shall be available to render or obtain assistance in an emergency.

8.6 ADDITIONAL PRECAUTIONS FOR WORK ON LIVE LOW VOLTAGE CABLES

8.6.1 The cable to be worked on Shall be identified by an Approved means. All metalwork adjacent to the point of work Shall be adequately shrouded with Approved insulating material to prevent inadvertent contact. The metallic sheaths of cables Shall be bonded to each other with an Approved insulated Conductor before jointing and before cutting to ensure the continuity of the electrical circuit through the sheath.

8.6.2 Unless alternative Approved procedures allow, during all work, including the change of cut-outs, only one Conductor Shall be bared at a time and as a minimum Approved insulating gloves Shall be used.

8.7 ADDITIONAL PRECAUTIONS FOR WORK ON LIVE LOW VOLTAGE OVERHEAD LINES

8.7.1 Where work is to be carried out on Live overhead lines, any unearthed steelwork such as offset brackets or the upper portions of stay wires above the insulator Shall be proved Dead using an Approved voltage testing device.

8.7.2 When work is carried out on insulated but unscreened Live Low Voltage Conductors, Approved insulated gloves Shall be worn and Approved insulated tools used, to prevent Danger that may arise if the insulation has deteriorated or is damaged.
8.8 APPLICATION OF HIGH VOLTAGE RULES TO WORK ON LOW VOLTAGE APPARATUS AND CONDUCTORS

8.8.1 Where Distribution Safety Rules applicable to work on High Voltage Systems, Apparatus and Conductors are applied to Low Voltage Systems, Apparatus and Conductors, this Shall be in accordance with Approved procedures.

8.9 TESTING AND ADJUSTMENT OF LIVE LOW VOLTAGE APPARATUS

8.9.1 Testing and adjustment, including functional testing, may be made with the Low Voltage Apparatus Live provided that Approved insulated tools and instruments are used.

8.9.2 If the testing or adjustment requires covers to be removed so that terminals or connections that are Live, or can be made Live, are exposed or temporarily disconnected, then precautions Shall be taken to prevent unauthorised access to, or interference with, the Apparatus. Such precautions Shall include, where necessary, Personal Supervision and / or the erection of suitable barriers or screening and the display of Danger Notices.

8.9.3 If the Conductors are to be made Dead in order to avoid Danger, the appropriate requirements of Rules 8.2, 8.3 and 8.4 Shall be applied.
Golden Distribution Safety Rule

If you’re not sure, stop and ask for help.
SECTION 9

RESPONSIBILITIES OF PERSONS
SECTION 9: RESPONSIBILITIES OF PERSONS

9.1 GENERAL

9.1.1 It is the duty of all Persons who may be concerned with the control, operation, work or testing, on or in the near vicinity of Apparatus and Plant to which these Distribution Safety Rules apply, to implement the Distribution Safety Rules and to comply with them and with related codes and procedures. Ignorance of the relevant legal requirements, Distribution Safety Rules, codes or procedures Shall not be accepted as an excuse for neglect of duty.

9.1.2 The responsibilities placed upon Persons may include all or part of those detailed in this section, depending on the role of the Persons.

9.1.3 Any written authorisation given to Persons to perform their designated role in implementing the Distribution Safety Rules Shall indicate the class of operation and / or work permitted and the section of System to which the authorisation applies.

9.1.4 Persons involved in achieving safety from the inherent dangers of the System to allow work or testing to commence on Apparatus and Plant and its subsequent restoration to service, will be concerned in separate broadly identifiable areas of responsibility, as follows:

(i) control - including (before work commences) instructing actions to implement precautions and sanctioning the issue of Safety Documents and (after completion of work) acknowledging cancellation of Safety Documents and instructing actions to restore Apparatus and Plant to service;

(ii) making safe or restoration of Apparatus and Plant - including (before work commences) taking action to make Apparatus and Plant safe for work and issuing Safety Documents and (after completion of work) cancelling Safety Documents and taking action to restore Apparatus and Plant to service;
(iii) work - which includes receipt of a Safety Document, execution of the required work to its completion or termination and clearance of the Safety Document.

9.2 COMPETENT PERSONS

9.2.1 The responsibilities of Competent Persons include those specified below. Competent Persons must ensure that their responsibilities are implemented.

9.2.2 Competent Persons Shall comply with these Distribution Safety Rules when carrying out work whether instructions are issued orally or in writing.

9.2.3 Competent Persons Shall use safe methods of work, safe means of access and the personal protective equipment and clothing provided for their safety.

9.2.4 Competent Persons when responsible for the Supervision of a Working Party Shall:

(i) be responsible for establishing and maintaining the general safety of the Working Party;

(ii) be fully conversant with the nature and the extent of the work to be done;

(iii) read the contents and confirm to the Person issuing any Safety Document that they are fully understood;

(iv) during the course of the work, adhere to, and instruct others under their charge to adhere to, any conditions, instructions or limits specified on any Safety Document;

(v) retain any Safety Document and (where appropriate) keys in safe custody and correctly implement Approved procedures to achieve this;

(vi) provide Immediate or Personal Supervision as required; and
(vii) warn all persons as quickly as possible to withdraw from and not to work on the **Apparatus** and **Plant** concerned until further notice, if during the course of work a hazard which could result in **Danger** arises or is suspected. The situation **Shall** be reported immediately by the **Competent Person** to a **Senior Authorised Person** or **Control Engineer**.

9.2.5 **Competent Persons Shall** not start or restart work under a **Safety Document** issued to another **Competent Person** without the permission of that other **Competent Person**.

9.2.6 **Competent Persons** clearing a **Safety Document** **Shall** do so only after all **Persons** working under the **Safety Document** have been withdrawn from, and warned not to work on, the **Apparatus** and **Plant** concerned. Where appropriate, they **Shall** ensure that all tools, gear and loose materials have been removed, guards and access doors replaced and the workplace left tidy. Where appropriate they **Shall** also return, or account for, the correct number of **Additional Earths**, circuit identification flags and wristlets and associated keys and documents.

9.3 **AUTHORISED PERSONS**

9.3.1 In addition to responsibilities as **Competent Persons**, **Authorised Persons Shall** have some or all of the following responsibilities within the limits imposed by their Certificates of Authorisation.

9.3.2 When participating in achieving safety from the inherent **Dangers** of the **System**, **Authorised Persons Shall** correctly implement specified procedures before work commences, including all of the following:

(i) the keeping of an **Approved** record of all messages, passed by telephone or otherwise, relating to the operation of the **High Voltage System**;
(ii) the reading back to the sender of every verbal message relating to the operation of the **High Voltage System** to ensure that the message has been accurately received; and

(iii) carrying out operations instructed by the **Control Engineer** without unnecessary delay, the implementation of the instructions to be reported back to the **Control Engineer** as soon as possible after completion.

9.3.3 As the recipient of a **Sanction-for-Test** an **Authorised Person** is responsible for all of the following:

(i) meeting the particular requirements of Section 7 of these Distribution Safety Rules;

(ii) being present during the testing, being responsible for co-ordinating all testing operations on the **Isolated** equipment and for ensuring safety during the tests. Such tests may include making **Live** the **Apparatus** and **Plant** from a testing supply; and

(iii) carrying out the temporary removal and re-application of **Earths** as necessary without further reference to the **Control Engineer**.

9.3.4 When given the authority to issue and cancel a **Limitation-of-Access**, to ensure that:

(i) the recipient of the **Limitation-of-Access** understands the nature and extent of the work to be undertaken and the safety precautions to be taken; and

(ii) where applicable, the authority of the **Control Engineer** has been obtained for the issue of the **Limitation-of-Access**.

9.4 **SENIOR AUTHORISED PERSONS**

9.4.1 In addition to responsibilities as **Authorised Persons**, **Senior Authorised Persons Shall** have some or all of the following responsibilities.
9.4.2 Correctly implementing Approved procedures to ensure that all precautions to achieve safety from the inherent Dangers of the System are completed, including:

(i) confirming through the Control Engineer that safety precautions at all locations are complete; and

(ii) meeting the requirements of the relevant sections of these Distribution Safety Rules.

9.4.3 Prior to the issue of a Safety Document, deciding where appropriate:

(i) whether Additional Earths are required, and if so, the number and points of application;

(ii) whether any action is required to contain or dissipate stored energy;

(iii) whether any additional precautions are necessary;

(iv) whether Personal Supervision is required;

and also ensuring that:

(v) safety from the inherent Dangers of the System has been achieved and will be maintained when the requirements of the Safety Document are completely implemented;

(vi) the contents of the Safety Document to be issued are correct and unambiguous; and

(vii) the authority of the Control Engineer has been obtained for the issue of a Permit-to-Work or Sanction-for-Test.

9.4.4 When issuing a Safety Document:

(i) fully explaining the contents of the Safety Document to the recipient and ensuring that the recipient understands the nature and extent of the work or testing to be done and the safety precautions to be taken;
(ii) issuing the Safety Document together with (as appropriate) any keys, circuit identification flags and wristlets and noting all Additional Earths.

### 9.4.5 When cancelling a Safety Document:

(i) ensuring that the requirements of the clearance section have been completed correctly;

(ii) checking that all items issued with the Safety Document have been returned or accounted for;

(iii) checking the operational state of the Apparatus and Plant; and

(iv) informing the Control Engineer of the cancellation of the document and confirming the operational state of the Apparatus and Plant.

### 9.4.6 When a Senior Authorised Person is in control of a System their responsibilities will be extended to embody those of a Control Engineer as set out in Rule 9.5 whilst they have control of that System.

### 9.5 CONTROL ENGINEERS

#### 9.5.1 The responsibilities of Control Engineers within their sphere of operation which arise from the implementation of these Distribution Safety Rules include the following:

(i) giving authority for the release of Apparatus and Plant from service;

(ii) giving authority for all High Voltage Switching except in cases of emergency or in other Approved cases;

(iii) communicating directly via Approved means with the Authorised Person who is to carry out the Switching;

(iv) consulting with Control Engineers of other Systems to agree and initiate Switching where there is interconnection across control boundaries; also agreeing responsibility for control of circuits in the Isolated state preparatory to sanctioning the issue of Safety Documents;
(v) before giving authority for the issue of a **Safety Document** to ensure that the necessary operations to obtain safety from the inherent **Dangers** of the **System** are carried out;

(vi) giving authority for the issue, and acknowledging cancellation of, **Permits-to-Work** and **Sanctions-for-Test**; and

(vii) maintaining an **Approved** record of all **High Voltage Switching**, application and removal of **Circuit Main Earths** and the issue and cancellation of **Permits-to-Work**, **Sanctions-for-Test** and, where applicable, **Limitations-of-Access**.
SECTION 10

APPENDICES
Golden Distribution Safety Rule

If you’re not sure, stop and ask for help.
This Permit-to-Work is cross-referenced to Permit-to-Work numbers: ............................................................

Following an Assessment of the Electrical Risks, and the application of appropriate Control Measures, the following High Voltage Apparatus has been made safe in accordance with the Distribution Safety Rules:

For the following work only to be carried out: …………………………………………………………………………………………………

Points of Isolation are at: …………………………………………………………………………………………………………………

Circuit Main Earths are applied at: ……………………………………………………………………………………………………………

Additional Control Measures, Information or Safety Rule Requirements: …………………………………………………

For colour coded overhead lines

<table>
<thead>
<tr>
<th>State Colour Code</th>
<th>Wristlets Issued</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour Code Checked</td>
<td>Earths Issued</td>
</tr>
<tr>
<td></td>
<td>Flags Issued</td>
</tr>
</tbody>
</table>

Treat all other apparatus as live

The following Control Measures have been applied:

1. Points of Isolation are at:
2. Circuit Main Earths are applied at:
3. Additional Control Measures, Information or Safety Rule Requirements:

Safety Document Continuation Sheet Issued for Control Measures? YES NO

Issued By

Signature: ___________________________ Date: __________ Time: __________

2. Receipt

I have read this Permit-to-Work and fully understand the details of the work, associated risks, and necessary control measures specified on it. I accept responsibility for carrying out this work and will ensure that I, and those in my charge as logged on the reverse and any attached continuation sheets, are effectively briefed and adhere to any conditions, instructions or limits that are required.

Signature: ___________________________ Date: __________ Time: __________

This Document covers Electrical Risks only – you must also carry out a General Site Specific Risk Assessment Before Starting Work and When Conditions Change
3 WORKING PARTY BRIEFING LOG

- I have received and understand the briefing given by the recipient of this Permit-to-Work.
- I will adhere to any conditions, instructions or limits related to the work.
- On leaving the Working Party I understand that I cannot re-join until I have received and logged another briefing on this schedule.

<table>
<thead>
<tr>
<th>Name</th>
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<th>Joining Working Party</th>
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</table>

Safety Document Continuation Sheet used for Working Party Briefing Log? YES NO

Continuation sheet, to be retained and attached to this document, as required.

ADDITIONAL INFORMATION

4 CLEARANCE

I can confirm that all persons under my charge, as listed above, and on any continuation sheets, have been withdrawn and warned that it is no longer safe to work on the Apparatus detailed on this Permit-to-Work.

I confirm that:

* The work is complete/ incomplete
* All gear and tools have/have not been removed
* Additional Earths have been removed/ accounted for

Signature........................................... Date .................................. Time..................................

5 CANCELLATION - This Permit-to-Work is cancelled.

Signature .................................................. Date .................................. Time..................................

THIS DOCUMENT COVERS ELECTRICAL RISKS ONLY – YOU MUST ALSO CARRY OUT A GENERAL SITE SPECIFIC RISK ASSESSMENT BEFORE STARTING WORK AND WHEN CONDITIONS CHANGE
1 ISSUE: TO: ................................................................. SANCTION No: ..................................................

Following an Assessment of the Electrical Risks, and the application of appropriate Control Measures, the following High Voltage Apparatus has been made safe in accordance with the Distribution Safety Rules:-

For the following testing only to be carried out:-

TREAT ALL OTHER APPARATUS AS LIVE

The following Control Measures have been applied:

POINTS OF ISOLATION are at:- .............................................................

CIRCUIT MAIN EARTHS are applied at:- ........................................

ADDITIONAL CONTROL MEASURES, INFORMATION OR SAFETY RULE REQUIREMENTS:-

Safety Document Continuation sheet issued for Control Measures? YES NO

ISSUED BY:

Signature ................................................................. Date ................................. Time.................................

2 RECEIPT

I have read this Sanction-for-Test and fully understand the details of the testing, associated risks, and necessary control measures specified on it. I accept responsibility for carrying out this testing and will ensure that I, and those in my charge as logged on the reverse and any attached continuation sheets, are effectively briefed and adhere to any conditions, instructions or limits that are required.

Signature ................................................................. Date ................................. Time.................................

THIS DOCUMENT COVERS ELECTRICAL RISKS ONLY – YOU MUST ALSO CARRY OUT A GENERAL SITE SPECIFIC RISK ASSESSMENT BEFORE STARTING WORK AND WHEN CONDITIONS CHANGE
3 TESTING PARTY BRIEFING LOG

- I have received and understand a briefing by the recipient of this Sanction-for-Test.
- I will adhere to any conditions, instructions or limits related to the testing.
- On leaving the Testing Party I understand that I cannot re-join until I have received and logged another briefing on this schedule.

<table>
<thead>
<tr>
<th>Name</th>
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<th>Joining Test Party</th>
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</table>

Safety Document Continuation Sheet used for Testing Party Briefing Log?  

YES NO

Continuation sheet, to be retained and attached to this document, as required.

ADDITIONAL INFORMATION

4 CLEARANCE

I can confirm that all persons under my charge as listed above, and on any continuation sheets, have been withdrawn and warned that it is no longer safe to carry out testing on the Apparatus detailed on this Sanction-for-Test.

I confirm that:

- The testing is complete/incomplete *
- All gear, tools, test plugs and leads have/have not * been removed
- Additional Earths have been removed/ accounted for *

* Delete words not applicable

The operational state of the Apparatus is the same as at the time of issue of this Sanction-for-Test apart from the exceptions noted below:

Exceptions (if none, state 'none')

............................................................................................................................
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Signature ................................................ Date ........................................ Time ......................

5 CANCELLATION - This Sanction-for-Test is cancelled.

Signature ................................................ Date ........................................ Time ......................

THIS DOCUMENT COVERS ELECTRICAL RISKS ONLY – YOU MUST ALSO CARRY OUT A GENERAL SITE SPECIFIC RISK ASSESSMENT BEFORE STARTING WORK AND WHEN CONDITIONS CHANGE
APPENDIX C  LIMITATION-OF-ACCESS

1 ISSUE TO ........................................................................................................ Document No: .................................................................

Following an assessment of the Electrical Risks involved, permission is given to carry out the work described below:

LOCATION: ........................................................................................................

ACCESS TO: ........................................................................................................

WORK TO BE DONE: ........................................................................................................

Control Measures Applicable:

(a) PLANT AND APPARATUS: ..................................................................................

(b) ENVIRONMENT: ........................................................................................................

(c) ACCESS/GENERAL: ........................................................................................................

(d) AUTOMATIC FIRE PROTECTION RENDERED INOPERATIVE

YES  NO  N/A

If YES state conditions for restoration: ........................................................................................................

ISSUED BY

Signature.................................................... Date ........................................ Time ........................................

2 RECEIPT

I have been informed of the risks and control measures that have been put in place and accept responsibility for carrying out the work in accordance with this Limitation-of-Access and no other work will be done by me or the persons under my charge at the above location.

Signature .................................................... Date ........................................ Time ........................................

THIS DOCUMENT COVERS ELECTRICAL RISKS ONLY – YOU MUST ALSO CARRY OUT A GENERAL SITE SPECIFIC RISK ASSESSMENT BEFORE STARTING WORK AND WHEN CONDITIONS CHANGE
3 WORKING PARTY BRIEFING LOG

- I have received and understand a briefing by the recipient of this Limitation-of-Access.
- I will adhere to any conditions, instructions or limits related to the work.
- On leaving the Working Party I understand that I cannot re-join until I have received and logged another briefing on this schedule.

<table>
<thead>
<tr>
<th>Name</th>
<th>Signed</th>
<th>Joining Working Party</th>
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</tbody>
</table>

Safety Document Continuation Sheet used for Working Party Briefing Log? [YES][NO]

Continuation sheet, to be retained and attached to this document, as required.

ADDITIONAL INFORMATION

4 CLEARANCE

I can confirm that all persons under my charge, as listed above, and on any continuation sheets, have been withdrawn and warned that it is no longer permitted to carry out the work detailed on this Limitation-of-Access.

Signature ....................................... Date .................................. Time................................

5 CANCELLATION - This Limitation-of-Access is cancelled.

Automatic fire protection restored [YES][NO][N/A]

Signature ....................................... Date .................................. Time................................

THIS DOCUMENT COVERS ELECTRICAL RISKS ONLY – YOU MUST ALSO CARRY OUT A GENERAL SITE SPECIFIC RISK ASSESSMENT BEFORE STARTING WORK AND WHEN CONDITIONS CHANGE
APPENDIX D

WORKING AND ACCESS CLEARANCES

1. The Working and Access Clearances contained in the following Diagrams and Tables are derived from the Safety Distances 'X' specified in Rule 4.4.1 (Table I) with the addition of "Application Factors" appropriate to the particular work activity.

2. Diagram 1

   Specifies the Safety Distances for work on overhead lines carrying Live High Voltage Conductors (Rules 4.4.4 and 5.10.5.2 refer).

Diagrams 2 and 3

   Specify the Working and Access Clearances for work on overhead lines carrying Live High Voltage Conductors (Rules 4.4.4 and 5.10.5.2 refer).

Diagram 4

   Specifies the Working and Access Clearances for work in substations and switching stations containing exposed Live High Voltage Conductors. (Rules 4.4.4 and 4.5.3 refer).

Diagrams 5, 6 and 7

   Specify Working and Access Clearances for High Voltage Live Line Work. (Rules 4.4.4, 6.3.11 and 6.2.2 (Table II) refer).

NOTE: Approved ‘Hot Glove’ Live working techniques are exempt from these requirements.
DIAGRAM 1 – STEEL TOWER (SAFETY DISTANCES)

Safety Distances for Work on Overhead Lines Carrying Live High Voltage Conductors, (Rule 4.4.1).

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Safety Distance ‘X’</th>
</tr>
</thead>
<tbody>
<tr>
<td>11kV</td>
<td>0.8 m</td>
</tr>
<tr>
<td>33kV</td>
<td>0.8 m</td>
</tr>
<tr>
<td>66kV</td>
<td>1.0 m</td>
</tr>
<tr>
<td>132kV</td>
<td>1.4 m</td>
</tr>
</tbody>
</table>
### Working and Access Clearances for Work on Overhead Lines Carrying Live High Voltage Conductors, (Rules 4.4.4 / 5.10.5.2).

#### Diagram 2 – Ladders or Climbing Irons

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Safety Distance ‘X’</th>
<th>Application Factor</th>
<th>Working and Access Clearance ‘A’</th>
</tr>
</thead>
<tbody>
<tr>
<td>11kV</td>
<td>0.8 m</td>
<td>0.3 m</td>
<td>1.1 m</td>
</tr>
<tr>
<td>33kV</td>
<td>0.8 m</td>
<td>0.3 m</td>
<td>1.1 m</td>
</tr>
<tr>
<td>66kV</td>
<td>1.0 m</td>
<td>0.3 m</td>
<td>1.3 m</td>
</tr>
<tr>
<td>132kV</td>
<td>1.4 m</td>
<td>0.3 m</td>
<td>1.7 m</td>
</tr>
</tbody>
</table>
**DIAGRAM 3 – POLE PLATFORM OR SCAFFOLDING**

**Working and Access Clearances** for Work on Overhead Lines Carrying Live High Voltage Conductors, (Rules 4.4.4 / 5.10.5.2).

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Safety Distance ‘X’</th>
<th>Application Factor</th>
<th>Working and Access Clearance ‘A’</th>
<th>Platform Clearance ‘B’ = Safety Distance ‘X’ + 2.1m*</th>
</tr>
</thead>
<tbody>
<tr>
<td>11kV</td>
<td>0.8 m</td>
<td>0.3 m</td>
<td>1.1 m</td>
<td>2.9 m</td>
</tr>
<tr>
<td>33kV</td>
<td>0.8 m</td>
<td>0.3 m</td>
<td>1.1 m</td>
<td>2.9 m</td>
</tr>
<tr>
<td>66kV</td>
<td>1.0 m</td>
<td>0.3 m</td>
<td>1.3 m</td>
<td>3.1 m</td>
</tr>
<tr>
<td>132kV</td>
<td>1.4 m</td>
<td>0.3 m</td>
<td>1.7 m</td>
<td>3.5 m</td>
</tr>
</tbody>
</table>

* The Platform Application Factor of 2.1m is a recommended minimum. The platform **Shall** be positioned so as to ensure that the **Working and Access Clearance** ‘A’ can be maintained below the **Live Conductors**, taking into account; the height of the **Persons(s)** doing the work, the tools used and the nature of the work.
**Diagram 4 – Substations and Switching Stations**

**Working and Access Clearances** for work in substations and switching stations containing exposed live high voltage conductors, (Rules 4.4.4/4.5.3).

![Diagram](image)

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Safety Distance ‘X’</th>
<th>Horizontal Application Factor</th>
<th>Horizontal Working and Access Clearance ‘C’</th>
<th>Platform Clearance ‘B’ = Safety Distance ‘X’ + 2.1m*</th>
</tr>
</thead>
<tbody>
<tr>
<td>11kV</td>
<td>0.8 m</td>
<td>1.5 m</td>
<td>2.3 m</td>
<td>2.9 m</td>
</tr>
<tr>
<td>33kV</td>
<td>0.8 m</td>
<td>1.5 m</td>
<td>2.3 m</td>
<td>2.9 m</td>
</tr>
<tr>
<td>66kV</td>
<td>1.0 m</td>
<td>1.5 m</td>
<td>2.5 m</td>
<td>3.1 m</td>
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<tr>
<td>132kV</td>
<td>1.4 m</td>
<td>1.5 m</td>
<td>2.9 m</td>
<td>3.5 m</td>
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<tr>
<td>275kV</td>
<td>2.4 m</td>
<td>1.5 m</td>
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<tr>
<td>400kV</td>
<td>3.1 m</td>
<td>1.5 m</td>
<td>4.6 m</td>
<td>5.2 m</td>
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</tbody>
</table>

* The Platform Application Factor of 2.1m is a recommended minimum. The platform **Shall** be positioned so as to ensure that the **Working and Access Clearance** can be maintained below the **Live Conductors**, taking into account; the height of the **Persons(s)** doing the work, the tools used and the nature of the work.
Working and Access Clearances for High Voltage Live Line Work, (Rules 4.4.4, 6.2.2 and 6.3.11).

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Safety Distance ‘X’</th>
<th>Application Factor ‘Z’</th>
<th>Working and Access Clearance ‘A’</th>
</tr>
</thead>
<tbody>
<tr>
<td>11kV</td>
<td>0.8 m</td>
<td>0.1 m</td>
<td>0.9 m</td>
</tr>
<tr>
<td>33kV</td>
<td>0.8 m</td>
<td>0.3 m</td>
<td>1.1 m</td>
</tr>
</tbody>
</table>
Working and Access Clearances for High Voltage Live Line Work, (Rules 4.4.4, 6.2.2 and 6.3.11).

* The Platform Application Factor of 2.1m is a recommended minimum. The platform Shall be positioned so as to ensure that the Working and Access Clearance ‘A’ can be maintained below the Live Conductors, taking into account; the height of the Persons(s) doing the work, the tools used and the nature of the work.
**DIAGRAM 7 – HV LIVE LINE WORK SCAFFOLDING OR MOBILE ELEVATED WORKING PLATFORM**

**Working and Access Clearances for High Voltage Live Line Work**, (Rules 4.4.4, 6.3.11 and 6.2.2).

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Safety Distance ‘X’</th>
<th>Vertical &amp; Horizontal Application Factor ‘Z’</th>
<th>Working and Access Clearance ‘A’</th>
<th>Platform Clearance ‘B’ = Safety Distance ‘X’ + 2.1m*</th>
</tr>
</thead>
<tbody>
<tr>
<td>11kV</td>
<td>0.8 m</td>
<td>0.1 m</td>
<td>0.9m</td>
<td>2.9 m</td>
</tr>
<tr>
<td>33kV</td>
<td>0.8 m</td>
<td>0.3 m</td>
<td>1.1 m</td>
<td>2.9 m</td>
</tr>
</tbody>
</table>

* The Platform Application Factor of 2.1m is a recommended minimum. The platform Shall be positioned so as to ensure that the **Working and Access Clearance ‘A’** can be maintained below the **Live Conductors**, taking into account; the height of the **Persons(s)** doing the work, the tools used and the nature of the work.
APPENDIX E

TREATMENT FOR ELECTRIC SHOCK AND BASIC FIRST AID

ELECTRIC SHOCK

First make safe

■ DO NOT touch the casualty with your unprotected hands.
■ Make the electrical source dead immediately or send someone to do so.
■ Do not attempt to remove a person from contact with high voltage unless a Senior Authorised Person confirms it is safe to do so.
■ To free the casualty from contact with a live low voltage source wear insulating gloves to pull the casualty free; OR
■ Stand on a dry insulating material, such as a wooden pallet or plastic mat, then use a dry wooden or plastic implement to free the casualty from the electrical source; OR
■ If dry rope is available, without touching the casualty, loop it around the feet or under the arms and pull the casualty free.

AFTER REMOVING ANY ELECTRICAL HAZARD

Don’t delay - Your priorities are to:

■ assess the situation – do not put yourself in danger;
■ make the area safe;
■ assess all casualties and attend first to any unconscious casualties;
■ send for help – do not delay - call 999.

Check for a response

Gently shake the casualty’s shoulders and ask loudly, ‘Are you all right?’ If there is no response, your priorities are to:

■ shout for help;
■ open the airway;
■ check for normal breathing;
■ take appropriate action.
A - AIRWAY
To open the airway:

- place your hand on the casualty’s forehead and gently tilt the head back;
- lift the chin with two fingertips.

B - BREATHING
Look, listen and feel for normal breathing for no more than 10 seconds:

- look for chest movement;
- listen at the casualty’s mouth for breath sounds;
- feel for air on your cheek.

If the casualty is breathing normally:

- place in the recovery position;
- get help;
- check for continued breathing
If the casualty is not breathing normally:

■ get help; call 999
■ start chest compressions (see CPR).

C - CPR

To start chest compressions:

■ try to ensure that the casualty is on a firm, flat surface
■ lean over the casualty and with your arms straight, press down on the centre of the breastbone 4-5 cm, then release the pressure;
■ repeat at a rate of about 100 times a minute;
■ after 30 compressions open the airway again;

■ pinch the casualty’s nose closed and allow the mouth to open;
■ take a normal breath and place your mouth around the casualty’s mouth, making a good seal;
■ blow steadily into the mouth while watching for the chest rising;
■ remove your mouth from the casualty and watch for the chest falling;

■ give a second breath and then start 30 compressions again without delay;
■ continue with chest compressions and rescue breaths in a ratio of 30:2 until qualified help takes over or the casualty starts breathing normally.
SEVERE BLEEDING

If there is severe bleeding:

■ avoid direct contact with the casualty’s blood. Use protective disposable gloves or a clean plastic bag, if these are available;
■ apply direct pressure to the wound;
■ raise and support the injured part (unless broken);
■ apply a dressing and bandage firmly in place.

BROKEN BONES AND SPINAL INJURIES

If a broken bone or spinal injury is suspected, **obtain expert help. Do not move casualties** unless they are in immediate danger.

BURNS

**Burns can be serious so if in doubt, seek medical help.** Cool the affected part of the body with cold water until pain is relieved. Thorough cooling may take 10 minutes or more, but this must not delay taking the casualty to hospital.

Certain chemicals may seriously irritate or damage the skin. Avoid contaminating yourself with the chemical. Treat in the same way as for other burns but flood the affected area with water for 20 minutes. Continue treatment even on the way to hospital, if necessary. Remove any contaminated clothing which is not stuck to the skin.

EYE INJURIES

All eye injuries are potentially serious. If there is something in the eye, wash out the eye with clean water or sterile fluid from a sealed container, to remove loose material. **Do not attempt to remove anything that is embedded in the eye.**

**IF CHEMICALS ARE INVOLVED, FLUSH THE EYE WITH WATER OR STERILE FLUID FOR AT LEAST 10 MINUTES, WHILE GENTLY HOLDING THE EYELIDS OPEN. ASK THE CASUALTY TO HOLD A PAD OVER THE INJURED EYE AND SEND THEM TO HOSPITAL.**

Western Power Distribution requirements for the provision of equipment and training to staff to enable them to carry out emergency First Aid at work is detailed in Engineering Business Directive ST:HS1G.
INDEX OF APPROVED EQUIPMENT

<table>
<thead>
<tr>
<th>Code</th>
<th>Equipment</th>
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<tbody>
<tr>
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<td>Safety Helmets</td>
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<td>AE 2</td>
<td>Eye protection</td>
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<td>AE 3</td>
<td>Insulating Gloves</td>
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<td>AE 4</td>
<td>Protective Equipment</td>
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<tr>
<td>AE 5</td>
<td>Safety Harness and Climbing Equipment</td>
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<td>AE 6</td>
<td>Breathing Apparatus</td>
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<td>AE 7</td>
<td>Voltage Testing Devices</td>
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<td>AE 8</td>
<td>Earthing Equipment</td>
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<td>Substation Equipment</td>
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<td>LV Caution Shrouds</td>
</tr>
<tr>
<td>AE 20</td>
<td>Approved Instruments</td>
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APPROVED EQUIPMENT & RULE REFERENCES

GENERAL
All Approved equipment must be inspected before use and must not be used if a fault is found. All Approved equipment must be used in a fitting and correct manner. All documents referenced within this section are to the current versions.

AE 1 Safety Helmets – (Rules, 1.10, 3.3.2, 3.5.8).
Must conform to BS EN 397. Further information is contained in WPD Engineering Business Directive ST:HS8E.

AE 2 Eye Protection – (Rules, 1.10, 3.5.8).
The issue and wearing of eye protectors Shall be in accordance with the requirements of the Personal Protective Equipment at Work Regulations 1992 and must conform to the appropriate EN standard. Further information is contained in WPD Engineering Business Directive ST:HS8D.

AE 3 Insulating Gloves – (Rules, 1.10, 3.5.8, 8.6.2, 8.7.2).
Must conform to BS EN 60903. Details of the gloves to be used and the storage and use requirements are given in WPD Engineering Business Directive ST:HS8B.

AE 4 Protective Equipment – (Rule, 1.10).
Any item issued to personnel by Western Power Distribution for their personal protection, such as overalls, waterproofs, rubber boots, industrial gloves, ear defenders etc., as currently detailed in Company purchasing policy documents.

AE 5 Safety Harnesses and Climbing Equipment -
(Rules, 1.10, 3.2.3, 3.3.2).
Must be test certificated and comply with the relevant BS EN Standard. Further information is given in WPD Engineering Business Directive ST:HS7A.
AE 6 **Breathing Apparatus** – (Rule, 3.2.3).

The only *Approved* breathing apparatus within WPD is that for which specific staff have had training for and hold a specific authorisation to use.

AE 7 **Voltage Testing Devices** – (Rules, 3.7, 3.8, 4.3.1(b), 4.3.3(a), 4.4.2(b), 4.4.3, 5.1.2, 5.4.2(a), 5.4.4(l), 5.5.2(a), 5.5.4(i), 5.11.1, 5.12.3(b), 7.3.3, 8.2.6, 8.7.1).

Information concerning *Approved* devices is provided in WPD Engineering Business Directive POL:OS8. Whilst the associated Standard Techniques include a list of *Approved* testers including advice on their maintenance and use.

AE 8 **Earthing Equipment** – (Rules, 2.D9, 2.D10, 2.D11, 4.3.1(b), 4.3.2, 4.3.3(b), 4.3.3(e), 4.3.3(f), 5.4.2(b), 5.5.2(b), 5.8.2, 5.8.4(a), 5.10.3(c), 8.1.3, 8.2.2, 8.3.1(b), 8.4.1).

WPD Engineering Business Directive POL:OS2 and associated Standard Techniques, details equipment to be used and gives advice on use, care and maintenance for the following applications:

a) Integral earthing switches when part of a switchgear unit.

b) Manufacturers' earthing attachments when used as directed by the supplier.

c) Portable earthing equipment as provided for application to substation **Apparatus** and outdoor air-insulated busbars up to and including 33kV.

d) Portable earthing equipment as provided for application to 11kV and 33kV overhead lines.

e) Manufacturers' equipment provided to earth static capacitors. This gear should provide for **Circuit Main Earths**, Post Earths and Rack Earths.

f) Portable earthing equipment as provided for application to **LV** overhead lines.

g) Special applications subject to approval by the **Designated Person**.
h) Advice on the equipment to be used on 132kV tower lines.

AE 9 **Substation Equipment** – (Rules, 2.D16, 2.D18, 2.D19, 4.5.1(a), 4.5.1(e)).

Is defined as that equipment which **Shall** be provided as necessary at a substation so that these Distribution Safety Rules may be complied with and safe working practices be adopted, e.g.:

a) Logbook,

b) **Caution** and **Danger Notices**, 

c) **Approved** barriers and plastic chains, with supports, 

d) Green flags together with supports, 

e) Earthing equipment, 

f) Circuit diagrams, 

g) A **Key Safe**.

AE 10 **Fire Extinguishers** – (Rule, 3.2.2). 

Must conform to BS EN 3. Further information including the location, issue, use and maintenance is given in WPD Engineering Business Directive POL:HS13 and associated Standard Techniques.

AE 11 **HV Live Line Equipment** – (Rules, 3.5.8, 4.4.3(a), 6.1.4, 6.3.11). 


AE 12 **Ladders** – (Rules, 4.5.1(c), 4.5.4(a), 5.10.1(b)).

Comprehensive information on use and maintenance of ladders is given in WPD Engineering Business Directive ST:HS7B.

AE 13 **Wristlets** – (Rules, 5.10.2(c)).

Issued wristlets **Shall** have the same colours/ shapes as the circuit to be worked upon.
AE 14 **Shrouding and Screening Materials** – (Rules, 8.2.4, 8.5.1, 8.6.1).

a) The only materials **Approved** for screening and shrouding **HV Apparatus** are detailed in WPD Engineering Business Directive POL:OH7 and associated Standard Techniques.

b) Shrouding materials approved for **LV** work are listed in WPD Engineering Business Directives POL:OH14 (overhead lines), POL:CA1 (cable systems) and POL:SP8 (substation fuse boards) and their associated Standard Techniques.

AE 15 **Rubber Mats** –

Must conform to BS EN 61111.

AE 16 **Cable Spiking Gun** – (Rule, 5.9.2).

Details of the use and maintenance of the cable spiking gun is given in WPD Engineering Business Directive ST:OS8H.

AE 17 **Approved Insulated Tools** – (Rules, 8.5.1, 8.7.2, 8.9.1).

Equipment manufactured to ESI Standard 26-3 supplied to original specification and **Approved** by the **Designated Person**.

AE 18 **Insulated Earth Bonds** – (Rules, 8.6.1).

Equipment as specified in General Requirement 11 of WPD Engineering Business Directive ST:CA1C.

AE 19 **LV Caution Shrouds** – (Rule, 5.7.1(f)).

AE 20 **Approved Instruments** – (Rule, 8.5.3).

Instruments manufactured and marketed for the specific purpose of taking measurements on the distribution **System**. Flexible leads used with these instruments **Shall** conform to WPD Engineering Business Directive ST:OS8A.
## APPENDIX G

### INDEX TO APPROVED PROCEDURES

<table>
<thead>
<tr>
<th>AP 1.0</th>
<th>SECURITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>General</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AP 2.0</th>
<th>ACCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>General</td>
</tr>
<tr>
<td>2.2</td>
<td>Confined Spaces and Ventilation</td>
</tr>
<tr>
<td>2.3</td>
<td>Busbar Connections</td>
</tr>
<tr>
<td>2.4</td>
<td>Inspecting Wood Poles</td>
</tr>
<tr>
<td>2.5</td>
<td>Procedures for Climbing and Work at Height</td>
</tr>
<tr>
<td>2.6</td>
<td>Safe Access to Poles Supporting <strong>Live HV Conductors</strong></td>
</tr>
<tr>
<td>2.7</td>
<td>Vehicular Access to Substations</td>
</tr>
<tr>
<td>2.8</td>
<td>Work on Terminal Poles and Towers in Substations</td>
</tr>
<tr>
<td>2.9</td>
<td>Access to Towers Carrying <strong>Live Conductors</strong></td>
</tr>
<tr>
<td>2.10</td>
<td>Excavation Work Near <strong>Live</strong> Cables</td>
</tr>
<tr>
<td>2.11</td>
<td>Use of Mobile Plant Near Overhead <strong>Conductors</strong></td>
</tr>
<tr>
<td>2.12</td>
<td>Circuit Identification</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AP 3.0</th>
<th>RESCUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Procedure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AP 4.0</th>
<th>EMERGENCY PROCEDURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Emergency <strong>Switching</strong></td>
</tr>
<tr>
<td>4.2</td>
<td>Communication Failure</td>
</tr>
<tr>
<td>4.3</td>
<td>Special <strong>Switching</strong> Requirements</td>
</tr>
<tr>
<td>4.4</td>
<td>Reporting of Accidents/ Incidents</td>
</tr>
</tbody>
</table>
AP 5.0 SAFETY DOCUMENTS
5.1 Connection/ Reconnection of Tested Apparatus
5.2 Extended Use of Sanction-for-Test
   5.2.1 Identifying, earthing and core identification of an HV cable.
   5.2.2 Disconnection and reconnection of cable termination within the safe area for testing purposes.
5.3 Withdrawable Apparatus
5.4 Issue of Safety Documents
5.5 Minor Testing under a Permit-to-Work

AP 6.0 IDENTIFICATION AND PROVING DEAD
6.1 General

AP 7.0 VOLTAGE TESTING DEVICES
7.1 General
7.2 Safety Distances
7.3 Other Approved means

AP 8.0 EARTHING
8.1 General
8.2 Overhead Lines
8.3 Underground Systems
8.4 Application of Distribution Safety Rule 5.1.2
   8.4.1 General.
   8.4.2 Lack of Earthing Facilities on 6.6kV and 11kV Non-Isolatable Switchgear.

AP 9.0 SPECIFIC TASKS
9.1 Painting of Earthed Metal Enclosures
9.2 Live Insulator Washing
9.3 Secondary Wiring on Switchgear Panels
9.4 Work on Over-Running Earth Conductors
AP 10.0  ISOLATION
10.1  Fuse or Link Removal
10.2  Effective Disconnection
10.3  Traction Loads
10.4  Secondary Voltage Isolation
10.5  Recording of Isolation
10.6  Retention of Safety Lock Keys

AP 11.0  HV LIVE LINE WORK
11.1  Procedure
11.2  Clearances
11.3  Auto Reclose Equipment Settings

AP 12.0  INDUCED CABLE SHEATH VOLTAGE
12.1  Additional Precautions

AP 13.0  LOW VOLTAGE WORK
13.1  Additional Precautions
13.2  Written Instructions
13.3  Live Working on Cable Cut-Outs
13.4  Low Voltage Work to High Voltage Rules
13.5  Identification and proving Dead of Low Voltage cables
13.6  Working on Dead Low Voltage Cables and Apparatus not fully isolated
13.7  Faulty/ Damaged Cables
13.8  Live Working in Multi-Service Pillars

AP 14.0  SPECIAL PROCEDURES
14.1  Where the Distribution Safety Rules cannot be applied

AP 15.0  COMPRESSED AIR, VACUUM OR GAS OPERATED SWITCHGEAR
15.1  Venting to Atmosphere
15.2  SF6
15.3  Unfamiliar Components
APPROVED PROCEDURES AND RULE REFERENCES

AP 1.0 SECURITY

1.1 General - (Rules, 2.D25, 3.1.1, 3.3.3, 3.4.1).

The procedures used to control access to all operational property, enclosures and electrical Apparatus Shall be as detailed in WPD Engineering Business Directive POL:OS3 and associated Standard Techniques.

AP 2.0 ACCESS

2.1 General - (Rules, 3.4.1, 4.5.1(e), 4.5.2, 4.5.4(c)).

Normal pedestrian access and egress at ground level to a zone of work or operation Shall be organised in accordance with WPD Engineering Business Directive ST:OS1S so that hazards to personnel are avoided.

2.2 Confined Spaces and Ventilation - (Rules, 3.1.2, 3.1.3, 3.2.1).

a) All Persons required to enter a confined space, underground chamber or emptied tank should be specifically authorised and aware of the precautions to be taken in accordance with WPD Engineering Business Directive ST:HS14A.

b) For confined spaces, e.g. oil circuit breaker tanks and underground chambers, adequate venting is necessary. Details of ventilation requirements and safe methods for work in confined spaces is contained in Engineering Business Directive ST:HS14A.

c) For indoor ground mounted substations adequate natural ventilation will normally be provided by opening of the substation doors.

2.3 Busbar Connections – (Rules, 5.4.4(ii), 5.5.4(ii)).

Where work is to be done on busbar or feeder spouts and connections the Senior Authorised Person Shall identify the unit(s) to be worked on by reference to diagrams and labels. If there is a Danger that a Person may apply themselves to a position other than that identified, the unit(s) to be worked on must be indicated
by signs and the access and egress route **Shall** be defined by the **Senior Authorised Person** and, where necessary, the requirements of AP 2.1 above **Shall** be applied. Further details can be found in Engineering Business Directive ST:OS1G.

### 2.4 Inspecting Wood Poles – (Rules, 3.3.1, 6.3.9).

The inspection requirements required before a **Person** may use a wood pole as a means of access to a work position is detailed in WPD Engineering Business Directive ST:OH5D.

### 2.5 Procedures for Climbing and Work at Height – (Rule, 3.3.2).

Details of precautions to be taken and safe working methods are detailed in WPD Engineering Business Directive POL:HS7 and associated Standard Techniques.

### 2.6 Safe Access to Poles Supporting Live HV Conductors – (Rules, 4.8.1(b), 5.10.1(d), 5.10.5.2).

a) When work, other than **High Voltage Live Line Work**, is to take place on a pole carrying **Live High Voltage Conductors** a **Limitation-of-Access** **Shall** be issued for all work within 3 metres of the **Conductors**. A **Limitation-of-Access** is not required for the operation/ replacement of **Low Voltage** pole mounted fuse carriers provided **Safety Distances** (Distribution Safety Rules 4.4 and 5.10) are maintained. Where a ladder is used for access it must not extend beyond the fuse units or infringe **Safety Distances**.

b) The precautions required against leakage currents on unearthed poles is detailed in WPD Engineering Business Directive ST:OH5D.

### 2.7 Vehicular Access to Substations – (Rule, 4.5.5).

No vehicle **Shall** be allowed access to a substation enclosure except in accordance with WPD Engineering Business Directive ST:OS1T.
2.8 **Work on Terminal Poles and Towers in Substations**—(Rule, 4.5.1(c)).

Work **Shall** be carried out in accordance with Distribution Safety Rule 4.5.1(a) and WPD Engineering Business Directive ST:OS1E.

2.9 **Access to Towers Carrying Live Conductors** – (Rules, 5.10.6(b), 5.14.3).

A **Person** may climb on the outside face of a tower in accordance with Rule 5.10.5.2. To ascend higher they **Shall** either:

a) continue climbing inside the tower, or;

b) where there are no tee-off connections or line deviations greater than 30 degrees, climb on the outside face that is at right angles to the line **Conductors** and **Shall** ensure that no part of their body or tool that is being carried approaches any **Live Conductor** nearer than the requirements of Rule 4.4.4, or;

c) where it is necessary to climb the outside face of a terminal tower or tower that has a tee-off or deviation greater than 30 degrees, this **Shall** be carried out by a method and route agreed with a **Senior Authorised Person** who **Shall** provide **Personal Supervision** of the climbing activity from ground level.

2.10 **Excavation Work Near Live Cables** – (Rule, 3.9).

Excavation work **Shall** be carried out in accordance with WPD Engineering Business Directive ST:HS14B.

2.11 **Use of Mobile Plant Near Overhead Conductors** – (Rule, 3.10).

A range of WPD Engineering Business Directives have been prepared for the various types of equipment available for working at height. They include: ST:HS15K (Mobile Cranes), ST:HS15M (Lorry Loaders - HIAB Cranes), and ST:HS15N (Mobile Elevating Work Platforms – MEWPs).
2.12 **Circuit Identification** – (Rule, 5.10.2(c)).

Although **High Voltage** overhead lines are uniquely identified by letters and numbers this paragraph will only apply to tower lines having colour identification and other overhead lines which use black and white diamond identification.

**AP 3.0** **RESCUE**

3.1 **Procedure** – (Rule, 3.3.2).

All personnel required to climb wood poles, steel lattice towers, telecommunications towers, substation plant or other high structures **Shall** be trained in rescue techniques as detailed in WPD Engineering Business Directive ST:HS7C.

**AP 4.0** **EMERGENCY PROCEDURE**

4.1 **Emergency Switching** – (Rule, 3.5.1).

No **High Voltage Switching** **Shall** be carried out without the sanction of a **Control Engineer** unless it is necessary to save life, prevent injury or safeguard **Apparatus**.

4.2 **Communication Failure** – (Rule, 3.5.2).

Where normal communication between a Field Operator and the **Control Engineer** cannot be maintained, alternative means of communication **Shall** be set up or a programme of operations **Shall** be agreed directly between the **Control Engineer** and a **Senior Authorised Person** who **Shall Personally Supervise** or carry out the agreed programme.

4.3 **Special Switching Requirements** – (Rule, 3.5.5).

All **Switching** of the **High Voltage System** should be possible under these Distribution Safety Rules. Where this is not the case a **Switching** programme **Shall** be agreed between the Field Operator and the **Distribution Control Engineer**. This programme **Shall** then be endorsed by the **Designated Person** or their nominated representative before it is proceeded with.
4.4 **Reporting of Accidents/ Incidents** – (Rule, 1.8).

All staff *Shall* be familiar with the requirements of WPD Engineering Business Directive POL:HS5 and associated Standard Techniques which detail the procedures to be followed when reporting an accident and/or a dangerous occurrence.

**AP 5.0 SAFETY DOCUMENTS**

5.1 **Connection / Re-connection of Tested Apparatus** – (Rules, 7.1, 7.2).

a) *All HV Apparatus Shall* be tested as detailed in WPD Engineering Business Directive POL:OS10 and associated Standard Techniques before it is connected or re-connected to the *System*.

b) Where *Circuit Main Earths* are removed to allow tests to take place, they need not be replaced on completion of the tests, provided the *Control Engineer* is informed of the changed status of the Earthing by the *Senior Authorised Person* responsible for cancelling the *Sanction-for-Test*.

5.2 **Extended Use of Sanction-for-Test** – (Rules, 4.7.5).

To eliminate any confusion arising from the issue of both *Sanction-for-Test* and *Permit-to-Work* certificates during the process of testing, the following procedures *Shall* be adopted.

A *Sanction-for-Test Shall* be issued by a *Senior Authorised Person* to a *Senior Authorised Person* who *Shall Personally Supervise* the following operations:
5.2.1 - Identifying, earthing and core identification of a HV cable

a) Removal of Circuit Main Earths.
b) Injection tests by Approved methods.
c) Positive identification of the cable.
d) Re-application of the Circuit Main Earths.
e) Proving the cable Dead by Approved means.
f) Permitting a jointer to cut the cable and bare the core.
g) Removal of Circuit Main Earths, where necessary, to carry out core identification tests.
h) Replacement of the Circuit Main Earths.

Note: The order of d) and e) may be changed if post spike checks are to be carried out.

On completion of 5.2.1(h) all Circuit Main Earths Shall be re-applied before the Sanction-for-Test Shall be cancelled and a Permit-to-Work issued to cover the required work.

5.2.2 - Disconnection and reconnection of cable terminations within the safe area for testing purposes

a) Confirmation that all Circuit Main Earths are applied and the application of any Additional Earths, cross-bonding and other precautions to avoid Danger at the point of work, on each occasion prior to connections being handled or disturbed, to the same standards as if a Permit-to-Work were to be issued.

b) Permitting an operative access to the pole or transformer for a specified purpose.

c) Disconnection and/or reconnection of connections.

d) Removal of Additional Earths, cross bonding and any other precautions to prevent Danger at the point of work, prior to clearance of the Sanction-for-Test.
5.3 **Withdrawable Apparatus** – (Rule, 5.3.1).

Discharging of **Apparatus** disconnected from all supplies and removed from its normal housing can be dispensed with where no capacitive bushings are present.

5.4 **Issue of Safety Documents** – (Rules, 4.6.2(a), 4.7.2(a), 4.8.2(a)).

The procedures to be followed for the communication of risks and control measures using **Safety Documents** is detailed in WPD Engineering Business Directive POL:OS5 and associated Standard Techniques.

5.5 **Minor Testing under a PTW** – (Rule, 4.6.6).

Testing may be carried out where there is no requirement to remove any **Circuit Main Earths** and such testing is in accordance with WPD Engineering Business Directive ST:OS5A.

AP 6.0 **IDENTIFICATION AND PROVING DEAD**

6.1 **General** – (Rules, 3.9, 4.1.1(e), 5.1.2(c), 5.9.1, 5.9.2, 5.11.1, 5.12.1(b), 8.6.1).

Details of the identification and proving **Dead** procedures are given in WPD Engineering Business Directive POL:OS4 and associated Standard Techniques.

AP 7.0 **VOLTAGE TESTING DEVICES**

7.1 **General** – (Rules, 3.8, 4.3.3(a), 5.4.4, 7.3.3)

Advice on the use, care and maintenance of **Approved** equipment is given in WPD Engineering Business Directive POL:OS8 and associated Standard Techniques.
7.2 **Safety Distances** – (Rules, 4.4.2(b)).

When applying voltage testing devices to metal clad switchgear it may be necessary to infringe **Safety Distances**. When such testing is to be carried out, it is essential that only devices **Approved** specifically for use on metal clad switchgear are used and the tests **Shall** be carried out by an **Authorised Person** who is authorised for **Switching** on ground mounted switchgear at the appropriate voltage.

7.3 **Other Approved Means** – (Rules, 4.3.1(b), 4.3.3(a), 5.4.4, 5.5.4(i), 5.11.1, 5.12.3(b), 7.3.3).

In Western Power Distribution there are no other **Approved** means.

**AP 8.0 EARTHING**

8.1 **General** – (Rules, 4.1.1(c), 4.3.1(a), 4.3.1(b), 4.3.3(b), 4.3.3(e)).

a) Where the earthing switch or Circuit Breaker being used to make an earthing connection is not rated for the duty it may be called upon to perform, the potentially **Live** connections **Shall** be proved **Dead** by means of an **Approved** voltage detecting device before the switchgear is operated. When isolators are fully interlocked with the associated Circuit Breaker, testing may be dispensed with, except in the case of line earthing switches.

b) Portable **Circuit Main Earths** may only be applied by or under the **Personal Supervision** of a **Senior Authorised Person**. All connection of **Apparatus to Earth** must be made using **Approved** tools, applicators and equipment as detailed in WPD Engineering Business Directive POL:OS2 and associated Standard Techniques.

c) When a **Circuit Main Earth** is required to be applied to upper **Conductors** any lower **Conductors** or **Apparatus** connected to **Earth** by **Approved** means may be approached within the **Safety Distance**
without the issue of a **Safety Document**. This is permissible only for the purpose of proving **Dead** and application of the **Circuit Main Earth** to the upper **Conductors**.

d) For the purpose of applying a **Circuit Main Earth** a point of disconnection of **High Voltage** supply **Shall** be taken as the point of isolation where the **System** remains **Live** at **High Voltage**.

e) Where portable **Circuit Main Earths** need to be applied on a pole or structure which also supports **Live Conductors**, both the application and removal **Shall** be under the **Personal Supervision** of a **Senior Authorised Person**, who **Shall** first assess that adequate **Working and Access Clearances** are available.

f) Where a portable **Additional Earth** needs to be applied on a pole or structure which also supports **Live Conductors**, and which could reach within the **Working and Access Clearance** of **Live Conductors** both the application and removal **Shall** be under the **Personal Supervision** of a **Senior Authorised Person**.

g) In outdoor substations with exposed **Live HV Conductors** any portable **Circuit Main Earth** application requires the **Senior Authorised Person** to be accompanied by a **Competent Person**. The **Conductors** to be **Earthed** **Shall** be proved **Dead** immediately before the application of the **Circuit Main Earth**.

8.2 **Overhead Lines** – (Rules, 4.3.5, 5.1.2, 5.10.3(a), 5.10.3(b), 5.12.3(a)).

Portable **Additional Earths** and cross bonding equipment **Shall** be applied and removed as required by WPD Engineering Business Directive POL:OS2 and associated Standard Techniques.
8.3 **Underground Systems** – (Rule, 5.1.2).

Portable **Additional Earths** and cross bonding equipment **Shall** be applied and removed as required by WPD Engineering Business Directive POL:OS2 and associated Standard Techniques.

8.4 **Application of Distribution Safety Rule 5.1.2**

8.4.1 **General**

This will only be applied to underground **Systems** and **Apparatus** connected thereto where it is not practicable to carry out the safety precautions detailed in Section 5 of the Distribution Safety Rules.

**Approved** circumstances for the application of Distribution Safety Rule 5.1.2 exist when the **Apparatus** to be worked on is connected to **Earth** by means of one or more fully rated **Circuit Main Earths** placed between the **Apparatus** and each point of disconnection of supply from the **High Voltage System**.

8.4.2 **Lack of Earthing Facilities on 6.6kV and 11kV Non-isolatable Switchgear**

A number of non-isolatable free standing OFS units within the Company's area are equipped with one integral earthing switch only. This earth switch may be connected either to the load side or to the supply side of the OFS, so it is not always possible to apply a **Circuit Main Earth** to the **Apparatus** to be worked on or tested by means of the single earth switch locally provided.

Where work or testing is to be carried out on a free standing OFS and/or **Apparatus** controlled by a free standing OFS, and no earthing facility exists towards the **Apparatus**, Safety Rule 5.1.2 may be applied. In this case care must be taken to ensure that the remote **Circuit Main Earth** is transferred through the closed OFS before the **Permit-to-Work** or **Sanction-for-Test** is released.
AP 9.0  SPECIFIC TASKS

9.1  **Painting of Earthed Metal Enclosures** – (Rule, 4.1.1(i)).
The procedure to be followed is detailed in WPD Engineering Business Directive ST:SP2B.

9.2  **Live Insulator Washing** – (Rule, 4.1.1(i)).
The procedure to be followed is detailed in WPD Engineering Business Directive ST:SP2E.

9.3  **Secondary Wiring on Switchgear Panels** -

9.4  **Work on Over-Running Earth Conductors** – (Rule, 5.10.7).
Work as required in WPD Engineering Business Directive ST:OH2B may be carried out with one circuit LIVE on a double circuit overhead line.

AP 10.0  ISOLATION

10.1  **Fuse or Link Removal** – (Rule, 4.2.3).
Where HV fuses or links are used as a means of isolation, they **Shall** where practicable be physically removed. Where opened HV fuses or links cannot be removed, they may not be used as a point of isolation unless they are secured in the open position by means of a **Safety Lock** with a **Caution Notice** attached. LV isolation **shall** be achieved per AP 10.4.

10.2  **Effective Disconnection** – (Rules, 5.7.1(a), 5.7.1(d)).
Normally a transformer is **Isolated** by operation of fuse or switchgear. On other occasions isolation is achieved using HV **Live Line Work** techniques. All other disconnections must be made under **Permit-to-Work** conditions. Where it is intended to isolate **Apparatus** for work under a **Permit-to-Work** or **Sanction-for-Test** the minimum separation required to comply with Rule
4.1.1(b) is:

a) A break in air as follows:

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Phase to Earth</th>
<th>Phase to Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>11kV</td>
<td>178 mm</td>
<td>229 mm</td>
</tr>
<tr>
<td>33kV</td>
<td>380 mm</td>
<td>432 mm</td>
</tr>
<tr>
<td>66kV</td>
<td>685 mm</td>
<td>786 mm</td>
</tr>
<tr>
<td>132 kV</td>
<td>1270 mm</td>
<td>1473 mm</td>
</tr>
</tbody>
</table>

Unless tests to the appropriate BSEN have been carried out to establish that a smaller gap is acceptable on that particular Apparatus.

b) A fully open air-break switch of Approved design.

c) A clearance under insulating oil of 38mm for 11kV and 89mm for 33kV.

d) A fully open Metal Enclosed Switch or Fused Switch of Approved design.

e) A fully open and Isolated Oil, Gas, Vacuum or Air Circuit Breaker of Approved design. Isolation may be achieved by opening the associated isolator switches and securing them in the open position with a Safety Lock with a Caution Notice attached. Alternatively the Circuit Breaker must be racked out and the circuit and busbar shutters locked in the closed position with Safety Locks. Caution and Danger Notices Shall be applied as necessary.

f) Models of SF6 Circuit Breaker with independent manual mechanisms and no integral isolators Shall be secured in the open position with a Safety Lock and Caution Notice applied.

10.3 Traction Loads – (Rule, 5.7.1(c)).

No special procedures are currently required within the company for transformers supplying traction loads.

10.4 Secondary Voltage Isolation – (Rule, 5.7.1(d)).

Where work is to be carried out on an Isolated distribution transformer, or Apparatus connected to it, the Senior Authorised Person issuing the Permit-to-
Work must ensure that the LV isolation is effective and maintained. This may be achieved by one of the following means:

a) A Safety Lock and Caution Notice applied to the cabinet or kiosk access.

b) An Approved Safety Locking Bar.

c) LV Caution clip-on shrouds as described in AE 19.

d) Removal of LV fuses and their retention in a place of safe keeping, with associated application of Caution Notices, or Approved dummy fuse holders.

10.5 Recording of Isolation – (Rule, 4.2.2(b)).

Details of isolation and the location of Safety Lock keys, not in a Key Safe or in the possession of a Senior Authorised Person, Shall be recorded by the Control Engineer.

10.6 Retention of Safety Lock Keys – (Rules, 4.2.2(a), 5.6.1(d), 5.7.1(g)).

Locations for the retention of Safety Lock Keys is detailed in WPD Engineering Business Directive ST:OS3C.

AP 11.0 HV LIVE LINE WORK

11.1 Procedure – (Rules, 2.D13, 6.1.1, 6.3.10).

HV Live Line Work Shall only be carried out by specifically authorised staff, trained in and using the techniques detailed in WPD Engineering Business Directive POL:OH7 and associated Standard Techniques.

11.2 Clearances – (Rule, 6.3.7).

11.3 **Auto Reclose Equipment Settings** – (Rule, 6.3.3).

The settings for auto reclose relays are detailed in WPD Engineering Business Directive ST:OH7A & ST:OH7J.

**AP 12.0 INDUCED CABLE SHEATH VOLTAGE**

12.1 **Additional Precautions** – (Rules, 5.9.3, 5.9.4, 8.3.2).

When work is to be carried out on cables which may be subject to induced voltages from adjacent **High Voltage** circuits, an **Earth bond** **Shall** be installed to connect any parts of the sheath/armouring which is to be connected/disconnected, or will become separated by a cut. Specific guidance can be found in the associated WPD Engineering Business Directive Standard Technique for the activity being undertaken.

**AP 13.0 LOW VOLTAGE WORK**

13.1 **Additional Precautions** – (Rules, 8.1.4, 8.5.1, 8.5.2).

a) Staff required to work or carry out testing on **LV Apparatus Shall** be authorised in accordance with WPD Engineering Business Directive POL:OS7 and associated Standard Techniques. All operations and/or testing carried out on **LV Apparatus Shall** be in accordance with WPD Engineering Business Directive ST:OS2E.

b) Testing for correct polarity on **LV Apparatus Shall** be carried out in accordance with WPD Engineering Business Directive ST:OS10F.

c) Appropriate PPE, as specified in the relevant WPD Engineering Business Directive, **Shall** be worn during all work carried out on **Live LV Apparatus**. In addition adjacent **Live Conductors** and/or **Earthed** metalwork **Shall** be screened with **Approved** insulating material.

13.2 **Written Instructions** – (Rule, 8.1.5).

Where work is considered to be too complex for a
spoken instruction to be acceptable a written instruction **Shall** be given. Where it is necessary to identify hazards or to limit the work area to avoid risk the written instruction **Shall** be in the form of a **Safety Document**. A copy **Shall** be kept of any written instruction.

13.3 **Live Working on Cable Cut Outs** – (Rule, 8.6.2).

The changing of cut outs **Live Shall** not be carried out unless a risk assessment is carried out and the procedures in WPD Engineering Business Directive ST:CA ØB are followed.

13.4 **Low Voltage Work to High Voltage Rules** –

(Rule, 8.8.1).

When work is to take place on Low Voltage Apparatus a Senior Authorised Person may, where it is considered necessary apply the High Voltage Distribution Safety Rules to provide a safe place of work. All **Safety Documents** issued **Shall** state that the Distribution Safety Rules are being used to regulate work on the LV System.

13.5 **Identification and Proving Dead of Low Voltage Cables** – (Rule, 8.3.1).

**Shall** be carried out in accordance with WPD Engineering Business Directive ST:OS4A.

13.6 **Working on Dead Low Voltage Cables and Apparatus not fully isolated** – (Rule, 8.2.5).

Where **Apparatus** cannot be fully **Isolated** (including every customer cut-out), or the **Apparatus** cannot be **Earthed**, or a Low Voltage Earth cannot be connected between the point of work and any connected customer, the following priority of working methods should be adopted;

(a) **Live Working**

Isolate the cable from all sources of supply from the distribution network. Links, fuses and locking off
keys should be kept in a safe place.
Use Approved Live working techniques.
(When the work to be done is not covered by an Approved Live technique, Dead Working methods Shall be adopted as follows).

(b) Dead Working
Isolate the cable as detailed in (a).
Prove the cable Dead at or near the point of work where safe access to the Conductors is available e.g. cut-outs, link distribution boxes and fuse boards or by opening the cable using Approved Live working techniques.

When the cable has been proved Dead work may proceed using appropriate Approved PPE, on the understanding that the cable might still become energised.

Periodic testing to prove that the cable is still Dead should be undertaken throughout the work especially at critical stages such as immediately before handling Conductors.

In situations where neither the conditions of paragraph (a) or (b) can be applied, the point of work Shall be Isolated completely by cutting the cable using Approved Live working techniques.

13.7 Faulty / Damaged Cables – (Rule, 8.3.1(c)).
Currently there are no procedures for work at the point of damage or fault. Additional guidance is provided in WPD Engineering Business Directive ST:OS4A.

13.8 Live Working in Multi Service Pillars – (Rule, 8.5.2).
There is no Approved procedure for working Live in a multi service pillar. Operations within a multi service pillar Shall be in accordance with WPD Engineering Business Directive ST:OS2E.
AP 14.0 SPECIAL PROCEDURES

14.1 Where the Distribution Safety Rules Cannot be Applied – (Rules, 1.6, 4.1.1(iii)).

In circumstances where the Distribution Safety Rules cannot or for special reasons should not be applied and it is necessary to carry out work on, or testing of, Apparatus, a Senior Authorised Person Shall devise a safe method of operation which Shall be agreed by the Distribution Control Engineer. This method of operation Shall be referred to the Designated Person or his nominated representative for endorsement before it is proceeded with.

AP 15.0 COMPRESSED AIR, VACUUM OR GAS OPERATED SWITCHGEAR

15.1 Venting to Atmosphere – (Rule, 5.6.1(c)).

When compressed air systems are Isolated for work to take place, any captive air must be discharged and the vent(s) must be locked open, by means of a Safety Lock, before the work may be released. A Caution Notice Shall be attached at the locking point to prevent recharging before it is safe to do so.

15.2 SF6 – (Rule, 5.6.3).

Guidance on recognition and the procedure to be adopted on approaching switchgear containing SF6 is given in WPD Engineering Business Directive ST:SP2LB.

15.3 Unfamiliar Components -

All personnel who have need to approach, or work on, switchgear containing compressed air, vacuum or SF6 Shall be aware of the operating characteristics of the switchgear and Shall be sufficiently informed as to be able to identify the major component parts and recognise Danger signals. Where there is any doubt or incomprehension, advice must be sought before proceeding.
# APPENDIX H

## INDEX

ENGINEERING BUSINESS DIRECTIVES

## Operation & Control Series

<table>
<thead>
<tr>
<th>No.</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL:OC1</td>
<td>HV System Operation &amp; Control</td>
</tr>
<tr>
<td>POL:OC9</td>
<td>HV Remote Control and Automation Systems</td>
</tr>
<tr>
<td>POL:OC12</td>
<td>Numbering and Labelling of Operational Property, Plant and Apparatus</td>
</tr>
<tr>
<td>POL:OC13</td>
<td>Operational Considerations of Supervisory Equipment</td>
</tr>
<tr>
<td>POL:OC15</td>
<td>Work or Tests on Secondary Wiring Associated with High Voltage Switchgear</td>
</tr>
<tr>
<td>POL:OC16</td>
<td>System Operation Contingency Planning</td>
</tr>
<tr>
<td>POL:OC21</td>
<td>132kV System Guidance Notes and Instructions</td>
</tr>
<tr>
<td>POL:OC23</td>
<td>Fault Management</td>
</tr>
</tbody>
</table>
### Operational Safety Series

<table>
<thead>
<tr>
<th>No.</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL:OS1</td>
<td>Operational Safety – Management of Risk</td>
</tr>
<tr>
<td>POL:OS2</td>
<td>Safe Methods of Working on or near the High and Low Voltage Distribution System</td>
</tr>
<tr>
<td>POL:OS3</td>
<td>Access to Operational Premises</td>
</tr>
<tr>
<td>POL:OS4</td>
<td>Location, Identification and Proving Dead of Electrical Apparatus</td>
</tr>
<tr>
<td>POL:OS5</td>
<td>Communication of Electrical Safety</td>
</tr>
<tr>
<td>POL:OS6</td>
<td>Safety Co-ordination at the Interface between WPD Network and other Third Party’s Networks</td>
</tr>
<tr>
<td>POL:OS7</td>
<td>Management of Competence of Staff and Contractors</td>
</tr>
<tr>
<td>POL:OS8</td>
<td>The Selection, Use, Storage, Transport and Maintenance of Voltage Testing Devices</td>
</tr>
<tr>
<td>POL:OS9</td>
<td>Installation and Operation of Mobile Generators and Interrupter Cable</td>
</tr>
<tr>
<td>POL:OS10</td>
<td>Testing and Commissioning of High Voltage and Low Voltage Apparatus</td>
</tr>
</tbody>
</table>