

**These Electricity Safety Rules and associated National Safety Instructions are written to safeguard personnel working for or on behalf of National Grid, on or near to its electricity apparatus. National Grid can accept no responsibility or legal liability to any other party who suffers any loss, damage or injury in any way connected with the use of or reliance upon these documents.**

# NATIONAL SAFETY INSTRUCTION

## **UK BP/SE/NSI 14 AUTOMATICALLY AND/OR REMOTELY CONTROLLED EQUIPMENT**

### **National Grid Transco Copyright**

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise, without the written permission of National Grid Transco obtained from the issuing location.

The contents of National Grid Transco documents are based on the needs of National Grid Transco and the conditions under which it operates. It should not therefore be assumed that the contents stated therein necessarily meet the particular circumstances and requirements of other organisations. The principles set out in this document are for information only and therefore National Grid Transco is not liable to any third party for any loss or damage resulting from reliance on the contents. It is the responsibility of such external organisations to check that the document is the latest version and is appropriate for their purposes

### **DOCUMENT MANAGEMENT RECORD**

<b>Document Title</b>	AUTOMATICALLY AND/OR REMOTELY CONTROLLED EQUIPMENT
<b>Document No:</b>	UK BP/SE/NSI 14
<b>Previous Review Date:</b>	
<b>Next Review Date:</b>	

<b>Document Issue Status</b>				
<b>Issue</b>	<b>Date</b>	<b>Notes</b>	<b>Originator</b>	<b>Authorised for Use</b>
2	February 2005	Re drafted as UK BP/SE/NSI 14	A Foster	J Fenn Transmission SHE Manager

## **AUTOMATICALLY AND/OR REMOTELY CONTROLLED EQUIPMENT**

### **CONTENTS**

	Page
1 Scope	4
2 Definitions	4
3 Equipment Identification	4
4 Dangers	4
5 Work on Equipment which is automatically and/or remotely controlled	4
6 Work on Equipment without a Safety Document	5
7 Work on Automatic or Remote Control Features	5

## 1 SCOPE

This National Safety Instruction applies the principles established by the Safety Rules, to protect personnel from **Danger** arising due to the operation of **Equipment** which is automatically and/or remotely controlled.

## 2 DEFINITIONS

For the purposes of this document, the following definitions apply:

*Automatically Controlled* - operation of **Equipment** by automatic control features such as protection, pressure switches/gauges and automatic voltage control.

Guidance: examples of this type of **Equipment** are circuit breakers, compressors, transformer tapchangers and diesel generators

*Remotely Controlled* - operation of **Equipment** from points removed from the **Equipment** itself such as on site from the standby control position or off site via telecommand.

Guidance: examples of this type of **Equipment** are circuit breakers, isolators and transformer tapchangers

Terms printed in bold type are as defined in the Safety Rules.

## 3 EQUIPMENT IDENTIFICATION

**Equipment** on which work is to be carried out must be readily identifiable. Where necessary a means of identification must be fixed to it which will remain effective throughout the course of the work.

## 4 DANGERS

When personnel are working on **Equipment** which has automatic and/or remote control features, **Danger** which could arise from the inadvertent operation of the **Equipment** if these features have not been **Isolated**.

The main **Dangers** are:

- Electric shock
- Being trapped by moving parts
- Sudden release of high pressure energy and loud noises that can cause damage to hearing or cause disorientation leading to a fall from height

## 5 WORK ON EQUIPMENT WHICH IS AUTOMATICALLY AND/OR REMOTELY CONTROLLED

- 5.1 **Equipment** can have both automatic and remote control features capable of initiating an operation. The **Equipment** may be actuated by mechanical, hydraulic, pneumatic or electrical means.

Guidance: examples of this type of **Equipment** are airblast, SF6 or bulk oil circuit breakers whose operation can be initiated from protection systems or remotely by a **Control Person** via telecommand without any warning.

- 5.2 When work is to be carried out on **Equipment** that is automatically and/or remotely controlled, the **precautions** taken to achieve **Safety from the System** must include **those from** any automatic and/or remote control features.

Guidance: an example is where a circuit breaker during maintenance has had its motive power supplies restored under the terms of a **Permit for Work** or **Sanction for Work**. In order that the **Safety Document** recipient is in sole control of the operation of the circuit breaker the protection isolation links should be removed to prevent uncontrolled tripping initiated from the protection system. Also the local/remote switch should be in local to prevent inadvertent remote operation.

## 6 WORK ON EQUIPMENT WITHOUT A SAFETY DOCUMENT

Where the Safety Rules cannot be applied or for very good reasons should not be applied, work must be carried out in accordance with an **Approved** procedure. The procedure must, so far as is reasonably practicable, take account of the precautions details in 5.2 and specify the means of **achieving and maintaining Safety from the System**.

## 7 WORK ON AUTOMATIC AND/OR REMOTE CONTROL FEATURES

- 7.1 A **Senior Authorised Person** must assess the work to be done on the automatic and/or remote control features of **Equipment** and decide the way in which the work is to be carried out.
- 7.2 If the work on the automatic and/or remote control features is to be carried out with the **Equipment** in service, the **Senior Authorised Person** must first obtain **agreement from the appropriate Control Person that the work can proceed**.
- 7.3 **The Senior Authorised Person must ensure that any inadvertent operation of the Equipment as a result of the work carried out on the automatic and/or remote control features is prevented.**

- 7.4 Before work can be carried out on the automatic and/or remote control features of **Equipment** when the **Equipment** it controls is being worked on, the **Senior Authorised Person** must ensure that precautions have been taken to prevent inadvertent operation of that **Equipment**.

Guidance: an example of this would be during an outage when protection maintenance is taking place at the same time as circuit breaker maintenance. Work cannot proceed on the protection maintenance until the **Senior Authorised Person** has first consulted with the **Safety Document** recipient working on the circuit breaker to ensure that the necessary precautions have been taken, i.e. the protection isolation links removed, to prevent inadvertent operation of the circuit breaker. This is a second check to avoid **Danger**.

- 7.5 Work on telecommand equipment in Control Centres must be carried out in accordance with a Local Management Instruction.

Guidance: this instruction must take into account the requirement to prevent inadvertent operation of the **Equipment** it controls as a result of the work on the telecommand. This is again a second check to prevent **Danger** to personnel working on site.