

National Grid UK Electricity Transmission plc

NATIONAL SAFETY INSTRUCTION 14

and

Guidance


AUTOMATICALLY AND / OR REMOTELY CONTROLLED EQUIPMENT



Copyright National Grid plc 2023 ©, all rights reserved. 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 obtained from the issuing location.

The contents of National Grid documents are based on the needs of National Grid and the conditions under which it operates. It shall 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 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 HISTORY

Issue	Date	Summary of Changes / Reason	Author(s)	Approved By (Title)
1	Sept 2010	New Guidance Document to follow 3 rd edition Electricity Safety Rules layout.	NSI Working Group	MDE Manager Les Adams 
2	April 2014	Renamed as "National Safety Instruction and Guidance" which now incorporates and replaces NSI 14 Issue 3 and NSI 4 Guidance Issue 1.	NSI Review Group	ETAM Operations North Manager Mike Dean
3	Feb 2021	Updated & Reformatted	Electricity Transmission Operations Safety Rules Team	Head of ET Operations Matt Staley
4	May 2023	Update	Electricity Transmission Operations Safety Rules Team	Director of AO ET Operations Andy Richardson

KEY CHANGES

Section	Amendments
4.1 Rule & Guidance	Amendment to 4.1 to acknowledge the use of other Approved Procedures such as ROMPs to vary the NSI 14 Isolations as Point(s) of Isolation , when testing or commissioning.

AUTOMATICALLY AND / OR REMOTELY CONTROLLED EQUIPMENT

CONTENTS

	Page
1 Purpose and Scope	1
2 Definitions	1
3 Dangers	1
4 Work on Equipment which is Automatically and / or Remotely Controlled	2
5 Work on Automatic and / or Remote Control Systems	3
Appendix A Authorisation Matrix for Personnel	4

1 Purpose and Scope

To apply the principles established by the Safety Rules and provide guidance on National Safety Instruction 14, protect **Personnel** from **Danger** arising due to the operation of **Equipment** which is automatically and / or remotely controlled or when working on automatic / remote control systems.

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.

The layout of this guidance note reflects that of legislative codes of practice, where the rule (or mandatory obligation) is identified by a green panel on the left-hand side. The guidance follows after the rule and is identified by a blue panel.

Within National Grid, guidance notes hold equivalent status of an Approved Code of Practice (ACOP) in law. If not followed, you will be required to demonstrate that your safe system of work is of an equal or higher standard.

2 Definitions

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

Title	Definition
<i>Automatically Controlled</i>	Operation of Equipment by control systems such as protection, pressure devices and voltage control
<i>Remotely Controlled</i>	Operation of Equipment from points remote from the Equipment itself such as on site from the Substation Control Point or Remote Control Point

3 Dangers

The **System Danger(s)** to **Personnel** working on **Equipment** which has automatic and / or remote control systems, may arise from the inadvertent operation of the **Equipment**, if these systems have not been **Isolated** from the **Equipment**. These are:

- Electric shock due to inadvertent re-energisation
- Inadvertent operation of moving parts
- Sudden release of high pressure and noise due to inadvertent operation

NSI 14
4.1

4 Work on Equipment which is Automatically and / or Remotely Controlled

4.1 When work is to be carried out on **Equipment** that is Automatically Controlled and / or Remotely Controlled, where the inadvertent operation of that **Equipment** is not controlled by an **Approved Procedure**, then **Point(s) of Isolation** shall be established to prevent inadvertent operation.

Guidance
NSI 14
4.1

4 Work on Equipment which is Automatically and / or Remotely Controlled

4.1 Examples of where inadvertent operation may occur is during circuit breaker / compressor / air dryer or winding temperature indicator maintenance, where the **Safety Document** allows the restoration of motive power.

An **Approved Procedure**, e.g. a ROMP procedure, that clearly and adequately establishes suitable safe conditions prior to the re-instating of ROMP supplies, then additional **Point(s) of Isolation(s)** on Automatic and / or Remote Control systems are not required. The conditions required under the ROMP Procedure prior to testing ensures that the **Safety Document** recipient shall control the operation of the equipment being worked on.

Remote operation via the local remote switch, which is possible when restoring motive power, is controlled by the implementation of the appropriate ROMP procedure. If work is required on the local / remote switch, **Point(s) of Isolation** are required further back in the control system to ensure remote operation is disabled.

The **Senior Authorised Person** shall ensure **Point(s) of Isolation** are established on the protection (e.g. 'S' links where fitted) and where applicable intertrip receive isolation links. This ensures the **Safety Document** recipient is in sole control of the operation of the **Equipment**.

Reference shall be made to protection drawings to determine **Point(s) of Isolation**.

Figure 4.1 – Example of Protection Multiple “S” Link Isolation



NSI 14
5.1

5 Work on Automatic and / or Remote Controlled Systems

5.1 When any work on the *Automatically Controlled* and / or *Remotely Controlled* system is to be carried out with the **Equipment** in service, the **Senior Authorised Person** shall first obtain agreement from the appropriate **Control Person(s)** for the work to proceed.

The **Senior Authorised Person** shall ensure that any inadvertent operation of **Equipment** is prevented.

The **Senior Authorised Person** shall ensure that **Personnel** in the vicinity of **Equipment** which may operate as a result of work carried out are not exposed to **Danger**.

The **Senior Authorised Person** shall cancel the agreement for work to proceed with the appropriate **Control Person(s)**.

Guidance
NSI 14
5.1

5 Work on Automatic and / or Remote Control Systems

Examples of work on Automatic and / or Remote control systems in service are: -

- Operational test on Diesel Generator control system
- In service DAR tests / fault finding
- Trip Tests
- Intertrip Equipment

Appendix A - Authorisation Matrix for Personnel

Contractors appointment under this NSI shall be limited to the following sections.

Non-Company Personnel	Person	Competent Person	Authorised Person	Senior Authorised Person
N/A	N/A	N/A	N/A	All sections

Non Company Personnel

Contractors by law have a duty to provide a safe system of work for their employees.

National Grid have a duty in law to employ competent contractors to undertake work *On or Near Automatically or Remotely Controlled Equipment* and provide them with National Grid's safe system of work to enable them to develop their own safe systems of work.

National Grid Supply Chain Management processes ensure competent contractors are selected and therefore there is no requirement for authorisation under NSI 14.

Once a competent contractor is selected, National Grid has a duty to ensure the contractor understands **Danger(s)** associated with undertaking work within a **HV** compound, permit systems, demarcation and safe access and egress, including movement of objects and vehicles etc. This is accomplished by contractors employees being authorised to National Grid Safety Rules and to NSI 6 and 8, via Management Procedure - NSI 30 "Appointment of Persons".

Before a **Safety Document** is issued the NSI 14 **Senior Authorised Person** shall establish **Safety from the System**. The contractors risk assessment and method statement shall be reviewed by the **Senior Authorised Person** to ensure the **Danger(s)** identified in NSI 14 are suitably managed.

The National Grid **Senior Authorised Person** will issue a **Safety Document** to a contractor's **Competent Person** authorised to NSI 6 & 8.