1. SCOPE

This document details the application of SOP 402 (Applicable to Lucy Switchgear LV Boards pre-1970) issued by the Energy Networks Association.

2. ISSUE RECORD

This is a Reference document. The current version is held on the EN Document Library.

It is your responsibility to ensure you work to the current version.

Issue Date	Issue No.	Author	Amendment Details
August 2016	1	Alan MacGregor	Initial issue
May 2017	2	Alan MacGregor	Remedial action to remove the SOP
August 2024	3	Benjamin Hughes	Re-format of document. Update of SOP header and numbers of pre-1970 Lucy LV boards.

3. ISSUE AUTHORITY

Author	Owner	Issue Authority
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4. REVIEW

This is a Reference document which has a 5 year retention period after which a reminder will be issued to review and extend retention or archive.

5. DISTRIBUTION

This document is not part of a Manual maintained by Document Control and does not have a maintained distribution list.

6. CONTENTS

7. SOP DETAILS

EQUIPMENT TYPE	Lucy Switchgear LV Boards pre-1970
ORIGINATING COMPANY	Northern Powergrid
DATE	15 June 2016
NUMBER INSTALLED IN ENERGY NETWORKS NORTH	1109
NUMBER INSTALLED IN ENERGY NETWORKS SOUTH	897
REASON	A flashover occurred on an LV fuseboard whilst the operator was withdrawing a fuse carrier at a Distribution substation.
STATUS IN INITIATING COMPANY	This restriction applies to the pre-1970s Lucy LV board (see photos included). The Lucy LV board can be identified by the following common and distinctive features. • Large porcelain fuses with flat blade contacts. • The fuses/contacts have no facility to hinge or vertically align the fuse when inserting the fuse. • The MDI panel is at the top of the LV board as shown in the photograph. • The LV board has distinctive bolted transformer links equipped with a shielded handle. If in doubt as the LV board type, operatives should assume this Operational Restriction applies. For any access to a substation containing a pre-1970s Lucy LV board the following arrangements shall be observed. 1. Whilst the vast majority of substations are not classed as confined spaces, the logic of working in a confined space shall be applied to substations containing these LV boards. 2. A confined spaces access/egress assessment should be made to confirm the emergency exit route from the substation. The emergency exit route must be kept clear from obstruction. 3. All access to substations containing a pre-1970s Lucy LV board must be accompanied by a second authorised person who shall provide personal supervision from outside the door and maintain communication at all times. Once safe access and egress has been established and accompaniment provided, the following restrictions shall apply to activities inside the substation: 4. Inspections and HV operations may be carried out in the substation with all equipment live. However, LIVE OPERATIONS ON THE LV BOARD ARE NOT PERMITTED. 5. Testing to establish the condition of an LV fuse is the only activity permitted with the LV board alive. 6. All other fuse replacements/insertions must be done with the LV board made dead via the isolation of the HV supply to the transformer and the isolation of all other LV in-feeds.

	7. Following testing and identification of a first fuse operation, and after making the board dead per paragraph 6 above, consideration should be given to fitting a Rezap Faultmaster to the blown LV fuse way to minimize further customer disruption. This will depend on the number of previous fuse operations. 8. Authorised persons are reminded that whilst the LV board may have been isolated from local in-feed and alternative back feeds, there remains the risk of energisation from distributed generation and therefore the LV board must continue to be treated as if it were live and full PPE worn.
SPEN APPLICATION	Per the Originating DNO SOP application.
ADDITIONAL INFORMATION	If these items are identified on the network, the OCC must be advised so that PowerOn can have a TLR applied and Geofield marked with the SOP symbol.
UPDATE	The SOP can be removed following the completion of the remedial action described.
REMEDIAL ACTION	The NPG Panel of Inquiry concluded that the fuse carrier moved downwards whilst the middle phase fuse carrier was being withdrawn from the LV board – the upper jaws moved forward and made contact with the earthed steel upright of the fuseway making a circuit between the live busbar jaw and the earthed steelwork. The NPG recommendation is for the fitting of an insulated “ledge” to take up some of the space between the feeder side of the fuse carriers and the insulation shield for the busbar below. The “ledge” is a 25mm cellular layer of polycarbonate (Marlon ST Longlife clear) with a layer of solid 6mm polycarbonate (Marlon FS clear) above it and secured with tie-wraps to the upper surface. Example shown:

Before Remediation with gap below Fuse Carrier

After Remediation with gap taken up by the Insulated Ledge

8. SOP HEADER

Field Name	Field Value		Field Size
Name (SOP)	**SOP402**		6
The reason for the Operational Restriction *	Flashover during fuse removal		30
Nature of the Operational Restriction *	No live operation		50
Comments *	No live operation. Only fuse testing for voltage permitted.		200
Restricted Access to Substation Flag *	Y		1
SOP Impact Code * *(highlight or underline the appropriate code)*	0 Temporary/Impact under assessment 1 Very minor operational/network impact 2 Moderate operational/network impact 3 Significant impact on system perf./measurable business costs 4 Inoperable without intervention 5 Inoperable – no cost effective solution/must be replaced		N/A
SOP component type * *(highlight or underline the appropriate code)*	01 Bushing only 02 Circuit Breaker 03 Fixed Portion only 04 Moving Portion only 05 Switch 06 RMU 07 Transformer only 08 Tap Changer only 09 Transformer & Bushing 10 Transformer & Tap Changer		N/A
Search Criteria *	Lucy Switchgear pre-1970 LV Boards. Visual identification on site required.		N/A