

## 1. SCOPE

This document details the application of SOP 2006/0335/02 (Applicable to NKT 132kV cable sealing ends type NKT FEV145-P and 275kV type FEV300-P) issued by the Energy Networks Association.


## 2. ISSUE RECORD

This is a **Reference** document. The current version is held on the Energy Networks Intranet Document Library.

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

Issue Date	Issue No	Author	Amendment Details
Aug 2006	1	Paul Cunningham	Initial issue
Sep 2006	2	Alastair Ferguson	Update and procedure for SOP removal
Feb 2007	3	Alastair Ferguson	Revision following 2 <sup>nd</sup> CSE failure at Eccles.
May 2009	4	Alastair Ferguson	Remedial work for SOP removal.
May 2013	5	Alastair Ferguson	Update to include 275kV FEV300-P type.

## 3. ISSUE AUTHORITY

Author	Owner	Issue Authority
Alastair Ferguson Technical Risk Manager.	Alastair Ferguson Technical Risk Manager.	Jane Wilkie. Head of Asset Management.   ..... Date: ....13/5/2013.....

## 4. REVIEW

This is a **Reference** document which has a 10 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. SOP DETAILS

<b>EQUIPMENT TYPE:</b>	NKT Cables 132 kV Cable Sealing End (CSE) type NKT FEV145-P and 275kV type FEV300-P.
<b>ORIGINATING DNO</b>	ScottishPower EnergyNetworks
<b>DATE:</b>	9 <sup>th</sup> August 2006
<b>NUMBER INSTALLED IN ENERGY NETWORKS NORTH:</b>	~96. Affected sites include Eccles 132kV S/S, Wishaw 132kV S/S, Blacklaw W/F S/S, Neilston 132kV S/S and cable compounds/sealing end platforms at Moorfield and on the Blacklaw 132kV circuits. <b>UPDATE Issue 5.</b> 12 off FEV300-P units at Smeaton 275kV S/S now included in this SOP following the discovery of degraded oil in three terminations.
<b>NUMBER INSTALLED IN ENERGY NETWORKS SOUTH:</b>	Nil
<b>REASON:</b>	Disruptive failure of cable sealing ends at Eccles 132kV substation on 7 <sup>th</sup> August 2006, 25 <sup>th</sup> February 2007 and 22 <sup>nd</sup> July 2007.
<b>STATUS IN INITIATING DNO:</b>	A 50m Restricted Zone shall be established around each energized NKT FEV145-P and FEV 300-P Cable Sealing End. Within this Restricted Zone personnel exposure shall be managed and the agreement of the Transmission Operations Manager shall be sought under the Risk Management Zone (RMZ) procedures before the commencement of any works requiring entry to the Zone. The Restricted Zone may be modified by the application of protective measures such as the erection of suitable barriers between the point of work and any energised CSE.
<b>SPEN APPLICATION:</b>	This SOP is applied in SPEN (initiating network operator)
<b>UPDATE:</b>	See above
<b>REMEDIAL ACTION:</b>	Following detailed investigations by the Manufacturer, the installation contractor and an independent consultant, the cause of these CSE failures is considered to be associated with a deterioration of the silicone insulating oil. As a result this SOP may be removed from individual CSEs provided that the checks and remedial activity detailed below have been completed;  <i>The CSE silicone oil shall be sampled for testing and completely drained from each affected termination. The baseplate shall be cleaned and a composite equivalent insulator fitted and the cable insulation /stress control</i>

*device shall be inspected for signs of degradation. Where evidence of discharge activity is found the termination shall be replaced. If the termination is found to be satisfactory the replacement insulator can be fitted and the unit filled with tested and approved silicone oil. The SOP can then be removed.*

*After a satisfactory service of 5 years, re-inspection of selected CSEs will be undertaken.*