Historic LV Fuse Board Potential Dangers

In another UK DNO, a dangerous incident has occurred on a historic LV board arrangement manufactured by Lucy Switchgear similar to the board pictured .

Whilst an operator was withdrawing a fuse carrier a flashover occurred which spread to all three phases. The operator was thrown away from the resultant fault arc and found his escape route out of the substation blocked by the arc and flames from the LV board.

The operator suffered from the effects of smoke inhalation when trapped in the substation. Personal Protective Equipment (PPE) helped prevent serious injury from the release of fault energy from the arc.

The LV board in question did not have a rating plate on it and the model/type could not be determined.

The equipment has the following distinct features;

- Large porcelain fuses with flat blade contacts
- The fuses / contacts have no facility to pivot or vertically align the fuse when inserting the fuse.
- The MDI panel is located 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.

This type of equipment should not be operated live due to the high risk of flashovers if there is any attempt to vertically align or pivot the fuse into position due to both the proximity of metalwork to the fuse point of insertion and the absence of insulating barriers between adjacent fuses. Accordingly the company that experienced the incident have raised a Dangerous Incident Report **DIN 2016/0035/00** and issued a Suspension of Operation **SOP 2016/0402/00** which prohibits live operation of this equipment.

There is no record of any LV boards of this type remaining in service on the SPD or SPM networks however staff should be vigilant to their presence, particularly at customer interface points and points of interface with other network operators.

Recommendations and action points

If such a board or LV distribution pillar is discovered, the only activity permitted with the LV board live is testing to establish the condition of LV fuses.

Replacement / insertion of a fuse or link on this type of board must be done not live, i.e. with the LV board made dead via the isolation of the HV supply to the transformer and the isolation of all affected LV in-feeds.

Should an LV board with the features described in this Express be encountered, it shall be immediately reported to the District General Manager for escalation so that the asset may have an SOP applied or be immediately replaced.