TECHNICAL
ScottishPower Express

Reference no.: EXP-11-216 Incident: INCD-1015633 Date: 01/07/2016

Management of Outage Risk for Planned Long Duration Outages (PLDOs) at 33kV and Above

On Tuesday 25th August 2015 during a planned long duration outage to replace Southport Grid T1, Southport Grid T2 was switched out due to low oil indications. This put 15,000 customers at risk of disconnection.

The root cause of the incident was a significant loss of oil through a blanked off top valve (see figure 2), which was undetected by personnel during the outage.

Southport Grid T2 had previously been switched out 4 months earlier due to low oil indications with over 1,000 litres of oil added. This leak history was not identified at the planning stage.

It is likely that the additional demand on Southport Grid T2 associated with the summer outage further increased the leakage rate of oil due to reduced viscosity.

Figure 1 - Southport Grid T2

A Panel of Inquiry was initiated to recommend reasonable improvements to the outage planning and risk assessment process. For major outages the panel recommended:

- Enhancing existing outage planning process to better forecast outage risk using additional information such as circuit length, plant failure rate, defects, health index, weather conditions and vandalism.
- Quantify the outage risk on a common risk scale to identify high risk outages.
- Carry out tailored pre/during/post outage checks as required to manage the outage risk.

Figure 2 - Leaking blanked off top valve

Recommendations and action points

- Prior to taking an outage staff should check that equipment is in satisfactory condition and should continue to monitor equipment condition during and after the outage.
- The use of check sheets should be considered to minimise system risk during outages and ensure effective control measures implemented as required. An example check sheet is provided in Appendix 2 of BUPR-11-015.
- Staff should be aware that the status of defects can change during outage conditions (i.e. oil leaks can accelerate due to higher equipment loading).