PSB FOM Report

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for the PSB operations and beam commissioning team
Availability dominated by long faults that required access in the machine to be resolved.
Main Faults

All beams cut by the **PSB Injection Watchdog for high losses**. Investigations showed that no losses occurred and the fault was tracked down to **wrongly set gains of the BCTs**. Update of the OP application recovered operations.

**Electrical glitches** brought down the **ring cavities**. In the first case expert’s intervention was need to resolve the situation.

**Water leak on S7 Finemet cavities** detected as they recovered from the electrical glitch. The experts needed to access the machine and replaced the purging valve.

**Water leak on QFO161** spotted during the access for the cavities. Access in the machine on Friday & Monday mornings to assess the situation and deploy a temporary fix. **More information on the following presentation from the experts.**
In the shadow of the access needed for the BR.QFO161 several interventions were planned:

- Change of configuration \((dl/dt)\) of the **BTY quadrupoles** to allow smooth ppm operation.
- Installation of mu-metal around the PMT of the **LIU WS** to investigate the impact on magnetic screening from the position & angle correctors that leads to a large baseline variation. Installation was completed but didn’t resolve the issue.
- Repair on the **water cooled cable** in front of the cavities in period 6 as movement was observed during the access.
- Ferrite installed on the exit cables of the **BT.BPM40** amplifier for which some jittering was observed.
- Adjustment of the water level detector for the S7 cavities.

### Transverse Feedback
- Losses observed for R2 in some high intensity users, spotted by the experts and resolved **exchanging amplifier**.

### Simulated B-Train
- Beam loss due to the simulated B-Train occurs more frequently as extra users are needed. Issue seems to come up whenever a new clone is created and then added to the supercycle. Experts narrowed down the problem in the **FESA class**. Not cured at the source but can be easily cured during operations by restarting the class.

### Ring Fast BCTs
- Low intensity beams getting cut by the injection WD when following a high intensity user. Experts are following it up, for now operators need to carefully place low intensity users.
Progress & Next steps

• LIU Wire Scanners
  – Several issues have been resolved both on the equipment and the OP application side.
  LIU WS are regularly and reliably used for operations and studies.

• Operational beams
  – Fine tuning and investigations for improvements on multiple users
    o MTE for better bunch splitting
    o LHC25 to push the brightness especially for higher intensities (b-beating & working point evolution)
    o Investigations of measured and simulated B-Train impact
    o AD & EAST setup together with PS colleagues
    o Studies on the instability at 2 GeV to characterize it and understand whether it can be a limitation for operation.
    o Improved painting for fine tuning of emittance for ISOLDE, EAST & parasitic TOF

• Operational setup
  – Continue with fine tuning of various users.
  – Follow-up of open issues, such as BTrain & BCTs, with the experts.

• Determine the situation with BR.QFO161.