

# PSB FOM Report

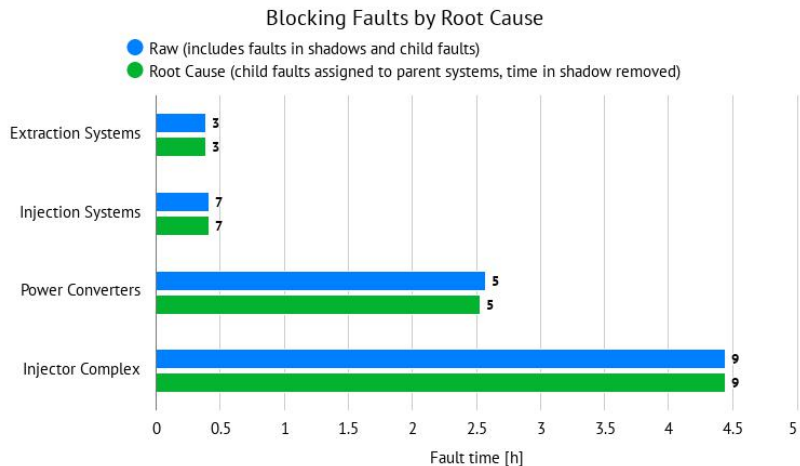
F. Antoniou on behalf of the PSB BC Team



FOM Report, 1st June 2021

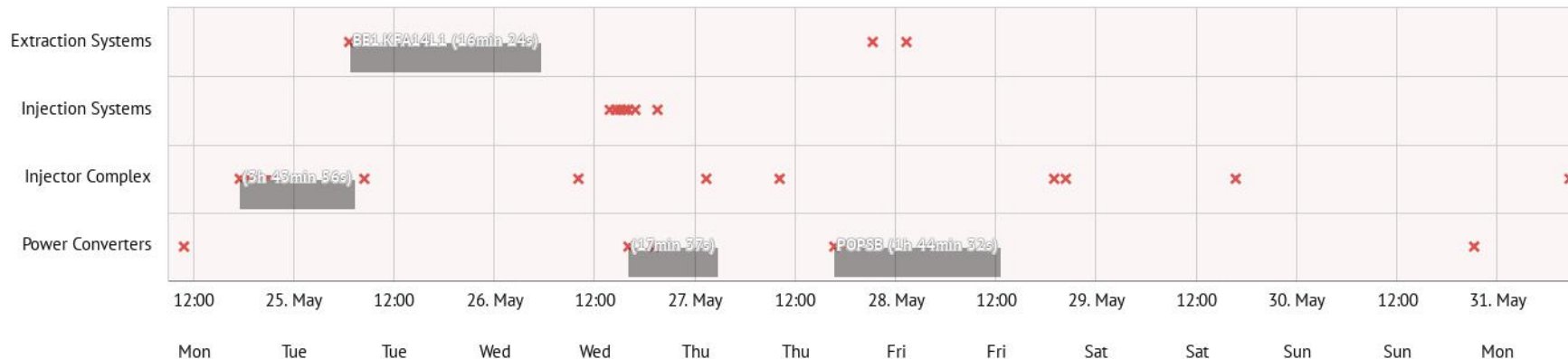
# Machine availability

Availability	95.4%
Blocking Faults	24
Total Faults	24
Fault Duration (overlap excluded)	7.8h



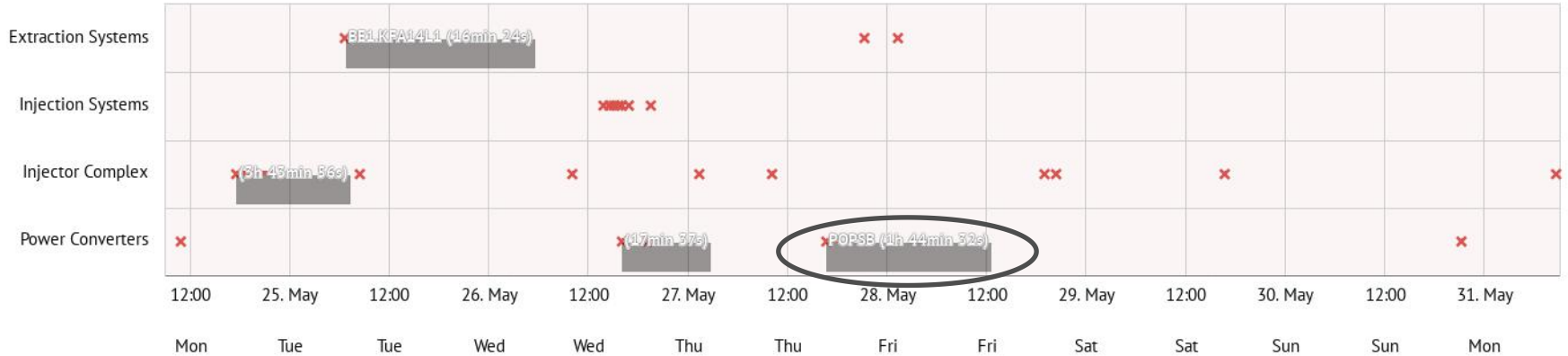
Mainly affected by:

- Linac4
- POPSB
- Extraction kickers



Handwritten signature or initials.

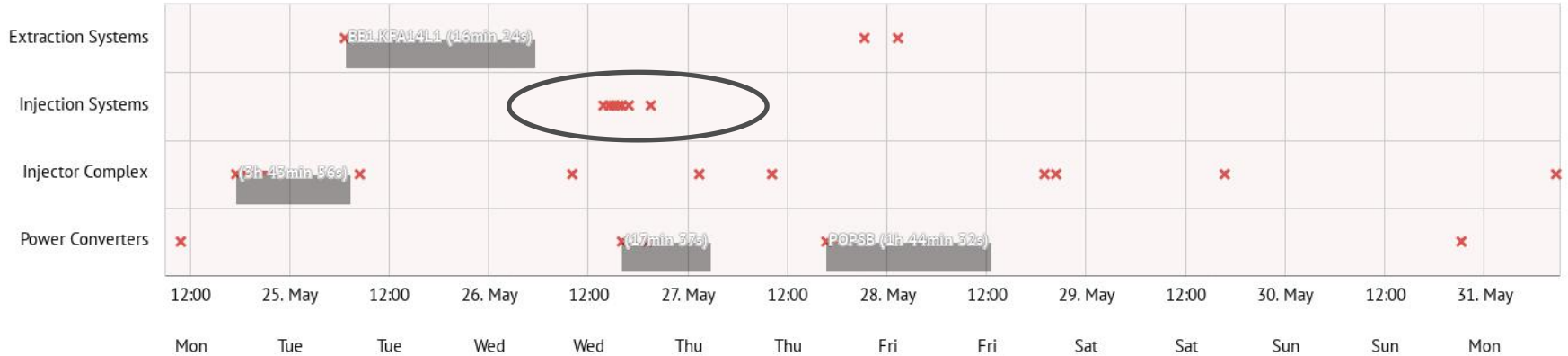
# Main faults



- POPSB:

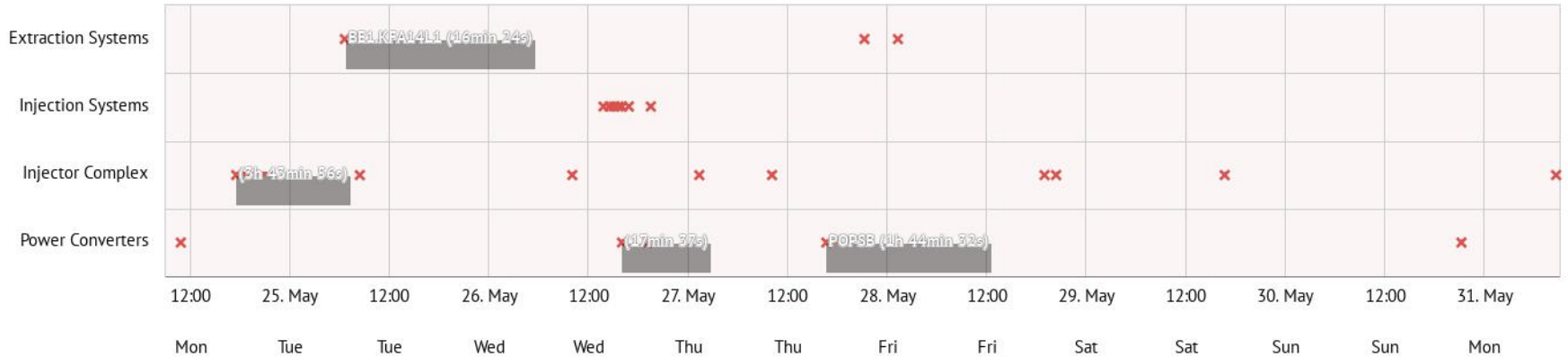
- During the beam stop of Thursday, a new POPSB regulation for the BR23 was applied. Unfortunately, when POPSB restarted this was causing spurious trips of the power converter
  - the currents in the six legs of the power converter were getting unbalanced and randomly caused a trip
  - after this was realized, a new set of coefficients was applied (less performant than the initial one)

# Main faults



- H0/Hm dump interlocks:
  - Consecutive interlocks of the H0/Hm mainly impacting R2 and R3
  - Not related to injection losses and no related observations on the foils
  - BI connected the interlock signals on OASIS and a continues monitoring was set up to help us understand the origin of these interlocks

# Main faults

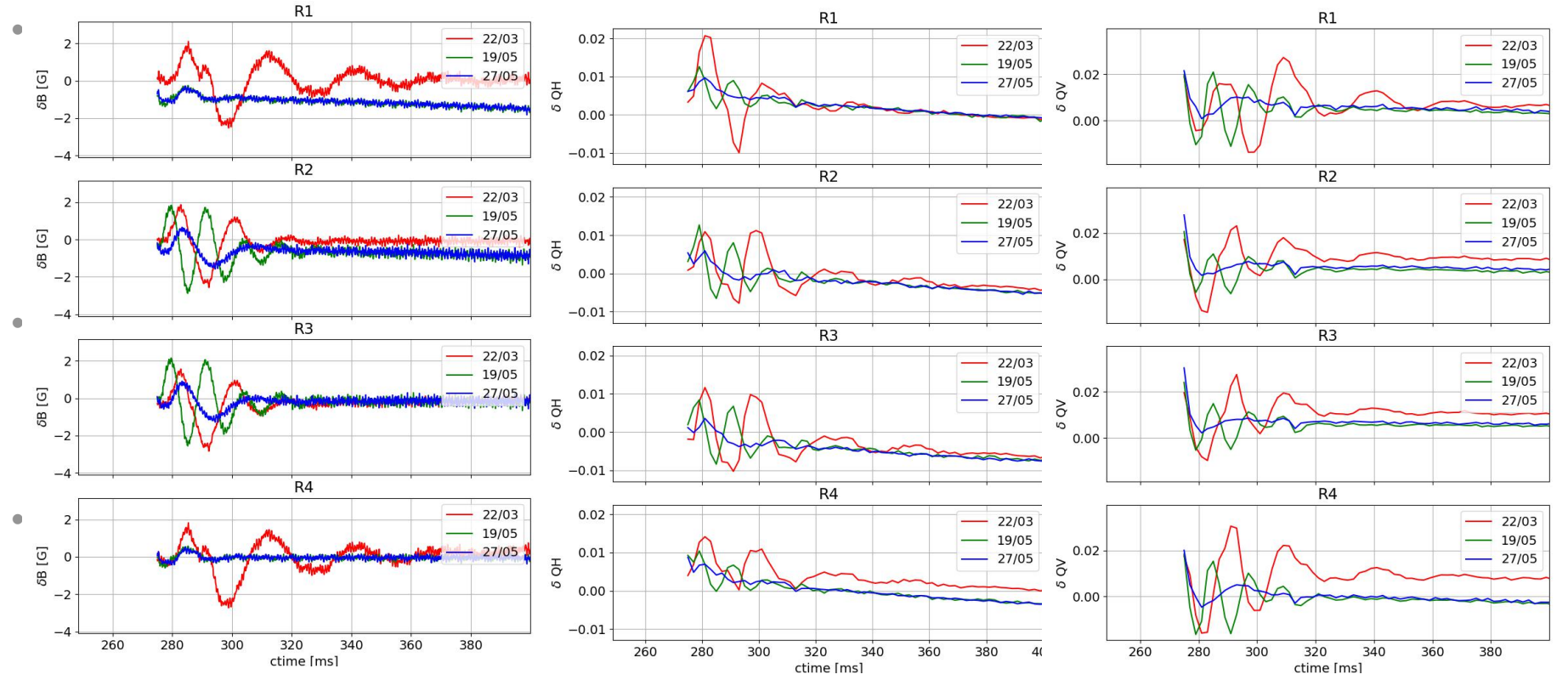


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- Problem with the simulated B-train (1 incident)
  - While an ALARM in LASER was setup, this did not work as expected
  - The B-train team was informed and the investigations are ongoing

# Main activities

- **POPSB:**
  - During the beam stop on Thursday, a new regulation was applied on BR23 which gave a nice improvement of the POPSB oscillations at injection. This, in combination with the BR14 improvement of the 19/05 gave a nice improvement of the tune oscillations at injection
- **MTE beam**
  - Optimization of the ring-to-ring bunch length differences after the PS request. Transverse emittance optimization to follow this week
- **AD beam**
  - Synchro settings were adjusted to correct the observed jitter in bunch spacing by the PS.

# Main activities



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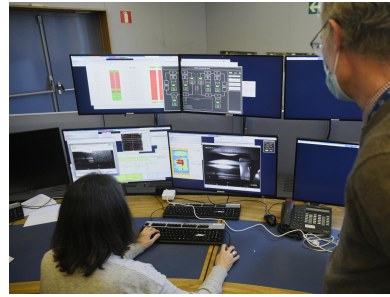
- **Beam successfully sent to ISOLDE**
  - Steering of the BTY line done based on an optics model for the first time!
    - Calibration curves correction, kick response, dispersion measurements
    - The model is now in a good state and very helpful for the steering and understanding of the dynamics in the BTY line
    - BTY.QDE209: GP/Michi/EPC following this up to define a way to have different optics for non-ppm devices
  - Target SEM Grids initially giving “saturated” signals, finally attributed to a vacuum issue on the GPS Front End. After pumping the target to the nominal vacuum levels, the signals for both planes were confirmed to be fine!
  - Vertical offset in the V SEM grid target of ~5mm even when sending the beam perfectly parallel to the beam axis explained by a known vertical offset of ~4.2mm between the BTY line and the center of the SEMGRID target grid.
  - High losses at BTY.BLM1B.120.L --> new optics recalculated which eliminated the losses
    - many thanks to GP Di Giovanni and M. Fraser for working late on Friday and Saturday morning to apply and verify the new optics (optics measurements, kick response, re-steering of the line)
  - Reference measurements for low and high intensity and for different optics acquired over the weekend (many thanks to F. Chapuis, J-L Sanchez Alvarez, T. Bukovics)!





# To be followed up this week

- Continue the **ISOLDE commissioning** (HRS optics)
- **MTE beam**
  - optimisation of the ring-to-ring transverse emittance differences
- **LHC25 beam**
  - Beta-beat measurements and correction during the fall of the injection chicane. We expect/hope that the remaining tune oscillation should not be a limitation after the last POPSB improvements



**A very big thank you  
from all of us to Bettina  
who is moving to the PS from today!**