

ATLAS Forward Proton Radiation from TCL6

Maciej Trzebiński

Institute of Nuclear Physics
Polish Academy of Sciences
Krakow, Poland



249th Machine Protection Panel Meeting (LHC) – Joint with CollWG and LBOC

CERN, 3rd May 2024

- Reminder: in the past we observed impact of tight closure of TCL6 on the AFP:
 - increased radiation in vicinity of AFP FAR station → issues with performing a work during short access,
 - in a long term – impact on detectors: increase # of SEUs, issues with tuning of SiT modules.
- In 2024 we have new optics with focal point in vicinity of TCL6 → tight closure of collimator jaws.
- Since the effect of TCL6 is quite hard to be predicted, we agreed to start with settings optimized for SND and FASER and monitor the situation on AFP side.
- In the middle of April, with the LHC still half full, we intended to have intervention on FAR station during short, few hour, access. This was, however, not possible because the radiation dose around the station was $300 \mu\text{Sv/h}$.
 - The intervention was repeated 1 week later when, during longer unavailability of LHC, after ~ 1 day dose dropped to around $60 \mu\text{Sv/h}$.
 - **Clearly, the current settings crates serious limitations of work in vicinity of TCL6.**
- The negative impact on the electronics is not visible yet, but should be anticipated.

- **From AFP point of view, we would like to ask for opening TCL6 as much as possible:**
 - of course, we should agree what is acceptable for the LHC machine and other experiments,
 - especially in periods when FASER runs without emulsion,
 - also, can one think of asymmetric closure of TCL6 (*i.e.* to keep side A more open; also not close it when side C must be tighter due to FASER)?