WP14 Coordination Meeting: TCLIA

February 28, 2017, 865-1-D17, 10:30 – 11:30

Present: V. Baglin, M. Barnes, C. Bracco, D. Carbajo, M. Frankl, B. Goddard, A. Lechner, A. Perillo Marcone, T. Polzin, C. Wiesner, J. Jowett, W. Riegler

Agenda: http://indico.cern.ch/event/614378/

ALICE requirements: recap. of past studies and new requirements based on present experience (J. Jowett)

- New requirement of +/- 100 urad maximal half-crossing angle from ALICE for HL. It is urgent to define a strategy to meet this new requirement as the current TCLIA only allows a maximal crossing angle of ~70urad.
- Proposed stretching of the TCLIA open full-gap by 3mm and replacing of the TCLIA as close as possible to the IP. With a possible half-gap of 29.5mm for the TCLIA and movement to 72.748m from the IP the required +/- 100 urad can be achieved. This results in a ~6sigma separation with 50ns bunch spacing and assumed nominal emittance. These statements from the TREX meeting 21/1/2015 are still up-to-date. However, if the normalized emittance is increased to 1.65 um instead of 1.5 um this has to be taken into account.
- TDIS and TCDD are not limiting. This will also not change for HL.
- There were no MDs so far for Pb-Pb operation and there are none prospected before LS2.

TCLIA - Possible gain in gap with present HW

Slides from O. Aberle presented by C. Bracco.

- The present **TCLIA** setup at the former position of the TCTVB limits the half-crossing angle to ~70 urad. The opening of the TCLIA is currently limited by the vacuum tank at the level of the edge welded bellow. A maximal half gap of 30 mm seems to be feasible with the present HW-design. The potential contributions of the mechanical end stop and the switch settings to the margin have to be clarified.
- Precise jaw positioning depends on the metrology dates with respect to the end stops of an open tank. A positioning without this metrology would rely only on the surveys. A revision is needed if we lose the current precision of the jaw positioning.
- Further details about possible modifications to be provided by O. Aberle.
- The TCLIA-displacement is presently not included in the baseline.

Vacuum related works in case of TCLIA displacement (V. Baglin)

- The length of the VCTCY downstream of the TCLIA can be reduced by ~1.5m. If sparing 1.5m in the VCTCY is not enough the pumping system has to be removed. Then VCTCY, VAMGQ and VTCTP will be replaced by new VCT sparing about 2.2m in length. Retaining the pumping system between VCTCY and TCLIA is preferred but not necessary.
- Secondary issue: The reason for the elliptical aperture of the downstream end of the VCTCP is not known but the shape is highly unpractical. A new vacuum chamber system would need again a transition from a round to an elliptical aperture.
- Decision about the distance of the movement of the TCLIA towards the IP is required within this year for planning reasons. The proper integration of the works in LS2 has to be checked with the LS2 planning team.
- The cost estimate for design study, procurement, test and installation amounts 80000 Chf. No budget is reserved for actions related to the TCLIA. However, the budget foreseen for the integration of the MKI in YETS 17 or 18 is likely not needed as it is already covered by other actions.
- It was concluded that the possible gain in the half-gap is compared with the requirements for ALICE. Based on that further actions on the vacuum system downstream of the TCLIA have to be determined.