Beam Commissioning Working Group

Minutes for 13 December 2019

Present: A. Huschauer, A. Akroh, S. Albright, D. Cotte, J. Coupard, B. Goddard, M. Gourber-Pace, L. Jensen, A. Lasheen, K. Li, M. Meddahi, B. Mikulec, G. Papotti, J. Ridewood, R. Steerenberg, F. Tecker

Meeting objectives

This meeting discusses the Dry Run schedule in the PSB, and Hardware Commissioning schedule in the PS and PSB.

Approval of Minutes and Matters Arising - V. Kain

The minutes of the 6^{th} of December are approved without comment.

Dry Runs: PSB - A. Akroh on behalf of G. P. Di Giovanni

Presentation

- Each dry run is identified with required applications, which dependencies are tested, and what requirements there are for the tests.
- Most systems will be tested by OP, in collaboration with equipent groups where necessary:
  - Beam instrumentation
  - Injection system
  - OP applications
  - Longitudinal observation applications
  - Transverse feedback (old system)
  - BT.BHZ10
- Some systems require expert tests:
  - Low Level RF
  - Transverse feedback (new system)
  - B-Train
  - Scraper
- A set of miscellaneous tests, such as changes to the timing system, are also required.

Discussion

- V. Kain asks how the transactional behaviour will be tested, A. Akroh says that a large correction beyond the limit of some devices will be sent. Some devices will accept it and some will reject it, and transactional behaviour is expected on the higher level.
- B. Mikulec explains that it is still under discussion with ABT if a dedicated application will be made for the injection matching or if a script will be sufficient.
- B. Mikulec explains the reason for the early extraction is for injection matching studies by ABT. B. Goddard asks if this is to protect the matching monitor, B. Mikulec says yes.
- M. Gourber-Pace asks if the virtual devices for the early extraction correspond to working set knobs, A. Akroh says yes.
- V. Kain asks if the tests of the POPS-B cycle generation will be of use to the PS as well, O. Hans says yes.
- V. Kain asks if the LLRF tests are ISTs or Dry Runs, A. Akroh says it's a combination and covers the entirety of both the Dry Run and IST periods.
- B. Mikulec explains that the BT.BHZ10 test will include testing the interlock functionality for access to the PS.
- B. Goddard says the kickers and beam transfer system together with the required conditions, interlocks, pre-pulses, synchronisation has not been discussed and asks if this is a specific dry run or part of other tests. B. Mikulec says it can be added as a dry run but was foreseen as IST and commissioning. B. Goddard says that due to the different extraction energies and other complexities it's worth making it a specific Dry Run.
- Malika asks if the deadlines have been identified, B. Mikulec says they are in the process of being refined but not yet complete.
- V. Kain says that when deciding between scripts and applications, if it is something to be done by OP, even rarely, it should be an application. If it is to be done entirely by experts it doesn't matter. B. Mikulec says that typically scripts are not used, the matching monitor will be the only case because for the expert it was more practical to work with a script, therefore it may stay as a script for the post-LS2 restart and then be updated to an application later.
- B. Mikulec says that for the matching monitor script there is an application that could be relatively easily modified to suit, but it is not yet decided when that will happen. B. Goddard asks what the plan is for the tune control together with the beta beat correction at injection, B. Mikulec says a similar approach will be followed as for matching monitor analysis, which means that the start-up will be done with scripts.

Hardware Commissioning: PSB - A. Akroh

Presentation

- 17 weeks are scheduled for the hardware tests.
- The hardware commissioning period is broken into 3 parts, with systems to be tested sequentially in each part. The schedule is under discussion with TE-EPC.

- The required dates for each service to be provided has been identified.
- The schedule as presented is not the final version, there is still potential for some reorganising in case of clashes between machines for required personpower.

Discussion

- B. Goddard suggests the dry runs should be added to the planning, A. Akroh says they are in the process of being added.
- V. Kain asks if, other than EPC, there are any open questions, A. Akroh says other than RF it should be complete. B. Goddard says the missing RF information is also the case in the SPS. V. Kain says the plan to cross-correlate the needs of different accelerators, as it is done for EPC, should be done with RF as well.
- A. Akroh explains that if there is a big change due to EPC constraints it will probably fall in Part 1 of the PSB schedule.

Hardware Commissioning: PS - O. Hans

Presentation

- The tests to be performed by each group are identified, with durations and access requirements.
- The MSC test details are still approximate based on previous experience, to be confirmed with the expert.
- In some cases information is missing, in the tables this is indicated by a blank box.
- The EPC tests so far show only duration, but not dates.
- Experimental areas are still to be discussed, and the Switchyard schedule needs to be defined.
- There are two schedules under consideration as input to the Switchyard discussions, in both cases the work can be fit in with slightly different organisations.
- At the moment there is no significant problem foreseen, but there isn't a final schedule available.

Discussion

- V. Kain says the current blocking of PS relevant EPC personnel by the SPS will be discussed.
- R. Steerenberg asks if the 2 schedule ideas shown consider the blocking of personnel by other requirements, O. Hans says no, they still require additional input.
- B. Mikulec says if the switchyard is open it will be necessary to stop Linac4 to the LBE, which would be detrimental to setting up.
- M. Meddahi says looking at the full injector chain for the commissioning is necessary, and this will include solving the clashes with equipment groups.
- J. Coupard says that more complete information will be provided by EPC by the end of the year, there will be a meeting with machine coordinators in the first week of January.

- R. Steerenberg asks if the opening of the Switchyard must be 3 weeks, and if it's only day time. If it can be kept under controlled access it would allow beam to be run during the night, which would benefit Linac4. B. Mikulec confirms that there will be no RP problems beyond the normal cooldown that would be required for an access.

AOB - V. Kain

- V. Kain asks F. Tecker if there will be more information on YETS 20/21 during the next meeting. F. Tecker says there has been an update on the emergency system tests, which can be discussed as it may impact scheduling.
- The objectives for the year are reviewed. Most of what was to be discussed has been covered, a few items are missing and some are to be discussed again.

Next meeting will be on the 10^{th} of January discussing the DSO tests in the PSB and PS; dry run tracking, planning, and documentation; and possibly more details on YETS 20/21.