LIU project team meeting

Notes from the meeting held on 11 October 2018

Present: G. P. Di Giovanni, B. Goddard, K. Hanke, M. Meddahi, F. Pedrosa, G. Rumolo, R. Scrivens
Excused: G. Bellodi, J. Coupard, A. Funken, A. Lombardi

- **Arising matters (M. Meddahi)**
  - The LS2 days took place in the last two days and the notes with the main points to be retained and action plans for LIU have been circulated by Malika earlier this morning. The follow up of important action points, emerged at the event, will be discussed in detail by Fernando in his presentation.
  - One of the main points that it is worth explicitly mentioning is the question of the beam tests in Linac4. Concerning the general planning, it is necessary to make an even more detailed schedule than the one presented by Giulia at the LS2 days in order to define an optimum duration as well as the resources needed on an almost daily basis (e.g. planning of the work for the RF team, who are also committed on other LS2 activities). Therefore it is important to fix the dates and get the commitment of the involved people over the time of the beam tests, and then liberate them for their other activities. It is recommended to shorten the tests (e.g. to 8 weeks) and reach a point in which the machine can be considered in its operational state and can then be 'locked' and left untouched until the restart in 2020 for Run 3. Additional tests over the following 6 months should be avoided, while keeping the option of possible tests on the source and low energy part, which are deemed important.
  - Other worries came out at the workshop about several aspects of the survey activities in the different machines: missing MAD-X files of the lines, who is going to coordinate the alignment activities of Linac4, responsibility for installation of supports (EN/SMM will only mark on the floor beginning and end of the equipment).

- **LS2 planning and general update on LIU-PLI activities, news from LS2 days (F. Pedrosa)**
  - Slides are available here.
  - LS2 planning update: The installation readiness dates will be confirmed by the groups in November 2018 together with the planning and then frozen. Some dates will be different from those in the official and released EDMS documents. Some critical path items in the SPS are being closely watched. In particular the question of co-activity in LSS3 was discussed and the reached agreement between CV, EL and RF will be presented on Monday. This will be detailed out at the next LIU-SPS coordination meeting. A dedicated fellow (Jonathan) is taking care of the LSS5 activities. The installation of the TCDIL is followed by Sebastian (as it concerns transfer lines to LHC) and the request to advance the installation is being considered – compatibly with the equipment readiness date from EN/STI. There is a question about the cleaning of LSS1, which has been subcontracted and is

coordinated by EN/EA, should be clarified in terms of what is being effectively done in LS2 (and what will be done in LS3 due to radiation).

- Linac4 connection:
  - At least 1 week stop of LS2 activities (in total) should be considered for the Open Days 2019 on 14-15 September. The impact will not be negligible. If the time to prepare a certain place for visits is estimated to exceed one week, then this place should be excluded from the visits.
  - EPC confirmed that they can run the power converters without ventilation, but a temperature monitoring system should be put in place during the run. This implies that the tests can be shifted to September 2019 and start after the Open Days.
  - In fact, the ISTs prior LBE tests will take place only after the Open Days, which means that the time for the LBE tests will have to be squeezed by few weeks in order to be completed by Christmas 2019.
  - The new Master schedule reflecting all the above changes will be discussed within LIU (at the next LIU-PT meeting, foreseen on 25th October), before presenting it in the LS2C meeting possibly on 26th October if all the details of the new planning will be available by then.
  - The "Mise hors tension" of LINAC4 is responsibility of the LINAC4 Facility Coordinator (BE-ABP)
- ISTs: ISTs are all tests that cannot be performed with the Facility Coordinator power network separation in place. These tests are carried out by the equipment experts and followed by EN/ACE and BE/OP. A period of 6 weeks will be allocated for the tests in each machine. The aim is to include the dates of the ISTs in the Master Schedule v1.3
- A strategy has been drawn up with the integration team for the differential drawings, which are still missing for many of the LS2 installation activities. A list of all the equipment to be installed in LS2 has been made and ordered according to their installation date. The generation of the differential drawings will be done following the order of this list and along the flow diagram in the slides. The target defined is to have the differential layout drawings at the latest 2 months prior to the defined installation date.
- The question of survey already mentioned above: EN-SMM (survey) announced that they will mark the beam line and the start and end of the equipment, while the equipment owner or activity technical coordinator can ask for the drilling and bear the associated cost.
- Simon Mataguez has been officially appointed activity technical coordinator for the Linac4 connection from December 2018 to September 2019

- **Round table on progress on the various activities**

Linac4 (A. Lombardi by email)

- Luca Timeo from BE-RF will ensure the activity coordination for the Linac4 part, which is already installed and commissioned.

PSB – G.P. Di Giovanni

- Damping resistors:

    - F. Schmidt presented the analysis on the transmission measurements of the PSB machine in order to evaluate the need and specification of the damping resistors.
    - The study, carried by F. Schmidt in collaboration TE-MSC/TE-EPC, showed that for the new POPS-B the ripple tune spread is well under control with the proposed damping resistors and it is unlikely to cause instabilities. The baseline for installation of the damping resistors with double resistance has been confirmed.
    - The connected ECR will be presented for approval at the IEFC tomorrow and the question can be considered closed.
- ECRs
    - T. Birtwistle is actively following up the remaining ECRs:
        - A set of meetings/discussions has been organised with the different authors to go over the blocking points and speed up the circulation procedure.
- EN-STI:
    - Preliminary discussion with I. Lamas Garcia.
    - There is a possible cost overrun on the scraper, which is the last item in the LIU-PSB list with EN-STI. However, Iñigo is looking into all details trying to save money wherever possible, e.g. reducing the number of spares, etc.
- TE-MSC:
    - The switching magnet BT.BHZ10 has arrived at CERN and TE-MSC is now characterizing it.
    - There will be a meeting next week with SIGMAPHI to discuss the status of BTM.BHZ10.

PS – K. Hanke

- Last coordination meeting was on TT2 power converters. Everything is under control, the budget transfer is being organized by Sylvie
- WS: BI are now commissioning the new prototype installed in the machine, a meeting will take place next week to check at what point we are.
- Turn-by-turn SEM grid: The device is now technically working and gave first results on occasion of a successful mini-MD yesterday morning. There might be a possibility for another test next week, to be confirmed according to the injector MD schedule.
- EN/STI have announced an important cost overrun, which they want to discuss with Klaus first, before presenting numbers at the LIU meeting with EN/STI.
- Follow up of meeting with CV: After S. Deleval announced and explained a cost overrun of ~50 kCHF due to some power converters, it has been agreed that this extra cost will be covered by S. Pittet under the BC 68114.

SPS – B. Goddard

- 200 MHz RF (including LL): New RF internal coordination meetings between 4 sections, chaired by Frank & Wolfgang with Andy will take place every 2 weeks on Wednesdays. BG has requested to be kept in the loop for the notes.
- The question of the 800 MHz pulsing is being looked at inside RF, as it was apparently missed from the initial specifications, as well as the 1-turn feedback for ions. This is being sorted out within RF, but there are some complications to converge.

- A concern has been expressed from RF BD about Fellows planning. There are requests for commissioning Fellows within the BE department, which could lead to a manpower issue. There is also missing manpower for the 200 MHz tuning and HOM installation. SPS/OP face a similar issue, as they do not have any Fellows throughout LS2, which will compromise the commissioning. Fellow requests in BE will be discussed at the BE fellow planning meeting tomorrow morning.
- The aperture of vacuum chamber for the LSS1 scraper masks has been finalised, using existing MBN profile. Now all layout changes are defined for LSS1 and LSS5.
- Remaining MD priorities before LS2 are Q22/20, high intensity flat bottom studies (high intensity and losses), longitudinal instability thresholds, and reference measurements for 2021 restart.
- Instrumentation: Engineering Specs launched for the SBDS BTV. Good progress on the new ALPS orbit system, which is working with the 12 channels and is being commissioned. The fire-door integration issue with BGI has been solved.

PS-ions – R. Scrivens

- At the last LIU-ions PS injectors meeting there was an update on the position measurements with the BPMs in the LEIR injection line using the bunching component (101.29MHz). The High Frequency position has been measured for all the BPMs (few planes are missing). The understanding of the measurements is progressing.

Safety – A. Funken (by e-mail)

- LIU-SPS dump upgrade: SPS-CSAP has been postponed to 8/11. The demonstrative part of the safety file will be on the agenda.
- LIU-SPS RF systems upgrade: The descriptive part is being completed with inputs from the project team in order to focus the document on the safety aspects. A draft of the demonstrative part, prepared by Anne, is being completed by the project team. Next follow up meeting on the safety file will take place tomorrow with Eric, Gino and Brennan. Aim: presentation of the descriptive part to the SPS-CSAP on 8/11. This requires sending the updated version to the GLs by end of next week at the latest. Demonstrative part will be presented at the SPS-CSAP in December if ready, otherwise in January.
- LIU-Linac3: The descriptive part will be finalizes by end of next week with the help of Detlef. There are no safety relevant equipment, so no demonstrative part is needed. The source oven test stand in building 152 does not need to be covered. Aim: presentation of the safety file to the PS-CSAP on 15/11.
- Forecasts of HSE pre-visits regarding electrical safety (risk of direct contact) and HSE inspections (electrical, pressure, lifting): Forecast per machine was provided to HSE (Cecile Pinto) this Tuesday. There is still missing information for the Linac4-to-PSB connection. A reminder has been sent to the project team by Anne this Tuesday. Inputs have been received since then from TE/MSC. Electrical pre-visits are ongoing in parallel to this process.
- EN/CV modules: Documents will be created in EDMS by end of October and initiated with the available information at this stage of the project. Already done for LIU-SPS RF systems upgrade SP.

- **AOB**
  - The LIU event will probably be held from 13 to 15 February, 2018, (two nights) and will take place in Montreux (CH). Freddy has agreed that it will be half financed by the ATS. We are converging towards a first draft of the program (just in the form of a list of goals and subjects to be covered), which will be submitted to the LIU-PT for inputs and proposals (conveners, scientific secretaries, speakers). Then, the machine coordinators will be asked to provide their lists of invited participants (proposals).
  - On Thursday 18 October, 2018, there will be an LIU Beam Performance meeting in which the source and report from Roland Garoby's visit on 21 September, 2018, will be addressed.
  - The next LIU-PT meeting is planned to take place on Thursday 25 October, 2018. Amongst other usual topics, the detailed planning of Linac4 beam tests will be presented, as well at the updated LS2 master plan.

Minutes by G. Rumolo