Minutes PSB Upgrade WG Meeting 3rd September 2015

Participants: J. Betz, J. Borburgh, J. Coupard, P. Dahlen, L. De Mallac, G.P. Di Giovanni, V. Forte, R. Froeschl, G.M. Georgiev, G. Guidoboni, B. Gutierrez Hernandez, M. Haase, K. Hanke, J. Hansen, D. Hay, A. Kosmicki, M. Kowalska, B. Mikulec, R. Mompo, M. Paoluzzi, S. Pittet, J. Tan, W. Weterings.

Agenda (https://indico.cern.ch/event/442225/):

1. Approval of Minutes

- The minutes of the last LIU-PSB WG meeting #156, available here, have been approved.

2. Communications

- **LIU Planning:**
  - J. Coupard presented the updated medium/long term schedule at the LIU-PT meeting. It will also be presented at the LIU-PSB WG meeting today.
  - Linac4 master plan was updated by M. Vretenar: It is important for the LIU-PSB project as the Linac4 planning needs to be carefully synchronized with the HST.

- **LIU-PSB Spending:**
  - The spending for the year 2015 has currently reached **47% of the allocated budget for the current year**.

- **Safety:**
  - K. Hanke reported that he started to work on the safety file for the PSB rings. **The deadline for the readiness of safety files is December 2015**.

3. Follow-up of Open Actions

- All WP-holders are reminded to verify that their group requests for EN-EL have been propagated to G.M. Georgiev.

- D. Aguglia on "Approve document with the functional specifications of the power converters for BSW Magnets for both the LIU-PSB and the Half-Sector Test in Linac4 addressing the open issues from v0.2." → S. Pittet reported that some **additional time is needed to finalize the specifications**. With the current hardware, the performance will not satisfy the LIU-PSB requirements:
  - B. Mikulec asked if for the HST the prototype will be based on the new hardware or it will be built with the current hardware choices and have lower performance. **S. Pittet replied that the current hardware design with lower performance will be**

used for the prototype of the HST. Of course, if the updated hardware is ready, a new prototype will be provided.
    - **K. Hanke asked if a new hardware design will affect the rack space layout. S. Pittet replied that it should not be the case.**
    - It was agreed to postpone the action to **beginning of October**.

- M. Haase on "Check the integration with G.M. Georgiev and D. Hay and verify the feasibility of the proposed racks layout of the Finement cavities." → M. Haase presented today the proposal for the rack layout in BRF1/BAT for the Finemet cavities, see here, which was approved. **Action Closed**
- C. Bracco on "Check the requested precision for the synchronization of the injection kickers and BSWs (C. Bracco) and the BSW and QSTRIPs (E. Benedetto)." → Both C. Bracco and E. Benedetto checked the needed precision for the synchronization and it was found to be within the current specifications given, so there should not be a problem with the estimated hardware performance: **Action Closed**. B. Mikulec mentioned that a document is currently in preparation.

- W. Weterings on "Define a set of requirements for CV needed for the foil exchange procedure." → W. Weterings explained that it is a quite complicated issue to tackle and it cannot be resolved quickly. Several iterations may be needed:
    - K. Hanke recommended W. Weterings to get in contact with B. Jones to have more details about the foil exchange procedure/requirements in ISIS and start from there to draft some requirements.
    - R. Froeschl mentioned that one also has to take into account the status of the foil during the exchange. The scenario is very different if the foil is relatively new or brand new with respect to a case when the foil is degraded.
- S. Moccia on "Verify the feasibility of W. Weterings' requirements for CV for the foil exchange procedure." → S. Moccia could not be present at the meeting.

4. Requests to EN-EL for LIU-PSB

- G. M. Georgiev showed an updated version of his Excel file.
- S. Pittet sent the missing information.
- **The remaining open action is for the TE-MPE group about the rack space for the Interlock:**
    - A preliminary DIC was sent and the work could be started based on it, but it would be preferable to have more precise requests.
    - G.M. Georgiev mentioned that he understood that the issue is with the number of magnets to be connected to the interlock, which is not yet finalized.
    - B. Mikulec asked R. Mompo if it is indeed the case as the number of magnets is well known now and there is an uncertainty at the level of plus minus one magnet.
    - R. Mompo confirmed it and the unknown is currently related to the type of cables to use.
    - **G.M. Georgiev and R. Mompo will assess the needs for the TE-MPE group and the document should be finalized by the time of the next meeting.**

5. Rack Layout for the Finemet Cavities

- M. Haase presented few slides about a new proposal for the rack layout for the Finemet cavities, see here:

- 5 racks are needed per PSB Section for the control of the Finemet cavities, including the one needed for Interlock.
- 8 racks are needed for the power supply of the Finemet cavities:
    - The racks include the 40 V needed for the driver and the 27 V needed for the amplifier.

- As agreed with G.M. Georgiev and D. Hay the racks of the power supply for Section 7L1 will be placed near the access in BAT:
    - This will allow for shorter cables, up to 130-135 m.
- Similar conditions have been agreed for the racks of the power supply for Section 10L1.

- Concerning BRF1, during LS2 all the racks will be pulled out and replaced by the new racks for the power supply of Section 13L1 and all the control racks.
- K. Hanke asked about the support infrastructure needed and the cabling work:
    - **M. Haase replied that concerning the cabling, G.M. Georgiev received already the DIC and DEC, but now the documents need to be updated to reflect the agreed changes.**
    - M. Haase added that concerning the water cooling the information has been sent to S. Moccia. K. Hanke asked if there is any increase in the cooling needs. M. Haase replied that **the cooling system will change from air cooling to water cooling. And some more water flow will be needed.**

- **The plan is to install the support during the YETS, but the racks will be installed only during LS2 as the current system is needed for operations.**
- K. Hanke asked about the budget for the support. **M. Haase replied that the money will be taken from the budget of the RF HV group.**

- **The proposed rack layout for the Finemet cavities is approved**

6. Planning of the LIU-PSB Activities (YETS/EYETS/LS2)

- J. Coupard presented the master schedule for the LIU Project for LS2:
    - The **ION run will start the 12th November 2018 and end the 1st December 2018.**
    - Then the RP cooling time is currently estimated to one and half months.
    - **A time range of 15.5 months will be available during LS2 for all the interventions, starting the 7th January 2020.**
    - **The "Hardware Test" will start in the middle of April 2019 and last 4 months.**
    - It will be followed by a month of cold checkout to finally start **beam commissioning the 13th September 2020. The beam commissioning will last 2 and half months.**
    - The **beam should be ready for LHC at the beginning of March 2021.**

- B. Mikulec commented that it should be **specified that the beam commissioning is intended only for LHCPROBE beam.**

- J. Coupard also presented the latest schedule for the work activities for the LIU-PSB during the next technical stops and LS2, see here:
    - This table contains the references to all the planned activities during the technical stops before and during LS2.
    - **The list of work activities is constantly updated and the latest version can always be found here.**

- The table will be **completed with all the activities scheduled for consolidation for the PSB** in order to have a comprehensive view.
- The file is meant to centralize all activities:
  - **Each intervention is grouped within a main activity** with a responsible associated to it. This means that **if one of the intervention cannot be done on time, it may affect the whole activity.**
  - For each activity there is a follow up of all the steps needed: status of the SRR/ECR, need for mechanical design, etc, etc.
  - **For each activity there is one time defined for the work to be carried.**
  - The activities for the L4 connection are marked as **"possible"**, as the connection may happen or not at the end of 2016. G.M. Georgiev commented that the readiness for end 2016 will depend very much on the de-cabling campaign. **It will be possible to install new cables only after removing the current ones**.
- Currently the information about the DIC and the DEC is outdated, but it was agreed to remove this information from the table such that the only reference will be the file being prepared by G.M. Georgiev.
- **It is very important that all the workpackage holders have a look at the table and check if their activity is listed with the correct time frame and confirm the date are indeed correct or report any missing item to D. Hay and J. Coupard**.
- **The goal would be to finalize the table within the next two weeks** → A reminder will be circulated to the group mailing list.
- D. Hay commented that **thanks to the shift of LS2, the group essentially got an additional technical stop**. J. Coupard mentioned that there is indeed **a document in EDMS (https://edms.cern.ch/document/1470895/) containing the information about the length of the YETS and EYETS which needs to be updated to reflect the changes in schedule, once they are officially approved.**

7. AOB

- The next meeting is tentatively scheduled for the 17th September 2015.
- Welcome to **G. Guidoboni, a new fellow who will work with B. Mikulec on the HST.**
- B. Mikulec mentioned that it was recently found out that **after LS1 the tune for LHCPROBE beam cannot be measured along all the cycle**. With M. Gasior's help several settings were tried and, even by increasing the kick by a factor 5, the measurement could be extended throughout all the cycle. This is an **issue for Linac4 commissioning**. **M. Gasior is investigating the possibility to replace the beam position monitor (BPM) with a longer one, which will provide the needed resolution for an as low intensity beam as the LHCPROBE-type beams**. He plans to discuss it internal with the BI group to have a first idea on feasibility and cost.
  - **G.M. Georgiev reminded that if the BPMs in the rings have to be replaced, to please submit the needed DIC and DEC.**
- J. Tan reported that last week an internal review in the **BI group** has been organized in order **to prepare for the general LIU review of the BI activities**. J. Tan asked if the request for the **new BPM for the tune measurement has to be included in the review. K. Hanke confirmed to include it.**
- J. Hansen reported that the work to simulate the pumping needed in sections 4L1 and 11L1 for the installation of the new wire-scanners in ongoing. In a time scale of couple of weeks it should be ready to be shortly presented at the LIU-PSB WG meeting.
- Welcome to **B. Gutierrez Hernandez who is the new contact person for EN-EL LV**, replacing S. Bertolasi.