Minutes PSB Upgrade WG Meeting 21th May 2015

Participants: E. Benedetto, T. Birtwistle, L. De Mallac, , G.P. Di Giovanni, D. Grenier, R. Froeschl, G.M. Georgiev, M. Haase, K. Hanke, J. Hansen, D. Hay, B. Mikulec, S. Moccia, A. Newborough, S. Pittet, J. Tan, W. Weterings.

Agenda (https://indico.cern.ch/event/395102/):

1. Approval of Minutes

- The minutes of the last LIU-PSB WG meeting #148, available here, were approved.

2. Communications

- **Power Converters for BSW Magnets of the Half Sector Test (HST) and Booster Stripping Foil Chicane in the Framework of LIU-PSB Project:**
  - The technical specifications are available on an EDMS document at https://edms.cern.ch/document/1495860/0.2/TAB3.
  - The document was rejected because of a few **open issues not addressed concerning FGC3 specifications, interlock implementation and timing**.
  - An action was re-opened for D. Aguglia to finalize the document and resubmit it for approval.

Assigned to	Due date	Description
D.Aguglia	2015-10-01	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.

- **New KSW magnet in 16L1:**
  - An engineering change request (ECR) was submitted, see https://edms5.cern.ch/document/1422350/0.3/TAB3.
  - There is an issue with the removal of the vacuum chambers from BR.MCC16L1 in order to fit the new chambers for the KSW. This would imply that the complete assembly (BR.MCC16L1) would need to be removed from the machine.
  - The BR.MCC16L1 stack was originally planned to be renovated during LS2.

- A. Newborough reported that the TE-MSC-MNC group is looking into **purchasing the new coils so to be ready for the EYETS, and not for the YETS 2015/2016, as originally preferred.**
- G. Minchev Georgiev mentioned that he also rejected the ECR because of the incorrect positioning of the racks. The authors have been informed and are working on it.

- **B245:**
  - L. Lopez-Hernandez reported via email to K. Hanke that the work is supposed to start today, 21st May 2015.
  - The permits have not been received yet, but since the deadline from the city hall has passed, it is assumed that they were obtained tacitly.
  - S. Moccia asked if there was any delay and, if yes, how it affects the project. K. Hanke replied that currently there is a month delay (the work was supposed to start at the beginning of April), but it should not affect the project, as LS2 has been officially postponed to 2018, see below.

- **LIU-PSB Budget:**
  - There seem to be mismatches between the money spent reported by APT and the ones in CET and this is generating extra confusion.
  - A meeting is being planned with M. Meddahi to sort this and several other issues out.
  - Concerning the re-baselining, most of the expected contributions have been received.
  - Generally the WP-holders did a good job, but there are still a few open issues with LIU-PSB 6 (BI) and LIU-PSB 9.2 (ABT).
  - S. Pittet added that the EPC group will add a WU concerning the additional orbit correctors.
  - One of the topics to discuss is also the structure and budget code splitting of EN-EL. The EN-EL has currently one WP-holder and one budget code. They would need 3 BCs and the associated WP-holders: one for the work on low voltage, one for the work on high voltage and one for cabling.

- **LIU Budget:**
  - The project cost-to-completion that was presented at the C&R Review was 186 MCHF.
  - With the proposal to delay some items it was brought down to 180 MCHF.
  - The current amount allocated is 171 MCHF.
  - The LIU project should get an additional 8/9 MCHF, but this will be confirmed in the next few weeks.

- **Safety**
  - Every operational machine has or will have safety files classified in four parts: Descriptive, Demonstrative, Operational, Records Experience and Monitoring (REM).
  - For the LIU project, **specific Safety Packages (SP) will be identified within each activity.** They are different compared to the WPs, each one rather representing a system or a functional block, e.g. the beam dumps, the new buildings, the injection system, etc.
  - **The templates for each part have been prepared by A. Funken.**

    - It will be necessary to clearly identify the different SPs and then nominate coordinators for each of them. This will be done by K. Hanke for the LIU-PSB within the next two weeks.
    - **R. Froeschl mentioned that there is an agreement that the radio protection (RP) part is treated in a separated document.**

- **LS2:**
    - **It is now official that LS2 is delayed to end 2018.**
    - The duration is not yet defined. **It should last about two years**. It is not clear if the proposed two years are for LHC only or for all the accelerators in the complex.
    - D. Hay wondered if the YETS in 2017/2018 will thus be extended. K. Hanke asked D. Hay, as coordinator for the LIU-PSB upgrade work activities, to try to find out the new duration for YETS 2017/2018 in view of the schedule change.

3. Follow-up of Open Actions

- All the WP-holders are reminded to verify that their group requests for EN-MME have been propagated to B. Riffaud.
- All the WP-holders are reminded to verify that their group requests for EN-EL have been propagated to G.M. Georgiev.
- All the WP-holders are reminded to verify that their group requests for CV have been propagated to S. Moccia.
- All the WP-holders are reminded to verify that their group requests for work activities during the technical stops have been propagated to D. Hay.

- T.Dobers on "Present a complete list of equipments where the screws cannot be accessed with the reason for it and some illustrating photographs." → T. Dobers was not present at the meeting. G.P. Di Giovanni will send him a reminder.

4. Progress on LIU-PSB Upgrade Work Activities

- D. Hay presented the latest table on the LIU-PSB upgrade work activities, see here:
    - Two new columns for the DEC and DIC requests have been added to the master table, as previously requested by B. Mikulec. These will be filled based on the input from G.M.Georgiev.
    - K. Hanke asked if the table was now complete:
        - D. Hay replied that there is no major item currently missing.
        - On the other hand, in order to make sure no part of the project is overlooked, the requests are being cross-checked with the expected work reported in the work-packages (WP) in EVM (apt.cern.ch). J. Coupard has been taking care of it, but currently she is on sick leave.
        - S. Pittet and B. Mikulec reported that the additional orbit correctors can be finally added as work to be performed during the YETS 2015/16.
    - A. Newborough asked where the table was available for consultation:
        - D. Hay will send the link to G.P. Di Giovanni, who in turn will circulate it to the working group members.

5. Collect Needs for Cooling And Ventilation

- S. Moccia presented the latest status of the request, see here.

- **Cooling Status:**
  - Additional requirements for the dumps received from D. Grenier.
  - The requirements for the C16 are still missing (separate circuit connected to the chilled water system):
    - M. Haase does not have any measurement of the current cooling system for the C16.
    - A measurement campaign should be launched to address this issue.
  - Nevertheless, **there are enough data to start working on the new baseline:**
    - K. Hanke commented that care should be taken to separate the work which falls into consolidation from the one needed for the upgrade; the latter should be the one for the new baseline.

- **Ventilation Status:**
  - **Power converter requirements in BRF2/BAT reduced from 100 kW to 35 kW**. This should simplify the work required in case the Linac4 connection happens at the end of 2016.
  - Asked for a better estimation for BHP (200 kW present estimation):
    - S. Pittet commented that the estimation should not change dramatically as for the BRF2/BAT.
  - Need to clarify with RP if also for the ventilation it is required to split the systems Tunnel/Surface. This is already foreseen for the cooling.
    - R. Froeschl mentioned that this is still to be decided. The RP and CV groups should meet and carefully look at the system and how the ventilation is shared.
    - R. Froeschl reported that he is planning to meet with M. Nonis about the ventilation unit for the main beam dump for issues like machine protection and accessibility.
      - K. Hanke added that indeed this item should be included in the renovation of the ventilation, as it was not done back then because of time constraints, but that now it should be placed in the surface. The idea was to avoid downtime, because if the ventilation fails it triggers an interlock and then an access to the PSB would be needed.
  - No changes foreseen for Tunnel ventilation needs.
  - On the field measurements are needed to evaluate the actual power dissipated in air in the B361 rooms.
  - S. Moccia reported that while for the cooling the requests are part of the new equipment specifications, for the ventilation it is a bit more complicated to get the proper information.
  - For the time being on the current ventilation system there are 1.4 MW available, but during summer only about 600 kW have been used. **There is a general problem with requests being over-dimensioned with respect to the real needs**.
  - K. Hanke asked when it would be possible to rebaseline the ventilation. **S. Moccia replied that a better understanding should be reached at the end of June and at that point a new baseline could be defined**.

- **W. Weterings asked if during the foil exchange the ventilation could be turned off or at least lowered. This is to avoid possible damage of the foils**.
  - S. Moccia said he cannot tell at the moment, as he just recently started working on the ventilation units. It is an old system with not much data available, and mostly based on operational experience.

    - **S. Moccia suggested to make an official request**, so that it can be addressed while reviewing the ventilation system.

- **B. Mikulec suggested to consider smoke tests to check where the air flows, since the ventilation is very old.**

6. Requests to EN/EL for LIU-PSB

- G.M. Georgiev presented the updated version of the cabling requests received, see here.
- The table now includes the rack installation requests.
- Concerning the rack requests for EPC, the installation will be done directly by the EPC group, but EN/EL will take care of the integration anyway.
- For few possible interventions, it is not clear if the installation of new racks would be needed:
    - G.M. Georgiev invited all the WP-holders to have a look at the table and provide feedback to him about the status of the requests.
    - A reminder will be sent to the contact people listed in the table and to the WP-holders to make sure the relative open issues are addressed.
- All the templates to be filled are available here.

- W. Weterings asked which was the budget for the decabling (DEC). Every WU includes money for cabling, but it is not necessarily valid for the decabling.
    - G.M. Georgiev said that partially this work is included in consolidation, but it will not be enough for the whole LIU-PSB.
    - K. Hanke replied that indeed this is a more general LIU problem and it is not restricted to the LIU-PSB project.

- W. Weterings mentioned the possible naming mismatch between the cable labels and the equipment names, as by default it is assumed the cables will remain even though the equipment is removed.
    - G.M. Georgiev added that this is the default as sometimes new equipments re-uses the present cables anyway.

7. Status of the Readiness for End-2016 Deadline for L4 Connection

- W. Weterings presented an update of the readiness of LIU-PSB 9.2, "LIU-L2B: Injection system equipment", see here:
    - There is currently **no showstopper for the ABT equipment** concerning the Linac4 connection.
    - **The magnets are available and the prototypes are being built or under validation**.
    - There is a recurrent **issue with the budget, as the money is needed in the budget to submit the order, even though it will probably only be charged to the budget of the subsequent year**.

- K.Hanke and B. Mikulec presented the list of open actions the group needs to address for the Linac4 connection, see here.

WP	Open Action	Comment
Power	**S. Pittet:** Start crash program to	**The project is being rebaselined for the**

	advance procurement of injection power supplies (in progress; status?)	**crash program: the equipment should be ready on time.** B. Mikulec expressed her concerns about the EDMS document 1495860, as there seem to be several open issues (achievement of specifications, interlock details and external timings for the FGCs). S. Pittet reported that for the interlock the EPC group has a dedicated person now developing the interface. About the timing the EPC group is working on it and finally it does not look like a big issue. E. Benedetto reported about a private conversation with D. Aguglia where he stated that the issues should be possible to solve.
Interlocks	**B. Puccio:** Submit the DICs for the interlock system. **B. Mikulec:** Clarify the needs for the WICs in the PSB.	Nobody was present at the meeting to report. A meeting is tentatively planned for the 4th of June to clarify the needs for the WIC and collect the needs for submitting the DICs.
Survey	**T. Dobers:** Report on the progress and present a planning for the YETS to exchange the jacks for BHZ162 and BHZ11	Nobody was present at the meeting to report.
Technical Coordination	**D. Hay:** Rack layout for BRF2 and BAT (defined); now the room needs to be cleared out and prepared; follow-up needed. **D. Hay:** Define the rack layout for the interlock system	D. Hay mentioned he was working to sort out the financial details of the job to be done.
Integration	**B. Mikulec, B. Riffaud:** Review the integration of the BI.SMV position measurement plates. **A. Kosmicki, D. Parchet:** Provide integration of new racks including supporting structures, cooling and ventilation equipment and switchboards for BRF2 and BAT. **J-M. Lacroix:** Provide a solution for the conflicts in the BI.SMV10 region and the BI.BVT10 entering angles with M.	**BI.SMV position measurement plates:** B. Mikulec reported that there was a preliminary meeting and it was agreed that only the incoming beam will be measured, not the outcoming. F. Roncarolo has some extra checks to perform, while the integration team in BI is finalizing the details. Concerning the integration of the new racks, G.M. Georgiev reported that the integration of the racks is done. What is missing is the supporting structure. C. Bracco is working on the conflicts in the

	Hourican and C. Bracco.	BI.SMV10 region and the BI.BVT10 entering angles with M. Hourican.
LLRF, TFB	**A. Blas:** Report status of RF bypasses and TFB Electrical Systems	Nobody was present at the meeting to report.
EN-EL	**G.M. Georgiev:** Follow up cable identification and decabling during the YETS/EYETS.	D. Hay reported that the strategy for the decabling campaign will be clearer after the next IEFC.
CV	**S. Moccia:** Review needs, give status report, re-baseline.	The work is ongoing.
CO, timings	**J. Betz:** Review all needs for controls and give status report.	Nobody was present at the meeting to report.
Applications	**J.L. Sanchez Alvarez:** Provide inventory and specifications for the applications; organise software development.	B. Mikulec reported that there is a meeting planned for the 27th of May 2015 where the applications for the LIU-PSB will be discussed.
Vacuum	**J. Hansen:** Follow-up progress for fabrication and test of vacuum chambers (in particular vacuum chambers for BHZ11 and BHZ161).	The vacuum chambers are being commissioned by an external company. The segments of the final chambers that have been analysed showed some problems. The issue is followed up. J. Hansen invited everybody to keep the vacuum closed and the equipment clean before installation.
BI	**J. Tan:** Investigate which projects are to be delayed in favour of having the SEM grid for injection matching ready in 2017. Start a crash program. **J. Tan, F. Roncarolo:** Investigate the possibility for a PPM device, in case the installation is done during YETS 2017/2018. A decision on spare grids has to be taken once the cost for the final design is clear.	The studies are ongoing. Concerning the PPM devices there are recent investigations leading to the possibility of using a magnetic system to allow for in and out motion without using bellows, but this is a very recent development. The final cost for the SEM grid is still to be defined.
BI	**J. Tan:** Make sure that the SRR and ECR for SEM Grids for turn-by-turn measurements in ring 3 are submitted.	F. Roncarolo is working on the ECR. There is still an open issue with the hot spot in section 4L1.
BI	**J. Tan, C. Zamantzas:** Make sure that the ECR for BLMs for the PSB and transfer lines is submitted. The ECR	C. Zamantzas is working on it.

	should include FLAT ionization chambers and ionization chambers to replace ACEMs and fast diamond BLMs.	
BI	**J. Tan, J. Belleman:** Make sure that the DIC, SRR and ECR to reserve space for the wide-band BPM in the BTP line are submitted.	The DIC has been submitted. T. Birtwistle reported he received the ECR for the wide band BPM. → ACTION CLOSED.
BI	**J. Tan, F. Roncarolo:** Prepare a document for approval about the specifications for the H0/H- current monitor electronics.	The document is getting prepared.
BI	**J. Tan, J. Borburgh:** Check the need to order spares for the H0/H- current monitor to align with magnets spares. Update the BI budget baseline in case.	The need of spares is currently being investigated.
BI	**J. Tan, S. Burger, W. Weterings:** Investigate if 2 extra spares for H- charge-exchange beam profile and foil inspection BTVs are needed. Check feasibility of removing an old unit & re-installing a new one if needed. Update the BI budget baseline in case.	The installed units can be removed and spares re-installed without much problem. There is no need for additional spares. → ACTION CLOSED.
BI	**J. Tan, S. Burger:** Submit the ECR for BI.BTV30.	The ECR is getting prepared and it will be issued together with the ECR of the BI.SMV10.
BI	**J. Tan, J. Belleman, L. Soby:** Demonstrate 200 µm resolution for low-intensity beams for the turn-by-turn measurement system. Demonstrate reliable operation with new firmware/software. Electronics to be ready for deployment in EYETS 16-17.	Reliable operation with the latest firmware. The plan is to install new electronics for 3 BPMs in summer and test them. Once the new electronics are installed about a month of commissioning time will be needed.
BI, RP	**J. Tan, R. Froeschl:** Optimize the scheduled work in the radiation laboratory for the BCTs-BR.TMD currently installed in PSB section 8L1.	The expected radiation is low. The work needed should be 16 days with 1.3 FSU. The planning is getting defined with RP.

- Since several people were missing at the meeting, they will be contacted to provide feedback on their open actions and the minutes will be updated.

- B. Mikulec asked W. Weterings if the ECR for the BI.DIS10 has been submitted:
    - W. Weterings replied that it was not yet submitted.

8. AOB

- The next meeting is tentatively scheduled for the 4th of June 2015.
- J. Hansen mentioned he might report in one the upcoming meetings about the potential re-sectorization of the vacuum chambers needed for the new wirescanners.
- D. Hay reminded that the next technical stop was foreseen for the 15th of June 2015. Please make sure to submit your IMPACT timely if you need to access the machine