Minutes PSB Upgrade WG Meeting 26th February 2015

Participants: J. Abelleira, M.E. Angoletta, D. Aguglia, C. Bertone, T. Birtwistle, J. Coupard, L. De Mallac, G.P. Di Giovanni, T. Dobers, A. Findlay, R. Froeschl, G.M. Georgiev, J. Hansen, K. Hanke, B. Jones, B. Mikulec, S. Moccia, R. Mompo, A. Newborough, M. Paoluzzi, S. Pittet, B. Puccio, J. Tan, Y. Thurel, W. Weterings.

Agenda (https://indico.cern.ch/event/376324/):

1. Approval of Minutes

- The minutes of the last LIU-PSB WG meeting #142, available here, were approved.

2. Communications

- **Readiness for end-2016 for the equipment needed for Linac4 Connection:**
  - The management officially confirmed to keep the option of a possible connection of Linac4 (L4) with H^- injection in 2017.
  - **All equipment for the L4 connection must be ready by the end of 2016, including the associated services.**
  - Today, all the work-packages involved will be reviewed, see below.
- **Ion Runs:**
  - Discussion ongoing about the Ion runs preceding LS2.
  - A decision is to be made if the runs are a Pb-Pb run or Pb-p. In the latter case, the PSB will have to deliver proton beam, reducing the available time for intervention during the technical stops.
- **LIU Cost & Scheduling Review:**
  - A draft of the presentation is expected by the end of the week.
  - M. Meddahi will circulate around the templates to be integrated in the talks.
- **Fellowships:**
  - Two cases to be clarified for LIU-PSB: one fellowship for "Magnets" and another one for "EPC". K. Hanke has sent the details to the LIU PT.
- **Linac4:**
  - During a safety inspection of Linac4, validation certificates for the L4 dumps were requested. EN-STI did not have such papers for L4, and therefore we should make sure this is done correctly for the PSB dumps. No EN-STI representative was present at the meeting to confirm. This needs to be followed up. → Open action.

Assigned to	Due date	Description
D.Grenier	2015-10-30	Report about the validation certificates for the LIU-PSB dumps.

- **Requests to EN-MME:**
  - B. Riffaud presented the EN-MME jobs in progress for LIU project at the last LIU-PLI meeting, see here.
  - K. Hanke presented a slide, see here, with the list of current jobs in EN-MME planning.
  - The current LIU-PSB request have been highlighted in yellow.
  - All the WP-holders are requested to have a look at the list, check if their request is listed and if not, please contact K. Hanke so he can collect the list of requests to be sent to B. Riffaud. → Open action.

Assigned to	Due date	Description
W.P.Holders	2015-03-31	Verify that all the requests from your group for EN-MME have been propagated. The current list of jobs invoiced is here

3. Readiness Review for End-2016 Deadline for Linac4 Connection

WP	WP-holder	Status	Discussion
LIU-PSB 9: "Linac4-PSB Injection Systems"	W. Weterings	All the equipment is planned to be installation-ready for end-2016, without spares. - The controls & KSW pulse generator are planned to be just in time for end 2016. W. Weterings stressed that the order of hardware should really follow the realistic installation date to get the latest models, guarantee, support...	- B. Mikulec asked when the spares are supposed to be ready. W. Weterings replied it is not clear at the moment, but end-2017 should be a reasonable date, but definitively for LS2. One may consider that the prototype for the HST could be still considered emergency spare.
LIU-PSB 5: "Power Converters"	S. Pittet	- **Most of the PCs needed for L4 connection are scheduled for December 2018.** - Only PSB injection control electronics and current measurement are due for December 2016. As these are needed for testing the prototypes, they are still to be considered late w.r.t. the schedule. **It is not obvious how to**	- K. Hanke mentioned that the WP was handed over to S. Pittet only at the beginning of 2015. - S. Pittet will communicate the output of the review on time for the LIU Cost & Spending Review. - B. Mikulec mentioned that **prototypes will be ready for the HST.** - S. Pittet replied that the original plan was to test the prototype during the HST and then launch the production.

		advance the deadlines: * Some workunits (WU) still not technically defined. * Advancing the deadline may not be compatible with standard CERN purchasing procedures. - An internal review will be held on 6th March, see here.	On the other hand, with the end-2016 deadline, this could mean to **launch the production without enough testing.**
LIU-PSB 6: "Beam Instrumentation"	J. Tan	**Most of the equipment is planned to be ready.** The baseline for 4 items should be changed from LS2 to end-2016: - Injection BCTs: The electronics would be ready, but the BCT have to be taken out to change the windings and one should consider ALARA (time to cool down), which could delay the installation to 2017. - DC current transformers. The electronics would be ready for end-2016. - New turn-by-turn electronics for ring pickups which could be ready end-2016. Most likely it will be ready in 2017, because of cabling work to be done. J. Tan underlined that the installation of these BPMs is a point of no-return. Once the new BPMs are installed, the old ones will be decommissioned (cabling problem). - SEM grid for injection matching: not ready for end-2016. The earliest deadline would be 2017, but some other projects could possibly be delayed.	- J. Tan asked if the electronics of the DC current transformers should be modified to adapt to the higher intensity in L4 (2.5E13 ppp). K. Hanke commented that it is unlikely that L4 will be able to deliver such intensity right after the connection. B. Mikulec proposed to consider a staging of the transformers. J. Tan will investigate the best course of action. - B. Mikulec stressed the importance to plan sometime for commissioning of the turn-by-turn BPMs in the rings, since they cannot coexist with the current BPMs. J. Tan mentioned one and half months would be needed for commissioning of the BPMs. B. Mikulec mentioned that this time has not been included in the planning so far. - B. Mikulec asked which projects are to be delayed in favor of having the SEM grid for injection matching ready in 2017. J. Tan said he does not have this information right now. → Open action - B. Mikulec asked W. Weterings when the slits for the injection

			septum should be installed. W. Weterings mentioned that this could be done at the last stage of the assembling.
LIU-PSB 7: "Beam Intercepting Devices"	D. Grenier	- H^0/H^- dumps ready for end-2016. - Head/Tail dumps ready for end-2016.	Report sent after the meeting.
LIU-PSB 8: "Vacuum Systems"	J. Hansen	- The vacuum equipment for the injection should be ready in 2016. - BHZ11 and BHZ161 vacuum chambers could be on critical path for end of 2016, if the prototypes are not satisfactory. - Cabling and controls, depends on EN-EL.	
LIU-PSB 12: "Electrical System"	C. Bovet, G. Minchev Georgiev, J. Pierlot	- Complicated cabling mapping. - Among the current requests, the displacement of DC & interlock cables is a concern. - **Uncabling campaign during EYETS essential. No new cabling to be done before clean-up. But up to now only 7% of all cables identified as removable.**	- G. Minchev Georgiev asked if the cabling of POPS PSB is needed for end-2016. K. Hanke said it is not needed. - All WP-holders are asked to check that their requests for cabling have been sent to G. Minchev Georgiev and also the cabling not needed anymore → Open action. - G. Minchev Georgiev will present at the LIU-PLI meeting the strategy for the cabling removal/installation, see here. - B. Mikulec asked to J. Coupard if she is following with the issues about L4. J. Coupard confirmed it is the case and these items will be reviewed with J.B. Lallement, WP-holder for L4 transfer lines.
LIU-PSB Rack Space	D. Hay (presented by J. Coupard)	- TE-EPC items on critical path: Install 54 racks in BRF2 for L4 connection (BSW & Qstrips)	- **M. Paoluzzi commented that having a layout ready for end-2016 for BRF2 means that the C16 consolidation work should be finished by that time.** - G. Minchev Georgiev said that

			three layouts have been proposed, but he did not get feedback about the approval of any of them. D. Aguglia mentioned they are still not approved as they have been recently submitted for approval to C. Coupat. All proposed solutions assume that the C16 consolidation is done and their cabling removed.
LIU-PSB 17: "Interlock Systems"	B. Puccio	- BIS will be ready for end-2016, but the rack number where the interlock signal is provided is needed to establish the cabling request. - The WIC in LINAC 4 is only protecting magnets up to the Linac2 connection. The budget is being requested and for the PSB it will imply additional cabling request.	- The WP is in good shape, pending some budget issues.
LIU-PSB 14: "Installation, Transport and Handling"	C. Bertone	All the work is on time and if a confirmation is given 8-10 months before starting the work, there should be no problem.	- W. Weterings pointed out that the injection region is very dense and it will get more crowed with cabling and bus-bar, so it is very important to be aware of all the constraints and participate to the integration meetings chaired by B. Riffaud. - C. Bertone mentioned that one way to work around this issue would be to know if the transport and installation can be done in pieces. This solution would simplify the work.
LIU-PSB 20: "Survey"	T. Dobers	- Alignment tools and needs for the PSB injection region are discussed with the relevant experts. - The tools should be ready at the time of the installation. - Manpower is not an issue.	- T. Dobers expressed the interest in having the complete layout of the region to better prepare. - B. Mikulec mentioned that the item of the jacks of the bending magnets should be studied well in advance. T. Dobers replied the group is studying it with the

			magnet experts and if in 2016 it is needed to replace the injection/extraction magnets, these jacks will serve as a prototype. This item will be reported at the end of March in a LIU-PSB WG Meeting.
LIU-PSB 3: "Magnets"	A. Newborough	- BI.BVT10 and all BI correctors ready in 2016. - The special injection and extraction magnets will be ready in 2018. One could consider transforming one of the current spares in a special injection magnet still not compatible with the 2 GeV operations, but with the new chambers. This choice would imply that there will not be a non-radioactiove magnet for the BHZ reference magnet (which is not really desirable). Moreover one should include in the planning the time to extract this injection magnet in 2018 with the proper one.	-B. Mikulec asked when the BI.DHZ/DVT50 and BI.DHZ/DVT70 will be replaced. A. Newborough said that this could be done during one of YETS as the magnets should work with the current cables and power supply. - W. Weterings asked how long time would be needed for replacing the injection magnet in case the choice is place the temporary injection magnet for 2016. A. Newborough said it is mainly a vacuum intervention and J. Hansen said there will be the support to be changed, so it needs to be carefully estimated.
Applications	J.-L. Sanchez Alvarez	J.-L. Sanchez Alvarez is currently on vacation	- B. Mikulec will follow-up this offline when J.-L. Sanchez Alvarez is back.
LIU-PSB 11: "Controls"	J. Betz	No status reported	- Nobody at the meeting representing BE-CO. K. Hanke will follow-up offline.
LIU-PSB 4: "LLRF & TFB"	A. Findlay	- LLRF update mostly done already and interlock (BIS) is planned. - Fibers/software for the synchronization with L4 will be available for end-2016 deadline. TFB ready for end-2016. - Only possible issue with RF bypasses: it is desirable to be	

		able to test the new bypasses during YETS 2016 and a discussion is ongoing with the vacuum group on how to best proceed.	
LIU-PSB 13: "Cooling and Ventilation"	S. Moccia	- The presentation is about L4 needs and not about the L4 connection.	Another iteration is needed to clarify: - The needs for the new room BRF2. - The needs for the PSB injection.

Assigned to	Due date	Description
W.P.Holders	2015-03-31	Verify that all the requests from your group for EN-EL have been propagated. The list with requests has to be sent to G.Minchev Georgiev.

Assigned to	Due date	Description
J.Tan	2015-12-01	L4 Connection: Investigate which projects are to be delayed in favor of having the SEM grid for injection matching ready in 2017. Start a crash program.

4. AOB

- Next meeting is tentatively scheduled for the 12th March 2015.