

LIU project team meeting

Notes from the meeting held on 20 July 2017

Present: J. Coupard, G.P. Di Giovanni, A. Funken, A. Huschauer, A. Lombardi, G. Rumolo

Excused: H. Damerau, B. Goddard, K. Hanke, M. Meddahi, B. Mikulec, S. Prodon

- Arising matters (G. Rumolo)

- No news.

- LIU and BE/ICS safety systems (A. Funken)

- Slides are available [here](#).
- At the PS-CSAP on 13 July, P. Ninin, section leader of BE-ICS-CSE (Critical Systems Engineering) mentioned that he would like to have a global view of the safety systems to be provided for the LIU project or the impact of the project on the existing safety systems (e.g. access safety system, fire detection system, emergency evacuation system, alarms).
- Anne proposed that it would be important to organize a joint LIU and BE/ICS meeting like for the others groups in order to review this subject.
- According to the LIU Project organisation chart [EDMS 1403771](#), there are two LIU WUs for BE-ICS: 18 (alarms) and 19 (access systems, doors). Only for LIU-ions these are 17 and 18. There is no WU for fire detection systems. Only for the PS names are associated to these WUs, in other cases persons have to be appointed.
- Similarly to what Julie did for SMB/SE, a draft list of the activities for BE-ICS, mainly based on the descriptive parts of the safety files, has been compiled by Anne and is presented here. It mainly includes items for Linac4 connection, PSB (e.g. new MPS building), SPS (new LSS5 beam dump, new RF building). To be noted that the request to move the access system of Linac2 into the tunnel is integrated in LIU but does not come from LIU.
- This list needs to be reviewed by Julie and the single machine coordinators to be sure that it is complete. **Action: Julie, Alessandra, Klaus, Brennan, Richard to go through the list and make sure that all items are correctly included – by end of August.** After the list is considered to be complete, a meeting between LIU and BE/ICS will be organized in early September (as usual with GL, DGL, SLs and LIU-PT members), in which LIU will describe to the group all the identified activities and the general impact of the LIU equipment on the safety systems will be discussed.
- A few LIU activities have been identified in PLAN with BE/ICS as requester or contributor. Some other LIU activities have been identified as involving BE/ICS, but they are not yet declared in PLAN.

- **Update on LIU-PLI activities (J. Coupard)**

- PLAN: The result is not available yet, but anyway it will be presented at an LIU-PT meeting as soon as it becomes ready.
- Linac4: There was a coordination meeting, now it is clear that the TS foreseen at end of this month for the installation of the debuncher coupler has been cancelled due to problems with the seal. It still needs to be defined when this intervention can be done. The next stop to complete remaining work is foreseen for October and will be planned carefully at next coordination meeting. At this point, the coupler will probably not yet be installed, because a robust (and not temporary) solution for the seal takes longer to be implemented. The dates for the YETS and definition of access period for Linac4 need to be finalized. **Action: Julie and Alessandra**
- Decabling project: During the YETS, the next campaign will take place in the PS and EN/EL will present what their plan for YETS in September at LS2 Committee or IEFC. In principle, they would like to remove all the obsolete cables.

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

Linac4 – A. Lombardi

- Fault Tracker is in place and the training of operators has started.
- Unfortunately, since yesterday morning there is a big problem with the pre-chopper. Now parts from test stand are being installed in the tunnel in order to proceed. The RR will continue once this problem is fixed.
- ECRs: Two procedures are followed, one for operational machines (through IEFC) and one for LIU project (through PLI meetings first). It is decided that the ECRs about the connection (from 2020) should still be reviewed within the PLI meetings, while those for Linac4 can now be considered operational and go to IEFC.

PSB + PS – G.P. Di Giovanni and A. Huschauer

- PSB:
 - Scrapers: The work to define the dimensions of the new PSB scrapers is advancing well:
 - The dimension of the large mask will be defined to protect the equipment in the PSB (scaling from the current beam window scope)
 - The dimension of the small mask will be defined to protect the equipment in the transfer line:
 - Waiting for input from Wolfgang Bartmann for the horizontal plane (aperture limitations in the vertical have been already discussed and agreed upon);
 - Then the information will be passed to BE-ABP (F. Schmidt) who will perform the final calculation for EN-STI. The goal is to provide the scraper dimensions by the end of the week.
 - EN-STI plans to finalize and review the design in September.
 - Integration of BT-BTP line:
 - Good work done by TE-ABT. The discrepancies between GEODE, MADX and LAYOUT DBs have been discussed at the last LIU-PSB meeting and solutions proposed case-by-case. The survey files for the integration has been provided to Jean-Michel Lacroix.

- Next step will be BTM, but no major surprises are expected.
- ECR SEM grid matching at injection: The ECR is still outstanding and BE-BI has been contacted. The mechanics needs the full integration. This is being followed up.
- CV: Gabor Petrika called for a meeting with several parties to review the structural design of the ventilation system and the outcome will be presented at the next LIU-PSB meeting to have extra feedback in terms of requirements.
- CET extraction shows the budget used to be at 102% (including pipeline).
- PS:
 - 2 GeV injection bumpers: Eddy current measurements were performed by MSC with one vacuum chamber. The second vacuum chamber is now fabricated. Results still have to be discussed.
 - Displacement of octupole in SS40 to allow integration of the longer 2 GeV injection bumper: A significant impact on the MTE phase space has been found and the available free SSs are not suitable due to the phase space distortion. A possible solution would be SS32, but preliminary integration study has shown that the vacuum chamber has to be exchanged (only possible after removal of CT equipment, for which a decision is awaited at the end of the year)
 - MDs:
 - BGI induced orbit distortion: Successful correction of the BGI induced orbit distortion. This will allow for parallel MDs. The trim power converter has to be powered by 106.25 %. Additional measurements with the BGI pixel detectors were taken
 - Resonance compensation of $3Q_y=1$ with skew sextupoles was successfully performed, but additional investigations of profiles and working point scans ongoing. There might be other lines to be compensated.
 - Transition crossing studies to understand different thresholds for TOF and LHC beams with/without gamma jump to investigate possible margin for LHC beams

Safety – A. Funken

- LIU Safety files
 - Safety file LIU-PSB: POPS-B descriptive part presented to the PS-CSAP on 13/07 (with LIU-LEIR descriptive part). Two issues are under still study:
 - Access and interlocked system to the reference magnet area (fenced area) – Presentation of the needs should be presented to the BE-ICS internal safety forum on 31st of July (Dario/Fulvio)
 - The control measure to put in place regarding the flooding risk (EN/CV equipment in the same room)
 - Safety file LIU-PS: Ring, Injection, RF systems presented to the PS-CSAP on 13/07. To follow PS dump and TT2 consolidation: still to be finalized and be sent to DSOs, and to be presented to the following PS-CSAP (September/October 2017).
 - Safety file LIU-SPS:
 - LIU-SPS dump upgrade: version integrating comments from contributors and remaining missing information is being finalized. Document to be sent to DSOs beginning of next week. Presentation this morning to the dump coordination meeting concerning the SF status and the next steps (preparation of the demonstrative part)

- LIU-SPS RF system upgrades: remaining missing information to be provided by G. Cipolla, review of the document planned tomorrow 20/07. Document to send to group experts and GLs for review by end of July.
- LIU-SPS Ring and transfer line: being updated before to be sent the DSOs (postponed to end of August/beginning of September). New contribution from V. Kain concerning the EIS-Beam in the transfer lines (TED and TBSE) to integrate.
- LIU-SPS aC coating and flange impedance reduction: descriptive part to be updated based on EYETS 2016-2017, then to be sent for approval to Malika.
- Impact of LIU project on fire risk assessment of PSB, PS and SPS: As the descriptive part of the different LIU safety packages are closed to be finalized, Anne proposes to contact HSE (RP, fire experts) to confirm that the modifications due to LIU have not impact. The heat load is mainly due to cables and it is expected to decrease thanks to the decabling campaign in the different accelerators.

- **AOB**

- No LIU-PT meeting will take place on 27th July and 3rd August, 2017. The [next LIU-PT meeting](#) is scheduled on 10th August, 2017.

Minutes by G. Rumolo