

INTEGRATION meeting #2

Date: 2018/11/20

Project/Activity: WP6a

Attendees:

TE-MS: Amalia Ballarino [AB], Iole Falorio [IF], Jerome Fleiter [JF], Yann Leclercq [YL], Vittorio Parma [VP], Patrick William Retz [PR], Jean-Philippe Tock [JPT], Yifeng Yang [YY].

EN-MME: Robin Betemps [RB]

EN-HE-PO : Caterina Bertone [CB], Catarina Carvalheiras [CC], Jani Hattunen [JH]

ATS-DO : Paolo Fessia [PF].

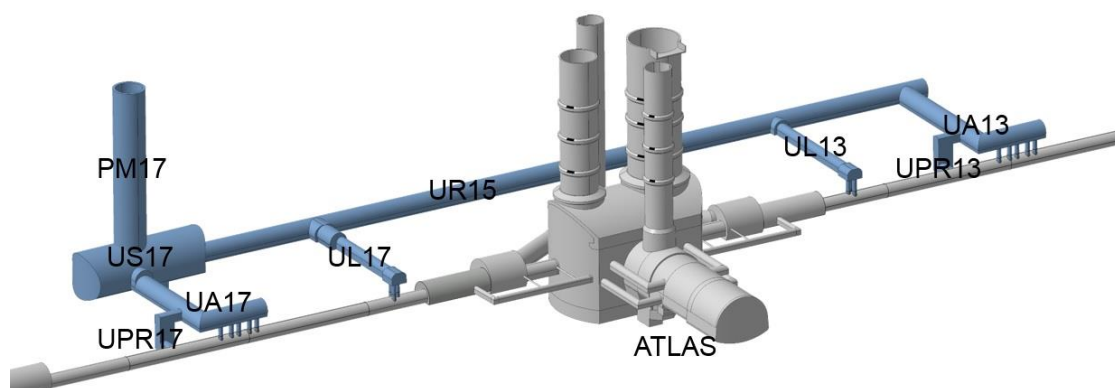
Excused: Alan Gharib [AG].

Agenda: <https://indico.cern.ch/event/773186/>

- Naming convention of HL-LHC underground areas [RB]
- Installation of the SC-Link in the tunnel [RB]
- Recall on the layout of DFH and current leads: status of on-going optimization studies [YL]
- Recall on the ancillary equipment to be located in the new underground galleries [JF]

DISCUSSION

- The naming of the galleries in the IP1 and IP5 zones have been presented by RB. A document with the official galleries names can be found in EDMS with number 1513968 (<https://edms.cern.ch/ui/#!/master/navigator/document?D:100239024:100239024:approvalAndComments>) [PF];



- All the equipment in IP1 comes down PM17 and it is transported through US17 [PF]. Then the SC-Links have to be installed in UL17 and UL13. In one of the two cases the link will have to move backward once unspooled, therefore two opposite windings are needed on the final spool depending on the final integration requirements [RB];
 - When moving the link backward the space available is ~ 50 m between UL13 and UA13 plus additional ~ 30 m in UA13 if needed (but another guided bend required) [PF];



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- The preliminary dimensions of the spools are 2.5 m width (limited by the 2.9 m dimension of the loading bay in the shaft) and 4 m diameter (this number comes from the requirements on the bending radius and number of layers in the spool). At the moment 2 layers in the design [RB];
- The weight of the spool is estimated to be below 5 tons [RB] but the limit in weight sustained by the crane close to the loading bay in the bottom areas should be checked [AB];
 - Post meeting comment: PF confirmed the limit in weight of the crane in the tunnel is 5 tons while the limit in weight of the overhead crane in the SD building is 25 tons;
- It is suggested to perform the unspooling of the link close to the shaft location where more space is available, once in the tunnel the movements are more difficult [CB]. From the shaft to the end of US17 (before tunnel restriction) there are about 10 m [PF];
- It is proposed the use of a tool to unroll the SC-link to be assembled in situ. There is an existing one used to unroll the 60 m, it should be checked if it can be use with longer length [AB];
- It is proposed to unwind the SC link on a roller conveyor and to install a guiding rail to enter the shaft. The guiding rail has to prevent the over bending of the protective cryostat attached to the SC-Link extremity (preliminary dimensions \varnothing 450 mmx800 mm plus \varnothing 350 mmx800 mm). The roller conveyor will be removed after the installation [RB];
 - It has to be checked if compatible with IP5 where the extremities might be different [PF];
- The QRL should be added when performing installation simulation, it will be in place during installation of the link [PF];
- In case the SC-Link needs to be dismantled: the transport area is always available to be occupied for limited amount of time but if other areas are used for installing/removing the SC-Link, after the first installation the equipment will be in place. A special study of the SC-Link removal with the equipment in place should be performed [PF];
- The SC-Link has to be installed in the galleries (except the shaft) with a modest wavy shape. A preliminary idea will be proposed to WP15 for approval [AB];
- The idea of how pulling and transporting the SC-Link in the shaft is only at a preliminary stage. RB and AG are invited to perform further study on the geometry [AB];
- The proposed configuration for current leads (CL) racks, power converters (PC) and connection/disconnection boxes (CDB) has been shown by YL. It looks longer than the space reserved for those components at the moment, it will need to be checked [PF];
- PF notes that the height of the components has to be compatible with the presence of the cables locating at the top of the gallery. YL is invited to provide a feedback on the volume [AB];
- The rack requirements have to be specified in appropriate documents. The racks requirements forms are available at this link
<https://espace.cern.ch/HiLumi/WP15/Rack%20Requirement%20Form/Forms/AllItems.aspx> [PF];
- The DFH connection to the cryogenics lines have to been studied too, the cryogenic connections will need to cross the transport are [PF];
- Concerning the safety in the galleries: one option could be to diverge the he gas towards the shaft (US area) where there are bigger spaces and more oxygen is available. To be checked [PF];



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ACTIONS

Confirmation on the limit in weight that can be lifted by the crane at US17-5tons	PF	Done
Check the compatibility of the proposal for SC-Link deployment with IP5	RB	ASAP
Check the compatibility of the SC-Link installation when QRL in place	RB	ASAP
Study on the SC-Link removal when equipment is in place	RB, AG	Started
Preliminary proposal on a longitudinal wavy shape of the SC-Link	AB, PR, YL	ASAP
Study on the geometry for the SC-Link unspooling proposal	RB, AG	Started
To be discussed with wp15: racks requirement, volume and integration in the gallery of CL, PC and CDB	YL, JF, PF	Started
Document on the ancillary equipment	JF	ASAP
Filling the wp15 rack requirement list	JF	ASAP

Documents:

Prepared by: Iole Falorio, Amalia Ballarino

Date: 2018-11-22

Distribution List: All attendees