

TREX Meeting – 874-1-011 (CCC conference room) – 10h00, 19 June 2014

People in attendance:

A Ball (PH/CMX), A Behrens (EN/MEF), J Bosch (TE/VSC), E Bravin (BE/BI), H Burkhardt (BE/ABP), S Chemli (EN/MEF), G Corti (PH/LBD), P Fassnacht (PH/ADO), C Gargiulo (PH/DT), M Gallilee (TE/VSC - Deputy Chair), M Lamont (BE/OP - Chair), D Mergelkuhl (EN/MEF), Y Muttoni (EN/MEF), S Redaelli (BE/ABP), W Riegler (PH/AIO), B Salvant (BE/ABP), F Sanchez-Galan (EN/MEF - Technical Secretary), A Tauro (PH/AIO), K Vatansever (TE/VSC)

Meeting Summary:

A meeting was held to introduce the new mandate for the TREX working group, which will encompass the work previously done in the LTEX and LEB. The meeting introduced the approval process and personnel involved, it continued the previous discussions on the proposed new ALICE central chamber for installation in LS2. Also presented were the new supports to be installed in LHCb and ATLAS during LS1.

The following information was given during the meeting. Full presentations can be found at the following Indico link <https://indico.cern.ch/event/325756/>.

M Lamont – TREX mandate and members

1. The TREX mandate provides a forum to discuss operation and upgrades of forward detectors and experimental beam components between Q1-Q1, including TAS and TAN. This mandate covers components to be used up to LS3.
2. Reporting will be to the LMC, HL-LHC technical coordination and as required to the LPC.
3. Components requiring use after LS3 must be reviewed by the HL-LHC technical coordination and WP8.

Stefano Redaelli asked how the collimator settings should be covered in terms of operation as these are discussed on a regular basis in another working group. **Mike Lamont** responded by stating that it was good that Stefano was member of TREX to keep the direct link between the two forums.

M Gallilee – Approval process

1. In terms of the experimental chamber approval, the previous approval process was presented from the previous LEB method as a suggested approval route for the ALICE chamber.

Samy Chemli stated that once approved, the new aperture must be added to the layout database.

A Tauro – ALICE Central Chamber

1. A Tauro presented the history of the ALICE chamber approval route:
 - a. Started in 19th LEB (April 2012) at 5.5 m long, 3.6 cm OD cylindrical chamber;
 - b. In the 20th LEB (June 2012) this design was rejected on the basis aperture;
 - c. During the 25th LEB (December 2013) a new design was presented, 5.5 m long and +/- 44.4 cm around the IP was 3.6 cm OD with the rest 5.0 cm OD;
 - d. Spring 2014, the IP OD was increased to 3.8 cm. This design was presented at the TREX today.
2. The tolerances were presented and agreed in preparation for an official aperture n1 calculation from M Giovannozzi. Slide 9 presented estimated n1 values at 450 GeV (injection), still to be calculated and confirmed by Massimo.

Below is a comparison of the current beampipe and the request for LS2 as presented by A Tauro.

	Present beampipe	LS2 beampipe
Outer diameter	6cm	3.8cm (only central part)
Wall thickness	800um	800um
Length	482cm	550cm
Length beryllium	395cm	88.8cm
Bellows/flanges	SS	Al
Nb of supports	3	3

Helmut Burkhardt asked if there was an increased risk of damage to the central detector from showers with the new smaller aperture, for example from the TDI. **Werner Riegler** responded “no” and this can be presented at the next meeting. **Helmut Burkhardt** stated that the aperture can be calculated for HL-LHC and risks from machine protection are less easy to quantify at this early stage of HL-LHC. **Benoit Salvant** asked if shielded bellows are possible and **Werner Riegler** responded that it was not possible due to detector constraints as shielded bellows are much larger. When asked by **Mike Lamont** if the mechanical tolerances presented by ALICE were acceptable, **Mark Gallilee** responded yes and that he can present the experience with the previous chambers in the next meeting.

J Bosch and K Vatansever – LHCb and ATLAS supports for installation in LS1

1. J Bosch presented the new LHCb UX85/2 and 3 support configuration, which was initiated at the request of LHCb to improve the physics performance. The new supports are made from carbon fibre and beryllium and much improve the physics performance using newly developed technologies. This is the first time beryllium has been used as a structural material at CERN, hence a lot of design and development. The machining cannot currently be done at CERN and was done in the UK for this particular project.

2. K Vatansever presented a new support configuration for the ATLAS VT/VJ region to reduce dose to personnel during interventions. The basis of this design was on the ALARA principle with the aim to remove the need for access to the area for winter technical stops. The design implements radiation hard (up to 10 MGy) stepper motors on current supports and a new novel carbon fibre cone design which replaces the need for four operations of removal and replacement of temporary supports. The cone has no glued connections; all connections are mechanical with a novel pinned (T-Igel) mechanism.

Both designs received general praise for their innovation. **Samy Chemli** requested the design documents to add in the baseline design record. **Mark Gallilee** responded by stating that he would provide this information for Samy.

AOB

Samy Chemli mentioned the ZDC crane ECR. **Mike Lamont** responded by stating that the ECR could be released for direct discussion at the LMC. **Austin Ball** requested information on who was responsible for using the crane, CMS or transport. The response was that it has to be approved by HSE. **Samy Chemli** responded by stating that these comments should be added and decided via the ECR.

Action	Responsible	Date Required
Chase up next approval process points for next meeting	M Lamont	
Present at next meeting the impact of showers on the proposed ALICE central chamber	W Riegler	
Provide Samy Chemli with documentation for LHCb and ATLAS supports to add to the baseline	M Gallilee	
At the next meeting present the experience with the previous beryllium chambers	M Gallilee	

Next Meeting: 17th July 2014