

## TREX #6 Meeting

10:00 Thursday 26th February in 774-1-079

### Attendance:

**C Adorisio (DGS/RP), E. Bravin (BE/BI), H Burkhardt (BE/ABP), S Chemli (EN/MEF), P Collins (PH/LBD), J Coupard (EN/MEF), M Deile (PH/TOT), P Fassnacht (PH/ADO), M Ferro-Luzzi (PH/LBD), M Gallilee (TE/VSC - Deputy Chair), C Goncalves Perez (EN/EL), M Lamont (BE/OP - Chair), D Lazic (PH/UCM), R Lindner (PH/LBO), Y Muttoni (EN/MEF), A Rossi (BE-ABP), B Salvant (BE-ABP), F Sanchez-Galan (EN/MEF - Technical Secretary),**

### Meeting Summary:

Full presentations and are available on the following INDICO link:

<http://indico.cern.ch/event/376805/>

The following information was given during the meeting.

### M Gallilee - Status of VELO validation

Mark presented the status of the new VELO design machine-side approval as of December 2012.

Domains considered:

- Aperture
- Mechanical and positioning tolerances
- Impedance
- Vacuum stability
- Experiment background
- Machine protection/collimation

These should be revisited as appropriate in light of the design update.

### D.-Laza Lazic - Update on CMS TAN crane

Dragoslav presented the status of the TAN crane. He started pointing out that due to the fact that ZDC will become radioactive, a decision on having a dedicated crane was made years ago.

Currently, the device is operating, but the documentation has to be completed in order to allow the transport group qualified operation and avoid the need of having the US experts here for every operation. A realistic approach is to create the documentation, to launch the procedure and tests will be done during technical stop 1. Currently, there's a lack of manpower for these matters.

### H. Burkhardt - Additional IPQ cables in IRs 1 & 5

Helmult presented a summary (timeline) of the different decisions made. He pointed out that everything should be fixed at the next winter shutdown, and that an ECR is required.

J. Coupard pointed out that work was done for Q4 in IP5 during LS1, the work for Q4 in IP1 still has to be done during the next winter stop. Cables for Q4 should be ok as they are already available but waiting for RP measurements and approval.

J. Coupard said that EN/EL will evaluate what can be done in the next technical stop (which is only 10 weeks) and then prepare an ECR including the items to be done in the next YETS. As the market survey can take around a year, she requested the clear list of everything that has to be changed. In particular, she needs to have the definition of the cables in terms of infrastructure ("where they go"), ideally also included in the ECR.

After a discussion, it was agreed that the baseline request is for:

- Q4 cables to be installed in IR1 during YETS 2015-2016
- Space reservation for additional cables for Q7 and Q8 for possible future installation. No procurement of cables for the moment.

### M. Ferro-Luzzi- Update from VELO workshop

Massimo summarized the items covered and highlights of the VELO upgrade workshop, held last 5-6 February 2015 at CERN.

The VELO upgrade will take place in LS2 (2018), and will be compatible with HL-LHC, the radius of approach will be reduced (from 5.5 to 3.5 mm), improving the impact parameter. He presented the different design drivers of the new design and went through the main changes.

The new VELO foil will be machined. The complex shape is possible due to the manufacturing method (milling), which has now to be demonstrated for larger objects (around 1 m size). A 5-axis milling machine with temperature control will be used.

He showed the results of tests of etching measurements, which attempt to show that the etching does not produce inhomogeneity (producing excessive thickness uniformity variation). Decision on etching to be made by May 2016.

An EDR will be released in Q4 2015, and the design will be frozen. The work will go on with close support of Vacuum and Benoit's groups.

- Dynamic vacuum was covered at the workshop. Pumping is better than at present. VASCO simulations have predicted the critical current. Dynamic vacuum appears acceptable – LHCb need to do some Monte Carlo to estimate background.
- Impedance: longitudinal is larger than expected and calculations to verify this are ongoing. Apparently it is still not too late to reduce the slope and depth of the corrugations. (Action: Benoit et al to verify the situation, and to check whether the increase is acceptable.)
- Foil protection strategy will rely on BCMs.

M. Lamont asked if the corrugation depth was still negotiable, M. Ferro-Luzzi answered that iterations were possible - Olga's and Benoit results are required.

Francisco Sanchez Galan

16/03/2015