3rd R2E Mitigation Project Meeting

24th February 2011

Present:
M. Brugger (MB), M. Calviani (MC), J. C. Bisquert (JCB)), K. Foraz (KF), C. Jach (CJ), L. Lari (LL), J. Mekki (JM), M. Pojer (MP), K. Roeed (KR), G. Spiezia (GS), Y. Thurel (YT), S. Weisz (SW)
Excused:
A.L. Perrot, J. Osborne, S. Roesler

Agenda (link to Indico):

1. Comments on minutes of the 2nd R2E Project Meeting and follow-up of required actions
2. Chamonix 2011 feedback and R2E consequences
    a. Follow-up from Chamonix
    b. Priority planning for 2011
    c. Key dates
3. Round table of urgent issues & Work-Package reports
    a. Integration/implementation
    b. Power-converter R&D
    c. Monitoring & Calculation
    d. Radiation tests & RadWG
    e. News from OP
    f. Civil Engineering
    g. Safety
4. R2E Manpower requirements (request from management to provide updates for all project not included in white paper of 2010)
5. A.O.B:
    a. Next meeting, data and agenda

Comments on minutes of the 2nd R2E Project Meeting and follow-up (minutes) (all)

- The Projects welcomes Juny, the new fellow of Civil Engineering, who will work together with John on all civil engineering aspects of the project.
- No particular comments on the minutes of the 2nd R2E Project Meeting.

Chamonix 2011 feedback and consequences (MB) (slides)

- MB reports on the results of the Chamonix 2011 workshop and on the main consequences that the decisions taken there will have on the R2E Project.
- The energy will be maintained at 3.5 TeV (no issue for R2E point of view)
- The first long shutdown (called LS1) has been pushed by one year, to begin at the end of the 2012 run. The 2012 operation will lead to a delay of R2E mitigation measures and therefore an impact on operation is not to be excluded. There is a risk on destructive failures that cannot be anticipated at this moment. The expected failure rate is just acceptable given the uncertainties under consideration.
- Monitoring and radiation tests will be a major point for 2011; patch solutions might be needed for 2012 operation.
- Key points:
    - Test with LHC beam is an open point (field calibration)
    - Foreseen scrubbing will not impact on the R2E project on the shielded areas; we may start seeing effects on the DS/ARC, and more specifically in the QPS systems.
    - Ion operation: according to Ralph Assmann a change in B2 settings might reduce the impact in the DS/ARC
- Follow-up of Chamonix:
    - Prepare already as much improvement possible for the 2011/2012 xMasBreak
    - Change B2 dispersion for the ion run
    - Efforts to reduce uncertainty on equipment sensitivity → H4IRRAD power converters test are of utmost urgency together with the remaining items from the safe-room (EN/EL).
    - Perform beam tests (quench test location slow losses + injection region)
        - Tests can be done in principle during any MD → we need to clarify with Mirko whether slow controlled losses can be achieved (similar to the September 2010 run (MC)).

Round table:

Power converters R&D (YT)

There is a planned delay of 30-35 weeks for the delivery of the IGBT elements that YT would like to test, which means testing it at the end of year. The R2E improved converters will be tested with standard equipment. On the PSI test to be performed with GS: at present there is no material to be tested during the March beam period and therefore no special request from TE/EPC. The element suggested by GS is the one that is also installed on the RadMon (*i.e.* Rad-hard). GS and MB pointed out that it is important that the radiation test campaigns are prepared sufficiently in advance. So that GS and his team can prepare the test for PSI (test cards, setup, software, checks) the test requirements (components and future usage) have to be known three weeks prior to the test.

Measurement and Calculation WG (MC) (slides)

MC reports on the highlights of 3rd MCWG meeting held the 17th February.

- BE/OP: for 2011 75 ns bunch spacing operation is foreseen. The scrubbing period is foreseen with 50 ns bunch spacing after the 1st Technical Stop at end of March. This might generate issues with QPS with firmware not updated due to beam-gas issue in the ARC.
- RadMon relocation campaign summary: Installations of new BatMons have been completed for the triplet in P1 and P5 and in front of maze towards the UA where the TDI is located (RA87 and RA23). A FIP RadMon has been relocated in front of TOTEM while two BatMons have been installed in the UX15 cavern. A complete overhaul of the RadMon location has been completed, with a standardization of their position along the LHC.
- New methods for the extraction of the offset from BLM have been completed. New data for high luminosity fills with sanity checks have been analysed and at present the cumulative dose over 1 hour is now available on TIMBER.
- Thanks to a preliminary cumulative dose over some protons and ions high luminosity fills an identification of highest loss location have been performed. Using the RadMon/BLM ratio, the fluence of high energy hadron have been extrapolated, which might be of great help for the ARC, where RadMons are not installed.
- A first comparison between risk factor from FLUKA simulation and from TLD data has been performed.
- An update of P1 simulations is presently on going, with a special focus on benchmark between FLUKA simulation predictions and PMI/PAT/RadMon detectors.

Radiation tests and RadWG (GS) (slides)

GS reports on radiation testing and on the RadWG held the 15th February 2011.

- Installation of equipment in CNRAD will be between the 2nd and 4th March 2011. The first slot will include BLM, Power Converters, LEDs and DerivFIP (tested already at PSI; CNRAD tests performed removing the “weak” points).
- Reports on the PSI tests: the next slot is foreseen for 5th-7th March 2011, yet to be confirmed since no material is available for testing (new memories for RadMon, test of amplifier and voltage reference).
- During the last RadWG there has been a new trigger on the discussion on the storage area in building 954. Since humidity and condensation is a probable issue a test will be performed soon. This solution has been proposed in agreement between RP and the space management. There is in principle no problem for retrieving material once the access is given (to be cross-checked with RP). A question comes on how much surface the RadWG member need for their equipment. In any case the use of this space assumes that the CNGS water will be moved somewhere else.

Civil Engineering

A first rough evaluation has been performed to deliver the time needed in case drilling options are envisaged to bring equipment from the tunnel to the surface: from the moment that the decision is taken, 18 months are needed.

Safety (CJ)

The new engineer will start as early as March 2011. It was agreed that the input required for the relocation studies (safe-room concerns) are made available by early April.

R2E manpower requirements (MB) (table, accessible only to R2E Project members)

The management requirements a manpower review for projects which were not in the white paper of last year. A detailed list is presented and MB asks to countercheck the percentage of each member. What will be delivered to the management at the current stage is the total final number and not the detailed description. The latter is however important for the project planning, as well as for the upcoming iteration of the MTB.

Planning page (MB) (link, accessible only to R2E Project members)

A planning page has been setup for the urgent request, latest news, open and ongoing tasks for the various work packages of the R2E Project. The table will serve as a reference for the project leader and for the various work packages holders.

Next proposed R2E Meetings:

R2E Project

- April 7th
- May 12th

R2E Committee

- April 14th
- May 26th

R2E Project Special Meeting

- March 3rd: Power-Converter R&D and Radiation Testing
- March 17th: Safe-Rooms
- March 24th: MCWG