

Minutes of the 27th Plenary Meeting of the LHC Resource Review Boards (RRB) (CERN, Geneva, 10th November 2008)

1. Welcome J. Engelen, Chief Scientific Officer

J. Engelen welcomed delegates to the 27th Plenary meeting of the RRB. He passed on the apologies of the Director General who was unable to attend. The minutes of the April 2008 (26th) Plenary Session CERN-RRB-2008-057 were approved without comment.

2. CERN Status and News. J. Engelen, Chief Scientific Officer

J. Engelen recalled the successful start up of LHC on the 10th September, and the subsequent incident which occurred on the 19th September. The machine team managed to capture beam with the RF system and the road to collisions had been wide open. The experiments had all operated as planned. In addition, the worldwide LHC computing grid was in place. He congratulated all the people involved in this achievement.

The LHC experiments are going into the long shutdown mode and the work plans will be presented in the parallel RRB sessions.

Referring back to the Finance Committee, the financial consequences of the incident are being analysed. The Director General is determined that the resources required for the repair should not jeopardise the 240M CHF earmarked for new initiatives.

J. Engelen then gave some highlights of other activities. The first step of the upgrade of CERN's fixed target machines and LHC injector complex had started with civil engineering for LINAC 4. CERN had delivered substantial beam to CNGS. NA62 had provided impressive measurements of the Kaon branching ratio and had sustained an ambitious program of detector R&D. The nTOF (neutron time-of-flight) target had been repaired and the antiproton decelerator complex had run very successfully.

There were no questions or discussion arising from the presentation.

3. LHC Status Report. L. Evans, LHC Project Leader

Documents can be found in the RRB indico pages; accessible via the LHC-RRB home page

<http://committees.web.cern.ch/Committees/WelcomeLHCRRB.html>

L. Evans enthusiastically described the successful start-up of the LHC and recalled the intense media interest in the event. He reported that, on the 10th of September, 7 out of 8 sectors had been fully commissioned for 5 TeV operation and 1 sector (3-4) had been commissioned up to 4 TeV. The first beam was circulating in the clockwise direction in less than 1 hour. A second beam was then circulated in an anticlockwise direction. After adjustments to the RF system, a stable beam was circulating. However, a transformer malfunction at point 8 stopped the cryogenics. In the following

week the transformer was repaired and commissioning of sector 3-4 was continued up to 5 TeV; it was during this time that the incident occurred.

For full details of the 19 September 2008 incident and future plans, delegates are invited to read the official summary of the analysis which is available at <http://cdsweb.cern.ch/record/1135729/>

T. Hebbeke, RWTH Aachen University, asked whether other sectors would require repairs. L. Evans replied that all the sectors have been checked. Apart from one magnet, which is being investigated, no problems have been found. There is a well defined protocol to allow the machine to be brought into operation.

T. Ekelöf, Uppsala University, requested clarification; he understood that the vacuum insulation walls did not break; it was the bolts holding the quadrupoles on the floor that gave way. L. Evans agreed with his analysis and said that the pressure relief valves should have limited the pressure to 1.4 bar. T. Ekelöf also understood that 20 elements upstream and downstream were being investigated and asked for reassurance that the magnets beyond this range were undamaged. L. Evans replied that the whole sector was open and there is less damage than expected. To the best of his knowledge only the ends of the magnets were affected. There are 30 spares.

E. Gazis, National Technical University of Athens, asked if the magnets in other sectors would be tested to high currents. L. Evans replied with a comprehensive list of the work which would take place as of part of the shutdown program.

T. Hebbeke, RWTH Aachen University, asked if there was a photographic record of the damage caused by the incident. L. Evans replied that there were many detailed images.

In reply to a question concerning cost, L. Evans replied that the repair would cost in the order of 15 MCHF. To refurbish via the magnet factory would require 10-20 MCHF. The issue of commissioning to 7 TeV would be discussed with the experiments.

4. M&O Scrutiny Group Report. G. Lafferty, Chair M&O Scrutiny Group. CERN-RRB-2008-087

G. Lafferty reminded delegates of the role of the M&O Scrutiny Group and its Membership during 2008. He then briefly reviewed the activities of the group and showed the new web-based document repository. For ALICE, ATLAS, CMS and LHCb, he illustrated the M&O A spending overview for 2007 and the requests for 2009, continuing with the Summary Tables for M&O A and graphs of the evolution of budgets, costs and received contributions. TOTEM was summarized separately.

On the topic of service contracts he noted that significant proportions of budgets pay for service contracts with CERN departments. The Resource Coordinators believe the service contracts generally offer good value for money and the Scrutiny Group will continue to monitor and scrutinise the service contracts to ensure that they remain cost effective.

Following a discussion at the April 2007 RRB, the ATLAS M&O B request was scrutinised in more detail. ATLAS has an internal scrutiny for M&O B; written documents were provided to justify requests for all the subsystems. The Scrutiny Group had a dedicated meeting with ATLAS that included discussions with Resource Coordinators for the all the subsystems

G. Lafferty reported that there was increasing concern among Resource Coordinators about requests to pay for vital services from M&O A that they see as Category C items. These include: provision of facilities for video-conferencing, IT support for database administration, safety systems and radiation protection, access doors and cooling and ventilation installations. The Scrutiny Group noted the concerns of the Resource Coordinators.

Looking ahead, G. Lafferty announced the membership of the Scrutiny Group for 2009

G. Lafferty (Manchester), J. Mnich (DESY) and J. Kirkby (CERN) will be leaving the group, requiring new delegates from the UK, Germany and CERN. A new Chairperson must also be appointed.

Members will be:

- G. Batignani (INFN, Pisa)
- G. Ginther (Rochester)
- C. Diaconu (Marseille)
- M. Turala (Cracow)
- G. Cosmo (CERN)
- M. Davenport (CERN)
- E. Tsesmelis (CERN)
- S. Schmeling (CERN) - Scientific Secretary

G. Lafferty thanked all the members of the Scrutiny Group for their hard work, and the Resource Coordinators for their cooperation, depth of knowledge, patience and for the quality of their input to the scrutiny process. He finished his presentation by stating that the SG recommended approval by the RRB of the requested M&O budgets for 2009.

E. Gazis, National Technical University of Athens, requested a clarification; the Cat C items included cooling and installation, was this not part of the service contracts? G. Lafferty replied that this was experiment specific and was indeed a grey area. The Scrutiny Group lacks the time and expertise to adjudicate on many of these issues.

K. Ehret, DESY, enquired why the operation of ALTA was more expensive than CMS. G. Lafferty explained that the two experiments were different in size and complexity. The Scrutiny Group did not systematically compare experiments, but did crosscheck where items were similar.

F. Ferroni, INFN, asked why changes in the LHC schedule were not reflected in the cost of experiment. G. Lafferty replied that the question should be raised at the individual RRBs and be answered by the Resource Coordinators. He felt however that the reply would be that cost of waiting for beam was similar to operational expenses. J. Engelen agreed with this opinion and encouraged questions in the parallel sessions.

T. Ekelöf (Sweden, Uppsala University) queried whether it would be reasonable to ask the Scrutiny Group for definition of the demarcation line between costs paid by CERN and by the experiments. G. Lafferty replied that the Scrutiny Group, if asked, would be willing to study this problem. J. Engelen noted that, in practice, the amounts concerned were fairly small but agreed that the principles should be clear.

5. Computing Resources Scrutiny Group Report. D. Espriu

CERN-RRB-2008-106

As this was the first time Computing Resources Scrutiny Group (CRSG) had made a report to the RRB, D. Espriu indicated he would not present numbers but would give a general description of the

workings and conclusions of the CRSG. The presentation of figures would be postponed until the Computing RRB session.

D. Espriu outlined the history of the CRSG and reminded the delegates of the purpose and mandate of the group. He reported that the CRSG had identified several aspects that need to be brought to the attention of the LHCC and listed many comments and recommendations.

During the process of scrutinizing the 2008 and 2009 requests of the four LHC experiments the CRSG had critically examined all possible aspects of the different computing models and their implementation. Whilst they had found some points of discrepancy and a few potentially troublesome issues, the overall demand of resources for 2009 largely remains within the envisaged envelope. The CRSG believed that the different computing models have largely proven their validity and there was no doubt that they would survive their first contact with real data in 2009.

Looking into the future, some updates and revisions of the computing models would be required, perhaps of some substance in some cases. The scrutiny after the first round of real data analysis would be of great relevance.

In conclusion, D. Espriu thanked the CRSG members and the Resource Coordinators for their time and dedication.

There being no questions or discussion arising from the presentation, and no other business, the Chairman thanked the delegates and closed the meeting.