

CERN-RRB-2009-050

15 APRIL 2009

# PRINCIPAL LHCC DELIBERATIONS

22<sup>ND</sup> MEETING OF THE LHCC RESOURCES REVIEW BOARD

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29 APRIL 2009

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SCIENTIFIC SECRETARY, LHCC

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**GENERAL**

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This document summarises the principal LHCC deliberations concerning LHCb at the Committee's sessions in November 2008 and February 2009.

The LHCb plan for the 2008-2009 shutdown period is reasonable. The Committee considers that it is realistic for LHCb to be completely ready for LHC beams in 2009.

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**CONCERNS FROM THE PREVIOUS LHCb RESOURCES REVIEW BOARD**

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SUB-SYSTEM	CONCERN	STATUS
Outer Tracker	Gain loss observed in the straw chambers.	Further understanding of the Outer Tracker gain loss with heating and flushing of all chambers to be complete by the end of 2008-2009 shutdown.
Ring Image Cherenkov	Failure of some Hybrid Photon Detectors (HPDs).	The studies on the origin of high ion feedback currents in the HPDs of the Ring Image Cherenkov Detector (RICH) are continuing.

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**EXPERIMENT SUB-SYSTEMS**

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**STATUS OF SUB-DETECTORS**

The LHCb experiment is essentially complete and operational. Good progress has been reported in the following areas:

- a) a replacement beryllium beam pipe to replace the UX85/3 experimental beam pipe, which has been found to contain small leaks, has been ordered and will be available in 2010/2011;
- b) the production of two replacement and two spare radiofrequency (RF) boxes for the Vertex Locator as the current RF box exhibits small leaks;
- c) the fabrication of new TELL-1 read-out boards at a new manufacturer to resolve the bad via problem;
- d) the continuation of studies on the origin of high ion feedback currents in the Hybrid Photon Detectors (HPDs) of the Ring Image Cherenkov Detector (RICH). Twenty reconditioned tubes have been received from the manufacturer and are of good quality;
- e) further understanding of the Outer Tracker gain loss with heating and flushing of all chambers to be complete by the end of 2008-2009 shutdown; and
- f) the completion of the installation and commissioning of the M1 Muon Station.

While all detector components took data during LHC first beam in September 2008, some new issues were identified and are being seen to in order to achieve full functionality of the LHCb experiment.

Work is also in progress for:

- a) the replacement of Silicon Tracker modules that have broken bonds; and
- b) the modification of noisy Cockcroft-Walton bases of the Electromagnetic Calorimeter photomultiplier tubes.

LHCb expects to complete the detector work by end July 2009 and could take TED data resulting from interactions of injected beams on the beam stop in front of the LHCb detector whenever possible until LHC circulating beams are again available. Such data is very useful for testing the whole LHCb system and for aligning the Tracking detectors.

### **TRIGGER AND DAQ SYSTEMS**

Improvements to the experiment control system, High-Level Trigger, DAQ and monitoring software are in progress. The network and processing capacity of the High-Level Trigger and DAQ system are being upgraded to handle the nominal LHCb data rates. LHCb has run simulated data through the whole Online and Offline systems, showing that the complete chain functions well.