**ATLAS** 15th September 2009

# Minutes of the 28th LHC Resource Review Board Meeting (CERN, Geneva, 28 April 2009)

Present:

G. Taylor (University of Melbourne, Australia)
O. Abdinov (Institute of Physics, Azerbaijan)
Y. Koultchitski (Institute of Physics of National Academy of Sciences, Belarus)
W. Davidson (National Research Council of Canada, Canada)
R. Mcpherson (University of Victoria, Canada)
Q. Ouyang (Institute of High Energy Physics, China)
J. Niederle (Institute of Physics AS CR, Czech Republic)
J.D. Hansen (Niels Bohr Institute, Denmark)
E. Auge (CNRS/IN2P3, France)
P. Chomaz (IRFU, France)
D. Fournier (Laboratoire de l'Accélérateur Linéaire (LAL) (IN2P3) (LAL), France)
B. Mansoulie (IRFU, France)
N. Jokhadze (Georgia National Science Foundation, Georgia)
J. Khubua (IHEPI Tbilisi St. University, Georgia)
S. Bethke (Max Planck Institute for Physics, Germany)
K. Ehret (PT-DESY, Germany)
M. Fleischer (Deutsches Elektronen-Synchrotron, Germany)
H. Mahlke (PT-DESY, Germany)
M. Pantea (Federal Ministry of Education and Research, Germany)
N. Wermes (University of Bonn, Germany)
E. Gazis (National Technical University of Athens, Greece)
E. Rabinovici (Hebrew University, Israel)
G. Mikenberg (Weizmann Institute, Israel)
F. Ferroni (INFN, Italy)
M. Curatolo (INFN Laboratori Nazionali di Frascati, Italy)
L. Rossi (Genoa, Italy)
T. Kawamoto (University of Tokyo, ICEPP, Japan)
B. Jacobsen (The Research Council of Norway, Norway)
J. Królikowski (Univ. of Warsaw and Ministry of Science and Higher Education, Poland)
M. Turala (IFJ PAN, Poland)
G. Barreira (LIP, Portugal)
F.D. Buzatu, (Institute of Atomic Physics, Romania)
R. Lednicky (JINR, Russia)
N. Rusakovich (JINR, Russia)
V. Savrin (Institute of Nuclear Physics, Moscow State University, Russia)
D. Bruncko (IEP SAS Kosice, Slovakia)
Z. Hlavacikova (Ministry of Education of the Slovak Republic, Slovakia)
J. Fuster (IFIC Valencia & MICINN, Spain)
E. Higon (IFIC Valencia, Spain)
T. Ekelöf (Uppsala University, Sweden)
P. Karlsson (Swedish Research Council, Sweden)
A. Clark (DPNC, Université de Genève, Switzerland)
S.C. Lee (Institute Of Physics, Academia Sinica, Taipei)
S.A. Cetin (Dogus U, Turkey)
I. Turk Cakir (TAEA, Turkey)
J. Seed (STFC, United Kingdom)
A. Boehnlein (U.S. Department of Energy, United States of America)

S. Gonzalez (U.S. Department of Energy, United States of America)
H. Gordon (Brookhaven National Laboratory, United States of America)
M. Pripstein (U.S. National Science Foundation, United States of America)
M. Procario (Office of High Energy Physics, DOE, United States of America)
M. Tuts (Columbia University, United States of America)

CERN
S. Bertolucci (chairman), P. Bloch, J. De Groot, R. Heuer, D. Jacobs, T. Lagrange, S. Lettow, R. McLaren (secretary), J. Salicio Diez, S. Schmeling, E. Tsesmelis, E. Van Hove

ATLAS
P. Fassnacht, F. Gianotti, K. Jon-And, A. Lankford, M. Nessi, M. Nordberg

Computing Resources Scrutiny Group
D. Espriu

Apologies
A. Sissakian, JINR, Russia
U. Dosselli, INFN, Italy
V. Vrba (Institute of Physics AS CR, Prague, Czech Republic)
Y.F. Kozlov (Federal Agency of Science and Innovations, Russia)

Documents can be found in the RRB indico pages; accessible via the LHC-RRB home page http://committees.web.cern.ch/Committees/WelcomeLHCRRB.html

**1. Introduction.** S. Bertolucci, Director of Research and Scientific Computing.

S. Bertolucci welcomed delegates to the 28th meeting of the ATLAS LHC Resource Review Board.

**2. Approval of the minutes of the last meeting.** S. Bertolucci, Director of Research and Scientific Computing.
The minutes of the last RRB CERN-RRB-2009-002 were approved without comment.

**3. ATLAS Progress report (part I).** M. Nessi, Technical Coordinator.
CERN-RRB-2009-021 (slides)

M. Nessi reported on activities after the 19th September. Initially the detector was kept in data-taking mode, recording 260 million cosmic events. In mid November, the detector was opened to allow access to electronics and services. The detector is currently being closed.

Activities while the detector was opened included: fixing known problems, regular maintenance and upgrades. There was also a period of consolidation; finding and removing single points of failure.

M. Nessi showed the shutdown schedule for the next few months and the plans to get the detector fully operational for October. Looking further into the future, he reported on plans for the two phases of the luminosity upgrade.

*There were no questions arising from this presentation.*

**4. ATLAS Progress Report (part II).** F. Gianotti, Spokesperson.
CERN-RRB-2009-020 (report), CERN-RRB-2009-022 (slides).

F. Gianotti's presentation focussed on four main areas:

- Collaboration, management, organization
- Status of Software and Computing
- Detector commissioning with cosmic data
- Physics-related activities

She concluded that:

The ATLAS experiment in all stages, from detector, trigger and data acquisition at the pit to data quality and calibration, data processing and world-wide distribution, has performed with high efficiency in 2008. More than 200M cosmic events were collected with the full detector operational, as well as single-beam data in Sept 2008.

Shut-down activities have focused on repairs of few known problems and consolidation work, and it is expected to resume running with cosmics in summer 2009 with detector coverage larger than 98%. The main concern for the long run in 2009-2010 is the behaviour of some "delicate" components including: the Inner Detector cooling, liquid-argon LVPS and optical transmitters.

Software and computing have been able to cope with massive simulations as well as real detector and real (cosmics) data, and with the complexity of a world-wide distributed system. They are also being consolidated.

Physics preparation is in full swing, both with simulated data and analysis of cosmics. Detailed trigger menus and strategies vs luminosity are being prepared. The approval procedure for physics results is also being exercised extensively.

A solid, coherent and well-tested organization of the experiment's activities has been in place for a while. A system to scrutinize and assign operation tasks has been implemented.

In order to prepare for a 20-year long (and exciting !) physics program, upgrade activities are ramping up and have evolved from a collection of R&D activities to a coherent project .

The ATLAS project has proceeded within the framework of the accepted 2002 Completion Plan, however all resources requested in the plan are needed to cover the costs of the initial detector now installed.

ATLAS is very grateful to all Funding Agencies for their huge contributions to the success of the experiment and their continuous support during more than 15 years.

*There were no questions arising from this presentation.*

**5. LHCC Deliberations (paper only).** E. Tsesmelis, LHCC Scientific Secretary.
CERN-RRB-2009

E. Tsesmelis reported that the presentation was in line with the LHCC report. The shutdown work is reasonable. The LHCC concluded that ATLAS will be ready for beam this year.

*E. Augé (CNRS/IN2P3, France) asked whether the issue of different data formats had been addressed. F. Gianotti replied that the ATLAS data formats were quite uniform, being the same from the Event Summary data down to the (structured) Ntuples. An Analysis Model Task Force has been set up with the mandate to define the Analysis Formats for the first year of data taking.*

**6. Financial matters.** T. Lagrange, Head of CERN Finance and Procurement Department
CERN-RRB-2009-027 (report), CERN-RRB-2009-028 (slides)

T. Lagrange presented the changes with respect to the report on the 28th February.

There was now 4.79 M CHF outstanding Contributions for Common Fund, Construction Completion and Commissioning & Integration.

For the M&O-A, cash contributions received as from 1st March 2009 totalled 2.7 MCHF. This did not include an in-kind contribution from the United Kingdom (164 kCHF) and from Italy (185 kCHF). Outstanding contributions from the member states are 1.95 MCHF and 6.62 MCHF for non-member states.

*There were no questions arising from this presentation.*

**7. Budgets.** M. Nordberg, Resources Coordinator.
CERN-RRB-2009-023 (report), CERN-RRB-2009-066 (report), CERN-RRB-2009-025 (slides)

M. Nordberg began with a graph illustrating the evolution of the baseline Commitments and the Payments. The positive balance for 2008 C&I and CC-B Income & Payments was due to contributions received late that cover past payments.

He then gave a summary of the financial view of 15 years:

- ATLAS CORE MoU (RRB-D 98-44 rev)
  - Originally, 474.7 MCHF
  - Final 468.4 MCHF, of which < 14 MCHF planned in 2002 as deferrals to cover over costs
- Cost to Completion (CERN-RRB-2002-114 rev.)
  - 68.2 MCHF of which 62.3 MCHF pledged
  - Later on, an additional 4.4 MCHF which was pledged by CERN
- End of 2008, 535.1 MCHF has been spent/committed
  - 7.7 MCHF of deferred cash offsets due CF contributions and open commitments
  - Still 2.5 MCHF of initial TDAQ HLT processors to be installed
- Remaining to be covered when funding becomes available
  - TDAQ 5.9 MCHF (as part of deferred cash of 7.7 MCHF)
  - To recognize 1.9 MCHF of additional manpower (CERN)
  - Other staged items from 2002 (ca. 20 MCHF)
  - Forward detectors, additional 1.5 MCHF

Outstanding CORE & CtC Contributions total 5.2 MCHF; the main factors are Russia/JINR 2.8 MCHF, Canada 1.5 MCHF (this has been pledged and a large part should arrive in 2009) and some other small contributions. The risk on the common fund is about 2.9 MCHF.

*The RRB approved the report.*

The initial detector construction, in terms of financial reporting is complete; however the due contributions will continue to be monitored. M. Nordberg asked the RRB to take note of a report entitled "Towards ATLAS Full Design Luminosity Detector and Beyond". This framework will include:

Completion of the TDAQ System
Other FDL Detector activities (TDAQ, staged items, Forward detectors, B-layer)
Super-LHC

*There were no questions arising from this presentation.*

**8. M&O Budgets.** M. Nordberg, Resource Coordinator.
CERN-RRB-2009-024 (report).

**Closing report for 2008**

For Cat. A, the total payments were 12.8 MCHF. The dominant cost drivers were technical services linked to the operation of the experiment: manpower, gases, cooling and electricity. The second largest cost is the operation of the magnet which is expensive in terms of manpower and consumables. Other costs were core computing, which is basically in-kind and the on-line system.

Turning to Cat. B, total payments were 6.8 MCHF. The largest costs were again services, manpower and replacement of electronics. 87 FTEs core computing was in-kind. Since this report was distributed, there have been updates to the contributions which will be included in the on-line version of the report.

**Preliminary budgets for 2010**

The Cat. A budget is estimated at 16 MCHF. The cost drivers being technical services, magnet operation, core computing, on-line and energy.

The Cat. B budget is estimated at 6.7 MCHF. The cost drivers are technical services, replacement of electronics, operation of areas and 98 FTEs for core-computing

**Status of due M&O Contributions**

For M&O-A contributions, a total of 1.1 MCHF was outstanding on February 28th but a lot of progress has been made and discussions are on-going with the funding agencies. The Russian contribution is arriving and moving towards a situation where all debts are paid.

For M&O-B contributions, a total of 419 kCHF was outstanding on February 28th.

*The RRB approved the 2008 final construction and M&O budgets and took note of 2009 FDL and the M&O budget estimates for 2010.*

**9. Summary.** S. Bertolucci, Director of Research and Scientific Computing.

S. Bertolucci summarised that ATLAS was technically and financially in very good shape and was ready for beam.