

**ALICE**

CERN-RRB-2005-044

28 June 2005

Minutes of the 18th Resources Review Board Meeting Held at CERN on 20th April 2005

Present:*Europe*

M. Chvojka (part-time) (Ministry of Education, Youth and Sports, Prague, Czech Republic),
 M. Sumbera (Nuclear Physics Institute, Prague)
 J.D. Hansen (Niels Bohr Institute, Copenhagen, Denmark)
 D.O. Riska (University of Helsinki, Helsinki, Finland)
 P. Brossier (CEA-Saclay, Gif-sur-Yvette, France), M. Jacquemet, F. Staley
 S. Gales (IN2P3, Paris, France)
 J. Richter (BMBF, Bonn, Germany), D. Müller (GSI, Darmstadt), R. Santo (Institut für
 Kernphysik, Münster)
 G. Vesztegombi (KFKI-RMKI, Budapest, Hungary)
 G. Ricco, A. Bracco, P. Giubellino, E. Nappi (INFN, Italy), F. Ferrini (Geneva Mission)
 F. Linde (NIKHEF, Amsterdam, Netherlands), A. van Rijn
 S. Irgens-Jensen (Norwegian Research Council, Oslo, Norway), B. Jacobsen
 J. Królikowski (State Committee for Scientific Research, University of Warsaw, Poland), J. Bartke
 F. Bello (alt. G. Barreira) (ICCTI, Lisbon, Portugal)
 N.V. Zamfir (Nat. Inst. for Physics and Nuclear Engineering, Bucuresti, Romania), L. Puscaragiu
 (Geneva Mission)
 Y.F. Kozlov (Ministry of Education and Science, Moscow, Russia), V. Savrin
 A. Sisakyan (JINR, Dubna, Russia), A.S. Vodopianov
 A. Sitarova (Ministry of Education of the Slovak Republic, Bratislava), L. Sandor
 L. Gidefeldt (Swedish Research Council, Stockholm, Sweden), A.C. Lagerkvist
 G. Zinovjev (Bogolyubov Inst. for Theoretical Physics, Kiev, Ukraine)
 R. Wade (PPARC, Swindon, United Kingdom), D. Evans

Asia

V. Viyogi (DAE, Mumbai, India)
 D.W. Kim (Kangnung National University, Korea), S.P. Park (Pohang Accelerator Laboratory)

CERN

J. Engelen (chairman), C. Jones (secretary), P. Geeraert, E. van Hove, D. Jacobs, C. Saitta,
 D. Schlatter, E. Tsesmelis

ALICE

J. de Groot, L. Leistam, J. Schukraft

Apologies

C.V. Anand Bose, C. Fabjan

18th Meeting of the ALICE Resources Review Board RRB, 20th April 2005

Documents can be found at the URL <http://committees.web.cern.ch/Committees/LHCRRB/> and are also listed in Appendix 1 of these minutes

1. Introduction**J. Engelen, Chief Scientific Officer**

J. Engelen welcomed RRB delegates to this 18th session. He introduced Chris Jones as the new scientific secretary of the RRB.

2. Approval of the Minutes of the 17th Meeting (CERN-RRB-2004-102)

The minutes of the 17th meeting were **approved** without comment. The minutes of the plenary session (CERN-RRB-2005-110) were also approved without comment. J. Engelen thanked D. Jacobs for having exceptionally taken both these minutes. There were no matters arising.

3. Status of the Experiment**J. Schukraft, Spokesperson**

Paper CERN-RRB-2005-030

Presentation CERN-RRB-2005-039

J. Schukraft presented the status report of the ALICE experiment.

3.1 Collaboration News

A new member had joined the collaboration, namely IIT, Bombay, which would work on PMD electronics. Seyong University, Korea had applied to join with the intention of contributing to the offline computing. There was a new member of the Management Board and the collaboration had added a new Physics Board, with a Talk Committee and an Editorial Board, this putting an appropriately increased weight on physics and analysis at this time.

In the first part of 2005 there had been reviews of the Computing Model, the ALICE 5th Comprehensive Review and the Installation Review. The Forward detector TDR had been approved by the LHCC as well.

Funding Agencies. Mexico had now signed the MoU, and there were indications that China (MoE) was considering signing the construction MoU. A draft MoU for Korea was under discussion (although they were already contributing to the TOF & Computing). The US DOE was still considering how to allow LHC heavy ion participation (given the current funding situation in the USA). In Japan there was a proposal under review, and the result was expected soon. An EU-alpha project HELEN, approved in early 2005 (~ 4 M€ 3 years), was a programme covering mobility for HEP Europe-Latin America. This could aid collaboration with Mexico and Cuba, and allow renewed discussion with Brazil (groups involved at RHIC). There were on-going discussions with Spain, Portugal and Turkey.

In terms of CORE construction funds, the Polish Institutes had been informed that only 50% of the requested CORE funds would be available starting 2004, leaving a funding shortfall of order 300 kCHF (TPC, PHOS). There were discussions ongoing with Russia on how to deal with the outstanding Common Fund contribution (~ 1 MSF).

About 1 MCHF were missing from the Cost to Completion (CtC). Amongst the Member States France and Poland were still below requests. In the Non-Member States India had covered a cost increase (~ 100 kSF) to its detector. ALICE had therefore activated a contingency plan (RRB-2002-019). This left about ~ 0.5 MSF still missing and if this situation were to continue then part of the DAQ would have to be deferred.

3.2 Planning

In the planning presented to the LHCC in March, ALICE had revisited the overall planning and installation activities, taking into account the actual status of the detector production. This involved a substantial rearrangement of actions and milestones in order to recuperate delays, with the aim of having an essentially complete detector for the initial beam in 2007. The components staged in this plan for financial reasons were the TRD, PHOS (partial coverage in 2007) and the DAQ whose capacity would evolve with the luminosity.

ALICE assumed that the machine would be closed in April 2007. With the current machine planning baseline there would be two months for final commissioning. ALICE expected to receive a definite schedule at least 12 months before the first possible date for beams.

J. Schukraft outlined the planning strategy. The large structures, magnets, infrastructure and services, DAQ/Trigger/Controls, TPC, and Trigger detectors were well advanced and no problems were anticipated. The ITS was on the critical path, at an early stage of mass construction and had little or no contingency. They planned to speed up construction and to generate 1-2 months of contingency. This was under discussion but would probably need some modest additional resources. For the modular detectors (TOF/TRD/PHOS) there were two installation windows (before and after the TPC/ITS installation, i.e. early 2006, early 2007). In order to maximize the time for the ITS installation, the 2nd window was very short. Depending on the actual LHC start-up, some modules might have to be installed later.

3.3 Construction and Installation

J. Schukraft described in detail the state of the installation of the infrastructure and each of the detectors (see his paper and his presentation). He also described the detailed state of the computing. He summarized the situation as follows.

The following items were critical:

- Additional manpower was needed to meet the compressed schedule
 - CORE Computing: 4 Collaboration (ok) + 1 CERN (req.)
 - ITS: 4 Italy (req.) + 2 (France, ok)
 - Muon arm: 2 France (read-out, req.)
 - Integration and installation : 4 Collaboration (ok) + 7.5 CERN (req.)
 - Total: ~ 24 people (16 Collaboration, 8 CERN), so far found ~ 10
- ITS
 - A very difficult and challenging project,
 - Many technical problems had been solved one after another
 - Currently working on actions to speed testing & assembly.
 - However, very tight.
- Offline
 - For the distributed analysis software: computing model & resource needs would depend on the functionality of the middleware,
 - The middleware had only just become available and had not been tested.

The following items were not critical but needed to be watched:

- Infrastructure (structures, services, magnets, etc.) and Integration
 - more complex and time consuming than foreseen, which created delays. The reasons were both technical and organizational (safety, planning, work sharing with TS)
 - would be ready in time, but needed increased resources (shift work, quality assurance)
- Muon arm
 - Chamber production: ok, major activity of electronics testing and assembly still ahead
 - installation parallel to barrel detectors possible hence still some contingency
- TRD
 - some revisions to FEE (TRAP chip, R/O board) and mechanics necessary

- around 1/3 of coverage would be ready
- Forward Detectors
 - T0/V0/FMD: late start, but now starting construction

For the following items there were currently not raising concern:

- TPC
 - production finished (FC, ROC, FEE) or soon finished (RCU)
 - even with a very conservative schedule for ROC and FEE installation ready well in time
 - including thorough pre-commissioning on surface
- TOF
 - despite delays in the assembly tender, TOF modules would be ready
- HMPID : well advanced, no concerns
- Forward Detectors
 - ZDC, PMD: on schedule
- PHOS
 - 1 module ready end 2005, aim for 2nd module by end 2006 (funding issue)
- Read-out and Controls (DAQ, Trigger, DCS, ECS)
 - good progress, on schedule, no concerns

Discussion

J. Engelen invited discussion on this presentation and equally points raised in the paper on LHCC Deliberations below. In response to his question as to when this additional manpower was needed J. Schukraft replied that this was mostly needed from the end of 2005 until July 2007. A detailed planning was available since not all people were needed all of the time.

J. Królikowski noted that Poland had been singled out for comment on its core contribution but that he would reply to this after the presentation of M&O below.

J. Engelen noted the very short installation window for the high technology inner tracking system including the Christmas period. J. Schukraft replied that they had taken Christmas into account and that 66 days were foreseen for this activity. They were currently making tests with a mock-up. It was indeed the most critical part of the installation of ALICE apart from the TPC.

There being no further questions, the Chairman thanked J. Schukraft for his comprehensive presentation. The RRB **accepted** the Status Report of the ATLAS Collaboration.

4. LHCC Deliberations (paper only)

Paper CERN-RRB-2005-022

LHCC Scientific Secretary, E. Tsemelis

Delegates had no further comments to make and the RRB **took note** of the report of E. Tsemelis

5. Financial matters

Paper CERN-RRB-2005-011

Head, CERN Finance Dept. P. Geeraert

Presentation CERN-RRB-2005-040

P. Geeraert presented a financial update on the situation reported in his paper referenced above.

5.1 Status of Common Fund accounts

He noted that no additional contributions had been received since the above paper, and that new expenditures had amounted to 207 kCHF.

5.2 Membership Fees

Amongst the Member States Greece owed still 25 kCHF whilst Poland owed 8 kCHF. Amongst the Non-Member States there was a total outstanding balance of 157 kCHF, with contributions outstanding from Armenia, China, Dubna, Mexico, South Africa, Ukraine, and the United States.

The total outstanding membership fees amounted to 190 kCHF.

5.3 Status of M&O accounts

Recent income and expenditure for M&O A amounted to 6 kCHF and 49 kCHF respectively. However there remained outstanding M&O A contributions for 2002-2003 amounting to 100 kCHF and for 2004 the amount still missing was 248 kCHF.

There being no questions the RRB **took note** of the Financial Update.

6. Construction Budgets

Paper CERN-RRB-2005-032

Resources Co-ordinator, J. De Groot

Presentation CERN-RRB-2005-041

6.1 Closing report for 2004

J. de Groot presented the status of the 2004 core construction expenditure. He showed the budget agreed at the October 2003 RRB which totalled 28.4 MCHF. Looking at the actual expenditure in 2004, payments amounted to 18.5 MCHF, with the TOF coming in significantly lower than was budgeted, whilst for the photon spectrometer the amount was significantly larger and had been paid by Russia. In terms of commitments by Funding Agency and detector system, the amount engaged, 26.1 MCHF, was significantly more than the payments. Italy had committed 11.3 MCHF for the TOF and this would be spent over time.

Looking at the cumulative payments from 1997 to end 2004 ALICE had spent 64.0 MCHF. He pointed out an error in the document CERN-RRB-2005-32 which was corrected in the presentation with the contribution of Sweden 50 kCHF higher than reported last year. A corrected document would be placed on the Web after the meeting. In graphical form the Cumulative Core Expenditure 1997 to 2006 was gently approaching the canonical 120 MCHF foreseen for ALICE.

The RRB **took note** of the closing report on Core Construction for 2004.

6.2 Current status for 2005

J. de Groot reminded the RRB of the foreseen budget for the current year, broken down by Funding Agency and by detector, which amounted in total to 25.8 MCHF.

6.3 Status of the Common Fund

The numbers presented included both the common fund and the commissioning and integration figures together, which led to small differences of presentation with the previous presentation on Financial Matters. The total funds due at end 2004 amounted to 5.5 MCHF. He presented the expenditure of the common fund by year from 1997 to 2004. He also showed the budget and the amount spent per detector to date, demonstrating notably that the amount of the committed money that had so far been spent on data acquisition was very small for obvious reasons, whilst the amount committed for common support structures had largely been spent.

J. de Groot presented a graph of the contributions, expenditure and balance of the common fund up to 2008. The numbers foresaw that at the end of the construction period the balance would be negative by about 260 kCHF. This was considered at this point to be well within error or uncertainty of this exercise.

6.4 Preliminary estimates for 2006

J. de Groot presented the preliminary budget for 2006, which he considered at this point to be still slightly under-estimated at just over 10 MCHF. This would be updated and presented for approval at the October RRB meeting.

6.5 MoU Addenda

There were four Institutes and two Funding Agencies in Mexico who had signed to contribute 336 k US dollars as expected.

In China there were three Institutes and two Funding Agencies. The proposed contributions were for 781 kCHF and the document had been submitted for signature to the Ministry of Education.

In Korea there were three interested Institutes, one of which had applied for membership. This would be presented to the ALICE Collaboration Board in June. The Funding Agency in this case was the Ministry of Science and Technology. The status of this application was still in a fairly early stage. In reply to a question from J. Engelen, J. de Groot confirmed that the funds from China and Korea were funds upon which ALICE was counting.

Discussion

L. Gidefeld asked whether these new institutes would pay membership fees and M&O. J. de Groot and J. Schukraft replied that, although they were coming late, the standard procedure would be that they had to pay all outstanding membership fees.

J. Królikowski wished to explain the situation concerning funding from Poland. He believed that Poland was prepared to pay its construction MoU obligations in full and that this was recently confirmed when the Minister talked to the CERN Director General in Warsaw. There were however some administrative problems inasmuch as the previous Funding Agency was abolished and a new one set-up starting in February 2005. The exact rules for this department were not entirely clear and there were problems establishing the correct line of finance. Within the new Ministry of Science and Informatics they had to establish a comprehensive plan for all LHC experiments, including construction, M&O and computing. Normally one would expect this to be ready before the next RRB. However this was an election year and the administration would change in autumn, and one had to foresee discussions with the new administration which would take time. He asked the RRB for their patience. He considered nonetheless that the statement of the Minister to the Director General was binding.

7. M&O Budgets

Paper CERN-RRB-2005-033

J. De Groot

Presentation CERN-RRB-2005-042

7.1 Approval of Addendum 1 to the MoU for M&O of the ALICE Detector: Core Computing

Paper CERN-RRB-2005-007

J. Engelen introduced this point, explaining that the RRB was asked to approve in principle this addendum to the MoU in order to include core computing in the M&O budgets as has been originally foreseen in the MoU. The actual numbers giving the costs would be presented later as preliminary estimates for 2006, and would be reviewed by the Scrutiny Group before being presented to the October 2005 RRB for approval. The RRB was asked first to agree to the principle of including core computing as defined in the addendum to the M&O budget.

S. Gales had not been able to read the paper as yet and was thus unable to agree at this point.

G. Ricco asked for clarification that this paper contained only the list of tasks to be included and not the actual numbers and costs, and this was confirmed.

D.O. Riska requested an explanation of the purpose of table 3 which gave a list of institutes. F. Carminati replied that this was a list of the institutes involved in the core computing, provided for information, and could well change over time.

The being no further questions or remarks, and subject to the remark of the French delegate, the addendum **was approved**.

7.2 Closing report for 2004, including Status of MoU Signatures

J. de Groot reported the M&O A invoices and income of the ALICE collaboration in 2002, 2003 and 2004, showing the amounts invoiced to the Funding Agencies and the amounts received. Thus in the three years they had recuperated 93.6 %, 89.9 % and 78.1 % of the amounts invoiced, giving an overall rate of 84.7 % with respect to a closing date of 31 December 2004. If one included recent contributions from Mexico and Russia the percentages rose to 95.6 % for 2002 and 92.6 % for 2003 and 78.6 for 2004, giving an overall rate of 86.1 %.

The outstanding invoices for the same three years showed that, amongst the Member States, Greece and Poland, which had already been discussed, still had bills to be paid. Amongst the Non-Member States there were amounts outstanding from Armenia, JINR, Mexico, Russia, South Africa, Ukraine, USA ORNL, and USA OSC. In addition there were outstanding bills for China, but as they had not yet signed the collaboration agreement this position was open to discussion. For JINR and for the Ukraine there were contributions in manpower which were on the way to providing alternative solutions. The grand total of unpaid M&O A was currently 318 kCHF, of which Poland represented 70 kCHF.

He reported the M&O A expenditures, spent and committed, showing that the expenditure had globally been very close to 100% of the budget. He presented a summary of the M&O A income and expenditures over the years 2002, 2003 and 2004. At the end of 2004 the overall balance, taking into account the commitments, was 218 kCHF.

R. Wade noted as a point of principle that M&O accounts were unlike construction accounts and should be used each year with no balance at the end of the year. A process was needed for example such that for any country for which there was a balance over that this was subtracted from that which was to be paid the next year. There were two issues related to this balance. Firstly, less was being spent than collected, and secondly, there was an issue of unpaid contributions. He was sympathetic to some of the cases of unpaid payments, but as a Funding Agency the only control they could exert was to withhold payment themselves.

J. Engelen replied that this point of principle was well understood and a correct reply concerning this issue would be prepared.

7.3 Current status for 2005

J. de Groot showed a table of the invoices sent out to the Funding Agencies for the 2005 budget.

7.4 Preliminary estimates for 2006

The estimates for the years 2006 to 2009 for core computing were shown in a form corresponding to the headings in the addendum approved above. This involved largely a manpower cost. The estimate used for one man-year was 80 kCHF and this needed a review and harmonisation by the Scrutiny Group, not least because it included no overhead for travel or a computer. The estimates for 2006 would be examined by the Scrutiny Group.

J. De Groot showed as a table and in graphical form the evolution of M&O A from 2002 to 2009 from the budgets up to 2005 and the estimates for 2006 to 2009, including the contribution of core

computing and services. Clearly the M&O A was ramping up quickly from under 1.8 MCHF in 2005 to over 7.5 MCHF in 2009.

He showed the preliminary 2006 M&O A budget by Funding Agency. This would be reviewed by the Scrutiny Group and presented to the October RRB as a draft budget proposal. He also showed the category B estimated for 2006 by detector. In particular he showed the voluntary contributions to core computing (M&O B) in terms of man years.

7.4 M&O Signatures

Signatures for the M&O MoU were still missing from China, Dubna, Mexico, Russia, Greece and Denmark. The signature of Denmark was imminent.

There being no questions the Chairman thanked the speaker for his clear presentation.

8. Summary, Future Activities & A. O. B. J. Engelen

J. Engelen noted in summary that one could be pleased with the technical progress of ALICE, and also the tight but acceptable financial situation. It was clear that a few items, and in particular the inner tracker, had tight timescales. ALICE had a plan to move things around if necessary, but the plan as presented would deliver an ALICE detector ready for first physics in July 2007. A further conclusion was that the LHCC and indeed this board would continue to follow the situation attentively over the coming years.

<p>The next RRB meetings in 2005 will take place at CERN on Monday 17th, Tuesday 18th and Wednesday 19th October 2005.</p>
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There being no questions and no further business, the Chairman thanked the participants and closed the meeting.

Appendix 1

For this 18th Meeting the following papers are available at the Web Site:

<http://committees.web.cern.ch/Committees/LHCRRB/ALICE/index.html>

Papers:

Registration-18	Registration Form
CERN-RRB-2005-028	Agenda
CERN-RRB-2004-102	Minutes of the Previous Meeting
CERN-RRB-2005-044	Minutes of this meeting
CERN-RRB-2005-030	Status of the experiment
CERN-RRB-2005-021	LHCC Deliberations
CERN-RRB-2005-011	Financial Matters
CERN-RRB-2005-032	Construction Budgets
CERN-RRB-2005-033	M&O Budgets
CERN-RRB-2005-007	Add. 1 to MoU for M&O of the ALICE Detector: Core Computing

Presentations:

CERN-RRB-2005-039	Status of the experiment
CERN-RRB-2005-040	Financial Matters
CERN-RRB-2005-041	Construction Budgets
CERN-RRB-2005-042	M&O Budgets