



Draft Minutes of the 71st Meeting of the ISOLDE Collaboration Committee

held on November 4th 2014

Present: B. Blank (P.T.), K. Blaum, Y. Blumenfeld, R. Catherall, J. Cederkall, L. Fraile, M.J. Garcia-Borge, P. Greenlees, Y. Kadi, M. Kowalska (P.T.), R. Losito (P.T.), N. Marginean, K. Riisager, D. Santonocito, S. Siem(via Skype), P. Van Duppen

Excused: M. Henry, D. Jenkins, L. Schweikhard

Absent: U. Datta Pramanik, S. Harissopulos,

Invited: M. Pfutzner, K. Bharuth-Ram (P.T.), F. Formenti (P.T.), E. Rapisarda (P.T.) F. Sonnemann (P.T.), T. Stora (P.T.), W. Venturini (P.T.)

The meeting starts at 09:30 h

1. Introductory remarks by the chairperson

The chairperson opens the meeting and welcomes the committee as well as M. Pfutzner and K. Bharuth-Ram, the invited speakers representing the Polish and South African nuclear physics communities respectively. The above mentioned members of the committee are excused.

2. Approval of the minutes of the 70th meeting.

The minutes of the 70th ISCC meeting are accepted without any alterations.

3. Status of the HIE-ISOLDE Project and the HIE-ISOLDE HEBT (Y. Kadi)(see presentation)

Y. Kadi begins by introducing F. Formenti and W. Venturini Delsolaro who head the two HIE-ISOLDE working groups, Engineering Coordination and Linac Coordination respectively.

The status of the delivery and testing of the high frequency cavities is summarized followed by that of the cavity ancillaries such as the coupling systems, tuning systems and cryomodules. The cryomodule assembly schedule is presented and the 9 week delay in the start of assembly between the baseline and actual schedule is explained. Progress tracking of the assembly is now in place and there has been an increase in the clean-room workforce from 4 persons to 4FTE.

Y. Kadi then moves on to discuss the status of the HEBT. The committee is told that the infrastructure and mechanical supports are all in place and aligned, the first dipole magnet has been received and has been found to meet specifications and work on controls, interlocks and the interface with experiments is ongoing. The committee takes the opportunity to thank

D. Voulot, who will leave CERN in December, for the coordination of the HEBT activities up until now.

The commissioning plan is presented still with the goal of first HIE-ISOLDE physics on the 12th October 2015 despite the present 8 week delay in assembly of the first cryomodule. A mitigation plan is being prepared in order to respect this goal. The committee is told that critical elements that could affect this planning are the assembly of the first cryomodule and the availability/reliability of the cryogenic plant.

The financial situation of the project is presented to the committee. The cost to completion of the infrastructure part of the project is 21.2MCHF with 3.7MCHF still to be spent while the cost to completion of the machine part of the project for Phases 1 and 2 will be between 16.2 and 17 MCHF depending on the manufacturing costs of the extra cryomodules. This means that after the CERN contribution of 4.5MCHF, the shortfall in funding for the machine part of Phase 1 and 2 is between 0.5 and 1.3 MCHF.

Regarding the status of Phase 1, the committee is informed that the infrastructure is 83% completed while the machine is 72% completed. Certain technical risks are still present including series cavity performance and the fact that the first cryomodule remains a prototype. Y.Kadi summarises the infrastructure, components and resources still required for Phase 2 as well as the procurement strategy for the Phase 2 cryomodules. The committee is told that the risks that exist for Phase 2 include the renegotiation of cryomodule manufacturing contracts, the running cost of the FSU workforce if CERN manpower is not assigned and the performance of the refurbished cryo plant.

4. News from the Cost and Schedule Review (F. Sonnemann) (see presentation)

F. Sonnemann summarized the conclusions reached by the 2nd Cost and Schedule Review which was held at CERN on 27th October 2014. While the HIE-ISOLDE project now has excellent monitoring tools in place there is still concern that the manufacturing, installation and hardware commissioning of HIE-ISOLDE Phase 1 will not be completed in time for commissioning of the facility in July 2015. This is mainly due to delays in cryomodule assembly. However the present plan for beam commissioning is feasible but an analysis of the impact of a delay in the start-up of the physics program is required.

The review determined that the resources and procurement strategy for the realisation of Phase 2 is adequate but that it is not appropriate at this point to start R&D for Phase 3.

5. Nuclear Physics in Poland and plans related to ISOLDE (M. Pfützner) (see presentation)

M. Pfützner presented the status of nuclear physics in Poland and the active involvement of the Polish nuclear physics community in experiments at ISOLDE from the very beginning of the ISOLDE facility up to the present day. After a two year membership of the ISOLDE collaboration during the 1990s, Poland would again like to join the collaboration. A mini-workshop on Polish membership of ISOLDE was held in Warsaw on 23rd May 2014 and a consortium "Polska@ISOLDE" was set up with the agreement being signed by:

- B. Fornal, Institute of Nuclear Physics, Krakow
- H. Mach, National Centre for Nuclear Research, Warsaw
- J. Andrzejewski, University of Lodz
- K. Wrzosek-Lipska, HIL, University of Warsaw
- M. Pfützner, Faculty of Physics, University of Warsaw

This consortium plans to apply to the Polish National Science Centre for funding Polish membership of ISOLDE.

The ISOLDE Collaboration would unanimously welcome Poland as a new member.

6. Nuclear Physics in South Africa and plans related to ISOLDE (K. Bharuth-Ram) (see presentation)

The current accelerator based science activities in South Africa are presented by K. Bharuth-Ram. The main facility is iThemba LABS near Cape Town which is a multi-disciplinary facility involved in the following activities:

- Fundamental nuclear physics: heavy ion reactions, reaction mechanisms
- Materials research using ion beams
- Radionuclide production
- Radiation therapy
- Education and training

The South African involvement in past, present and future activities at ISOLDE is summarised including the degrees related to this work that have been completed. The committee is told that the South African government has been very supportive of its scientists' involvement in activities at ISOLDE and that the Minister of Science and Technology had spoken very positively about the role ISOLDE plays at CERN at the recent UN celebration of 60 years of CERN.

The ISOLDE Collaboration would unanimously welcome South Africa as a new member.

7. Status of the Operation of the ISOLDE Facility (R. Catherall)(see presentation)

R. Catherall summarises the reasons why the startup of ISOLDE was delayed this summer and then discusses the startup issues that were encountered as well as the actions taken to resolve them.

Recent developments at RILIS are presented including the installation of the new high-power, high-quality industrial BLAZE laser and then ongoing work for the TwinEBIS is summarised. The committee is then shown the presentation about the consolidation requirements of the ISOLDE facility over the next 5 years that was given during a recent CERN management Chamonix workshop. Consolidation is driven by the factors

- Operation and performance of the facility
- Aging - radiation damage, corrosion, mechanical failures
- Difficulty to repair due to high dose rates and contamination
- Safety - Radiation Protection

The presentation discussed the effect of these factors on different aspects of the ISOLDE facility and the actions that would be required to ensure future operation. These are all issues that have been identified and addressed in the HIE-ISOLDE Design Study. The committee is shown the overview of the consolidation expenditure request that has been submitted to CERN management.

The committee is assured that conflicts between ISOLDE and MEDICIS are being kept to a minimum and that ISOLDE is given priority whenever possible.

8. INTC matters and perspectives for the TSR (K. Blaum)

K. Blaum informed the committee that the CERN Research Board accepted all the INTC proposals put before it at its last meeting and that the research board was impressed by the

quality of the research. The committee is told that Raquel Crespo, a Portuguese theorist, has been approved as a new member of the INTC and that the dates of INTC meetings in 2015 are February 11-12, July 1-2 and November 11-12.

Turning to the TSR project, K. Blaum explains that a number of phone conferences between himself, P. Butler and the CERN Director General have taken place during which the DG has expressed his support for the TSR but that the CERN budget deficit causes problems for the acceptance of new projects. This delay means that the construction of the TSR building has been pushed back from 2017 to 2018 which in turn causes problems for MPIK as the TSR needs to be dismantled before this due to the reallocation of the space occupied by the machine. The committee is told that the CERN DG has sent a letter to the STFC, the UK funding agency, supporting the grant application made by P. Butler for a spectrometer despite delays in the project at CERN caused by budget constraints. The third beamline at HIE-ISOLDE to be used for the spectrometer and later for injection into the TSR has already been approved by the ISCC and the committee agrees that, in support of the UK grant application, it would be good if the infrastructure for this beamline were foreseen by the time the STFC makes its decision.

9. Target development and Tests (T. Stora) (see presentation)

T. Stora begins by summarizing the beam developments over the last 5 years and informs the committee that the yield database has been updated in a website parallel to that of ISOLDE by a summer student and T. Mendonca. A list of beams under development is then presented and the status of these developments is summarised.

The committee is reminded that requests for beam development are prioritized through the GUI meeting (Group for the Upgrade of ISOLDE). A discussion follows about how this procedure could be made more visible to users and the committee agrees that the procedure for beam development should be clarified.

T. Stora informs the committee that A. Gottberg will be leaving the target development team at the end of 2014 to go to TRIUMF but a new fellow and PhD student are expected to join the group in 2015.

The committee hears that some ISOL technical development activities relevant to ISOLDE will take place as part of the recently accepted Marie Curie ETN network MEDICIS PROMED H2020.

A discussion takes place about the use of manpower from ISOLDE at MEDICIS. R. Losito assures the committee that, even though some manpower may have been shared between the two facilities in order to complete the initial work, the manpower to run MEDICIS should not come from ISOLDE.

10. Experiments, Schedule & Access to the hall (M. Kowalska) (see presentation)

M. Kowalska presents the ISOLDE schedule so far for 2014 and explains that, due to a difficult start-up of the facility, a number of experiments had to be cancelled but physics was able to start at the beginning of August. However the HRS piston problems meant no HRS experiments could take place for a month. The committee is told that, despite the problems encountered, nice physics was obtained, some of which is summarised.

M. Kowalska then turns to access at ISOLDE. From July 2014 access for users is from the Jura side only; access to the HIE-ISOLDE worksite is only permitted for local physicists when moving equipment. Once the new tourniquet has been installed, access to ISOLDE will be

via dosimeter and no longer with a CERN card. For users requesting a dosimeter after 1st July:

- No temporary dosimeters are possible
- To obtain a dosimeter:
 - Follow online course on general safety
 - Follow online RP course on Supervised Areas
 - Follow ISOLDE online RP course
 - Present RP form signed by home institute
- To access ISOLDE:
 - Follow 2-h RP ISOLDE practical course (Tuesday and Friday at 2pm - Course will take place only once every two weeks during the shutdown)
 - Follow online electrical awareness course

Users with valid dosimeters should:

- After July 1st: Follow online RP and electrical awareness courses
- Follow new procedure when present medical certificate expires.

M. Kowalska tells the committee that, due to three electrical incidents occurring in 2014, ISOLDE will be used as a pilot for electrical safety and in the future, electrical safety checks of all experiments, including those classed as "travelling", will take place and users will have to complete an "Electrical safety at ISOLDE" course. This will be made up of an online course and a 1 hour class course which will be joined with the RP course. **Users at ISOLDE are requested to respect safety rules at all times.**

11. Building 508 (M. Kowalska) (see presentation)

The committee is informed that hand over meetings for civil engineering, cooling & ventilation, electricity and safety are taking place while work remaining includes the closed cooling water system, the vacuum gas exhaust and the opening for SSP gases and fume cupboard. The move to Building 508 for all users will be January 2015.

12. Beam Optics Studies of the ISOLDE beam lines with MADX (E. Rapisarda) (see presentation)

The most recent survey, carried out in 2013, showed significant misalignments of the ISOLDE beamlines. It was not clear what the impact of this misalignment would be on the beam transport to the experiments and therefore if the beam line should be realigned. Hence an acceptance study of the ISOLDE beamlines has been carried out using MADX, a software for particle accelerator simulations based on transfer matrix formalism. E. Rapisarda presents the results of this study and concludes that a reliable model of the ISOLDE beamlines can be achieved using MADX and that horizontal trajectory distortions generated by the misalignment can be corrected with the steerers; vertical trajectory distortions are still under analysis but the misalignment is less pronounced.

The committee thanks E. Rapisarda, M. Fraser, J. Kurcewicz, D. Voulot and the summer students (M. Diem, C. McGrath and V. Karayonchev) involved in this study.

13. Coordinator position

The committee agrees that the ISOLDE Group Leader and Scientific Coordinator should both be kept as temporary CERN positions.

14. News from the ISOLDE Group (M.J.G. Borge) (see presentation)

M.J.G. Borge summarises the present manpower situation in the ISOLDE Physics Group.

- Associate: Claes Fahlander (July 2014 to January 2015).
- Fellows: Susanne Kreim (until December 2014), Elisa Rapisarda (until December 2014), Monika Stachura (until March 2015), Miguel Madurga (until May 2016), Stephan Ettenbauer (until January 2017), Akira Miyazaki (until April 2016) and Kara Lynch (January 2015 to December 2017). The next application deadline for fellows is in March 2015.
- Doctoral Students: Razvan Lica, Fixed decay station doctoral student(September 2014 to August 2017); Stavroula Pallada (Doctoral Program with Greece for life sciences) (March 2014 to February 2017), Laura Grob (Doctoral Program with Germany) (June 2014 to May 2017).
- User Support: Jenny Weterings (Contract expires end March 2015)

The committee is informed that separator courses are planned for April/May 2015 and that the ISOLDE Workshop and Users meeting will take place at CERN 15th-17th December 2014 and will include a session on the morning of Wednesday 17th December dedicated to the 50th anniversary of ISOLDE approval. Also the SASc-ISOLDE Spring Workshop on GEANT4(SWG 2015) will be held from 26th April to 1st May in Casta-Papiernicka in Slovakia.

M.J.G. Borge informs the committee that the ENSAR project will come to an end on 31st December 2014 and that news about the ENSAR2 application, submitted 2nd September 2014, is expected at the end of January 2015.

The EURISOL-DF proposal is then summarised as well as the steps taken so far regarding this plan.

The committee is then informed about the current status of certain beamlines; IDS is operative and working, the NICOLE fridge has been repaired but not yet tested and work on the VITO beamline is ongoing.

M.J.G. Borge concludes by summarising the current status of the collaboration income and expenditure. The committee is informed that Bulgaria has agreed with the terms of the ISOLDE MoU but has not yet signed it, while both Poland and South Africa are in the process of applying to join the collaboration and Algeria has expressed interest in joining.

The committee agrees that the ISOLDE Support Officer contract can be extended indefinitely provided the collaboration and PH funds are available.

15. A.O.B

- R. Catherall asks the committee if there is interest in the installation of an MRTOF (Multi Reflection Time Of Flight) instrument at ISOLDE, to be used as a diagnostic tool. The committee expresses its interest in the idea and agrees that before a decision can be made, a working group would be required to clarify details of such a project.

16. Dates of next meeting

The next ISCC meetings will take place at CERN on the following dates:

- Friday 13th February 2015 starting at 09:00.
- Tuesday 30th June 2015 starting at 09:00.

The meeting ends at 17:30.

N.B. The overheads mentioned in the above minutes can be found via <http://indico.cern.ch/event/344644/>