

# Minutes of the 164<sup>th</sup> EATM Meeting held on 28<sup>th</sup> November 2023

Minutes and slides available at <https://indico.cern.ch/event/1350253/>

**Present:** D. Banerjee (BE-EA, chair), C. Ahdida (HSE-RP), I. A. Vaquero (EN-ACE), A. B. Roldan (BE-EA), J. Bernhard (BE-EA), A. Beynel (BE-GM), M. Brugger (BE-EA), N. Charitonidis (BE-EA), H. Danielsson (EP-DT), J. Devine (EP-DI), E. Dho (EP-DI), R. Folch (BE-EA), R. G. Alia (SY-STI), L. Gatignon (EP-UFT), S. Girod (BE-EA), B. Holzer (EP-SME), G. Imesch (BE-OP), M. Jaekel (BE-EA), D. Jaillet (BE-EA), Y. Kadi (BE-EA), D. Lazic (EP-UCM), M. Lazzaroni (BE-EA), J. Lehtinen (EN-CV), D. Mcfarlane (EN-AA), A. Onnela (EP-DT), A. Ostrega (BE-EA), N. Pacifico (EP-DT), P. Podlaski (EP-SME), V. Poliakov (EP-UF), G. Romagnoli (BE-EA), A. Rummler (EP-ADO), P. Schwarz (TE-MS), D. Tshilumba (HSE-OHS), M. V. Dijk (BE-EA), C. Vendeuvre (BE-GM), N. Y. Kahn (BE-EA).

**Apologies:** B. Rae (BE-EA), B. Saint Sulpice (EN-EL), F. Ravotti (EP-DT).

## News and Follow-Ups (D. Banerjee)

The minutes from the previous EATM were approved without comment.

## Action items (D. Banerjee) – Slides

D. Banerjee summarised the NA-CONS activities. The start of the consolidation of the fire sprinkler system has been delayed by 2 weeks with no margin to absorb any delays between dismantling and installation activities and is on a critical path.

## JAPW 2022 Follow-Up Action List (D. Banerjee) – Slides

D. Banerjee confirmed that all JAPW22 actions to be followed under the EATM has been completed and no actions will be handed over to the next JAPW. Part of action #21 (drainage in the east area) was highlighted. A drainage solution has been proposed and feasibility is to be confirmed early next year.

## Key information from Different Meetings

### SBA Highlights (D. Banerjee) – Slides

It was reported that the replacement of false floors in EHN1 is complete with only the lighting behind the barracks to be done. The installation of the hydrogen gas systems for the AMBER TPC is on-going. AMBER have recently confirmed their plans to run with a hydrogen target for their anti-proton production cross-section measurement that is being discussed with safety. Some infrastructure changes will be required which will be appended to this table to follow at the EATM. The recent fire incident (MSN.X0220041 in H4 on 22.10.2023) in TCC2 as well as the flooding incident in TCC8 are being closely followed by the TIOC.

### Planning – Important Items (S. Girod) – Slides

The YETS 23-24 planning schedule was presented (updated from the last EATM). There are no changes to the East Area schedule. For the North Area, the AUG (emergency button) test will take place on the 29<sup>th</sup> – 30<sup>th</sup> of January 2024 with **no access** during this time. The Gantt chart of the complete schedule is available via a link on the last slide.

**Y. Kadi** asked if the the delays on the fire safety work packages are compatible with the BA80 closure. **S. Girod** responded that they are still waiting for a new version of the installation schedule of the sprinklers and the planning can be confirmed thereafter.

**D. Banerjee** asked if the GIF++ AUL test is included in the North Area test to which **M. Jaekel** responded no, but this has been scheduled for 12<sup>th</sup> January.

**M. Lazzaroni** commented that the East Area magnet patrol has been completed and no leaks were found.

### ECRs (G. Romagnoli) – Slides

The status of of ECRs in progress and for future approval was presented. The ECR for the “Change of expert names for east area beamlines” was highlighted for future approval. Works are planned for the YETS 2023/24, and all stakeholders have been requested to provide feedback. A meeting will be organised by **G.**

**Romagnoli** to confirm the changes before the Christmas break. Two documents were presented for approval:

- 1) HiRadMat Dump Modification for Operation at Higher Intensity ([2958350](#)). Approved by the EATM and it will be presented at the IEFC for approval.
- 2) Specification for Combine Magnets and Power Converters Consolidation of the DI line ([2953934](#)). Approved.

### **Brainstorming for possible KPIs (D. Banerjee) – Slides**

D. Banerjee presented first ideas on monitoring key performance indicators throughout the operation year. The aim is to define a set of parameters together with the users and have a matrix of these parameters versus user groups. Three stages have been proposed including collecting the user input at the beam request level; an update after scheduling with a realistic forecast together with the PS-SPS co-ordinator, operation teams and beam physicists; and finally monitoring online during the operation year with a final comparison to summarise the performance of the year. An example of the matrix with some proposed parameters have been presented and the users are requested to give their feedback.

### **Trigger of T11 radiation Alarm During Week 43 (G. Imesch) – Slides**

G. Imesch presented the incident where the radiation alarm in T11 was triggered at the warning level and was reported by the users on 27<sup>th</sup> October at 4:13 a.m. A spike of 3.5  $\mu\text{Sv/hr}$  was observed at the radiation monitor PAXEA11. At the time of the alarm two modules of the extraction kicker, KFA71, were down and consequently the parasitic TOF cycle was not extracted. This caused the comparator security system to dump the beam. However, the start of the dumping time was quite late with some extraction elements pulsing with the beam still IN.

Later that morning, a second radiation alarm was observed but TOF was in access. From further investigation it was concluded that, with the modules down, the AD beam was not extracted causing large showers in the PS ring which triggered the radiation monitor in T11. As a step to prevent this in the future, the timing of the comparator has been adjusted. In addition the SIS (software interlock system) ensures that the beam can be extracted by the kicker (i.e. no modules down) and if not, cut it before production in LINAC4, although at least one cycle will be played.

Monitoring software for the PS is currently in development to work with SIS that should fix this issue (to be operational in 2024).

### **Smaller Beam Spot Sizes in H6 (L. Nevay) – Slides**

**L. Nevay** summarised the beam parameters at the end of the H6 beamline. From JAP 2022, it was requested to study options for smaller beam sizes at the very end of the beamline in PPE156. The request comes from test beam experiments that test very small silicon sensors there that only capture a small fraction of the beam. A smaller spot size would increase the density of particles and therefore the data acquisition rate. **L. Nevay** showed a comparison between 'optics' calculations and measured profile sizes showing good agreement.

Two possibilities were presented. Firstly, to move the user setup upstream to PPE146 where the beam can naturally be focussed to a much smaller spot size due to the proximity to the last magnets. Whilst a minimal cost option, the test beam users do not favour this as their setup includes an MCP that makes the beam unusable for others downstream and also would require more people-power than available to relocate before LS3.

A second option, is to introduce two quadrupoles at the end of PPE146 to re-focus the beam in PPE156 as well as possibly create more space in PPE156 by moving the beam dump there further downstream. This solution allows flexibility in the beam size from reasonably large to a potential 3-5x reduction in beam spot area. Previously, two dipoles were in this position so some cabling may exist but needs to be investigated. **L. Nevay** will follow up with **P. Schwarz** to identify what cabling and power supplies are available. This could be expensive if these were not available.

**L. Gatignon** commented that we can break the condition of the beam being parallel in the CEDAR in PPE136 if it is not used for tagging to which L. Nevay agreed and this option will be investigated further.

## **CHIMERA 2023 Run and Future Prospects (R. Garcia Alia) – Slides**

R. Garcia Alia presented the CHIMERA/HEARTS 2023 run and their prospects. The overall objective of the run was increasing the readiness of the beam and facility for routine testing of radiation effects, and this has been largely achieved. Improvements in the control of energy, flux, profile and characterisation of the beam as well as successful use of the remotely movable degraders and masks were achieved.

For 2024 possible upgrades include the F61/T8 vacuum extension, implementation of the 1s spill duration (including beam instrumentation) and possible PS tune optimisation as a function of energy. All groups involved were thanked for their support and for the successful run with excellent availability.

R. Garcia Alia added that the vacuum integration has not been finalised and a meeting has been scheduled with BE-EA. A follow-up presentation will be scheduled at one of the next EATMs.

## **News from Experiments**

**AMBER – no report**

**NA62 – no report**

**NA64 – no report**

**NA61 – P. Podlaski** – NA61 are also considering using a hydrogen target. The collaboration is evaluating the installation and the budget requirements and will report to EATM as it develops.

**M. Brugger** inquired on what timeline this would happen. **P. Podlaski** responded they are aiming for 2024 but as it was only recently thought of the feasibility is being evaluated. In 2025, however, there would be a request for approximately 4 weeks of beam time with the hydrogen target.

**CLOUD – A. Onnela** – The physics run is ongoing up to coming Monday 4<sup>th</sup> December morning. There will be the removal of instruments and calibration after the run. **A. Onnela** asked if the beam time request tool for 2024 was online yet to which E. B. Holzer responded it shortly will be.

**GIF++ – M. Jaekel – Paolo Martinengo** will join GIF++ coordination and will take over the responsibility of the facility. Access times were noted and there will strictly be no access during 22<sup>nd</sup> December – 8<sup>th</sup> January. He also introduced the new Intrusion Detection System (IDS). In case access is needed urgently during this period M. Jaekel, F. Ravotti or G. Pezzullo should be contacted. Non-conformity of an AUL unit was found after the moving of the main GIF++ switchboard and a test has been scheduled on 12<sup>th</sup> January as it caused loss of power to H8 user control rooms. He also added that an ECR is being prepared for the extension of the gas balcony.

**Hiradmat – N. Charitonidis** – the HiRadMat upgrade is ongoing with no delays or issues.

**IRRAD – F. Ravotti** reported offline – Preparing for the Tripartite visit to the EA on Friday afternoon this week. Maintenance YETS activities in both areas are planned (and the relevant one also included in the planning). Working to complete the ECR document for running with  $80 \times 10^{10}$  protons per spill from next year. When the injector schedule will be final, the common IRRAD/CHARM planning will be prepared including calibration runs, MDs, CSBF week, CHIMERA, etc.

L. Nevay, 15<sup>th</sup> January 2024