

Minutes of the 178th EATM Meeting held on 26th November 2024

Minutes and slides available at <https://indico.cern.ch/event/1482789/>

Present: D. Banerjee (BE-EA, chair), C. Ahdida (HSE-RP), L. M. Bueno (EP-UFT), C. Cot (TE-MS), J. Devine (EP-DI), M. V. Dijk (BE-EA), L. Gatignon (EP-UFT), X. Genillon (SY-EPC), M. Jaekel (EP-DT), N. Y. Kahn (BE-EA), D. Lazic (EP-UCM), M. Lazzaroni (BE-EA), J. Lehtinen (EN-CV), X. P. Lopez (SY-ACE), B. Maksiak (EP-SME), P. Martinengo (EP-DT), F. Metzger (BE-EA), L. Nevay (BE-EA), J. Novy (EP-UFT), J. B. Orgaz (BE-EA), R. Piandani (EP-DT), B. Rae (BE-EA), A. Rummler (EP-ADO), P. Schwarz (TE-MS), K. Stachon (EP-UCM), B. S. Sulpice (EN-EL), J. Tan (SY-BI).

Apologies: J. Bernhard, M. Brugger, R. Folch, F. Ravotti.

The previous minutes were approved.

Action item: A solution was found for the GIF++ DSO test that was planned at the same time as the North Area AUG test. The GIF++ DSO test will remain on Thursday afternoon and the time for the AUG test will extend from 2 to 3 days. The AUG test will be on the Wednesday for BA80 and BA82, then Friday for BA81 (EHN1). For all three days some cuts in all zones can be expected.

Action items (D. Banerjee) – Slides

YETS has already started in some lines and the works are ongoing. No further comments.

Key information from Different Meetings

SBA Highlights (D. Banerjee) – Slides

For the AUG/AUL consolidation in EHN1, **N. Kahn** and **M. Lazzaroni** reported that the ECR is nearly complete and will be ready for circulation shortly.

For addressing the water leaks near NA61 an order has now been placed for a protection for the electrical cabinet and this will be installed during the YETS.

For NA61 chilled water pipes, **M. Lazzaroni** confirmed with **J. Lehtinen** that scaffolding will be installed in December in preparation for installing the piping. The piping itself is included as an extension of the piping consolidation programme.

The action for the CEDARS in EHN2 is done and feedback from AMBER will be reported in this EATM.

ECRs (N. Kahn) – Slides

The status of the ECRs for information and future approval was summarised and the full list can be found in the slides.

Regarding the extension of the gas balcony **M. Jäekel** clarified to **N. Kahn** that the gas balcony extension will be documented in a separate ECR written by **S. Girod**. **M. Lazzaroni** commented that an initially observed problem is that the distance to the nearest exit may be too great and could require another exit route. **S. Girod** will confirm with HSE if this is necessary or not (**Action – S. Girod**).

Four documents were presented for approval:

- New Motorized Support for XEMC in PPE128 on H8 Beamline. **M. van Dijk** mentioned the possibility to install others in other beamlines and this is under discussion but doesn't affect this ECR. **Approved**.
- New Buffer Zone in BA81. **D. Banerjee** clarified with **M. Lazzaroni** that the budget comes from operation and not from NA-CONS. **Approved**.
- Asset Replacement Request - BSPI.045769. **Approved**.
- User Requirements for the Vacuum System of the M2 Beamline in the North Area. **Approved**.

Planning and Important Dates (B. Rae) - Slides

The linear planning was shown for each area. The dates are the same as at the last EATM, apart from the change to the DSO test dates for the North Area.

There is the OSS planning tool, but now there is a planning summary on the BE-EA website: <https://be-dep-ea.web.cern.ch/experimental-areas/yets-24-25-access-planning>

	End of Run													Physic Start (EHN1)	Physic Start (EHN2-ECN3)
	02.12.24	15.01.2025	16.01.2025	17.01.2025	19.02.2025	20.02.2025	21.01.2025	11.03.2025	14.03.2025	24.03.2025	25.03.2025	28.03.2025	04.04.2025	14.04.2025	17.04.2025
BA80 (TCC2/TDC2)	RP Constraint														
BA81 (TT81->TT84)	RP Constraint														
EHN1										only PPEs	only PPEs				
EHN2										only PPEs	only PPEs				
TCC8															
ECN3															

D. Banerjee reminded everyone that the beam commissioning time should be regarded as a no-access time for users and installation should be planned in advance of this where the priority is for beam commissioning.

XCET Consolidation and Upgrade Status (J. Buesa Orgaz) – Slides

The XCET are threshold detectors that were originally designed in the 1970s and the current mechanical design is not compliant with modern pressure vessel safety regulations. Additionally, the optics have degraded over time decreasing the detector’s efficiency. With a new mechanical design, there was the opportunity to improve the design of the optics.

A new XCET prototype has been designed, manufactured and tested and is now compliant with the EN-13445 standard. Recent beam tests were performed to validate the new parabolic mirror concentrator design. The new parabolic mirror improves the photon collection at pressures > 0.3 bar. A new UV-enhanced 45-degree mirror improved photon collection efficiency by 10-15% in addition. For the high-pressure XCET devices, the photon yield was increased by 50% at 2 bar and 320% at 15 bar.

The many people involved from SY-BI, EP-DT, EN-MME and SY-STI were thanked for the successful prototyping and beam tests.

D. Banerjee asked about the improvement at low pressure. **J. Buesa Orgaz** responded that at these pressures, the gain in improvement is not as much as the new mirrors help with the large angle Cherenkov light.

T4 Wobbling Magnet Intervention (P. Schwarz) – Slides

On the 20th of August the three MTNs in series in front of T4 in TCC2 tripped due to an excessive current-to-ground fault. Initially, the fuse on the converter was exchanged and operation restarted. However, the magnets continued to trip multiple times. No increased water consumption or abnormal conductivity was found. On the 28th of August, the threshold was adjusted from 100 mA to 160 mA when access was possible to allow continued operation. Although, due to the location, it was impractical to perform an extended inspection due to dose.

On the 9th of September, a data logger was installed to monitor and record the current-to-ground value. The data logs showed a saw-tooth behaviour where the leakage current would increase and then suddenly drop without apparent cause.

Due to a water leak on the 21st of October, access was required on the 22nd. Replacement of the insulator in the water connection was not possible within exposure limits. Corrosion was found unexpectedly on the stainless-steel parts. In agreement with the beamline physicists, it was decided to bypass the faulty magnet. This was carried out successfully with minor degradation to operation in H6 and H8 and did not impact the ion run. Since the bypass, the current-to-ground has remained stable at a much lower value.

P. Martinengo asked if the magnet can be refurbished. **P. Schwarz** responded it could not be renovated for at least 2 years after removal until the activation decreases. There are two spares currently for the thirteen installed magnets. One is an operational spare and the other will require refurbishment that will take an estimated 2 months of work.

D. Banerjee thanked **P. Schwarz** and **C. Cot** and the teams involved for a very efficient intervention with minimal downtime. **M. van Dijk** concurred that this also permitted the ion run in H8 which was greatly appreciated.

NA61 Hydrogen Buffer (B. Maksiak) – Slides

There is a request to have a liquid hydrogen target for NA61 SHINE experiment in 2025 (October / November). Consequently, there is the request of a hydrogen buffer zone outside of EHN1 (Jura side). The proposed location was presented. There are some debris on the ground as well as some older cryogenic infrastructure pipes to be cleared from this area in preparation. It is possible that the unused electrical infrastructure could be refurbished and prepared to satisfy the needs of the buffer heater. A volume of 2m³ is requested and a cage around it is requested. The ECR has been prepared and went to circulation today.

D. Banerjee asked if the piping connection inside the building is part of the ECR, but it was confirmed this has not been designed yet. This is planned for a second ECR for the gas connections.

M. Lazzaroni commented that the design should proceed quickly for the gas piping as the availability of personnel is limited.

Goliath Test During YETS 2024/2025 – (K. Stachon) – Slides

An overview was given of the low voltage power supply for the CMS detector. For efficiency, the higher voltage AC is converted to an intermediate 12 V DC as close as possible to the detector. This therefore means that this conversion happens in an environment with radiation and magnetic fields present. Normally, the power converters will be exposed to a field of 1.8 T with a high-purity iron shield that should reduce the internal field to approximately 120 mT.

In November 2023, there was a full system-level magnetic field test in the Goliath magnet in EHN1. The equipment did not pass the test and further modifications were required. The test should now be repeated and there is a request to use the Goliath magnet for 5 days between January the 20th and the 7th of February. Only a field of maximum 160 mT is required in 20 mT increments. It was asked therefore if the magnet can run without cooling at these temperatures.

Full access to the magnet aperture is required without a beam pipe present and optionally a magnetic probe to verify the magnetic field present.

B. Rae commented that indeed the cooling water will not return until mid-February. Additionally, the power converters will have to be tested. However, this could be arranged.

X. Genillon commented that likely the power converter usage should be ok as no water is required for them. However, all power converters in BA81 will be locked out due to works on the false floor. Therefore, January is not possible and the earliest would likely be mid-February.

B. Rae will put **K. Stachon** in touch with all relevant people to operate the magnet. **(Action – B. Rae)**

J. Devine asked if MNP22 could be used to which it was responded that no, the larger aperture is required. Also, it was reminded that an ISIEC form must also be submitted to EP-Safety even though no beam will be used.

News From Experiments

IRRAD / CHARM – F. Ravotti (offline report) – the HEARTS irradiations with Pb ions are going very well (11 experiments performed by about the same number of teams so far, involving 40 devices and components tested). All equipment is working well.

For the YETS, all maintenance activities in T8 have been given to B. Rae. The CV work has been scheduled to happen at the beginning of January so as not to conflict with the many HEARTS users now working and accessing the areas around IRRAD/CHARM in building 157.

AMBER – J. Novy – Feedback from CEDAR operation - [Slides](#).

The main issue during 2024 operation was the gas contamination found that shifted the particle peaks in the pressure scans. Therefore, the detectors were emptied and refilled. Once this was resolved, measurements showed very good alignment of the CEDAR and the beam with all PMTs within 10 μ rad of the beam axis, whereas in 2023, up to 70 μ rad was found.

D. Banerjee asked about the comment of problematic pressure control. **J. Novy** responded that the setting of the pressure varies depending on the direction of the change and sometimes an overshoot is required.

It was noted also that for each beam file at least two hours was required to realign. **D. Banerjee** responded that this can be due to hysteresis with the beamline magnets and we can discuss offline to introduce a de-Gauss cycle between files.

NA62: R. Piadianni – nothing to report and standard shutdown activities.

NA64e/ μ : V. Poliakov – no news.

NA61: B. M – in preparation from Pb ions to Pb fragments currently.

On Friday-Saturday night a red alarm light appeared in the cage next to NA61 (887/R-C47) where there is gas distribution, e.g. NA61 gets isobutane from there. There was a light, but there was no sound. NA61 contacted TI but no alarms were signalling and therefore, most probably, it was a false alarm. A work order was created for EN-CV. On Monday EN-CV intervened but red light still stays on.

J. Lehtinen commented it is the light of new ATEX extraction system. This red light should not be on but will be checked again offline with **D. Jaillet**. (**Action – J. Lehtinen, D. Jaillet**)

CLOUD: not present – no report.

GIF++: P. Martinengo – preparing for YETS

HiRadMat: no report.

AOB

D. Banerjee - Works during LS3 as reported to FOM are attached to the indico. Please check these requests in light of the shifted LS3.

L. Nevay, 28th November 2024