

Notes from the AMBER Drell-Yan RP meeting on 17/12/2021

<https://indico.cern.ch/event/1102219/>

Present: C. Ahdida, V. Andrieux, D. Banerjee, D. Brethoux, A. Devienne, A. Gerbershagen, S. Levorato, F. Metzger, C. Quintas

- A. Devienne presented the [RP work on the shielding design](#)
 - The previously presented proposals for the chicane in the CEDAR region seems to be fine. It could profit from an additional shielding block next to the new location of the access door to the zone.
 - Bunker integration proposal has been received from D. Brethoux.
 - With support of D. Banerjee, a more accurate loss pattern in the beamline has been established. The aperture of MBP magnet has been found to be 11 cm (and not 14 cm, as previously suspected) and this has been inserted into the model. The magnetic field of MBP has been varied to minimize the losses in the magnet and to maximize the losses at the target.
 - The losses have been scored from COLL5 to the AMBER target region and have been found to amount to 18% of initial beam intensity (10% occur up to CEDAR and additional 8% between CEDAR and the target).
 - The prompt radiation study has been completed up to CERN fence (400 m downstream of the hall, still within CERN area). The radiation levels are below 1 mSv per year and hence within the legal limits.
 - The Skyshine contribution comes to 50% from the upstream beam losses. A 80 cm thick concrete roof would reduce the skyshine by factor 1.5. It is suspected that there are still some issues with the model, e.g. a vertical offset of the incoming beam.
 - Residual radiation has been extended to the cool-down times of 10 minutes and 30 minutes.
 - Impact of activated air release from EHN2 to the environment is being examined.
 - ECR has been completed with the RP contribution.
- D. Brethoux has presented the [updates on integration](#)
 - The shielding bunker has been implemented into the CATIA integration model
 - V. Andrieux noted that one layer of blocks standing laterally from the AMBER detector needs to be removed from the model, otherwise it would prevent the movement of AMBER detector.
 - The weight limit for the floor is 30 t / m² and the current shielding proposal is within this limit.

Next steps:

- A. Devienne will continue the investigation of the potential beam offset at the MBP, together with D. Banerjee
- F. Metzger will implement realistic GDML magnet models into M2 BDSIM simulation and calculate the beam losses in the area between COLL05 and AMBER target, in order to examine if those are similar to the losses calculated in FLUKA.

- ECR draft will be forwarded to the integration team in order for them to write the contribution on the integration.

The next meeting will be scheduled for the 28th of January at 10 am.

A. Gerbershagen, 17/12/2021