

# MPP meeting 25 November 2010

---

## Original agenda:

- Asynchronous beam dump at 450 GeV (J. Uythoven)
- Modifications and re-commissioning of the BIS system in 2011 (B. Puccio)
- Modifications and re-commissioning of the BLM system in 2011 (B. Dehning)
- Modifications and re-commissioning of the ABT systems in 2011 ((J. Uythoven)
- AOB

## Present:

Laurette Ponce, Ralph Assmann, Richard Hall-Wilton, Moritz Guthoff, Antonello Di Mauro (Alice), Sigrid Wagner, Juan Blanco, Christophe Martin, Annika Nordt, Jonathan Emery, Andrzej Siemko, Bruno Puccio, Jan Uythoven, Mario Deile (Totem), Bernd Dehning, Siegfried Wenig (Atlas), Barbara Holzer, Mariusz Sapinski, Markus Zerlauth, Eduardo Nebot, Ruediger Schmidt, Jorg Wenninger, Mike Koratzinos.

## Minutes:

### News: latest news on UFOs:

Over the ion run we were expecting 4 UFO events, seen 0 so far.

### Asynchronous beam dump (Jan)

Last Friday evening saw the first real asynchronous beam dump (asynchronous between kickers and relative to abort gap). In the machine was a single ion bunch, low intensity, injection energy.

The error was traced to a trigger fanout element that spontaneously triggered two modules. Re-trigger signals were sent from the pulsed generators to other generators and the remaining generators pulsed shortly afterwards. The exact failure will be determined when the board is examined over Xmas.

Corrective actions were taken after the incident (fault was repaired instead of masked) and the system was validated.

In the discussion that followed, Ralph mentioned that this failure mode (2 modules pre-firing) was never studied as was thought to be very unlikely. He also mentioned that the failure mode of 2 modules pre-firing combined with no re-triggering (something that was not the case last Friday) would leave the machine really exposed. This failure mode (2 modules pre-firing) was due to a change that tried to minimize the probability of missing trigger pulses. Ruediger: we should look at the different failure modes again, in light of the latest event.

There is the possibility to revert to the earlier cabling. Decision needs to be taken before Xmas. Work to revert to old system is relatively minor.

## **Injection/extraction re-commissioning (Jan)**

Jan then went through the proposed chances for injection and extraction for 2011. The assumptions were that the energy next year will not be above 4.5TeV.

All changes are documented in the slides. Highlighted here is the new injection procedure for intermediate beam (between pilot and high intensity). Ralph asked to discuss the opening of collimators during injection.

Re-commissioning is expected to take between 12 and 14 shifts (1 week)

## **Modification and re-commissioning of BIS in 2011 (Bruno)**

Bruno reported on the proposed changes and re-commissioning of the BIS during the Xmas technical stop. The system is quite stable and they do not expect to change many things, apart from a little fine-tuning here and there.

The main activity is in the extraction from the SPS. There will be a new BIC for HiRadMat – this implies a modification to the master BIC in LSS4. After this, the two master BICs (LSS6 and LSS4) would be quasi-identical.

Activities planned during shutdown: only the connection of the two power supplies to different UPS lines.

Regarding the user system connections to the LHC beam interlock system, Alpha is currently implementing the newest version of Totem; no change in Alice; Totem will extend their system to 24 pots but will not use the second CIBU so that CMS can continue using it.

Reminder: if there is a change with the connection of the BIS, we will need to re-commission.

Automated CIBU connection test: these is a 6 month delay in the project. Edms document will be distributed by February.

## **BLM changes during the technical stop (Bernd)**

Bernd reported on changes to the BLM system during the shutdown: full list in the slides, highlights only here: Hardware related: due to DN200 works, 76 BLM chambers will be removed and re-installed. Also, 1000 chamber will be inspected for (suspected) cold soldering. There will be many software and firmware related changes. Removing the 1.3second data will be postponed for next year. The 2048 buffer would probably not be changed this year either (it necessitates more powerful front ends). Threshold tables will be updated.

## **BGI magnets (Jorg)**

Jorg reported on news regarding the BGI magnets – part of the gas ionization monitor scheme. These magnets are arranged in pairs with opposing magnetic fields leading to a net field of nearly zero, and should therefore have no impact in case of a powering failure. They are installed in point 4. Each magnet gives a kick of 122urad with opposite signs.

Currently a powering failure leads to a beam dump (a few cases have been seen already). The proposal is to disconnect them from the BIS. Jorg checked their effect on the beam orbit when reducing their kick by 80%. Residual kick is of the order of 1urad. The resulting effect on the RMS of the orbit is 100um (horizontal) and 50um (vertical). These are minor orbit perturbations. In conclusion, Jorg suggested that we can safely remove them from the BIS to improve availability without compromising safety. The meeting endorsed the decision to disconnect.