MPP meeting 16 April 2010

Original agenda:

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- SMP modifications: Beam Presence Flag (B. Todd)
- Commissioning steps 'to go unsafe' (J. Wenninger)
- BLM thresholds issues - TCLAs, over-injection (BLM team - tbc)
- AOB
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Present:

Benjamin Todd, Bernd Dehning, Giulia Papotti , Jan Uythoven, Markus Zerlauth, Matteo Solfaroli Camillocci, Ralph Wolfgang Assmann, Robert Appleby, Rudiger Schmidt, Sigrid Wagner, Annika Nordt, Antonello Di Mauro, Eva Barbara Holzer, Mario Deile (Totem), Richard Jacobsson (LHCb), Siegfried Wenig (ATLAS), Wolfgang Bartmann, David Stickland (CMS), Alejandro Castaneda Serra, Maciej Kwiatkowski, Jorg Wenninger, Mike Koratzinos

Minutes:

AOB (J. Wenninger)

Jorg presented a few slides with news and hot topics.

Many Post-Mortem events have been collected and no anomalies were found. A few cases that need to be further understood occurred when injecting a high(er) intensity bunch from the SPS (where diagnostics not as good so understanding/reconstruction not easy). The beam seemed to explode over the first three turns, but the effect is not reproducible. Another interesting case occurred when by accident the sequencer jumped directly from the end of ramp to the ramp-down with beam present (3 April at 21:28)

The software interlock of BPMs works nicely.

A sample of FMCMs was tested with beam, in particular the D1 FMCM for beta* of 2 m. All tests were passed without problems.

All BLMs on cold elements are now unmaskable, except a few elements around the injection regions in IR2 and IR8.

Good progress was made on higher intensity studies. Losses in injection region do not scale with intensity (they even go down). R. Assmann insists that one needs a blackout window for the first turn

where we see losses due to the TL collimators. For the moment it works due to the rather small losses, but it will not work with 12 or more bunches.

'Issues' with SAFE_STABLE_BEAM flag will be fixed after agreeing with the experiments on the modes to follow after an emergency dump.

Concerning the Beam Presence Flag, Jorg has instructed the BCT team (D. Belohrad) that only Ben, Bruno and Jorg can ask for a threshold change. For the moment a single BTC is used to generate the BPF.

Commissioning steps 'to go unsafe' (J. Wenninger)

A meeting of the restricted MPP was help earlier this week.

The following path to higher luminosity was outlined:

- Complete squeeze commissioning to 2 m beta*.
- Then increase the number of bunches from 2 to 3. Then we will be exactly at the safe beam limit at 3.5TeV.
- Complete work on injection for higher intensity, which opens the possibility for high bunch intensity collisions at 450GeV (total intensity below the safe beam limit), possibly the day(s) just before the technical stop.

R. Assmann asked if we e continue with β* of 2m which is the ultimate β* we were planning to achieve this year. He thinks that every step of intensity increase could then be painful (TCDQ has only a 2 sigma margin). He thinks that it is much easier to push intensity and not work with the 'ultimate 2010' β*. It is clear that we need to understand what margin we have.

Beam presence flag (Ben)

Ben discussed the problems related to the Beam Presence Flag and proposed a solution (changing the specs slightly) that would solve the problem that MPP would need to agree upon. (edms document ready)

BPF allows or denies injection from SPS. The problem is that sometimes the BPF flag oscillates and fills the buffers when the intensity is exactly at the limit, which is due to the noise of the measurement. This leads to loss of diagnostics for the injection and extraction interlock signals. Ben stressed that the safe machine parameters system simply receives the signal (from beam current transformers) and retransmits it without processing. Anything above probe beam cannot be extracted.

Ben's suggestion is to put a filter in the BPF flag as follows: for the flag to move to TRUE it needs more than a second of input equal to TRUE. If this is not met, the output signal stays at FALSE.

There was some discussion about what the long term strategy would be (for example introduction of a hysteresis algorithm etc).

BLMs (A. Nordt)

Annika presented the BLM group's proposed solution of various beam dumps triggered by the BLM system due to low thresholds, cross-talk from over-injection etc.

One problem is frequent dumps during over-injection. This can be cured by increasing the thresholds for short time scales (running sums) for energy level 1 (450GeV) and 2 (491GeV) for some BLM families, relaxing a bit the requirements (by a factor of 5 maximum). The new thresholds were already applied 8 April.

There was some discussion of how best to proceed regarding BLM dumps in the cleaning area. Besides increasing thresholds, a different approach would be that the BLMs become 'blind' for a short period around injection (B. Goddard). Another approach is to replace problematic BLMs (i.e. where the dump threshold is now consistent with cleaning losses) by others that are some tens of meters downstream, since the problematic BLMs see showers from an extraneous cause and not from the elements they try to protect (R. Assmann).

Action after the meeting: *The BLM team, together with J. Wenninger and R. Assmann, agreed on an increase of the thresholds of the TCLAs by a factor 50. This threshold was applied the same day (16th April) during a period of access.*