Minutes of the MPPr 22nd March 2011

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Issues at injection

In case of a problem at injection (as happened last night):

- Injection of a train with 8 high intensity bunches is very useful, since it will already indicate potential problems that are not seen with a pilot bunch.
- In case of problems, it is not useful to inject trains with more bunches. For example, if the losses are high already with 8 bunches, injection of more than 8 bunches should wait until the problem is understood.
- Several checks should be done:
    - Check the trajectory in the injection line. If the trajectory is good, and there are losses at the end of the line, the beam quality from SPS might not be acceptable (as during last night).
    - If the losses measured with BLMs in the LHC are too high, injection of beam with more bunches should wait (especially if the losses trigger a beam dump, such event will naturally require some attention).

  It is proposed to add some recipes on the OP WIKI pages related to problems at injection.

Run at 1.38 TeV

- The run will be done with 80 bunches per beam (35 h in stable beams are required). The stored energy in the beam is far below the stored energy in the 3.5 TeV run (with bunch current intensities of 136/200b).
- The collimators will be driven with the same functions that are used for the ramp to 3.5 TeV, and they will stop when reaching 1.38 TeV.
- This allows using a unique function for the gap interlocks versus energy.
- **In general, there should be only one function for the collimator gap interlocks, and changes of this function should be agreed with an ECR (the currently existing 2nd set of functions with constant gap interlocks has to be deleted)**
- The experiments will request Van-der-Meer scans. The collimation team is working out the settings and tolerances for the collimators (Ralph et al.). Since the beams are not squeezed, there should be sufficient margin.
- The external angles will all be set to zero. This should maximize the aperture and therefore the allowable VdM scan range. LHCb polarity reversal was requested (should be fully transparent).
- A dedicated display is in preparation showing the orbit at different locations (triplet, collimators etc.) that will assist operation to understand the margins and to warn when they are exceeded. This will become available after the technical stop (Jörg).

Injection of more bunches

- The plan is to inject 96 bunches at the end of this week, with several batches of 96 bunches circulating. At some stage the abort gap cleaning will be required.
- A checklist for the increase of the number of bunches per batch at injection has been worked out and will be distributed.

Operation at 3.5 TeV with more bunches

- Clarification after the meeting: the next step will be with 200 bunches (1*8b + 8 x 24b) for one fill. In case everything goes well, the next fill with use (1*8b + 4 x (2*24b, 225ns in between)).

ALICE

- During a recent fill, the rate in the TPC was too high for a short while, due to an error in the luminosity optimisation (i.e. optimising by mistake in the horizontal plane). There will be a discussion in the next MPP meeting how to avoid such event, and how to protect the detector.
- There are ways to reduce the probability for such event by software (as an immediate measure, the possibility to do horizontal optimisation will be disabled for IR2).
- However, if a too high event rate could lead to damage of the detector, the only way for protection is to request a beam dump by the experiment concerned.

AOB

- It was discussed if the approval for the next step could use a WEB form (instead of a WORD file).
- Jörg mentioned that the BPM triggered a short time (about 400us) after the beam dump for a recent fill. This could be related to the particle shower on the TCDQ/TCSG, as from the orbit no notable excursion is visible and the beam was gone.
- Ralph observed that the display of the collimator positions in units of sigma used at one occasion a wrong optics. There is the risk of providing wrong information that could lead to confusion.