P-Pb LHC MD preparation meeting 06Oct2011

Present:
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p-pb MD:
John present a few slides with requirements and tentative planning, as he showed in the LMC 107 of 21 Sep 2011 (see at end of these notes).

p filling:
B1: 100ns protons beam → 100ns beam needs to be prepared → 18 bunches spaced by 100ns (just triple splitting) with 2E10 per bunch of the nominal have been tested briefly in the PS. This is the lowest we could go until now. Going lower will require more work and is not guaranteed. LHC would like to have about 500 bunches with 1.2E10. This is a limit imposed by the radial loop sensitivity. Changing this will require HW modifications. SPS will take 4 batches from the PS → 72 bunches. Then several injections from the SPS in the LHC. Filling pattern similar to 50ns but then with half the number of bunches.
The transverse physical beam size should be similar to the ion beam size. A smaller emittance is ok.

SPS filling:
1 PS batch: 17 x 100ns
SPS kicker gap of 225
Repeated 4 times

Setting up time needed:
→ PSB 2 days (single batch to PS)
→ PS 2 days to get is back
→ ~ 1 day to explore lower intensity limit
→ No real special care to be taken in the SPS as it is similar to the 50 ns.

Pb filling:
B2: only few bunches (probably 2), using the early beam. Later they might use the intermediate beam if possible.
The 100ns pb will be tested in the SPS (MD), time permitting, but not in the LHC.
Switching the 100ns and 200ns beam is not ppm and requires tweaking by the RF team (1 hour switching time).

2 Nov: MD to inject the 100ns proton beam to establish it in the LHC. Then they will also establish circulating beam with a single pb bunch.
(This test will be repeated most probably in week 46 with possibly acceleration)

Fri. Sat and Sun 4, 5, 6 Nov. is the pb commissioning plan. → start with protons to setup squeeze. And later setup with lead.

PSB start Monday 10 Oct.
PS start on Tuesday or Wednesday (during UA9).

John's Slides:

p-Pb filling

- Beam 1: 100 ns **proton** beam, ~10^{10} p/bunch
  - Similar to Nominal Pb scheme
  - In preparation in injectors
- Beam 2: start with a few (probably 2) **Pb** bunches for MP reasons
  - If we succeed in ramping and manually re-phasing the RF, this could give 1 (or 0) collision/turn in each experiment
  - More than this is unlikely but not impossible
    - May try 200 ns Pb batches which should be commissioned by that time
    - Although we hope 100 ns Pb beam will be tested in SPS, we do not expect to have time to use it in LHC

Schedule in 2011