MPP meeting 12 December 2008

Agenda:

*(Second part of the meeting, from 10:30) :
- Commissioning experience and status of PIC and FMCMs (M. Zerlauth)
- Commissioning experience and status of WIC (M. Zerlauth /P. Dahlen)

Present:

Jan Uythoven, Walter Venturini, Jorg Wenninger, Markus Zerlauth, Stefano Redaelli, , Alick Macpherson, Bernd Dehning, Gianluigi Arduini, Mike Lamont, Rudiger Schmidt, Jim Strait, Mike Koratzinos

Minutes:

Second part - MI status report (Markus)

Markus reported on commissioning experience and status of the PIC, WIC and FMCM installations as of end 2008.
PIC (Powering interlock system) status

- 36 systems up and operational. 11 out of about 900 circuits not commissioned yet.
- Issues: few issues, mainly in configuration; some badly soldered BIC-PIC interfaces (Manual soldering)
- Average installed time is 2 years already. MTBF study had given a period of 9 months. This has already been exceeded by a factor of 2-3.
- All tests fully automated, some analysis fully automated. Aim: fully automated analysis for 2009.
- Several emergency beam dumps from powering system worked correctly and were used to validate the interconnection with the BIC. (i.e. the 1st emergency beam dump 11 September)
- 'Powering subsector off' not activated in 2008.

PIC: what remains to be done for 2009:

- Modification to avoid quench back of correctors during FPA. ECR written.
- Interlock for powering above 1kA vs access: Under discussion
- PVSS system be able to send data directly to post mortem system (required for automation)
- Activation of the 'matrix' (redundant path to PLC for beam dump requests): no remote programming (as is common practice in this area)

PIC: Proposal for 2009: three phases.

- Phase 1: no beams (as during HWC) or very low energy/intensity: run as in 2008.
- Phase 2: Circulating beams, low intensity beam: activate 'powering subsector off'.
- Phase 3: higher intensity: full functionality.

Once we move to the next phase, we cannot go back to an earlier phase. There was some discussion regarding what intensity constitutes 'phase 3'. Intensity of 10^12 seems like a reasonable number. Jan urged the group not to wait for the machine to reach intensity levels potentially damaging before we make the move to phase 3, but to anticipate this phase sufficiently ahead of time.

WIC (warm magnet interlock system):

- System is similar to PIC, but there are no double outputs (maskable/unmaskable), all BIC inputs are always unmaskable.
- LHC WIC: nearly everything commissioned.
- WIC commissioning is done manually (not too many circuits); it takes some hours.
- To be done: include FM352.

FMCM (fast magnet current change monitor):

- Firmware comes from DESY.
- 26 units, fully commissioned in transfer lines, but not in the LHC.
- Voltage dividers not optimized (although Jorg mentioned that they are better than specification)
- For reliable and justified PM generation, target-dependant timing event (SPS extraction) is needed (TI2/TI8).
- Various bugs fixed (i.e. dump septa cross-talk in IR6, missing device in IR2).
- Difficult adjustment of voltage dividers in the LHC (need to be accurate to pass the on/off threshold of >5% at injection and at the same time not to go off scale at full energy). Probably need to change FPGA code to help with this (if too tight to adjust with measurements).
- Possibilities of automation will wait for 2010.

Conclusions:

- Overall a very good year 2008.
- Full automation for PIC tests & analysis for 2009.

Joerg: Who will take over Alvaro's work? Markus: will be taken care of from inside the group.

There was a discussion regarding what test will be done when during 2009: It would be nice to have the procedures in due time.

Next meeting - AOB

Two dates in January reserved. This coming Monday is the ITER workshop.