SESSION 8: WHAT WE WILL DO FOR BEAM PREPARATION IN 2009 - DISCUSSION

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MAGNET CIRCUITS

R.Saban stressed the importance of defining the access condition during powering and of training.

M.Lamont noted that larger synergies can now be found due to the fact that point owners are now part of the OP group. Engineers in Charge could help in the definition of the procedures for HW Commissioning and of the corresponding access procedures.

G. Arduini underlined that not only the number of circuits but also the time required for their commissioning should be taken into account when evaluating the amount of time spent in each of the two phases proposed by A. Vergara. A Vergara replied that most of the time is spent for the commissioning of low current circuits.

S. Redaelli stressed the importance of having tools to assist the Engineer in Charge/Point Owner in the organization of the access like HW current limits or tools to provide a snapshot of powering vs. access conditions.

S. Myers pointed out that the Safety Task Force chaired by R. Trant is coming up with a proposal for access conditions as a function of the powering.

G. Arduini noted that running over night and week-ends would imply having QPS and magnet experts available also during these periods. A. Siemko said that it might be difficult to guarantee adequate expert coverage above that already provided in 2008 moreover taking into account the departure from CERN of several experts.

R Schmidt said that HW Commissioning expert can and should provide input to the Safety Task Force. R. Heuer stressed the importance of that collaboration. S. Myers reminded the importance of clearly identified safety roles.

M. Pojer noted that a significant fraction of the HW Commissioning tests are performed at 0 current.

K.-H. Meß energy density instead of current should be quoted when analyzing safety issues vs. powering.

POWERING INTERLOCKS

S. Myers asked at which level of radiation level the failure of the Complex Programmable Logic Device (CPLD) of the Powering Interlock Controller has been observed. M. Zerlauth and M. Brugger replied that it is not yet clear whether the observed failures during the radiation tests in the CNGS area are due to radiation.

G. Arduini asked what the most critical areas for these devices are. M. Brugger replied that UJ56 could be the most critical place for the Powering Interlock Controller CPLD.

BEAM INTERLOCKS

R Losito asked whether the policy of having distinct channels for different system has any implication for the collimators. J. Wenninger replied in the negative. Equipment belonging to the same system can be grouped. Different systems (like vacuum valves and safety stoppers) not sharing the same controls should provide independent inputs for the Beam Interlock System.

M. Lamont noted that some incidents have occurred in the SPS leading to puncturing the vacuum chamber and asked what differentiates the LHC Machine Protection System from the SPS one. J. Wenninger replied that the most recent failures are due to timing problems and to the long response time of the Beam Loss Monitors of the SPS.

R Schmidt noted that the implementation of a fast beam current decay interlock is necessary as it would provide additional redundancy to the Beam Loss Monitors in case of important losses.

N. Catalan Lasheras asked whether beam tests are required to complete the commissioning of the Machine Protection System. J. Wenninger replied in the affirmative giving some examples: setting-up of the protection functionality of the injection protection devices and collimators, calibration of the BLM signal vs. quench level, response time of the Fast Magnet Current change Monitor (FMCM) for critical magnets like D1.

M Lamont pointed out that it would be important to have different people designing and testing the Machine Protection System. J. Wenninger agreed and added that steps have been taken in that direction.

G. Arduini asked whether the logged BLM data collected in 2008 have allowed drawing any conclusion on the reliability of the BLM system. B. Dehning replied that the analysis of these data has allowed identifying source of noise and corrections are being implemented.

INJECTION AND BEAM DUMP

G. Arduini asked whether there is any experience in controlling the temperature in the tunnel in such a way to keep the temperature of the beam dump kicker generator within $\pm 1^0$C. The impact on the availability/reliability of the system must be verified. J. Uythoven replied that it will be very important to conduct reliability runs and to keep the kickers at 7 TeV settings for some time.

RF

L. Rossi asked how many cavities are required for 7 TeV operation. E. Ciapala replied that for nominal operation 8 MV are required at injection and 16 MV (i.e. the full voltage on all cavities) at top energy.

S. Fartoukh asked whether at 5 TeV lower voltage is sufficient. E. Ciapala and P. Baudrenghien replied that no significant reduction is expected at 5 TeV for nominal beam parameters.

O. Brüning asked what the status of the 200 MHz capture cavities is. E. Ciapala replied that the system consists of 4 cavities/beam (not installed) and it has not been tested yet. A report will be issued on the steps required to have them operational.

G. Arduini noted that the installation of fast vacuum valve could have implications for the machine protection. In the past fast valves were excluded as they could intercept the beam before it is dumped. J.-M. Jimenez added that in the present system valves can start moving only once the beam has been dumped to avoid the above situation which could be catastrophic for the cavities if it would happen just upstream of them. The closure time of valves from the moment of the detection of a pressure rise is larger than 50 ms. In that case the pressure gauge triggering the vacuum valve closure must be located at least 20 m upstream of the vacuum valve.