

## Agenda

- Approval of minutes
- Beam Loss Monitor electronics and beam dump thresholds (C. Zamantzas)
- FMCMs for additional protection in case of mains disturbances (M. Zerlauth)

## AOB

- Special BLM in IR6 – proposal approved by LTC
- Collaboration with ETHZ on safety and reliability issues
- Chamonix@Divonne
- News on Cryo Ok

# Future topics for next MPWGs

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- Powering failures and their consequences
  - What is the reliability of the UPS systems ?
  - What would be the consequence if there is powering failure, and at the same time the UPS systems fail ?
  
- Movable objects and interlocking– others than collimators
  - BTVs, wires scanners, vacuum valves, experimental detectors, .....
  - presentation to LTC within 2 months
  
- Beam instrumentation and protection – others than BLMs
  - BPM in IR6, to prevent orbit excursions beyond 3mm, and to provide a fast interlock signal in case of fast orbit changes
  - BCT and interlocks
  - Measurement of the particle density in the abort gap

# News on CryoOK

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- Meeting between experts to discuss several possible ways to abort powering in case of NO CryoOK
  
- Before any implementation: what exactly is required?
  - there is a clear (strong) worry that we compromise the availability of the LHC by implementing an automatic switch-off of the powering after loss of CryoOK
  - to protect what? what are the risks?
  - in all powering subsectors?
  
- Possible implementations
  - PVSS-to-PVSS
  - PLC to PLC via the (local) network
  - Hardwired solution
  
- It seems that the PLC to PLC solution is preferred
  
- Ongoing study, proposal in some weeks time

- Management of Critical Settings has been highlighted as important topic. **Specification has been approved.** What next?
- A strategy for accessing equipment via the network, from inside and outside CERN, is required. **Proposal for CO strategy on secured equipment access (P.Charrue)** – next Monday to ABMB

.... **to be better understood what is covered by what and whom**

- Machine protection systems will be required for the different operational stages. Not everything is required for day one, but most systems should become available when accelerating 156 bunches per beam. **A follow-up should ensure that the protection systems are ready when they are required**
- The commissioning of the Beam Dumping System requires other systems to be operational, such as beam monitors (BPMs, Screens, BLMs), collimators (TCDQ & TCS in IR6, other collimators). **It is important that everyone is aware and understands the implications for the Beam Dumping System.** Colleagues from several groups are concerned, RF, BI, CO, ATB, etc.

- **Operation of the beam cleaning system requires a powerful controls system. Collimator positions are critical and must be managed accordingly.**
- **For each operational stage, operational settings are known, maximum allowed settings of collimators for machine protection need to be worked out in detail.**
- The Beam Loss Monitor System (detectors, electronics etc.) is expected to be operational before beam. **The commissioning and operational scenarios must be further developed.**
- **Formalised procedures, documented and approved, for machine protection systems is required for different stages.** This is successfully being done for Hardware Commissioning, but it is important that this approach for beam commissioning is agreed upon and taken seriously.

- Operating conditions for the different commissioning stages have to be defined. **Each system will be commissioned for the current operating conditions. A move to the next commissioning stage must be authorized.** Testing and acceptance procedures and required state for the next stage.
- Operation of the LHC will be strongly confined by machine protection issues. Therefore integration of the **commissioning for Machine Protection Systems into general beam operation is required, by close collaboration between machine protection experts and operation / commissioning team.**
- The **creation of a Machine Protection Coordination Team is proposed.** Do we agree that such team would be useful, and what would be the mandate? How could the activities of such team be integrated into operation?
- Today, commissioning is mainly discussed in two working groups, LHC-OP and MPWG, both reporting to LTC. **The organisation of LHC beam commissioning should be revisited**, aiming at an improved integration of machine protection commissioning and general LHC commissioning.

# Collaboration with ETH Zürich

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## Laboratory for Safety Analysis (LSA@ETHZ)

- Providing advanced techniques for modeling and optimization of complex technical systems, in general, and energy systems in particular, with respect to performance, reliability, and risks.
- Establishing a convincing basis for comparative risk assessment and integrated risk management of technical systems.
- Setting-up safety requirements under the constraints of sustainability.

Collaboration via PhD student, building up on the previous work (A.Vergara, J.L.Guaglio, R.Filippini, .....

- Analysis of the reliability of a slit-collimator for a proton beam at PSI
- Should start within next 6 weeks

Presentation of Prof. W.Kröger next week, 23/03/2006, 15.15, AT Auditorium