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QPS upgrade and machine protection during LS1

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The presentation will explain all the proposed changes and discuss the impact on other shutdown activities.
The upgrade of the LHC Quench Protection System QPS during LS1 with respect to radiation to electronics will concern the re-location of equipment and installation of new radiation tolerant hardware. The midterm plan for further R2E upgrades will be addressed.
The protection systems for insertion region magnets and inner triplets will be equipped with a dedicated bus-bar splice supervision including some additional modifications in order to improve the EMC immunity.
The extension of the supervision capabilities of the QPS will concern the quench heater circuits, the earth voltage feelers and some tools to ease the system maintenance. The protection of the undulators will be revised in order to allow more transparent operation.
The installation of snubber capacitors and arc chambers for the main quad circuits will be complete the upgrade of the energy extraction systems.
Finally the re-commissioning of the protection systems prior to the powering tests will be addressed.

Presenter: DENZ, Reiner (CERN)

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