

Cable De-Commissioning of Legacy Accelerators at CERN

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Abstract : CERN is an international organisation funded by 23 countries which provides the particle physics community with excellence in particle accelerators and other related facilities. Founded in 1954, CERN has a wide range of accelerators that allow groundbreaking science to be conducted. Accelerators bring particles to high levels of energy and make them collide with each other or with fixed targets, creating specific conditions that are of high interest to physicists. A chain of accelerators is used to ramp up the energy of particles and eventually inject them into the largest and most recent one of them: the Large Hadron Collider (LHC). Among this chain of machines is, for instance, the Proton Synchrotron, which was started in 1959 and is still in operation. These machines, called "injectors", keep evolving over time, as well as the related infrastructure. Massive decommissioning of obsolete cables started in 2015 at CERN in the frame of the so-called "injectors de-cabling project phase 1". Its goal was to replace aging cables and remove unused ones, freeing space for new cables necessary for upgrades and consolidation campaigns. To proceed with the de-cabling, a project coordination team was assembled. The start of this project phase led to the investigation of legacy cables throughout the organisation. The identification of cables stacked during half a century proved to be arduous. Phase 1 of the injectors de-cabling was implemented for three years with success after overcoming some difficulties. Phase 2, which started 3 years later, focused on improving safety and structure with the introduction of a quality assurance procedure. This paper discusses the implementation of this quality assurance procedure throughout phase 2 of the project and the transition between the two phases. Over hundreds of kilometres of cable were removed in the injectors complex at CERN from 2015 to 2023.

Keywords : CERN, de-cabling, injectors, quality assurance procedure

Conference Title : ICPMPC 2024 : International Conference on Project Management, Planning and Control

Conference Location : Venice, Italy

Conference Dates : June 20-21, 2024