Safety and Environmental Diagnosis Approach in beam facilities

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In the framework of the renovation projects of the beam facilities at CERN, we have to define efficiently how to best allocate the resources in order to improve the safety level of the facility and to limit its impact on the environment.

The Project Leader needs relevant information about the various systems and processes involved in the beam facility. He shall prepare a Safety File containing all safety relevant description, risk analysis, safety measures and operational procedures. The EN Safety Office developed a concept of Safety Diagnosis for the early stage of the project. It gives a synthetic picture of the current safety status of each systems and processes. It is based on return of experience and statistics from the existing facility. The Safety Diagnosis follows the following criteria:

- The history of the events, which happened on the system or process. (incident, accident, near miss)

- The potential severity of the system or of the process regarding safety and environment (i.e. fatality potential, major water pollution)

- The current level of control of the system or process. Is there already technical barrier, organizational measure in place?

Each criteria is given a score and the combination of the tree criteria gives a reliability rate of the current system or process.

More than 40 systems and/or process must to be considered in the renovation project of a beam facility. With the Safety Diagnosis approach, the Project Leader and the stake holders can easily identify the priorities and make better use of the resources of the project, while improving the global safety and environmental performances.

The Safety Diagnosis approach combines data analysis, risk assessment methodology and a management tool for resources optimization.

Email

simon.francois.cherault@cern.ch

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CERN

Primary author: Mr CHERAULT, Simon (CERN)

Presenter: Mr CHERAULT, Simon (CERN)

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