



**Injectors Re-commissioning Working Group
Minutes**

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1 MANDATE OF THE IRWG

The scope of the IEFC mandate can be split into 2 stages: First only the accelerators and ISOLDE will be covered. With this evaluation it is then hoped that a common approach of how to improve the injector re-commissioning after long stops can be established, which will be discussed with the responsables of the experimental areas...

Also at a later stage representatives of the technical coordination team and key equipment groups will be integrated into the process.

The working group deliverables & milestones are defined as follow:

By end of December 2015, the working group shall deliver a final report describing the strategy for the re-commissioning of the facilities and what needs to be put in place to execute a re-commissioning according to the proposed strategy.

During 2015, in parallel with the preparation of the final report, a full vertical slice including the individual system tests and the hardware commissioning of the magnet system of the PS will be implemented. This will include the analysis, the design of the procedures, their documentation, the preparation of the databases to store the result as well as the validation through a dry-run.

The working group proposed to perform the first tests during the next start-up (2015-2016). Even if it will be a hot start-up, it will be more representative than a test in the middle of the year.

The working group receives the charge to implement, test and validate the new strategy for the re-commissioning of the facilities after the 2016-2017 EYETS (End of the Year Technical Stop); this in line with the objectives of ensuring a smooth re-commissioning after LS2.

The full validation of the new approach will then take place after the EYETS.

The mandate is defined as follows:

- *Provide an overview of the re-commissioning strategy, procedures and practices;*

Therefore the first step is to evaluate what already exists in terms of procedures and testing.

- *Audit the different phases of the re-commissioning procedures and practices in the injector chain;*

The aim is to check the adequacy of the procedures and to possibly find missing points.

- *Propose an agreed strategy and guidelines describing the steps and documentation (procedures, check-list, etc.) required for an efficient, systematic and coherent re-commissioning of the aforementioned facilities taking into account the specific needs of each of the injectors;*



- *Enforce and follow-up the preparation of the documentation for the procedures of the individual system tests as well as the hardware commissioning (dry run) together with the databases (e.g. MTF) for the test results;*

V. Kain mentions that hardware commissioning in the LHC is more like an “individual system testing” and not really a full vertical slice test. Hardware commissioning is done using operational applications.

Tracking the results with databases was mentioned in the mandate. At a first look it was considered not to be necessary for the injectors and rather cumbersome.

- *Organize dry-runs to validate the full re-commissioning process for each facility.*

Some of the points of the mandate will still be re-discussed with the IEFEC.

2 ORGANISATION OF THE WORKING GROUP AND MILESTONES

The core of the work-group is composed of 2 members from each machine/facility (SPS, PS, PSB, ISOLDE, LEIR, AD, LINACs). The chair is V. Kain, the deputy B. Mikulec and the scientific secretary B. Lefort.

At a later stage we will involve the shutdown coordination team, equipment group representatives and representatives for experimental areas.

It has to be defined what to test, when to test it and who should test it. This last part is very important to be sure that the functional tests are not only run at low level by specialists.

The first version of the proposed procedures / check lists have to be ready for the end of 2015.

The strategy and potentially required tools will have to be ready and validated on a set of machines.

D. Kuechler wonders how these procedures/check-lists are going to be communicated to the people that should use them in the end. V. Kain answers that this is one of the things that must be discussed.

3 PLANNING OF FUTURE MEETINGS

For the next meetings the aim is to analyse what happened during LS1 to understand what was good and can be used by other machines and what wasn't and therefore has to be improved.

The content of the next 2 to 3 meetings is to go through all the different machines at a rate of 2 to 3 machines per meeting, go through a set of questions about commissioning like how it is usually done, the length of each phase, who coordinates and prepares these phases, where the planning is coming from, how the commissioning is done, which frequency of the follow-up meetings, how to check the purpose, use of a web site or not, extent of test coverage, which systems are systematically tested, the systems that do not require particular testing...

Some of the questions that should be addressed in the presentations per machine can be found in V. Kain's slides.

B. Lefort asks who is going to define the functional test. V. Kain says that OP knows the machine functionality therefore it is usually up to OP to check that the control software functionalities allow to control all the aspects of the machine. B. Mikulec adds that this is going to be different for all the machines and that when discussing the LS1 start-up experience each machine representative should really be honest when sharing the past experiences.



A few machines have/are already using check lists.

M. Lozano says that the different technical groups should be asked to know what requirements they are using to declare that a system has been successfully commissioned.

B. Mikulec reports that during the HW test period, the planning input was coming from the different equipment group, but that the HW groups weren't 'forced' from OP or the shutdown coordinators to go through mandatory HW testing phases.

V. Kain adds that another issue was the controls system readiness; this particular point must be addressed to be sure that the control software integration/commissioning is ready much before the beginning of the machine testing starts.

M. Lozano remarks that the system readiness has to be prioritized based on the machine systems' interdependencies (i.e. for ISOLDE first vacuum, then power converters etc.).

4 AOB

The first machine presentations will be LINAC2 and LINAC3 and LEIR.

Due to school holidays, the next meeting will be held on 19th of February.