

Working Group on Re-commissioning the Injector Complex

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Working Group on Re-commissioning of the Injector Complex after a Prolonged Period of Maintenance

During the Chamonix workshop held in September 2014 it became apparent that the re-commissioning of the injectors after a prolonged period of maintenance could benefit from a rigorous approach.

It is the wish of the Management of the Accelerators and Technologies Sector to install a practice similar to what is in place for the LHC where a two phase commissioning takes place: first, the equipment groups go through a set of procedures aiming at validating their systems for operation a.k.a. Individual Systems Test, followed by the commissioning phase where several systems are brought into operation in unison to commission a part of the accelerator (e.g. the magnet system, the RF system) a.k.a. Hardware Commissioning.

The Scope

The Working Group will provide a commissioning scenario for the following facilities: LINAC2, LINAC3, PS Booster, LEIR, PS, SPS, AD, Isolde, nToF, the East Area and the North Area together with all the associated transfer lines.

The Mandate

The Working Group receives the Mandate to:

1. provide an overview of the re-commissioning strategy, procedures and practices;
2. audit the different phases of the re-commissioning procedures and practices in the injector chain;
3. propose an agreed strategy and guideline describing all 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;
4. enforce and follow-up the preparation of the documentation for the procedures of the individual system tests as well as the hardware commissioning together with the databases (e.g. MTF) for the test results;
5. organize dry-runs to validate the full re-commissioning process for each facility.

Composition of the Working Group

The working group will be composed of Representatives of the technical coordination team (EN-MEF), the operations representatives (BE-OP), representatives of key equipment groups (e.g. TE-MSD, TE-EPC, BE-CO, BE-BI, ..) and representatives of the safety units in the BE, EN, TE Departments.

The chairperson, Verena Kain will make a proposal for the membership of the working group to the IEFC for final approval at the December 12th 2014 meeting of the IEFC.

Deliverables & Milestones

By December 31st 2015, the working group will deliver the final report describing the strategy for the re-commissioning of the facilities mentioned above as well as what needs to be put in place (tools, documentation, procedures, etc.) 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 results as well as the validation through a dry run.

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; this is in line with the objective of ensuring a smooth re-commissioning after LS2.

Reporting

The working group will report to the IEFC.

The IEFC will request intermediate progress reports on a monthly basis, either in the form of presentations at the IEFC meeting or orally during the IEFC preparation meetings.

Mandate from IEFC

- ❑ Provide an overview of the re-commissioning strategy, procedures and practices;
- ❑ Audit the different phases of the re-commissioning procedures and practices in the injector chain;
- ❑ Propose on agreed strategy and guideline 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;
- ❑ Organize dry-runs to validate the full re-commissioning process for each facility.

Working Group Composition

- ❑ The core: 2 members of each machine/facility (often shifters)
 - SPS, PS, PSB, ISOLDE, LEIR, AD, LINACs
- ❑ Chair : V. Kain. Deputy: B. Mikulec
- ❑ Scientific secretary: B. Lefort
- ❑ Bi-weekly meetings (Thursday afternoon)
- ❑ At a later stage: involve shutdown coordination, equipment group representatives, representatives for experimental areas

Working Group Composition

- ❑ **LINACs (2/3/4):** Detlef, Alessandra
- ❑ **PSB:** Jose-Luis, Bettina
- ❑ **ISOLDE:** Miguel, Jose Alberto
- ❑ **PS:** Marc, Gabriel, Rende
- ❑ **AD:** Bertrand, Tommy
- ❑ **SPS:** Stephane, Jerome

Working Group Approach

- ❑ Representatives from all machines around the table

3 PHASES:

- ❑ Analyze commissioning and start-up after LS1
 - What worked well? And why?
 - Which areas need improvement? And why?
- ❑ Define common approach across different machines
 - Learn from each other; learn from the LHC if applicable
 - Define how to test, what to test, when to test and who should test
 - Formalize testing and follow-up: check lists
 - E.g.: collaborative testing between equipment groups, OP and controls already before machine check-out – “Dry runs”
- ❑ Implement and validate new approach

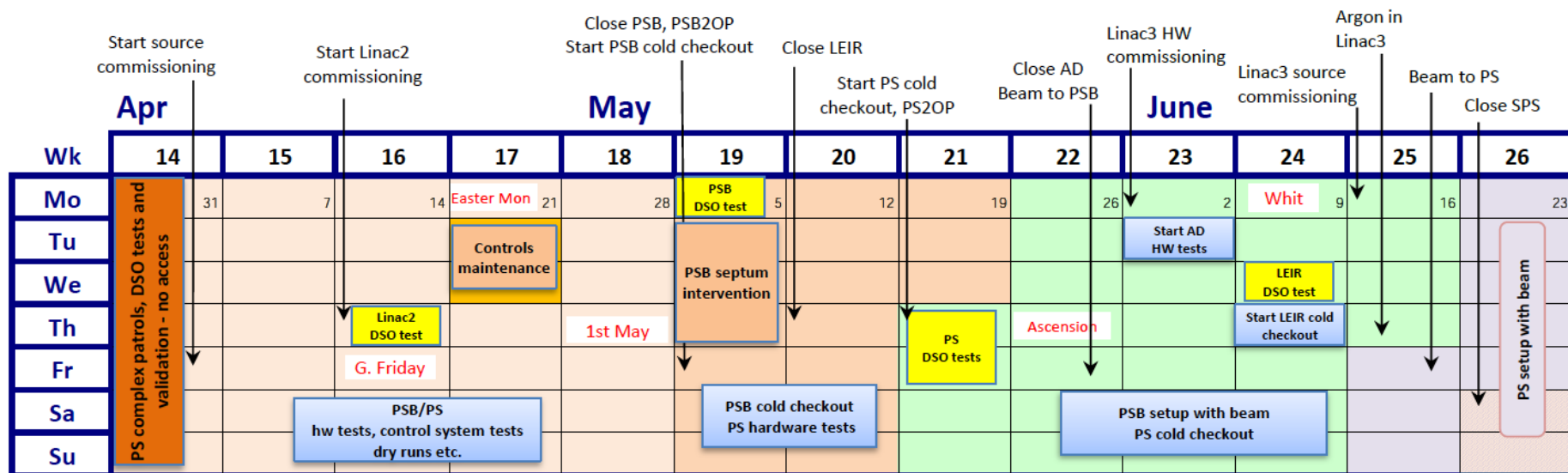
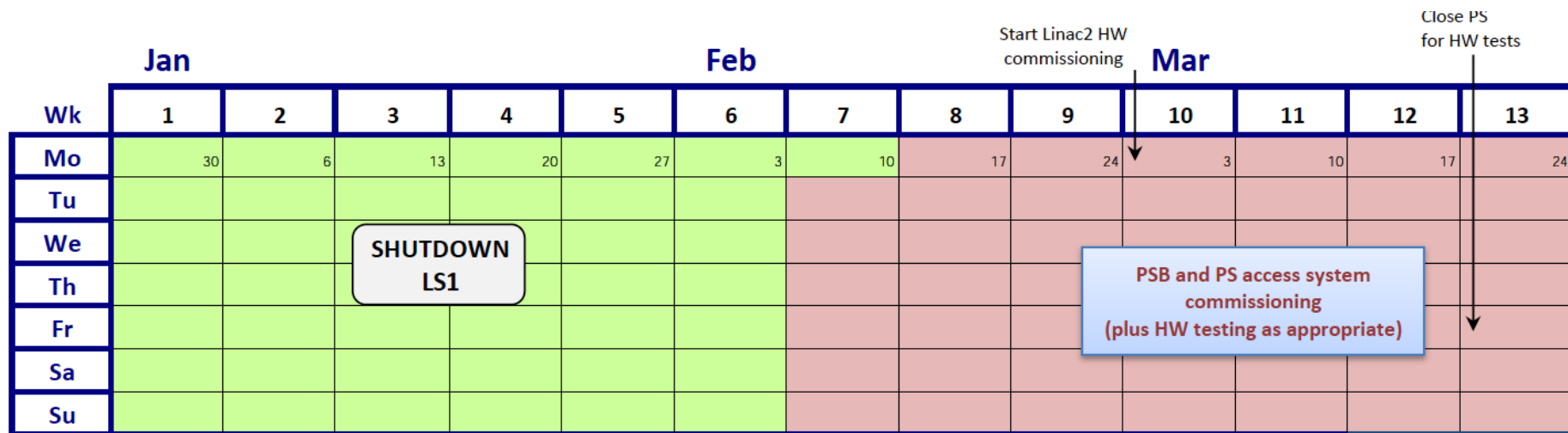
Working Group Goals

- ❑ Establish common machine preparation culture across injectors
- ❑ Prepare procedures / check lists and main test plans to be applied after every long shutdown
 - First versions to be ready by end of 2015
- ❑ Verify strategy for test procedures of full vertical slice
 - Deployment on selected machines/systems for 15/16 YETS
- ❑ Refinement and wider (full) deployment for 2016/17 EYETS

PREPARATION FOR NEXT MEETINGS

Schedule beginning of 2014

Usual phases: Hardware tests, cold-check out, beam commissioning



Per machine: summarize LS1 start-up experience

- ❑ Describe the different phases in the start-up planning for your machine:
 - Length of each phase? Who coordinated and prepared?
 - How do you do the commissioning?
 - Daily meetings?
 - Check lists available for each phase/system/operational scenario?
 - Tracking of progress?
 - In which phase do tests from the control room start?
 - Test coverage:
 - Full vertical slice with all interfaces and applications?
 - Which systems are tested, which are not? Tested by who?
 - Including beam tests: corrector polarities, BPM gains,...
- ❑ Résumé: What went wrong and why?
 - Control system readiness? Hardware specialist availability/ priorities?
Start-up during holiday period, not enough time,...
- ❑ Résumé: What was good and why?

Next meetings

- ❑ Will cover two to three machines/facilities per meeting.
- ❑ We will get back to you a.s.a.p. to see with which machines we start