

## Minutes of the 4<sup>th</sup> FOM meeting held on 15.04.2014

Agenda:

- 1) Schedule updates (K. Hanke)
- 2) Report of the Access Test (P. Ninin)
- 3) Status report on controls dry runs (M. Gourber-Pace)
- 4) Report on the PSB septum leak (M. Hourican)
- 5) AOB

### 1 Follow-up of the last meeting

The minutes of the 3<sup>rd</sup> FOM meeting were approved.

#### ***Pending actions:***

There were two pending actions.

The first action aimed to define the access modalities during the no access period while the magnet covers are not installed. P. Sollander reported that D. Tommasini agreed to define a detailed procedure and training sessions already started. *The action is closed.*

The second action concerned the piquet schedule. K. Hanke contacted the piquet teams and the schedule is reported in the following table. *The action is closed.*

<b>Piquet</b>	<b>Starting day</b>
<b>CO</b>	Not in service anymore
<b>CV</b>	Never stopped during LS1
<b>EPC</b>	5 <sup>th</sup> May (First Line 1 <sup>st</sup> July)
<b>LLRF</b>	19 <sup>th</sup> May
<b>MAGNET</b>	10 <sup>th</sup> July
<b>RP</b>	Never stopped during LS1
<b>VACUUM</b>	5 <sup>th</sup> May

## 2 Schedule updates

K. Hanke showed the last version of the schedule (V. 1.0<sup>1</sup>)

[https://espace.cern.ch/be-dep/BEDepartmentalDocuments/BE/Injector\\_Schedule\\_2014.pdf](https://espace.cern.ch/be-dep/BEDepartmentalDocuments/BE/Injector_Schedule_2014.pdf)

There were no major changes since the last FOM meetings (3<sup>rd</sup> FOM, 1<sup>st</sup> April).

K. Hanke asked the machine Technical Coordinators to give an update of the LS1 and HW commissioning activities. For Linac2, PS and SPS no delays are expected. Concerning the PSB, the wire scanner of R1 had to be changed (no impact on the schedule) and a leak was detected on the injection septum (more details were discussed during M. Hourican's presentation, see later in the minutes).

## 3 Report of the Access Test

P. Ninin reported on the Access Test. The presentation can be found at

[https://espace.cern.ch/be-dep/FOM/Presentations\\_2014/Forms/AllItems.aspx](https://espace.cern.ch/be-dep/FOM/Presentations_2014/Forms/AllItems.aspx)

There are six different phases for the PS safety system validation:

- 1) The software validation
- 2) The cabling and signal chain validation
- 3) The functional tests (in each zone)
- 4) The validation tests (from the control room, EIS devices and control system shall be fully operational for this stage)
- 5) The global tests
- 6) The DSO tests

The scope of the test includes Linac2, LEIR, PS, SWY, TT2, nTOF primary, AD target, AD ring, PSB, ISOLDE, EA (Linac4, IRRAD, nTOF target and CTF are excluded).

The PS complex was closed from Monday 31 March until Friday 4 April with all EIS Power supplies unlocked. All EIS access was in place and closed at the exception of the Switchyard Shielding walls and all zones were put in BEAM mode.

The main objective was to test the system performance, the VETO and the special permit access mode, the VETO upstream and downstream transfer, the zone validation...

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<sup>1</sup> After the meeting V1.1 became available.

P. Ninin reported that some equipment start automatically when the VETO was removed. This may be problematic for some devices and the issue is presently under investigation.

Some ergonomics improvement was suggested for the operator console. Minor activities (mini-mad installation, painting and stickers campaign...) are still on going.

In conclusion, more than 90% of the EIS where successfully tested and tests ran according to plans; transfer of the responsibility to operation has started.

H. Vincke added that there was a problem on the PS switchyard area. There was asbestos to be removed from the roof but all was settled and solved today (15 April).

#### **4 Status report on controls dry runs**

M. Gourber-Pace reported on the controls dry runs. The presentation can be found at

[https://espace.cern.ch/be-dep/FOM/Presentations\\_2014/Forms/AllItems.aspx](https://espace.cern.ch/be-dep/FOM/Presentations_2014/Forms/AllItems.aspx)

The CO dry run consists in a vertical integration test of the full control system stack. During the dry run a pre-defined set of tests are executed under close to nominal conditions. The aim is to identify and fix problems at an early stage.

The main participants of the tests were CO, the equipment group and OP. The equipment groups have developed and are supporting a large part of the controls chain (front-end hardware and software in most cases).

The CERN CO architecture is organized on four layers: the device close to the beam, the front-ends, the middleware (RDA, JMS) and the application on the consoles.

The schedule of the dry run was agreed with the LS1 teams an OP and can be found at

[https://edms.cern.ch/file/1340573/1/dry\\_run\\_skeleton\\_BeCo.pdf](https://edms.cern.ch/file/1340573/1/dry_run_skeleton_BeCo.pdf)

The contact person for schedule, the single machines and the overall project responsables were mentioned. The details of the dry run organization and its schedule can be found at <https://wikis.cern.ch/display/ACCOR/>

Special attention is devoted to the new release of the software: they go through a formal acceptance check with fixed weekly slots to be used to perform the upgrades.

Concerning Linac2 source the dry runs were successful: there was a problem of alarm propagation to LASER now solved. Concerning the tank power converters, several issues in PowM1553 new FESA class occurred (still under investigation).

During the PSB power converter dry runs several issues appeared but most of them were resolved since then.

The CPS RF 10 MHz cavity matrix test was very successful. M. Gourber-Pace thanked H.

Damerau for the excellent preparation of the test.

The source of FESA3 class memory growth was identified and corrected. Some instabilities on the new central timing were observed: the source of the problem was identified (NFS access issue) and is going to be fixed soon.

M. Gourber-Pace concluded that the dry runs are extremely useful to set a strong deadline for developments and to enforce synchronization among all partners, to spot issues under normal conditions and fix them at an early stage. They allow checking the scalability and reliability of the system. Experience confirmed that the dry run efficiency highly depends on its preparation and on the HW availability (they compete with HW tests). The collaboration and commitment of the equipment, CO and OP teams were so far excellent.

B. Mikulec asked what was the most recurrent issue during the tests. M. Gourber-Pace answered that the new software released in parallel during the dry run was often a source of problems.

B. Mikulec asked how OP get notified about the release of new software. M. Gourber-Pace answered that the tracking of the different releases can be found on the web site. In addition to that the control service provider will circulate the information.

B. Mikulec asked if the tools for the Working Set configuration are available. M. Gourber-Pace answered to contact directly G. Kruk on that respect.

N. Gilbert asked whether the entire control system would be operational for the DSO tests according to the planning presented by P. Ninin. M. Gourber-Pace limited her positive answer the EIS devices.

S. Mataguez informed that to perform the EPC test on week 21 it is assumed one could launch a super cycle sequence. M. Gourber-Pace will verify if it is compatible with the present schedule.

## **5 Report on the PSB septum leak**

M. Hourican reported about the PSB injection septum leak. The presentation can be found at [https://espace.cern.ch/be-dep/FOM/Presentations\\_2014/Forms/AllItems.aspx](https://espace.cern.ch/be-dep/FOM/Presentations_2014/Forms/AllItems.aspx)

On 8<sup>th</sup> April during the final leak testing of the PSB high pressure was noticed in the vicinity of the injection septa. The leak test on septa cooling circuit confirmed the problem.

The PSB injection septum consists of a stack of four magnets. Presently the stack installed in the machine is stack #2. A total of 3 stacks were built: stack #1 failed in 2009 and is stored in B151 (condemned), stack #2 (installed in the PSB and leaking), stack #3 (under renovation, three magnets out of four are leaking).

The strategy that will be adopted is to renovate stack #3 with new insulators, re-do all brazes

and replace stack #2 with stack #3. Stack #3 will be available starting from the 29 April for installation in the ring.

B. Mikulec asked about the reliability of the stack #3. M. Hourican answered that the reliability should increase since all new insulators are going to be used for the repair.

## **6 AOB**

K. Hanke informed about the Note the Coupure

<https://espace.cern.ch/be-dep/FOM/Presentations 2014/Forms/AllItems.aspx>

A. Bland informed that the program for the Control Maintenance (22 and 23 April) can be found at

<https://wikis.cern.ch/display/DEVOPS/To-do+list+for+Controls+Maintenance+Easter+2014?src=search>

He added that the AFS file system will be removed from the servers of the technical network (with the exception of linuxps1 and CTF servers).

B. Mikulec asked if the AFS file system would be still available on the CCC consoles. A. Bland answer positively, it will be available on the consoles of the technical network.

The next FOM meeting will be held on 29 April. The agenda will be communicated in due time.

Minutes edited by G. Sterbini.