



**ELENA:
Integration and Installation Committee meeting**

Date: 26/07/2018

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1 INTRODUCTION

The minutes of the previous meeting were not approved as they date back from Oct 2016...

2 TRANSFER LINES INSTALLATION DURING LS2

AD LS2 will start the 12th of November. The project is to remove the magnetic transfer lines for installing the electrostatic ones.

Milestones are:

- Lock-out, cables disconnection, flexible cooling pipes disconnection
- Remove all magnetic transfer lines plus corresponding supports
- Remove all corresponding cables. EN/EL will take care of that.
- Re-organize part of the shielding walls
- Re-route cable trays and water pipes
- Install electrostatic transfer lines, instrumentation, vacuum and services
- Commission new transfer lines

There are 8 lines to be installed to the actual experiments. The AEGIS line should be installed even if AEGIS move to a new location (TBC by a written statement from the Project Leader).

C. Carli reminds that the two last quadrupoles (old ACE line) are obsolete and should be replaced. It was agreed in previous discussions not to touch these magnets until a new hypothetical project needs this line.

LNE51 installation is conditioned with the AEGIS relocation, which won't be approved before the end of the 2018 run.

F. Butin asks P. Burdelski if it could be possible to have people working during the Xmas break in case of slippage in the schedule. Pavel Burdelski says that must be seen with EN/EL hierarchy but few days of work should be feasible.

The idea is to start by removing everything at the very beginning of the DE0 line (switchyard) in order to open the access for EN/EL de-cabling team.

In parallel the RFQD will be dismantled and also the Stochastic cooling equipment.

The shielding dismantling implies the demi water network pipes to be removed. It means no demi water till the 11th of February.

Installation of the new lines milestones are :

- Survey Marking (05 Feb 2019– 11 Mar 2019)
- Floor drilling (26 Mar 2019– 08 Apr 2019)
- Installation of the mechanical supports (09 Apr 2019– 29 Apr 2019)
- Installation of the Equipment (electrostatic / vacuum / SEM 30 Apr 2019– 20 May 2019)
- Survey (21 May 2019– 18 Jun 2019)
- Vacuum connections (19 Jun 2019– 12 Aug 2019)
- Cabling (06 Jan 2020 – 03 Mar 2020)
- Bake-out (06 Apr 2020 – 02 Jun 2020)
- Commissioning. (03 Jun 2020 – AD restart 2021)

It is mandatory to install vacuum cables BEFORE the bakeout for monitoring the process.

Conclusions are:

We are talking about 18 months of intense activity for ELENA that will be done in parallel with AD machine consolidation, the AD hall infrastructure works, the BASE experiment area extension, the AD target renovation and the potential AEGIS relocation...

3 ELECTROSTATIC ELEMENTS

W. Bartmann says that all HW is produced, a few elements remain to pass vacuum acceptance, no issues expected. The period of HW commissioning in the planning should be adapted according to the required time needed as shown in the presentation.

ZDFA local and remote tests will start during week 17 in 2020 and will last 5 weeks.

The foreseen start dates are subject to change due to FSU coordination planning. The priority is given to LIU first.

4 VACUUM SYSTEM

F. Butin presents on behalf of A. Sinturel / J.A. Ferreira Somoza.

TE-VSC drawing approval on Control 2 has been completed. 133 Flanges were cleaned and have passed vacuum firing.

The Job for the production of vacuum chambers with EN-MME (J3049442) has been created: supports order has been prepared, flanges are ready to be sent for machining and the protection for bellows have been received. The production of the supports for the 7 flanges with welded edge bellows is foreseen for September 2018.

There is a follow-up organized every week with main workshop to get an overview.

The hydro formed bellows have been received.

5 SEMS

G. Tranquille reminds that SEMs are semi-non-destructive monitor that allows most of the particles to pass through without any degradation, while the small portion (1-3%) intercepted by the wires produces the signal.

The device is sensitive to antiproton, proton, and H- beams of energies between $E = 10 \text{ keV}$ and 5.3 MeV .

It consists of two position-sensitive photocathode grids providing the X- and Y- projections of the beam, sandwiched between three anode grids with a distance of 2 mm between them.

Each grid consists of 48 gold-coated tungsten wires of diameter of 10 μm stretched over a ceramic frame, with a pitch of 1.0 mm between neighbouring wires.

The cathode grids at ground potential are irradiated by the beam, and the secondary electrons emitted from them are accelerated toward the anode grids biased at 50 V.

The beam profile is obtained by using charge-sensitive preamplifiers to measure the charge Q_i ejected from the cathode wires on the X- and Y-grids with high sensitivity.

8 monitors have been installed so far for beam commissioning with H-/protons/Pbars:

- One in LNS Two in LNI
- Two in LNE00
- Two in LNE50
- One for the GBAR experiment (taken from LNE00)

Only two monitors have acquisition electronics

For LS2 we have to build and install another 36 complete monitors. LNE01 and LNE 03 will have 4 special SEMs (no IN/OUT, compact design) for ATRAP.

G. Tranquille says that one of the critical points is the cathodes that are still missing. Only 3 more could be built for the moment and there are no further information on the production.

There is still quite a lot of electronics missing. M. Hori had said that they will be there on-time. The DIF were prepared for the FO cables from the VME crates to the zones. The exact number of distribution boxes and their locations must be determined by EN/EL.

G. Tranquille reminds that mounting a SEM is a labour-intensive task that takes about 2 days. Given the situation, it will be impossible to have all the SEMs ready for June 2019.

There is still some margin in the schedule to allow some delay, but this should be considered with care to avoid longer delays.

The baseline is to install the monitors with the tanks, but it could be considered to install empty tanks in case of severe delays. This would have the consequence of needing to re-open the lines afterwards that is a time consuming operation as the lines are fully baked.

6 AOB

New Buffer zone will be installed on-time. RP involvement will be crucial to make sure removed equipment can be evacuated in due time.



ELENA commissioning meeting

