NP02 run preparation discussion

Filippo, Flavio, D.D.

NP02-VD run preparation discussion

Our first main goals:

Organise the run tasks and list the expected activities :

- Preliminary commissioning partial filling (Dec-Jan)
- commissioning period (Jan- Feb)
- Cosmic period (Feb-March)
- Beam period (after April)

- Calibration periods (over time)

Define the process of running NP02

- expert level activities
- shift activities where and when it is required
- Monitoring tools (data and hardware) and controls

Define the communication channels and meetings

Information and discussion should involve all groups (a 1st contact name):

- HV
- BDE- CRP
- TDE –CRP
- CRP
- PDS
- PMTs

- DAQ

- Physics/ proto analysis

- Calci
  - Laser calibration
  - Temperature fiber system
  - PNS

- Purity monitoring
- Slow control
- CRT

- Cryogenics

Define the ‘use’ cases of detector operation and schedule

Example: verifications and status during December partial filling

- Keep HV PS off and FC terminations activated
- Test Bias CRP Bottom and BDE constant monitor
- Test Bias CRP Top and TDE constant monitor
- PDS ….
- ….
- ….

Round table today and known activities until Dec 20th

With a schedule allowing each sub component to have the time needed for commissioning and checks

The schedule should include and be optimised to allow specific component tests individually or coherently (example track coherent source of noise or any abnormal behaviour)
=> this is our responsibility to adapt and assign activity organisation

Example: Sequence of operations when ProtoDUNE-VD is full

Near future:

- NP02-VD RC meetings will occur once per week (propose to use the Wednesday time slot at 17h CERN time

After full filling is completed

- There will be a daily ‘NP02 onsite meeting’ to eventually revise the daily tasks and discuss some results of previous days => morning at 9:30am CERN time

Shifts:
Needs to be understood:

During beam time shift in presence : challenging to fill

Interface with DAQ requires constant presence,

Define the communication channels

slack: help in responding quickly, very useful for DAQ

logbook to trace back detector condition during the data taking
elog => define a new dedicated space for NP02-VD (use NP02-DP suggested)
define the changes to NP02-DP and see if this makes sense.

Have a ‘twiki like page’ for main links and documents .

define what should be logged

Phones for urgent matter: Slow control, HV, cryogenics, DAQ ?,

This week and next week activities:

PDS:
Current plan is to complete (on-going) ColdBox test by Sun Dec 15 (at least complete test of Cathode module), move the PoF laser power unit on top of NP02.
Then, on Mon.16 switch ON PD cathode Modules for “verification and status”

…….

A good example is from HV checklist shown at FD2-TB in June 2024

- During purging and cool down and filling:
  - Keep the HV PS and FC terminations activated; monitor the current variations due the resistors values change with temperature
  - Activate cameras pointing at the Field Cage and the Beam Plug
- After the filling with LAr is competed:
  - Prepare to ramp up the Cathode and the FC terminations to the nominal voltages of -160 kV and -1.5 kV respectively
  - The ramping up will be performed in steps of 10-15 kV at a rate of 200-500 V/s
  - At each step, the HV's will be kept unchanged for several minutes to allow insulation surfaces exposed to electric field in LAr to properly charge up.
  - When nominal values are reached, monitor HV stability (currents, streamers) also with help of cameras (as in the past NP02 operations) while monitoring LAr purity.
- The HV-PS and the FC terminations will be kept at the nominal values for most of the NP02 operation program
  - Unless different conditions are requested from BDE/TDE or PDS
  - In case of Xe doping, the HV conditions should not be affected (as in the previous NP04 and NP02 operation)