

## **S4 – 31-Oct-2025 and ERR3(Aug 2026)**

Finalize the preventive and scheduled maintenance required for all the subsystems including all LOTO procedures. By the end of October 2025, start making a list of required preventive and scheduled maintenance and complete/Finalize before ERR3.

(August 2026)

Probir Ghoshal

### **List that we see presently (still been worked upon)**

#### **A. Vacuum System**

1. Check Pump Oil - As recommended by pumps manufacturer
2. Change Pump Oil - As recommended by pumps manufacturer
3. Pump Rebuild - As recommended by pumps manufacturer, Parts needed: Pump Oil, Pump Rebuild Kits
4. Spare vacuum gauge and electronics- TBD
5. Spare O-rings for: Partial Pressure relief valve (PPRV), Vacuum Line, Dump Flange connection, US and DS – Enclosure Spare CF gaskets for beamline
6. PFEIFFER P3 5.7L oil (per pump). We need to perform annual coil changes to the two pumps.
7. One rebuilt kit for PFEIFFER Pump Mod. DUO 65 M.
8. Spare EPDM O-rings for all O-ring sealing surface in case we see periodic vacuum deterioration

#### **B. MPS Filter system**

1. Change filter bags – When differential pressure (DP) greater than 10psi on either, a better understanding of this will happen when we start pre-commissioning the system.
2. Change filter bag particle size – If bags are clogging so often that the bags can't be changed during maintenance or other scheduled "Beam Off" times
3. Filter bags: Nominal 10 and 100 Micron, others TBD
4. Normal maintenance other than the canister filter in the collimator cooling line, which should be checked every SAM (downtime) where it is accessible. *Specific material for the canister filter hasn't been decided yet and that may change the maintenance schedule.*

#### **C. LCW Control System**

1. Spare Pressure Transducers – TBD
2. Spare Flow/Temperature Transducers – TBD
3. Spare flange gaskets for Flow control valves – 2 sizes
4. Spare valve seats and other valve parts that may leak

#### **D. MPS**

1. Acid flushing – once every 1-2 year.
2. MPS – List of spare parts are awaited from OCEM (nothing special but may be a few with cost)

## **E. Magnets**

1. Acid flushing – once every year (Lot of copper conductor)
2. Clean and coat the bolted Electrical joints at MPS and at Magnets – once every 2 years (needs to have seal - sticker)
3. Spare Ceramic breaks – Probably have some
4. High Pot - Once every 3 years (if sign of voltage drops or leakage current)?
5. Inspect for Radiation Damage of Insulations- Especially on US system (*may be very difficult due to Radiation Level*)

## **F. Circuit Breakers**

1. Maintenance as per code, Fuses envisaged for the 480V/3Ph/ Supply to the MPS (facilities of Hall-A)

## **General**

1. System walk-through looking for water leaks and checking filter DP – During Hall Openings (Maintenance days, at least monthly)
2. Do we want to have a camera on a remote access to go into the US Bunker to allow some visual inspection (remote cars)? Or a way to put cameras in through ports in the walls?
3. LOTO – All MPS (all 5), LCW and pressure lines (leaks etc.). We have this in practice in the TED-TL (Bldg. 58) and will extend it to the Hall.
4. Normal maintenance being, checking valve motion and inspecting lines for leaks and/or corrosion.
5. Larry Bartoszek will provide preventive maintenance for the main detector frame, as it contains moving parts. Sandesh will be requested to investigate and provide further input. Work in progress (WIP).