# Report: 24

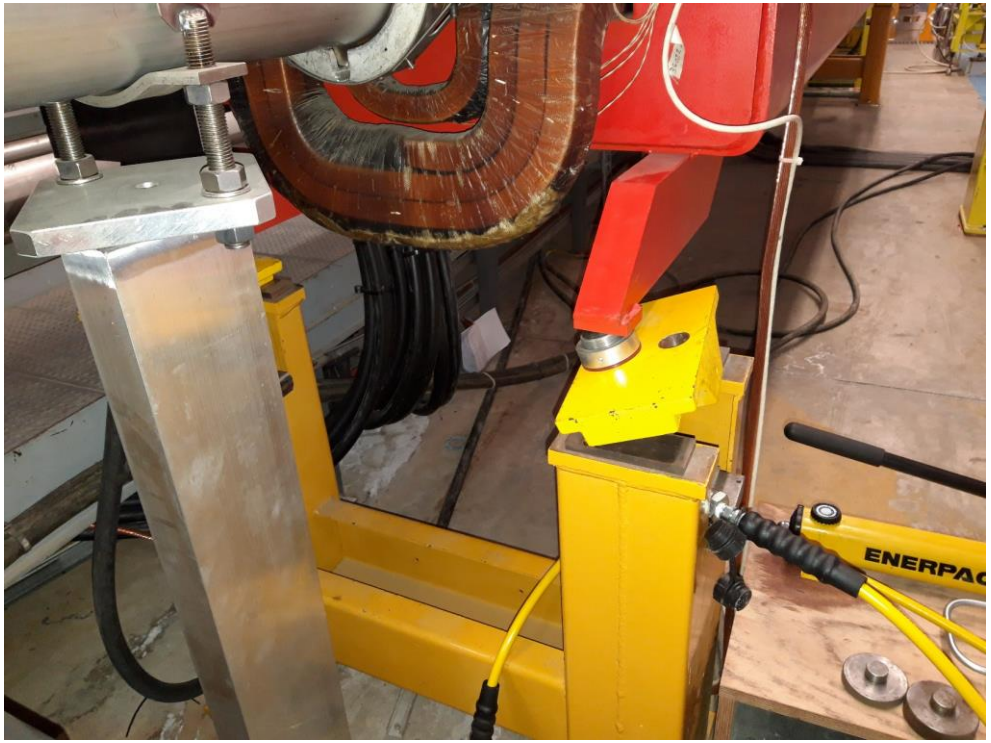
# Activity: SPS

*Chiara Pasquino,*
*Meeting 02/03/2020*

# Activities of the past 2 weeks

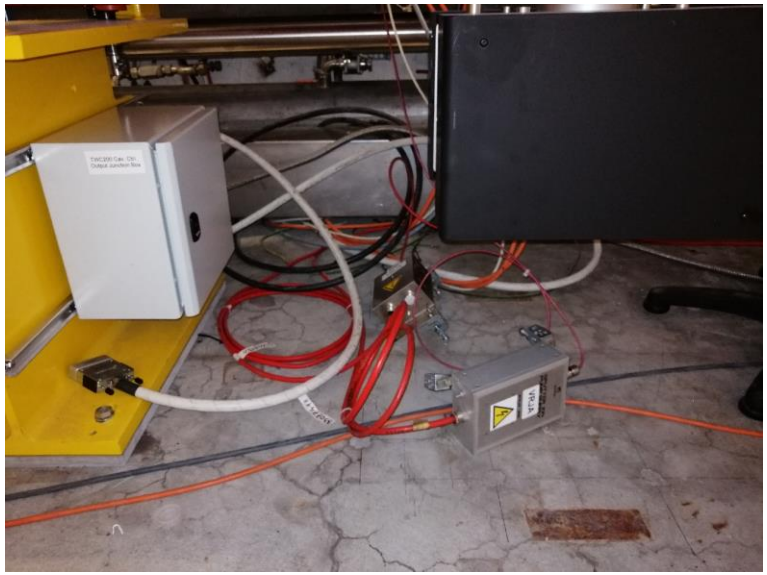
- BA1:
  - Beamline installation of 135, 136 ,142.
  - Pumpdown of 111-112; → postponed;
- BA2:
  - Magnet campaign;
- BA3:
  - Installation of the 5th cavity sector; 1st cavity sectors installation completion with sector valves; Couplers installation ongoing on 3rd cavity sector;
- BA4:
  - FWS installation;
- BA6:
  - Pumpdown of 661 and 662; → postponed (linked with BA1)
- TI2 – TI8:
  - Pumpdown of TI8 line;→ vented due to alignment issues on a pumping module and a BTV;

# Few Pics from last meeting..

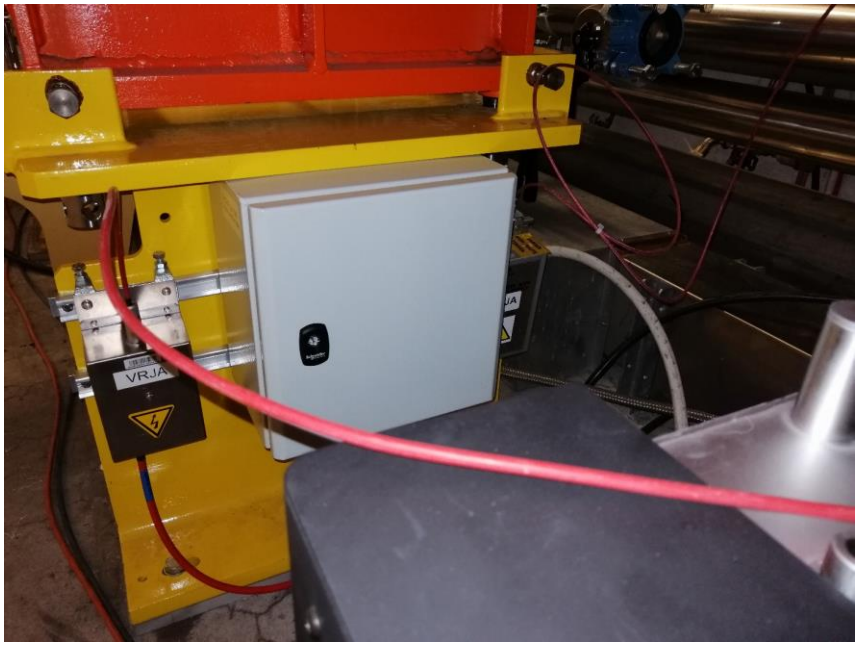



TT66 – HiRadMat
Survey smoothing campaign..
Sector vented, flanges disconnected, waiting for different type of supports from MSC to replace the old ones. 4 magnets involved in this exchange.

# ION PUMPS AND SAFETY..



Abel reinstalled them, BE-RF is warned about it.




Position of the ion pumps local boxes discussed in situ with integration and BE-RF… still someone removed them while being powered!

# LSS1 installation

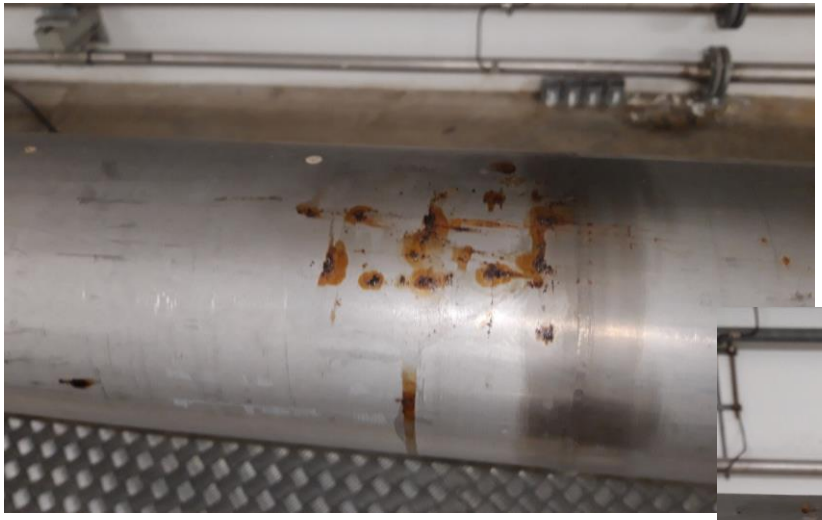

S135 – mechanically closed, pumping down (leaks!)
S136 – sector valve position to be modified then ready for final connection
S142 – vacuum drifts and instrumentaion are installed, waiting for final alignment of the mask to complete the mechanical installation

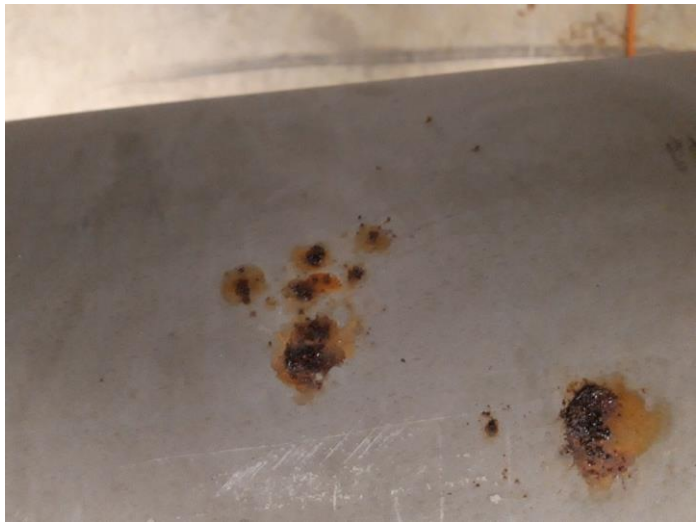
Total doses are OK, personal undercontrol, dose sharing in place and we will rotate during this week too.

# LIU-Projects: LSS1, LSS3 & LSS5 status

- LSS1: possibly starting pumping 135 & 136.
- LSS5: production completed, sorting in SMA18 this week + transport of last 159 to be coated.
- LSS3:
  - 6th cavity sector being installed;
  - Integration clash in two positions between sector valve piston and magnet pumping port. Solutions: changing valve type (different version of VVSBs) or swapping position of the valve. → solved with a different version of VVSB and different configuration of the ion pump.
  - Second time we find a leak on brand new ion pump feedthrough.

# TDC2 tunnel inspection

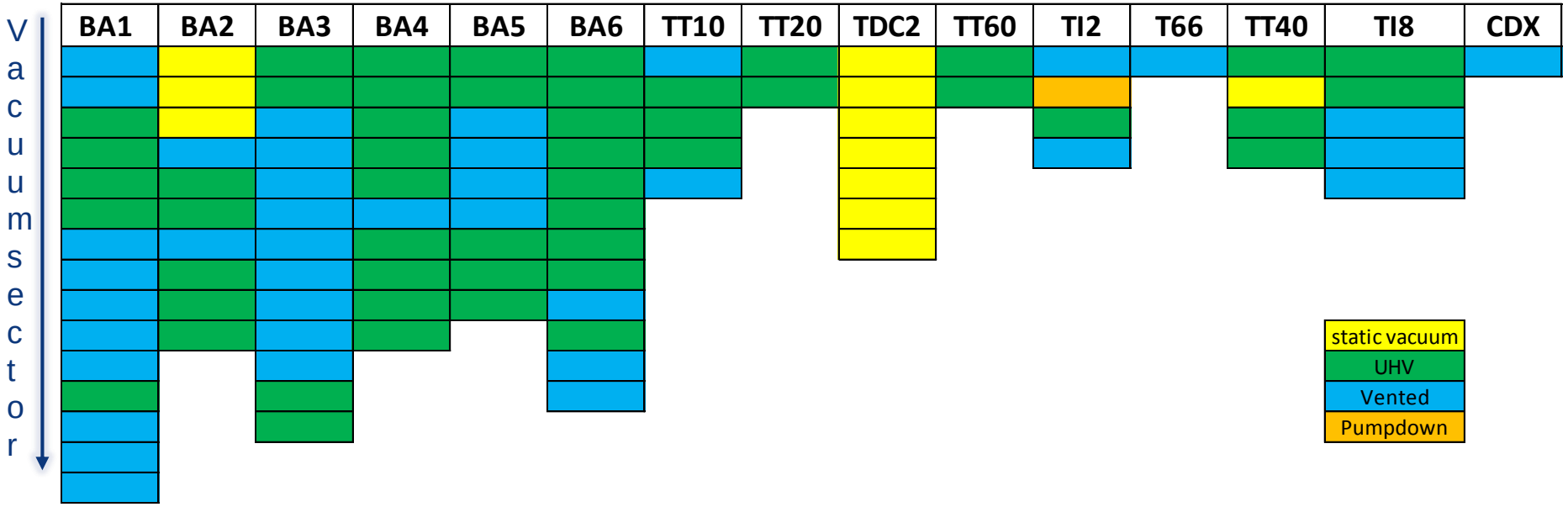




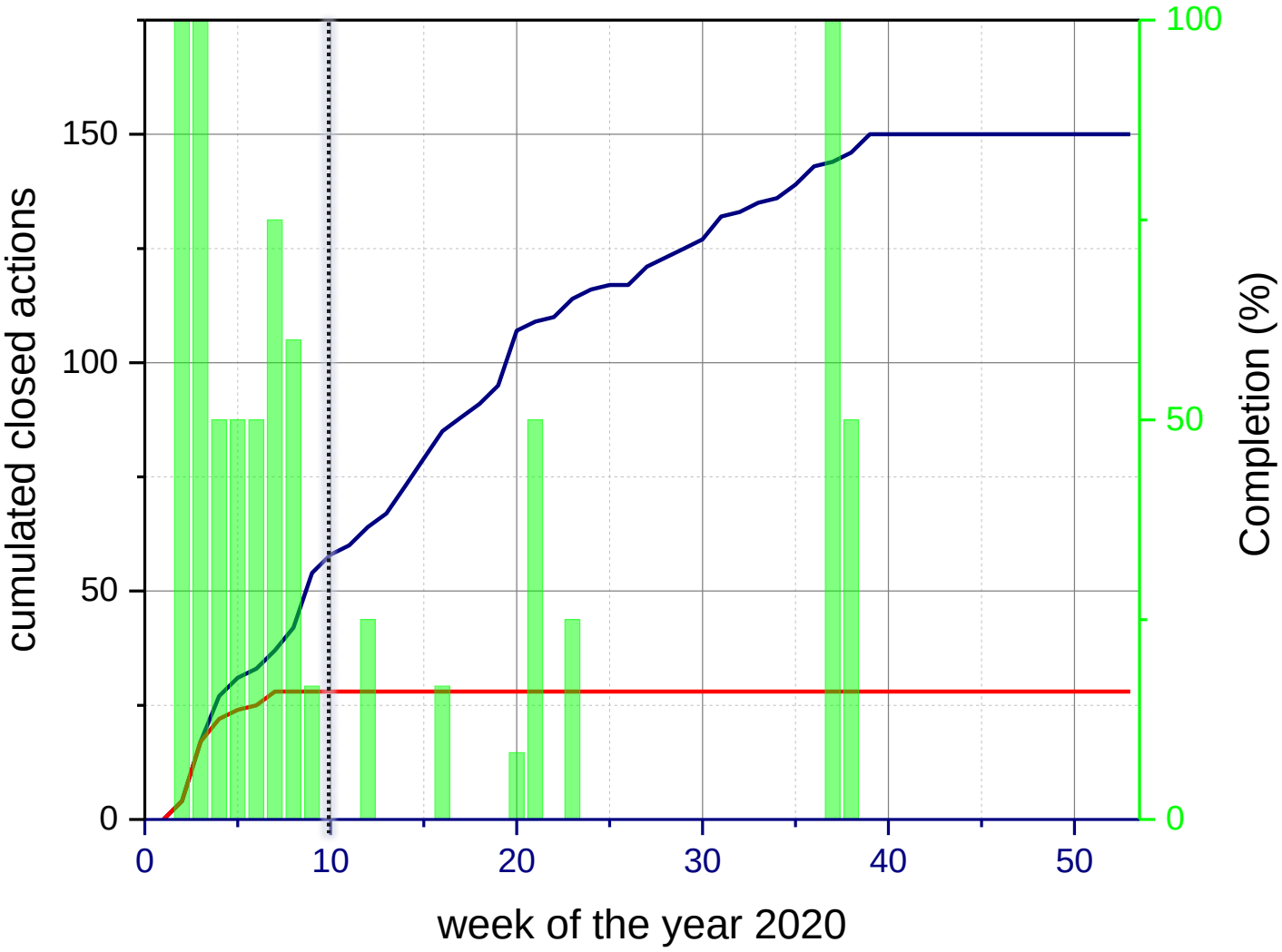
# TDC2 – LS2 unforseen actions

- First Collimator exchange;
- Exchange of the vacuum chambers downstream both sets of splitters due to corrosion (≈ 10 chambers).
- Needs an ECR cause some chambers have been welded in place at their first installation.
- Sector with Splitters 2 will have to be vented (risk of opening existing varnished leaks).

# Pressure map



# DASHBOARDS - 2020



# Activities of the next 2 weeks

- BA1:
  - Pumpdown of 111-112;
  - Pumpdown of 135-136-142;
- BA3:
  - Installation of the 6th cavity sector; 1st cavity sectors installation completion with sector valves;
- BA4:
  - FWS leak detection;
- BA6:
  - Pumpdown of 661 and 662;
- TI2 – TI8:
  - Pumpdown of TI8 line;

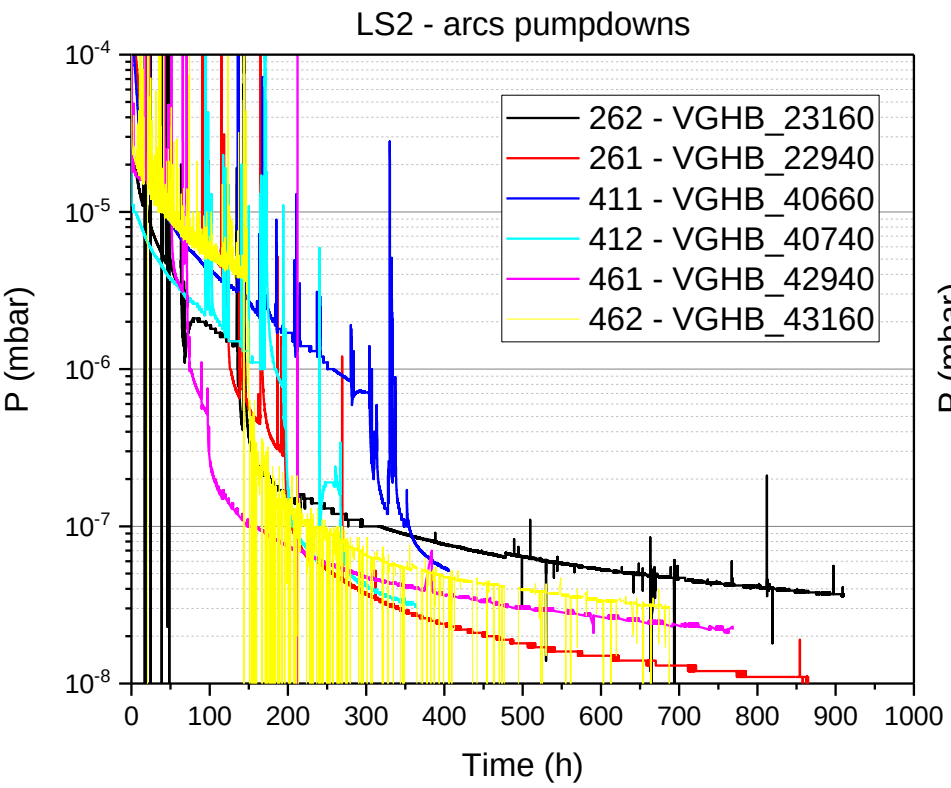
# Resources distribution

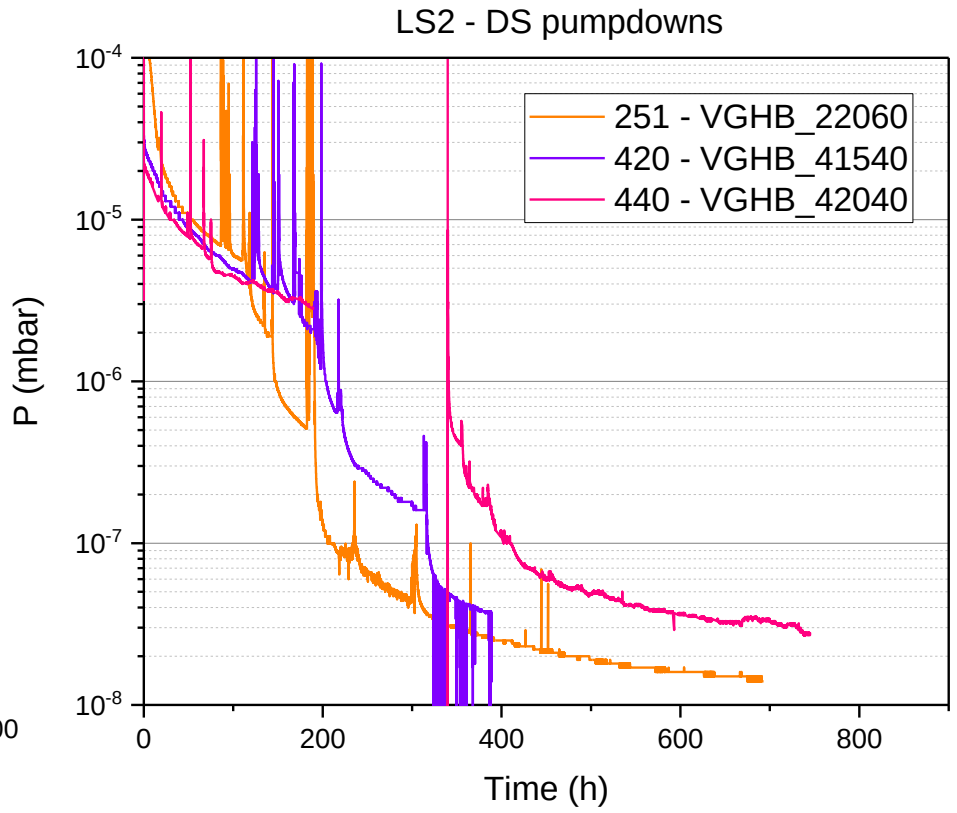
- LSS1 reinstallation: Tony
- LSS3 reinstallation: Jarmo
- Arcs pumpdown and leak detection: Jarmo, Anthony, BINP & 40/30;
- Support to aC coating: Tony & Jarmo;
- Acceptance test & lab activities: Tony;
- Jobs follow-up & ECR update (Design & Production): Chiara & Tony;
- Stock check and purchasing: Chiara & Tony.

# Thank you !


CERN
LS2
Technology Department
TE
Vacuum
Surfaces
Coatings

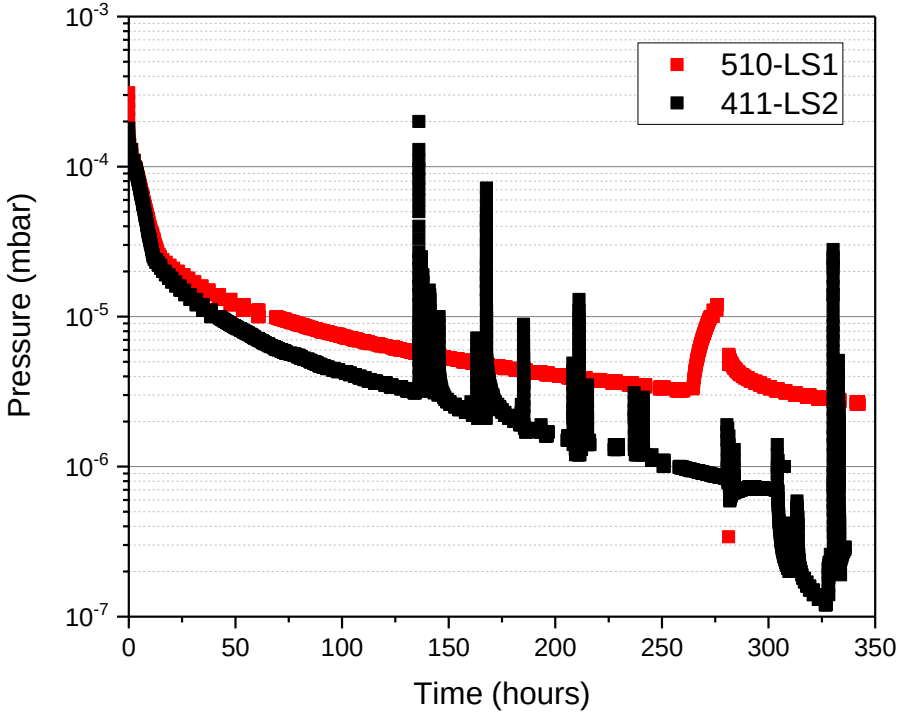
# Pumpdowns

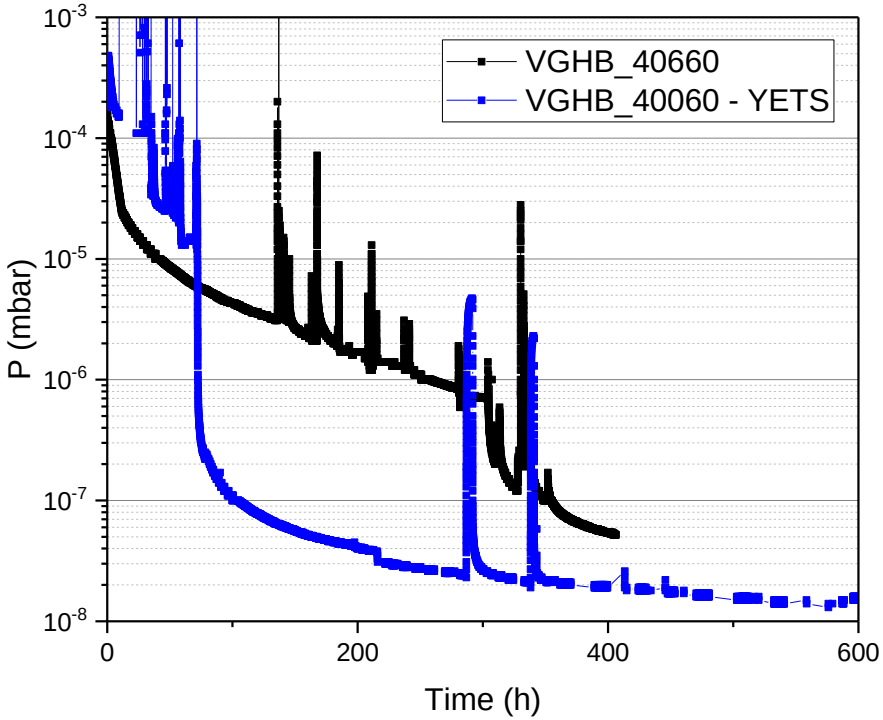



Lengthy pumpdowns (ion pump flashing) – arcs/DS are behaving all similarly.

# Pumpdowns

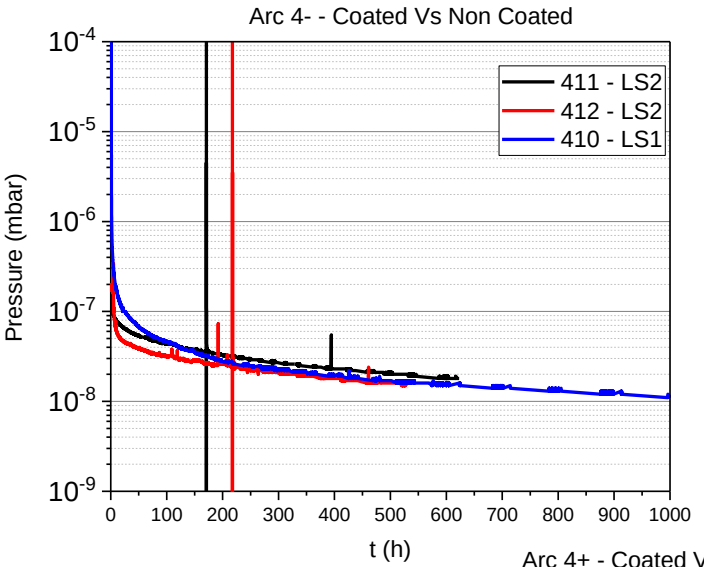


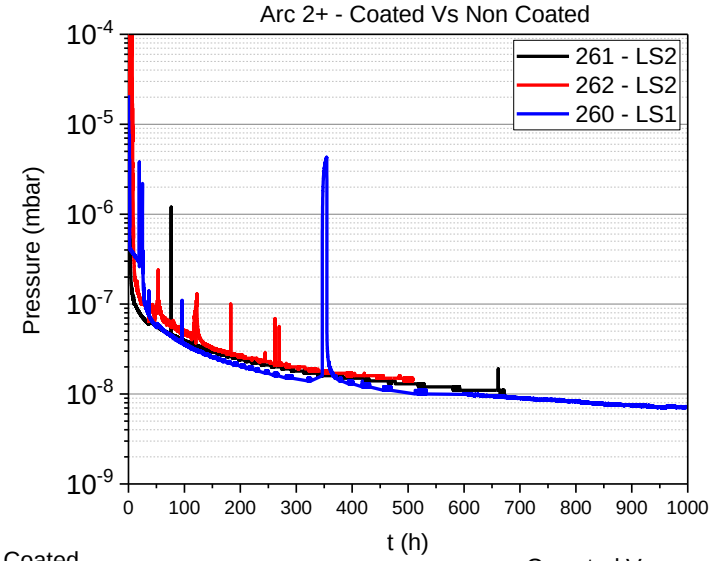



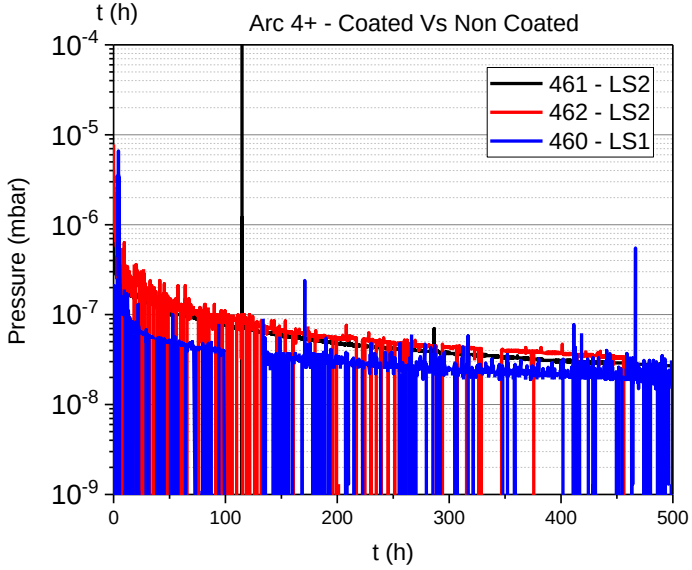

Lengthy pumpdowns in LS1 too, very similar pumpdown considering we are comparing 1 arc with an half arc (double pumping speed).
For info: 510 – LS1 1 year exposure; 411 – LS2 3 months exposure;

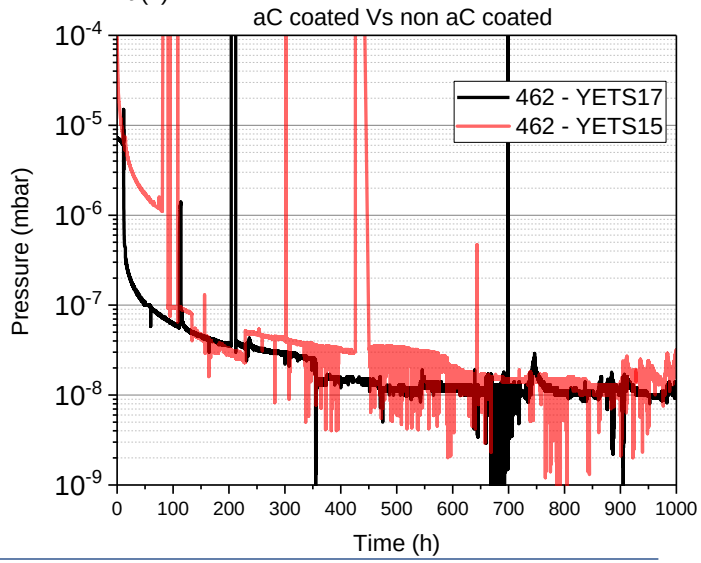
Longer exposure --> difficult flashing.

# Pumpdowns – aC coated Vs uncoated sectors (once on ion pumps)



# Pumpdowns - summary

- Pumpdown on TMPs is strongly dependent on:
  - Exposure time to air:
    - Location of the openings, length of the intervention;
    - It strongly affects the behaviour of the ion pumps during flashing; → is becoming a limiting factor (all SPS pumping groups are in use at the minute).
    - New ion pumps shows a more ‘stable’ behaviour to flashing, but still the process is lenghty in time.
- For long exposures (LS1 and LS2), pumpdowns are very similar for coated and uncoated sectors;
- Pressure recovery once on ion pumps, is very similar for coated and uncoated sectors, after long exposure.
- After LS2 I would test ion pumps performace at different exposures to air/N2/noble gases.