Report: 26

Activity: SPS

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Meeting 22/06/2020

CERN | LS2

Technology Department TE
Vacuum Surfaces Coatings

Activities of the past months

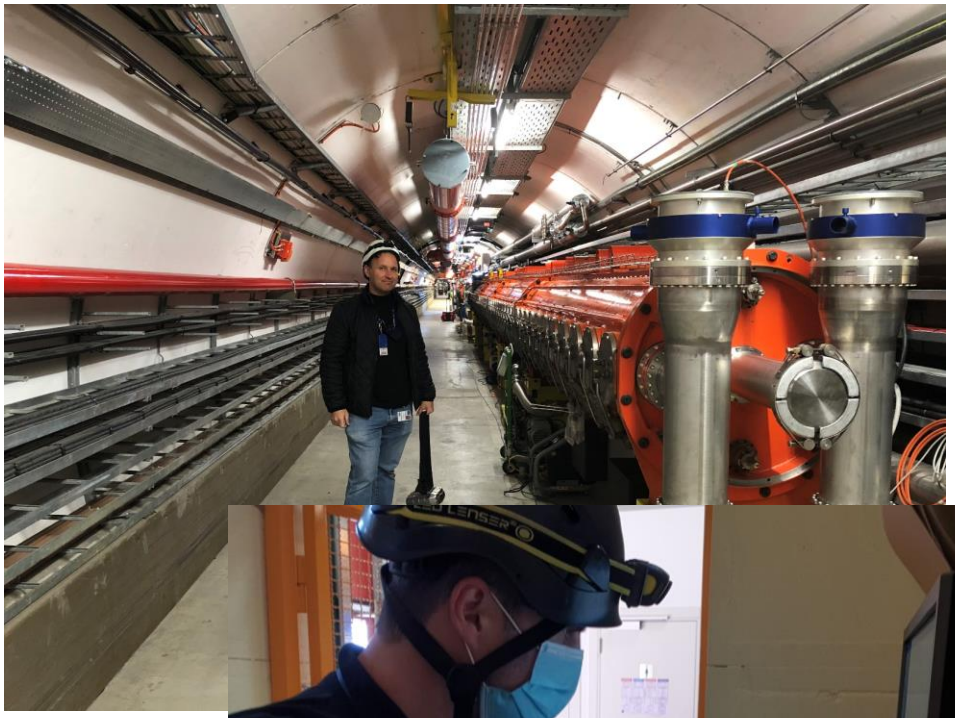
- BA1:
  - LSS1 dump reconfiguration completed;
  - aC coating activities in arc 1- and arc 1+ completed;
- BA2:
  - aC coating actvities in arc 2- : ready for mechanical reconnection, campaign completed;
  - Magnet campaign completed.
  - LSS2 :
    - Jacks replacement on the enlarged quads 216, 217, 218;
    - ZS reconfiguration;
    - SSS216 and 218 reconfiguration for impedance reduction;
    - MSE tank exchange ;
- BA3:
  - Installation of the last cavity sector 336;
  - Sectors 331, 332, 337, 339, 351 under vacuum (installation completed);

Activities of the past months

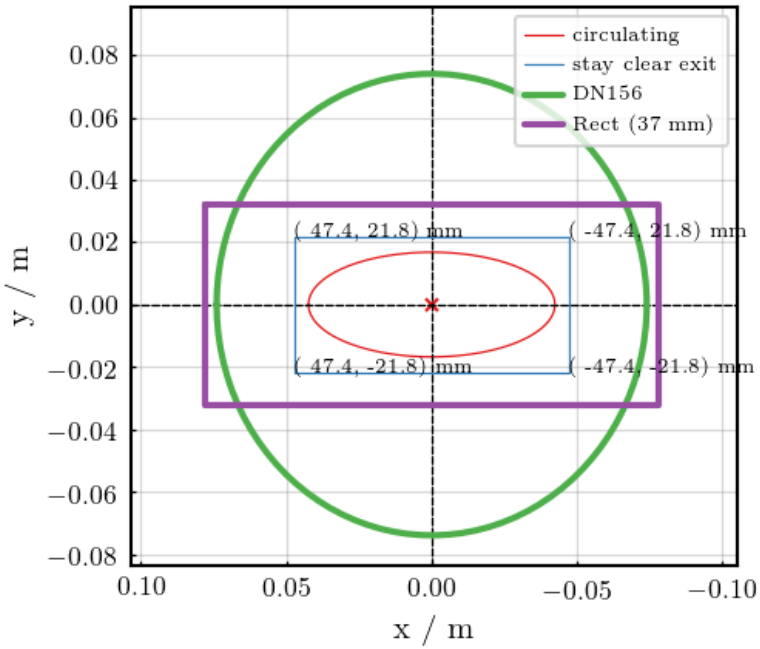
- BA5:
  - LSS5 layout checks;
  - Material preparation for installation.
- BA6:
  - Pumpdown of 661 and 662, replacement of a faulty ion pump in 651.
- TI2 – TI8:
  - Pumpdown of TI8 line: TT40, 1802.
- AWAKE :
  - Support for venting and pumping down before and after lockdown.
- LAB 113- 867:
  - 2XBCT tested and accepted;
  - 2XBTV both with non conformities: 1 leaking, 1 contaminated;

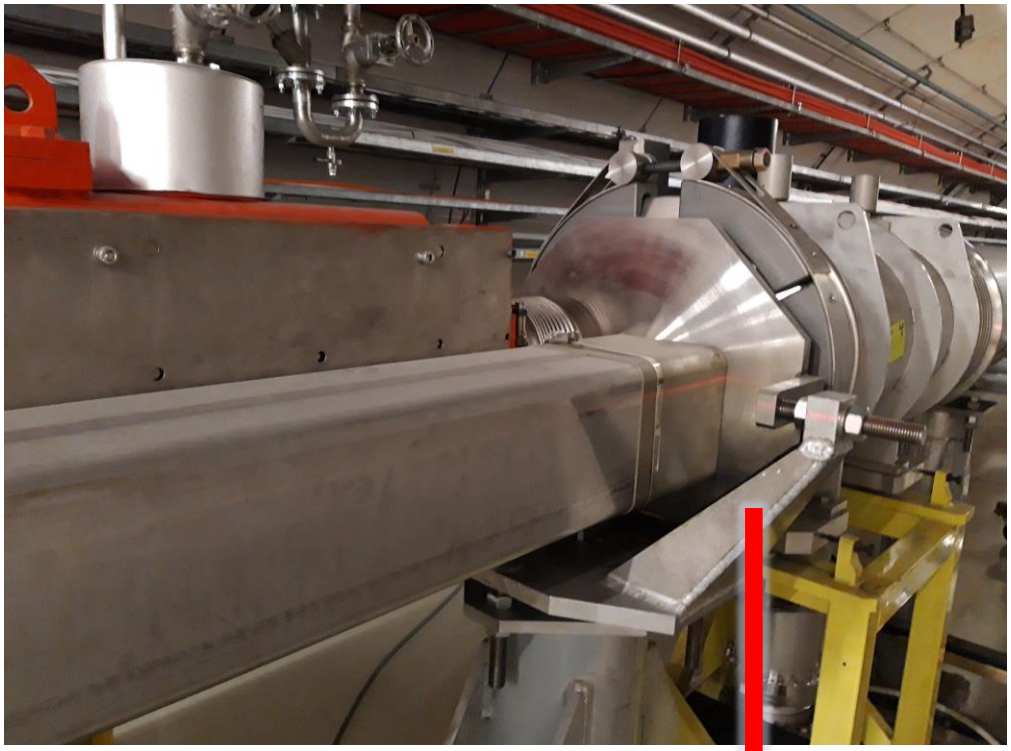
Few pics.. From LSS1 and LSS3

Pre & post Lockdown

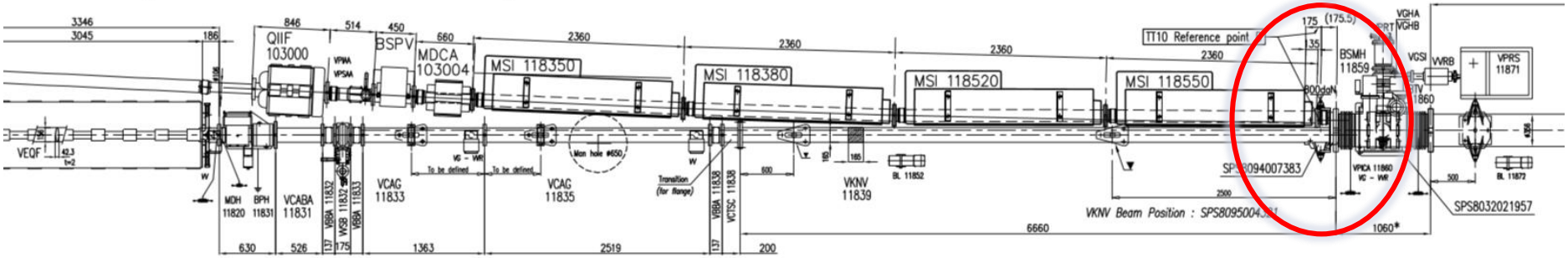


LSS1 installation: Vertical dogleg

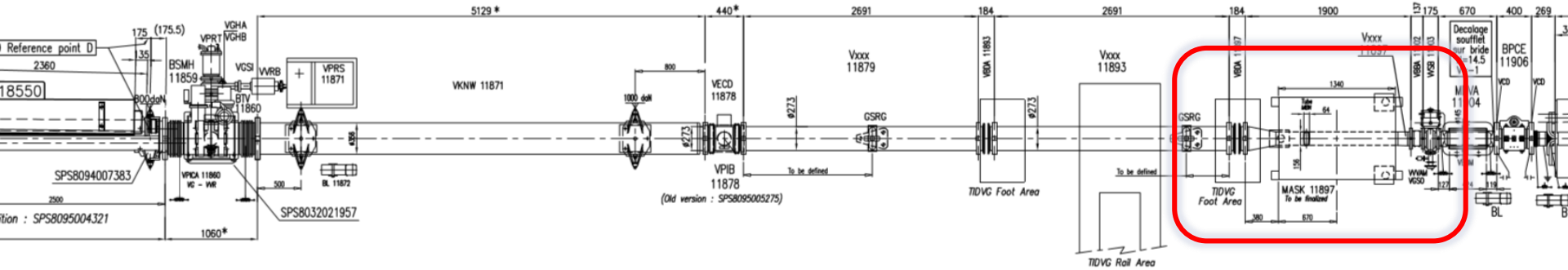




Half Period 11810-11910 - Version after LS2

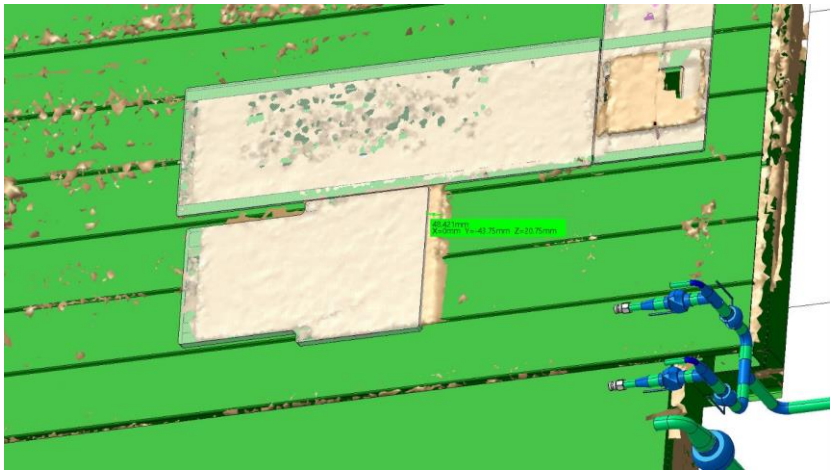


LSS1 installation: Horizontal dogleg



Mask wasn't aligned on the injected beam! Realigned now !
LSS1 is still featuring an horizontal (expected) and vertical (to be corrected in the future) voluntary displacement of the line. It will be included in a technical note not to lose track of these important information.

LSS5

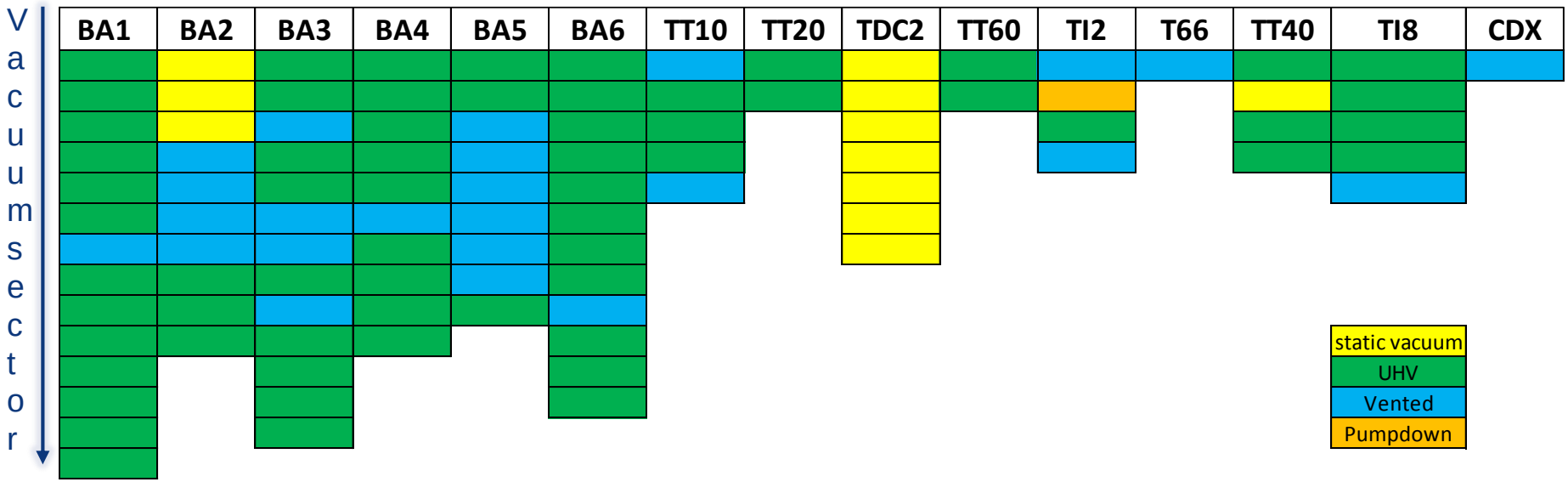


- LSS5: layout checks –few issues with the support integration on the bridge. The bridge is installed with a longitudinal and a transversal mismatch of few cm wrt the 3D beamline integration. It shows a slope as well, it goes downward towards the dump.
- Issue being checked with integration, SMB (contact with the contractor of the bridge) and EN/ACE for the bridge modifications.
- UA9 readiness: might miss the installation date during LS2, a temporary layout will be needed.

TDC2 : corroded drifts and window valves.

- ECR is being circulated and approved at the IEFC, last friday;
- Ongoing FLUKA simulations to define the energy deposition on the aluminum window gaskets (1mm, 0.5mm thickness).
- Thermo-mechanical analysis will be then performed by DLM.

Pressure map



PLANNING OVERVIEW

	June				July				August					September				
	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
BA1	aC	142				IST												
BA2			aC	ZS/MSE/IR enlag quad/Jacks/214/MBB exchange														
BA3	LSS3 - Cavities																	
BA4												COLDEX		IST				
BA5												LSS5 - SBDS						
BA6					IST				CRAB CAVITIES - TT60			IST						
TI2															IST			
TI8	1803 -1805														IST			
TT10						IST												
TT20															ION PUMPS + WINDOW VALVE			
TDC2																		

aC	
40-30	
SPS + sharing	

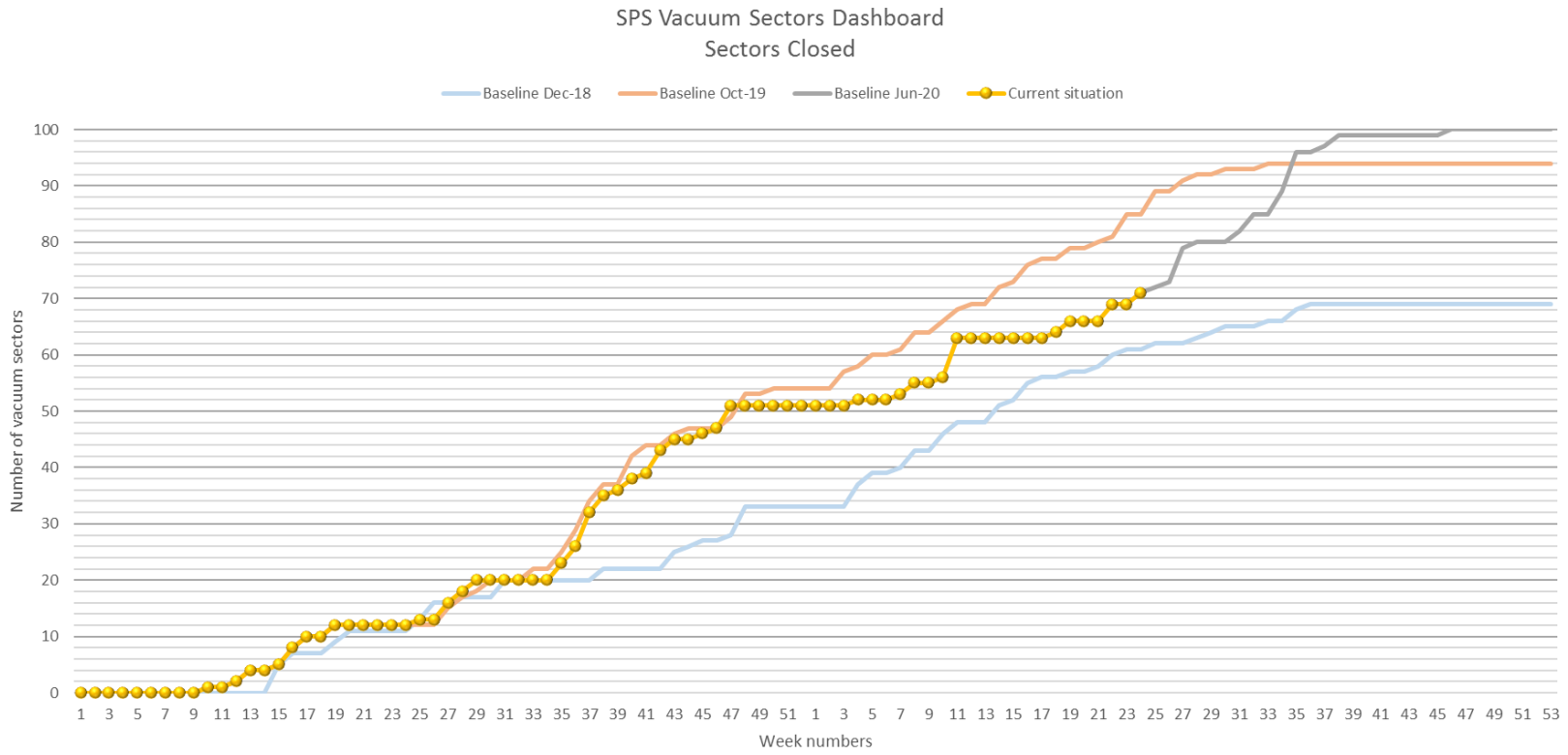
New official closing date : 4th December.

With the actual planning, we should have resources enough to complete all LS2 activities.

TI2 additional campaign…

	October					November					Dec	
	40	41	42	43	44	45	46	47	48	49	50	
			IST									
				IST								
						IST						
E			IST									

DASHBOARDS - 2020



Courtesy of A. Grande

Activities of the next 2 weeks

- BA1:
  - TT10 passage pumpdown;
- BA2:
  - ZS reconfiguration;
  - MSE exchange;
- BA3:
  - Installation of the last cavity sector;
  - 321 reinstallation;
- BA5:
  - Material preparation;
  - 561 pumpdown;
- TI2 – TI8:
  - Pumpdown of TI8 line - 1805;
  - TI2 : in discussion with coordination for a possible complete realignment of TI2…
- Jobs : launch the production of drifts for UA9 and TDC2.

Resources distribution

- LSS5 reinstallation: Tony
- LSS3 reinstallation: Jarmo
- Arcs pumpdown and leak detection: Jarmo, Anthony, aC Coating & 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 !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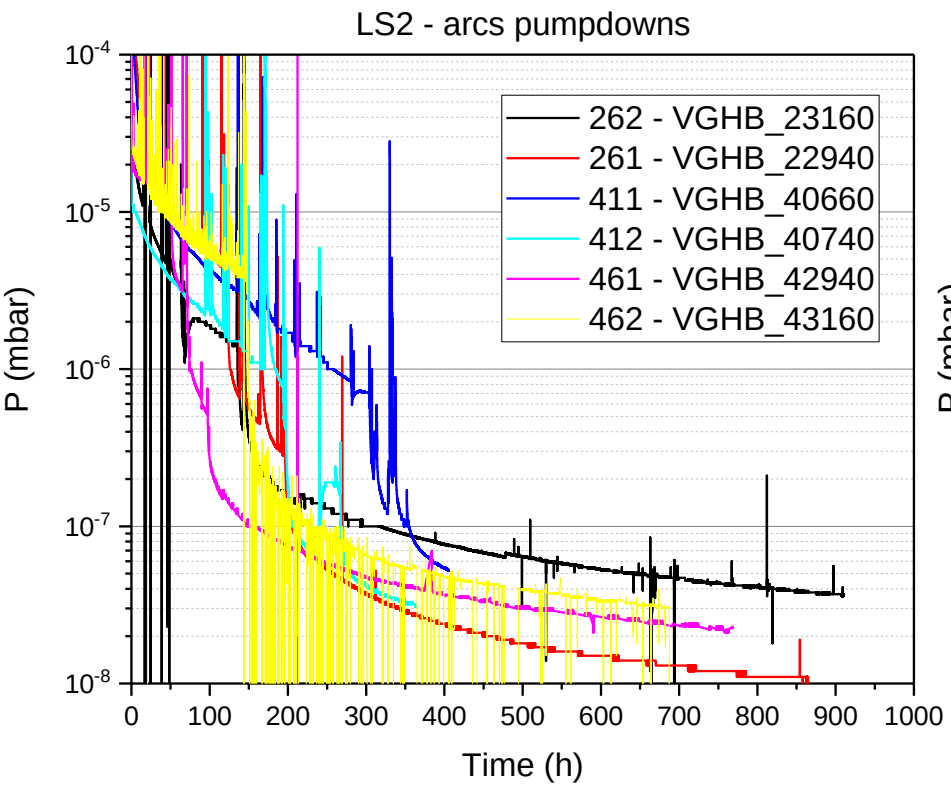
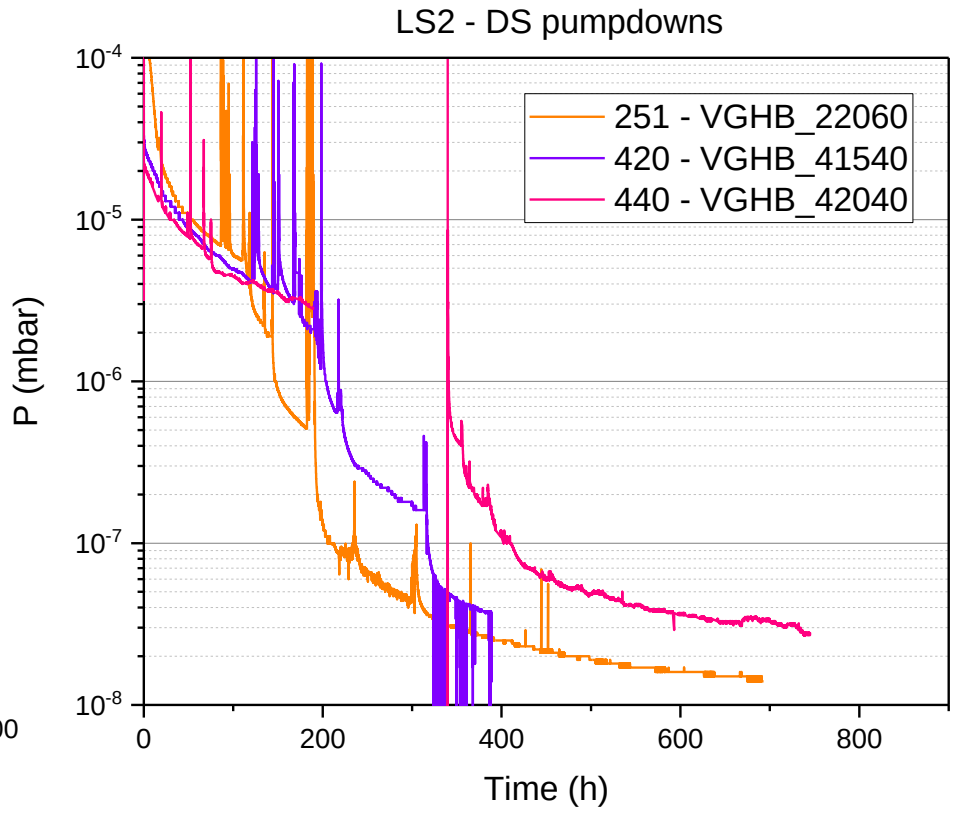
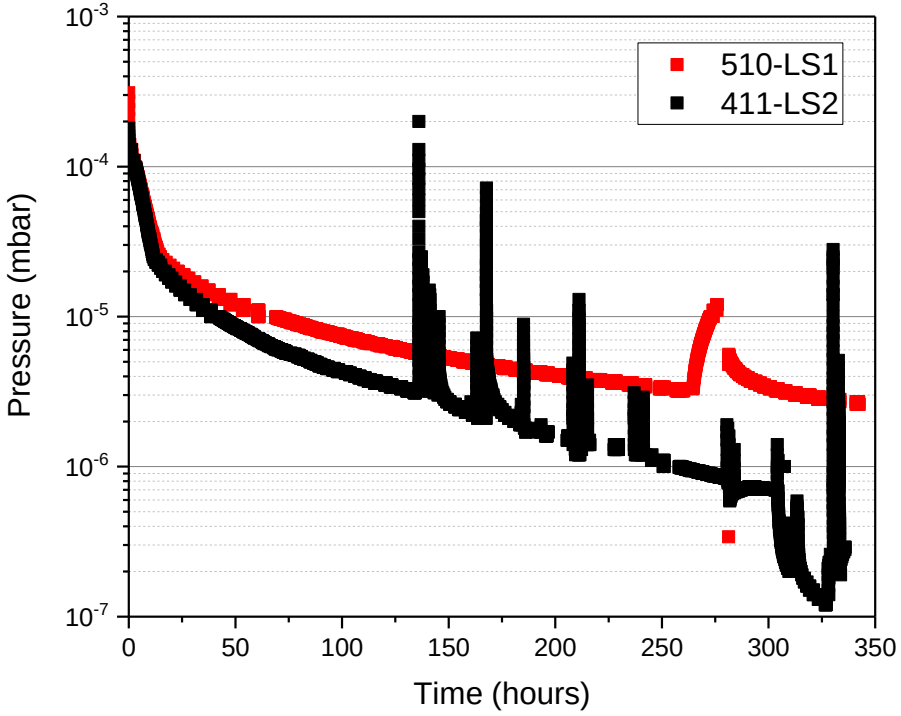
Pumpdowns

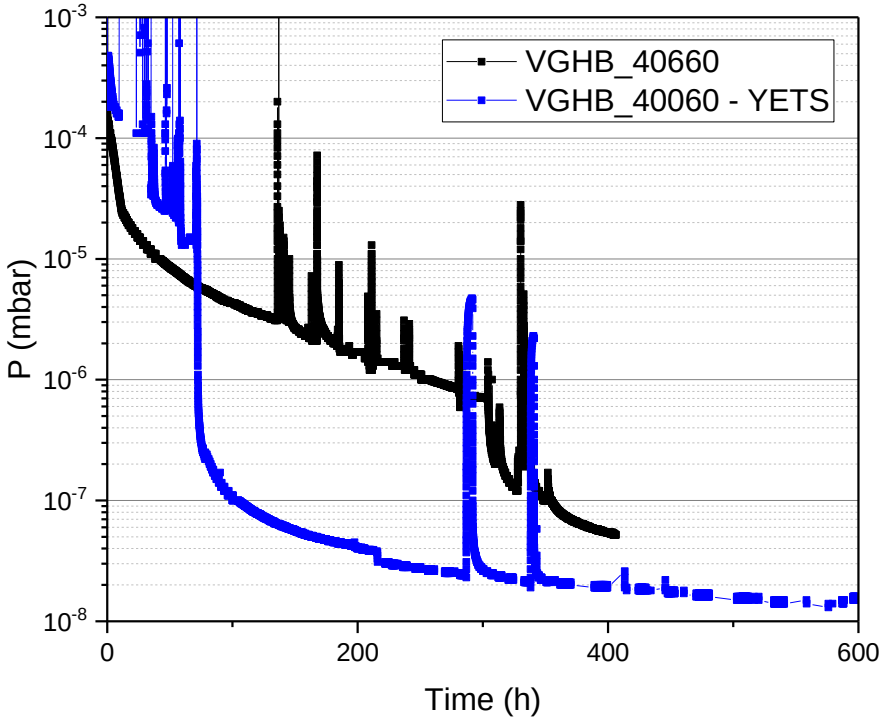




Lengthy pumpdowns (ion pump flashing) – arcs/DS are behaving all similarly.

Pumpdowns

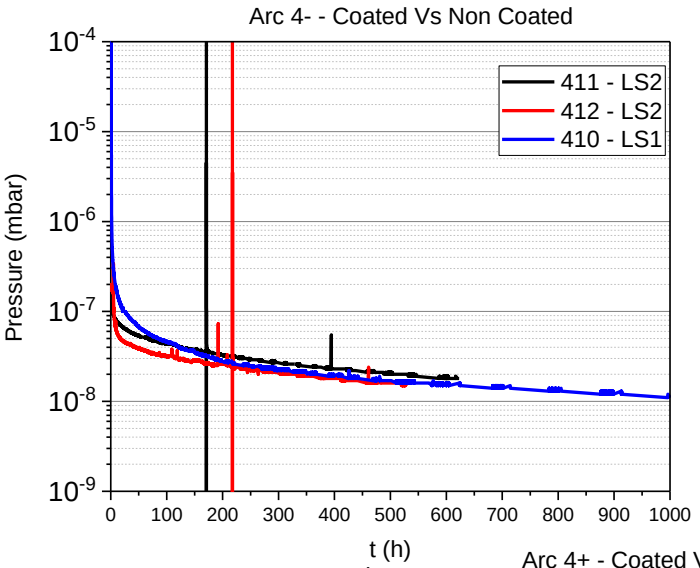


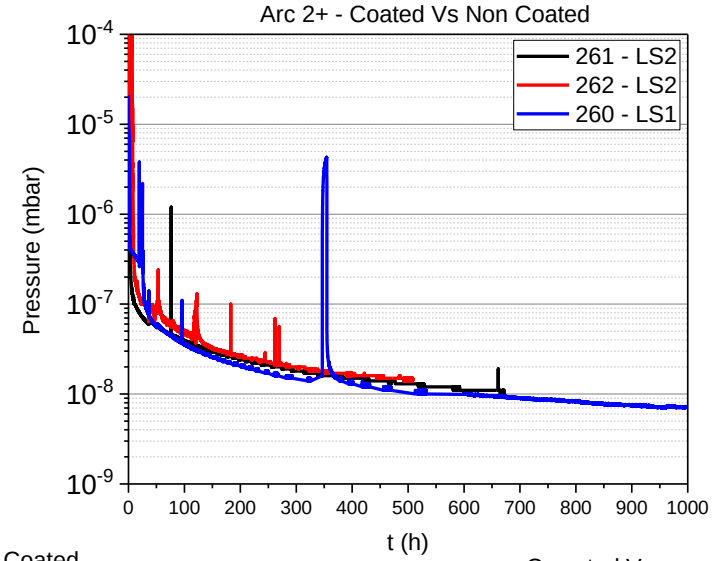


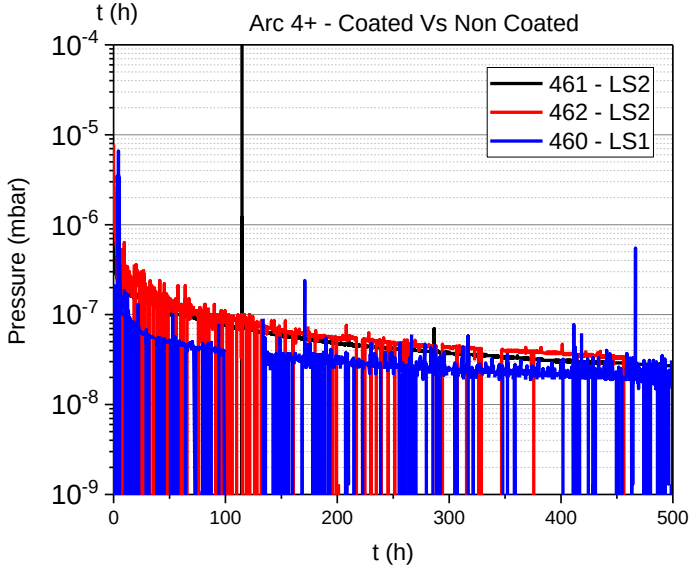
Lengthy pumpdowns in LS1 too, very similar pumpdown considering we are comparing 1 arc with an half arc (double pumping speed).
For info: 510 – LS1 1 year exposure; 411 – LS2 3 months exposure;

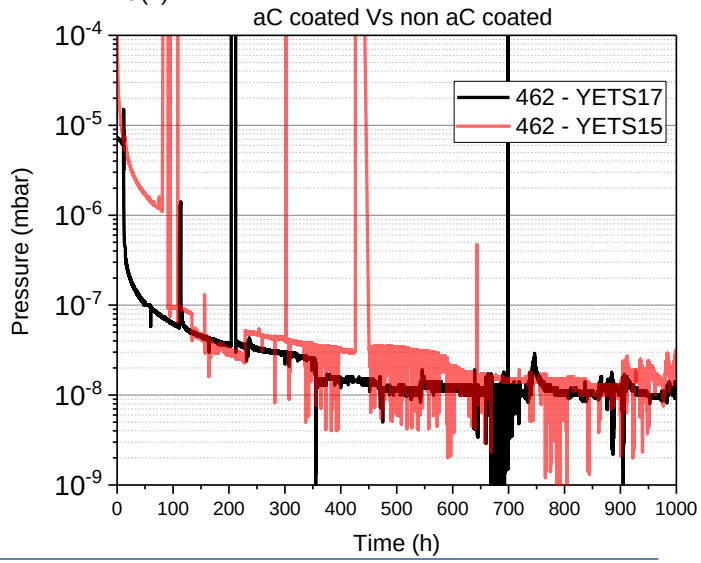
Longer exposure --> difficult flashing.

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.