ICM activities: LHC, SPS, CPS

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CERN | LS2

Technology Department TE
Vacuum Surfaces Coatings

Performed activities
W31 (Pablo, Abel N. & FSU)

- **LHC Planning and Coordination:**
  - **LS2 Planning Updating and Readjustment:** Re-scheduling and status updating of on-going and completed tasks, including new updated Burndown Chart.
  - **LS2 BV Commissioning Planning Adjustment:** Re-scheduling of foreseen beam vacuum commissioning actions in view of the new LHC cooldown-powering schedule.
  - **BWS Cabling Request Modification:** Addition of 1x new cable for the new VPI configuration resulted from the recent BWS sectorizations (LSS4L).
- **LHC DB** (VACCO-3847)**:**
  - **LSS4R:** VGRB and VGIA missing in sector F5R4.B. Solved, both gauges now in 'Use', however unable to change Type for VGRB from DB editor.
  - **LSS8L:** SVCU DP Parameters inverted between blue and red beams valve controllers. Solved, DP parameters re-inverted, now properly configured.
  - **TI2-TI8:** Aesthetics changes, sector names shortening, no need for “vacsec” extension (i.e. 1205, is enough) Solved, new names only include transfer-line's name and sector, (i.e "TI2.1205")
  - **HL-LS2 Projects:** Missing VR_GT objects for recently added TPGs, mainly for new LS2 projects, requiring declaration and proper configuration. Already started for TCLD 11L2, currently on-going.

Planned activities
W32/W33 (Pablo, Abel N. & FSU)

- **LHC BV Commissioning Phase:**
  - **LSS8R:** First contact with field commissioning, teach and review existing procedures. Perform full commissioning of LSS8R (Gauges, Pumps, Valve Chains, Interlocks, NEG, Solenoids, etc.) on W33.
- **LHC DB** (VACCO-3847)**:**
  - **ITL:** Pending interlock corrections, configurations which need rollbacks after BVO's LS2 interventions (pump and gauges replacements).
  - **ALICE:** VGRB.42.1L2.X will be relocated to the opposite side of the IP2. New position will be identical with the sector valve. No VGRB.42.1R2.X in Layout DB, gauge shall be introduced manually in VacDB.
  - **TDIS C4R8.X:** Wrong itl configuration, using pumps instead of new relay objects. Missing VA_RI objects, which need to be added and VVGS Prev./Next configuration modified.
  - **BGC C5L4.B/B5L4.B:** TPG Channels inversion at DB level, needs to be corrected and gauges properly assigned to their corresponding controller.
  - **ARC78:** to remove the sectorization of the TCLD: 4 x VGPB, 2 x sector valves, 2x VPNNG and 1 x VGRB Following BVO's request
  - **LSS7:** Additional NEG cart. in LSS7 based on the ref. ECR. Potential need to add them manually
  - **Other minor issues**, listed under the JIRA ticket VACCO-3847.

BV Commissioning Plan

ICM Commissioning Phase Activities					
Beam Vacuum Controls Commissioning Activities	Group	Resources Names	Duration	Start	Finish
[LSS1] Point 1 Beam Vacuum Controls Commissioning Activities	ICM-LSS	BVO,Pablo P.,Abel N.,FSU	10 days	Mon 23/11/20	Mon 07/12/20
[LSS2] Point 2 Beam Vacuum Controls Commissioning Activities	ICM-LSS	BVO,Pablo P.,Abel N.,FSU	10 days	Mon 09/11/20	Mon 23/11/20
[LSS3] Point 3 Beam Vacuum Controls Commissioning Activities	ICM-LSS	BVO,Pablo P.,Abel N.,FSU	10 days	Mon 26/10/20	Mon 09/11/20
[LSS4] Point 4 Beam Vacuum Controls Commissioning Activities	ICM-LSS	BVO,Pablo P.,Abel N.,FSU	10 days	Mon 24/08/20	Mon 07/09/20
[LSS5] Point 5 Beam Vacuum Controls Commissioning Activities	ICM-LSS	BVO,Pablo P.,Abel N.,FSU	10 days	Mon 28/09/20	Mon 12/10/20
[LSS6] Point 6 Beam Vacuum Controls Commissioning Activities	ICM-LSS	BVO,Pablo P.,Abel N.,FSU	10 days	Mon 12/10/20	Mon 26/10/20
[LSS7] Point 7 Beam Vacuum Controls Commissioning Activities	ICM-LSS	BVO,Pablo P.,Abel N.,FSU	10 days	Mon 14/09/20	Mon 28/09/20
[LSS8] Point 8 Beam Vacuum Controls Commissioning Activities	ICM-LSS	BVO,Pablo P.,Abel N.,FSU	10 days	Mon 10/08/20	Mon 24/08/20

Performed activities

W30/31 (Rodrigo)

VELO

- Checked and corrected Josef's modifications of new VELO ACP28 dry pumps (to remove on-board electronics)
- Reconfigured the drive in the control crate for proper output for the new motor (170V@80Hz)
- Setup is currently installed in B113. We will perform load tests with the new configuration for a few weeks before anything is installed in the VELO pit in LHCb

LHC

- Debugged and fixed Profibus mobile related problems
- Checked and corrected issue with missing VPP current measurement for some groups after power cut

S7200 Based VPG Problems

- Found the conditions to replicate the problem reported by BVO (plus other dangerous situations that might occur)
- Currently going over the PLC code to implement fixes for the above problems

Performed activities
W30/31 (Lampros, Alexandre)

- Commissioning Sector 12: 70% completed
  - Deadlines: w31 for VPGF; w32 for sub-sector gauges, valves and CRYO alarms
  - All VPGFs tested
  - Piezo gauges calibration P1 right side
  - Gauges for IV & BV tested up to 24L2
  - Valves tested up to 33R1

- Functional tests of VPGFs Sector 23
  - All VPGFs of Sector 23 were tested
  - Replacement of ACT250R controller at 23R2.M, 24L3 pending
  - Installed local crates & started Inner triplets VPGs, P2 right side

Performed activities
W30/31 (Lampros, Alexandre & FSU)

- DLM support:
  - Inner triplets at Point 5: many issues were found. Fixed and started 3 VPGs.
  - 15L8 VPG: Stacked VPP. Circuit breaker in the Distribution panel was tripped. Intervention with TS/EL.
  - 15R7 VPG: ACT250R controller replacement.
  - Point 8 Inner triplets: VPGs were swapped at SCADA level. Rodrigo fixed the problem in SCADA and VacDB.

- Rack closing/IP2X campaign: 90% completed
  - Still missing UA27 (not installed yet) and a final check.

- Local Crates production:
  - Inspection for non conformities & repairs. FSU prepared 6 pcs in order to finish LHC installation.

Performed activities
W30/31 (Lampros, Alexandre & FSU)

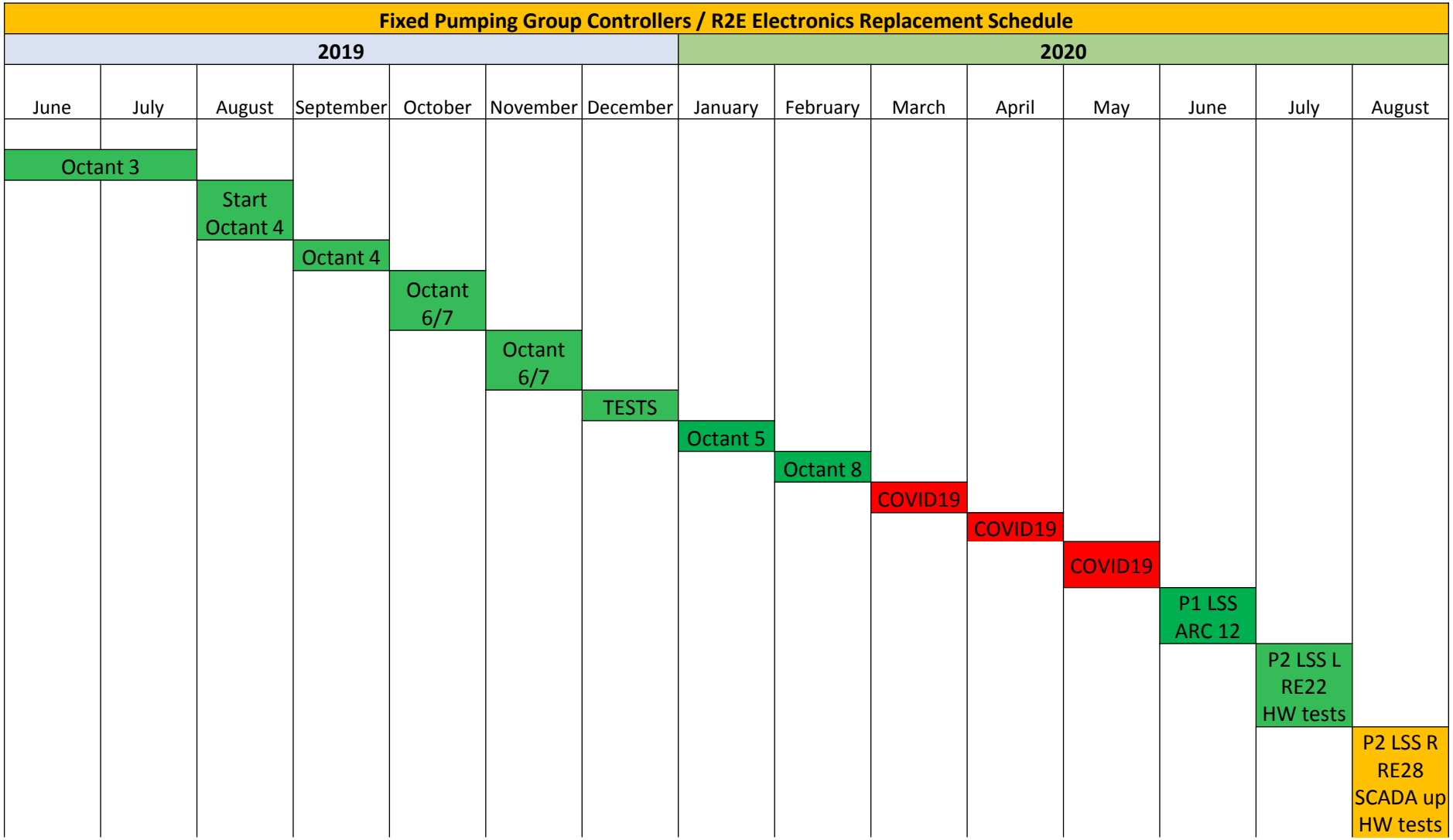
Commissioning Sector 12

Damaged connector on multivalve block of 2R5.M

Planned activities
W32/33 (Lampros, Alexandre & FSU)

- Finish Commissioning Sector 12: Gauges, Valves & CRYO Alarms
- Start commissioning Sector 78

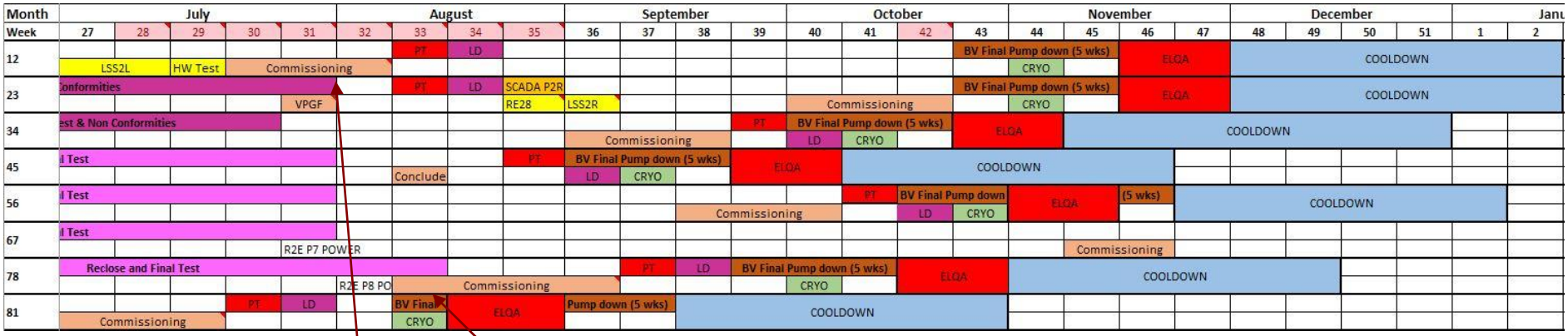
VPGF, RadTol electronics, Gauge controllers plan



Finish S12 commissioning

Start S78 commissioning

IV Commissioning planning



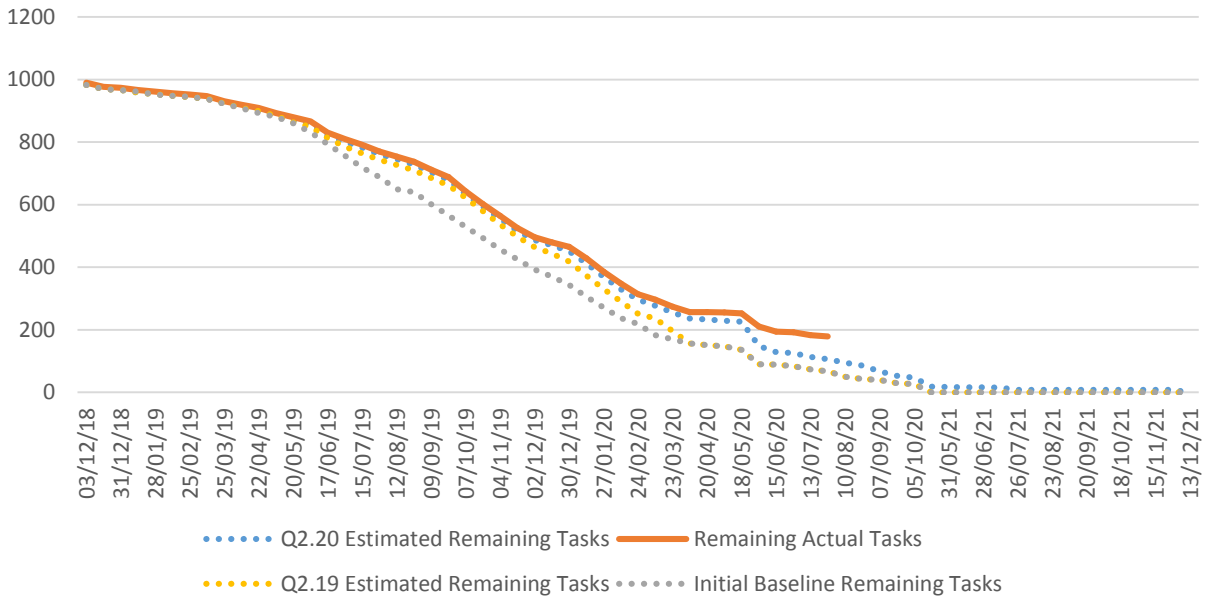
Commissioning S12
Functional tests VPGF S23

Commissioning S78

LHC Burndown Chart

W30/W31 (Pablo, Lampros, Nikos)

Beam Vacuum, Experiments, Insulation Vacuum, R2E:



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Performed activities

W30/31 (Abel G.)

- SPS-BA2:
  - VPIA_20601 in sparking (Fischer connector damaged at rack level)
- SPS-LSS2:
  - marking all the positions in LSS2 with EN-EL to prepare the cabling campaign
- SPS-BA5:
  - VPIA_53520 (Sparking in Agilent happening randomly every few hours: solved after replacement of all the local cables)
- TI8 (LHC side):
  - VPIAL_87005 (high current in ion pumps chain, pump damaged)

Performed activities

W30/31 (Abel G.)

- ISOLDE:
  - Cabling and testing DUO 11 tri-phase primary pump
- REX:
  - Consolidation of TRP14 turbo-pump from Alcatel to Pfeiffer (pulling 15m cable from rack to pump with 2 boxes Pfeiffer solution)
- MEDICIS:
  - Closing of VPP crates following electrical safety consolidation
  - RDA3 update for CMW publication (done by Andre)

Performed activities

W30/31 (Abel G.)

- PS complex (L3, L4, PS, PSB, TT2, LEAR) and ISOLDE complex (ISOLDE, REX, HIE-ISOLDE, MEDICIS):
  - Leave the machines in safe mode and turn all the power outlets off in view to the AUG test. Turn them back on once tests were finished (w/ J. Ferreira)
- Fix some issues linked to the AUG tests in PSB:
  - 2x VVS DP MUX cards broken
  - Several TPG300 lost the configuration
  - BTP.VGP01 pumping group not reachable

Thank you !


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