

Report: #30

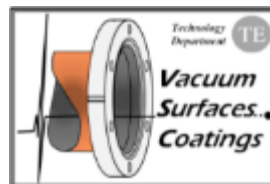
Activity: ICM LHC, SPS, CPS

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2nd of March 2020



LS2



Performed activities during last 2 weeks LHC

W8/W9 (Pablo)

Coordination, Database, Services, Beam Vacuum and Experiments:

- **LSS3 (w/ Abel TTE):**
 - **B5L3.B:** VPGM and bake-out racks connection
 - **LSS3-ARC34:** non-conformities (heating collars), instrumentation checking and Q13R3 VGP tests
- **LSS5 (w/Abel TTE, FSU):**
 - **TE Electrical safety actions:** SVCU crates closing, VRJIA boxes IP2x covers, etc. (On-going)
 - **USC55:** Vacuum controls rack consolidation for LS2
 - Rack mechanical re-arrangement, alignment, cabling and connectors modification
 - Material preparation and testing, self-transport and logistics
 - Agilent VPI controllers' crates installation, connection and configuration
 - Profibus network consolidation, interlock schematics and implementation
- **LSS6 (w/Abel TTE, BVO):**
 - **TD62-68:** Ion pump chain troubleshooting-support and tests (w/ VPI simulators, charges, local Power Supply)

Performed activities during last 2 weeks LHC

W8/W9 (Pablo)

Coordination, Database, Services, Beam Vacuum and Experiments:

- **LSS7 (w/Abel TTE, Jose):**
 - **A6R7.R TCPPM.D:** Instrumentation checking, equipment reconnection and support
 - **LSS7:** non-conformities (heating collars), existing NEG consolidations-cable pulling and tests
- **VELO (Rodrigo)**
 - Installed VELO Signal Box Patch Panel and pulled respective cables between racks
 - Removed all unused cables and wiring and installed new wiring for the VELO signal box
 - VELO signal box finished
- **VGR calibration in the ARCS (Nikolaos)**
 - ARC 56 and 81: calibration under static vacuum
- **BVO-ICM Common Activities (w/ Henrik, Abel TTE)**
 - See power point [here](#) (incl. Q7 Pirani calibration campaign)
- **VacDB, PLC and SCADA Update (w/ Gregory, Sebastien, Rodrigo)**
 - LSS7 VPI relay objects (VA_RI): PLC FB debugging and corrections (including new PLCM)

Performed activities during last 2 weeks LHC

W8/W9 (Pablo)

Coordination, Database, Services, Beam Vacuum and Experiments:

LSS5: LS2 Vac. Controls Rack and DP Cons.



LSS5: Pallet Self-Transport and Logistics



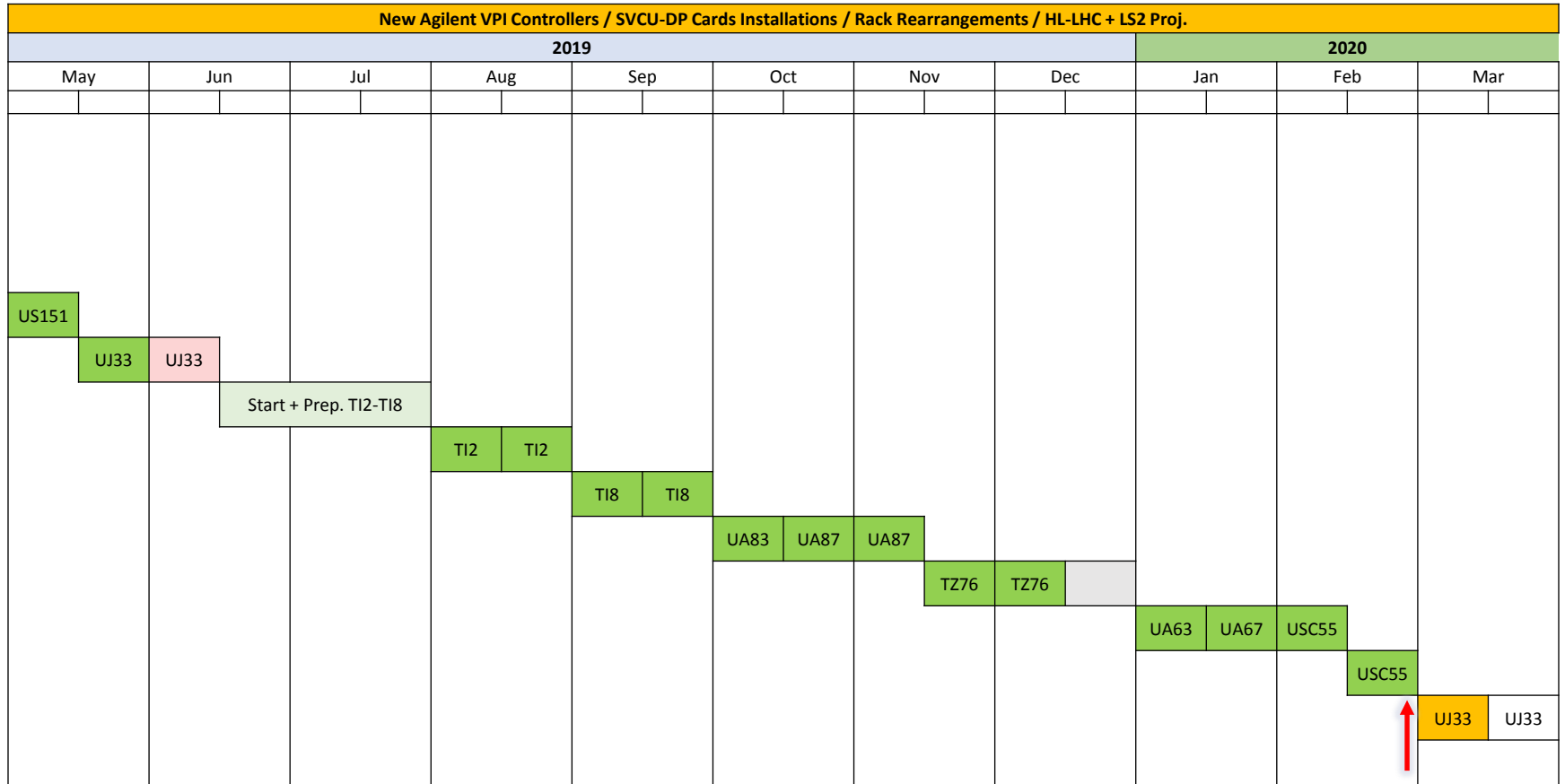
LSS7: Exist. NEG Cons. and Non-conform.



TE Elec. Safety: IP2x SVCU Crates Closing



LHC Racks Consolidation Timeline (BV)



LHC Cabling Campaigns Status (BV+IV)

| Sector | Signal | Power | Ethernet |
|--------|---|--|---------------------------------|
| S12 | VPGF IT1R: start 04/20 ARC12: start 02/20 TCLD L2, TDIS L2, TI2 | VPGF IT1R: ?? R2E DS (1R) | US151, RE18, RE22, UA23 |
| S23 | TCLD R2 | R2E DS | UA27, RE28, UJ32, UJ33 |
| S34 | BWS L4, BGC L4 | BGC L4 tunnel R2E DS | UJ33, RE38, RE42, UA43, UX45 |
| S45 | BWS R4 | VPGF ITL5: ?? R2E DS | UA47, RE48, RE52, USC55 |
| S56 | VPGF MKB L6 | VPGF ITL5: ?? VPGF MKB L6 R2E DS (5R) | USC55, RE58, RE62, UA63 |
| S67 | VPGF MKB R6 TCLD L7, TCSPM L7 | VPGF MKB R6 R2E DS: 03/20 | UA67, RE68, RE72, TZ76 |
| S78 | TCSPM R7, TCLD R7 VPGF IT8L | VPGF IT8 L: ?? R2E DS: 03/20 | TZ76, RE78, RE82, UA83 |
| S81 | VPGF IT8R TDIS R8, TI8 VPGF IT1L: start 03/20 | VPGF IT8 R: ?? VPGF IT1L: ?? R2E DS: 03/20 | UA87, RE88, RE12, US151 |

Performed activities during last 2 weeks LHC

W8/W9 (Lampros, Nikos)

Insulation Vacuum, LS2 slave PLC replacement and R2E electronics:

LHC Installation (w/ Peter, Alexander, Henrik and FSU)

- Octant 1:
 - 8R1.M turbo cable issue solved, prepared R2E cards, crates and mini racks
- Octant 5:
 - Tested problem with LSS TPG300 gauges. Crossed HW addresses found and fixed online.
- Octant 8:
 - VRJGE boxes modification, R2E installation, local crate modifications left ARC P8
 - Material transports and rack rearrangements in RE82 (VPGF and gauge controller, cabling and powering)
 - Local crate connectors modification from former LEP type to new R2E type in LSS5
 - UA83 & UA87 rack rearrangements, installation of GRC and some VPGF (delivery of 20 VPGF for week 10)
 - HW test of right ARC P8 (gauges, VPG, profibus network)
 - ARC81: Test control chain of VGP, calibration under static vacuum for VGRs

Performed activities during last 2 weeks LHC

W8/W9 (Lampros, Nikos)

Insulation Vacuum, LS2 slave PLC replacement and R2E electronics:

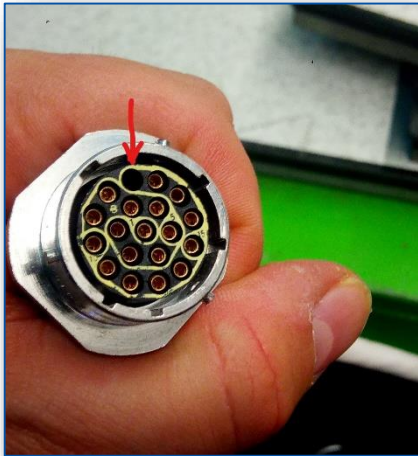
RE82 installation



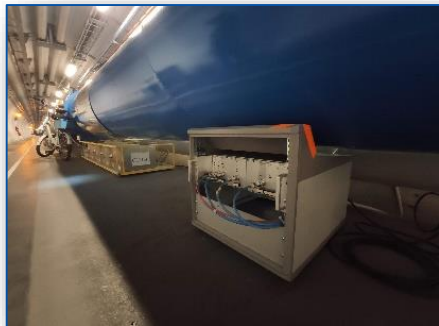
HW test P8 right side



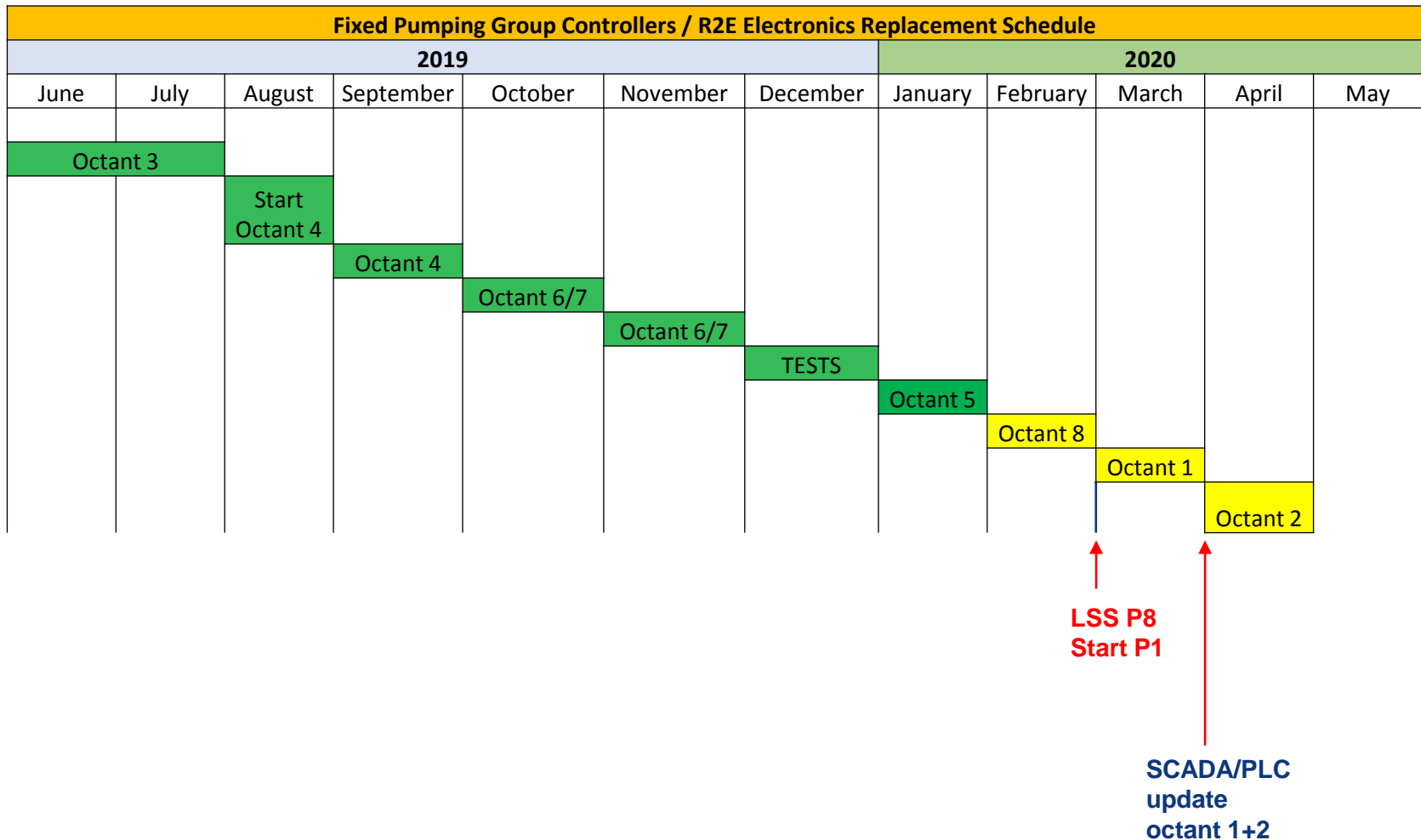
Point 1 8R1.M Cable Issue



R2E Electronics



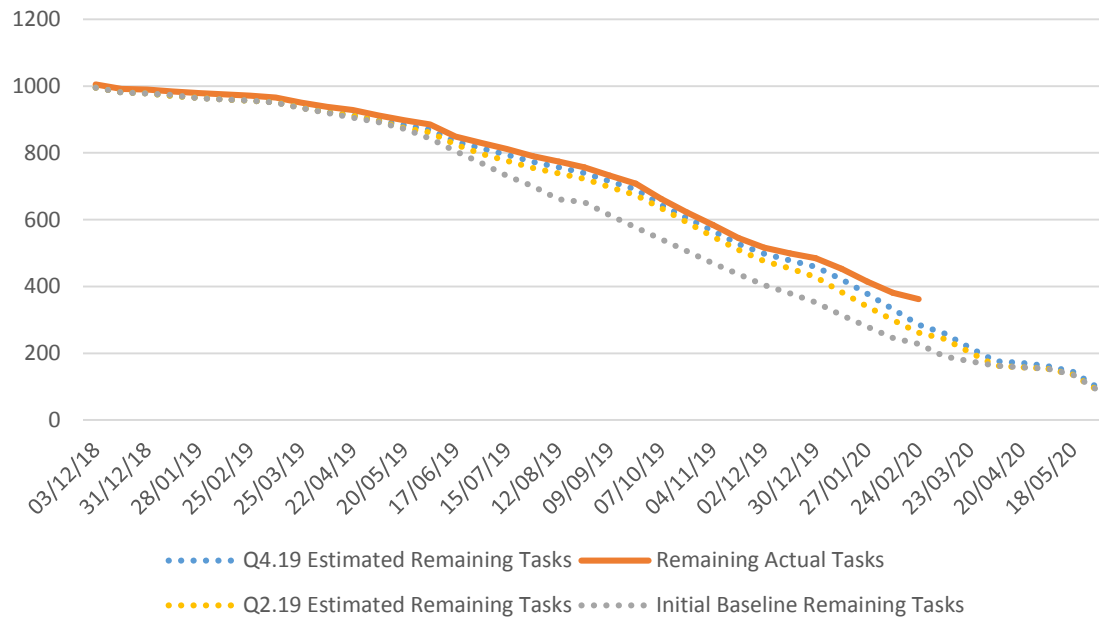
VPGF, RadTol electronics, Gauge controllers plan



LHC Burndown Chart

W8/W9 (Pablo, Lampros, Nikos)

Beam Vacuum, Experiments, Insulation Vacuum, R2E:



[\\cern.ch\dfs\Departments\TE\Groups\VSC\CM\LS2\LHC\-. General Documentation\0. Planning](https://cern.ch/dfs/Departments/TE/Groups/VSC/CM/LS2/LHC/-_General_Documentation/0.Planning)

Planned activities for next 2 weeks LHC

W10/W11 (Pablo)

Coordination, Database, Services, Beam Vacuum and Experiments:

- **LSS2 (w/Abel TTE):**
 - **TCLD P2 cabling campaigns:** follow-up, cable pulling validation and related queries
 - **A6L2-TI2 New Layout:** instrumentation checking, equipment reconnection and support
- **LSS3 (w/Abel TTE):**
 - **UJ33:** Vacuum controls rack consolidation for LS2
 - Rack mechanical re-arrangement, alignment, cabling and connectors modification
 - Agilent VPI controllers' crates installation, connection and configuration
 - Profibus network consolidation, interlock schematics and implementation
- **LSS4 (w/Abel TTE):**
 - **B5L4.B:** VPGF controllers preparation and installation
- **LSS5 (w/Abel TTE, FSU):**
 - **TE Electrical safety actions:** SVCU crates closing, VRJIA boxes IP2x covers, etc.

Planned activities for next 2 weeks LHC

W10/W11 (Pablo)

Coordination, Database, Services, Beam Vacuum and Experiments:

- **LSS6 (w/Abel TTE):**
 - **TD62-68:** TE-ABT Vacuum interlocks tests and commissioning on MKB62 (Pulse Tests)
- **LSS7 (w/Abel TTE):**
 - **B5R7.B TCSPM.6R7.B1:** instrumentation checking, non-conformities and support
 - **HL-LHC - TCLD.8R7.B1:** instrumentation checking, equipment connections and support
- **VELO:** install VELO signal box, implement related software components, deployment to production system
- **VGRs calibration in the ARCs (Nikolaos)**
 - ARC 45 calibration under static vacuum
 - Fine tune UR for ARC 34, 56 and 81
- **BVO-ICM Common Activities (w/ Abel TTE)**
 - See power point [here](#) (incl. Q7 Pirani calibration campaign)
- **VacDB, PLC and SCADA (w/ Sebastien)**
 - USC55 PLC HW and VacDB preparation (new VPI controllers, SVCU-DP cards and SVCU_X crate displacement)

Planned activities for next 2 weeks LHC

W10/W11 (Lampros, Nikos)

Insulation Vacuum, LS2 slave PLC replacement and R2E electronics:

LHC Installation (w/ Peter, Alexander, Christopher and FSU)

- Octant 1:
 - Transport of materials and equipment
 - VRJGE modifications and R2E for left ARC P1
- Octant 8:
 - Finish LSS installation upon arrival of VPGF
 - HW tests Left ARC & LSS (gauges, VPG, Profibus, CRYO alarms)
- VacDB, PLC and SCADA
 - PLC Projects preparation for Octant 1 and 2

SPS and more

Performed activities during last 2 weeks SPS and more W8/W9 (Abel + FSU)

- SPS:
 - BA1:
 - ✓ Controls support during pump-down of ARC 1- (sector 112).
 - ✓ Closure of ion pumps local boxes as part of the electrical safety consolidation (ARC 1-).
 - ✓ Connection and commissioning of vacuum instruments in LSS1 (sector 135).
 - BA2:
 - ✓ Identification of additional cables to be removed during de-cabling campaign for ZS tanks (w/EN-EL).
 - BA4:
 - ✓ VPIB_41639: WO 27686964: Wrong measurement value – Wrong convention at power supply level -> Fixed
 - ✓ VPIA_42201: WO 27686956: Wrong measurement value – Power supply defective -> Fixed
 - BA6:
 - ✓ Closure of ion pumps local boxes as part of the electrical safety consolidation (ARC 6+).
 - BA7..BA80:
 - ✓ Reconnection of vacuum controllers to new power outlets.

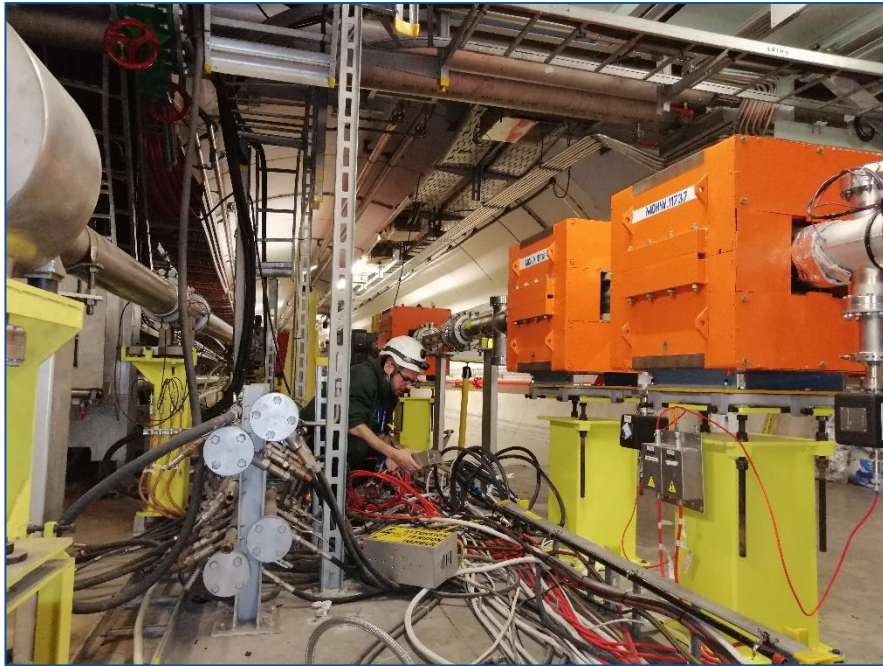
Performed activities during last 2 weeks SPS and more W8/W9 (Abel + FSU)

- SPS:
 - TI2 & TI8:
 - ✓ Local boxes manufacturing for interlocks and valves statuses between SPS & LHC.
 - ✓ Cabling and local boxes installation in both sides (SPS & LHC).
 - ✓ Successful commissioning.
 - General:
 - ✓ Manual configuration of interlock relay levels for sector valves of 149x TPG300 and 70x Agilent controllers.
 - ✓ Manufacturing of 15x Agilent crates.
 - ✓ Manufacturing of 15x ion pump local cables for RF cavities.
- HIE-ISOLDE:
 - ✓ Material purchase for the closure of primary pumps control crates.
- ATLAS-VT:
 - ✓ SCADA application update to implement new confirmation panel for reference search.
 - New feature only developed for WinCC OA 3.16.

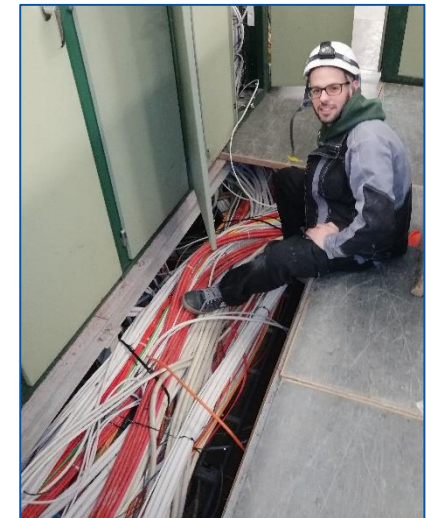
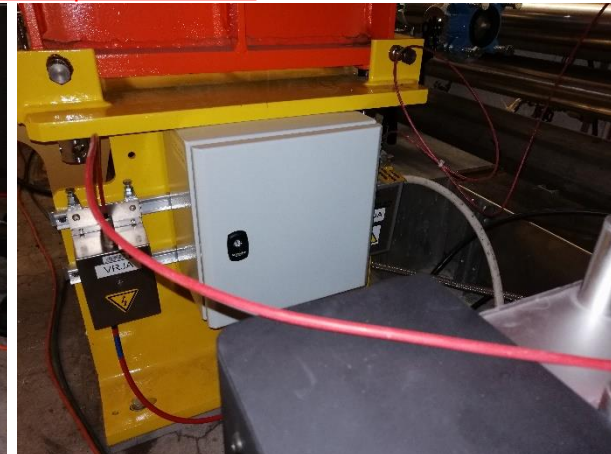
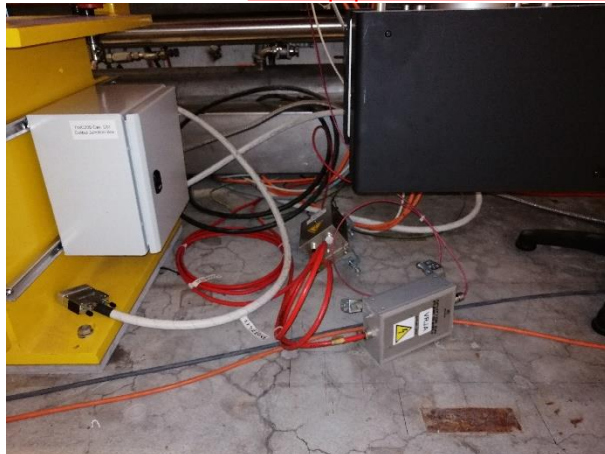
Performed activities during last 2 weeks SPS and more

✓ SPS: Connection of equipment in LSS1

✓ SPS-LHC: Interlocks and valve statuses boxes



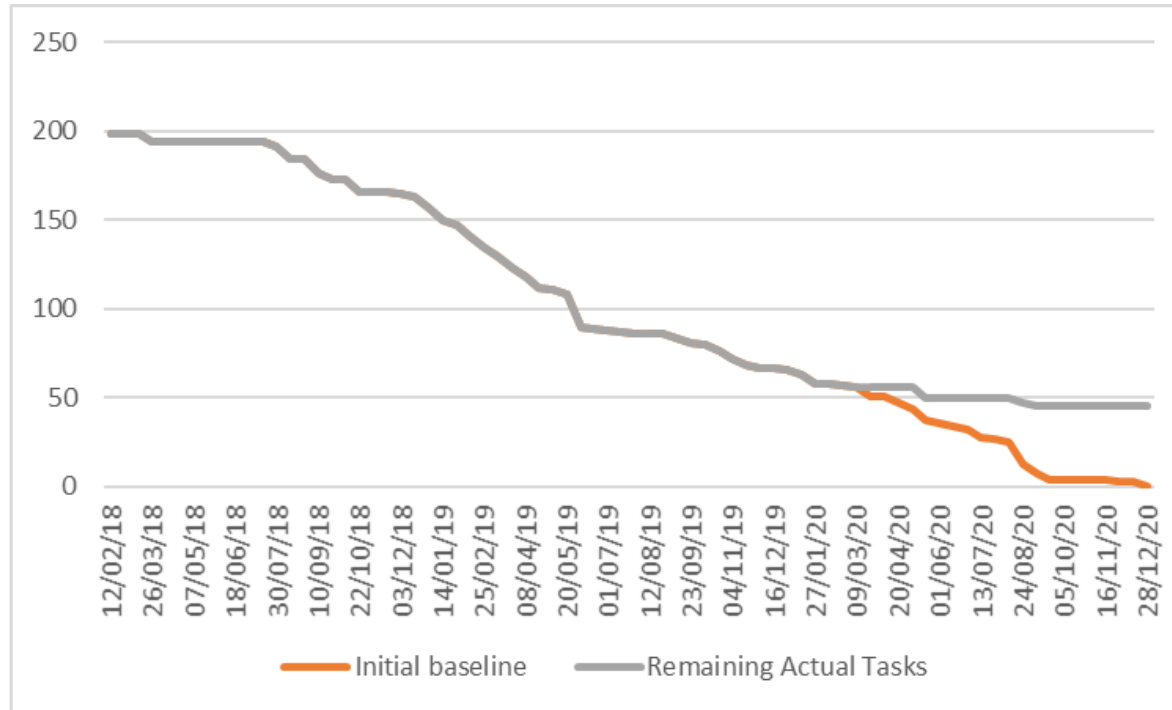
ICM equipment dismantled with the presence of HV



Cabling campaigns status SPS and more...

| Point | Project | Signal cabling | Signal de-cabling | Rack Power CONS |
|-------|----------------|---|-------------------|-----------------|
| BA1 | Dump | On-going. | N – LS3 | Y |
| BA2 | ZS | On-going: First phase (from rack to patch panel). | Y | |
| | MSE & MST | Approved. Q2 2020. | - | Y |
| | Arc sect | On-going. | - | |
| BA3 | RF | Y | Y | Y |
| BA4 | TPSC4 | Y | - | Y |
| | MSE | On-going. | | |
| BA5 | Dump | Second phase On-going. | Y | Y |
| BA6 | TPSG6 | Y | - | Y |
| BA7 | TI8 | N - Q1 2020. | - | Y |
| TDC2 | Damaged cables | N – Q3 2020. | - | Y |
| NA62 | New instrum. | Y | - | - |

Burndown status SPS and more...



TASK BURNDOWN

G:\Departments\TE\Groups\VSC\ICMLS2\SPS\Planning

Planned activities for the next 2 weeks SPS_{and more}

W10/W11 (Abel + FSU)

- SPS:
 - Controls support during pump-down of ARC 1- & ARC 6+.
 - Installation and commissioning of vacuum control instruments in RF cavities of point 3.
 - Installation of missing Agilent crates in point 2, 4 and 5.
 - Profibus network consolidation in BA80.

CPS

Performed activities during last 2 weeks CPS

W8/W9 (Jose + FSU + TTE)

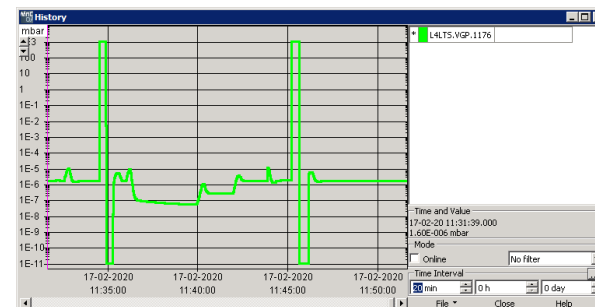
- PSR
 - TPG300 Consolidation & labeling (ongoing)
 - Magnet: connection/commissioning of SWY magnets
 - Sectors F16 and PR40 connected and commissioned
 - LBS.VPG01 Commissioned
 - User interlocks test
 - B368 electrical installation inspection
- PSB
 - SCVUs protection IP2 (on going) and in LINAC3
 - BT.VPG22 Commissioned
- East Area
 - Data base, ticket for Ethernet
- L4TS test for new gas injection process w/Seb
- Linac3 commissioned
- PLCs update
- VacDB modification for the next PLC/SCADA update to correct an error



MU56

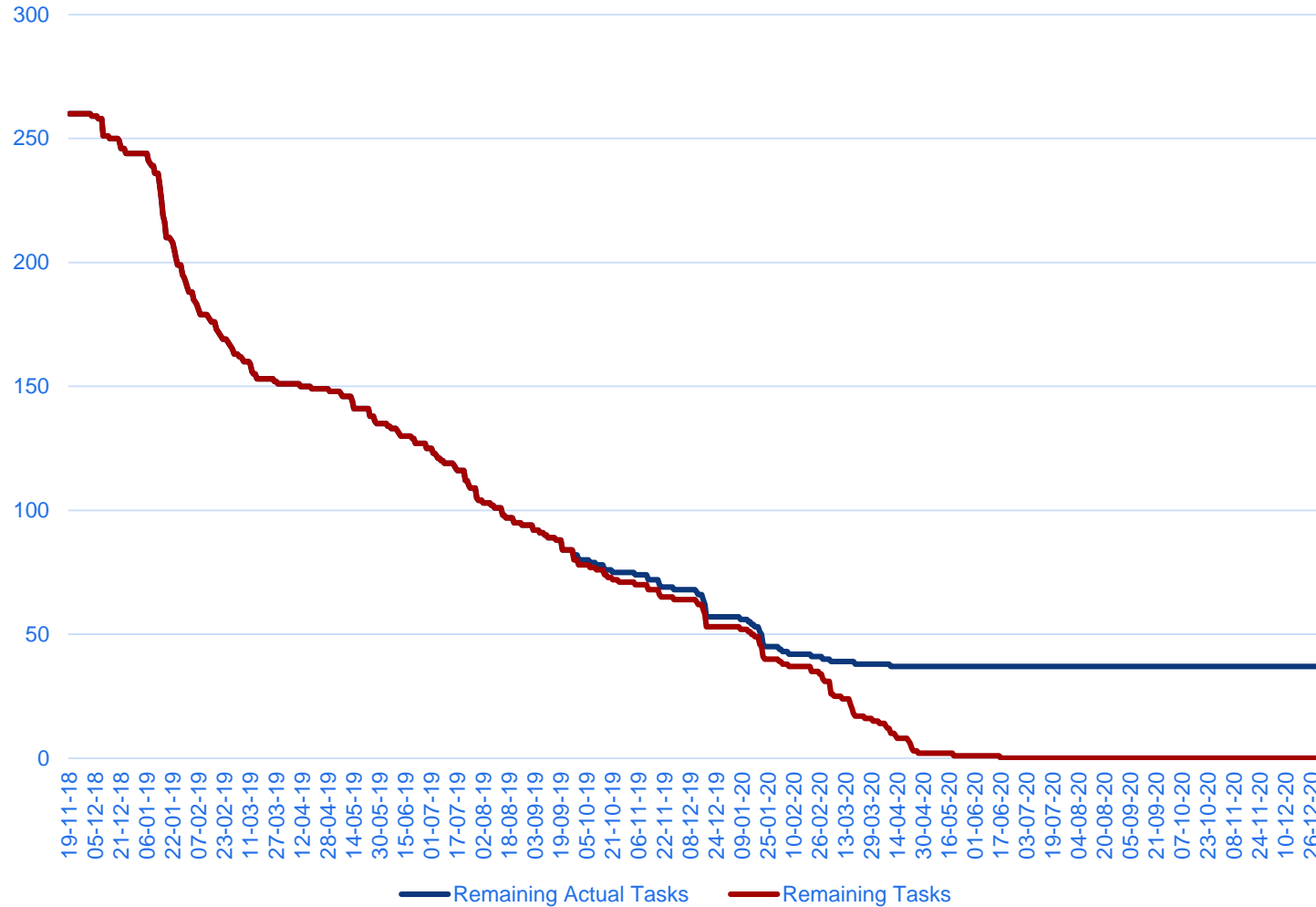


Electrical inspection



L4TS test

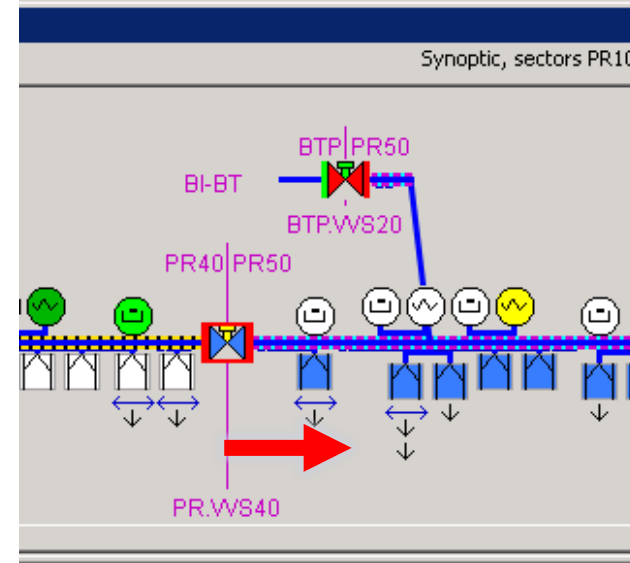
Burndown status CPS



Planned activities for next 2 weeks CPS

W10/W11 (Jose + TTE)

- PSB
 - SCVUs reorganization & IP2 protection
 - BIS
 - BRINJ connection and commissioning
- PSR
 - TPG300 Consolidation & labeling
 - PR30 VRJIA connection and commissioning
 - Rewiring the interlocks for valve PR.VVS40
- LEIR
 - Isolation test for EE.QFN10-S5.VPI1
- LINAC3 TPG consolidation
- cPS Update
 - Valve PR.VVS40 has been moved after MU41
- PLC master battery exchange campaign



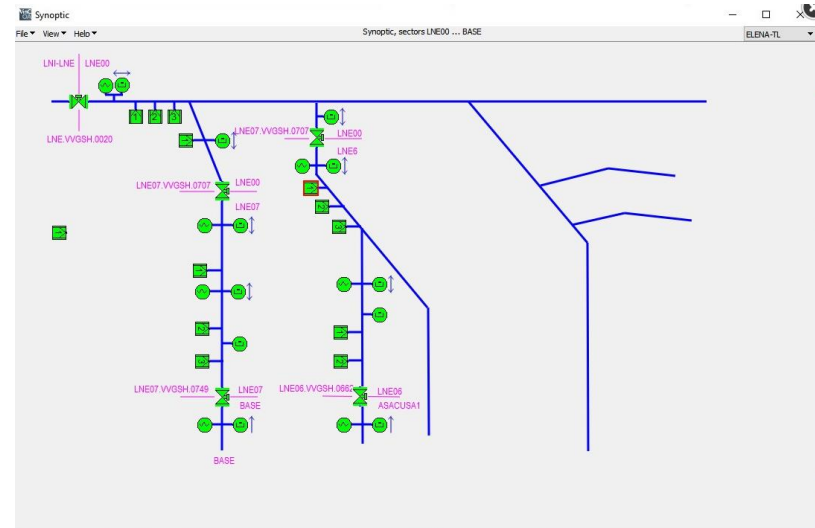
New PR.VVS40 position

AD/ELENA

Activities for past and next 2 weeks AD/ELENA

- W8/W9 (Petter)
 - Minor rack re-arrangement
 - EN/EL cabling continued
 - Minor modifications of gauge position in ATRAP
 - Export test and PLC compilation of VGPF_IO_V control type (Abel, Andre)

- W10/W11
 - Continue cabling
 - Finish rack re-arrangement



Thank you !



LS2

