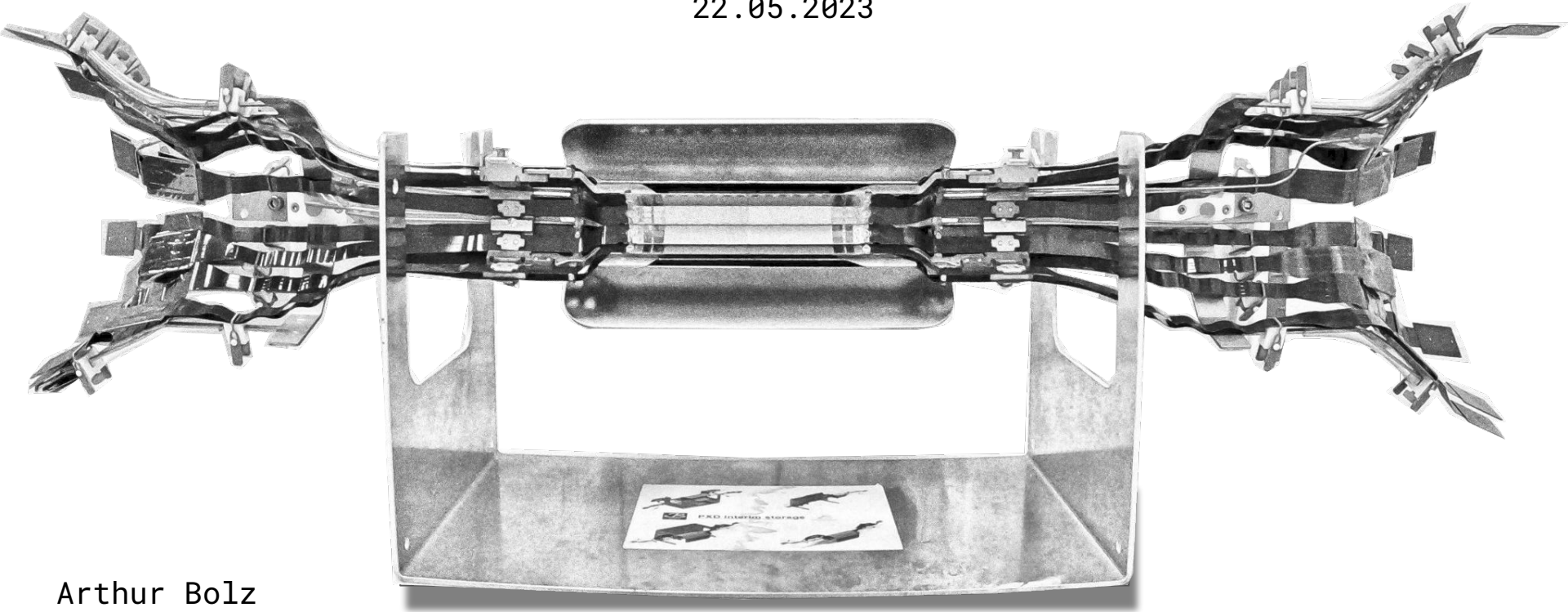


VXD Commissioning Outlook

22.05.2023



Arthur Bolz

VXD Reinstallation Schedule

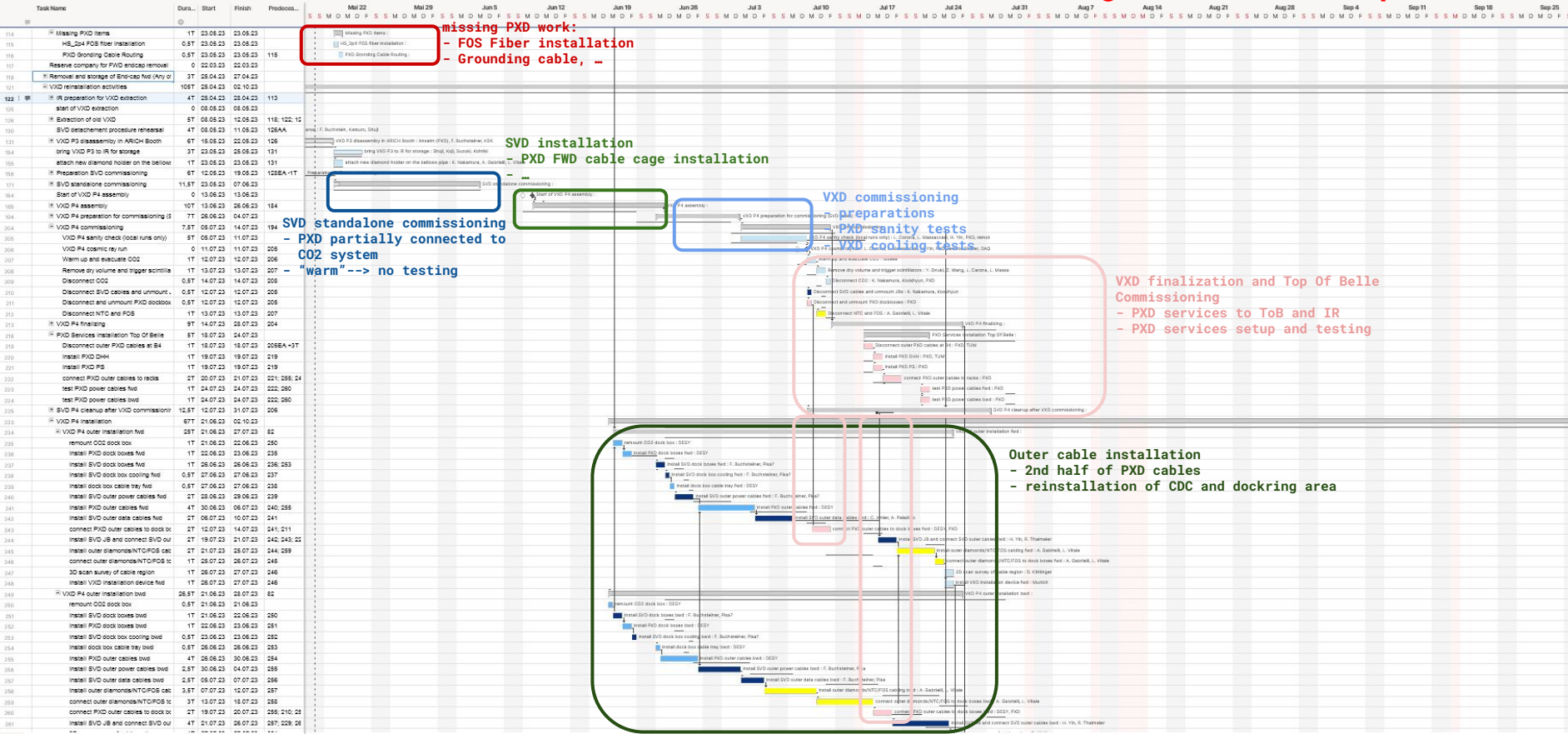
MAY

Jun

Jul

Aug

Sept



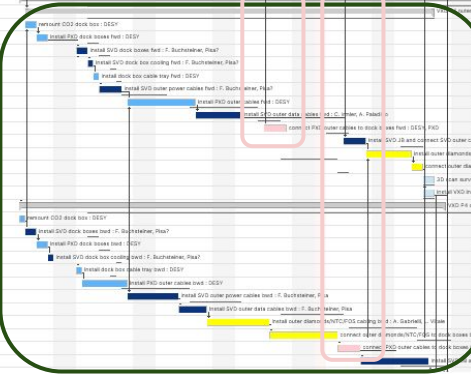
missing PXD work:
 - FOS Fiber installation
 - Grounding cable, ..

SVD installation
 - PXD FWD cable cage installation

SVD standalone commissioning
 - PXD partially connected to CO2 system
 - "warm" --> no testing

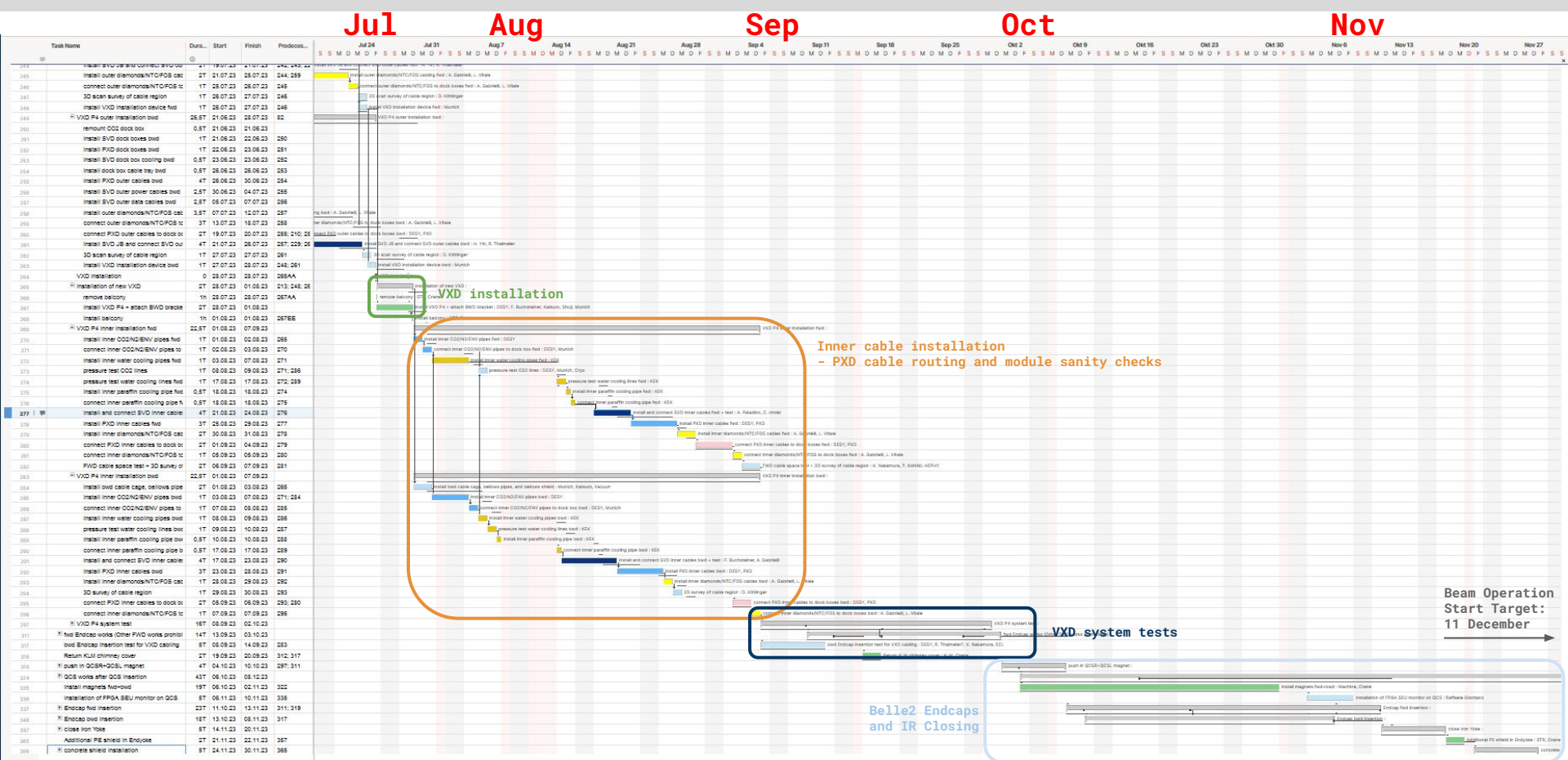
VXD commissioning preparations
 - PXD sanity tests
 - VXD cooling tests

VXD finalization and Top Of Belle Commissioning
 - PXD services to ToB and IR
 - PXD services setup and testing



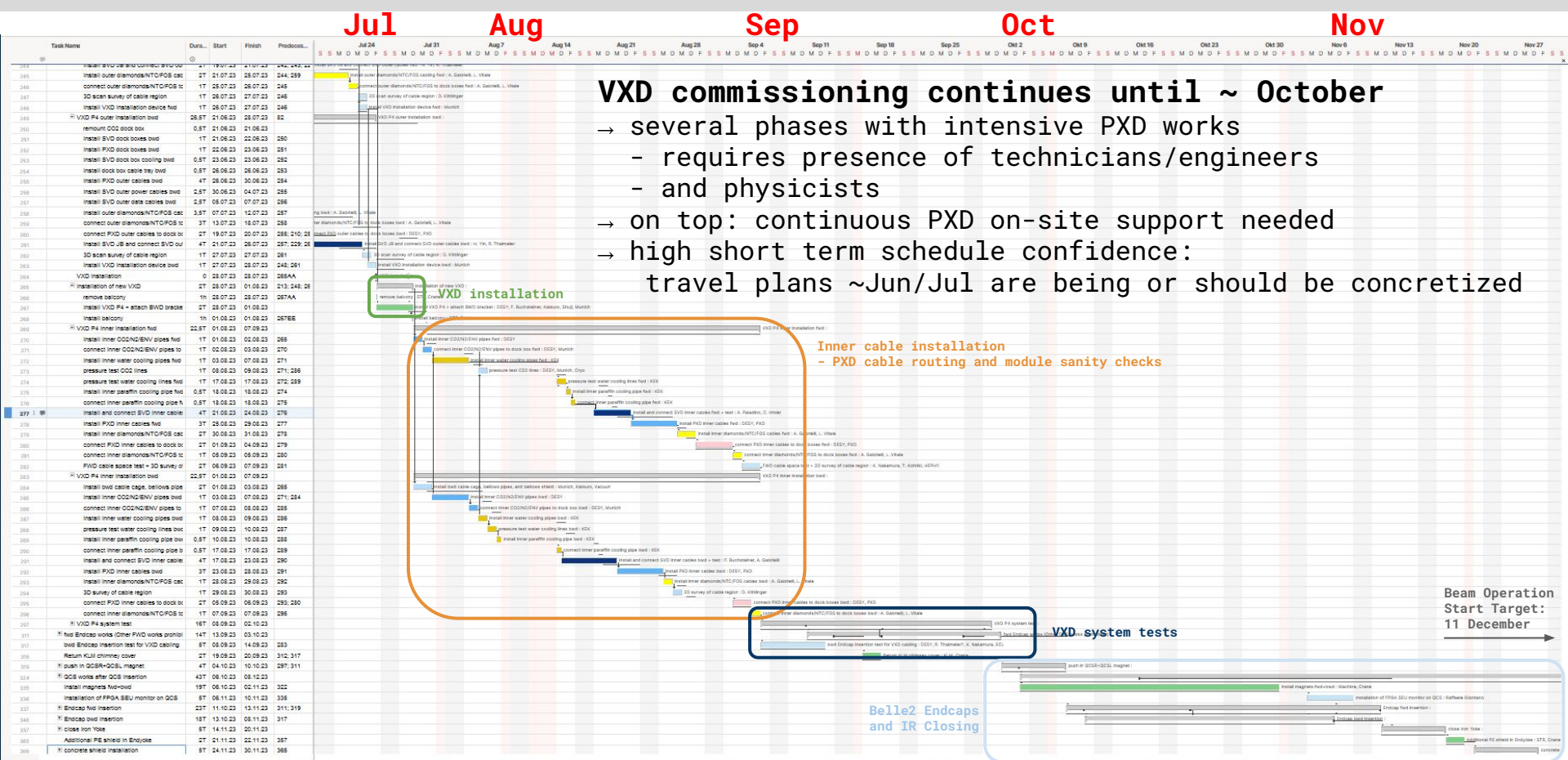
Outer cable installation
 - 2nd half of PXD cables
 - reinstallation of CDC and docking area

VXD Reinstallation Schedule

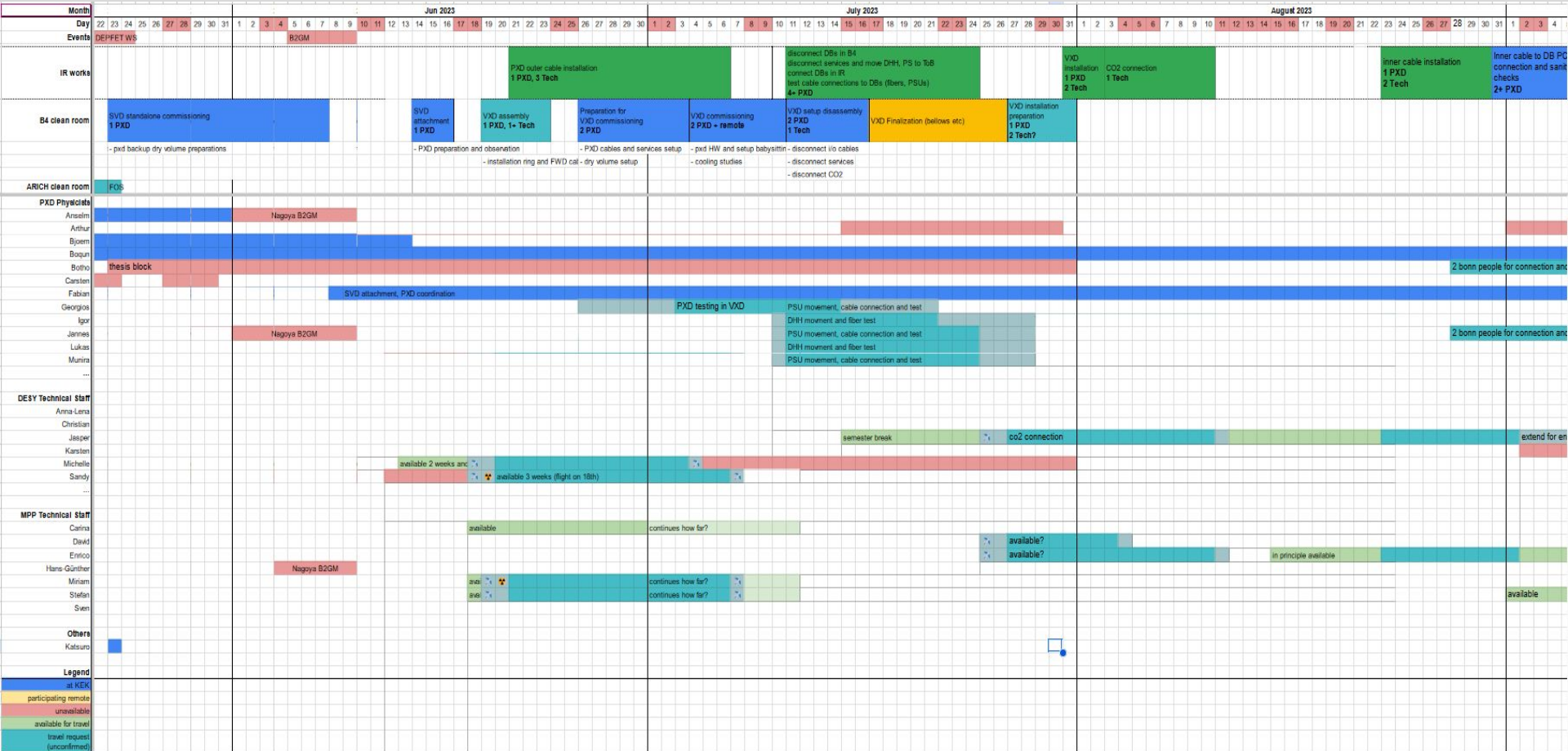


Beam Operation
Start Target:
11 December

VXD Reinstallation Schedule



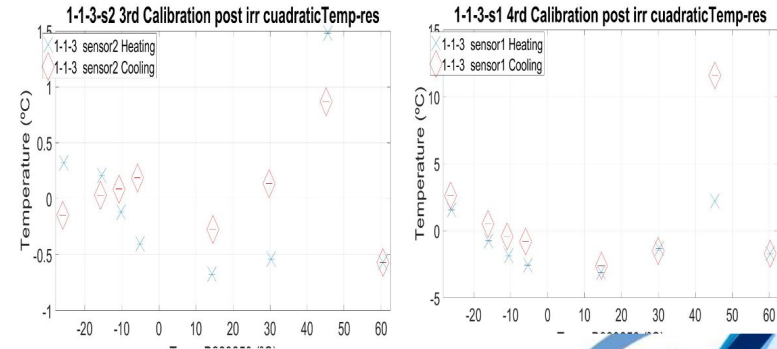
Person Power Needs (First Estimate, WIP)



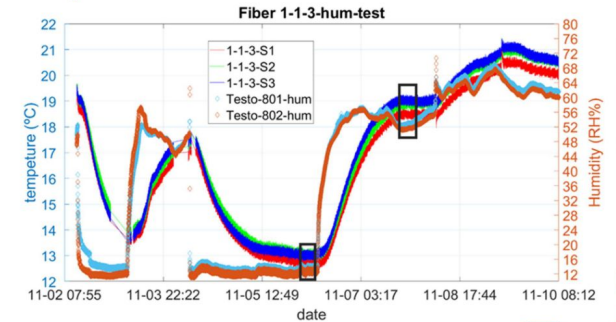
PXD 2 FOS Fibers

- 5 new FOS fibers have been prepared by IFCA for PXD2
 - for (only) temperature measurements at 3x4 in z x rphi positions (4 fibers)
 - not installed on PXD half shells for transport but brought to KEK separately
 - exhibit some non-understood calibration instabilities
 - exhibit some not fully understood dependence on relative air humidity
- Fiber choice and installation
 - needed to install fibers on bottom HS_1p4 before BP rotation
 - chose (good) 5th PXD1 backup fiber and "best" of the new fibers
 - for to HS_2p4 plan to reuse PXD1 fibers (after discussion with ICFA experts and SVD)
 - already take off from PXD1
 - opportunity to install next week

Fibers calibration: Bad calibration curves



Humidity sensitivity after temperature compensation

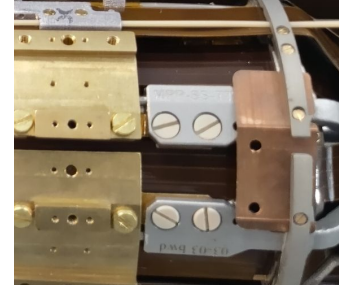


PXD Grounding: Details By [Anselm](#)

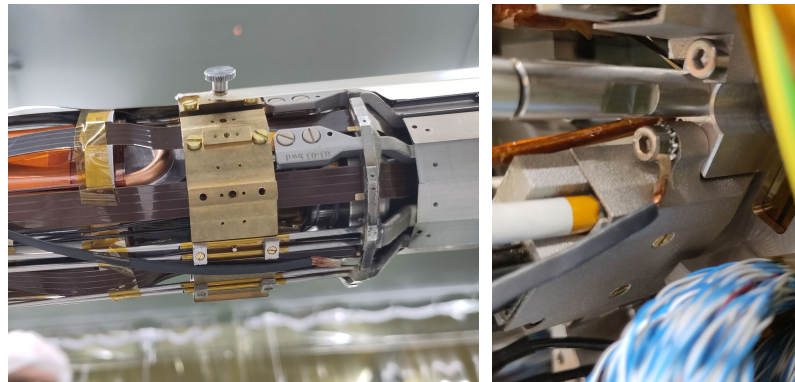
- PXD2 grounding cable connected to SCBs at grounding ring
 - sandwiched between L1 and L2 Kaptons
 - last minute ad-hoc "solution"
 - no cable routing past brass mount block foreseen
- tightest space to SVD wirebonds

PXD2 Proposal

- solder to copper clamp
- flat cable fit through Kapton fixation
- fix on inside of heavy metal

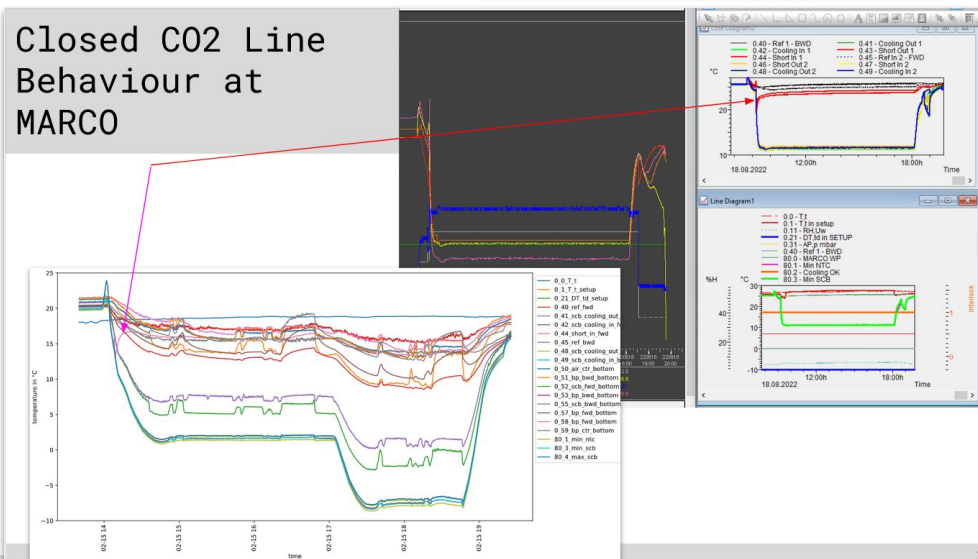
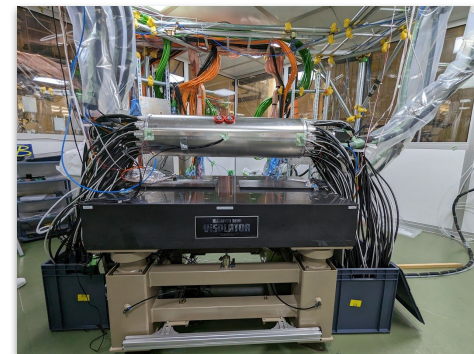


PXD1 Setup



SVD Standalone Commissioning

- Plan to keep PXD CO2 lines connected but close inlets at manifold.
- Tested at DESY: closed lines are not being cooled down
- Remains to be closely observed at KEK, in particular during cooldown
- Backup dry volume to be set up, N2 flow only
- PXD interlock to be used as backup?
- Shifting:
 - should have person “present” during cooldown
 - on-call shifter suffices otherwise imo
- Schedule:
 - start and duration of cooling run???
 - not before end of week



VXD Commissioning

Requires again mechanical PXD support and PXD operation

- SVD installation

- PXD safety observer and assistance
- Some clearance issues still: grounding cable, PXD screws
- Installation of installation ring and FWD cable cage
- ...

- VXD Testing

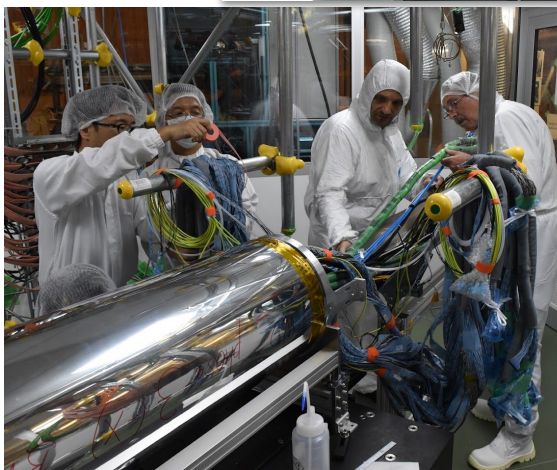
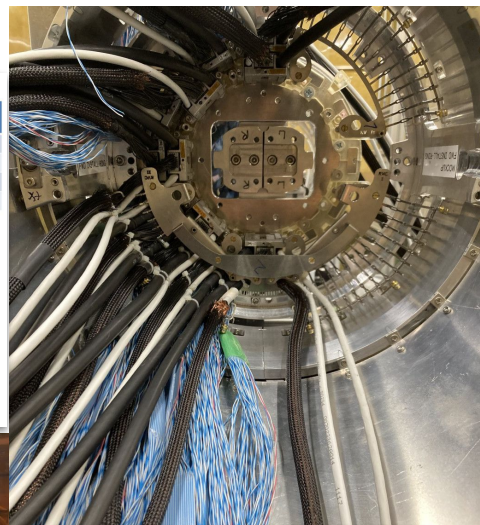

- PXD cables and services connection
- Dry volume setup
- PXD observation and sanity checks
→ remote support needed also
- Cooling study (CO₂ -20 vs -25 C)
- ...

- Preparation for commissioning

- PXD cable packing
- ...

PXD2 for LS1

Brass ring	Diameter (fitted value)	Nominal diameter	Offset from fitted center axis
FWD	66.06(0.13: max diff)	66 [mm]	X=0.103, y=0.071
BWD	66.03(0.08: max diff)	66 [mm]	X=0.104, y=0.050
FWD (brass screw)	66.168 (0.06 : max diff)	66	
BWD (brass screw)	66.3 (0.70: max diff)	66	



Outer Cables Installation

- Start in parallel to VXD commissioning in B4 as soon as CDC work completed
- PXD1 cables removed from CDC wall last year
- amount of cables roughly doubled
 - some tight spaces at dockring, cable trays, edges, ...
- some cabling [details](#) (WIP)

FWD Dock Area and Outer CDC Wall

- Power cables` jackets removed
- at some DBs space for going out cables might be a bit tight

enough space underneath SVD?
→ probably, can expand upwards

+2

+2

+4

+1

+2 (unconnected cables)

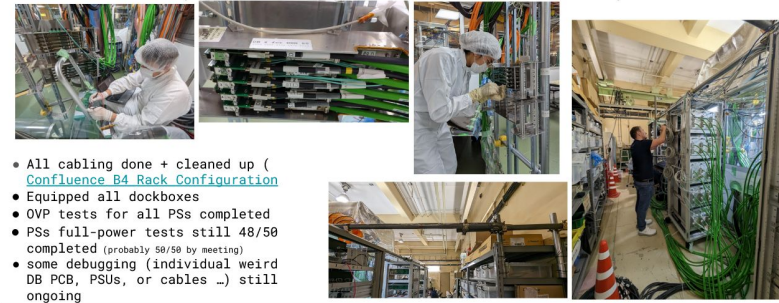
+6 +3 +6 +3

6 more PSU cables have to go around dock ring, 3 CLC → tight

Services Installation and Test on Top of Belle

PXD Services Preparations: Power Supply System

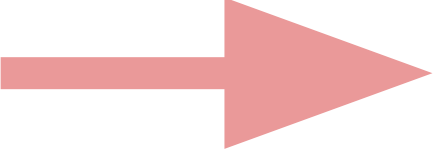
- last week: pushed service teams (power supply, DHH, env monitoring, ...) to get things working minimally for mechanical HS_2p4 tests
→ approach safe and fast but incomplete
- this week: make everything perfect and prepare and test full PXD services system



- All cabling done + cleaned up ([Confluence B4 Rack Configuration](#))
- Equipped all dockboxes
- OVP tests for all PSs completed
- PSs full-power tests still 48/50 completed (probably 50/50 by meeting)
- some debugging (individual weird DB PCB, PSUs, or cables ...) still ongoing

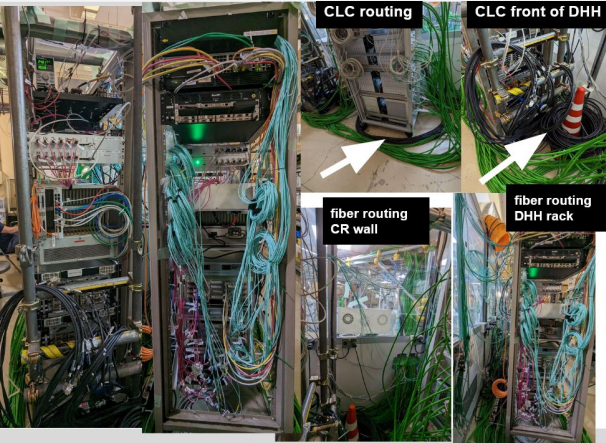
- PXD services need to be disconnected from B4, moved and installed in IR and Top Of Belle
→ DHH rack expansion needed

- Tight integration w/ outer cable installation for cable testing

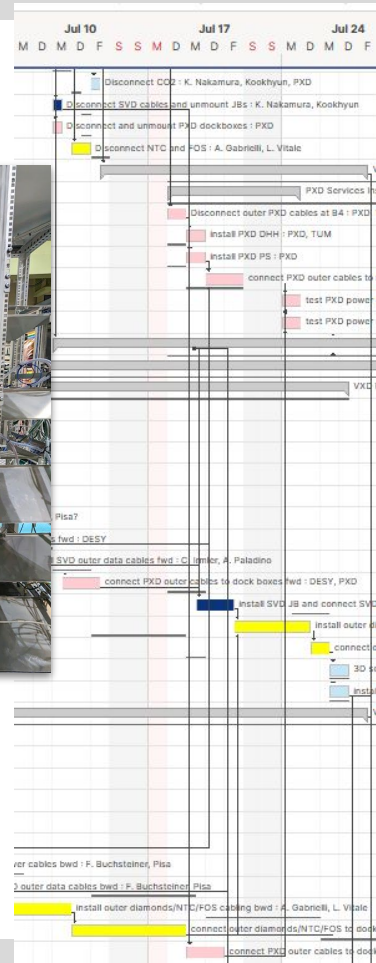


DHH Rack

- 40 CLC routed to DHH rack
- All dockbox fibers routed to DHH rack
- Cleaned up all DHH rack Connections
- Fiber to optical switch tests completed
- optical switch to DHH tests pending (need modules)
- Debugging ongoing (config, single cards not fully behaving yet)



- 40 +spares
→ not all modified



VXD Installation



