

Hi-Lumi RFD CM Project P455 at TRIUMF

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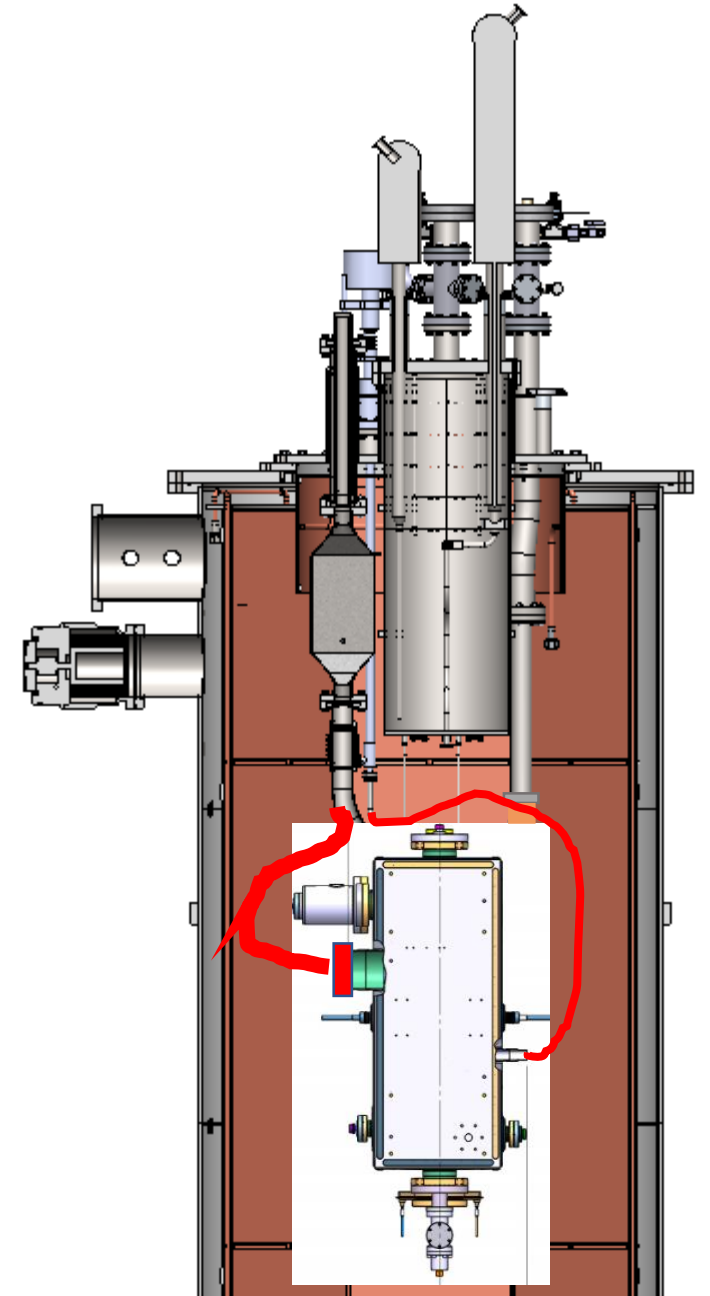
TRIUMF Hi-Lumi Technical Coordinator

Dec 11, 2020



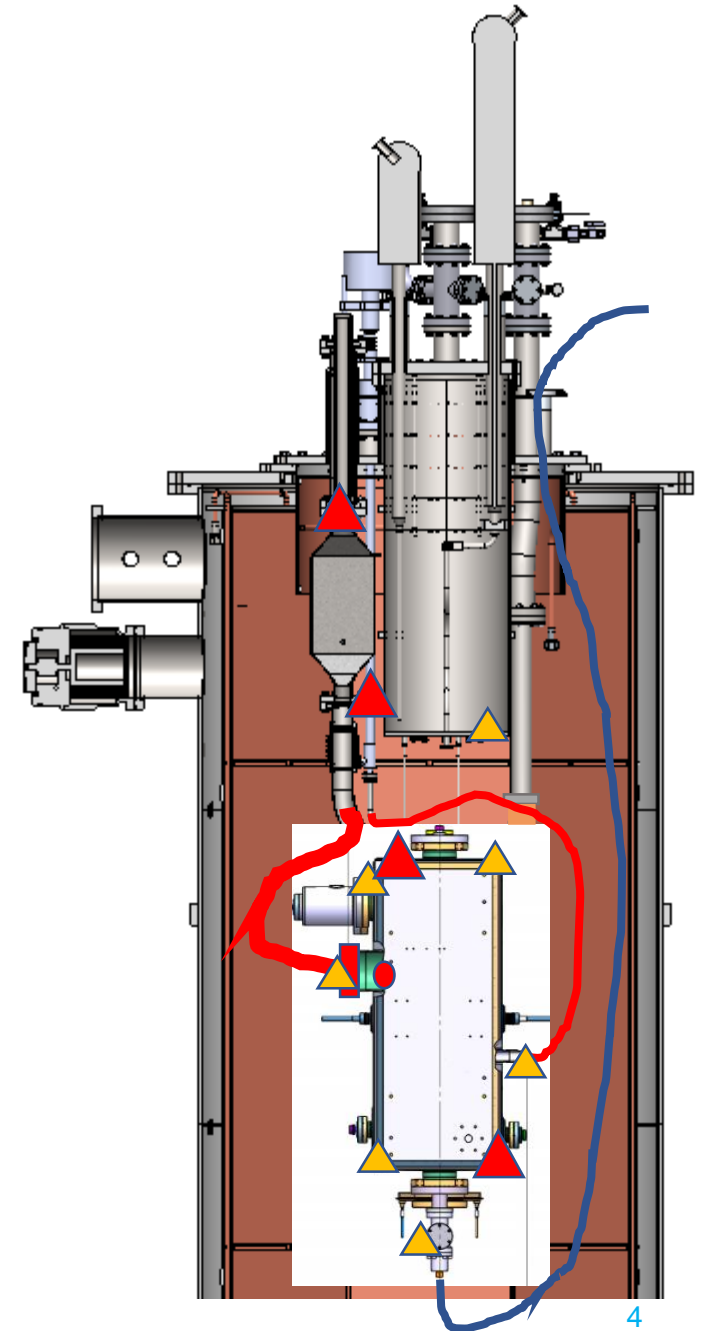
Our status –

- TRIUMF is now in Phase 3 CV-19 protocols – technical staff on site at 80% level – work on CM work is ramping up – we have one CM in the pipeline before we start Hi-Lumi TCM-0
- We are preparing clean room and cryostat for Hi-Lumi testing – adding 2K capability (next slide)
- Student designer is now working on testing infrastructure
- Preparing for Gate 3A



Cavity test – diagnostics

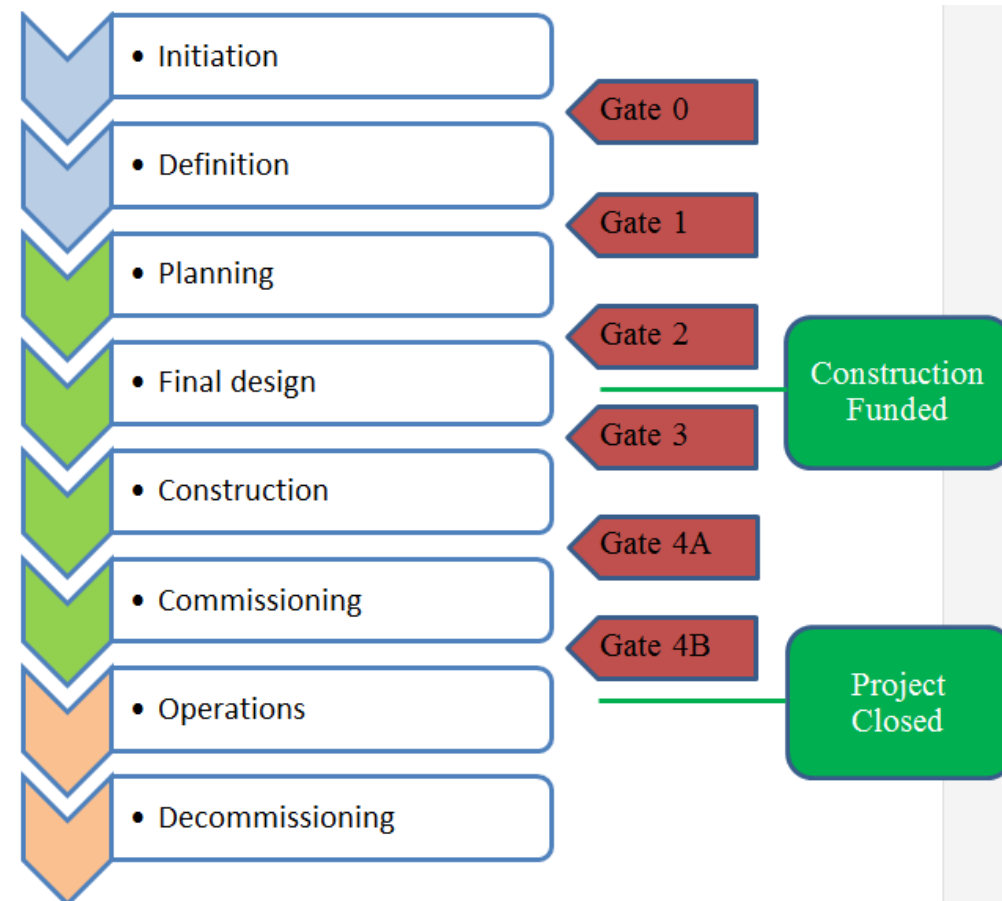
- Diagnostics
 - Temperature sensors
 - Requirement - $<50\text{K}$ thermal gradient across cavity
 - Would be good to see CERN and FNAL position of sensors
 - Need additional temperature sensors to monitor 4K fill and 2K production
 - Magnetic field probes
 - Requirement is $<1\text{micT}$ at the cavity
 - Would be good to see CERN and FNAL position of sensors



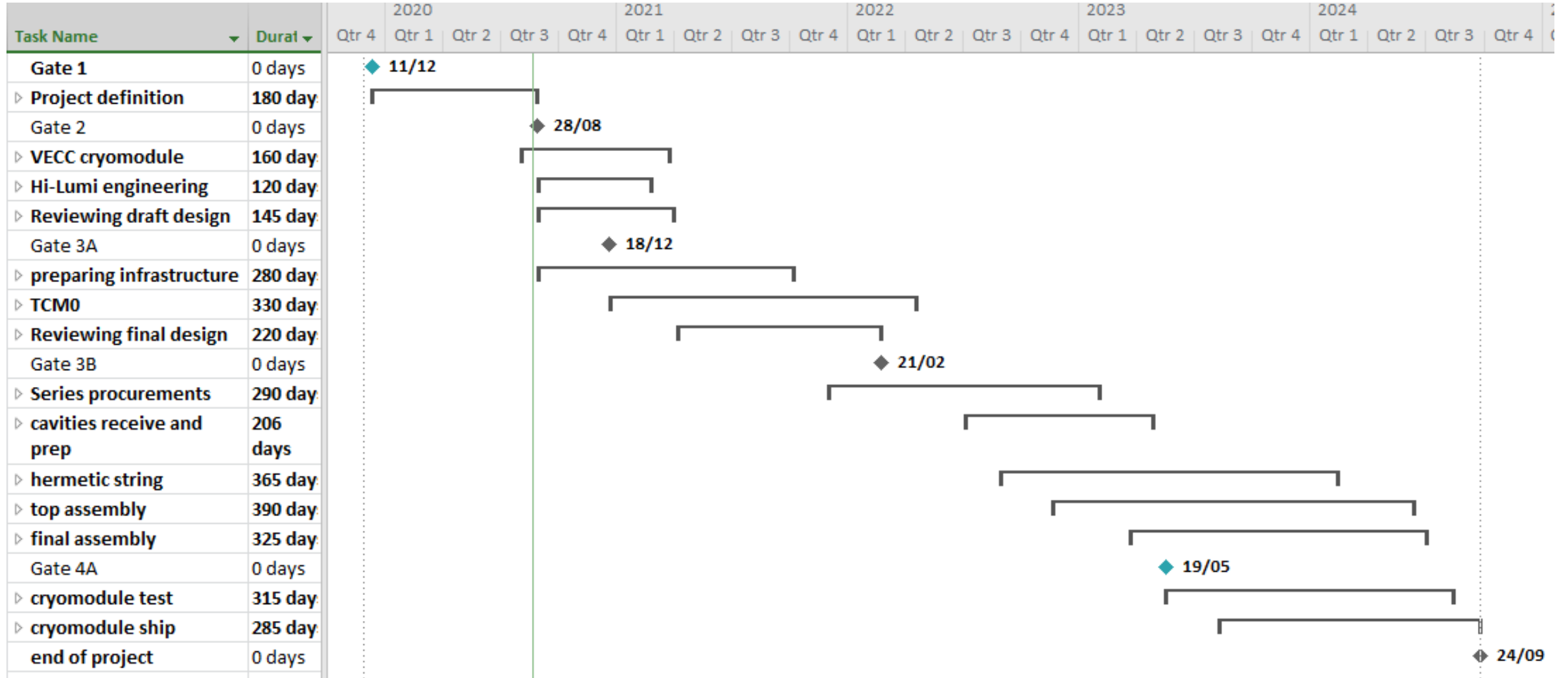
TRIUMF Project milestones

- The project has now completed Gate 2 within TRIUMF project planning
- We would like to get to Gate 3 before standard procurements. The prototype TCM0 could be considered in a Gate 3A – need to have released drawings and specifications from CERN

Project Milestone	Proposed date	Hi-Lumi input
Gate 1 ✓	Dec 2019	Conceptual design review, preliminary scope def'n
Gate 2 ✓	Aug. 2020	Final scope def'n, detailed budget
Gate 3A TCM0	Feb 2021	TCM0 design review, released drawings and specifications
Tech review	Dec. 2021	Launch long lead procurements
Gate 3B TCM1-4	Feb. 2022	Final design review, released drawings and specifications



Level 1 WBS – as of Gate 2



Delivery Dates

	Planned Delivery Date (CERN Master Schedule)	"Known" COVID Effects							Agreed Delivery Dates
Cavities 01 & 02	Jun-22								Jun-23
Cavities 03 & 04	Sep-22		Dec-22						Sep-23
Cavities 05 & 06	Nov-22			Mar-23					Dec-23
Cavities 07 & 08	Jan-23				Jun-23				Feb-24
Cavities 09 & 10	Mar-23				Aug-23				May-24

Deliveries to TRIUMF:

Deliveries are still within the agreed “window”, but we are experiencing delays of up to 5 months for the last delivery, with respect to “early” delivery dates.

Accumulated additional 2-3 months of delay since last coordination meeting in August, as we included the forecasted impact up to end of October 2020.

Additional delays could result if COVID impacts stretch beyond Oct 2020, and/or if string-assembly (mech. Validation) at CERN is delayed beyond Oct 2021.

Summary

- CV-19 update (now in Phase 3)
 - Technical staff now in 80% occupancy
 - Professional staff to 25% occupancy
- Working on clean room equipment for cavity testing and handling – adding 2K capability
- CM Tooling and handling fixtures
 - Student engineer now engaged

