



@



Advanced Rare Isotope
Laboratory (ARIEL)

Integration

Stephanie Diana Rädcl

Accelerator Division

2024-07-12



Discovery,
accelerated

Gate reviews

Gate review overview

- Gate 1 review on February 15th 2022 (Document-218766)
- Missing reviews:
 - Gate 2 and 3
 - Necessary for installation and in principle purchasing parts

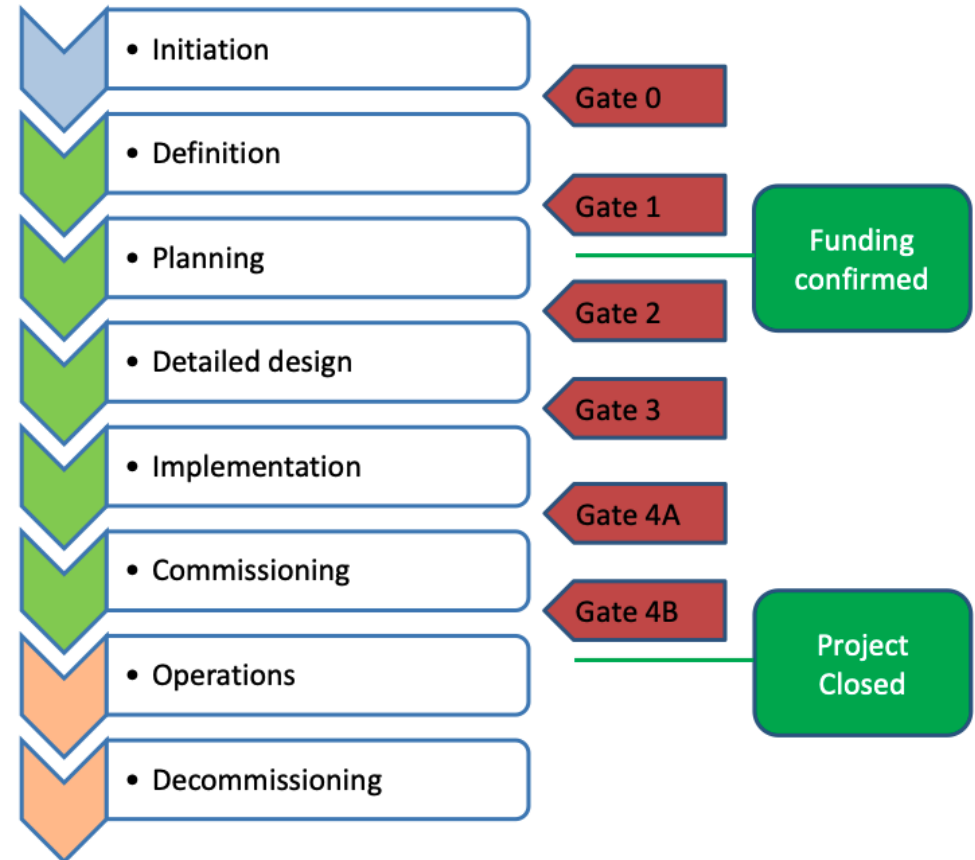


Figure 1: TRIUMF Project Management Gate Process.

Gate 2

“End of Planning / Ready for Detailed Design”	Yes	No
Actions from previous review addressed?	<input type="checkbox"/>	<input type="checkbox"/>
All released documents up-to-date?	<input type="checkbox"/>	<input type="checkbox"/>
Budget finalized, by fiscal year, ready to be baselined?	<input type="checkbox"/>	<input type="checkbox"/>
Has external funding for this project (to Gate 4B) been confirmed with granting agency/partner?	<input type="checkbox"/>	<input type="checkbox"/>
Has TRIUMF funding for this project (to Gate 4B) been confirmed by ALD and/or Finance?	<input type="checkbox"/>	<input type="checkbox"/>
Account(s) created, including clarifying spending rules for TRIUMF cost centres?	<input type="checkbox"/>	<input type="checkbox"/>
Has the technical concept been reviewed by experts and stakeholders?	<input type="checkbox"/>	<input type="checkbox"/>
Hazard analysis done?	<input type="checkbox"/>	<input type="checkbox"/>
Microsoft Project resource-loaded schedule, using TRIUMF project template and resource pool?	<input type="checkbox"/>	<input type="checkbox"/>
Is the schedule critical path understood?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have major items (>\$50k), with long lead time, that should be procured before Gate 3? If so, do you have your project sponsor’s authorization to do so?	<input type="checkbox"/>	<input type="checkbox"/>
Does your project have one or engineering designs that requires professional engineer sign-off, per TSOP-06?	<input type="checkbox"/>	<input type="checkbox"/>
Will your project result in a change to TRIUMF’s physical security? If so, have you notified Facilities?	<input type="checkbox"/>	<input type="checkbox"/>

Gate 2 - more

“End of Planning / Ready for Detailed Design”	Yes	No
Will your project result in a change to radiation shielding configuration? If so, have you consulted with the Radiation Safety Officer?	<input type="checkbox"/>	<input type="checkbox"/>
Do you need space at TRIUMF, and if so have you consulted with the Space Committee?	<input type="checkbox"/>	<input type="checkbox"/>
Top risks identified, with credible mitigation actions?	<input type="checkbox"/>	<input type="checkbox"/>
Ready to baseline the schedule?	<input type="checkbox"/>	<input type="checkbox"/>
Is there a risk to TRUMF’s cyber-security? If so, have you notified IS&T?		

<i>Optional for more complex projects</i>	Yes	No
For CFI projects: did the project successfully pass a TRIUMF review of its CFI funding application?	<input type="checkbox"/>	<input type="checkbox"/>
Critical interfaces (beam, nuclear ventilation, timing, etc...) identified and defined?	<input type="checkbox"/>	<input type="checkbox"/>
Have estimates for budget and schedule considered adverse effects if risks get realized, i.e. is there sufficient contingency in the budget and the schedule?	<input type="checkbox"/>	<input type="checkbox"/>
Project plan released to Docushare?	<input type="checkbox"/>	<input type="checkbox"/>
Hazard analysis released to Docushare?	<input type="checkbox"/>	<input type="checkbox"/>
Risk registry in use?	<input type="checkbox"/>	<input type="checkbox"/>

Gate 3

“End of Detailed Design / Ready for Implementation”	Yes	No
Actions from previous review addressed?	<input type="checkbox"/>	<input type="checkbox"/>
Did you receive a letter from the Director/CEO in support of your project, after your successful Gate 2?	<input type="checkbox"/>	<input type="checkbox"/>
All released documents up-to-date?	<input type="checkbox"/>	<input type="checkbox"/>
Commissioning plan drafted?	<input type="checkbox"/>	<input type="checkbox"/>
Drawings, diagrams or schematics released by ECO?	<input type="checkbox"/>	<input type="checkbox"/>
All Requirements Specification documents released to DocuShare?	<input type="checkbox"/>	<input type="checkbox"/>
Schedule critical path understood?	<input type="checkbox"/>	<input type="checkbox"/>
Budget by fiscal year is updated and remaining funds enough to cover projected costs?	<input type="checkbox"/>	<input type="checkbox"/>
Have you sent to the Procurement Department a list of all major items (>\$50k) to be purchased, with a timeframe, and agree with them on a procurement strategy for each?	<input type="checkbox"/>	<input type="checkbox"/>
Top risks identified, with credible mitigation actions?	<input type="checkbox"/>	<input type="checkbox"/>
Will any installation work happen during a shutdown? If so, have you notified the SAS team (sas@lists.triumf.ca)?	<input type="checkbox"/>	<input type="checkbox"/>
Date of next gate review	MM-YYYY	

Gate 3 - more

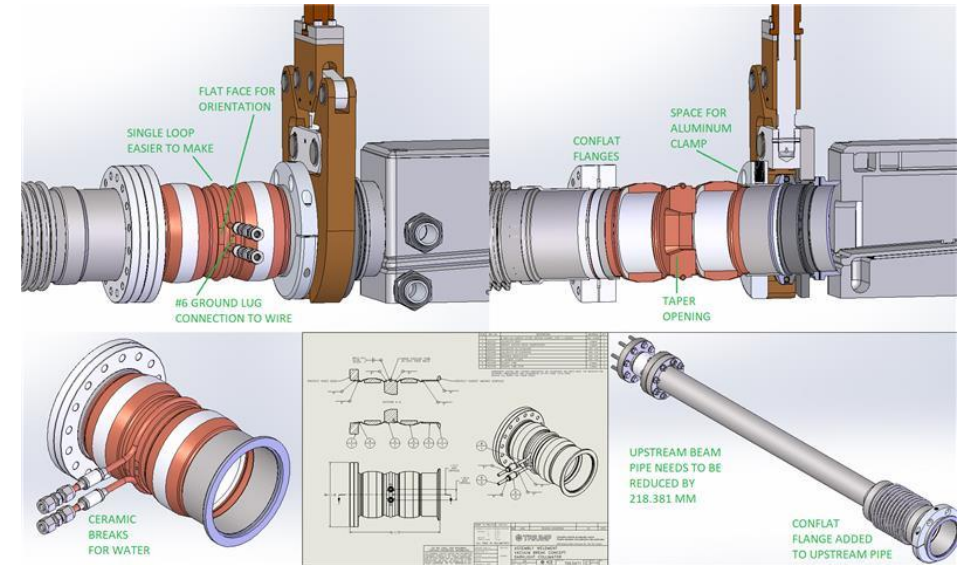
<i>Optional for more complex projects</i>	Yes	No
De-commissioning plan drafted?	<input type="checkbox"/>	<input type="checkbox"/>
Integration and test plans reviewed by experts and project stakeholders (e.g. users)?	<input type="checkbox"/>	<input type="checkbox"/>
Controls (EPICS, data acquisition, MPS, etc...) specified?	<input type="checkbox"/>	<input type="checkbox"/>
Training gap analysis done?	<input type="checkbox"/>	<input type="checkbox"/>
Training gap analysis done?	<input type="checkbox"/>	<input type="checkbox"/>
Installation safety plan released to Docushare?	<input type="checkbox"/>	<input type="checkbox"/>
For construction projects >\$100k in labour and material, have you notified WorkSafe BC per OHS Regulation Part 20.2?	<input type="checkbox"/>	<input type="checkbox"/>
Risk register updated?	<input type="checkbox"/>	<input type="checkbox"/>
Summary of lessons to learn thus far, presented at Gate review?	<input type="checkbox"/>	<input type="checkbox"/>

Take away from Gate 2 and 3 overview

- Update DarkLight beam requirements document
- Beamline review
 - Optics design
 - vacuum for straight piece of EHDT
- New FLUKA simulations
 - Validate simulation with RPG
- Safety review (can be done for Gate 4A too)
 - DarkLight SAR
 - Update ARIEL SAR
- Update beam commissioning plan
- Gate review 2&3

Collimator

- Design review December 2023
- Parts were purchased
- Ceramic break was delivered as standard (stainless steel 304)
- Building process started
- Interlock specification document for controls
- Work request for beamlines (#7002)
- Work request for controls (#6948)
 - Interface
- Realistic thermal analysis



Concrete hut

- Work Request #6805
 - Shielded hut drawings for e-hall - has been approved
- Write work request (Randy) for power and cable tray installation (including drawings from Dragan)
- Get electrical design finished and propagated into drawings/back to Dragan [In progress]
- Buy explicitly good power bar for rack in hut. Self regulating.
- Install the rack (which was "found" by Kate & Mike 👍)
- Paperwork?

PMQs

- Shaquielle made a PMQ nu metal holder
- Tested if shielding is sufficient to counter magnetic field)
- Measure the PMQ magnetic field with shielding wrapped around
 - Will be done next week with Shaquielle (and Angela assisting)
- Order PMQs when optics, FLUKA results and magnetic field measurements are fine
- Need to arrange clamps for holding PMQs in place



Experiment installation

- Controls:
 - Collect missing information (specifics of the lead screw/thread pitch & specifics of motor)
 - integrate pump controllers into EPICS
 - Make model of numbers of pumps
 - submit work request #6948
- Power supplies:
 - Jan handle controls
 - Get permission/information on where to plug in power supplies on the roof
 - Get specs for cables from power supplies to magnets *Needs to go to ES and BL*
 - Make cables
 - Check with Dimo that he is OK with this choice of pumps

Experiment installation

- ❑ Gas lines:
 - ❑ get it installed
 - ❑ Set up camera and existing flow meters
- ❑ Electrical services:
 - ❑ Write work request to make all electrical connections to each possible device
 - ❑ EQMs
 - ❑ Pumps
 - ❑ Collimator
- Beamlines:
 - Finish work request #7002

The screenshot displays the 'Review Work Request' interface for TRIUMF. A notification window titled 'Submitted WR' is overlaid, stating: 'Work Request #: 7002', 'Title: DarkLight installation beamline', and 'has been successfully submitted.' It also lists notified authorities: 'The following authorities for approval/assessment have been notified: (Preddy, Doug)' with an 'Ok' button.

The background interface includes a sidebar with 'Create New Request', 'My Requests', 'My Tasks', 'Find Work Requests', and 'Notifications'. The main content area shows details for 'TRIUMF - Work Request Working' (Request No. 7002) with the TRIUMF logo. It lists the 'Assessment Stage' as 'Work Request Not Yet Submitted', the 'Title of Request' as 'DarkLight installation beamline', and the 'Requestor Name' as 'Radel, Stephanie D. (...more...)'. A table below lists several work requests with their descriptions and required dates.

Category	Description	Source	When it will occur	Who will be exposed	Consequence	Regulation and Policies	Control
see request	1	install EHD collimator with grounding, thermocouple/electrical connection and waterflow.					2024-10-31
see request	1	Install three permanent magnets (which comes mounted on a pipe) and two electromagnetic quadrupoles, with connection to water.					2024-10-31
see request	1	Install the DarkLight chamber					2024-10-31
see request	1	Possible cable pulling or its supervision from quadrupoles, pumps, dipoles, and the collimator.					2024-10-31
see request	1	pull gas lines from the hut down to the shielding hut					2024-10-31
see request	1	Install the shielding hut? (a computer rack will need to go in the hut, either through entrance or before roof)					2024-10-31
see request	1	DL dipole installation					2024-11-29
see request	1	clean all vacuum parts					2024-11-29

Other

- ❑ Create installation model (for the actual installation of the beam line for beamlines group)
- ❑ Communicate with Victor on another BPM antenna
- ❑ The borated polyethylen shielding “left overs” need to be given back to beamlines/diagnostics (Anthony and Paul already contacted me) and thus being replaced, if needed, with what Kate and I scavenged
- ❑ Track down EM quads and get them out of storage
- ❑ Start to prepare Gate 4A
- ❑ Communicate with space committee

Thank you
Merci



JOHANNES GUTENBERG
UNIVERSITÄT MAINZ



Saint Mary's
University



www.triumf.ca

Follow us @TRIUMFLab



University
of Manitoba

