

Schedule, milestones, reviews

Kate Pachal

Schedule

- TRIUMF has re-evaluated e-linac schedule following delays in updating e-gun HV supply
- The lab can commit to installation **starting in June**, if the experiment can seriously commit to being ready on this timeline. This means:
 - Everything to be installed needs to be at TRIUMF by **May 1 at the latest**. This gives time for cleaning and vacuum testing the chambers before installation starts.
- Controls add complication: if we want the target ladder and the magnetic field control integrated into the TRIUMF EPICS system, that will take time. We submitted a work request to Controls for the spectrometer magnets and they requested that we bring the magnets here as early as possible so they have time to work on it.
 - No work request has been made yet for the target ladder, but we can anticipate the same request.
- GEMs need to be here even earlier so they can be integrated into the trigger/DAQ and we can test everything as a single system.

Gantt chart: Experiment

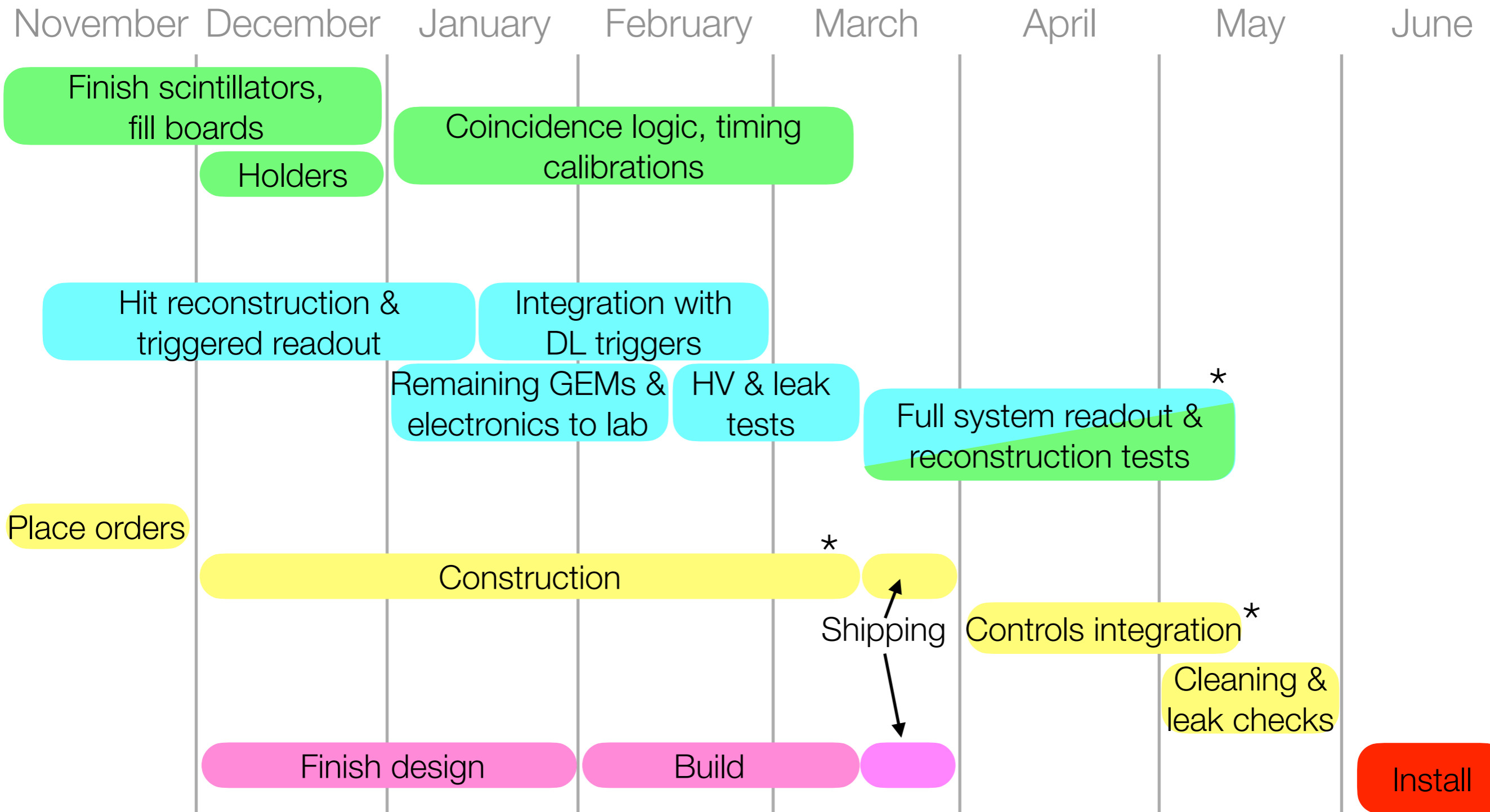
Target chambers & spectrometers

GEMs

Triggers

Detector shielding

* Suspected schedule bottlenecks



Gantt chart: Accelerator



Collimator



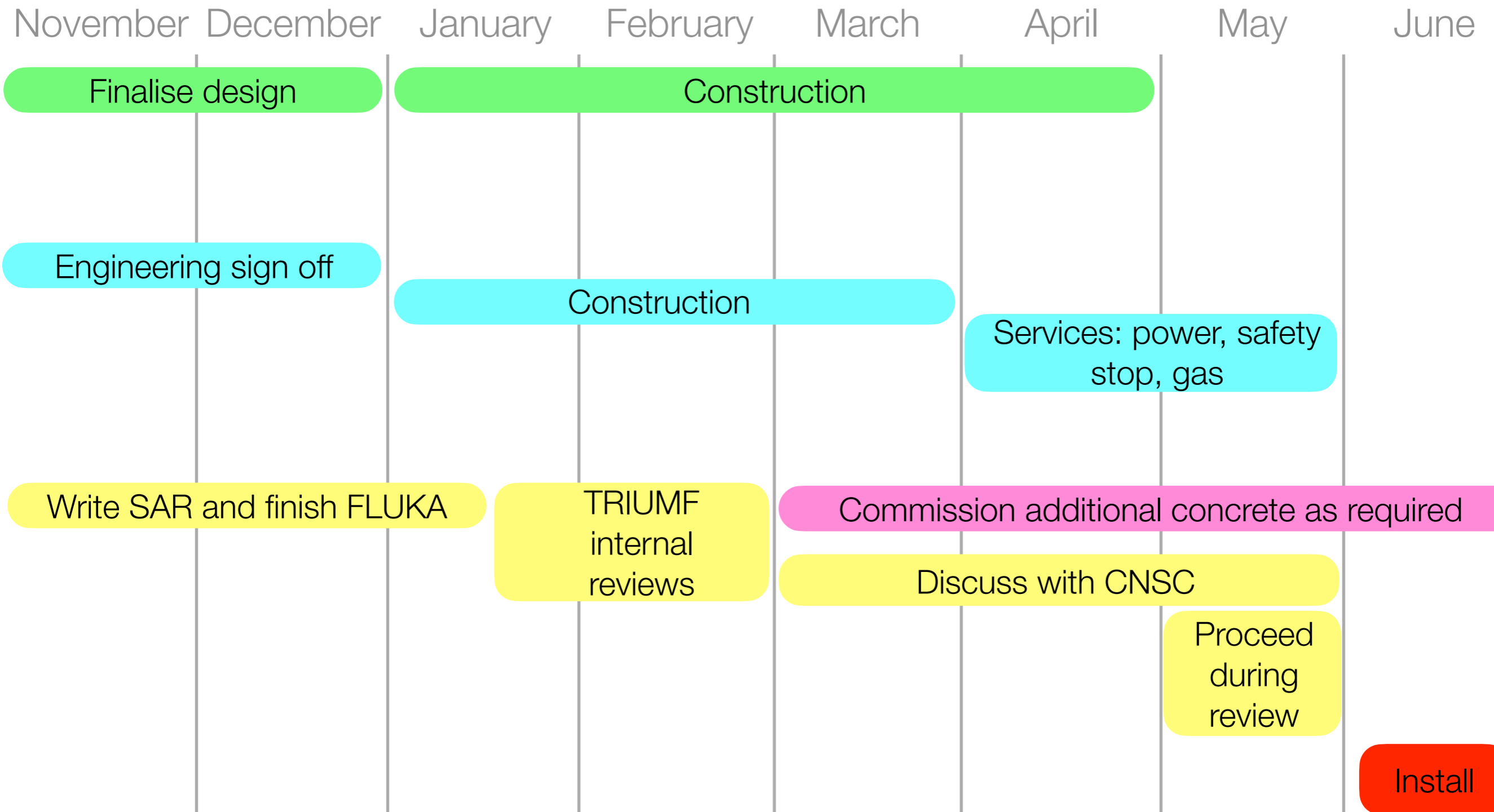
Other shielding



Electronics hut



CNSC licensing



+ A million little reviews. I don't know when yet, but based on history

This is very tight.

Are we ready, realistically?

If we need any changes, now is the time to communicate with e-linac so they can plan accordingly.

Other reviews

- Have held all the technical design reviews that I am **aware** of needing on the experiment side.
 - However, given how many changes we have made to the vacuum chamber, I wouldn't be surprised if we are asked to show some follow up at some point. The review of this system was a long time ago.
 - We will have a small review on the beam dump collimator next week, but not a concern for most here.
- Trying to accumulate as much documentation as possible through the summaries of these reviews. Please make sure schematics, manuals, specs, etc all get to us.
- Gate reviews: as you may recall, we are still waiting to do Gates 2&3 until we have finalised drawings for the chambers, magnets, etc. There is no particular rush, but we should aim to hold it early in the new year, giving time for gate 4a before we start installing.

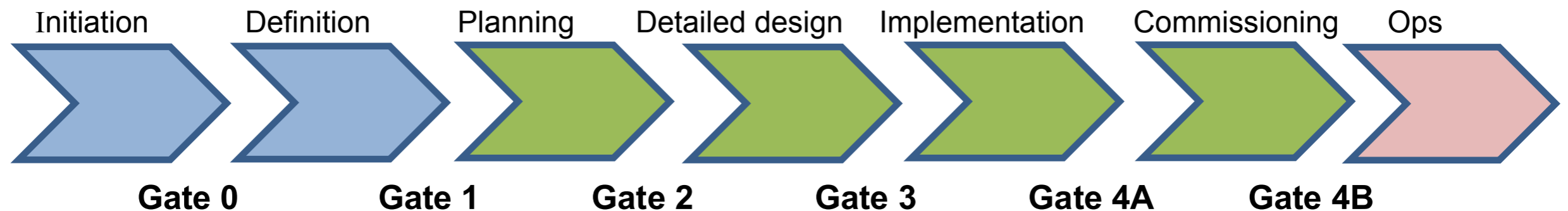
Status of the CNSC license and the safety analysis report

- As you know, lots has been up in the air regarding what we are really expecting to produce. Meeting between Stephi, Thomas, Jon Aoki, and Rock Neveau on Tuesday (14th) to discuss.
- Summary compiled by Thomas following preliminary discussion two weeks ago:
 - Prepare a DarkLight specific SAR. This document should be ready by the end of December 2023, and safety review should be called for soon after. This should include target we are planning to use in FLUKA plots, and highest energy we would run at pre-upgrade (say 32 MeV).
 - Prepare an update of the 40 MeV/10 kW e-linac SAR and get it ready by the end of January 2024. With this updated SAR, we will prepare an application to join the e-linac to TRIUMF's Class-I license. This will show no targets in the beamline.
 - The objective is to start the installation of the hardware for the 30 MeV DL experiment in June 2024.
- Our current understanding is that we will begin discussing with CNSC as soon as we can (indeed have already begun), but we will ask for conditions under which we can proceed as soon as the full set of paperwork is on their desks.

[Skip/remove if Stephi covering elsewhere]

Backup

Reminder: TRIUMF gate approvals



- Project entered “planning” stage (passed Gate 1) in spring 2022
- Before we can technically put anything into the beam line, we need to have passed Gate 4A
- Therefore we should get through 2 & 3 as soon as we can. These are not the only things that affect our schedule, but they will be part of it, and help guide the rest of our tasks
- Recall we are moving forward with 30 MeV experiment ONLY for now and will hold separate gate approvals for the 50 MeV upgrade if we get the funding

Gate 2 needs - basically no update in the last year

Gate 2 review checklist Gate 2 = End of Planning / Ready for Detailed Design	Yes	No
Actions from previous review addressed?	<input checked="" 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? Note 1: Cost estimates should include considerations for inflation, currency fluctuations, taxes, shipping, customs. Note 2: The budget should also include contingency based on analyzing similar projects (size/complexity) or based on an assessment of the risks (impact/likelihood)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Has external funding for this project (to Gate 4B) been confirmed with granting agency/partner?	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>
Has the technical concept been reviewed by experts and stakeholders? See note below for more details	<input checked="" type="checkbox"/>	<input type="checkbox"/>

None

No update to requirements; need design review document

Yes - our budget for 30 MeV is well defined

Yes

TBC (personnel)

Yes

Yes - we are doing this right now with reviews

Gate 2 needs - basically no update since December

Yes - done
for Gate 1

Hazard analysis done?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Microsoft Project resource-loaded schedule, using TRIUMF project template and resource pool? Note: For projects that are managed by a vendor (for example, a major construction project or a major software project), has the vendor produced an acceptable equivalent?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is the schedule critical path understood?	<input checked="" 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 checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>
Is there a risk to TRUMF's cyber-security? If so, have you notified IS&T?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Can make the case this isn't needed here; show existing schedule

Yes

Easy to get permission

Yes, but Chris is qualified to sign them off. Just need to communicate it.

No; and Rick is aware of what we're doing

No risk

Gate 3 needs

Gate 3 review checklist Gate 3 = End of Detailed Design / Ready for Implementation	Yes	No
Actions from previous review addressed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Did you receive a letter from the Director/CEO in support of your project, after your successful Gate 2? <small>Note: This is applicable for projects who received Gate 2 after November 2021</small>	<input type="checkbox"/>	<input type="checkbox"/>
All released documents <u>up-to-date</u> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Commissioning plan <u>drafted</u> ? <small>Note: Different types of projects have different criteria and terminology for 'commissioning'</small>	<input type="checkbox"/>	<input type="checkbox"/>
Drawings, <u>diagrams</u> 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 checked="" type="checkbox"/>	<input type="checkbox"/>

Yes - done

Not done but easy

We are finally close here, but still need to: finish beam optics report, release technical drawings and finalise shielding plan

Gate 3 needs

Budget by fiscal year is updated and remaining funds enough to cover projected costs?	<input checked="" 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"/>
<i>Optional, for more complex projects</i>	Yes	No
De-commissioning plan drafted? Proponent should ensure that all hazardous materials have a plan for disposal, plus check with EH&S to determine if decommissioning for the facility or equipment is already covered in the site Preliminary Decommissioning Plan (Document-8810) or whether the PDP will need to be updated	<input type="checkbox"/>	<input type="checkbox"/>
Controls (EPICS, data acquisition, MPS, etc...) specified?	<input type="checkbox"/>	<input type="checkbox"/>

Yes - done

Not done but easy

These might also be required. Not a bad idea to work out controls specifications now anyway.

Gates summary

- Groups often do Gate 2 and 3 simultaneously - I think the advantage is it means one less meeting to coordinate a review panel for, but we could also do them separately
- At last meeting we decided that we might as well do them together, so we are waiting
- Basically all Gate 2 requirements are now done
- For Gate 3, still need final engineering drawings, approved beam optics note, shielding plan (?)