



ARIEL Update

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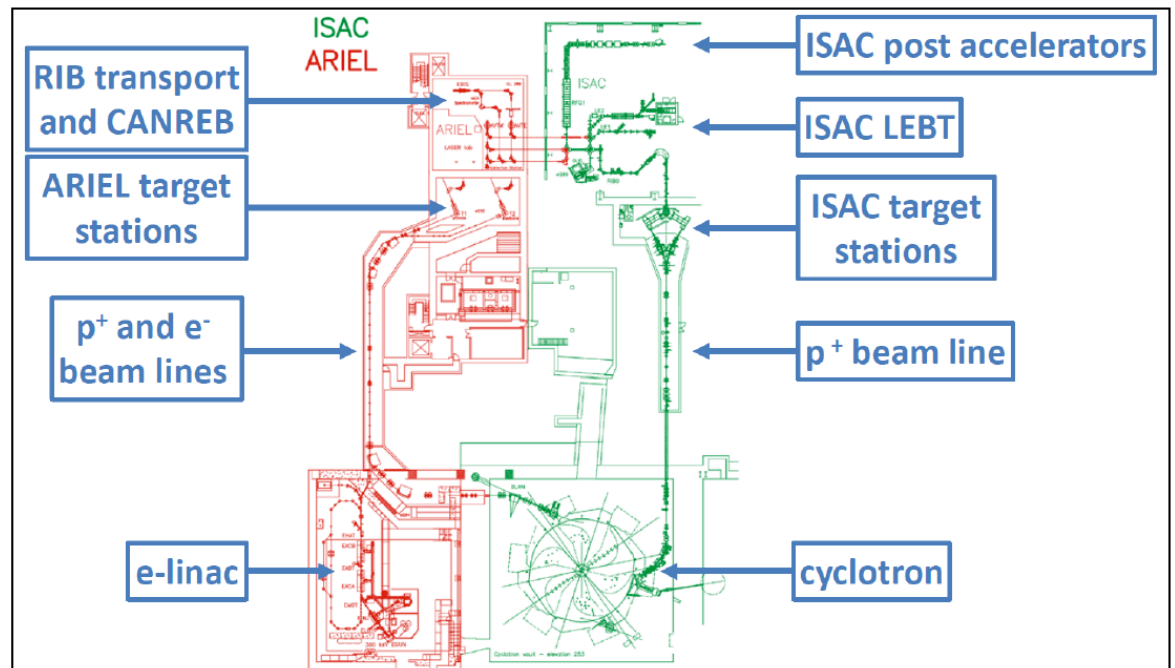
2018-07-19



Discovery,
accelerated

Outline

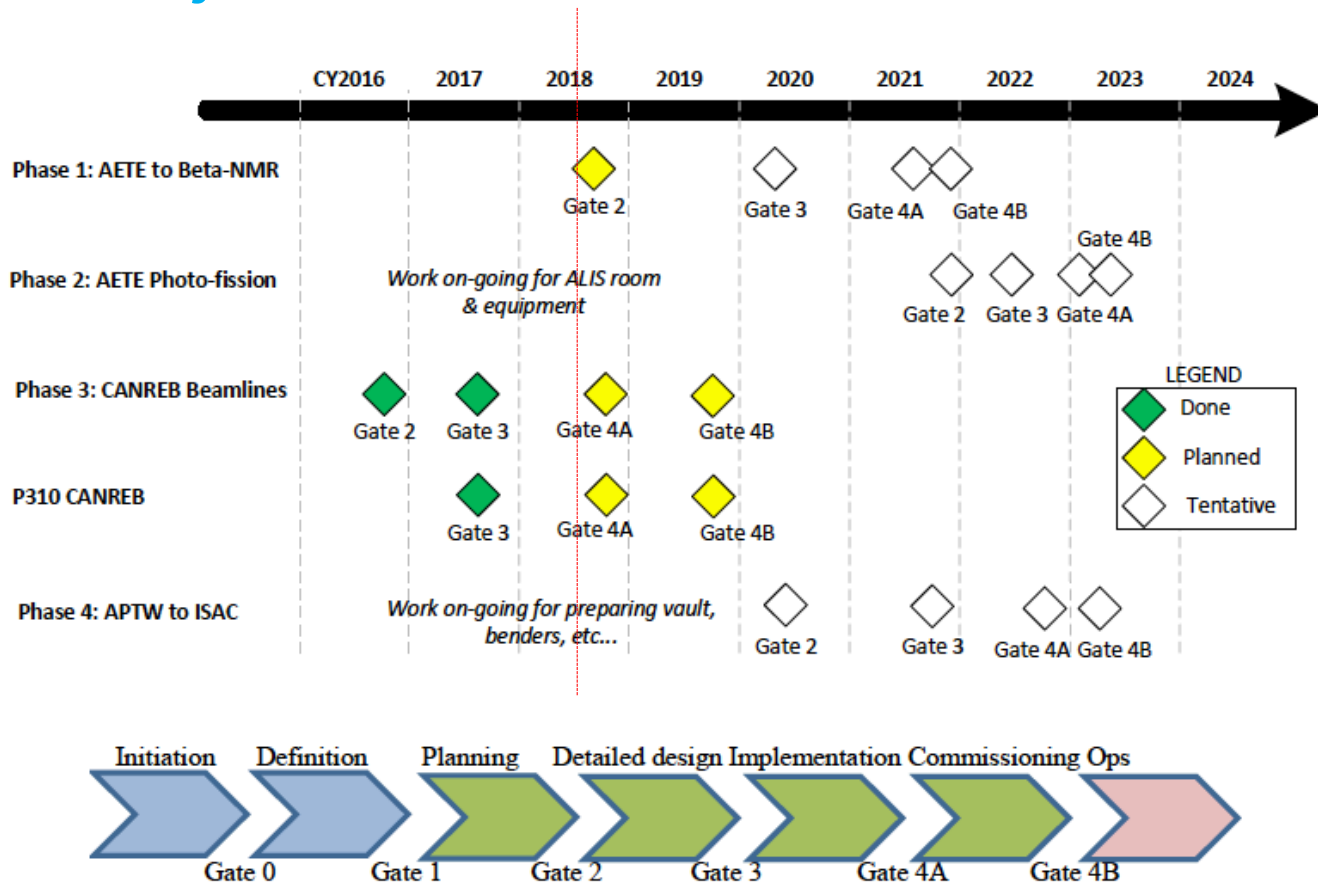
- Project update
- Recent achievements
- Consequences of delayed ISAC startup
- Outlook



Project Update



Project Timeline



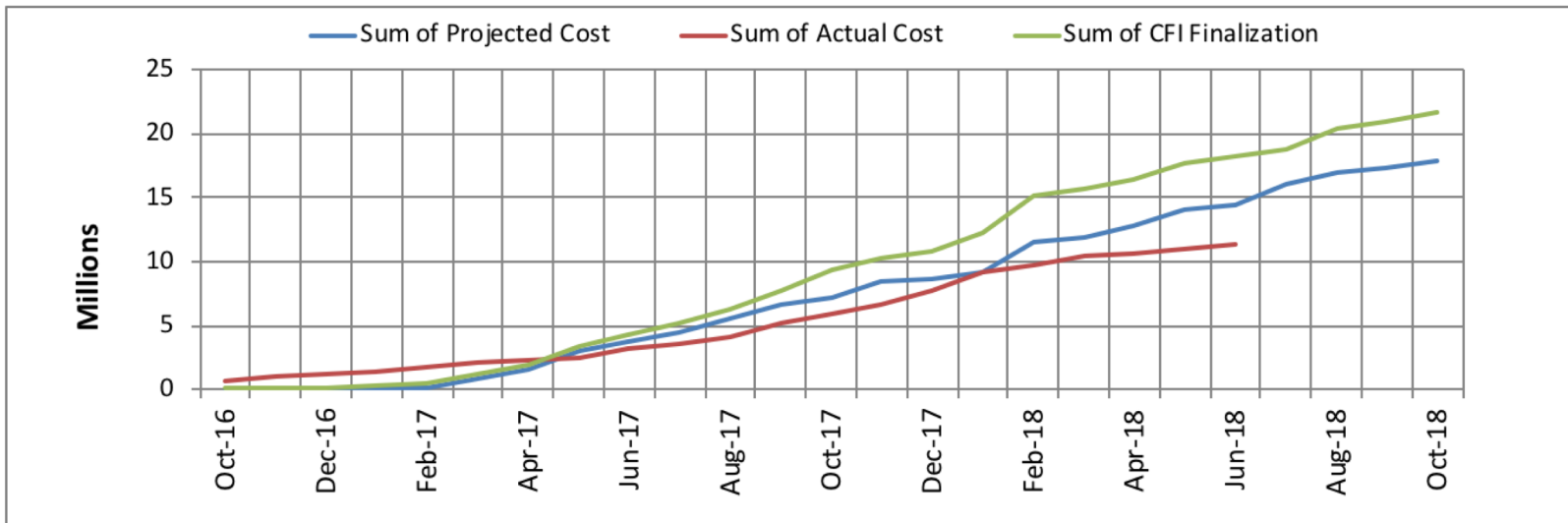


Phase 3 & CANREB schedules:

P310 CANREB Completion: 68%

ARIEL-II Phase 3 Completion: 52%

ARIEL-II CFI Project Cost S-Curves



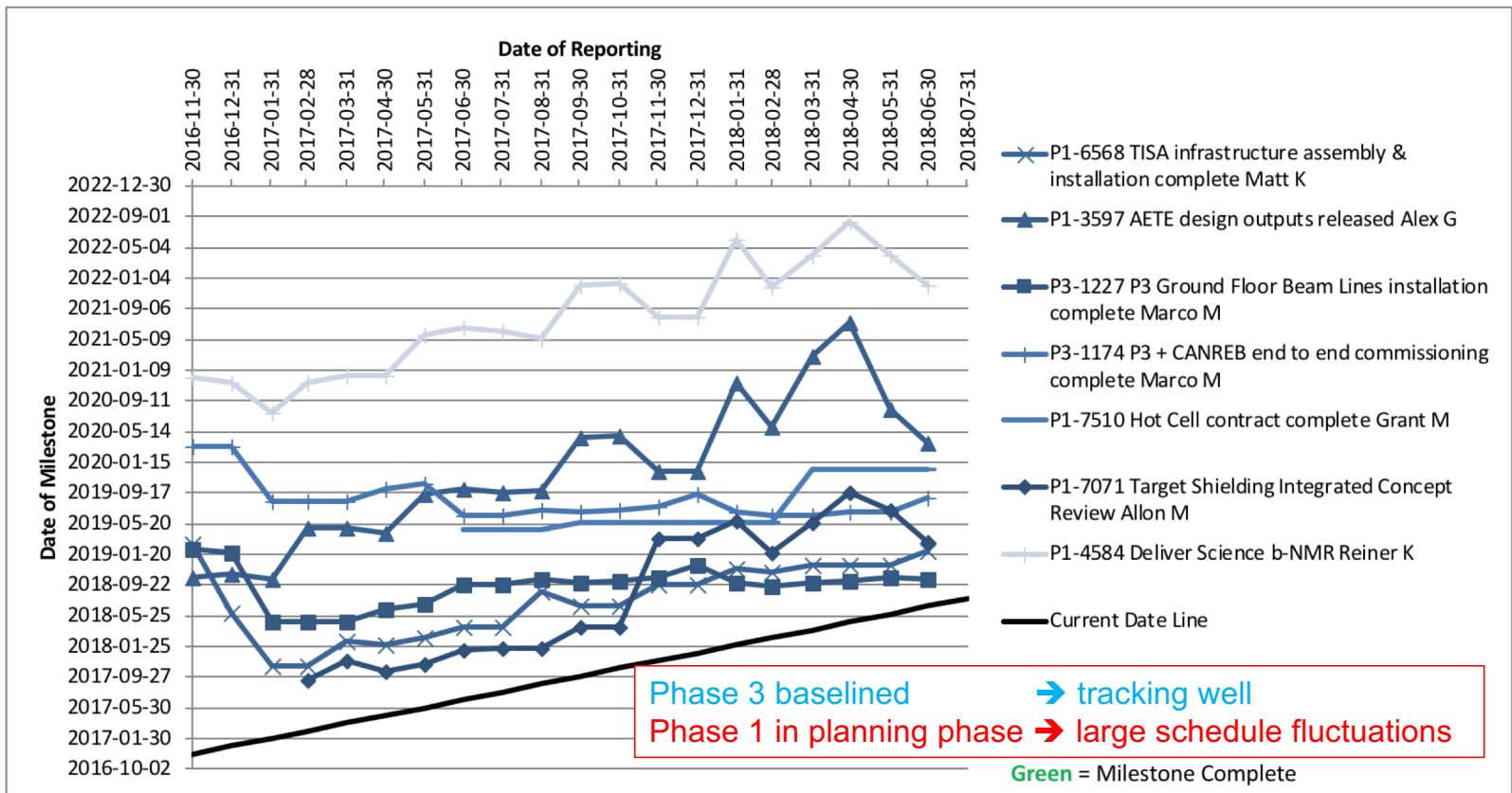
- Per June 2018 data, we are ~3.5 months behind projected spending for the ARIEL-II CFI project
- The major scope package (> \$100K) late in spending is:
 - Hot Cell contract (PDR & FDR milestones slipped)

ARIEL-II Program Milestone Tracking

Milestone Trend Analysis (MTA) explained:

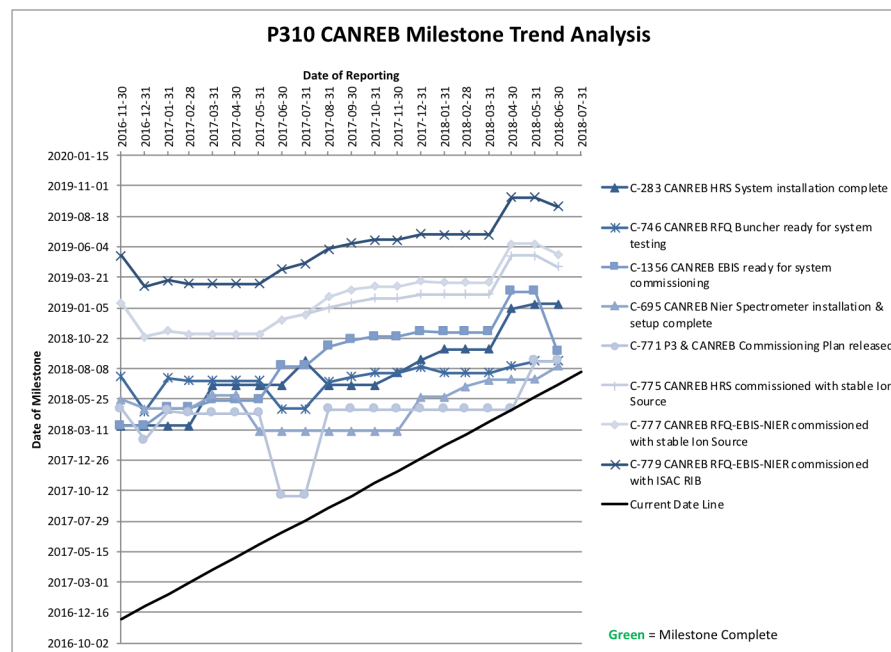
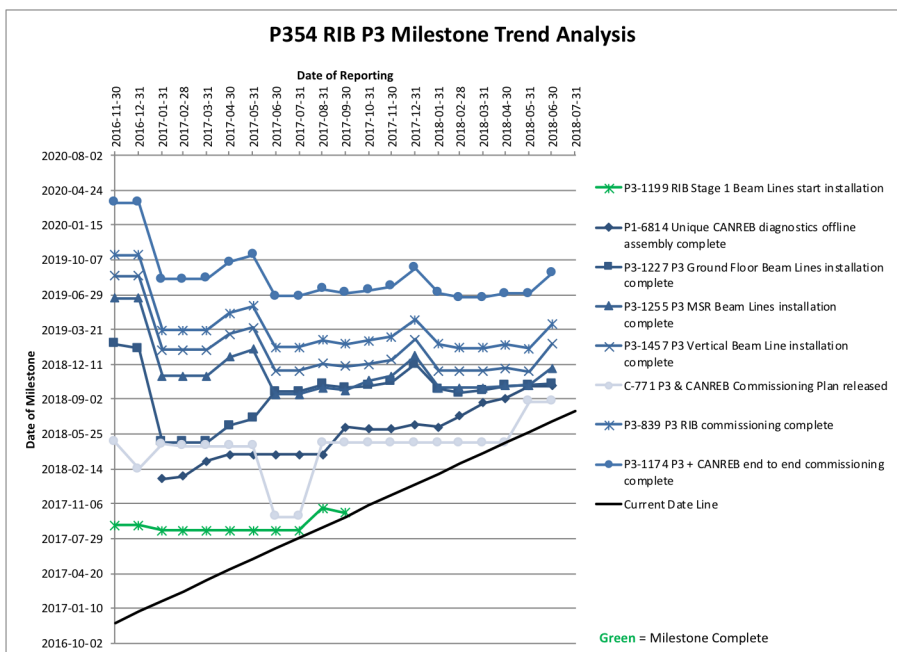


2018-07-19



Discovery, accelerated

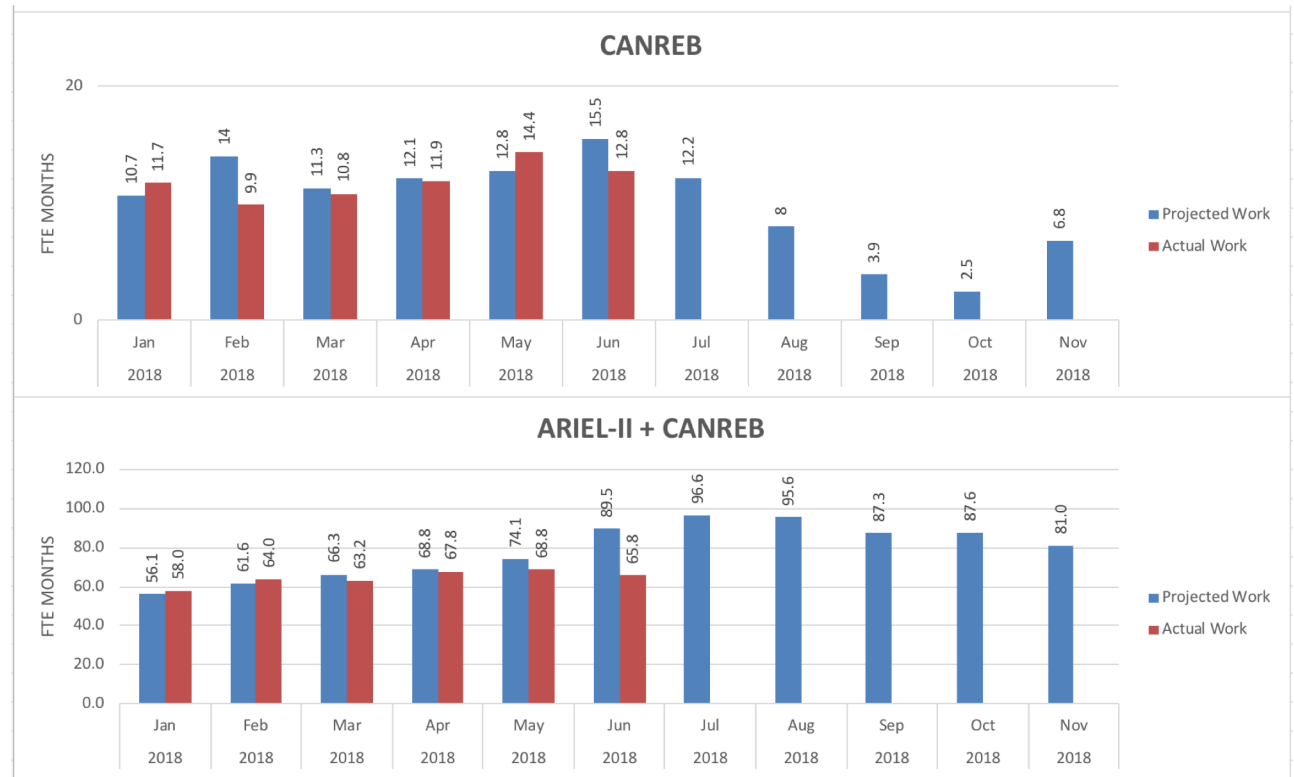
ARIEL II Phase 3 & CANREB MTA



2018-07-19

TRIUMF FTE Report, June 2018

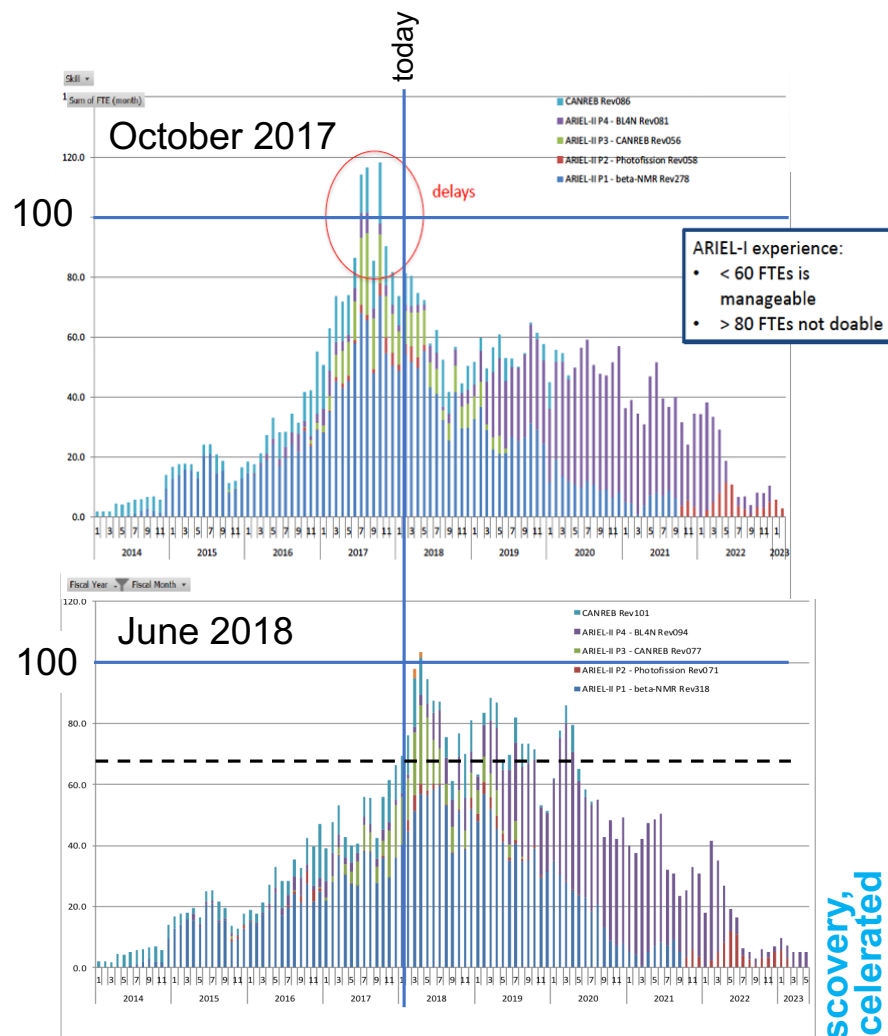
- Goal: 70 FTEs for ARIEL-II + CANREB by end of March 2018
- CANREB actuals are close to projected data
- Gap in timesheet reporting – student/grad contributions will be accounted for in future reports
- We continue to work on managing resource over allocations
- Planning lag due to schedule complexity and non-fixed schedule for Phase 1



June 2018 data is preliminary

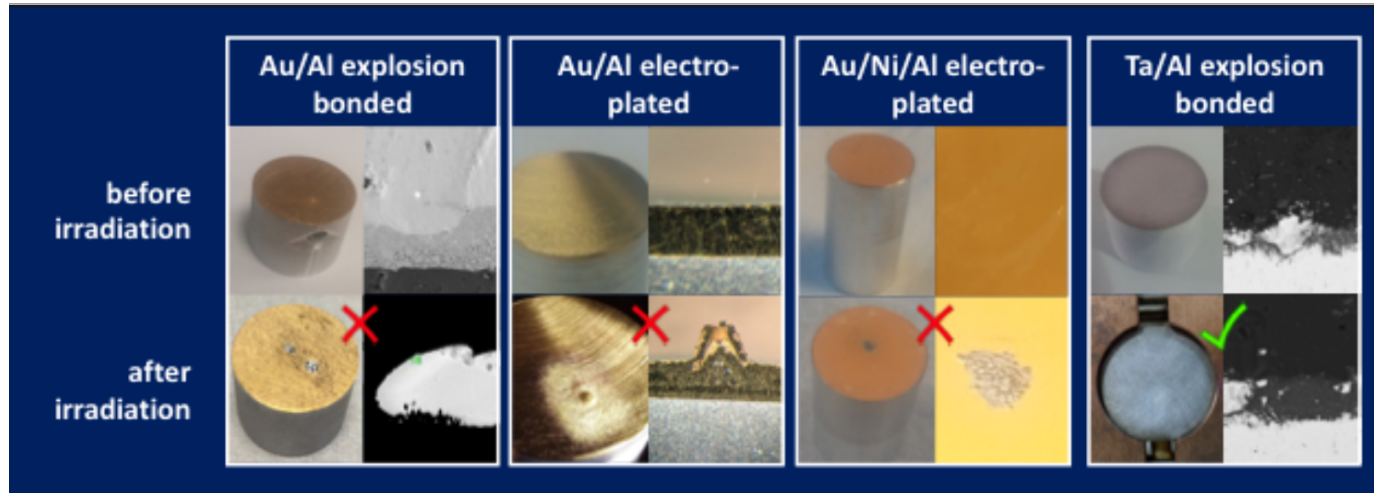
Resource Rollup

- Peaks of almost 120 FTE/month (Oct 2017 data) have been leveled to ~100 FTE/month by updating resource loading for key resources
- ~100 FTE/month is still greater than sustainable for a large project (~80 FTE/month for ARIEL-I)
- Several key resources are still overloaded in the schedule → slippage
- Schedule resource loading data is most accurate within a 0-9 month window of the present date. Beyond that we can expect the loading to change (likely increase) as we learn more about the tasks and how to execute them.
- We have a planning lag for parts of the schedule



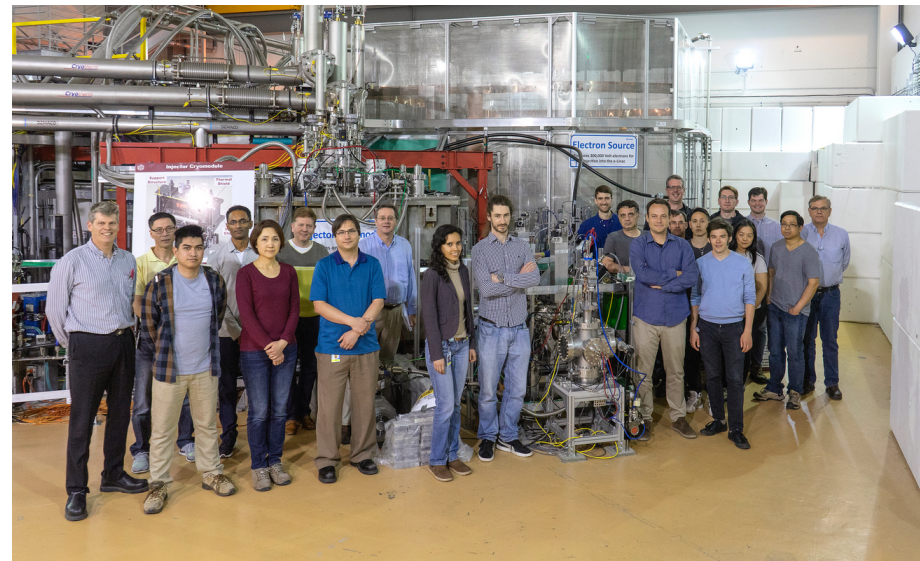
Recent Accomplishments





Successful testing of Ta/Al samples for the electron target station's converter

Major Technical Risk retired !!



Installation is progressing



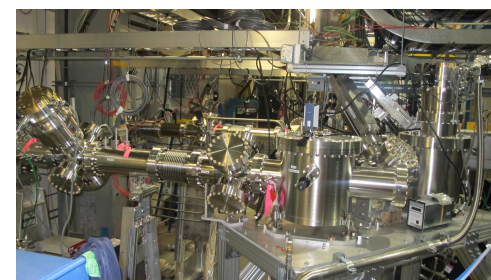
B1-Level Racks installed



RIB beamlines ARIEL GND floor



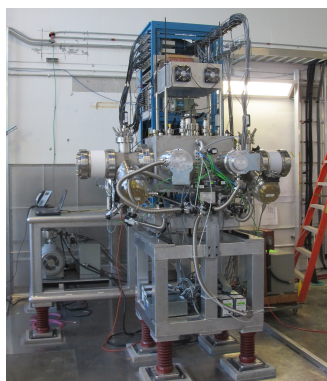
RIB beamlines enclosure



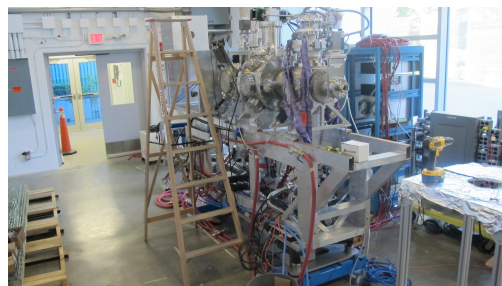
RIB beamlines in ISAC



ALIS cleanroom



RFQ set-up



EBIS testing started

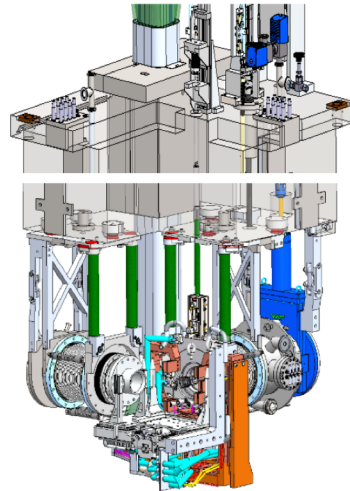
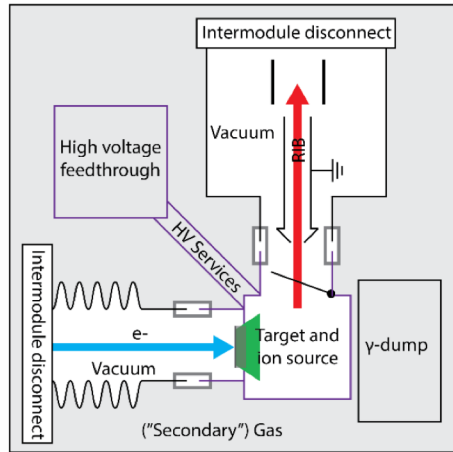


HRS mapping ongoing

2018-07-19

Electron target station concept meets requirements & budget

AETE FE Concept	Technical Implementation
Requirements: 100 % conceptually achieved	Cost estimate: Within budget



TRIUMF	Design Review	DR. P0353.21 Document: 157818	
Title	AETE Follow-up Concept Review		
Proponents	Alex Gottberg, Thomas Day Goodacre		
Objectives	Review the AETE concept status and determine if the project is ready to move to the detailed design phase		
Location, Date, Time	ISAC-II Conference Room	June 19, 2018	13:00
Panel members	Initials	Distribution:	
Chair: Bob Laxdal		Alex Gottberg Thomas Goodacre	
Reviewers:		Noman Muller Kevin Chen Eric Guetre Reiner Kruecken Marco Marchetto Dino Youifov Ander Mjos Bill Paley	
Grant Minor	FOR APPROVAL		
Yuri Bylinsky			
Ramy Dawson			
Oliver Ketter			
Joe Milderberger			
Friedhelm Ames			
Adam Gansworthy			
Review Panel Findings		YES	NO
Are the requirements adequate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Does the design have the capability of meeting the requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional problems identified?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Proceed to Detailed Design?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Next Major Milestones

Start testing with Pumping and Heating Investigation Stand stand: end of July

Phase 1 Gate 2 : September

Phase 3 / CANREB Gate 4A: October 19th



Delaying the 2018 ISAC startup: did we achieve our goals?

Goal	Comment	Outcome
Greater flexibility in scheduling, January-June	Joint Shutdown + ARIEL scheduling	✓
Extra 31 FTE-month mid-April to mid-June	Boost of ~25 FTE months achieved Unforeseen shutdown and ISAC TM work prevented higher boost for ARIEL	(✓)
Phase 3 stays on track	ARIEL II Phase 3 on track, CANREB slightly delayed	(✓)
Bonus: accelerate Phase 3 schedule	Not achieved	✗

Delaying the ISAC startup has made significant resources available to work on ARIEL (and to help with arising issues with ISAC target modules and cyclotron)

➔ Overall necessary and impactful

Outlook

- **Winter 2019:**
 - No need to delay ISAC startup for ARIEL, because no major ARIEL installations planned
 - Caveat 1: provided we are still on track for Phase 3 installation, e-linac dogleg installation, and Phase 1 installation of test stands
- **Winter 2020:**
 - Likely need for delayed ISAC startup, because start of Phase 1 construction (RIB Modules, target hall shielding)
- **Winter 2021 and 2022:**
 - Likely need for delayed ISAC startup because of Phase 1 wrap-up and start of Phase 4 construction (BL4N, Proton Target)



Thank you!
Merci!

