



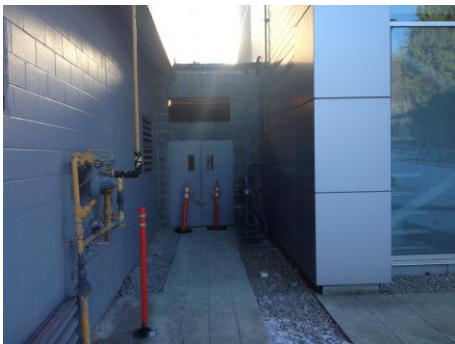
Canada's national laboratory
for particle and nuclear physics
and accelerator-based science

ARIEL-II schedule

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Project Engineer

11 January 2017





ARIEL-ISAC enclosure



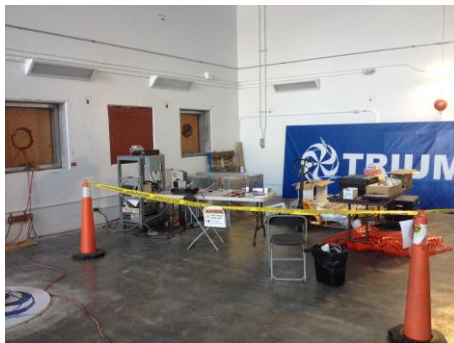
RIB transport prototype



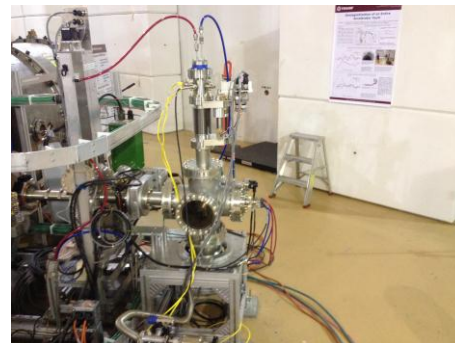
Electron target thermal test stand



Racks in ARIEL room B1-08



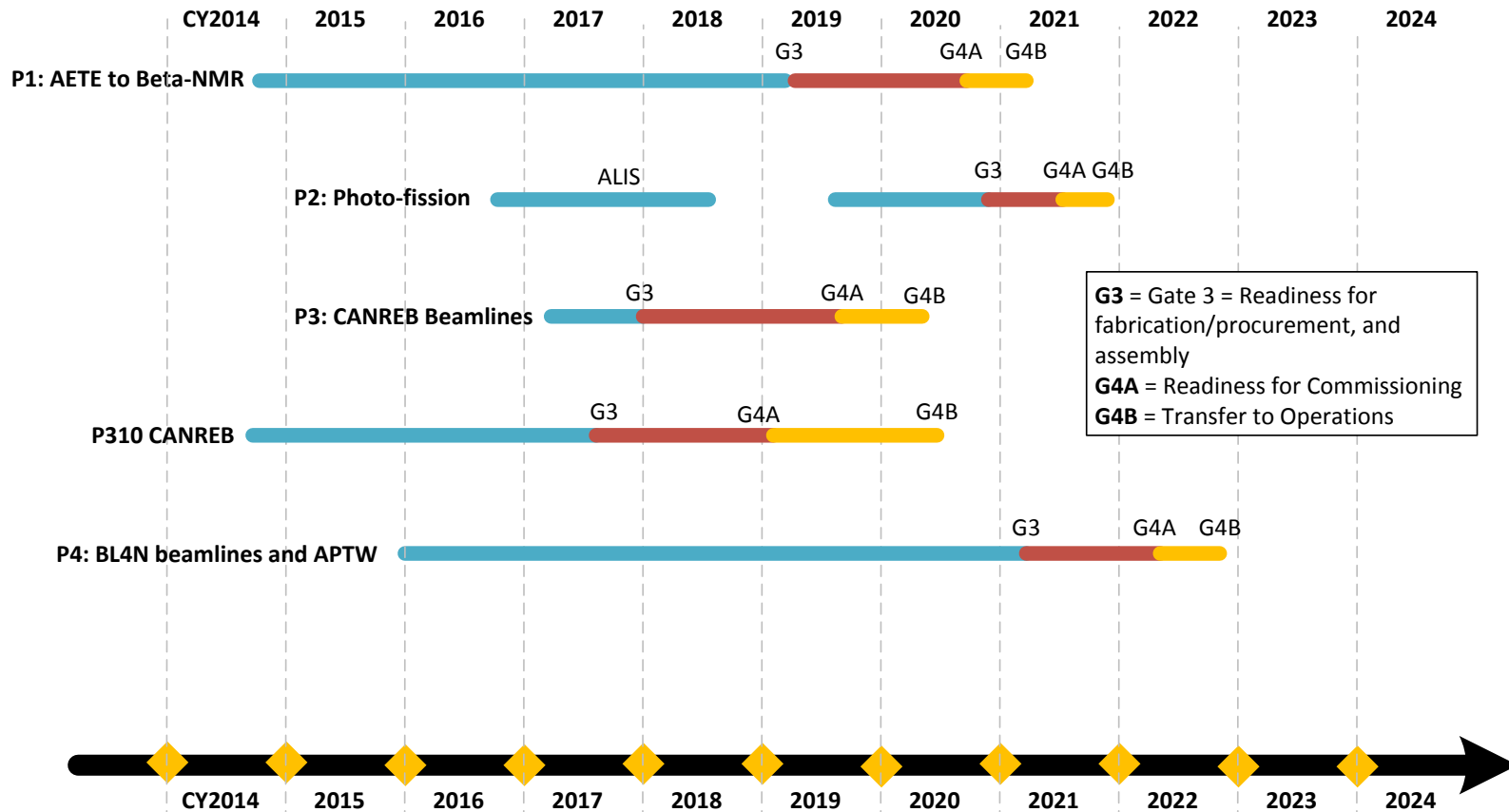
RFQ/EBIS pulse drift tube test bench

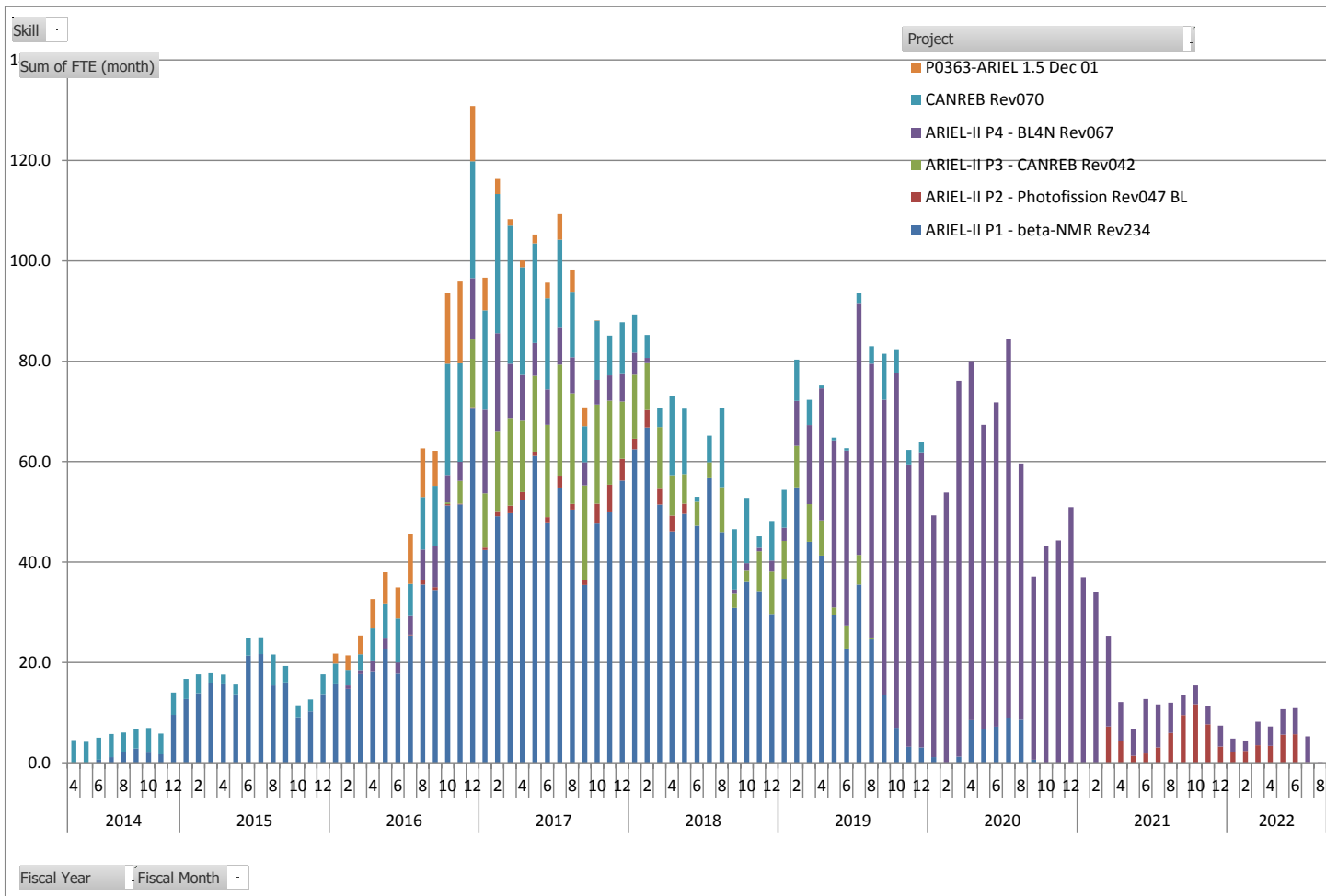


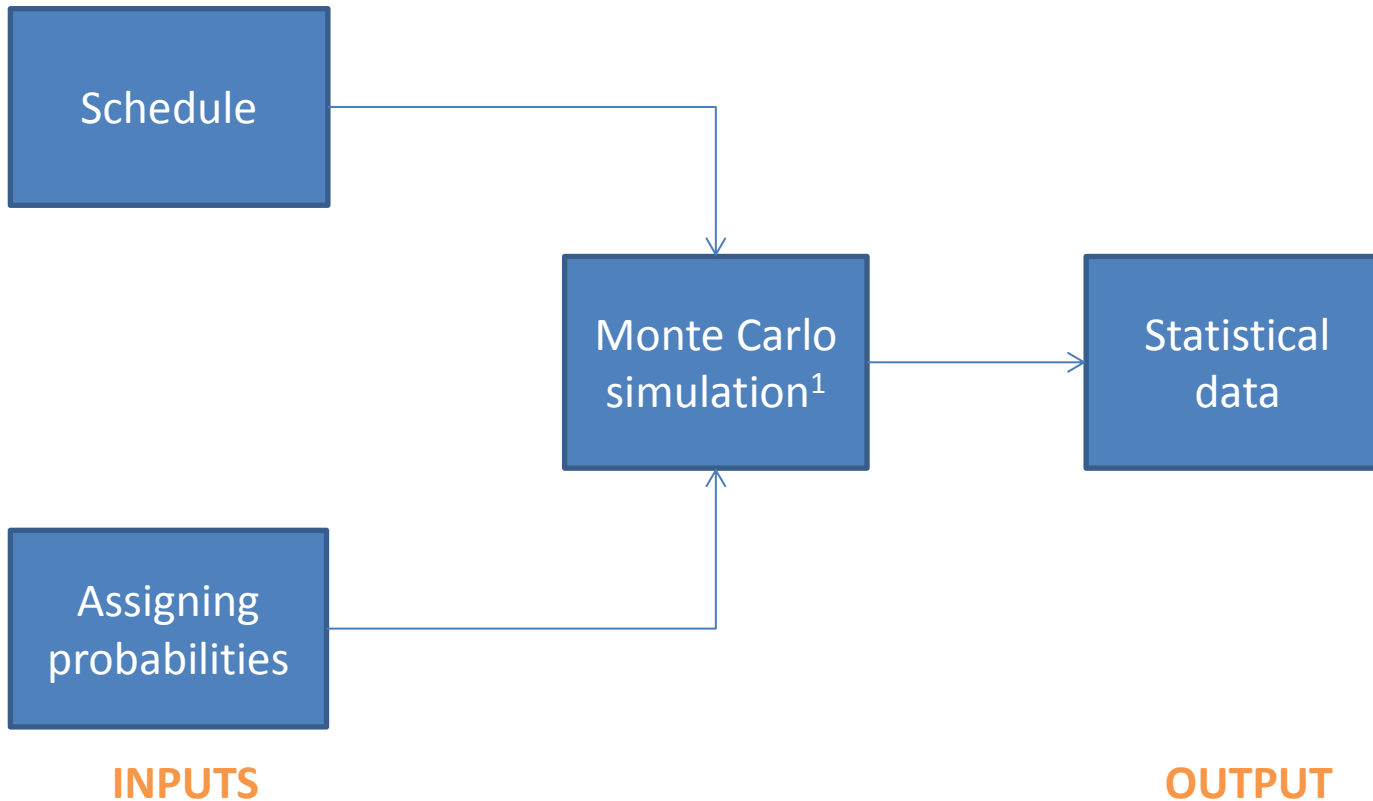
Electron target converter test stand



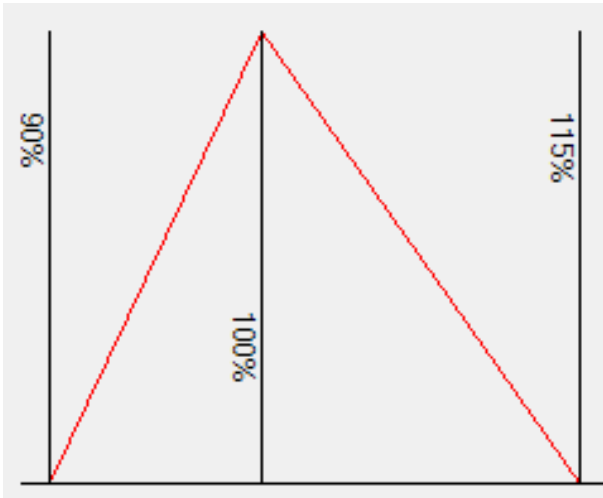
- Phases
- Resource stack-up
- Monte Carlo schedule analysis
- Milestones for 2017
- Progress dashboard







Note 1: Full Monte by Barbecana, www.barbecana.com, is an 3rd party add-in to Microsoft project



**LOW RISK
PROB. DIST.**



**MED RISK
PROB. DIST.**



**HIGH RISK
PROB. DIST.**

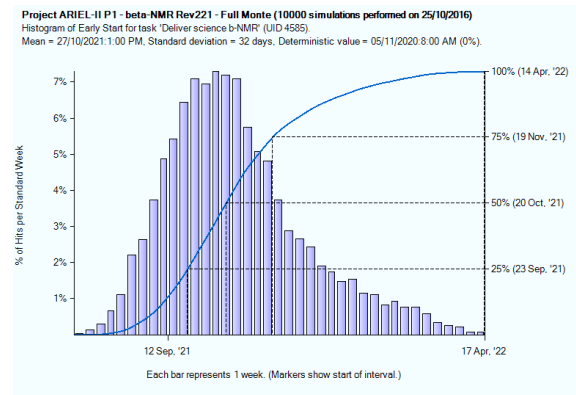
- Each section of each schedule is analyzed for risk level and a probability distribution is assigned for task duration
- Same probability distributions as used by DoD

Contributions	Counter-measures
Over-allocation / under-staffing	Extra resources
Multi-tasking	Prioritization Extra resources
New technology	Expert reviews Early prototyping and testing Limiting the number of new technologies
Unplanned re-work	Upfront requirements and use cases Reviewed and released documentation Design reviews
Estimation errors	Compare estimates to actuals

ARIEL-II Phase	75% confidence
1: AETE RIB to Beta-NMR	12 months delay
2: Deliver photo-fission RIB	3.5 months delay
3: CANREB beamlines	2.5 months delay
4: Deliver RIB from APTW	2 months delay

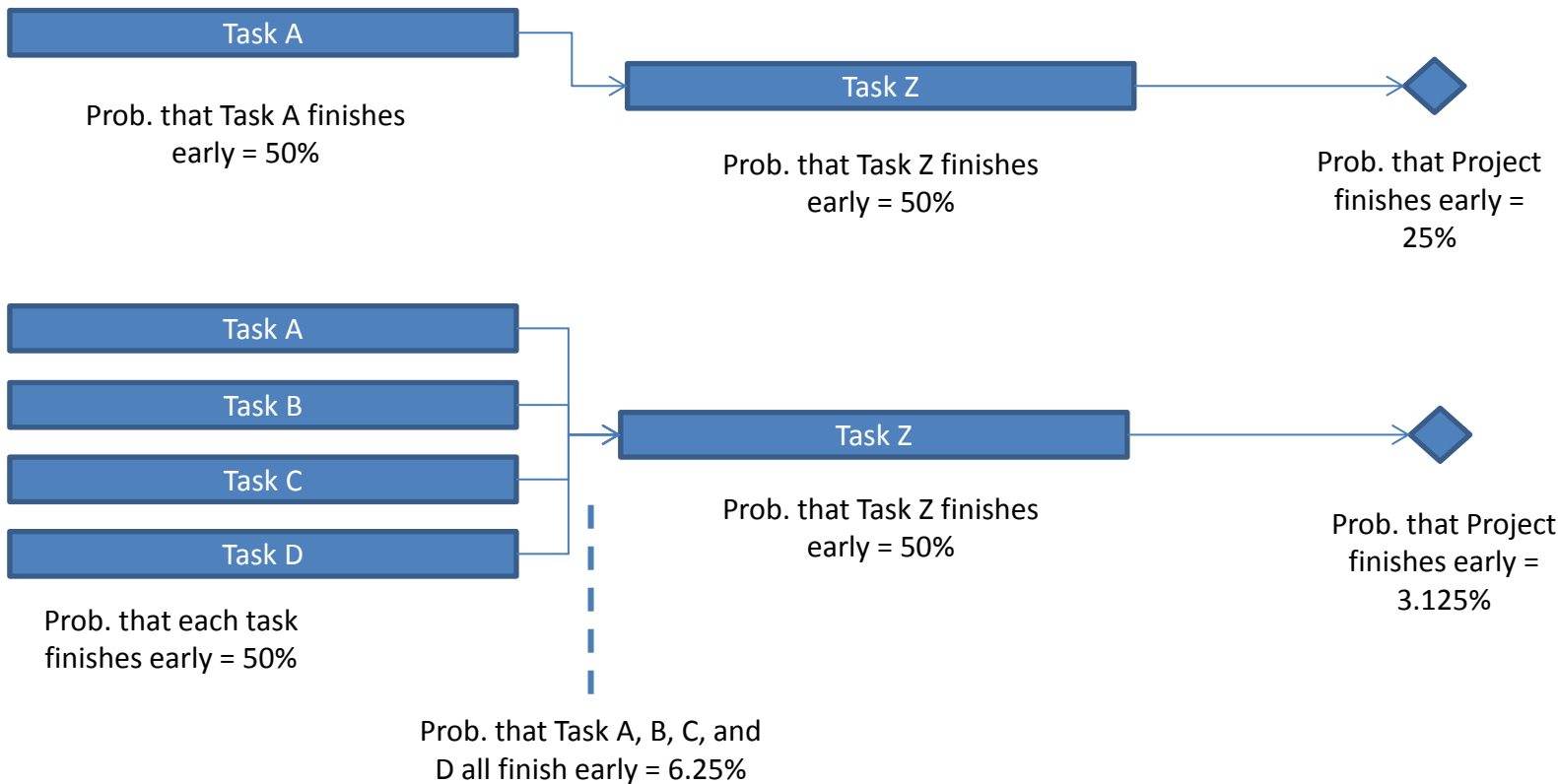


Science enabling milestone	Month/Year
First EEC approved experiments with high-mass accelerated beams from ISAC utilizing the CANREB/ARIEL EBIS charge breeder	10/2020
First EEC approved beta-NMR experiments with photo-produced ${}^8\text{Li}$	03/2022
First EEC approved experiments with photo-fission RIBs from the e-Linac	06/2022
First EEC approved experiments with RIBs from ARIEL Proton target	03/2023



Example Month Carlo result

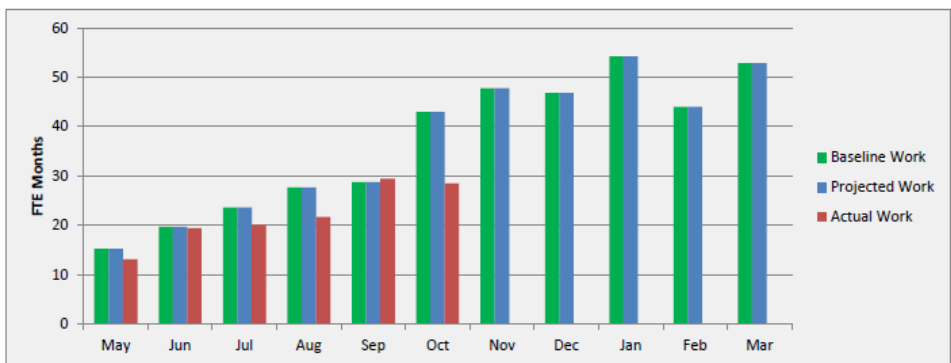
Merge Bias: results are biased towards a later finish when parallel tasks merge



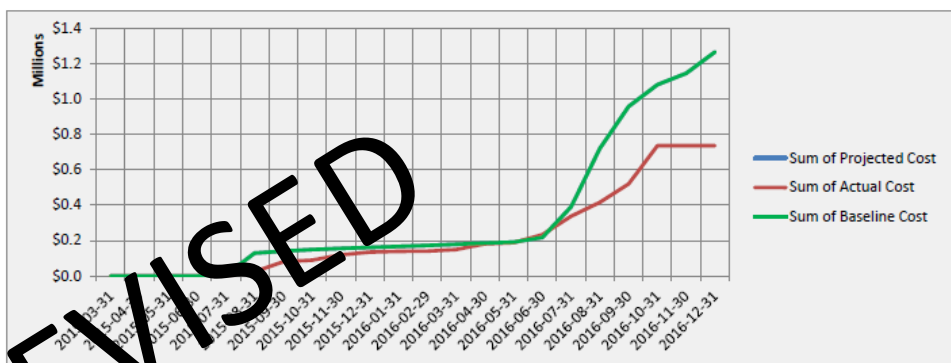
Milestone	Timeframe
Hot Cell procurement contract signed	March
AETE target station external review #2	April
Gate 3 for P310 (CANREB) and P354 (RIB)	May
ALIS clean room installed	July
Start to install CANREB components	3 rd quarter
Start to install RIB line components	4 th quarter



FTE REPORT



COST S-CURVE REPORT



PROGRAM MILESTONES

Baseline Date	Current Date	Description	Author(s)
2016-12-14	2016-12-14	RIB Prototype assembly and testing complete	M Marchetto
-	2016-12	CANREB Nier Magnet received at TRIUMF	N Muller
-	2017-04	Gate 3 review for P310 CANREB, P354 RIB Transport, P359	E Guetre/A Perera
-	2017-04	CANREB HRS Magnet received at TRIUMF	M Marchetto
2017-03	2017-03	Hot Cell Facility contract award & PO	G Minor
2017-03	2017-03	AETE converter concept testing results released	A Gottberg
-	2017-05	CANREB RFQ Buncher assembled offline	B Barquest
-	2017-09	CANREB EBIS received at TRIUMF	J Dilling
2017-10	2017-10	ALIS Clean Room installation complete	J Lassen
2017-09	2017-09	Start of RIB Transport installation, Ground Floor Beam Lines	M Marchetto
2017-10	2017-10	AETE HV Feedthrough prototype test results released	P Bricault
2018-01	2018-01	AETE Hermetic target vessel coupling testing results released	B Paley
2017-09	2017-09	AETE thermal testing results released	B Paley

DOCUMENTATION REPORT

Document routing status	# Docs	Author(s)
Under Review	8	B Barquest, J Chak, P Bricault, B Paley, S Saminathan, N Muller, B Richert/N McLean
Change Pending	6	M Rowe, P Jones, B Paley, P Bricault, N Muller
Routed for Approval	1	P Bricault/A Gottberg/B Paley
Dissapproved	4	M Blessenohl, C Barquest, A Messenberg, E Guetre
Overdue	14	D Wager, E Guetre, G Morris, J Lassen, D Yosifov, B Richert, P Bricault, A Gottberg, L Egoriti, N Muller, J Chak, M Marchetto, N McLean

BEING REVISED



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Thank you!
Merci!

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