SLOWPOKE Capability Maintenance

Project / Technical Lead: Justin Spencer

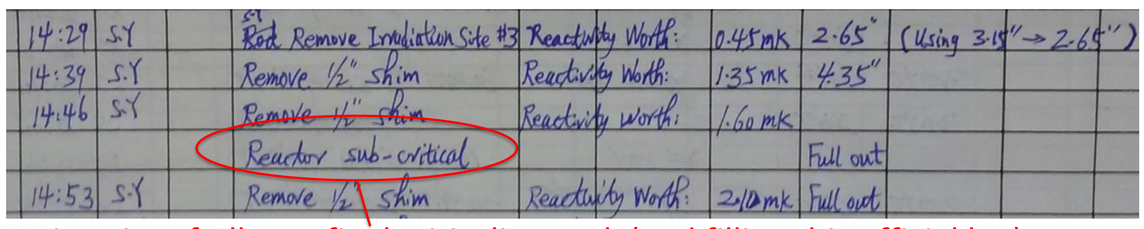
Federal Stakeholder: CNSC

Project Objective: To maintain CNL's capability in the SLOWPOKE area.

- SLOWPOKE reactor maintenance and some activities involved in decommissioning must be performed by CNSC-certified staff, who are distinct from the reactor operators.
- This project enables expertise to be sustained to ensure continuation of SLOWPOKE reactor operation. The capability to safely decommission the reactors is also underpinned.

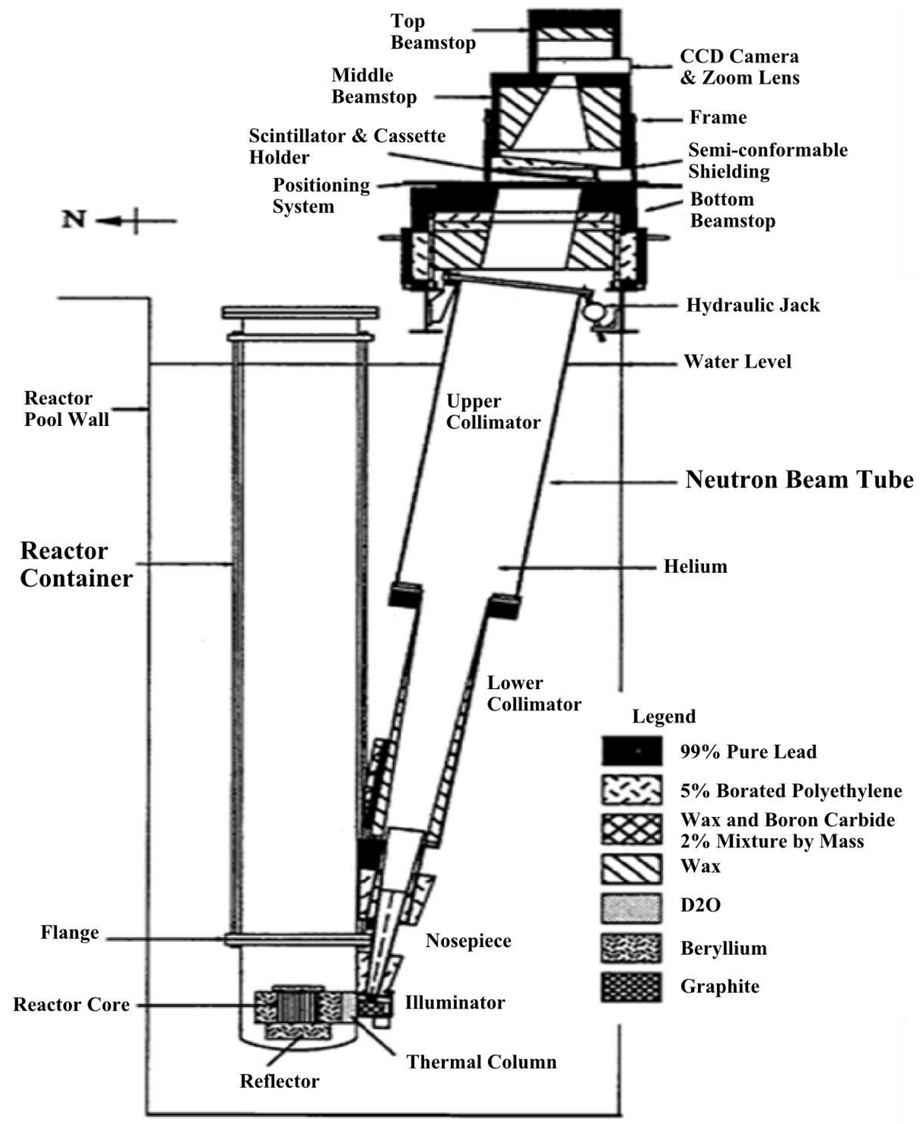
Key Points:

- 2017 – 2022 is the most active period for SLOWPOKE reactors since the construction phase decades ago:
  - Decommissioning of University of Alberta (2017) and Saskatchewan Research Council (SRC – 2019)
  - Refuelling of the Royal Military College of Canada (RMCC) reactor (2019-2022)
- Activities support staff training:
  - Decommissioning activities at SRC in August 2019
  - Capability to safely execute refuelling of the RMCC reactor



14:29	S.Y	Rod Remove Irradiation Site #3	Reactivity Worth:	0.45mk	2.65"	(Using 3.15" → 2.65")
14:39	S.Y	Remove ½" shim	Reactivity Worth:	1.35mk	4.35"	
14:46	S.Y	Remove ½" shim	Reactivity worth:	1.60mk		
		Reactor sub-critical			Full out	
14:53	S.Y	Remove ½" shim	Reactivity Worth:	2.10mk	Full out	

University of Alberta final criticality work (and filling this official log) was performed by trainees under supervision (photo used with permission)

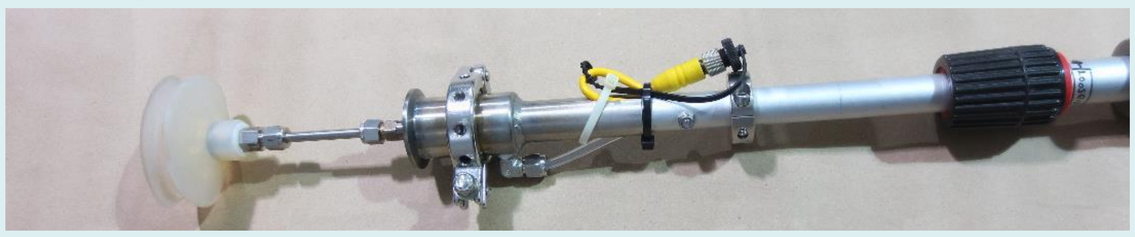


RMCC SLOWPOKE Reactor and Imaging System

Key Activities

SLOWPOKE Coordinator:

- Primary contact for SLOWPOKE facilities and the CNSC.
- Responsible for maintaining and developing capabilities, including staff and tooling.



SLOWPOKE Shim Tool

SLOWPOKE Maintenance Team: Decommissioning Training

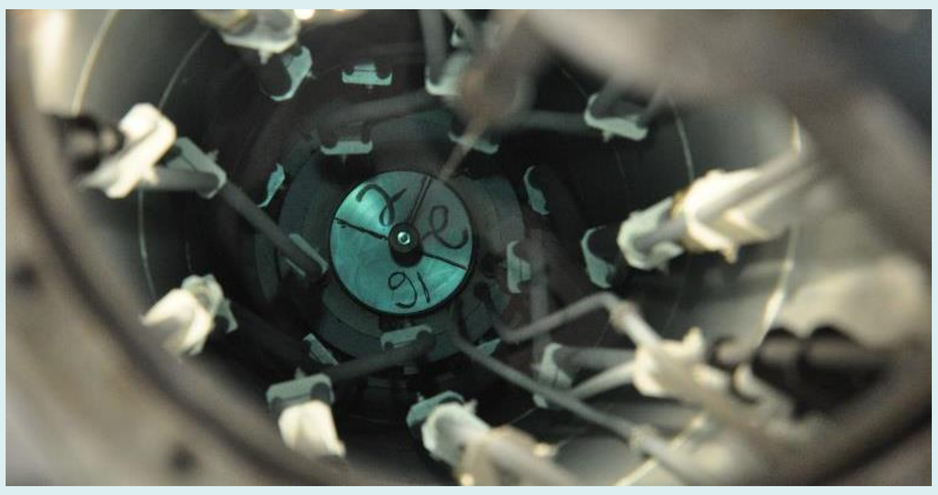
- Exploitation of the opportunity presented by decommissioning of the SRC facility
- One SLOWPOKE Engineer trainee and one SLOWPOKE technician trainee attended for duration of activities involving critical assembly
- Deep pool of expertise now reduces the probability of challenges with decommissioning of other facilities in the future.

SLOWPOKE Maintenance Team: Reactor Refuelling Training

- Refuelling of the RMCC reactor will provide a rare training opportunity that will be exploited under this project.

SLOWPOKE Maintenance Team: Generic Training

- Site visits for shim adjustment training requirements
- Miscellaneous training requirements (initial and ongoing)
- Annual 'mock up' shimming practise



SLOWPOKE Shim Tray during Maintenance Activity

SLOWPOKE Physicist:

- The SLOWPOKE physicist is responsible for items such as: fuel loading and commissioning of reactors and refuelled cores (e.g. RMCC), and advising on the reactivity implications of any core modifications
- A new SLOWPOKE physicist is being trained to replace the current one, who is nearing retirement

SLOWPOKE Neutronic Simulations:

- Detailed simulations of the reactivity worth of beryllium shims help reduce uncertainties during preparations for maintenance activities