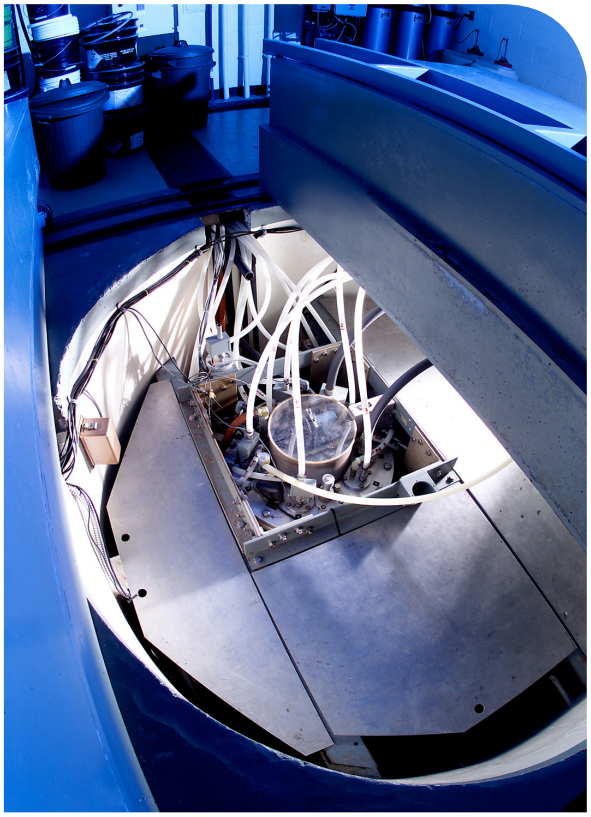
SASKATCHEWAN RESEARCH COUNCIL

SRC's SLOWPOKE-2 Research Reactor

Frequently Asked Questions

FREQUENTLY ASKED QUESTIONS ABOUT SRC'S SLOWPOKE-2 RESEARCH REACTOR

The Saskatchewan Research Council (SRC) is home to the SLOWPOKE-2 – a low-power research reactor. It is located in a secure facility in Saskatoon and has operated trouble-free since its commissioning in 1981.



SRC's SLOWPOKE-2 research reactor

Q: What does the name 'SLOWPOKE' mean?

A: The name 'SLOWPOKE' refers to Safe LOW Power Kritical Experiment – an experiment to determine the smallest amount of uranium that could be configured to sustain a nuclear reaction. The term "kritical" refers to the point at which a nuclear fission reaction can be sustained.

Q: What is the reactor used for?

A: The reactor is licenced to operate purely for scientific purposes by the Canadian Nuclear Safety Commission (CNSC). The reactor is used as an analytical tool to analyze for uranium and organic halides. It is used as a neutron source for an analytical technique referred to as neutron activation analysis (NAA) – which is carried out by bombarding the sample with neutrons to produce isotopes of the element that are measured based on their gamma emissions.

Q: Does SRC produce medical isotopes with it?

A: No.

Q: Where is it located?

A: SRC's Environmental Analytical Laboratories in Saskatoon, SK, Canada has housed the SLOWPOKE-2 reactor since it was commissioned in 1981.

Q: Who designed the reactor?

A: The SLOWPOKE was designed by Atomic Energy of Canada Ltd. (AECL) in the 1970s.

Q: Does it produce power?

A: No. It is a low power research reactor designed to analyze samples.

Q: How similar is the reactor to a CANDU power reactor?

A: The SLOWPOKE is a research reactor designed for analytical testing. It is not a power reactor.

Q: What are the benefits of having a research reactor in Saskatchewan?

A: The reactor allows SRC to perform analytical testing for a variety of clients. SRC is committed to adding value for the people of Saskatchewan and by performing the analyses here in Saskatchewan, are adding value to the local economy.

Q: How big is the reactor?
A: The core of the reactor is the size of a shoe box. There is also a protective barrier and some controls in the workroom.

Q: Who sends samples to SRC for testing using the reactor?
A: SRC gets samples from industries across Canada and around the world (e.g., mining and minerals, agriculture). The reactor, as an analytical tool, is a very useful complement to the array of traditional chemical and instrumental techniques available for environmental testing.

Q: How do you get samples in and out of the reactor?
A: Samples are sent into, and exit, the reactor via a pneumatic (air) transfer system.

Q: How safe is the reactor?
A: SRC takes safety very seriously with safety being an over-riding priority for our organization. The SLOWPOKE has been operating trouble free since its commissioning in 1981. Its design is fail-safe and does not require an active mechanical safety system. Heat produced by the reactor limits its reactivity and operation. In addition, there are several safety system shut downs in place to keep employees and the facility safe. People who live, work and study in the surrounding community are safe.

Q: Have you ever had a security breach at the reactor?
A: No.

Q: What powers the reactor?
A: A uranium core.

Q: How often is it refueled?
A: Never. The reactor continues to operate using the original fuel.

Q: How often is it serviced?
A: The only servicing undertaken has been periodic visits by AECL personnel to restore the reactor to its maximum allowable level of reactivity (reactivity is lost through the normal operation of the reactor).

Q: Does it generate waste?
A: There is no waste generated from the reactor itself. The original fuel is contained within the reactor and will be available for use for many more years.

Q: What about the samples? Do you consider them waste?
A: Samples that have entered into the reactor are disposed of according to CNSC guidelines.

Q: Is the reactor well-known in the community?
A: All CNSC licenced facilities are listed in the public domain. There is a dedicated page for the reactor on SRC's website which includes photos, background information and a video. The reactor has also been featured in past newsletters and annual reports, as well as in the media.

Q: Are there similar reactors in Canada?
A: While there are other similar reactors across Canada, SRC's is unique in that it is the only one not owned and operated by a university.

Q: Who oversees the reactor?
A: Operation of the SLOWPOKE requires a federal licence granted by the CNSC, which visits us annually.

A reactor operator is analyzing a sample of air from the reactor, testing for the presence of fission gases

Q: How many people are trained to run the SLOWPOKE?

A: For security reasons we cannot discuss details around staffing.

Q: What kind of training is required to run the SLOWPOKE?

A: Operator candidates must complete a comprehensive SAT based training program administered in-house by a certified reactor operator, followed by oral and written exams. The facility administrator evaluates the results of the training program. Once all criteria are met, a summary of the candidate's training performance is submitted to the CNSC with a request that the candidate be certified.

Authorized user candidates must complete an in-house training program and write an exam administered by a certified operator. Successful candidates are authorized by the chair of the SLOWPOKE Committee.

Q: Does SRC support the proponents looking to build a power reactor in Saskatchewan?

A: SRC maintains its position as an independent, unbiased provider of science-based solutions to real-world problems and challenges faced by business, industry and communities. SRC does not take a position on political issues or matters of public policy debate.

Q: Do you give tours of the lab? Do you give tours of the reactor?

A: We do not provide tours of the lab or the reactor to the general public.

An SRC authorized user is preparing to count samples on a gammacounter

For additional information about SRC's SLOWPOKE-2 reactor:

- **Go to SRC's website at www.src.sk.ca/slowpoke**
- **Watch a video at http://src.nu/slowpokevid**
- **Contact us at Environmental Analytical Laboratories**

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