

CALGARY RADIOPHARMACEUTICAL CENTRE



Alberta Infrastructure (AI) and Alberta Health Services (AHS) are proposing the construction of Calgary Radiopharmaceutical Centre (CRC). The CRC will be home to Calgary's first and Alberta's third cyclotron. The province is committed to support the development of the facility to provide southern Albertans better access to diagnostic imaging and the treatments for cancer, cardiac, and neurological conditions.

What is a Radiopharmacy?

A radiopharmacy is a specialized pharmacy that handles and dispenses radioactive materials used in medical imaging, like Positron Emission Tomography (PET) and single-photon emission computerized tomography scans (SPECT). They ensure the safe preparation, storage, and distribution of these radiopharmaceuticals, following strict regulations for patient and worker safety.

What is a Cyclotron?

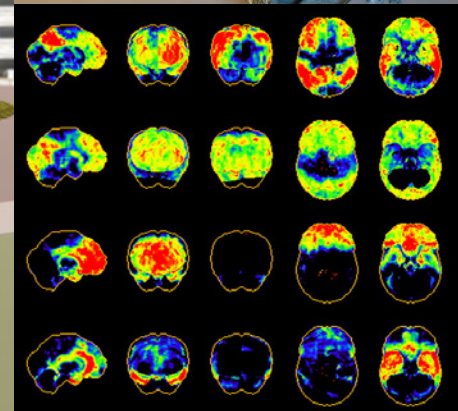
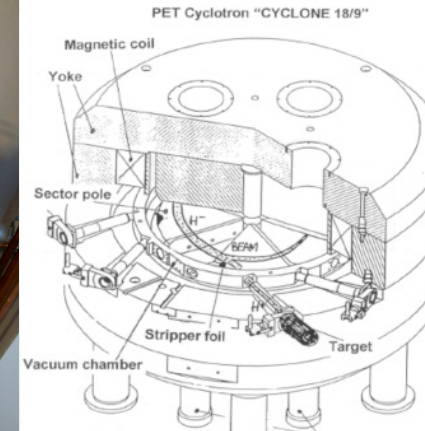
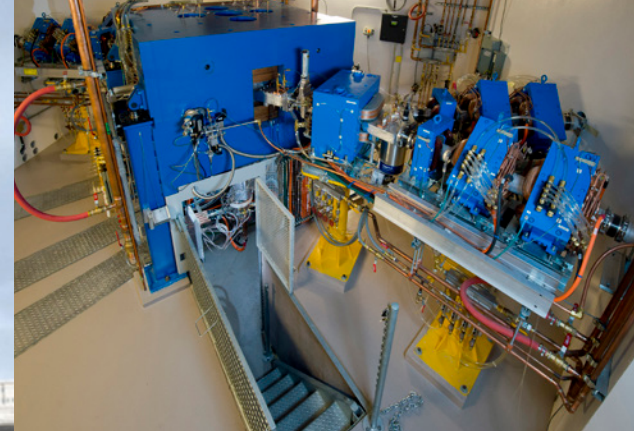
A cyclotron is a machine that accelerates charged particles, like protons or electrons, at high speed in a circular path using magnets and electric fields to produce radioactive isotopes. In addition to already produced radiopharmaceuticals at Foothills Medical Centre, this will provide an opportunity for new radiopharmaceuticals to be used to support the ongoing treatment and diagnostic requirements for Albertans.

Why is this project so important?

This facility will support an increase in diagnostic tests and treatments for those in southern Alberta. This project will provide opportunities for research, support patient needs in southern Alberta, and provide materials that can be shipped nationally in the support of patient treatment across the country.



Anticipated project design (subject to change)



What is half-life?

Radioactive half-life is the time it takes for half of the radioactive atoms in a substance to decay or transform into other elements or isotopes. It's a measure of how long it takes for a radioactive material to lose half of its start amount.

Where will this project be located?

The proposed CRC will be located on the southeast corner of the Foothills Medical Centre on Hospital Dr. near the Tom Baker Cancer Centre. It's conveniently close to the new Arthur Child Comprehensive Cancer Centre that will support the quick transport of radioactive materials that have incredibly short half-lives – from 20 minutes to 24 hours before they decay into non-radioactive materials thus rendering them unable to support the patient.

What will the facility look like?

The proposed CRC will be designed to meet CNSC safety requirements, radiopharmaceutical functional expectations, and LEED Silver requirements. We are in preliminary design of the facility and will continue to share information regarding its design as new information becomes available.

Once construction is complete, the surrounding green space will become a park space for patients and community members. Design of the green space or any potential art work will be determined as we progress through facility layout.



How safe is this facility?

The new cyclotron will be one of 1,500 worldwide and is very safe. Even though radiation issues are not present in cyclotrons, there are still requirements for licensing through the Canadian Nuclear Safety Commission (CNSC).

Unlike research reactors that produce radioisotopes, cyclotrons do not use nuclear material to produce radioactivity. This means that cyclotrons are not subject to the same radiation safety issues as reactors.

Facilities containing cyclotrons are operated by trained personnel following strict safety protocols. The facility will have multiple levels of shielding, protection, and monitoring to ensure safe operation. The cyclotron itself will have several built-in safety interlock systems that prevent the cyclotron from operating if all safety systems are not operational or engaged.

The facility will have regular maintenance, proper training, regulatory compliance, strict security access, and an emergency response plan in place to ensure safe operation.

How is waste from the facility handled?

Water

Water used in the process is within a self-contained water system in the cyclotron vault area. This water is isolated from the Foothills Medical Centre wastewater system and is disposed of in an appropriate manner. Water that is not associated with any radioactivity will be released through typical facility wastewater.

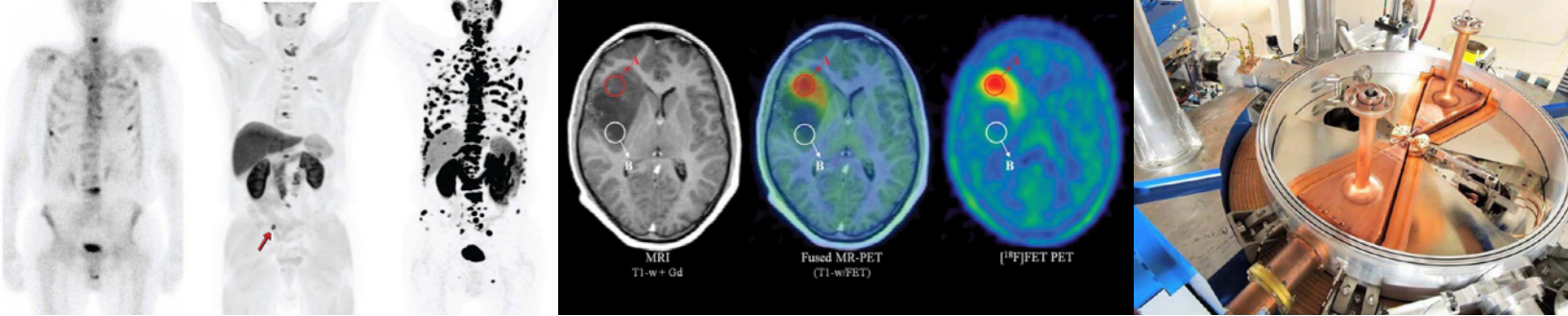
Air particulates from isotope generation

Particles generated within the cyclotron that have reached the end of their use will be released through a high-powered dispersion fan that shoots the particles at high speed at a significant height in the sky above the facility. These particles have short half lives and continue to decay rendering them no threat to health or the environment. These fans will meet guidelines for noise set forth by the City of Calgary.

Who oversees project approval?

Alberta Infrastructure's prime consultant Stantec will be filing an application for "License to Construct" and will be the primary license holder to construct under CNSC approval. The CNSC license ensures the cyclotron operates in a facility that meets strict regulatory oversight. Cyclotrons are not a new technology and the CNSC has extensive experience with ensuring safety of staff, the general public and environment. For more information about the CNSC visit: nuclearsafety.gc.ca

Stantec on behalf of AI will apply to the City of Calgary for a development permit. The permit will be reviewed and approved by the City Planning and Development department taking into account the potential community benefits and effects. When an application is submitted, it can be viewed at The City of Calgary's Development Map portal (<https://dmap.calgary.ca/>).



Will there be community disruption during construction?

We understand that residents may be affected by the construction of this facility and wishes to work with them to mitigate potential issues before they arise.

Road Closures

Closures are not anticipated and there will be no obstruction to accessing parking areas or emergency routes. If a closure is anticipated for the transport of large equipment or materials, the closures will be short with notice provided to those potentially affected.

Noise

Construction causes noise and we understand that this can be disruptive to your daily activities. Noise will be minimized where possible and construction will occur within City of Calgary noise bylaws.

Vibration

Through foundation piling, vibrations can be felt by adjacent properties and within the facility. Timelines for these activities will be shared with those in the area to plan accordingly regarding specific activities that may be affected by this necessary activity.

Lighting

Nighttime lights will be utilized as needed for safety purposes. Potential lighting issues will be dependent on the residence and contacting our team during the process will allow for changes to be made on site to limit potential effects.

Dust

Construction can produce dust and when identified, dust suppression (such as water) will be implemented to limit potential dispersion.

Loss of green space and access

Safety is imperative and site access will be restricted during the construction of the project. The removal of access will be temporary, and designs have been drafted to include an accessible outdoor area available to residents and patients once operational.

What is the Project timeline?

Activities on site will begin following approval by the CNSC and the City of Calgary. It is anticipated that the Development Permit application will be submitted in Spring 2024 and that construction is targeted to be complete within five years.

As timelines are refined and determined, AI is committed to keeping the community informed through ongoing communication and notification.



Have questions or comments? Reach out.

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