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Oral presentation

Written submission from the North American Young Generation in Nuclear

In the Matter of the

TRIUMF Accelerators Inc.

Application by TRIUMF Accelerators Inc. for renewal of operating licence for its particle accelerator facilities

Commission Public Hearing

March 23, 2022

Exposé oral

Mémoire de la North American Young Generation in Nuclear

À l'égard de

TRIUMF Accelerators Inc.

Demande de TRIUMF Accelerators Inc. pour le renouvellement de son permis d'exploitation pour ses installations dotées d'un accélérateur de particules

Audience publique de la Commission

23 mars 2022

Canada

NAYGN Canada Submission

TRIUMF ACCELERATORS INC. PUBLIC HEARING
MARCH 23 OR 24, 2022

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NORTH AMERICAN YOUNG GENERATION IN NUCLEAR (NAYGN)

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Matthew Mairinger, for the record.

I would like to start by thanking the Canadian Nuclear Safety Commission (CNSC) for providing an opportunity to speak on the application from TRIUMF Accelerators Inc. (TRIUMF) for a 10-year renewal of its operating licence for its particle accelerator facilities. I have over 8 years of experience working for Ontario Power Generation at both the Pickering and Darlington nuclear sites. I have worked in Project Controls, Minor Modifications, Reactor Safety, Performance Engineering, Stakeholder Relations, and now I work in Nuclear Sustainability Services as a Business Analyst. I earned my Nuclear Engineering degree and Graduate Diploma in Nuclear Technology from Ontario Tech University and I am a Project Management Professional and a Professional Engineer.

I am here representing North America Young Generation in Nuclear (NAYGN) as the NAYGN Canadian Affairs Chair. NAYGN is an association of young professionals and students passionate about the nuclear industry and is focused on professional development, public relations, networking, and community outreach. There are currently over 120 chapters across North America with 15 active chapters in Canada.

Particle accelerators are crucial for: fundamental research into nuclear and particle physics and astrophysics; commercial production of medical isotopes; materials research using subatomic probes; materials/electronics radiation effects studies. Furthermore the broad research opportunities at TRIUMF provide amazing training experiences to develop the next generation of science and innovation leads – a feature which aligns with the NAYGN mission. The accelerator scientists are also able to participate in international experiments such as ATLAS at CERN, T2K at JPARC, and possibly the International Linear

Collider and CERN Large Hardon Collider upgrades. The TRIUMF cyclotron also produces many exotic ion beams which can be used to address some of the fundamental scientific questions of our time.

I want to commend the efforts TRIUMF has made to reduce dose since the mid-1990s. Better dose planning for maintenance work and upgrades such as the RF booster (which reduced residual cyclotron radiation fields) have reduced total dose from just over 1000 person-mSv down to current collective doses of ~100 person-mSv as shown in Figure 1 [1].

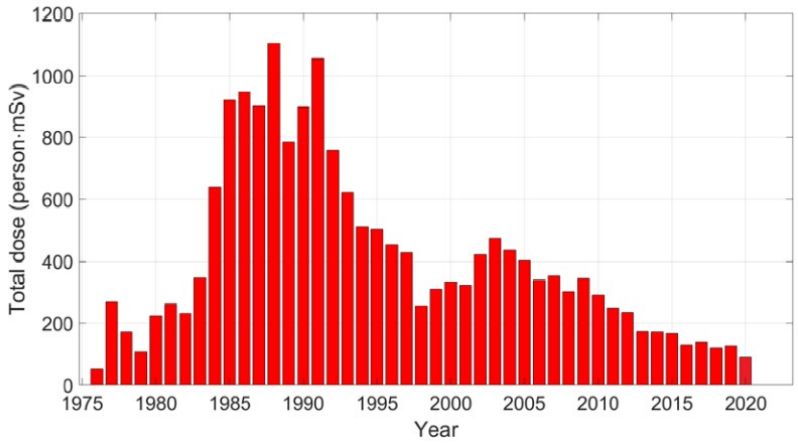


Figure 1: Collective dose accrual v. year [1]

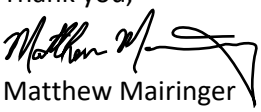
The highest measured dose at the Health Canada detector location was 0.00317 mSv (equivalent to the same amount of radiation you'd receive from one hour in a commercial flight) which was well below regulatory limits. I also have strong confidence in the continued operation of the facility given that airborne emissions have consistently been well below regulatory limits, and there is no indication of trends in the negative direction [1].

I am impressed with the interaction TRIUMF has had with the local community. Some examples provided include regular participation in community events, organizing science lectures, holding open

houses and TRIUMF-related exhibitions, offering public tours, and the launching of virtual access program of the lab [1]. Diversity, equity and inclusion are a cornerstone of NAYGN so I am pleased to read that the university has a close partnership with the Musqueam First Nation and includes a monthly engagement session.

In closing, I would encourage other universities and companies to look at the impressive history of the TRIUMF facility and to consider the services these could provide. I encourage the CNSC to grant TRIUMF a 10-year renewal of its operating licence for its particle accelerator facilities.

Thank you,



Matthew Mairinger

References:

[1] TRIUMF Class 1B Licence Renewal Commission Member Document

https://www.nuclearsafety.gc.ca/eng/the-commission/hearings/cmd/pdf/CMD22/CMD22-H6-1.pdf