



CMD 25-H116 - CNSC Staff Submission

Preliminary Decommissioning Plan and Financial Guarantee for TRIUMF Inc.

Classification	UNCLASSIFIED
Type of CMD	Original
CMD Number	25-H116
Reference CMD(s)	N/A
Type of audience	Hearing in writing based solely on written submissions
Public hearing date	September 2025
Word e-DOC #	7465699 – EN
PDF e-DOC #	7548647–EN
Attachments	Current licence PA1OL-01.01/2032
Summary	TRIUMF Inc. conducted its 5-year review and submitted a revised PDP with estimated decommissioning costs. TRIUMF Inc. is required to maintain in effect a financial guarantee for decommissioning that is acceptable to the Commission.
Actions required	CNSC staff request the Commission to render a decision on CNSC staff's recommendation for the proposed revision to TRIUMF Inc.'s financial guarantee.

CMD 25-H116 - Soumission du personnel de la CCSN

Plan préliminaire de déclasséement et garantie financière pour TRIUMF Inc.

Classification	NON CLASSIFIÉ
Type de CMD	Original
Numéro du CMD	25-H116
CMD de référence	S/O
Type d'audience	Audience par écrit fondée uniquement sur des mémoires
Date de l'audience	Septembre 2025
N° e-DOC Word	7465699 – EN
N° e-DOC PDF	7548647 – EN
Pièces jointes	Le permis actuel PA1OL-01.01/2032
Sommaire	TRIUMF Inc. a effectué son examen quinquennal et a soumis un PPD révisé avec une estimation des coûts de déclasséement. TRIUMF Inc. est tenue de maintenir en vigueur une garantie financière pour le déclasséement qui soit acceptable pour la Commission.
Actions requises	Le personnel de la CCSN demande à la Commission de rendre une décision sur sa recommandation concernant la révision proposée de la garantie financière de TRIUMF Inc.



CMD 25-H116

Preliminary Decommissioning Plan and Financial Guarantee for TRIUMF Inc.

Signed by:

X

Karen Owen-Whitred

Director General, Directorate of Nuclear Substance Regulation

Directrice générale de la Direction de la réglementation des substances
nucléaires

Preliminary Decommissioning Plan and Financial Guarantee for TRIUMF Inc.

Canadian Nuclear Safety Commission

Table of contents

Land acknowledgement.....	1
Plain language summary.....	1
1 Overview	2
1.1 Background	2
1.2 Highlights.....	2
1.3 Overall Conclusions	4
1.4 Overall Recommendations	4
2 Matters for Consideration	5
2.1 Preliminary Decommissioning Plan (PDP).....	5
2.2 Financial Guarantee Proposal	6
3 Consultation and Engagement	7
3.1 Indigenous Consultation and Engagement	7
3.2 Public Consultation and Engagement	7
3.3 Participant Funding Program	8
4 Conclusions.....	9
5 Recommendations	9
6 References	10
7 Glossary	11
Appendix A : Basis for Recommendation(s)	12
A1 : Regulatory Basis	12
A2 : Technical Basis.....	13
Appendix B – Reference Documents	14
B1: Amended and Restated Fund Contribution Gap Agreement	14
B2: Amended and Restated CNSC Financial Security and Access Agreement	15
B3: Preliminary Decommissioning Plan, Document-8810, Release 7	16
B4: PDP Schedule A_Update 2023.....	17
B5: TRIUMF – PDP – Appendix B – PDP_Costs (2025 \$).....	18
B6: PDP Appendix B -Maintenance_Costs_Schedule (2025 \$)	19
B7: PDP Appendix B -Option A (2025 \$).....	20
B8: PDP Appendix B -Option B (2025 \$)	21
B9: TRIUMF - PDP Appendix C - AM&A TRIUMF Decommissioning 2023 rev 257.....	22
B10: Amended and Restated Escrow Agreement	23

Land acknowledgement

The Canadian Nuclear Safety Commission acknowledges that TRIUMF Inc. is in the unceded territory of the Coast Salish Peoples, including the territories of the xʷməθkwəy̓əm (Musqueam), Skwxwú7mesh (Squamish), and Səlílwətaʔ/Selilwitulh (Tsleil-Waututh) Nations.

Plain language summary

In accordance with subsection 24(5) of the [Nuclear Safety and Control Act](#) (NSCA), a licence may contain a condition that the applicant provide a financial guarantee in a form that is acceptable to the Commission. TRIUMF Inc.'s licence has such a condition, and the financial guarantee is required to be reviewed and updated every 5 years, or when there are material changes to the licensee's operational activities as described in [REGDOC-3.3.1, Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities](#) and [REGDOC-2.11.2, Decommissioning](#).

TRIUMF Inc.'s current financial guarantee (FG) was submitted in 2021 as part of their licence renewal application (the FG was approved by the Commission in 2022). While a revised financial guarantee was not required until 2026, TRIUMF Inc. had to submit a revised preliminary decommissioning plan (PDP) by the end of 2023, as per the [REGDOC-2.11.2, Decommissioning](#). The increase in the estimated decommissioning costs necessitated a revision to TRIUMF Inc.'s current financial guarantee. Therefore, CNSC staff is requesting a decision from the Commission on whether to accept the proposed FG. The PDP does not require the Commission approval but is discussed in this CMD to provide context for the FG.

CNSC staff reviewed TRIUMF Inc.'s revised PDP and confirmed the decommissioning strategy and facility end-state remain the same as that proposed by TRIUMF Inc. Inc as part of its 2022 licence renewal. In addition, the revised PDP meets regulatory requirements as specified in [CSA N294:19, Decommissioning of facilities containing nuclear substances](#) and [REGDOC-2.11.2, Decommissioning](#).

CNSC staff recommend that the Commission accept the revised financial guarantee proposed by TRIUMF Inc. as its proposal meets the requirements specified in [REGDOC-3.3.1, Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities](#) for providing adequate funding towards decommissioning of its licensed facilities.

Referenced documents in this CMD are available to the public upon request, subject to confidentiality considerations.

1 Overview

1.1 Background

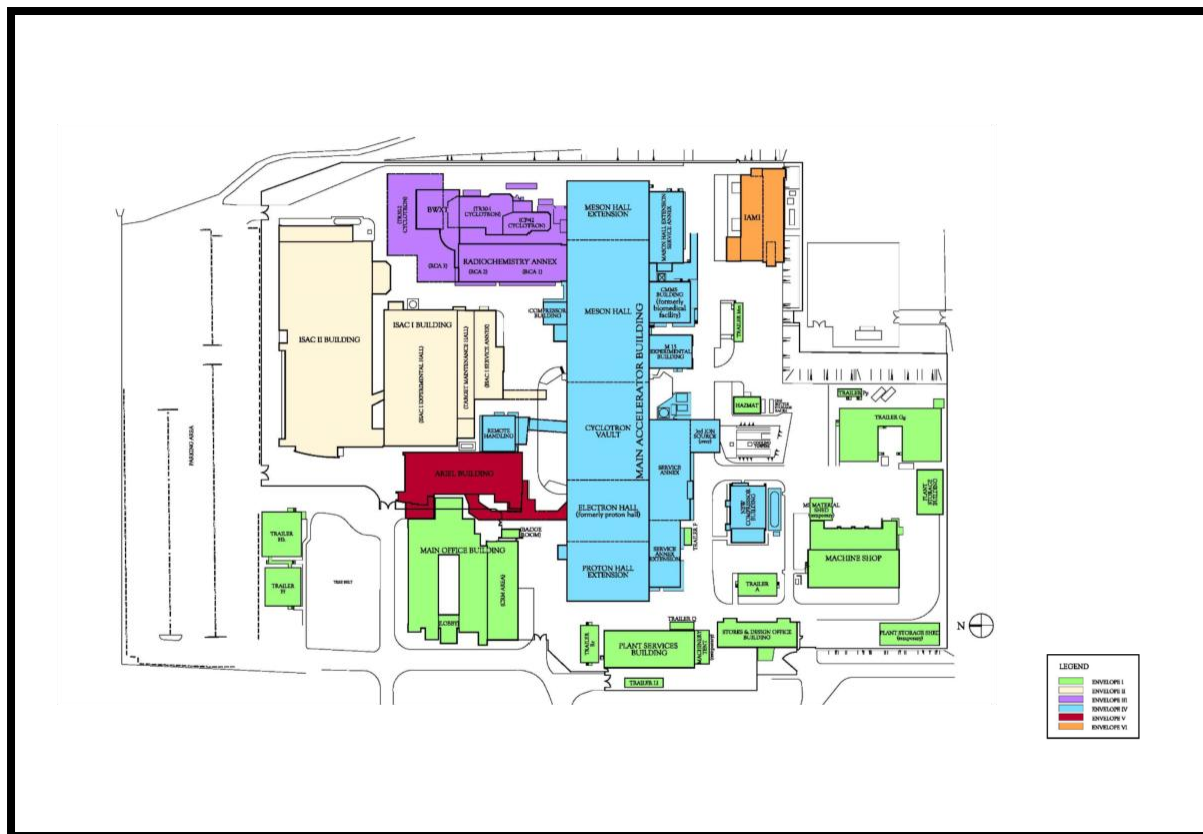
TRIUMF Inc. is Canada's particle accelerator centre and is located on the campus of the University of British Columbia. TRIUMF Inc. is owned and operated by a consortium consisting of 21 member universities from across Canada and is a not-for-profit corporation under the *Canada Not-for-profit Corporations Act*. Previously it was a joint venture known as TRIUMF Inc. Accelerators Inc. (TAI). During the 2022 licence renewal, the licence was transferred to the new entity and the name change took place. The current operating licence issued to TRIUMF Inc. is valid from July 1, 2022, until June 30, 2032. The record of [decision](#) for the renewal is Dec 22-H6 [1].

TRIUMF Inc. is licensed to operate a Class IB particle accelerator facility under licence PA1OL-01.01/2032 [2]. TRIUMF Inc. operates a Class 1B cyclotron, 4 Class II cyclotrons and 2 Class II linear accelerators.

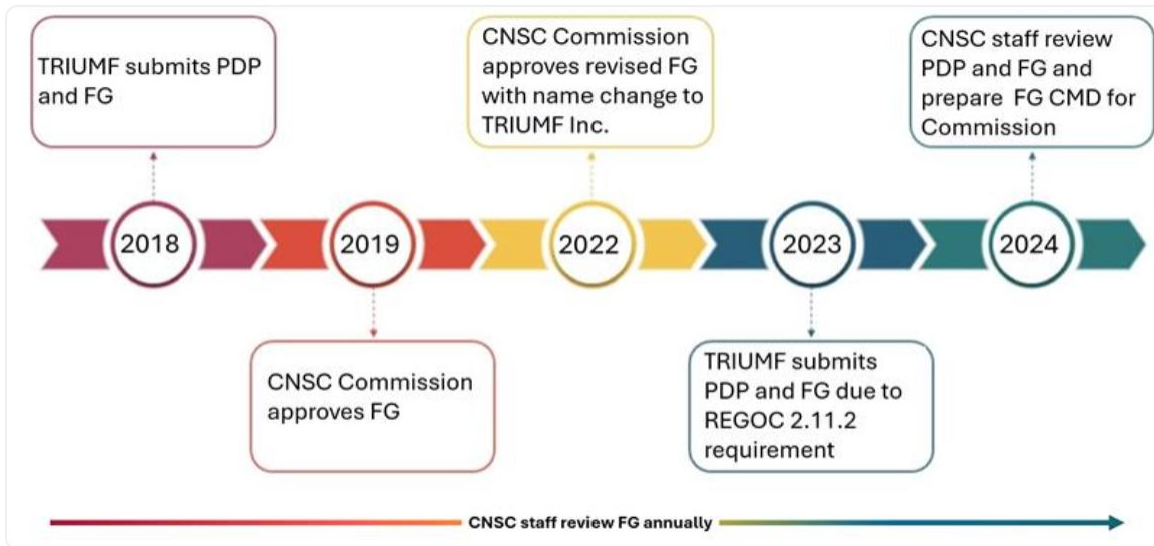
1.2 Highlights

- Decommissioning must be conducted in a manner that ensures that the health, safety, and security of workers, the public, and the environment are protected. TRIUMF Inc. has proposed a decommissioning plan to be conducted in 3 phases. Phase 1 would be initiated at shutdown, Phase 2 starting 25 years after shutdown, and finally, Phase 3 starting 45 years after shutdown.
- The overall decommissioning strategy for the TRIUMF Inc site involves the allocation of the various individual structures and components that comprise existing facility, into defined decommissioning planning envelopes:
 - Envelope I – Offices/Trailers and Support Facilities
 - Envelope II – ISAC-I and ISAC-II Facility
 - Envelope III – RCA and Production Cyclotron Facility
 - Envelope IV – Main Accelerator Building/Annexes and Remote Handling
 - Envelope V – ARIEL Facility
 - Envelope VI – IAMI Facility

DECOMMISSIONING PLANNING ENVELOPES



- The strategy considers 2 decommissioning end-state for each envelope. These end-states are A – returning a facility/structure to a state of re-use for the duration of its remaining anticipated life, or B – returning a facility/structure to a greenfield end-state.
- The proposed cost estimate to cover the decommissioning is C\$89.0 million. This is an increase from the estimate valued at C\$69.9 million provided in the 2021 licence renewal submission.
- The proposed financial instruments remain the same type as current, an Escrow Fund, a Contribution Gap Agreement [3], and the related *Amended and Restated CNSC Financial Security and Access Agreement* [4].
- Timeline of recent PDP & FG submissions:



1.3 Overall Conclusions

CNSC staff have concluded that:

- TRIUMF Inc.'s revised preliminary decommissioning plan [5] provides an acceptable strategy and credible cost estimate, and is consistent with CNSC [REGDOC-2.11.2, Decommissioning](#) and [CSA N294:19, Decommissioning of facilities containing nuclear substances](#).
- TRIUMF Inc.'s proposed financial guarantee is acceptable and adequate for future decommissioning of the facility and is consistent with CNSC [REGDOC-3.3.1, Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities](#).

1.4 Overall Recommendations

CNSC staff recommend:

That the Commission accept the proposed revision to TRIUMF Inc.'s financial guarantee to the current amount of C\$12.5 million in the form of an Escrow Fund and the C\$76.5 million in the form of a Contribution Gap Agreement. Both instruments collectively cover the estimated C\$89 million decommissioning costs, an increase from the previous value of C\$69.9 million.

2 Matters for Consideration

2.1 Preliminary Decommissioning Plan (PDP)

The PDP is intended to document the selected decommissioning strategy, the main decontamination, dismantling and/or clean-up activities and the end-state objectives. TRIUMF Inc. is required to review and revise their PDP every 5 years. The previous PDP was submitted in 2018. In 2023, TRIUMF Inc. submitted a revised PDP that included the additional decommissioning requirements related to the expanded ARIEL facility and the IAMI cyclotron facility and to also ensure compliance with REGDOC-2.11.2, Decommissioning. After exchanges between TRIUMF Inc. and CNSC staff, CNSC staff accepted TRIUMF Inc.'s revised PDP in January 2024. PDPs are accepted at the level of CNSC staff and do not require Commission approval.

TRIUMF Inc.'s decommissioning strategy consists of 6 planning envelopes, each with two end-states. End-state A may be chosen if there is a significant amount of serviceable life left in the buildings. It involves the cleanup and unrestricted use of portions of the buildings that can be returned to an appropriate state. This end-state only includes the cleaning of unrestricted areas and does not include any demolition costs, which are deferred until the structures reach the end of their life. End-state B involves the decommissioning of the entire site to a green field condition at the earliest opportunity. The total C\$89M cost estimate is based on end-state B for all envelopes, and is therefore, the most conservative estimation.

The decommissioning plan is separated into 6 envelopes. The first consists of offices, trailers, and general support areas where no radioactive materials are present. The second consists of the ISAC I&II facilities, where significant concrete and metal activation will require retention of materials for approximately 25 years before removal. Any remaining activated components above clearance levels will be moved to the 520 MeV vault for additional decay. The third envelope is the Radiochemistry Annex and Isotope Production Cyclotrons, where activated materials will be stored for approximately 25 years before removal. The fourth planning envelope consists of the main accelerator building and associated facilities. After 25 years all concrete and most metal components in the main accelerator building will have decayed below clearance levels. A total of 50 years will be required for the concrete in the 520 MeV cyclotron vault to decay below clearance levels. After 50 years, activated metals from the 520 MeV cyclotron and its beamlines will be in quantities greater than the clearance levels and will have to be shipped to a licensed radioactive waste facility. The fifth planning envelope is the ARIEL facility, it will be handled in a similar manner to the ISAC facilities (envelope 2). The sixth envelope is the IAMI Class II cyclotron facility, which is not yet fully constructed, where the demolition and removal of equipment is considered.

TRIUMF Inc.'s revised cost estimate for decommissioning of C\$89.0 million is an increase from the estimate of C\$69.9 million provided in the 2021 licence renewal submission. The increase is due to the inflation rate (2% per year), the addition of long-lived isotopes in the decommissioning plan and a higher percentage in the contingency dollars.

CNSC staff assessed and concluded that the submitted PDP meets the criteria and guidance set in CNSC REGDOC-2.11.2, Decommissioning and CSA N294:19, Decommissioning facilities of containing nuclear substances. The revised PDP provides a credible cost estimate for the future decommissioning of TRIUMF Inc.'s facility.

2.2 Financial Guarantee Proposal

Financial guarantees are intended to ensure that sufficient funding is available to cover the cost of decommissioning of nuclear facilities or termination of licensed activities authorized by the current licence as specified in REGDOC-3.3.1, Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities.

Financial guarantees must be sufficient to meet the decommissioning needs according to the most up-to-date decommissioning plan. Thus, a revised financial guarantee must be submitted following changes to the estimated decommissioning costs. Financial guarantees require approval by the Commission.

TRIUMF Inc.'s financial guarantee is funded by two instruments covering the total estimated decommissioning cost of C\$89 million (2024 CAD). C\$12.5 million (as of March 31, 2023) in an Escrow Fund, and C\$76.5 million Contribution Gap Agreement. An Escrow fund is an acceptable financial instrument that meets the requirements of certainty and adequacy of value, ease of liquidity, and continuity of protection. The Contribution Gap Agreement was last renewed in 2022 as part of the licence renewal and is currently valid. It allows TRIUMF Inc. and its 21 member universities to acknowledge that at any given time there may exist a difference between the total decommissioning cost and the fair market value of the Escrow Fund. It also confirms that the gap will be bridged by each of the Universities in accordance with the Contribution Gap Agreement. It is important to add that TRIUMF Inc.'s intent is that the Escrow fund will grow to sufficiently fund all decommissioning obligations, and therefore, gap funding should not be necessary. CNSC staff have no concerns with this approach.

It is also standard procedure to have an agreement between the licensee and the CNSC to provide assurance that the CNSC have access to the funds if needed (if, for example, the licensee goes bankrupt and cannot undertake decommissioning itself). In TRIUMF Inc.'s case the Amended and Restated CNSC Financial Security and Access Agreement that was last revised in 2022 and is currently valid, plays that role.

CNSC staff's review concluded the financial guarantee and the proposed financial instruments met the requirements of CNSC Regulatory Document, REGDOC-3.3.1, Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities.

3 Consultation and Engagement

3.1 Indigenous Consultation and Engagement

The common-law duty to consult with Indigenous Nations and communities applies when the Crown contemplates actions that may adversely affect potential or established Indigenous and/or treaty rights. The CNSC ensures its licence decisions under the NSCA uphold the honour of the Crown and consider Indigenous peoples' potential or established Indigenous and/or treaty rights pursuant to section 35 of the *Constitution Act*, 1982.

Based on the information reviewed and received to date in relation to TRIUMF Inc.'s revised PDP and updated financial guarantee it is CNSC staff's assessment that the application is unlikely to result in new adverse impacts to Aboriginal and/or Treaty Rights. The proposed changes are administrative in nature and do not result in any changes to the facility's footprint or operations. CNSC staff encourages TRIUMF Inc. to continue conducting engagement and outreach activities to ensure that Indigenous Nations and communities that have indicated an interest in the TRIUMF Inc. facility are aware of the revised PDP and updated financial guarantee submission.

3.2 Public Consultation and Engagement

The NSCA mandates the CNSC to disseminate objective scientific, technical and regulatory information to the public concerning its activities and the activities it regulates. CNSC staff fulfill this mandate in a variety of ways, including hosting in-person and virtual information sessions and through annual regulatory reports. CNSC staff has made many attempts to reach out to interested parties. For example, in advance of the 2022 Independent Environmental Monitoring Program (IEMP) sampling campaign at TRIUMF Inc., notification emails were sent to Indigenous Nations and communities near the facility to notify them of the sampling campaign and to seek input on the sampling plan. Also, as part of the 2023 Regulatory Oversight Report (ROR) Commission meeting (CMD 25-M10), members of the public were invited to provide interventions. On both occasions, CNSC staff did not receive any comments from either Indigenous Nations and communities or members of the public. CNSC staff will continue to engage with Indigenous Nations and communities and members of the public to ensure that information in relation to TRIUMF Inc. is made available.

3.3 Participant Funding Program

The CNSC established the Participant Funding Program (PFP) in 2011 to:

1. enhance individual, not-for-profit organization and Indigenous Nations and Communities participation in the CNSC's environmental assessment (EA) and licensing processes for major nuclear facilities (e.g., uranium mines, nuclear power plants, nuclear substance processing, or nuclear waste facilities)
2. assist individuals, not-for-profit organizations and Indigenous Nations and Communities to bring value-added information to the Commission through informed and topic-specific interventions related to EAs and licensing (i.e., new, distinctive and relevant information that contributes to a better understanding of the anticipated effects of a project)

Since the proposed revision to TRIUMF Inc.'s financial guarantee is administrative in nature, and that no interventions were invited from the public, the CNSC did not offer participant funding for this matter.

4 Conclusions

CNSC staff have concluded that:

- TRIUMF Inc's revised preliminary decommissioning plan [5] provides an acceptable strategy and credible cost estimate and meets the requirements of [REGDOC-2.11.2, Decommissioning](#); and
- TRIUMF Inc's proposed financial guarantee is acceptable and adequate for future decommissioning of the facility and meets the requirements of REGDOC-3.3.1, Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities.

5 Recommendations

CNSC staff recommend:

That the Commission accept the proposed revision to TRIUMF Inc.'s financial guarantee to the current amount of C\$12.5 million in the form of an Escrow Fund and the C\$76.5 million in the form of a Contribution Gap Agreement. Both instruments collectively cover the estimated C\$89 million decommissioning costs, an increase from the previous value of C\$69.9 million.

6 References

1. Record of Decision - TRIUMF - Licence Renewal and Transfer - CMD 22-H6 - Public Hearing of March 23, 2022. CNSC Document No. 6814893 ([Public Version](#))
2. Class IB Particle Accelerator Operating Licence, TRIUMF Inc., PA1OL-01.01/2032, valid from July 1, 2022, to June 30, 2032. CNSC Document No. 6697519
3. *Amended and Restated Fund Contribution Gap Agreement*
4. *Amended and Restated CNSC Financial Security and Access Agreement*
5. *Preliminary Decommissioning Plan (PDP)*, Document-8810, Release 7, January 02, 2024.
6. *PDP Schedule A_Update 2023*
7. *TRIUMF – PDP – Appendix B – PDP_Costs (2025 \$)*
8. *PDP Appendix B -Maintenance_Costs_Schedule (2025 \$)*
9. *PDP Appendix B -Option A (2025 \$)*
10. *PDP Appendix B -Option B (2025 \$)*
11. *TRIUMF - PDP Appendix C - AM&A TRIUMF Decommissioning 2023 rev 257*
12. *Amended and Restated Escrow Agreement*

7 Glossary

For definitions of terms used in this document, see [REGDOC-3.6, Glossary of CNSC Terminology](#), which includes terms and definitions used in the [Nuclear Safety and Control Act](#) and the [Regulations](#) made under it, and in [CNSC regulatory documents](#) and other publications.

Glossary Term	Glossary Definition
C\$	Canadian dollars
CMD	Commission member document
CNSC	Canadian Nuclear Safety Commission
CSA	Canadian Standards Association
NSCA	<i>Nuclear Safety and Control Act</i>
PDP	Preliminary decommissioning plan
REGDOC	Regulatory document

Appendix A: Basis for Recommendation(s)

A1: Regulatory Basis

The regulatory basis for the recommendations presented in this CMD is as follows:

Nuclear Safety and Control Act

Subsection 24(5) of the *Nuclear Safety and Control Act* provides that a licence may contain any term or condition that the Commission considers necessary for the purposes of the Act, including a condition that the applicant provide a financial guarantee in a form that is acceptable to the Commission.

Subsection 24(6) of the *Nuclear Safety and Control Act* provides that the Commission may authorize the application of the proceeds of any financial guarantee referred to in subsection (5) in such manner as it considers appropriate for the purposes of this Act.

Subsection 24(7) of the *Nuclear Safety and Control Act* provides for the means by which a refund may be granted for any funds that have not been spent.

General Nuclear Safety and Control Regulations

The *General Nuclear Safety and Control Regulations* requires under paragraph 3(1)(l) that a licence application contains a description of any proposed financial guarantee relating to the activity to be licensed.

Class I Nuclear Facilities Regulations

Paragraph 3(k) of the *Class I Nuclear Facilities Regulations* required that an application for a licence in respect of a Class I nuclear facility, other than a licence to abandon, shall contain the proposed plan for the decommissioning of the nuclear facility or of the site.

Licence Condition 11.2 of TRIUMF Inc. licence PA10L-01.01/2032

The licensee shall maintain a preliminary decommissioning plan.

Licence Condition 15.2 of TRIUMF Inc. licence PA10L-01.01/2032

The licensee shall maintain a financial guarantee for decommissioning that is acceptable to the Commission.

A2: Technical Basis

The technical basis for the recommendations presented in this CMD is compared against the following:

- CNSC [REGDOC-2.11.2, Decommissioning](#)
- CNSC [REGDOC-3.3.1, Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities](#)
- [CSA N294:19, Decommissioning facilities of containing nuclear substances](#)

Appendix B – Reference Documents

B1: Amended and Restated Fund Contribution Gap Agreement

This document was submitted to the CNSC Registry on December 17th, 2025.

The information in this reference document is subject to a request for confidentiality under rule 12 of the [*Canadian Nuclear Safety Commission Rules of Procedure*](#).

B2: Amended and Restated CNSC Financial Security and Access Agreement

This document was submitted to the CNSC Registry on December 17th, 2025.

The information in this reference document is subject to a request for confidentiality under rule 12 of the [*Canadian Nuclear Safety Commission Rules of Procedure*](#).

B3: Preliminary Decommissioning Plan, Document-8810, Release 7

This document was submitted to the CNSC Registry on December 16th, 2025.

The information in this reference document is subject to a request for confidentiality under rule 12 of the [*Canadian Nuclear Safety Commission Rules of Procedure*](#).

B4: PDP Schedule A_Update 2023

This document was submitted to the CNSC Registry on November 28, 2025.

The information in this reference document is subject to a request for confidentiality under rule 12 of the [*Canadian Nuclear Safety Commission Rules of Procedure*](#).

B5: TRIUMF – PDP – Appendix B – PDP_Costs (2025 \$)

This document was submitted to the CNSC Registry on November 28, 2025.

The information in this reference document is subject to a request for confidentiality under rule 12 of the [*Canadian Nuclear Safety Commission Rules of Procedure*](#).

B6: PDP Appendix B -Maintenance_Costs_Schedule (2025 \$)

This document was submitted to the CNSC Registry on November 28, 2025.

The information in this reference document is subject to a request for confidentiality under rule 12 of the [*Canadian Nuclear Safety Commission Rules of Procedure*](#).

B7: PDP Appendix B -Option A (2025 \$)

This document was submitted to the CNSC Registry on November 28, 2025.

The information in this reference document is subject to a request for confidentiality under rule 12 of the [*Canadian Nuclear Safety Commission Rules of Procedure*](#).

B8: PDP Appendix B -Option B (2025 \$)

This document was submitted to the CNSC Registry on November 28, 2025.

The information in this reference document is subject to a request for confidentiality under rule 12 of the [*Canadian Nuclear Safety Commission Rules of Procedure*](#).

B9: TRIUMF - PDP Appendix C - AM&A TRIUMF Decommissioning 2023 rev 257

This document was submitted to the CNSC Registry on November 28, 2025.

The information in this reference document is subject to a request for confidentiality under rule 12 of the [*Canadian Nuclear Safety Commission Rules of Procedure*](#).

B10: Amended and Restated Escrow Agreement

This document was submitted to the CNSC Registry on November 28, 2025.

The information in this reference document is subject to a request for confidentiality under rule 12 of the [*Canadian Nuclear Safety Commission Rules of Procedure*](#).