



UNPROTECTED/NON PROTÉGÉ

**SUPPLEMENTAL/COMPLÉMENTAIRE**

**CMD: 22-H6.A**

**Date signed/Signé le : 11 MARCH 2022**

Reference CMD(s)/CMD(s) de référence : [CMD 22-H6](#)

Licence Renewal  
and  
A Licence Transfer

Un renouvellement de permis  
et  
un transfert de permis

**TRIUMF Accelerators  
Incorporated**

**TRIUMF Accelerators  
Incorporated**

**Particle Accelerator**

**Accélérateur de  
particules**

Commission Public Hearing

Audience publique de la Commission

Scheduled for:  
March 23, 2022

Prévue pour :  
le 23 mars 2022

Submitted by:  
CNSC Staff

Soumise par :  
Le personnel de la CCSN



Canadian Nuclear  
Safety Commission

Commission canadienne  
de sûreté nucléaire

e-Doc 6747041 (WORD)

e-Doc 6752121 (PDF)

**Summary**

This CMD presents supplementary information with respect to

- Update on the Management System Safety Control Area and
- Review of information related to licence transfer

The information does not change CNSC staff's conclusions and recommendations presented in [CMD 22 H-06](#).

**Résumé**

Le présent CMD présente de l'information supplémentaire concernant :

- Une mise à jour du domaine de sûreté et de réglementation du système de gestion et
- L'évaluation de l'information en lien avec le transfert du permis.

Les renseignements n'affectent pas les conclusions et les recommandations du personnel de la CCSN formulées dans le [CMD 22 H-06](#)

**Signed/signé le**

11 March 2022

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## EXECUTIVE SUMMARY

The current TRIUMF Accelerators Inc. (TAI) licence PA1OL-01.00/2022 [1] expires on June 30, 2022. TAI submitted an [application](#) for the renewal of its Class IB particle accelerator operating licence for the particle accelerators facility for a 10-year period. CNSC staff's assessment, conclusions and recommendations related to this application are provided in [CMD 22-H6](#). This supplemental CMD provides additional information on the status of the Management System safety and control area (SCA) – this additional information does not impact the conclusions and recommendations outlined in [CMD 22-H6](#).

TAI submitted a request to transfer the licence from TAI to TRIUMF INC, should the Commission renew the operating licence on July 1, 2022. CMD 22-H6.A provides staff's assessment of the supplemental [CMD 22-H6.1A](#). TRIUMF INC. submitted additional information related to the licence transfer request. The information provided in this supplementary CMD does not impact the conclusions and recommendations outlined in [CMD 22-H6](#).

Referenced documents in this CMD are available to the public upon request. When available, CNSC staff have included web hyperlinks to facilitate information sharing.

# 1 OVERVIEW

## 1.1 Background

TRIUMF Accelerators Inc. (TAI) is licensed to operate Class IB particle accelerator facilities, under licence PA1OL-01.00/2022 [1]. TAI is located on the campus of the University of British Columbia, near Vancouver, British Columbia. TAI operates a 520-MeV proton cyclotron, 4 cyclotrons with proton beam energies of less than 50 MeV and 2 linear accelerators. TAI is also operating to commission an electron accelerator facility under a separate Class II licence.

This Commission Member Document (CMD) is supplemental to [CMD-22-H6](#), which describes CNSC staff's assessment of the application from TAI for a 10-year licence renewal for the operation of the particle accelerator and transfer of the operating licence from TRIUMF Accelerators Inc. to TRIUMF INC.

## 1.2 Overall Conclusions

CNSC staff conclude that the licensee's management system program meets the requirements of the CSA standard N286-12, *Management System Requirements for Nuclear*. The few outstanding deficiencies require a longer implementation timeline to ensure TAI achieves full compliance with CSA N286. These deficiencies however do not pose an immediate risk to safe operation of the facility, and safety and security of the public and the environment. CNSC staff's recommendation to the Commission to renew the licence as described in [CMD 22-H6](#) remains the same.

In the supplemental [CMD 22-H6.1A](#), TRIUMF INC. states that, pending successful licence renewal, it intends to amalgamate the current licence holder, TRIUMF Accelerators Inc. during the licence transfer. This information does not change CNSC staff's recommendations that the Commission approve the request to transfer the licence.

## 2 MANAGEMENT SYSTEM SAFETY AND CONTROL AREA

The Management System SCA covers the framework that establishes the processes and programs required to ensure an organization achieves its safety objectives, continuously monitors its performance against these objectives, and fosters a healthy safety culture.

The CNSC introduced CSA N286-12, *Management System Requirements for Nuclear Facilities* as a new regulatory requirement for TAI in 2016; TAI committed to implement all provisions of the new standard by 2018. TAI was not able to fulfill its commitment and this subsequently led to CNSC staff assessing TAI's performance with a below expectations rating level for the Management System SCA from 2018 to 2020. In 2020, CNSC staff verified that TAI had established a management system program in accordance with the requirements set out in CSA N286-12, and accepted TAI's Quality Manual.

However, at the time of the [application](#) for renewal of the operating licence, staff determined that TAI still had not successfully implemented all elements stipulated in CSA N286-12. This determination was based on an inspection performed by CNSC staff in February 2021. While the management system program was found to be compliant with CSA N286-12, the inspection revealed that some elements of the standard had not been fully implemented. This resulted in 20 notices of non-compliance (NNC). For example, inspectors gathered evidence that indicates TRIUMF has programs and processes in place in accordance with CSA N286-12 to control work. At the time of the inspection, TRIUMF could not demonstrate that their records were adequately maintained as required by CSA N286-12, hence CNSC staff's conclusion regarding TRIUMF's deficiencies in implementing the processes in a consistent way.

Despite the incomplete implementation of some clauses of the standard, the NNCs are deemed of low safety significance given that the program in place is sufficient to allow TAI to perform their licensed activities safely.

To address the NNCs, TAI created an Action Plan for implementing the standard, which CNSC staff assessed and continues to closely monitor. Details pertaining to each of the NNCs can be found in Appendix A. CNSC staff conclude that the licensee has made significant progress towards full regulatory compliance and has closed all but four of the twenty NNCs (with two targeted for closure by March 31, 2022).

The Management System SCA grade for 2022 will be determined this summer following receipt of all required information including the results of a follow up inspection currently planned for May 2022. The purpose of this inspection is to confirm TAI's commitments towards addressing all NNCs are effectively being implemented. The complete assessment of the Management System SCA will be performed again in the first quarter of 2023.

As noted, CNSC staff are already satisfied that TAI has a Management System program in place; however, the grade will remain below expectations (BE) until staff have had sufficient time to verify the full implementation of this program.



CNSC staff will continue to assess TAI's management system through document and event reviews, and inspections.

CNSC staff will report the status of TAI's compliance with the CSA N286-12 in the next Regulatory Oversight Report covering Class 1B accelerators.

### 3 LICENCE TRANSFER

On February 10, 2022, TRIUMF INC. submitted a supplemental [CMD 22-H6.1A](#) in relation to the application for licence transfer, in which it proposes amalgamation of TRIUMF Accelerators Inc. (TAI) with TRIUMF INC. should the Commission authorize the licence transfer on July 1, 2022. The CMD describes governance of the amalgamated corporation.

The proposed licence transfer and subsequent amalgamation would have no impact on those who will be responsible for the management and control of the licenced activities, as the same individuals will be engaged in the management and control of TRIUMF INC.'s licensed activities.

CNSC staff reviewed the supplemental submission and concluded that the information has no impact on the staff's recommendation described in [CMD 22-H6](#).

## 4 SUMMARY OF RECOMMENDATIONS

CNSC staff continue to recommend the following:

1. The Commission accept the conclusions of CNSC staff that TRIUMF INC. is qualified to carry out the activities authorized by the particle accelerator operating licence;
2. The Commission renew particle accelerator licence PA1OL-01.00/2022 [1] to operate the particle accelerators for a period of 10 years commencing on July 1, 2022, and ending on June 30, 2032;
3. The Commission transfer particle accelerator licence PA1OL-01.00/2032 from TAI to TRIUMF Inc.

## REFERENCES

1. TRIUMF Accelerators Inc. PA1OL-01.00/2022 (edoc # 3960855)
2. [CMD 22-H6](#) Submission from Staff on Application by TRIUMF Accelerators Inc. to Renew the Particle Accelerator Operating Licence
3. [CMD 22-H6.1A](#) Supplementary submission from TRIUMF for March 23, 2022 Public Hearing

## 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.

Additional terms and acronyms used in this CMD are listed below.

## A. NOTICES OF NON-COMPLIANCE OF FEBRUARY 2021 MANAGEMENT SYSTEM INSPECTION

The table below lists the notices of non-compliance, required corrective action, safety significance, expected date of completion, and the status as of March 8, 2021. CNSC staff will perform one or more follow-up inspections in 2022 to verify the implementation of TAI's corrective action plan. CNSC staff will close the NNC based on the action plan, records of initiatives under way, and commitments made by the management. Full implementation of action plan and commitments will be verified by CNSC staff through on-going compliance activities.

CSA N286-12 Clause	Notice of Non-Compliance and required corrective action (paraphrased)	Safety significance <sup>1</sup>	Status as of March 8, 2022	Next steps
<b>Organization (Clause 4.4)</b>	<b>MS-TRIUMF-2021-NNC1</b> (RIB action #23013)	Low	Closed	Follow up inspection (May 2022)
<b>Resources (Clause 4.5)</b>	<b>MS-TRIUMF-2021-NNC2</b> (RIB action #23014)	Low	Closed	Follow up inspection (May 2022)
	<b>MS-TRIUMF-2021-NNC3</b> (RIB action #23015)	Low	Closed	Follow up inspection (May 2022)
<b>Communication and Information (Clauses 4.6 and 4.7.2)</b>	<b>MS-TRIUMF-2021-NNC4</b> (RIB action #23016)	Low	Closed	Follow up inspection (May 2022)

<sup>1</sup> Even though the overall risk ranking for the Management System SCA is moderate, the risk significance is rated according to the risk of each NNC.

CSA N286-12 Clause	Notice of Non-Compliance and required corrective action (paraphrased)	Safety significance <sup>1</sup>	Status as of March 8, 2022	Next steps
	<b>MS-TRIUMF-2021-NNC5</b> (RIB action #23017)	Low	Closed	Follow up inspection (May 2022)
<b>Document and Record Management</b> <b>(Clauses 4.7.1, 4.7.3, 4.7.4)</b>	<b>MS-TRIUMF-2021-NNC6</b> (RIB action #23018)	Low	Closed	Follow up inspection (May 2022)
	<b>MS-TRIUMF-2021-NNC7</b> (RIB action #23019) Work activities are not always recorded. TRIUMF shall define policies and procedures to ensure that all records, which demonstrate completion, acceptance and verification of work performed, are produced and kept. CVC: <i>CSA N286-12, Clauses 4.7.4 and 4.8.1</i>	Low	Pending closure	Draft policy reviewed by CNSC staff; awaiting receipt of an approved version. Estimated date of completion March 31, 2022 Follow up inspection (May 2022)
	<b>MS-TRIUMF-2021-NNC8</b> (RIB action #23020)	Low	Closed	Follow up inspection (May 2022)

CSA N286-12 Clause	Notice of Non-Compliance and required corrective action (paraphrased)	Safety significance <sup>1</sup>	Status as of March 8, 2022	Next steps
<b>Work Management</b> (Clauses 4.8 and 8.9)	<b>MS-TRIUMF-2021-NNC9</b> (RIB action #23021) Work is not controlled consistently across the organization. In some areas, the verification is performed by the persons who did the work. TRIUMF shall have a consistent process for planning, executing and verifying work across the organization. CVC: <i>CSA N286-12, Clause 4.8</i>	Low	Open	Additional clarification requested. TRIUMF submitted more detailed implementation plan of corrective actions to be implemented across the organization. Estimated date of completion March 31, 2023 Follow up inspection (May 2022)
	<b>MS-TRIUMF-2021-NNC10</b> (RIB action #23022)	Low	Closed	Follow up inspection (May 2022)
	<b>MS-TRIUMF-2021-NNC11</b> (RIB action #23023)	Low	Closed	Follow up inspection (May 2022)
<b>Criteria-Supply Chain</b> (Clauses 4.8.1c and 8.5, and RegDoc 3.1.2, app A, item 10)	<b>MS-TRIUMF-2021-NNC12</b> (RIB action #23024) TRIUMF supply chain process does not address all the requirements as defined in N26-12. TRIUMF shall implement a supply chain process that meets all the requirements of N286-12 Clause 8.5. CVC: <i>CSA N286-12, Clause 8.5</i>	Low	Open	TRIUMF is in the process of implanting a supply chain process. Estimated date of completion December 2022 Follow up inspection (May 2022)



CSA N286-12 Clause	Notice of Non-Compliance and required corrective action (paraphrased)	Safety significance <sup>1</sup>	Status as of March 8, 2022	Next steps
<b>Problem Identification and Resolution (Clause 4.9)</b>	<b>MS-TRIUMF-2021-NNC13</b> (RIB action #23025) TRIUMF has not implemented any trend analysis for its non-conformances. TRIUMF shall conduct trend analysis of causes and problems as part of its continual improvement program. CVC: <i>CSA N286-12, Clause 4.13(a)</i>	Low	Pending closure	Additional clarification requested. Estimated date of completion March 31, 2022 Follow up inspection (May 2022)
	<b>MS-TRIUMF-2021-NNC14</b> (RIB action #23026)	Low	Closed	Follow up inspection (May 2022)
	<b>MS-TRIUMF-2021-NNC15</b> (RIB action #23027)	Low	Closed	Follow up inspection (May 2022)
	<b>MS-TRIUMF-2021-NNC16</b> (RIB action #23028)	Low	Closed	Follow up inspection (May 2022)
<b>Change Control (Clause 4.10)</b>	<b>MS-TRIUMF-2021-NNC17</b> (RIB action #23029)	Low	Closed	Follow up inspection (May 2022)
<b>Assessments (Clauses 4.11.1, 4.11.2, 4.13)</b>	<b>MS-TRIUMF-2021-NNC18</b> (RIB action #23030)	Low	Closed	Follow up inspection (May 2022)
	<b>MS-TRIUMF-2021-NNC19</b> (RIB action #23031)	Low	Closed	Follow up inspection (May 2022)

CSA N286-12 Clause	Notice of Non-Compliance and required corrective action (paraphrased)	Safety significance <sup>1</sup>	Status as of March 8, 2022	Next steps
<b>Continual Improvement</b> (Clauses 4.3(f), 4.7.1, 4.11.2, 4.13(b))	<b>MS-TRIUMF-2021-NNC20</b> (RIB action #24365)	Low	Closed	Follow up inspection (May 2022)