CANADIAN NUCLEAR SAFETY COMMISSION

Directorate of Nuclear Cycle and Facilities Regulation

Compliance Inspection Report

Unclassified

Licensee:	SRB Technologies (Canada) Inc.
Location:	Pembroke, Ontario
Licence Number:	NSPFL-13.00/2034

Inspection Title:	Environmental Protection Inspection
Inspection Number:	SRBT-2025-01
Inspection Dates:	July 22-23, 2025
Report Date:	September 19, 2025

Lead Inspector: Crann, Carley

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Table of Contents

1. INTRODUCTION

An announced onsite Environmental Protection inspection was conducted at the SRB Technologies (Canada) Inc. (SRBT) facility in Pembroke, Ontario, July 22 to 23, 2025.

Criteria for this inspection were derived directly from the set of documents described in the notification letter [1] and compiled into a Compliance Matrix (Appendix A) which had been provided to SRBT staff prior to the inspection.

The Canadian Nuclear Safety Commission (CNSC) inspection team included:

- Carley Crann, Lead Inspector, NPFD
- Alison O'Connor, Inspector in training, NPFD
- Sarah Butt, Environmental Protection Specialist, HSECD

This report documents the findings and conclusions of the inspection, along with any enforcement actions or recommendations arising from the inspection. The results of this inspection activity will form part of CNSC staff's evaluation of the licensee's performance.

2. PURPOSE AND SCOPE

The purpose of the inspection was to assess SRBT against the requirements of the *Nuclear Safety and Control Act* (NSCA), its associated regulations, the conditions of the SRBT licence [2] and associated Licence Conditions Handbook (LCH) [3], as well as SRBT's programs and procedures.

The scope of the inspection was focused on the Safety and Control Area (SCA) of Environmental Protection. This inspection also included follow-up of corrective actions from a previous inspection and an event.

3. DESCRIPTION OF INSPECTION METHODS

The following methods of assessment were used during the inspection:

- documentation and record review
- visual assessment and verification
- interviews and discussions with licensee staff
- observation of licensee environmental sampling

The Compliance Matrix, appended to this report, contains the compliance verification criteria (CVC) used to assess and evaluate compliance with regulatory and licensing requirements for this inspection. The criteria in the Compliance Matrix have been identified to have either "Met" or "Not Met" the applicable requirement. For criteria assessed as "Not Met", the following format is used to show a clear link from the initial inspection finding to the resulting enforcement action:

- compliance verification criteria used to identify the deficiency
- a description of the inspection method(s) used to identify the deficiency
- a description of the finding and analysis linking the compliance verification criteria to the deficiency
- the notice of non-compliance (NNC) requiring the licensee to address the deficiency

An NNC is issued when a non-compliance with the CVC is confirmed through objective evidence obtained from reliable sources and based on verifiable facts. An NNC requires the licensee to take the necessary action(s) to correct the identifed non-compliance and respond with one of the following:

- confirmation that compliance has been restored
- a timeframe for restoring compliance
- a timeframe within which a corrective action plan will be submitted

CNSC staff may identify a recommendation as a written suggestion when there are opportunities for improvement based on CNSC experience and industry best practices. There is no obligation for the licensee to act on a recommendation.

As per the CNSC process, at the conclusion of the field verification portion of the inspection, a Preliminary Inspection Facts and Findings Report was provided to SRBT representatives [4]. This report was provided for the purpose of outlining the facts and findings made by the inspection team based on a preliminary review of the criteria set identified in the Compliance Matrix (Appendix A) and observations made at the time of the inspection.

4. CONCLUDING STATEMENTS

Overall, CNSC staff confirmed through this inspection that the SRBT Environmental Protection Program is being implemented and maintained as required by the NSCA and its associated regulations, the conditions of the licence and associated LCH. The inspection also included a follow-up of corrective actions from previous inspections.

Two (2) NNC's, identified in section 4.1, have been raised for SRBT to address. While the NNC's are of low safety significance and do not pose an immediate risk to the health and safety of the environment or persons, SRBT is required to take corrective actions to address the non-compliances.

Based on CNSC experience and industry best practices, one (1) recommendation, identified in section 4.2, are provided as an opportunity for improvement. There is no obligation for SRBT to act on this recommendation.

Several areas were identified during the Inspection which had been noted as implementations of good operating practices, and effective implementation of programmatic requirements.

Inspectors also found several areas identified where the implementation of programmatic requirements was not sufficient to meet regulatory expectations, and have identified these areas in this report.

4.1 Notices of Non-compliance

The following notices of non-compliance were raised as a result of this inspection:

SRBT-2025-01-NNC01: SRBT shall ensure that groundwater monitoring wells are inspected, repaired, and maintained to ensure integrity of the wells and casing as per MTC-014 and CSA N288.7.

SRBT-2025-01-NNC02: SRBT shall update their procedure EMP-004 Receiving Water/River Monitoring to reflect current practices.

SRBT is requested to submit its corrective action for each notice of non-compliance 60 days from the date this report was issued. The response must include corrective measures and proposed completion dates, including the date by which the corrective measure will be documented (if required), implemented, and verified for adequacy and effectiveness.

4.2 Recommendations

The following recommendation has been raised for SRBT's consideration:

SRBT-2025-01-R01: SRBT should review their Groundwater Monitoring Program and associated procedures and forms to identify the necessary updates for the next revision.

5. REFERENCES

[1] Letter, C. Crann (CNSC) to J. MacDonald (SRBT), *SRBT Notice of Environmental Protection Inspection July 22-24 2025*, June 6, 2025.

[2] Nuclear Substance Processing Facility Licence, SRB Technologies (Canada) Inc., Pembroke, Ontario. NSPFL-13.00/2034.

[3] Licence Conditions Handbook for SRB Technologies (Canada) Inc., Pembroke, Ontario. NSPFL-13.00/2034, July 26, 2022.

[4] CNSC Report, *Preliminary Inspection Facts and Findings Report, SRB Technologies (Canada) Inc*, July 23, 2025.

Appendix A Compliance Matrix

Directorate of Nuclear Cycle and Facilities Regulation

Nuclear Processing Facilities Division

Licensee:	SRB Technologies (Canada) Inc.
Location:	Tritium Processing Facility (Pembroke, ON)
Licence Number:	NSPFL-13.00/2034
Inspection Title:	Environmental Protection Inspection
Inspection Number:	SRBT-2025-01
Inspection Dates:	July 22-23, 2025
Lead Inspector:	Carley Crann, NPFD

Inspection Safety and Control Area(s) and/or Other Matters of Regulatory Interest

All appropriate Safety and Control Area(s) for this Compliance Inspection are identified below. If other matters of regulatory interest are being inspected, "Other" is selected and specified.

☐	Management System	☐	Conventional Health and Safety
☐	Human Performance Management	☒	**Environmental Protection**
☐	Operating Performance	☐	Emergency Management & Fire Protection
☐	Safety Analysis	☐	Waste Management
☐	Physical Design	☐	Security
☐	Fitness for Service	☐	Safeguards & Non-Proliferation
☐	Radiation Protection	☐	Packaging and Transport

☒ **Other:** Follow up on previous inspection findings and action level exceedance.

Effluent Monitoring Program – Air (Stacks)	
Criteria #1	**Standards** CSA N288.5 2011(R2016) CSA N288.8 2017 **Licensees Programs and Procedures:** Environmental Monitoring Program Revision C Effluent Monitoring Program Revision C EFF-001 (Rev E) Weekly Stack Monitoring EFF-003 (Rev D) Real time stack monitoring
Inspection Method / Compliance Expectation	**Inspection Method:** Interview, review records and procedures, walk through observation **Compliance Expectation** Gaseous effluent is handled by the active ventilation systems in the facility, which route contaminated air through two air handling units, and upwards through two stacks located at the west corner of the facility. The stacks eject the contaminated gas upwards, dispersing tritium. An air emission monitoring program is being implemented and maintained in accordance with licensees' programs and procedures. Section 4.3 of the Effluent Monitoring Program Revision C states "gaseous effluent shall be measured in real time, by obtaining a sample of representative gas being released and monitoring it for tritium concentration using equipment designed specifically for the purpose of measuring tritium in air. Gaseous effluent shall also be measured using an integrated weekly sample collection method, which through analysis allows separate quantification of the amount of tritium oxide and elemental tritium released via the gaseous pathway. This method of sampling shall represent the formal record of SRBT emissions of tritium via the gaseous effluent pathway. " As per EFF-001 (Rev E), "The sampling of the stack monitoring system is to be performed on a weekly basis on Tuesday." To demonstrate the expectation has been met, check: • Sampling procedures are available and up to date; • Records to ensure samples are collected weekly; • Records of gaseous emissions monitoring equipment to ensure it is inspected weekly during sample change; • Stack (the Rig and Bulk stack systems) monitoring data is available and up to date; • Field observation, Rig Stack: minimum 0.27 inches of water column • Field observation, Bulk Stack: mnimum 0.38 inches of water column • Observe weekly bubbler sampling • Administrative and action level exceedances are responded to appropriately as per licensee's procedures.
Finding / Analysis	• Sampling procedures EFF-001 (Rev E) *Weekly Stack Monitoring* and EFF-003 (Rev D) *Real time stack monitoring* were reviewed and found to be up to date. • Weekly bubbler stack measurement records are retained as required, and it was confirmed that they contain the relevant information (effective stack heights, sample volumes, dates and times, and liquid scintillation counting results). • Stack monitoring equipment maintenance sheet EFF-001, MTC-008, were reviewed and were found that SRBT is doing the equipment inspection every 2 months. During observation of the sample change, the worker performed the equipment

	maintenance checks. • Weekly stack monitoring data excel spreadsheets were reviewed. The data was found to be adequately controlled. • Daily Differential Pressure Checks (bulk and rig) records were available on site and showed that the values were above 0.27 inches of water column and 0.38 inches of water column for June 11 to July 22, 2025. • Field Observation on July 22, 2025, Rig Stack: 0.38 inches of water column • Field Observation on July 22, 2025, Bulk Stack: 0.40 inches of water column • Weekly bubbler sample change was observed and it was found that SRBT staff were knowledgeable and performed the sample change as per EFF-001 (Rev E). • SRBT staff responded appropriately to the action level exceedance in November 2024 (see criteria #10 for more information).
☒ **Met** ☐ **Not Met**	
☐ **Recommendation**	

Effluent Monitoring Program – Liquid

Criteria #2	**Standards** CSA N288.8 2017 **Licensees Programs and Procedures:** Environmental Monitoring Program Revision C Effluent Monitoring Program Revision D EFF-002 (Rev D) - Liquid Effluent Assessment
Inspection Method / Compliance Expectation	**Inspection Method:** Interview, review records and procedures, data review, walk through observation **Compliance Expectation:** A liquid effluent monitoring program is being implemented and maintained in accordance with licensees' programs and procedures. Section 2.3 of the Environmental Monitoring Program Revision C states "liquid effluent is released in a controlled fashion to the municipal sewar system, eventually making its way to the Pembroke Pollution Control Centre." Section 4.3 of the Effluent Monitoring Program Revision D states "Liquid effluent shall be collected in batches and measured for tritium concentration. Calculations will be performed in order to measure the amount of water-soluble tritium being released in a batch-wise fashion through the liquid effluent pathway." EFF-002 (Rev D) states "SRBT has an internal target to limit the amount of tritium released to no more than 0.07 GBq/day." To demonstrate the expectation has been met, check: • Effluent is released in a controlled fashion to the municipal sewar system; • Sampling procedures are available and up to date; • On-site source liquid effluent data is available and up to date; • Releases are monitored and within specified limits and action levels (effluent releases limited to 200 GBq/year; action level 0.15 GBq/day); • Administrative and action level exceedances are responded to appropriately as per licensee's procedures; • Data to ensure effluent released is less than internal target of 0.07 GBq/day.
Finding / Analysis	• CNSC staff observed how SRBT is controlling liquid effluent: water is held in barrels in Zones 1, 2, and 3 prior to sampling and release. When a sample has been taken, SRBT staff put a sign on the barrel to communicate that no further liquids should be

	added to the barrels. • EFF-002 (Rev D), *Liquid Effluent Assessment* was available and up to date. • Weekly effluent summary sheet, EFF-002-F-02 was reviewed and found to be up to date. • Liquid releases were reviewed and found to be below limits, internal targets, and action levels. • SRBT have lowered the activity of liquid releases recently as they have discontinued producing the smallest light sources, which often did not pass leak testing and therefore would create higher level water (from leak test and scintillation liquid).
☒ **Met** ☐ **Not Met**	
☐ **Recommendation**	

Environmental Monitoring Program – Passive Air Samplers

Criteria #3	**Licensees Programs and Procedures:** Environmental Monitoring Program Revision C EMP-002 (Rev C) Passive air monitoring – Field Sampling
Inspection Method / Compliance Expectation	**Inspection Method** Interview, records review, field observation **Compliance expectation:** EMP-002 (Rev C) Passive air monitoring – Field Sampling states "Gaseous effluent can result in measurable levels of tritium-in-air in the surrounding environment. As such, SRBT deploys an array of passive air samplers (PAS) which continuously sample the air at the monitoring station. By analyzing the sample after a period of time, an integrated average tritium concentration can be calculated." To demonstrate the expectation has been met, check: • Passive air sampling procedures are available and up to date; • Records of the collection of the passive air samplers are available; The frequency at which passive air samples are collected is once per month during the entire year; • Results of the passive air samplers are available and up to date. • Verify that select PAS are present and identifiable
Finding / Analysis	• EMP-002 (Rev C) *Passive air monitoring – Field Sampling* was reviewed and found to be up to date. • Records of passive air samplers were reviewed and found to be complete and at the frequency of once per month. • CNSC staff reviewed PAS excel spreadsheet (monthly) and found data was up to date to June 2025. ○ During the interview, it was discussed that sometimes the duplicate stations have results that fall outside 40%. If the concentration of tritium was high enough and there is a significant enough discrepancy, an NCR will be raised (e.g. NCR-957). • Passive air samplers that were checked in the field included two samplers on site near the parking lot, and a station to the SW near the bridge over the Muskrat River, which had a duplicate PAS as well as a rainwater collection station. PAS were observed to be present, identifiable, and in good condition.
☒ **Met** ☐ **Not Met**	
☐ **Recommendation**	

Environmental Monitoring Program – Groundwater	
Criteria #4	**Standards** CSA N288.4 2010 (R2015) CSA N288.7 2015 **Licensees Programs and Procedures:** Environmental Protection Program Revision B Environmental Monitoring Program Revision C Groundwater Monitoring Program Revision C GMP-003 (Rev D) - Groundwater Field Sampling MTC-014 (Rev B) Monitoring Well Inspection and Maintenance
Inspection Method / Compliance Expectation	**Inspection Method:** Interview, review records and procedures, field observation **Compliance Expectation** A groundwater monitoring program is being implemented and maintained in accordance with licensees' programs and procedures. As per Groundwater Monitoring Program Revision C, dedicated groundwater monitoring wells are sampled quarterly in March, June, September and December. Residential and business wells are sampled semi-annually in March and September. Section 4.8 of the Groundwater Monitoring Program Revision C states "annually a third party will be engaged to provide independent assessment of the adequacy of our groundwater monitoring program activities as part of interlaboratory testing. Results between the third-party assessment and SRBT shall be compared, and an investigation into any significant discrepancies shall be performed." Section 7.4 states "the results obtained between the two labs are expected to fall within +/- of each other (for samples above the LLD of SRBT)." To demonstrate the expectation has been met, check: • Groundwater field sampling procedure is available and up to date • Observe that MW06-10 is located within a secured area and not available to be used as a source of water consumption; • Third party is engaged annually to provide an independent assessment and results of the assessment;
Finding / Analysis	• During the walk through, CNSC verified the presence of groundwater wells as per the map in the Groundwater Monitoring Program (Rev C). There were wells on the map that were not physically present and, while there is a table that lists groundwater wells that have been taken out of service, the map does not identify them as such. • The map in the Groundwater Monitoring Program, Rev C has not been updated since the building footprint changed. • MW06-10 was observed in a controlled location. • MW07-20, was observed with an outer shell that will not close (see Appendix B). • In reviewing the *Monitoring Well Preventative Maintenance Inspection Form* from June 16, 2025, it was identified that there are 3 wells that have lids that do not close. The lids and tags ensure that the wells are not tampered with. o A third party, qualified contractor has been contacted to come to service the wells. The third party contractor will service the 3 well lids that have been identified as needing service. o A June 2019 maintenance record was reviewed for the last time the monitoring wells were serviced. Maintenance included attaching a new extension tube with glue, re-planting protective casings to a deeper level and compaction of soil, and cutting down the extension tube so the casing could shut. In addition, where heaving was evident in a few other

	wells, new well depth measurements and top-of-tube relative to ground measurements were done. This resulted in an update to program documentation. ○ For all wells, there is a well level measurement that is used in the volume calculation for the purge. The purge is not related to data. • There were at least 5 wells that were observed to be significantly wobbly and rusty (see Appendix B). **Analysis:** CNSC staff reviewed MTC-014 Monitoring Well and Inspection Maintenance procedure as well as the monitoring well preventative maintenance inspection form (MTC-014-F-01 Rev A) completed by SRBT on June 16, 2025. Section 4.3 of the MTC-014, Monitoring Well Inspection and Maintenance procedure states, "The following steps constitute the minimum requirements for preventative maintenance on the monitoring wells on a periodic basis: Monitoring wells (performed quarterly): • Verify foot valve is allowing water to pass through • Verify tubing is not damaged and replace as required • Verify well casing is not damaged or heaving due to ground thaw • Verify unique ID number is clearly marked." CSA N288.7:15 Clause 7.5.7.1 states "a maintenance and inspection program shall be developed and implemented to provide reasonable assurance of the availability and integrity of the monitoring network." Clause 7.5.7.5 states "monitoring wells should be inspected to ensure they met the design requirements before sampling." Additionally, Clause 7.5.7.6 states "inspection elements should include, but not limited to, the following: a) well labels in place; b) well cap secure; c) integrity of well casing and d) consistent measurement of total well depth (declining depth could be an indicator of silting)." The well preventative and maintenance inspection form (MTC-014-F-01) states that "placing a check mark indicates the monitoring well compartment is in proper working condition." SRBT staff included notes on MTC-014-F-01 dated June 16, 2025, specific to 3 wells where the "lid does not close, will require corrective maintenance." CNSC staff acknowledge that SRBT has a work order to a third party for the 3 wells where the lid does not close. All the other wells had a check mark, which indicates the monitoring well component is in proper working condition. However, CNSC staff found at least 5 of the wells in the field to be significantly wobbly and rusted. This was not identified by SRBT staff on MTC-014-F-01. The licensee's procedure MTC-014 requires that staff verify at minimum on a quarterly basis that the "well casing is not damaged or heaving due to ground thaw." Therefore, a notice of non-compliance is being raised to ensure that SRBT will inspect and repair all wells, as necessary, by qualified professionals, to ensure all well casings are not damaged or heaving as per MTC-014, verify the well caps are secure and, verify overall integrity of all well casings as per CSA N288.7. In addition, a recommendation is being raised for SRBT to update the map on the Groundwater Monitoring Program to reflect the current state of the building footprint and monitoring wells.
☐ **Met** ☒ **Not Met**	**SRBT-2025-01-NNC01:** SRBT shall ensure that groundwater monitoring wells are inspected, repaired, and maintained to ensure integrity of the wells and casing as per MTC-014 and CSA N288.7.
☒ **Recommendation**	**SRBT-2025-01-R01:** SRBT should review their Groundwater Monitoring Program and associated procedures and forms to identify the necessary updates for the next revision.
Environmental Monitoring Program – River Monitoring	
Criteria #5	**Standards**

	CSA N288.5 2011 (R2016) **Licensees Programs and Procedures:** Environmental Monitoring Program Revision C EMP-004 Receiving Water/River Monitoring – Field Sampling EMP-017 Special Annual Sampling Campaign – ERA Revision B
Inspection Method / Compliance Expectation	**Inspection Method:** Interview, review records, procedures, field observation **Compliance Expectation** The Special Annual Sampling Campaign River monitoring field sampling is as per licensee's programs and procedures. Between 2019 and 2021, the Environmental Risk Assessment report included recommendations to improve the risk assessment. EMP-017 states "one of the key themes in these recommendations was an expansion of the EMP in several areas of interest such as the environment near the Muskrat River and in nearby Indigenous communities." To demonstrate the expectation has been met, check: • River monitoring field sampling procedures are available and up to date; • Observe SRBT staff complete special annual sampling campaign river monitoring as per licensee procedure EMP-017; • Results of the special annual sampling campaign river monitoring (EMP-017) are available;
Finding / Analysis	**Findings:** • River monitoring field sampling procedure EMP-017, *Special Annual Sampling Campaign – ERA Revision B*, was available and up to date. • River monitoring procedure EMP-004, *Receiving/Water River Monitoring – Field Sampling* is available but not up to date. EMP-004 states that a third party conducts the sampling; however, SRBT staff communicated that the sampling is not conducted by a third party and is conducted internally by SRBT staff. • CNSC staff observed SRBT staff in the field conduct river sampling as per licensee's procedure EMP-017. • Results of the special annual sampling campaign river monitoring were available. **Analysis:** CSA N288.4:15 Clause 6.2.2.6 states "the detailed design of the EMP shall be developed and documented as described in Clause 13." Clause 13.1 states "the detailed design of the EMP shall be incorporated in a program document." SRBT's Environmental Monitoring Program refers to EMP-004, *Receiving Water/River Monitoring-Field Sampling,* as the procedure for implementing the river water monitoring portion of the program. Section 5 of EMP-004 states "field sampling activities associated with river monitoring are currently conducted by a qualified third-party service provider on behalf of SRBT", however, the current practice is that the river monitoring sampling is conducted by SRBT staff and not by a third party.
☐ **Met** ☒ **Not Met**	**SRBT-2025-01-NNC02:** SRBT shall update their procedure EMP-004 Receiving Water/River Monitoring to reflect current practices.
☐ **Recommendation**	

Environmental Management System – Audits

Criteria #6	**Licensees Programs and Procedures:**

	Environmental Management System Revision F
Inspection Method / Compliance Expectation	**Inspection Method:** Interview, review records and internal audits **Compliance Expectation:** Management system and environmental management program are being implemented and maintained in accordance with the licensee's programs and procedures. Section 5.5 of the Environmental Management System Revision F "SRBT employs a comprehensive program of internal audit that assesses all elements of the EMS at least once every three years. In most cases, key elements of the EMS are audited annually." To demonstrate the expectation has been met, check: • Completion of recent internal audits • Status of any outstanding audit findings and deficiencies
Finding / Analysis	An internal audit of the Environmental Protection Effluent Monitoring Program was conducted December 23, 2024. The audit generated two Non-Conformance Reports: • NCR-996, reports an issue around scanning of records from liquid barrel releases. In response, a memo was issues to staff reminding about record keeping. • NCR-997, reports a discrepancy in the pressure used for leak testing procedure ad the procedure. In response, EFF-004, *Sample Line Leak Checking*, was revised to close the NCR. The SRBT Internal Audit Schedule was reviewed, and it was discussed that the schedule is revised as needed and changes are approved by the President. For Environmental Protection, there are 3 programs that are audited. This includes the Environmental Monitoring Program (EMP), Effluent Monitoring Program (EffMP), and the Groundwater Monitoring Program (GMP). The next audit is on Groundwater Monitoring Program in September 2025.
☒ **Met** ☐ **Not Met**	
☐ **Recommendation**	

Environmental Management System – Actions

Criteria #7	**Licensees Programs and Procedures:** Environmental Management System Revision F **Previous inspection recommendation:** SRBT-2019-02-R01
Inspection Method / Compliance Expectation	**Inspection Method:** Interview, review records **Compliance Expectation:** Section 5.5 of the Environmental Management System Revision F "Where an action is required to address a nonconformity, non-compliance or an opportunity to improve, it is documented and assigned to a responsible action owner. This may be a program manager, or any other member of the organization with responsibilities in this area. It also may be a qualified third party that provides support to the execution of the EMS To demonstrate the expectation has been met: • Review non-conformance reports related to SRBT's environmental protection program over the past year • Discuss follow up and response to non-conformance reports to ensure SRBT is acting upon non-conformances and non-compliances in a risk-informed fashion, in order to prevent recurrence of problems, and ensure effective control of operations and environmental impacts.

Finding / Analysis	The following NCRs were reviewed:
	• NCR-957, duplicate PAS result outside of criteria for March 2024. Root cause possibly construction related. Action plan was to reposition the samplers (complete). Further details were discussed with SRBT staff:
	  ○ There are 4 stations where there are duplicate PAS
	  ○ Duplicates results are expected to be within 40%, but if there is low tritium concentration, the results may fall outside 40%.
	  ○ In the case of NCR-957, the samples were large enough that they should have been within 40% so it warranted corrective actions.
	  ○ SRBT staff verbally confirmed that the particulars around this issue have not recurred since the samplers were repositioned.
	• NCR-976, response to SRBT-2024-01-NNC01 (see criteria #9)
	• NCR-979, action level exceedance in November 2024 (see criteria #10)
	• NCR-991, commercial farmer closed for business so sample of commercial food had to be obtained from a local store. EMP-013 will be revised to capture changes to reflect challenges with sourcing locally grown produce that is sold commercially.
	• NCR-997, Once every 3 year test being done at 10 psi instead of 15 as per the procedure. Rectified.
	
	NCRs are generated on a form and are tracked on an excel spreadsheet. The quality manager sends out updates as needed.

☒ **Met** ☐ **Not Met**	
☐ **Recommendation**	

Process Optimization

Criteria #8	**Licensees Programs and Procedures:** Environmental Protection Program, Revision B (2021), Section 4.4
Inspection Method / Compliance Expectation	**Inspection Method:** Interview, records review. **Compliance Expectation** The processes that contribute to the environmental release of tritium are continuously monitored and assessed in order to ensure that they are optimized with respect to their impact. The Mitigation Committee is mainly responsible for identifying ways in which processes can be optimized in this way. The Health Physics Team also plays a role in this function. To demonstrate the expectation has been met: • Review Mitigation Committee meeting minutes for past 12 months • Discuss projects and initiatives since last revision of EPP to further control/ optimize processes that contribute to environmental release of tritium.
Finding / Analysis	The Mitigation Committee met two times per year for 2023 and 2024. Meeting minutes were reviewed (July 2023, Dec 2023, June 2024, Dec 2024), and the following observations noted: • Each meeting reviews initiatives, objectives and targets (liquid effluent, gaseous tritium per week, ratio released to processed), trends, and actions. • The only initiative noted from October 2022 until December 2024 was on volume reduction of rigs 1 and 7 and the bulk splitter. This item is parked for now but will be considered if a rig is modified or a new rig is built. Through the interview, the following topics were discussed: • Optimizing the number of cycles of a tritium trap has been studied as there is benefit in running more cycles, but effficiency of readsorption decreases at a certain point.

	• At the start of 2025, all PUs were replaced and emissions were observed to be lower. • Initiative to reduce liquid emissions by reducing the production of very small and leaky light sources. • Supervisors and the assembly supervisor are part of the Mitigation Committee and will bring issues to the table. • When there is a safety significant human performance error (eg. the action level exceedance), there is a trigger to update training.
☒ **Met** ☐ **Not Met**	
☐ **Recommendation**	

Follow up on SRBT-2024-01-NNC01

Criteria #9	**CSA Standard:** CSA N288.5-11 *Effluent monitoring programs at Class I nuclear facilities and uranium mines and mills*, Section 10.1.1 **Previous inspection finding:** SRBT-2024-01-NNC01
Inspection Method / Compliance Expectation	**Inspection Method:** Document Review: • SRBT Effluent Monitoring Program • EFF-006, *Independent Laboratory Intercomparison Process* Record Review: • EffMP Inter-laboratory Performance Testing (gaseous) – 2025 • NCR-976, Non-conformance report in response to SRBT-2024-01-NNC01 **Compliance Expectation:** Annually, a third party will be engaged to provide independent assessment of the adequacy of our gaseous effluent monitoring methodology as part of interlaboratory testing. Results between the third-party assessment and SRBT shall be compared, and an investigation into any discrepancy greater than 30% shall be performed.
Finding / Analysis	NCR-976 was generated in response to SRBT-2024-01-NNC01. The NCR was resolved by the creation of EFF-006*, Independent Laboratory Intercomparison Process.* EFF-06 was reviewed and confirmed to provide clarity on acceptable reasons that the +/-30% acceptance criteria for intercomparison results may not always be met. Further, EFF-06 outlined details on where further investigation may be warranted such as trends in discrepant results. A memo, *EffMP Inter-laboratory Performance Testing (Gaseous) – 2025,* shows the results of the 2025 intercomparison with CNL. The Bulk HTO sample set had a deviation of 52%, (thus, outside the 30% acceptance criteria), but the memo has provided an acceptable explanation (low tritium concentration due to low production that week).
☒ **Met** ☐ **Not Met**	
☐ **Recommendation**	

Follow up on Action Level Exceedance Nov 28 2024

Criteria #10	**Standard** CSA N288.8 2017
Inspection Method / Compliance Expectation	During a tritium processing operation on November 28, 2024, a gaseous tritium release occurred at SRBT above their action level. The final weekly release for the monitoring period was 17, 137.69 GBq (total HT and HTO) represented 343% of an action level for the week

	between November 26 and December 3, 2024. **Inspection Method:** Interview, records review **Compliance Expectation:** NCR-979 has been closed. To demonstrate the expectation has been met: • Review non-conformance report #979 • Verify that the Licensee reviewed and if necessary, improved training processes and procedures for processing; • Review/discuss the status of each of the 4 corrective actions discussed in the Action Level Exceedance of November 28, 2024 – Final Written Report.
Finding / Analysis	• NCR-979, action level exceedance in November 2024 reviewed, and was found to have 4 corrective actions. Three of four corrective actions were acted upon and closed. • In consultation with the RDU manufacturer, it was determined that reprogramming the 'low alarm' set point would require a significant amount of disassembly of the instrument, with a risk of unrecoverable damage to the unit, and potential down-time for this important safety-related component. As a result of this feedback, one of the corrective actions was cancelled. • CNSC staff interviewed SRBT's RIG room staff, walked through how the action level exceedance occurred, and discussed lessons learned regarding distrations in the workplace. • Training on distractions in the work place was added to annual SRBT training for all staff. Training includes a video on *Avoiding Workplace Distractions*.
☒ **Met** ☐ **Not Met**	
☐ **Recommendation**	

Appendix B Photos

Certain groundwater monitoring wells were observed to have lids that don’t close and rusty casings with a significant wobble.

Appendix C Attendance Records

Canadian Nuclear Safety Commission
Commission canadienne de sûreté nucléaire

Inspection Meeting Attendance Record
Directorate of Nuclear Cycle and Facilities Regulation
Nuclear Processing Facilities Division

Licensee:	SRB Technologies (Canada) Inc.
Location:	Tritium Processing Facility (Pembroke, ON)
Licence Number:	NSPFL-13.00/2034
Inspection Title:	Environmental Protection Inspection
Inspection Number:	SRBT-2025-01
Inspection Dates:	July 22-24, 2025
Lead Inspector:	Carley Crann
Meeting Type:	Opening Meeting

Name (print)	Role or Job Title
Carley Crann	CNSC Inspector
Alison O'Connor	CNSC Inspector in Training
Sarah Butt	CNSC Specialist
JAMIE MACDONALD	MANAGER - HP + RA (SRBT)
Christopher Hoffman	HP Technician
Joshua Bull	Assistant Manager - Health Physics

Page 1 of 2
Unclassified

CNSC Inspection Meeting Attendance
Directorate of Nuclear Cycle and Facilities Regulation SRBT-2025-01

Licensee:	SRB Technologies (Canada) Inc.
Location:	Tritium Processing Facility (Pembroke, ON)
Licence Number:	NSPFL-13.00/2034
Inspection Title:	Environmental Protection Inspection
Inspection Number:	SRBT-2025-01
Inspection Dates:	July 22-24, 2025
Lead Inspector:	Carley Crann
Meeting Type:	Closing Meeting

Name (print)	Role or Job Title
Carley Crann	CNSC Inspector
Alison O'Connor	CNSC Inspector-in-training
Souran Butt	CNSC Environmental Program Officer
JAMIE MACDONALD	MANAGER - HP+RA - SRBT
Joshua Bull	Assistant Manager - Health Physics
ROSS FITZPATRICK	VICE-PRESIDENT - OWNER
SZERAN LOVESCU	PRESIDENT - OWNER
Christopher Hoffman	HP- Technician
Nathalie Belleau	Compliance Manager