



Directorate of Nuclear Cycle and Facilities Regulation

File No.: 4.02.02 e-Doc: 6714210

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January 19, 2022

Mr. Stephane Levesque President SRB Technologies (Canada) Inc. 320-140 Boundary Road Pembroke, ON K8A 6W5

Subject: CNSC Compliance Inspection Report No. SRBT-2021-02

October 25, 2021 to October 27, 2021

Dear Mr. Levesque:

Please find enclosed Canadian Nuclear Safety Commission's (CNSC) final inspection report SRBT-2021-02 for the Compliance Inspection carried out from October 25, 2021, to October 27, 2021, at SRB Technologies (Canada) Inc.'s (SRBT) Tritium Processing Facility in Pembroke, ON. The inspection team found SRBT to be in compliance with the inspection criteria. Nine recommendations were raised as part of this inspection for SRBT to address as areas of improvement:

- **SRBT-2021-02-R01:** SRBT should review the format of the evaluator checklist to improve usability.
- **SRBT-2021-02-R02:** SRBT should consider the use of multiple controllers in the design of future emergency exercises.
- SRBT-2021-02-R03: SRBT should consider the use of a scribe to assist the IC.
- **SRBT-2021-02-R04:** SRBT should consider the use of the code phrase "No-Duff" during exercises/drills to indicate a real emergency.
- **SRBT-2021-02-R05:** SRBT should consider the use of radios as the primary mode of communication during emergency situations.
- **SRBT-2021-02-R06:** SRBT should consider training to reinforce 3-way communication using radios.
- **SRBT-2021-02-R07:** SRBT should review the conditions for re-entry into the facility, including PPE requirements, following direction from PFD responders.



- **SRBT-2021-02-R08:** SRBT should consider the use of a recovery worksheet as a reminder to return the facility into an operational state following an emergency.
- **SRBT-2021-02-R09:** SRBT should review the recommendations from its exercise evaluation report and implement improvements to their emergency plan accordingly.

If you have any questions, or concerns, please do not hesitate to contact me.

Sincerely,

Digitally signed by Posada, Lester
DN: C=CA, O=GC, OU=CNSC-CCSN,
CN="Posada, Lester"
Reason: I am the author of this
document
Location: your signing location here
Date: 2022-01-19 12:40:20
Foxit Reader Version: 9.7.1

Lester Posada Project Officer Nuclear Processing Facilities Division

Enclosure: CNSC Compliance Inspection Report, SRBT-2021-02 (e-Doc 6679437)

c.c.: R. Fitzpatrick, J. MacDonald – SRBT A. McAllister, J. Amalraj, L. Nicolai, D. Szonyi – CNSC

CNSC COMPLIANCE INSPECTION REPORT

Inspection No.: SRBT-2021-02

Inspection Title: Type II Emergency Management Inspection

Prepared by: Lester Posada, Project Officer

Nuclear Processing Facilities Division

Directorate of Nuclear Cycle and Facilities Regulation

Report Date: January 19, 2022





CANADIAN NUCLEAR SAFETY COMMISSION COMPLIANCE INSPECTION

Inspection No.: SRBT-2021-02

Licensee:	SRB Technologies (Canada) Inc.	
Licence No.:	NSPFOL-13.00/2022	
Facility / Site Inspected:	SRBT Tritium Processing Facility	
Inspection Date(s):	October 25, 2021 – October 27, 2021	
Inspector:	Digitally signed by Posada, Lester DN: C=CA, O=GC, OU=CNSC-CCSN, CN="Posada, Lester" Reason: I am the author of this document Location: your signing location here Date: 2022-01-19 10:53:02 Foxit Reader Version: 9.7.1	
Approved by:	Lead Inspector, Nuclear Processing Facilities Division McAllister, Digitally signed by McAllister, Andrew DN: C=CA, O=GC, OU=CNSC-CCSN, CN=" McAllister, Andrew" Reason: I am approving this document Location: your signing location here Date: 2022-01-19 12:53:40 Foxit Reader Version: 9.7.1	
	Director, Nuclear Processing Facilities Division	
Safety and Control Area(s):	Emergency Management and Fire Protection	
Inspector Accompanied by:	Julian Amalraj, Sr. Project Officer Laurent Nicolai, Licensee Emergency Programs Officer David Szonyi, Technical Co-Op Student	

EXECUTIVE SUMMARY

Pursuant to subsection 30(1) of the *Nuclear Safety and Control Act* (NSCA) Canadian Nuclear Safety Commission (CNSC) staff conducted an inspection at the SRB Technologies (Canada) Inc. (SRBT) facility from October 25, 2021 to October 27, 2021. The purpose of the inspection was to provide an overall assessment of compliance with specific clauses of the NSCA and its regulations, the operating licence NSPFOL-13.00/2022 and its associated Licence Conditions Handbook (LCH), as well as SRBT's programs and procedures as necessary.

The scope of the inspection focused on the implementation of SRBT's Emergency Management Program. Specifically, this inspection observed SRBT's 5-year full scale emergency exercise. This inspection was conducted as a hybrid with onsite inspectors and remote specialist support through video conferencing due to the current COVID-19 pandemic.

CNSC inspectors' preliminary inspection facts and findings were discussed with licensee staff. A Preliminary Inspection Facts and Findings Report was tabled during the closing meeting held on October 27, 2021.

Overall, CNSC staff conclude that SRBT met the objectives for testing of emergency measures with an adequate response to a significant fire event at SRBT facility.

The inspection team found the licensee to be in compliance with the inspection criteria. Nine recommendations were raised as part of this inspection for SRBT to address as areas of improvement. The identified recommendations do not pose an immediate or unreasonable risk to the health and safety of persons.

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1. INTRODUCTION

An inspection at the SRB Technologies (Canada) Inc. (SRBT) facility was conducted from October 25, 2021 to October 27, 2021.

The licensee was assessed against provisions of the *Nuclear Safety and Control Act* (NSCA) and its associated regulations, the conditions of the licence NSPFOL-13.00/2022 [1] and the Licence Conditions Handbook (LCH) for SRBT [2], as well as applicable facility-specific and programmatic governing documentation.

Criteria for this inspection were derived directly from the set of documents described in the notification letter and compiled into a Compliance Matrix, which had been provided to SRBT staff prior to the inspection [3]. In light of the ongoing COVID-19 pandemic, this inspection was carried out as a hybrid with onsite inspectors and remote specialist support through video conferencing remotely. Observations, interviews, record review and video recording were undertaken to assess compliance with regulatory expectations.

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 provide an overall assessment of compliance with specific clauses of the NSCA and its regulations, the operating licence NSPFOL-13.00/2022 and its associated LCH, as well as SRBT's programs and procedures as necessary.

The scope of the inspection focused on the implementation of SRBT's Emergency Management Program. Specifically, this inspection observed SRBT's 5-year full scale emergency exercise. This inspection was conducted as a hybrid with onsite inspectors and remote specialist support through video conferencing due to the current COVID-19 pandemic.

3. DESCRIPTION OF INSPECTION METHODS

The NSCA, Canadian Nuclear Safety Commission (CNSC) Regulations, licence NSPFOL-13.00/2022 licence conditions, and governing documents were reviewed as part of the preparation for the inspection. Various items were selected for verification and compiled into a Compliance Matrix (Appendix C). The inspection also included field observations and information provided by licensee staff.

Any number of the following method(s) of assessment were used during the inspection:

A. Documentation and record review

 Records were verified to be maintained as required by many of the outlined criteria, and a review of selected documents was performed to ensure their accuracy and completeness.

B. Visual assessment and verification

- A physical inspection of the facility with licensee staff was conducted.
 Observations based on identified compliance criteria were made for verification purposes.
- The emergency exercise was recorded using a GoPro camera and reviewed following the field verification portion of the inspection.

C. Interviews and discussions with licensee staff

 Interviews and discussions with various licensee staff were conducted during the inspection. Questions were posed based on compliance criteria and responses documented for verification purposes.

Selected documentation and records were reviewed during the field verification component of the inspection. These were reviewed in order to determine whether the various records associated with the areas of the inspection are in compliance with associated regulatory and programmatic requirements.

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 purposes of outlining observations made by the inspection team at an overall level, based on a preliminary review of the criteria set identified in the Compliance Matrix and observations made.

4. INSPECTION RESULTS

The following finding(s) and subsequent enforcement action and/or recommendations are the result of CNSC staff's inspection. This section of the report has been structured to show the link from the initial inspection finding to the resulting enforcement action or recommendation as shown below:

- compliance verification criteria used to identify the deficiency
- a description of the observed deficiency
- an analysis linking the compliance verification criteria or regulatory requirement to the observed deficiency
- detailed compliance action requiring the licensee to address the deficiency

The order in which findings are presented in the report does not indicate a ranking of their safety significance.

The Compliance Matrix used for this inspection contains the compliance verification criteria (CVC) used to assess and evaluate compliance with regulatory and licensing requirements during this inspection. The criteria in the Compliance Matrix have been identified to have either "Met" or "Not Met" the applicable requirement.

A notice of non-compliance (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 identified 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.

Overall, CNSC staff conclude that SRBT met the objectives for testing of emergency measures with an adequate response to a significant fire event at SRBT facility.

4.1 Safety and Control Area: Emergency Management and Fire Protection

Criteria

CSA N286-12 Management system requirements for nuclear facilities, Clause 8.9.2 'Operational Control'

Operation activities shall be controlled through

- (a) use of and adherence to operational documents;
- (b) authorizing of work and controlling status of equipment; and
- (c) control of facility access.

Documents shall be prepared for non-routine and emergency conditions that require immediate actions. Practice drills shall be performed to assure requirements can be met.

Fact(s)

• Evaluator checklist was used to evaluate performance during the exercise, however checklist was not used for its purposes. SRBT evaluators noted that the checklist could use improvement.

Analysis/Finding(s)

SRBT provided a checklist for evaluators to use during the exercise to review against the emergency exercise objectives. The SRBT evaluators noted that the checklist could use improvement and did not use it for its purposes. It was used as a general notepad to generate notes during the exercise as it progressed and was to be filled in after the exercise concluded. As part of continuous improvement, it is recommended that SRBT review the format of the evaluator checklist to improve its usability in subsequent emergency exercises. While not identified as a non-compliance, this is viewed as an opportunity for improvement based on CNSC experience and industry best practices.

Compliance Action(s)/Recommendation(s)

SRBT-2021-02-R01: SRBT should review the format of the evaluator checklist to improve usability.

4.2 Safety and Control Area: Emergency Management and Fire Protection

Criteria

REGDOC-2.10.1, section 2.2.1 Emergency Response Organization and Staffing All licensees shall:

In accordance with ER plan and procedures:

- 1. An emergency response organization (ERO) with a command structure is clearly defined and integrated
- 2. The minimum number of staff required to maintain the ERO and their qualifications is clearly defined and documented
- 3. The expected reporting times for the ERO to report to the emergency response facility or designated area are clearly defined
- 4. The requirement to maintain and retain logs of all actions, orders, and track and update actions throughout the emergency is clearly defined and documented

Fact(s)

- As part of the exercise design, only 1 controller was assigned for the exercise.
- No official scribe was assigned for this exercise; an evaluator was scribing the event for the SRBT Incident Commander (IC).

Analysis/Finding(s)

As part of the exercise design, only 1 controller was assigned for the exercise. This creates the potential for uncontrolled situations in the medical incident scenario during marshalling and assembly. The scenario card was handed out by the controller at the start of the exercise and was left to play out outside of the controller's field of view. CNSC staff recommend having another controller placed at different strategic points as an opportunity for improvement.

Furthermore, there was no official scribe assigned for this emergency exercise. One of the evaluators was scribing the event for the SRBT IC to help facilitate in his responsibilities for managing the emergency. As an opportunity for improvement, CNSC staff recommend assigning a dedicated SRBT staff for scribing purposes to provide SRBT IC adequate scribing support. While not identified as a non-compliance, this is viewed as an opportunity for improvement based on CNSC experience and industry best practices.

Compliance Action(s)/Recommendation(s)

SRBT-2021-02-R02: SRBT should consider the use of multiple controllers in the design of future emergency exercises.

SRBT-2021-02-R03: SRBT should consider the use of a scribe to assist the IC.

4.3 Safety and Control Area: Emergency Management and Fire Protection

Criteria

REGDOC-2.10.1, section 2.3.3 Testing the Implementation of Emergency Measures

• test the implementation of their emergency measures

Fact(s)

• During the pre-job briefing, SRBT staff mentioned that the code phrase for a real emergency used will be "This is a real emergency". This was identified by the Paramedics who suggested this preferred code phrase as well.

Analysis/Finding(s)

The 'No Duff' code phrase is widely used with other CNSC licensees to signify a real emergency during exercise scenarios. CNSC staff recommend using the code phrase 'No Duff' for future exercises/drills. While not identified as a non-compliance, this is viewed as an opportunity for improvement based on CNSC experience and industry best practices.

Compliance Action(s)/Recommendation(s)

SRBT-2021-02-R04: SRBT should consider the use of the code phrase "No-Duff" during exercises/drills to indicate a real emergency.

4.4 Safety and Control Area: Emergency Management and Fire Protection

Criteria

REGDOC-2.10.1, section 2.3.3 Testing the Implementation of Emergency Measures

• test the implementation of their emergency measures

Fact(s)

- Use of 3-way communication using a radio was effective, however CNSC staff noted that SRBT prefers to use cell phones as primary mode of communication with radios as backup.
- 3-way communication was constantly observed between SRBT staff and with Pembroke Fire Department (PFD) staff, however use of 3-way communication between SRBT staff was not consistently observed, such as communication of tritium levels in the facility.

Analysis/Finding(s)

During the exercise, CNSC staff note that the use of 3-way communication using radios was effective. However, CNSC staff noted that SRBT prefers to use cell phones as their primary mode of communication with radios as the backup. In case of on/offsite emergencies, the cell phone networks may become unavailable thus requiring SRBT staff to rely on onsite radio communication system for emergency response. CNSC staff recommend keeping radios as the primary communication tool with using cell phones as the backup.

Furthermore, 3-way communication was constantly observed between SRBT staff and PFD staff. However, the use of 3-way communication between SRBT staff was not consistently observed, such as communication of tritium levels in the facility. CNSC staff recommend training and the reinforcement of 3-way communication to SRBT staff. While not identified as a non-compliance, this is viewed as an opportunity for improvement based on CNSC experience and industry best practices.

Compliance Action(s)/Recommendation(s)

SRBT-2021-02-R05: SRBT should consider the use of radios as the primary mode of communication during emergency situations.

SRBT-2021-02-R06: SRBT should consider training to reinforce 3-way communication using radios.

4.5 Safety and Control Area: Emergency Management and Fire Protection

Criteria

REGDOC-2.10.1, section 2.3.3 Testing the Implementation of Emergency Measures

• test the implementation of their emergency measures

Fact(s)

• SRBT Health Physics (HP) Manager recommended PFD responders keep their self-contained breathing apparatus (SCBA) on but the HP Manager walked into the facility without personal protective equipment (PPE).

Analysis/Finding(s)

During the exercise, the SRBT HP Manager recommended that PFD responders keep their SCBA on, but the HP Manager walked in without PPE. At this point in the exercise, PFD has successfully put out the fire and is requesting assistance from SRBT for the safe decontamination of the responders as per their procedures. CNSC staff recommend that SRBT review the conditions for re-entry into the facility as well as any PPE requirements once it has been deemed safe by PFD responders. While not identified as a non-compliance, this is viewed as an opportunity for improvement based on CNSC experience and industry best practices.

Compliance Action(s)/Recommendation(s)

SRBT-2021-02-R07: SRBT should review the conditions for re-entry into the facility, including PPE requirements, following direction from PFD responders.

4.6 Safety and Control Area: Emergency Management and Fire Protection

Criteria

REGDOC-2.10.1, section 2.3.3 Testing the Implementation of Emergency Measures

• test the implementation of their emergency measures

Fact(s)

• Regarding the recovery / return to operation phase, CNSC staff did not observe SRBT relying on procedure/worksheet.

Analysis/Finding(s)

During the recovery phase of the exercise, CNSC staff did not observe SRBT relying on procedures or worksheets. SRBT recovery duties are based on their experience and knowledge of the facility. CNSC staff recommend that SRBT consider the use of a worksheet or checklist as a reminder of the steps to return the facility into an operational state following an emergency. While not identified as a non-compliance, this is viewed as an opportunity for improvement based on CNSC experience and industry best practices.

Compliance Action(s)/Recommendation(s)

SRBT-2021-02-R08: SRBT should consider the use of a recovery worksheet as a reminder to return the facility into an operational state following an emergency.

4.7 Safety and Control Area: Emergency Management and Fire Protection

Criteria

REGDOC-2.10.1, section 2.4 Program Management

All licensees shall:

Include at a minimum, the following elements in management systems:

- 1. A written policy statement issued by licensee senior management, committing all units of the organization to the system and its effective implementation
- 2. A program owner identified with the authority to ensure that resources are given to all aspects of the EP program
- 3. Procedures describing the planned and systematic actions necessary to provide adequate confidence that all specified requirements are satisfied
- 4. Procedures that specify who (position or unit) is to review and update the program on an ongoing basis, and how this is to be done

5. Review and update EP program and associated documentation (e.g., response plan, training material, procedures, etc.) at defined intervals to take into account relevant factors, such as operating experience, changing needs or circumstances, and lessons learned from real events.

Fact(s)

- A post exercise meeting was conducted with drill participants. Feedback during the exercise as well as lessons learned was given by all participants
- SRBT prepared an emergency exercise report that captures recommendations for future improvements to the emergency plan.

Analysis/Finding(s)

Emergency programs are reviewed and updated to take into account relevant factors, such as operating experience, changing needs or circumstances, and lessons learned from real events. On December 23, 2021, SRBT submitted their Emergency Exercise Report [5]. CNSC staff reviewed the report and note that it captures the findings, lessons learned and operating experience associated with the conduct of the full-scale emergency exercise on October 26, 2021.

As part of continuous improvement for the SRBT Emergency Management Program, CNSC staff recommend that SRBT review the recommendations in their emergency exercise evaluation report and implement the improvements to their emergency plan accordingly. While not identified as a non-compliance, this is viewed as an opportunity for improvement based on CNSC experience and industry best practices.

Compliance Action(s)/Recommendation(s)

SRBT-2021-02-R09: SRBT should review the recommendations from its exercise evaluation report and implement improvements to their emergency plan accordingly.

5. SUMMARY OF ENFORCEMENT ACTIONS AND RECOMMENDATIONS ISSUED

5.1 Enforcement Actions

The following enforcement actions were raised as a result of this inspection.

Notice(s) of non-compliance:

• None issued

5.2 Recommendations

The following recommendations were raised as a result of this inspection:

- **SRBT-2021-02-R01:** SRBT should review the format of the evaluator checklist to improve usability.
- **SRBT-2021-02-R02:** SRBT should consider the use of multiple controllers in the design of future emergency exercises.
- SRBT-2021-02-R03: SRBT should consider the use of a scribe to assist the IC.
- **SRBT-2021-02-R04:** SRBT should consider the use of the code phrase "No-Duff" during exercises/drills to indicate a real emergency.
- **SRBT-2021-02-R05:** SRBT should consider the use of radios as the primary mode of communication during emergency situations.
- **SRBT-2021-02-R06:** SRBT should consider training to reinforce 3-way communication using radios.
- **SRBT-2021-02-R07:** SRBT should review the conditions for re-entry into the facility, including PPE requirements, following direction from PFD responders.
- **SRBT-2021-02-R08:** SRBT should consider the use of a recovery worksheet as a reminder to return the facility into an operational state following an emergency.
- **SRBT-2021-02-R09:** SRBT should review the recommendations from its exercise evaluation report and implement improvements to their emergency plan accordingly.

6. CONCLUDING STATEMENTS

CNSC staff performed an inspection of the SRBT Emergency Management Program in order to verify compliance with the NSCA, its associated regulations, the conditions of the licence and the LCH.

Overall, CNSC staff conclude that SRBT met the objectives for testing of emergency measures with an adequate response to a significant fire event at SRBT facility.

The inspection team found the licensee to be in compliance with the inspection criteria. Nine recommendations were raised as part of this inspection for SRBT to address as areas of improvement. The identified recommendations do not pose an immediate or unreasonable risk to the health and safety of persons. SRBT is requested to submit a response to this inspection report 60 days from the date the report was issued.

CNSC staff extend their appreciation to SRBT for their assistance in conducting this inspection.

7. REFERENCES

- [1] SRB Technologies (Canada) Inc. Nuclear Substance Processing Facility Operating Licence, NSPFOL-13.00/2022, (e-Doc 4522207).
- [2] SRB Technologies (Canada) Inc. Licence Conditions Handbook, (e-Doc 5878205).
- [3] E-mail from L. Posada (CNSC) to J. MacDonald (SRBT), SRBT-2021-02 Emergency Management Inspection Compliance Matrix October 2021, October 21, 2021, (e-Doc 6683960).
- [4] SRBT-2021-02 Preliminary Inspection Facts and Findings Report, October 27, 2021, (e-Doc 6661945).
- [5] Submission from S. Levesque (SRBT) to L. Posada (CNSC), Submission of SRBT's 2021 Emergency Exercise Report, December 23, 2021 (e-Doc 6708007).

APPENDIX A: ACRONYMS AND ABBREVIATIONS

CNSC Canadian Nuclear Safety Commission

CVC Compliance Verification criteria

DNCFR Directorate of Nuclear Cycle and Facilities Regulation

DO Duty Officer

EMPD Emergency Management Programs Division

ERF Emergency Response Facility

ERO Emergency Response Organization

HP Health Physics

IC Incident Commander

LCH Licence Conditions Handbook

MOU Memorandum of Understanding

NNC Notice of Non-Compliance

NPFD Nuclear Processing Facilities Division

NSCA Nuclear Safety and Control Act

PFD Pembroke Fire Department

PPE Personal Protective Equipment

SCBA Self-Contained Breathing Apparatus

SRBT SRB Technologies (Canada) Inc.

RPR Radiation Protection Regulations

APPENDIX B: ATTENDANCE RECORD(S)



Canadian Nuclear Safety Commission Commission canadienne de sûreté nucléaire

Inspection Meeting Attendance Record
Directorate of Nuclear Cycle and Facilities Regulation

Unclassified

e-Doc Number

Licensee Name: SRB Technologies (Canada) Inc.

Licence Number: NSPFOL-13.00/2022

Licensed Site: SRB Tritium Processing Facility (Pembroke, ON)
Facility / Program / Site: SRB Technologies Tritium Processing Facility
Title of Inspection: Type II Emergency Management Inspection

Inspection Number: SRBT-2021-02

Inspection Date(s): October 25, 2021 to October 27, 2021

Lead Inspector: Lester Posada, NPFD

Meeting Type: Opening

Name (print)	Role or Job Title	Signature
Lester Posada	Project Officer, Lead Inspector	
Julian Amalraj	Sr. Project Officer, Inspector	
David Szonyi	Technical Co-Op Student	
Stephane Levesque	President, SRBT	
Ross Fitzpatrick	Vice President, SRBT	
Jamie MacDonald	Manager – Health Physics and Regulatory Affairs, SRBT	

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Canadian Nuclear Safety Commission Commission canadienne de sûreté nucléaire

Inspection Meeting Attendance Record Directorate of Nuclear Cycle and Facilities Regulation

Unclassified

6661937

e-Doc Number

Licensee Name: SRB Technologies (Canada) Inc.

Licence Number: NSPFOL-13.00/2022

Licensed Site: SRB Tritium Processing Facility (Pembroke, ON)
Facility / Program / Site: SRB Technologies Tritium Processing Facility
Title of Inspection: Type II Emergency Management Inspection

Inspection Number: SRBT-2021-02

Inspection Date(s): October 25, 2021 to October 27, 2021

Lead Inspector: Lester Posada, NPFD

Meeting Type: Closing

Name (print)	Role or Job Title	Signature
Lester Posada	Project Officer, Lead Inspector	
Julian Amalraj	Sr. Project Officer, Inspector	
David Szonyi	Technical Co-Op Student	
Laurent Nicolai	Licensee Emergency Programs Officer	Virtual
Stephane Levesque	President, SRBT	
Ross Fitzpatrick	Vice President, SRBT	
Jamie MacDonald	Manager – Health Physics and Regulatory Affairs, SRBT	

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Not Protected | Non Classifié

Lead Inspector: [Lester Posada]
Division: [NPFD]

Directorate of Nuclear Cycle and Facilities Regulation

Ref. Procedure How to Conduct DNCFR Inspections

APPENDIX C:	COMPLIANCE MATRIX

APPENDIX C: COMP	LIANCE MATRIX		
E-Doc Number & Security Clas	sification: 6643978 Not Protected Non-C	lassifié	
Licensee Name:	SRB Technologies (Canada) Inc.		
Licence Number:	NSPFOL-13.00/2022		
Facility / Program / Site:	SRBT Facility (Pembroke, ON)		
Title of Inspection:	Emergency Management and Fire Protect	tion (Mutual Aid Exercise)	
Inspection Number:	SRBT-2021-02	,	
Inspection Date(s):	2021-10-25 to 2021-10-27		
Lead Inspector:	Lester Posada, NPFD		
Inspection Team:	Julian Amalraj, Inspector, NPFD,		
1	Laurent Nicolai, Inspector, EMPD (Rem	ote)	
	David Szonyi, Technical Co-Op Student	·	
Inspection Safety and Control Are	a(s) and/or Other Matters of Regulatory Interest		
Select all appropriate Safety and Co.	ntrol Area(s) for this Compliance Inspection here. If inspecting oth	er matters of regulatory interest, select "Other," and specify.	
☐ Management System	☐ Environmental Protection	☐ Waste Management	
☐ Fitness for Service	☐ Radiation Protection	☐ Security	
☐ Operating Performance	☐ Conventional Health and Safety	☐ Safeguards and Non-Proliferation	
☐ Safety Analysis	☐ Human Performance Management	☐ Packaging and Transport	
☐ Physical Design	⊠ Emergency Management & Fire Protection	☐ Other, specify below	
Click here to enter text.			

Criteria	Compliance Expectation / Inspection Methods	Comments	Met / Not Met	
	Safety and Control Area: Emergency Management and Fire Protection			
Source: Other Details: CSA N286-12, Clause 4.4 Management shall clearly define to workers the following: 1. Organizational structure 2. Authorities, accountabilities, and responsibilities of positions 3. Internal and external interfaces How and by whom decisions are made	Verify that roles and responsibilities are well defined in all procedures for members of the Emergency Response Organization (ERO).	Roles and responsibilities were clearly defined. Participants in the drills were well aware of their responsibilities and executed them as required.	Met	
Source: Other Details: CSA N286-12, Clause 4.7.3 Documents shall be controlled consistent with intended use. Control shall include: 1. Unique identification 2. Defined format and presentation 3. Identification of status 4. Review for adequacy and approval 5. Availability for use at the location where the work is to be performed or where the document is required for reference 6. Prompt removal of obsolete documents from use	Using a sample of procedures used during the inspection, verify the following: uniquely identified document status is identified was it distributed by controlled method (sign offs) documents are reviewed according to procedure is the version being used obsolete Check available procedures at Emergency Response Facility (ERF) workstations to check that the procedure is the most current version. Record the version number of procedures located at the ERFs and verify that they are the current version.	SRBT Emergency procedures sampled are upto-date and current.	Met	

Criteria	Compliance Expectation / Inspection Methods	Comments	Met / Not Met
Source: Other Details: CSA N286-12, Clause 8.9.2 'Operational Control' Operation activities shall be controlled through (d) use of and adherence to operational documents; (e) authorizing of work and controlling status of equipment; and (f) control of facility access. Documents shall be prepared for nonroutine and emergency conditions that require immediate actions. Practice drills shall be performed to assure requirements can be met.	Document the title and version of procedures being used. Once back in the office verify that the version used is the most current version. During the emergency exercise bring a copy of the required documents being used (procedure) by ERO Exercise Players that are being evaluated, observe the staff and verify that the required steps in the procedure are performed as specified in the process. Verify if the worker was using the proper human performance tools, for example: • place keeping • procedures in-hand when required • touch and speak • three-way communication • job aids	During inspection, assessment (but not limited to) of: Evaluator checklist was used to evaluate performance during the exercise, however checklist was not used for its purposes. SRBT evaluators noted checklist could use improvement SRBT Incident Commander (IC) has procedure(s) in hand and reference it regularly Verbal communications are constant, clear and coherent, specifically between SRBT IC and Pembroke Fire Department (PFD) IC officer SRBT IC conduct SRBT staff accounting as per procedure	Met with Recommendation (SRBT-2021-02- R01)
Source: Other Details: REGDOC-2.10.1, section 2.1 Planning basis 1. A planning basis for the EP Program is established 2. Planning basis considers hazards that could have an adverse impact on the environment, health and safety of onsite personnel or the public 3. Results from the planning basis are used to determine the scope and depth of EP program requirements	 Review planning basis and verify the following information is included in the basis of the EP program: there is a defined planning basis that is based on a full range of postulated scenarios all accidents and internal or external events that have been analyzed as having an unacceptable impact on their facilities extended loss of power scope and depth of EP program are commensurate with the planning basis 	Confirmed in SRBT emergency plan & program documents. Documents Reviewed SRBT Emergency Plan	Met

Criteria	Compliance Expectation / Inspection Methods	Comments	Met / Not Met
Source: Other Details: REGDOC-2.10.1, section 2.2 Emergency Response Plan and Procedures Emergency Response (ER) Plan and Procedures are developed and maintained. The ER plan shall be based on the planning basis and shall identify and describe the methods used to respond to emergencies. This includes, but is not limited to, the following areas: 1. emergency response organization and staffing 2. emergency categorization, activation and notification 3. emergency assessment 4. offsite response organizations interface and support 5. emergency personnel protection 6. ERF and equipment 7. emergency information and public communications 8. recovery 9. validation of the ER plan and procedures	Verify the following: ERP identifies and describes the methods that will be used to respond to emergencies ERO is identified and defined emergency categorization, activation and notification are clearly defined There is a procedure on: Emergency assessment, interfacing and supporting offsite response and organizations, emergency personnel protection, emergency information and public communications and recovery. ERFs and equipment are identified. ER plans and procedures are validated.	Implementation of the Memorandum of Understanding (MOU) between SRBT and PFD was effective. Documents Reviewed SRBT Emergency Plan	Met

Criteria	Compliance Expectation / Inspection Methods	Comments	Met / Not Met
Source: Other Details: REGDOC-2.10.1, section 2.2.1 Emergency Response Organization and Staffing In accordance with ER plan and procedures: 5. An emergency response organization (ERO) with a command structure is clearly defined and integrated 6. The minimum number of staff required to maintain the ERO and their qualifications is clearly defined and documented 7. The expected reporting times for the ERO to report to the ERF or designated area are clearly defined 8. The requirement to maintain and retain logs of all actions, orders, and track and update actions throughout the emergency is clearly defined and documented	Verify that the ERO has a clearly defined command structure, positions, roles and responsibilities, and a minimum complement staffing level. Verify that all records are kept and given to the controller/evaluator at the end of the exercise. Electronic documents can be saved or printed out. Verify that the ERO has a procedure in place to ensure that an extended response can be affected as required.	 SRBT ERO staff are identified with vests and had procedures and equipment that was readily available at the selected IC location outside the incident building/location, SRBT personnel to fill all the emergency roles were available and responded during the exercise, As part of the exercise design, only 1 controller was assigned for the exercise. This creates the potential for uncontrolled situations in the medical incident scenario during marshalling and assembly. The scenario card was handed out at the start of the exercise and was left to play out outside of the controller's field of view. CNSC staff recommend having another controller placed at different strategic points as an opportunity for improvement, No official scribe was assigned for this Exercise, an Evaluator was scribing event for SRBT IC. CNSC staff recommend assigning a dedicated SRBT staff for scribing purpose, to provide SRBT IC adequate scribing support. 	Met with Recommendations (SRBT-2021-02- R02, SRBT-2021-02- R03)
Source: Other Details: REGDOC-2.10.1, section 2.2.2 Emergency Categorization, Activation and Notification The ERP plan and procedures: 1. Describe the complete set of conditions that would require activation of the ERO are clearly defined and documented	Verify by reviewing procedures that the categorization, activation and notification requirements are documented. Verify that classification procedures exist and that there is consistent terminology. Verify that the notification procedure address assembly and accounting of onsite staff, alerting all personnel, activation of the ERO and associated ERFs and support facilities.	 SRBT followed its Emergency Response Plan and reported the exercise to the CNSC Duty Officer (DO), ERO established and fulfilled functions accordingly as per established procedures. The SRBT IC demonstrated initial and joint SRBT/PFD command and control consistently during the exercise 	Met

	Criteria	Compliance Expectation / Inspection Methods	Comments	Met / Not Met
2.	Describe how unusual events, incidents and emergencies are to be determined and classified to initiate onsite response; the same notification categories and standard definitions used by offsite authorities shall be used and/or cross-referenced	Verify the procedures to define organizational methods, processes, timelines and emergency levels to notify the appropriate personnel and authorities. Verify the procedures for offsite notifications and that CNSC/DO are notified 15 minutes of the activation of the ERO.		
3.	Describe the immediate notification process and secondary communication methods to alert all onsite personnel, to initiate personnel assembly and accounting, and to activate the ERO and associated emergency response and	Licensees use the following list of categories in increasing significance: 1. reportable event 2. abnormal incident 3. site area emergency 4. general emergency		
4.	support facilities Define organizational methods, processes, timelines and emergency	Licensees should follow provincial requirements, or when none exist, use the following categories, listed in order of increasing significance, to categorize various events:		
5.	levels to notify the appropriate personnel and authorities Describe all offsite notification requirements and any time requirements that apply, ensuring that: a) the description includes identification of the appropriate positions, by title and agency, of the provincial, territorial and local government agencies and offsite authorities are notified within 15 minutes of categorizing the event b) offsite authorities are notified within 15 minutes of categorizing the event	 reportable event: an event affecting the nuclear facility that would be of concern to the offsite authorities responsible for public safety abnormal incident: an abnormal occurrence at the nuclear facility that may have a significant cause and/or may lead to more serious consequences site area emergency: a serious malfunction that results or may result in an emission at a later time general emergency: an ongoing atmospheric emission of radioactive material, or one likely within a short time frame, as a result of a more severe accident While item 5b above requires licensees to notify the offsite authorities within 15 minutes of event categorization, ideally such notification should be done as soon as possible. It is critical that the CNSC and offsite authorities be advised within the identified timeframes. The only acceptable exception to the requirement would be when immediate action was required to prevent a catastrophic incident from occurring. 		

Criteria	Compliance Expectation / Inspection Methods	Comments	Met / Not Met
Source: Other Details: REGDOC-2.10.1, section 2.2.4 Interface and Support for Offsite Response Agencies 1. Plans and procedures established to coordinate response activities with appropriate offsite organizations, in the event of an emergency with offsite implications 2. Formal documentation of any arrangements or agreements with other organizations or personnel and ensure that agreed-upon resources are available 3. The quantity of these resources required to respond to offsite conditions, are available when needed 4. Cooperate with and assist offsite organizations with their response activities to address offsite impacts; provide expertise and resources (personnel, emergency response equipment, and material) in support of offsite authorities during an emergency; and define the quantity of available resources within their ER plan 5. Promptly and regularly provide recommendations to offsite authorities when protective action is required and inform the CNSC 6. Establish what data is required and at what frequency, and make provisions to have nuclear facility data, and any other pertinent information that is determined as relevant to the emergency response, regularly transmitted to offsite authorities and the CNSC	Verify procedures exist and are available to provide necessary coordination and information with off-site agencies. Verify that recommendations are being sent to offsite authorities by obtaining copies of the correspondence. Verify that pertinent information is being sent to offsite authorities and CNSC by obtaining copies of the correspondence. Check that an authorized person to categorize event and allow venting is on present. Check that offsite authorities and CNSC were notified prior to venting (unless an emergency situation). Check that outgoing transmissions contain required data	During inspection, assessment (but not limited to) of: SRBT able to provide support to PFD personnel during the emergency exercise, Functioning mutual aid procedure, Communication and coordination between SRBT and PFD IC were effective to provide timely and sustained fire suppression operation at SRBT site, PFD was a part of the exercise design and planning as well. Documents reviewed: SRBT Emergency Exercise Details	Met

Criteria	Compliance Expectation / Inspection Methods	Comments	Met / Not Met
Source: Other Details: REGDOC-2.10.1, section 2.2.5 Emergency Personnel Protection 1. Develop and document emergency radiation protection measures that align with their radiation protection program	Verify training records of Emergency Personnel are up to date. Ensure all instrumentation is functional and calibrated. Ensure that radiation protection measures align with radiation protection program* *Item not on compliance matrix originally sent to licensee	 Training Records for exercise participants were provided, Instrument maintenance records for radiation detection equipment were provided. Documents reviewed: SRBT Training Records Training Records for PFD Fire Drill Attendance Records SRBT RP Instrument Maintenance Records 	Met
Source: Other Details: REGDOC-2.10.1, section 2.2.6 ERFs and Equipment 1. An onsite Emergency Response Facility (ERF) or designated area to be used as a response location is identified 2. Essential emergency response equipment is identified and available. Essential emergency response equipment includes equipment required to detect and assess hazards, and communicate response activities 3. Emergency response equipment and materials that are operational and available in sufficient quantities for an extended multi-shift response; are readily accessible during emergency conditions	Confirm through maintenance records that all equipment and ERF's are being maintained. Validate locations of ERFs against location requirements in the standard. Verify as appropriate to the licensed facility: • administration facilities • technical support centres • control facilities • personnel and public assembly areas • emergency operations coordination centre • centre to integrate onsite activities with offsite programs • first aid and/or medical facilities • laboratory services (fixed or mobile) • decontamination facility • backup power capable of sustaining emergency power to ERFs for a minimum of 72 hours • reference materials, such as current and approved versions of charts, maps, plans, drawings, diagrams, specifications and procedures • essential safety equipment, PPE and other appropriate supplies, such as food and water for a minimum of 72 hours	Confirmed on-site, Instrument maintenance records for radiation detection equipment were provided and noted to be within calibration. Documents reviewed: SRBT RP Instrument Maintenance Records	Met

Criteria	Compliance Expectation / Inspection Methods	Comments	Met / Not Met
	 administrative aids, such as status boards and reference materials fixed or portable instruments or equipment, as required, to detect, measure, monitor, survey, analyze, record, process, treat, transport, warn, announce, communicate, or assess. 		
Source: Other Details: REGDOC-2.10.1, section 2.2.7 Public Emergency Information 1. Provide information about the emergency to offsite authorities during the emergency response and recovery phases 2. Coordinate with offsite authorities when communicating emergency information to the public	Confirm that ERF has the ability to transmit information to offsite authorities and CNSC.	Confirmed that SRBT contacted the CNSC Duty Officer to report the exercise. Notification of external stakeholders was done timely.	Met
Source: Other Details: REGDOC-2.10.1, section 2.3.1	Verify that persons involved in drill/exercise have training records up to date.	Training Records for exercise participants were provided,	
Collaboration with responding offsite agencies to educate them on radiation protection	 Verify as appropriate to the licensed facility: initial and continuing training programs for EROs ERO staff qualifications ERO positions for which incumbents will be required to undertake periodic or on-going training training requirements for contractors and offsite organizations (e.g., firefighters, police personnel, ambulance drivers, hospital staff) that support or participate in onsite activities – insofar as these requirements relate to training that is outside their typical professional duties, but that is required for responding to onsite emergencies; such training could address subjects like access requirements or radiation protection schedules, procedures and assessment criteria for the conduct of emergency drills and exercises 	In addition, PFD familiarization/training onsite visits completed last year were provided. Documents reviewed: SRBT Emergency Exercise Details Training records for PFD	Met

Criteria	Compliance Expectation / Inspection Methods	Comments	Met / Not Met
	positions responsible for managing, planning, controlling and evaluating drills		
Source: Other Details: REGDOC-2.10.1, section 2.3.2 Maintenance of ERFs and Equipment Identify and implement requirements and provisions to assure that the necessary ERFs, equipment, and materials are maintained and in working condition at all times. However, facilities and equipment may be taken out of service for required maintenance if alternate provisions are put in place during these periods.	Confirm that ERFs and their equipment are being maintained by requesting the maintenance records for review ERFs, equipment and materials must be in a state of readiness at all times. Accordingly, licensees should implement provisions to ensure that such equipment, facilities and materials are always in working condition. These provisions are to include regular inspection, calibration, testing, and maintenance, or replacement as required, within formal systems of quality control and inventory control and accounting. This criterion includes all required PPE.	Confirmed on-site SRBT COVID-19 Protocols were observed and were adhered to during the exercise, PPE available and used by SRBT staff.	Met
Source: Other Details: REGDOC-2.10.1, section 2.3.3 Testing the Implementation of Emergency Measures Perform exercises to test the effectiveness of their EP program	 During the Pre-Job Brief licensees discuss the following: Emphasis on safety during the exercise for all participants as well as those not involved in the drill Ensure exercise pre-brief has a "NO DUFF" clause in it for communicating the presence of a real emergency and stopping the exercise play Rules of engagement have been clearly defined and the limitations of response of participants during the exercise are clearly understood 	 Met the overall objectives for testing of emergency measures with an adequate response to a significant fire event at SRBT facility. Pre-job brief conducted in accordance with expectations. Exercise controllers and evaluators present to discuss the exercise objectives and how the exercise will be conducted, roles and responsibilities were clearly defined, COVID-19 health and safety protocols reminded. During pre-job, SRBT staff mentioned that the code phrase for a real emergency used will be "This is a real emergency". This was identified by the Paramedics who suggested this preferred code phrase as well. The 'No Duff' code phrase is widely used with other CNSC licensees. CNSC staff recommend using the code phrase 'No Duff' for future exercises/drills. 	Met with Recommendations (SRBT-2021-02- R04, SRBT-2021-02- R05, SRBT-2021-02- R06, SRBT-2021-02- R07, SRBT-2021- 02-R08)

Criteria	Compliance Expectation / Inspection Methods	Comments	Met / Not Met
Criteria	Compliance Expectation / Inspection Methods	 There is a drill package developed with exercise scope, objectives, scenario, controller handbook, exercise evaluation guide, participant feedback form, master scenario events list and emergency response exercise review form. The drill package contains the names and roles of exercise controllers and observers, design team, schedule, safety considerations, controller activities before/during/after the exercise. The SRBT IC demonstrated initial and joint SRBT/PFD command and control consistently. Sustained fire suppression operation done timely by PFD staff, with SRBT guidance/support. Fire attack hose deployed, and extinguisher agent applied within 10 minutes of fire alarm triggered. 3-way communication constantly observed between SRBT staff and with PFD staff, however use of 3-way communication between SRBT staff was not consistently observed, such as communication of tritium levels in the facility. CNSC staff recommend reinforcement of 3-way communication to SRBT staff. Use of 3-way communication using radio was effective, however CNSC staff noted that SRBT prefers to use cell phones as primary mode of communication with radios as backup. CNSC staff recommend 	Met / Not Met
		keeping radios as the primary communication tool with cell phones as the backup. In case of on/offsite emergency, cell phones networks might become unavailable, thus SRBT staff	

Criteria	Compliance Expectation / Inspection Methods	Comments	Met / Not Met
		shall rely on onsite radio communication system for emergency response purpose. SRBT staff accounting performed as per procedure timeline. There is a simulated medical emergency (severe chest pain) during the exercise for a worker. Assessed that SRBT staff interaction with Paramedics provided sufficient information, specifically with any potential concerns about contamination towards the patient in order to prevent any delays for medical treatment, SRBT HP Manager recommended PFD keep SCBA on but HP Manager walked in without PPE, CNSC staff recommend that SRBT review the conditions for reentry into the facility as well as any PPE requirements once it has been deemed safe by PFD responders, A post exercise meeting is conducted with drill participants. Feedback, lessons learned, etc. is given by all participants. Regarding the recovery return to operation phase, CNSC staff did not observed SRBT relying on procedure/worksheet. SRBT recovery duties are based on their experience and knowledge of the facility. CNSC staff recommend that SRBT consider the use of a worksheet/checklist as a reminder of the steps to the recovery of the facility into an operational state.	

Criteria	Compliance Expectation / Inspection Methods	Comments	Met / Not Met
Source: Other Details: REGDOC-2.10.1, section 2.3.4 Public Preparedness Requirements Incorporate information on public emergency preparedness into their public information program (established as per RD/GD-99.3, Public Information and Disclosure) to ensure information on emergency preparedness and response is communicated to surrounding communities and stakeholders.	Verify through discussions with licensee and offsite authorities and by review of documentation the extent to which offsite authorities were involved in the process	SRBT staff provided information regarding regular familiarization tours are organized with PFD, and that they have a strong working relationship, PFD management and staff involved in the exercise design and planning. PFD operational staff fully engaged and followed SRBT staff guidance during Exercise. Documents reviewed: SRBT Emergency Exercise Details Training records for PFD	Met
Source: Other Details: REGDOC-2.10.1, section 2.4 Program Management Include at a minimum, the following elements in management systems: 6. A written policy statement issued by licensee senior management, committing all units of the organization to the system and its effective implementation 7. A program owner identified with the authority to ensure that resources are given to all aspects of the EP program 8. Procedures describing the planned and systematic actions necessary to provide adequate confidence that all specified requirements are satisfied 9. Procedures that specify who (position or unit) is to review and update the program on an ongoing basis, and how this is to be done	Verify through a sample of applicable supporting paperwork to ensure that the program is being sustained and maintained. Verify that OPEX is being incorporated and: • manage their EP programs in accordance with management system requirements • detect and report deficiencies, and ensure all corrective actions are tracked and implemented as per management system requirements	SRBT Emergency Plan contains the following sections: Section 11 – Continuous Assessment of Emergency Plan Section 12 – Emergency Plan Maintenance and Review There are elements contained within the emergency plan to take into consideration continuous improvement and manage the program in accordance with management system requirements. SRBT also prepared an exercise evaluation report that contains recommendations for future improvements to the plan. CNSC staff recommend that SRBT review the recommendations from its report and implement the improvements to its emergency plan.	Met with Recommendation (SRBT-2021-02- R09)

Criteria	Compliance Expectation / Inspection Methods	Comments	Met / Not Met
10. Review and update EP program and associated documentation (e.g., response plan, training material, procedures, etc.) at defined intervals to take into account relevant factors, such as operating experience, changing needs or circumstances, and lessons learned from real events.		Documents Reviewed: SRBT Emergency Plan SRBT-2021-02 Emergency Exercise Report 2021	